



**S110, S220, S310, S530, and S620 Series Switches**

# **Hardware Description**

**Issue**      05

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# Contents

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|  |          |
|--|----------|
| <b>1 About This Document.....</b>  | <b>1</b> |
| <b>2 Using the Info-Finder.....</b>  | <b>4</b> |
| <b>3 Version Requirements for Components.....</b>                                      | <b>6</b> |
| <b>4 Chassis.....</b>  | <b>7</b> |
| 4.1 Chassis Overview.....  | 7        |
| 4.2 Naming Conventions.....  | 7        |
| 4.3 Port Numbering Conventions (Applicable to S110 Devices).....                       | 9        |
| 4.4 Port Numbering Conventions (Applicable to S220, S310, S530, and S620 Devices)..... | 10       |
| 4.5 S110.....  | 11       |
| 4.5.1 S110-5T.....   | 11       |
| 4.5.2 S110-8T2ST.....  | 16       |
| 4.5.3 S110-8P2ST (98012195).....   | 20       |
| 4.5.4 S110-8P2ST (98012269).....   | 26       |
| 4.5.5 S110-16T2S.....  | 31       |
| 4.5.6 S110-16LP2SR.....  | 37       |
| 4.5.7 S110-24T2SR.....   | 43       |
| 4.5.8 S110-24LP2SR.....  | 48       |
| 4.6 S220.....  | 54       |
| 4.6.1 S220-8T4S.....   | 54       |
| 4.6.2 S220-8P4S.....   | 62       |
| 4.6.3 S220-24T4X.....  | 70       |
| 4.6.4 S220-24P4X.....  | 78       |
| 4.6.5 S220-48T4S.....  | 86       |
| 4.6.6 S220-48T4X.....  | 95       |
| 4.6.7 S220-48P4S.....  | 104      |
| 4.6.8 S220-48P4X.....  | 113      |
| 4.7 S310.....  | 123      |
| 4.7.1 S310-24T4S.....  | 123      |
| 4.7.2 S310-24P4S.....  | 133      |
| 4.7.3 S310-48T4S.....  | 142      |
| 4.7.4 S310-24T4X.....  | 151      |
| 4.7.5 S310-24P4X.....  | 161      |

|  |            |
|--|------------|
| 4.7.6 S310-24U4X.....  | 171        |
| 4.7.7 S310-24ST4X.....   | 187        |
| 4.7.8 S310-24PN4X.....   | 198        |
| 4.7.9 S310-48T4X.....  | 211        |
| 4.7.10 S310-48P4S.....   | 222        |
| 4.7.11 S310-48P4X.....   | 234        |
| 4.7.12 S310-24T8J4X.....   | 246        |
| 4.7.13 S310-48S4X.....   | 257        |
| 4.7.14 S310-48HP4X.....  | 267        |
| 4.7.15 S310-48PN4X.....  | 280        |
| 4.8 S530.....  | 293        |
| 4.8.1 S530-24T4XE.....   | 293        |
| 4.8.2 S530-24T8J4XE.....   | 305        |
| 4.8.3 S530-24ST4XE.....  | 317        |
| 4.8.4 S530-48S4XE.....   | 332        |
| 4.8.5 S530-48T4XE.....   | 344        |
| 4.9 S620.....  | 356        |
| 4.9.1 S620-16X8YZ.....   | 356        |
| 4.9.2 S620-24T16X8Y2CZ.....  | 366        |
| <b>5 Power Modules.....</b>  | <b>381</b> |
| 5.1 PAC80S12-CN (80W AC Power Module(66mm Width Case, No Fans)).....   | 382        |
| 5.2 PAC180S12-CN (180W AC&240 V DC Power Module (66 mm Width case, No Fans)).....  | 386        |
| 5.3 PDC240S12-CN (240W DC Power Module (66 mm Width case, No Fans)).....   | 390        |
| 5.4 PDC400S12-CB (400W DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust)).....                           | 394        |
| 5.5 PAC600S12-PB (600W AC &240 V DC Power Module(66 mm Width Case, Back to Front, Power panel side exhaust)).....                  | 399        |
| 5.6 PAC600S56-EB (600 W PoE AC&240 V DC Power Module (66mm Width Case, Back to Front, Power panel side exhaust)).....              | 403        |
| 5.7 PAC1000S56-EB (02314APU: 1000 W PoE AC&240 V DC Power Module (66 mm Width Case, Back to Front, Power panel side exhaust))..... | 408        |
| 5.8 PDC1000S56-EB (1000 W PoE DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust)).....                    | 413        |
| 5.9 PDC1K2S12-CE (1200W DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust)).....                          | 418        |
| <b>6 Independent Power.....</b>  | <b>423</b> |
| 6.1 HW-120100D0D (Adapter Power-HW-120100D0D-Desktop-Black-12W).....   | 423        |
| 6.2 AD-540278D0D (Adapter Power-AD-540278D0D-Desktop-150W-ErP 6-White).....  | 425        |
| 6.3 HW-560268D0D (Adapter-HW-560268D0D-Tabletop-150W-ERP6).....  | 426        |
| <b>7 Fan Modules.....</b>  | <b>429</b> |
| 7.1 FAN-031A-B (Fan Box (B, Fan Panel Side Exhaust)).....  | 429        |
| <b>8 Cards.....</b>  | <b>433</b> |

|   |            |
|---|------------|
| 8.1 HSIC-X08S000 (HSIC-X08S000 (Interface card with 8*10GE SFP+ ports or 4*25GE SFP28 ports (only ports 1 to 4 support 25GE)))..... | 433        |
| <b>9 Cables.....</b>  | <b>439</b> |
| 9.1 Ground Cable.....   | 439        |
| 9.2 Optical Fiber.....  | 440        |
| 9.3 Ethernet Cable.....   | 452        |
| 9.4 AC Power Cable.....   | 455        |
| 9.5 Console Cable.....  | 460        |
| 9.6 Dedicated Stack Cable.....  | 461        |
| 9.7 Copper Cable.....   | 462        |
| <b>10 Pluggable Modules for Interfaces.....</b>   | <b>465</b> |
| 10.1 Important Notes About Using Optical Modules Certified for Huawei Switches.....   | 465        |
| 10.1.1 How to Identify Huawei-Certified Switch Optical Modules.....   | 465        |
| 10.1.2 Risks of Using Non-Huawei-Certified Switch Optical Modules.....  | 467        |
| 10.2 Understanding Optical Modules.....   | 468        |
| 10.2.1 What Is an Optical Module.....   | 468        |
| 10.2.2 Parameter Description.....   | 470        |
| 10.2.3 How to View Optical Module Parameters.....   | 472        |
| 10.2.4 Rules for Optical Module Interoperation.....   | 472        |
| 10.3 Understanding Copper Modules.....  | 473        |
| 10.4 FE SFP/eSFP Optical Modules.....   | 474        |
| 10.4.1 S-SFP-FE-LH40-SM1310.....  | 474        |
| 10.4.2 S-SFP-FE-LH80-SM1550.....  | 475        |
| 10.4.3 SFP-FE-LX-SM1310-BIDI.....   | 475        |
| 10.4.4 SFP-FE-LX-SM1550-BIDI.....   | 476        |
| 10.4.5 SFP-FE-SX-MM1310.....  | 477        |
| 10.4.6 eSFP-FE-LX-SM1310.....   | 478        |
| 10.5 GE eSFP Optical Modules.....   | 479        |
| 10.5.1 LE2MGSC40DE0.....  | 479        |
| 10.5.2 LE2MGSC40ED0.....  | 480        |
| 10.5.3 S-SFP-GE-LH40-SM1310.....  | 481        |
| 10.5.4 S-SFP-GE-LH40-SM1550.....  | 482        |
| 10.5.5 S-SFP-GE-LH80-SM1550.....  | 483        |
| 10.5.6 SFP-GE-BXU1-SC.....  | 484        |
| 10.5.7 SFP-GE-EX-C.....   | 485        |
| 10.5.8 SFP-GE-LX-SM1310 (02315200).....   | 485        |
| 10.5.9 SFP-GE-LX-SM1310-BIDI (02315285).....  | 486        |
| 10.5.10 SFP-GE-LX-SM1490-BIDI (02315286).....   | 487        |
| 10.5.11 SFP-GE-LX10-C.....  | 488        |
| 10.5.12 SFP-GE-SX-C (02312UUB).....   | 489        |
| 10.5.13 SFP-GE-ZBXD1.....   | 490        |
| 10.5.14 SFP-GE-ZBXU1.....   | 491        |

|   |     |
|---|-----|
| 10.5.15 eSFP-GE-SX-MM850 (02315204).....      | 492 |
| 10.5.16 eSFP-GE-ZX100-SM1550.....             | 493 |
| 10.5.17 OGSC10DD0.....                        | 494 |
| 10.5.18 OGSC40DD0.....                        | 495 |
| 10.5.19 OGSM01880.....                        | 496 |
| 10.5.20 SFP-GE-BX-D1-I.....                   | 497 |
| 10.5.21 SFP-GE-BX-U1-I.....                   | 498 |
| 10.5.22 SFP-GE-BX40-D-I.....                  | 499 |
| 10.5.23 SFP-GE-BX40-U-I.....                  | 500 |
| 10.5.24 eSFP-GE-SX-MM850 (02313URD).....      | 501 |
| 10.5.25 SFP-GE-LX-SM1310 (02313URF).....      | 502 |
| 10.5.26 SFP-GE-SX-C (02314KKF).....           | 502 |
| 10.5.27 SFP-GE-LX-SM1310-BIDI (02314KKJ)..... | 503 |
| 10.5.28 SFP-GE-LX-SM1490-BIDI (02314KKH)..... | 504 |
| 10.5.29 SFP-GE-LX10-eKit.....                 | 505 |
| 10.5.30 SFP-GE-SX-eKit.....                   | 506 |
| 10.6 GE-CWDM eSFP Optical Modules.....        | 507 |
| 10.6.1 CWDM-SFPGE-1471.....                   | 507 |
| 10.6.2 CWDM-SFPGE-1491.....                   | 508 |
| 10.6.3 CWDM-SFPGE-1511.....                   | 509 |
| 10.6.4 CWDM-SFPGE-1531.....                   | 510 |
| 10.6.5 CWDM-SFPGE-1551.....                   | 511 |
| 10.6.6 CWDM-SFPGE-1571.....                   | 511 |
| 10.6.7 CWDM-SFPGE-1591.....                   | 512 |
| 10.6.8 CWDM-SFPGE-1611.....                   | 513 |
| 10.7 GE-DWDM eSFP Optical Modules.....        | 514 |
| 10.7.1 DWDM-SFPGE-1560-61.....                | 514 |
| 10.8 GE SFP Copper Modules.....               | 515 |
| 10.8.1 SFP-1000BaseT (02314171).....          | 515 |
| 10.8.2 SFP-1000BaseT (02313URG).....          | 516 |
| 10.8.3 SFP-1000BaseT-G2.....                  | 517 |
| 10.8.4 SFP-GE-T-eKit.....                     | 518 |
| 10.9 2.5GE eSFP Optical Modules.....          | 519 |
| 10.9.1 SFP-2.5G-FR.....                       | 519 |
| 10.9.2 SFP-2.5G-SR-I.....                     | 520 |
| 10.9.3 eSFP-2.5G-iLR-BXD1.....                | 521 |
| 10.9.4 SFP-2.5G-LR.....                       | 522 |
| 10.9.5 eSFP-2.5G-iLR-BXU1.....                | 523 |
| 10.10 10GE SFP+ Optical Modules.....          | 524 |
| 10.10.1 OMXD30000 (02318169).....             | 524 |
| 10.10.2 OSX010000 (02318170).....             | 525 |
| 10.10.3 OSX040N01 (02310CNF).....             | 526 |

|   |     |
|---|-----|
| 10.10.4 SFP-10G-ER-1310.....              | 527 |
| 10.10.5 SFP-10G-ER-C.....                 | 528 |
| 10.10.6 SFP-10G-ER-SM1270-BIDI.....       | 529 |
| 10.10.7 SFP-10G-ER-SM1330-BIDI.....       | 530 |
| 10.10.8 SFP-10G-LR-C (02312UUG).....      | 531 |
| 10.10.9 SFP-10G-SR-C.....                 | 531 |
| 10.10.10 SFP-10G-USR (02310MNV).....      | 532 |
| 10.10.11 SFP-10G-ZR.....                  | 533 |
| 10.10.12 OMXD30000 (02313URC).....        | 534 |
| 10.10.13 OSX010000 (02313URK).....        | 535 |
| 10.10.14 SFP-10G-USR (02313URN).....      | 536 |
| 10.10.15 SFP+10GE-LH10-SM1310.....        | 537 |
| 10.10.16 SFP-10G-BXD1.....                | 538 |
| 10.10.17 SFP-10G-BXU1.....                | 539 |
| 10.10.18 SFP-10G-SR.....                  | 540 |
| 10.10.19 SFP-10G-iLR.....                 | 540 |
| 10.10.20 SFP-10G-iLR-C.....               | 541 |
| 10.10.21 SFP-10G-LR-I (02313ABG).....     | 542 |
| 10.10.22 OSX040N01 (02314KKG).....        | 543 |
| 10.10.23 SFP-10G-LR (02313URL).....       | 544 |
| 10.10.24 SFP-10G-LR-C (02314KKE).....     | 545 |
| 10.10.25 SFP-10G-LR (02310QDJ).....       | 545 |
| 10.10.26 SFP-10G-LR-I (02314LBW).....     | 546 |
| 10.10.27 SFP-10G-LR-eKit.....             | 547 |
| 10.10.28 SFP-10G-SR-eKit.....             | 548 |
| 10.11 10GE SFP+ Copper Modules.....       | 549 |
| 10.11.1 SFP-10GBaseT-SR.....              | 549 |
| 10.12 10GE-CWDM SFP+ Optical Modules..... | 550 |
| 10.12.1 SFP-10G-ZCW1471.....              | 551 |
| 10.12.2 SFP-10G-ZCW1491.....              | 551 |
| 10.12.3 SFP-10G-ZCW1511.....              | 552 |
| 10.12.4 SFP-10G-ZCW1531.....              | 553 |
| 10.12.5 SFP-10G-ZCW1551.....              | 554 |
| 10.12.6 SFP-10G-ZCW1571.....              | 555 |
| 10.12.7 SFP-10G-ZCW1591.....              | 556 |
| 10.12.8 SFP-10G-ZCW1611.....              | 556 |
| 10.13 10GE-DWDM SFP+ Optical Modules..... | 557 |
| 10.13.1 SFP-10G-ZDWT.....                 | 557 |
| 10.14 25GE SFP28 Optical Modules.....     | 558 |
| 10.14.1 SFP-25G-LR.....                   | 558 |
| 10.14.2 SFP-25G-SR (02311KNR).....        | 559 |
| 10.14.3 SFP-25G-ESR.....                  | 560 |

|  |     |
|--|-----|
| 10.14.4 SFP-25G-LR-BXU1-I.....             | 561 |
| 10.14.5 SFP-25G-LR-BXD1-I.....             | 562 |
| 10.14.6 SFP-25G-eLR-BXD1-I.....            | 563 |
| 10.14.7 SFP-25G-eLR-BXU1-I.....            | 564 |
| 10.14.8 SFP-25G-SR (02313URP).....         | 565 |
| 10.14.9 SFP-25G-LR-eKit.....               | 566 |
| 10.14.10 SFP-25G-SR-eKit.....              | 566 |
| 10.15 40GE QSFP+ Optical Modules.....      | 567 |
| 10.15.1 QSFP-40G-ER4.....                  | 568 |
| 10.15.2 QSFP-40G-LR4 (02310MHS).....       | 568 |
| 10.15.3 QSFP-40G-LX4.....                  | 569 |
| 10.15.4 QSFP-40G-SDLC-PAM.....             | 570 |
| 10.15.5 QSFP-40G-SR-BD.....                | 571 |
| 10.15.6 QSFP-40G-SR4.....                  | 572 |
| 10.15.7 QSFP-40G-eSDLC-PAM.....            | 573 |
| 10.15.8 QSFP-40G-eSM4.....                 | 574 |
| 10.15.9 QSFP-40G-eSR4 (02310RMB).....      | 575 |
| 10.15.10 QSFP-40G-iSM4.....                | 576 |
| 10.15.11 QSFP-40G-iSR4 (02310MHR).....     | 577 |
| 10.15.12 QSFP-40G-LR4-Lite (02311YVB)..... | 578 |
| 10.15.13 QSFP-40G-LX4-MM.....              | 579 |
| 10.15.14 QSFP-40G-LR4 (02313URY).....      | 580 |
| 10.15.15 QSFP-40G-LR4-Lite (02313URS)..... | 581 |
| 10.15.16 QSFP-40G-eSR4 (02313URU).....     | 582 |
| 10.15.17 QSFP-40G-iSR4 (02313URW).....     | 583 |
| 10.15.18 QSFP-40G-LR4-eKit.....            | 584 |
| 10.15.19 QSFP-40G-LR4L-eKit.....           | 585 |
| 10.15.20 QSFP-40G-eSR4-eKit.....           | 585 |
| 10.15.21 QSFP-40G-iSR4-eKit.....           | 587 |
| 10.16 100GE QSFP28 Optical Modules.....    | 587 |
| 10.16.1 QSFP-100G-CLR4.....                | 588 |
| 10.16.2 QSFP-100G-CWDM4.....               | 588 |
| 10.16.3 QSFP-100G-ER4-Lite.....            | 589 |
| 10.16.4 QSFP-100G-eSR4.....                | 590 |
| 10.16.5 QSFP28-100G-10KM.....              | 591 |
| 10.16.6 QSFP28-100G-LR4 (02311KNU).....    | 592 |
| 10.16.7 QSFP28-100G-PSM4.....              | 593 |
| 10.16.8 QSFP28-100G-SR4 (02311GBW).....    | 594 |
| 10.16.9 QSFP-100G-ER4 (02313HLU).....      | 595 |
| 10.16.10 QSFP-100G-FR1.....                | 595 |
| 10.16.11 QSFP28-100G-DR.....               | 596 |
| 10.16.12 QSFP-100G-BIDI-G2.....            | 597 |

|  |     |
|--|-----|
| 10.16.13 QSFP-100G-CWDM4-Lite.....       | 598 |
| 10.16.14 QSFP-100G-ER4 (02314HES).....   | 599 |
| 10.16.15 QSFP28-100G-LR4 (02313URT)..... | 600 |
| 10.16.16 QSFP28-100G-SR4 (02313URQ)..... | 601 |
| 10.16.17 QSFP-100G-LX4-MM.....           | 602 |
| 10.16.18 QSFP-100G-LR1 (02314LBY).....   | 603 |
| 10.16.19 QSFP-100G-SWDM4 (02314LCB)..... | 604 |
| 10.16.20 QSFP-100G-CWDM4-eKit.....       | 605 |
| 10.16.21 QSFP-100G-LR4-eKit.....         | 605 |
| 10.16.22 QSFP-100G-SR4-eKit.....         | 606 |

# 1 About This Document

## Intended Audience

This document provides an overall description of the switch hardware, helping you obtain detailed information about each chassis and optical module.

This document is intended for network engineers responsible for network design and deployment. You should understand your network well, including the network topology and service requirements.

## Symbol Conventions

The symbols that may be found in this document are defined as follows.

| Symbol  | Description   |
|---|---|
|  | Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.   |
|  | Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.  |
|  | Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.  |
|  | Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results.<br>NOTICE is used to address practices not related to personal injury. |

| Symbol  | Description   |
|---|---|
|  <b>NOTE</b> | Supplements the important information in the main text.<br>NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration. |

## Command Conventions

The command conventions that may be found in this document are defined as follows.

| Convention       | Description   |
|------------------|---|
| <b>Boldface</b>  | The keywords of a command line are in <b>boldface</b> .   |
| <i>Italic</i>    | Command arguments are in <i>italics</i> .   |
| [ ]              | Items (keywords or arguments) in brackets [ ] are optional.   |
| { x   y   ... }  | Optional items are grouped in braces and separated by vertical bars. One item is selected.  |
| [ x   y   ... ]  | Optional items are grouped in brackets and separated by vertical bars. One item is selected or no item is selected.                   |
| { x   y   ... }* | Optional items are grouped in braces and separated by vertical bars. A minimum of one item or a maximum of all items can be selected. |
| [ x   y   ... ]* | Optional items are grouped in brackets and separated by vertical bars. Several items or no item can be selected.                      |
| &<1-n>           | The parameter before the & sign can be repeated 1 to n times.   |
| #                | A line starting with the # sign is comments.  |

## Disclaimer

- This document is designed as a reference for you to configure your devices. Its contents, including web pages, command line input and output, are based on laboratory conditions. It provides instructions for general scenarios, but does not cover all use cases of all product models. The examples given may differ from your use case due to differences in software versions, models, and configuration files. When configuring your device, alter the configuration depending on your use case.

- The specifications provided in this document are tested in a lab environment (for example, a certain type of cards have been installed on the tested device or only one protocol is run on the device). Results may differ from the listed specifications when you attempt to obtain the maximum values due to factors such as differences in hardware configurations and carried services.
- In this document, public IP addresses may be used in feature introduction and configuration examples and are for reference only unless otherwise specified.

## Device Dimension Conventions

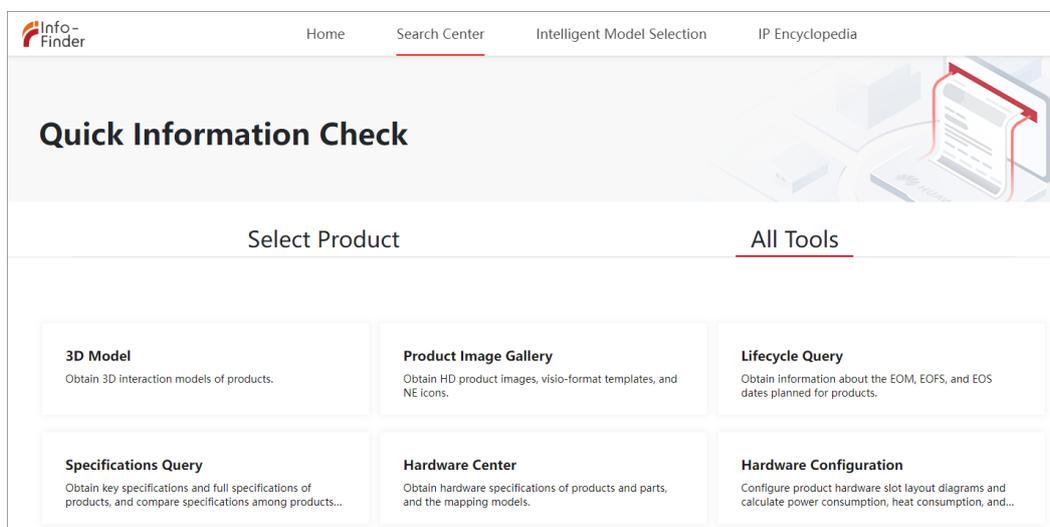
The dimensions described in this document are theoretically typical dimensions and do not include dimension tolerances.

# 2 Using the Info-Finder

**Info-Finder** is a tool platform, as shown in [Figure 2-1](#). It allows you to search for key product information by product series and model. The key product information includes basic information such as the software specifications, life cycles, and hardware information, and operation and maintenance information such as the licenses, alarms, logs, commands, and MIBs. The hardware-related tools are as follows:

- **Product Image Gallery:** provides product photos and network element icons for you to produce design drawings and networking diagrams.
- **Hardware Configuration:** automatically generates hardware configuration diagrams after you select components are required and calculates the weight, power consumption, and heat consumption.
- **Hardware Center:** provides the technical specifications of devices and components, as well as the mapping between devices, components, and versions.
- **3D Model:** provides the product images, product overview, component installation and removal video, and related component information, helping you quickly gain full product information in one-stop mode.

**Figure 2-1** Info-Finder Graphical User Interface (GUI)



 **NOTE**

The heat consumption of a device can be calculated as follows based on its power consumption:

Heat consumption (BTU/hour) = Power consumption (W) x 3.4121

# 3 Version Requirements for Components

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This document describes all the device models and modules supported in a version. To obtain accurate subscription information, visit <https://e.huawei.com> or contact Huawei local sales offices. You can also pay attention to the product change notices (PCNs) and lifecycle management bulletins on this website.

The appearances of devices and modules are subject to actually delivered products. The figures in this document are for reference only.



 **NOTE**

The device name in this figure is used as an example and does not represent a specific device.

The uplink and downlink ports mentioned in this document refer to the recommended usage of the ports, and do not indicate that the corresponding ports can be used only for the downlink or uplink.

**Table 4-1** Switch naming convention description

| Identifier | Description  |
|------------|--|
| <b>A</b>   | Product series (4 or 5 characters) <ul style="list-style-type: none"> <li>• S110: S110 series</li> <li>• S210: S210 series</li> <li>• S210I: S210I series</li> <li>• S220: S220 series</li> <li>• S220S: S220S series</li> <li>• S310: S310 series</li> <li>• S310S: S310S series</li> <li>• S530: S530 series</li> <li>• S620: S620 series</li> </ul>   |
| <b>B</b>   | Number of downlink ports of type 1 (1 or 2 characters)   |
| <b>C</b>   | Downlink port type 1 (1 or 2 characters) <ul style="list-style-type: none"> <li>• <b>T</b>: GE electrical port</li> <li>• <b>S</b>: GE optical port</li> <li>• <b>P</b>: GE electrical port, supporting PoE+</li> <li>• <b>PN</b>: 2.5GE electrical port, supporting PoE+</li> <li>• <b>LP</b>: GE electrical port, supporting PoE+ and low PoE power</li> <li>• <b>HP</b>: GE electrical port, supporting PoE+ and high PoE power</li> <li>• <b>ST</b>: GE optical port and GE combo port</li> <li>• <b>X</b>: 10GE optical port</li> </ul> |
| <b>D</b>   | Number of downlink ports of type 2 (0 or 1 character)  |
| <b>E</b>   | Downlink port type 2 (0 or 1 character) <ul style="list-style-type: none"> <li>• <b>X</b>: 10GE optical port</li> <li>• <b>S</b>: GE optical port</li> <li>• <b>J</b>: 2.5GE optical port</li> <li>• <b>UN</b>: 2.5GE electrical port, supporting PoE++</li> </ul>   |
| <b>F</b>   | Number of uplink ports of type 1 (1 character)   |

| Identifier | Description  |
|------------|--|
| <b>G</b>   | Uplink port type 1 (1 or 2 characters) <ul style="list-style-type: none"> <li>• <b>S</b>: GE optical port</li> <li>• <b>ST</b>: GE optical port and GE electrical port</li> <li>• <b>X</b>: 10GE optical port</li> <li>• <b>J</b>: 2.5GE optical port</li> <li>• <b>JX</b>: 2.5GE optical port and 10GE optical port</li> <li>• <b>Y</b>: 25GE optical port</li> </ul> |
| <b>H</b>   | Number of uplink ports of type 2 (0 or 1 character)  |
| <b>I</b>   | Uplink port of type 2 (0, 1, or 2 characters) <ul style="list-style-type: none"> <li>• <b>X</b>: 10GE optical port</li> <li>• <b>C</b>: 100GE optical port</li> </ul>  |
| <b>J</b>   | Special function type (0 or 1 character) <ul style="list-style-type: none"> <li>• By default, this field is left empty.</li> <li>• <b>R</b>: indicates a rack-mounted model, which is involved only in the S110 series.</li> <li>• <b>E</b>: the switch supports independent stack ports.</li> <li>• <b>Z</b>: the switch supports pluggable cards.</li> </ul>         |

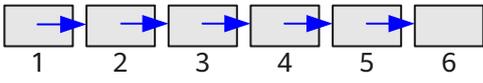
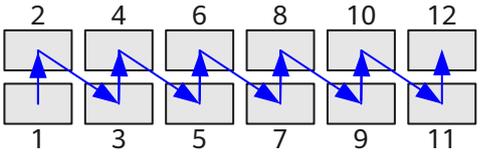
## 4.3 Port Numbering Conventions (Applicable to S110 Devices)

Physical ports are numbered in the following way:

A single switch uses slot ID/subcard ID/port sequence number to identify physical ports.

- Slot ID: indicates the slot where the switch is located. The value is 0.
- Subcard ID: indicates the ID of a subcard. The default value is 0 for models without subcards.
- Port sequence number: indicates the sequence number of a port on the switch.

**Table 4-2** Port numbering conventions

| Port Numbering Diagram  | Description  |
|---|--|
|  | There is one row of service ports on the device. These ports are numbered from left to right, starting from 1.   |
|  | There are two rows of service ports on the device. These ports are numbered from bottom to top and left to right, starting from 1.<br>For example, the port on the top left is numbered 0/0/2. |

## 4.4 Port Numbering Conventions (Applicable to S220, S310, S530, and S620 Devices)

Physical ports are numbered in the following way:

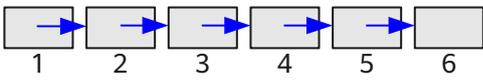
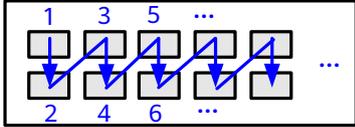
A single switch uses slot ID/subcard ID/port sequence number to identify physical ports.

- Slot ID: indicates the slot where the switch is located. The value is 1.
- Subcard ID: indicates the ID of a subcard. The default value is 0 for models without subcards.
- Port sequence number: indicates the sequence number of a port on the switch.

A stacked switch uses stack ID/subcard ID/port sequence number to identify physical ports.

- Stack ID: indicates the ID of a stacked switch. The value ranges from 1 to 9.
- Subcard ID: indicates the ID of a subcard. The default value is 0 for models without subcards.
- Port sequence number: indicates the sequence number of a port on the switch.

**Table 4-3** Port numbering conventions

| Port Numbering Diagram  | Description  |
|---|--|
|  | <p>There is one row of service ports on the device. These ports are numbered from left to right, starting from 1.</p> <p>Ports of different speeds are numbered separately. For example, the first GE port is numbered GE1/0/1, the first 10GE port is numbered 10GE1/0/1. Ports with the same rate are numbered in ascending order.</p>   |
|  | <p>There are two rows of service ports on the device. These ports are numbered from top to bottom and left to right, starting from 1.</p> <p>For example, the port on the top left is numbered 1/0/1.</p> <p>Ports of different speeds are numbered separately. For example, the first GE port is numbered GE1/0/1, the first 10GE port is numbered 10GE1/0/1. Ports with the same rate are numbered in ascending order.</p> |

## 4.5 S110

### 4.5.1 S110-5T

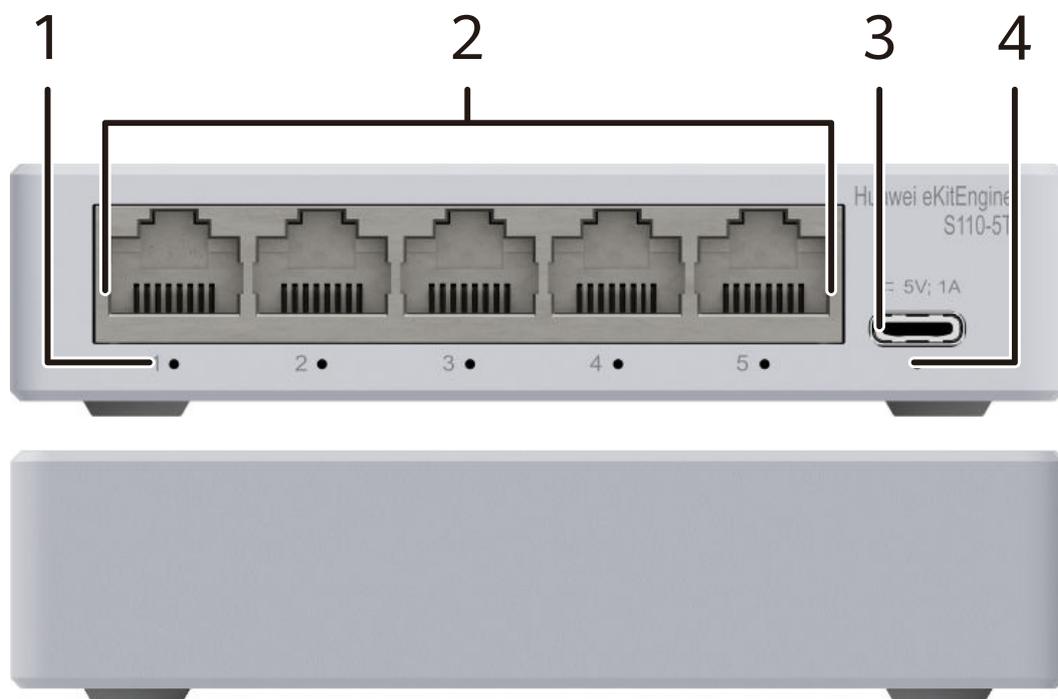
#### Overview

**Table 4-4** Basic information about the S110-5T

| Item        | Details  |
|-------------|--|
| Description | S110-5T (5*10/100/1000BASE-T ports, without AC power adapter, fanless) |
| Part Number | 98013199   |
| Model       | S110-5T  |

## Components

Figure 4-2 S110-5T appearance



|   |   |   |                          |
|---|---|---|--------------------------|
| 1 | Port indicator  | 2 | Five GE electrical ports |
| 3 | Type-C charging port<br><b>NOTE</b><br>The device shipment includes a Type-C power cable but does not include a power adapter. The power adapter used has specifications of 5 V, 1 A. | 4 | PWR indicator            |

## Ports

**Table 4-5** Ports on the S110-5T

| Port                   | Connector Type | Description   | Available Components           |
|------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

## Indicators and Buttons

**Table 4-6** Description of indicators on the device

| Indicator      | Color | Status    | Description  |
|----------------|-------|-----------|--|
| PWR indicator  | -     | Off       | The device is powered off.   |
|                | Green | Steady on | The power supply is normal.  |
| Port indicator | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.<br><b>NOTE</b><br>During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete. |
|                | Green | Blinking  | The port is sending or receiving data.   |

## Power Supply System

The device is powered by the power adapter.

## Heat Dissipation System

The device has no fans and uses natural heat dissipation.

## Technical Specifications

**Table 4-7** Technical specifications of the S110-5T

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 22.5 mm x 100.0 mm x 65.0 mm (0.89 in. x 3.94 in. x 2.56 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 24 mm x 100.0 mm x 65.0 mm (0.94 in. x 3.94 in. x 2.56 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 35.0 mm x 200.0 mm x 110.0 mm (1.38 in. x 7.87 in. x 4.33 in.)  |
| Chassis height [U]                                      | 0.5 U   |
| Chassis material  | PC+ABS  |
| Weight without packaging [kg(lb)]                       | 0.15 kg (0.33 lb)   |
| Weight with packaging [kg(lb)]                          | 0.22 kg (0.49 lb)   |
| Typical power consumption [W]                           | 3.8 W   |
| Typical heat dissipation [BTU/hour]                     | 12.97 BTU/hour  |
| Maximum power consumption [W]                           | 4 W   |
| Maximum heat dissipation [BTU/hour]                     | 13.64 BTU/hour  |
| Static power consumption [W]                            | 2 W   |
| MTBF [years]  | 110.46 years  |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | Noise-free (no fans), < 30  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | Noise-free (no fans), < 20  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 0   |
| Working mode  | N/A   |
| MAC address entry                                       | 2K  |
| Redundant power supply                                  | Not supported   |

| Item   | Specification   |
|--|---|
| Long-term operating temperature [°C(°F)]                         | 0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |
| Power supply mode  | Power adapter   |
| Rated input voltage [V]  | Power adapter input: 100 V AC to 240 V AC; 50/60 Hz<br>Power adapter output: 5 V DC   |
| Maximum input current [A]  | 1 A   |
| Memory   | -   |
| Flash memory   | -   |
| Console port   | Not supported   |
| Eth Management port  | Not supported   |
| USB  | Not supported   |
| RTC  | Not supported   |
| RPS input  | Not supported   |
| Service port surge protection [kV]                               | Common mode: ±4 kV  |
| Ingress protection level (dustproof/waterproof)                  | IP20  |
| Types of fans  | None  |
| Heat dissipation mode  | Natural heat dissipation  |
| Airflow direction  | -   |
| PoE  | Not supported   |
| Certification  | EMC certification<br>Safety certification<br>Manufacturing certification  |

## 4.5.2 S110-8T2ST

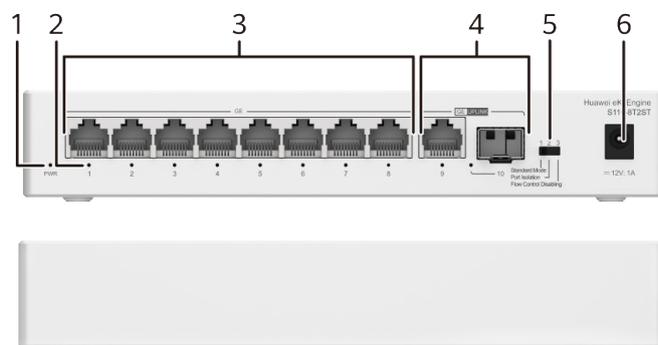
### Overview

**Table 4-8** Basic information about the S110-8T2ST

| Item        | Details   |
|-------------|---|
| Description | S110-8T2ST (8*10/100/1000BASE-T ports, 1*GE SFP port, 1*10/100/1000BASE-T port, with 1*AC power adapter, fanless) |
| Part Number | 98012199  |
| Model       | S110-8T2ST  |

### Components

**Figure 4-3** S110-8T2ST appearance



|   |                           |   |  |
|---|---------------------------|---|--|
| 1 | PWR indicator             | 2 | Port indicator                                 |
| 3 | Eight GE electrical ports | 4 | One GE electrical port and one GE optical port |

|   |  |   |   |
|---|--|---|---|
| 5 | <p>Port mode switch button</p> <p><b>NOTE</b></p> <p>Standard Mode: All ports are in the same VLAN, and the flow control function is enabled.</p> <p>Port Isolation: All downlink ports are isolated from each other and cannot communicate with each other. Downlink ports can communicate only with uplink ports. Uplink ports are not isolated or aggregated.</p> <p>Flow Control Disabling: All ports are in the same VLAN and flow control is disabled.</p> | 6 | <p>Power adapter socket</p> <p><b>NOTE</b></p> <p>Use the power adapter (12 V 1 A) delivered with the device.</p> |
|---|--|---|---|

## Ports

**Table 4-9** Ports on the S110-8T2ST

| Port               | Connector Type | Description   | Available Components   |
|--------------------|----------------|---|--|
| GE electrical port | RJ45           | A GE electrical port sends and receives service data at 10/100/1000 Mbit/s. | <b>Ethernet cable</b>  |
| GE optical port    | SFP            | A GE optical port can send and receive data at 100/1000 Mbit/s.             | <ul style="list-style-type: none"> <li>• <b>FE SFP/eSFP optical modules (only optical modules with transmission distances less than or equal to 15 km are supported)</b></li> <li>• <b>GE eSFP optical modules (only optical modules with transmission distances less than or equal to 10 km are supported)</b></li> </ul> |

## Indicators and Buttons

**Table 4-10** Description of indicators on the device

| Indicator      | Color | Status    | Description  |
|----------------|-------|-----------|--|
| PWR indicator  | -     | Off       | The device is powered off.   |
|                | Green | Steady on | The power supply is normal.  |
| Port indicator | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.<br><b>NOTE</b><br>During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete. |
|                | Green | Blinking  | The port is sending or receiving data.   |

## Power Supply System

The device is powered by the power adapter delivered with the device.

## Heat Dissipation System

The device has no fans and uses natural heat dissipation.

## Technical Specifications

**Table 4-11** Technical specifications of the S110-8T2ST

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 35 mm x 210.0 mm x 130.0 mm (1.38 in. x 8.27 in. x 5.12 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 36.5 mm x 210.0 mm x 131.7 mm (1.44 in. x 8.27 in. x 5.19 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 285.0 mm x 180.0 mm (3.54 in. x 11.22 in. x 7.09 in.)   |
| Chassis height [U]                                 | 0.8 U   |

| Item   | Specification   |
|--|---|
| Chassis material   | PC+ABS  |
| Weight without packaging [kg(lb)]                                | 0.46 kg (1.01 lb)   |
| Weight with packaging [kg(lb)]                                   | 0.70 kg (1.54 lb)   |
| Typical power consumption [W]                                    | 8 W   |
| Typical heat dissipation [BTU/hour]                              | 27.30 BTU/hour  |
| Maximum power consumption [W]                                    | 8.4 W   |
| Maximum heat dissipation [BTU/hour]                              | 28.66 BTU/hour  |
| Static power consumption [W]                                     | 2 W   |
| MTBF [years]   | 86.16 years   |
| Availability   | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]             | Noise-free (no fans), < 30  |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | Noise-free (no fans), < 20  |
| Number of card slots   | 0   |
| Number of power slots  | 0   |
| Number of fans modules   | 0   |
| Working mode   | <ul style="list-style-type: none"> <li>• Standard mode</li> <li>• Port isolation</li> <li>• Flow control disabling</li> </ul>                                     |
| MAC address entry  | 2K  |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | 0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |

| Item  | Specification   |
|---|---|
| Power supply mode                                   | Power adapter   |
| Rated input voltage [V]                             | Power adapter input: 100–240 V AC;<br>50/60 Hz<br>Power adapter output: 12 V DC |
| Input voltage range [V]                             | Power adapter input: 90 V AC to 264 V AC;<br>47 Hz to 63 Hz                     |
| Maximum input current [A]                           | 1 A   |
| Memory  | -   |
| Flash memory  | -   |
| Console port  | Not supported   |
| Eth Management port                                 | Not supported   |
| USB   | Not supported   |
| RTC   | Not supported   |
| RPS input   | Not supported   |
| Service port surge protection [kV]                  | Common mode: $\pm 4$ kV   |
| Power supply surge protection [kV]                  | $\pm 2$ kV in differential mode, $\pm 4$ kV in common mode                      |
| Ingress protection level (dustproof/<br>waterproof) | IP20  |
| Types of fans                                       | None  |
| Heat dissipation mode                               | Natural heat dissipation  |
| Airflow direction                                   | -   |
| PoE   | Not supported   |
| Certification                                       | EMC certification<br>Safety certification<br>Manufacturing certification        |

### 4.5.3 S110-8P2ST (98012195)

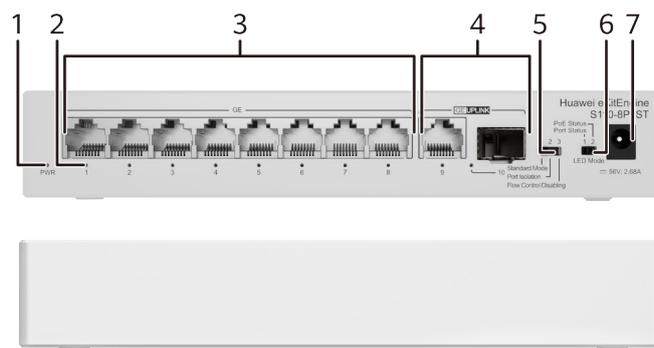
## Overview

**Table 4-12** Basic information about the S110-8P2ST

| Item        | Details  |
|-------------|--|
| Description | S110-8P2ST (8*10/100/1000BASE-T ports, PoE+, 1*GE SFP port, 1*10/100/1000BASE-T port, AC power, power adapter) |
| Part Number | 98012195   |
| Model       | S110-8P2ST   |

## Components

**Figure 4-4** S110-8P2ST appearance



|   |   |   |   |
|---|---|---|---|
| 1 | PWR indicator   | 2 | Port indicator  |
| 3 | Eight GE PoE+ electrical ports  | 4 | One GE electrical port and one GE optical port  |
| 5 | Port mode switch button<br><b>NOTE</b><br>Standard Mode: All ports are in the same VLAN, and the flow control function is enabled.<br>Port Isolation: All downlink ports are isolated from each other and cannot communicate with each other. Downlink ports can communicate only with uplink ports. Uplink ports are not isolated or aggregated.<br>Flow Control Disabling: All ports are in the same VLAN and flow control is disabled. | 6 | Port indicator status switch button<br><b>NOTE</b><br>Port status: The port indicator indicates the data transmission status of the port.<br>PoE status: The port indicator indicates the PoE status of the port. |

|   |   |   |   |
|---|---|---|---|
| 7 | Power adapter socket<br><br><b>NOTE</b><br>Use the power adapter (56 V 2.68 A) delivered with the device. | - | - |
|---|---|---|---|

## Ports

**Table 4-13** Ports on the S110-8P2ST

| Port                    | Connector Type | Description   | Available Components  |
|-------------------------|----------------|---|---|
| GE PoE+ electrical port | RJ45           | A GE PoE+ electrical port sends and receives service data at 10/100/1000 Mbit/s.<br>The port supports the PoE function. | <b>Ethernet cable</b>   |
| GE electrical port      | RJ45           | A GE electrical port sends and receives service data at 10/100/1000 Mbit/s.   | <b>Ethernet cable</b>   |
| GE optical port         | SFP            | A GE optical port can send and receive data at 100/1000 Mbit/s.   | <ul style="list-style-type: none"><li>• <b>FE SFP/eSFP optical modules (only optical modules with transmission distances less than or equal to 15 km are supported)</b></li><li>• <b>GE eSFP optical modules (only optical modules with transmission distances less than or equal to 10 km are supported)</b></li></ul> |

## Indicators and Buttons

**Table 4-14** Description of indicators on the device

| Indicator                    | Color | Status    | Description  |
|------------------------------|-------|-----------|--|
| PWR indicator                | -     | Off       | The device is powered off.   |
|                              | Green | Steady on | The power supply is normal.  |
| Port indicator (Port status) | -     | Off       | The port is not connected or has been shut down.   |
|                              | Green | Steady on | A link has been established on the port.<br><b>NOTE</b><br>During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete. |
|                              | Green | Blinking  | The port is sending or receiving data.   |
| Port indicator (PoE status)  | -     | Off       | The port is not supplying PoE power.   |
|                              | Green | Steady on | The port is supplying power to the connected PD.   |
|                              | Green | Blinking  | The PoE power of the device is insufficient, and the port cannot provide power to the PD.  |

### Power Supply System

The device uses the power adapter delivered with the device to supply power to the device and the connected PD. The device provides 8 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 124 W.

### Heat Dissipation System

The device has no fans and uses natural heat dissipation.

## Technical Specifications

**Table 4-15** Technical specifications of the S110-8P2ST

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 35 mm x 210.0 mm x 130.0 mm (1.38 in. x 8.27 in. x 5.12 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 36.5 mm x 210.0 mm x 131.7 mm (1.44 in. x 8.27 in. x 5.19 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 150.0 mm x 270.0 mm x 200.0 mm (5.91 in. x 10.63 in. x 7.87 in.)  |
| Chassis height [U]                                      | 0.8 U   |
| Chassis material  | PC+ABS  |
| Weight without packaging [kg(lb)]                       | 1.11 kg (2.45 lb)   |
| Weight with packaging [kg(lb)]                          | 1.46 kg (3.22 lb)   |
| Typical power consumption [W]                           | 11 W  |
| Typical heat dissipation [BTU/hour]                     | 37.53 BTU/hour  |
| Maximum power consumption [W]                           | Without PoE: 11 W<br>Full PoE load: 155 W (PoE: 124 W)  |
| Maximum heat dissipation [BTU/hour]                     | <ul style="list-style-type: none"> <li>• Without PoE: 37.53</li> <li>• Full PoE load: 528.88</li> </ul>   |
| Static power consumption [W]                            | 4 W   |
| MTBF [years]  | 78.77 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | Noise-free (no fans), < 30  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | Noise-free (no fans), < 20  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 0   |

| Item   | Specification   |
|--|---|
| Working mode   | <ul style="list-style-type: none"><li>• Standard mode</li><li>• Port isolation</li><li>• Flow control disabling</li></ul>   |
| MAC address entry  | 2K  |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | 0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |
| Power supply mode  | Power adapter   |
| Rated input voltage [V]  | Power adapter input: 100-240 V AC; 50/60 Hz<br>Power adapter output: 56 V DC  |
| Input voltage range [V]  | Power adapter input: 90 V AC to 264 V AC; 47 Hz to 63 Hz  |
| Maximum input current [A]  | 2.68 A  |
| Memory   | -   |
| Flash memory   | -   |
| Console port   | Not supported   |
| Eth Management port  | Not supported   |
| USB  | Not supported   |
| RTC  | Not supported   |
| RPS input  | Not supported   |
| Service port surge protection [kV]                               | Common mode: ±4 kV  |
| Power supply surge protection [kV]                               | Differential mode: ±6 kV; common mode: ±6 kV  |

| Item  | Specification  |
|---|--|
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | None   |
| Heat dissipation mode                           | Natural heat dissipation   |
| Airflow direction                               | -  |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.5.4 S110-8P2ST (98012269)

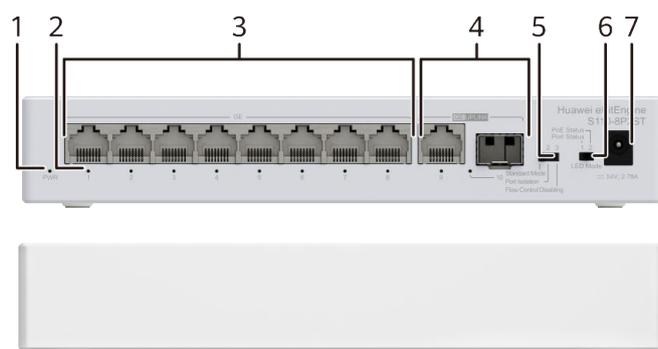
### Overview

**Table 4-16** Basic information about the S110-8P2ST

| Item        | Details  |
|-------------|--|
| Description | S110-8P2ST (8*10/100/1000BASE-T ports, PoE+, 1*GE SFP port, 1*10/100/1000BASE-T port, AC power, power adapter) |
| Part Number | 98012269   |
| Model       | S110-8P2ST   |

### Components

**Figure 4-5** S110-8P2ST appearance



 **NOTE**

The power adapter of this device has been upgraded, and the power input specification has been changed from 56 V, 2.68 A to 54 V, 2.78 A. Devices delivered over different periods may have different appearances.

|   |  |   |  |
|---|--|---|--|
| 1 | PWR indicator  | 2 | Port indicator   |
| 3 | Eight GE PoE+ electrical ports   | 4 | One GE electrical port and one GE optical port   |
| 5 | <p>Port mode switch button</p> <p><b>NOTE</b></p> <p>Standard Mode: All ports are in the same VLAN, and the flow control function is enabled.</p> <p>Port Isolation: All downlink ports are isolated from each other and cannot communicate with each other. Downlink ports can communicate only with uplink ports. Uplink ports are not isolated or aggregated.</p> <p>Flow Control Disabling: All ports are in the same VLAN and flow control is disabled.</p> | 6 | <p>Port indicator status switch button</p> <p><b>NOTE</b></p> <p>Port status: The port indicator indicates the data transmission status of the port.</p> <p>PoE status: The port indicator indicates the PoE status of the port.</p> |
| 7 | <p>Power adapter socket</p> <p><b>NOTE</b></p> <p>Use the power adapter (54 V 2.78 A) delivered with the device.</p>   | - | -  |

## Ports

**Table 4-17** Ports on the S110-8P2ST

| Port                    | Connector Type | Description  | Available Components  |
|-------------------------|----------------|--|-----------------------|
| GE PoE+ electrical port | RJ45           | <p>A GE PoE+ electrical port sends and receives service data at 10/100/1000 Mbit/s.</p> <p>The port supports the PoE function.</p> | <b>Ethernet cable</b> |

| Port               | Connector Type | Description   | Available Components   |
|--------------------|----------------|---|--|
| GE electrical port | RJ45           | A GE electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a>   |
| GE optical port    | SFP            | A GE optical port can send and receive data at 100/1000 Mbit/s.             | <ul style="list-style-type: none"> <li>• <a href="#">FE SFP/eSFP optical modules (only optical modules with transmission distances less than or equal to 15 km are supported)</a></li> <li>• <a href="#">GE eSFP optical modules (only optical modules with transmission distances less than or equal to 10 km are supported)</a></li> </ul> |

## Indicators and Buttons

**Table 4-18** Description of indicators on the device

| Indicator                    | Color | Status    | Description  |
|------------------------------|-------|-----------|--|
| PWR indicator                | -     | Off       | The device is powered off.   |
|                              | Green | Steady on | The power supply is normal.  |
| Port indicator (Port status) | -     | Off       | The port is not connected or has been shut down.   |
|                              | Green | Steady on | A link has been established on the port.<br><b>NOTE</b><br>During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete. |

| Indicator                   | Color | Status    | Description   |
|-----------------------------|-------|-----------|---|
|                             | Green | Blinking  | The port is sending or receiving data.  |
| Port indicator (PoE status) | -     | Off       | The port is not supplying PoE power.  |
|                             | Green | Steady on | The port is supplying power to the connected PD.  |
|                             | Green | Blinking  | The PoE power of the device is insufficient, and the port cannot provide power to the PD. |

## Power Supply System

The device uses the power adapter delivered with the device to supply power to the device and the connected PD. The device provides 8 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 124 W.

## Heat Dissipation System

The device has no fans and uses natural heat dissipation.

## Technical Specifications

**Table 4-19** Technical specifications of the S110-8P2ST

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 35 mm x 210.0 mm x 130.0 mm (1.38 in. x 8.27 in. x 5.12 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 36.5 mm x 210.0 mm x 131.7 mm (1.44 in. x 8.27 in. x 5.19 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 150.0 mm x 270.0 mm x 200.0 mm (5.91 in. x 10.63 in. x 7.87 in.)  |
| Chassis height [U]                                 | 0.8 U   |
| Chassis material                                   | PC+ABS  |
| Weight without packaging [kg(lb)]                  | 0.91 kg (2.01 lb)   |
| Weight with packaging [kg(lb)]                     | 1.46 kg (3.22 lb)   |
| Typical power consumption [W]                      | 11 W  |

| Item   | Specification   |
|--|---|
| Typical heat dissipation [BTU/hour]                              | 37.53 BTU/hour  |
| Maximum power consumption [W]                                    | Without PoE: 11 W<br>Full PoE load: 155 W (PoE: 124 W)  |
| Maximum heat dissipation [BTU/hour]                              | <ul style="list-style-type: none"> <li>Without PoE: 37.53</li> <li>Full PoE load: 528.88</li> </ul>   |
| Static power consumption [W]                                     | 3 W   |
| MTBF [years]   | 78.77 years   |
| Availability   | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]             | Noise-free (no fans), < 30  |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | Noise-free (no fans), < 20  |
| Number of card slots   | 0   |
| Number of power slots  | 0   |
| Number of fans modules   | 0   |
| Working mode   | <ul style="list-style-type: none"> <li>Standard mode</li> <li>Port isolation</li> <li>Flow control disabling</li> </ul>   |
| MAC address entry  | 2K  |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | 0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |
| Power supply mode  | Power adapter   |

| Item  | Specification  |
|---|--|
| Rated input voltage [V]                         | Power adapter input: 170 V AC to 240 V AC; 50/60 Hz<br>Power adapter output: 54 V DC |
| Input voltage range [V]                         | Power adapter input: 170 V AC to 264 V AC; 47 Hz to 63 Hz                            |
| Maximum input current [A]                       | 2.78 A   |
| Memory  | -  |
| Flash memory                                    | -  |
| Console port                                    | Not supported  |
| Eth Management port                             | Not supported  |
| USB   | Not supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 4$ kV  |
| Power supply surge protection [kV]              | $\pm 4$ kV in differential mode and $\pm 4$ kV in common mode                        |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | None   |
| Heat dissipation mode                           | Natural heat dissipation   |
| Airflow direction                               | -  |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification             |

## 4.5.5 S110-16T2S

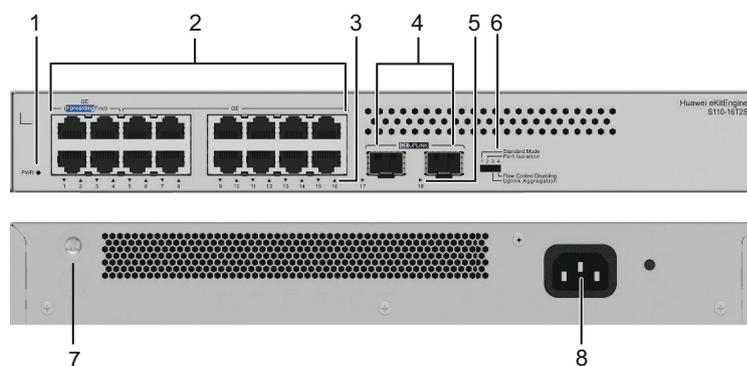
## Overview

**Table 4-20** Basic information about the S110-16T2S

| Item        | Details   |
|-------------|---|
| Description | S110-16T2S (16*10/100/1000BASE-T ports, 2*GE SFP ports, built-in AC power, fanless) |
| Part Number | 98012200  |
| Model       | S110-16T2S  |

## Components

**Figure 4-6** S110-16T2S appearance



|   |                           |   |  |
|---|---------------------------|---|--|
| 1 | PWR indicator             | 2 | Sixteen GE electrical ports<br><b>NOTE</b><br>The model with the Forwarding First silkscreen on the front panel supports the Forwarding First function.<br>This function is available on ports 1 to 4. With this function, traffic on ports 1 to 4 is preferentially forwarded when traffic congestion occurs on uplink ports. |
| 3 | Electrical port indicator | 4 | Two GE optical ports   |

|   |                        |   |   |
|---|------------------------|---|---|
| 5 | Optical port indicator | 6 | <p>Port mode switch button</p> <p><b>NOTE</b></p> <p>Standard Mode: All ports are in the same VLAN, and the flow control function is enabled.</p> <p>Port Isolation: All downlink ports are isolated from each other and cannot communicate with each other. Downlink ports can communicate only with uplink ports. (The last two downlink electrical ports are not isolated.) Uplink ports are not isolated or aggregated.</p> <p>Uplink Aggregation: Two uplink optical ports are aggregated into a trunk interface. Eth-Trunk supports load balancing only based on source physical ports.</p> <p>Flow Control Disabling: All ports are in the same VLAN and flow control is disabled.</p> |
| 7 | Ground screw           | 8 | <p>AC socket</p> <p><b>NOTE</b></p> <p>Use the power cable delivered with the device.</p>   |

## Ports

**Table 4-21** Ports on the S110-16T2S

| Port               | Connector Type | Description   | Available Components           |
|--------------------|----------------|---|--------------------------------|
| GE electrical port | RJ45           | A GE electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

| Port            | Connector Type | Description   | Available Components   |
|-----------------|----------------|---|--|
| GE optical port | SFP            | A GE optical port can send and receive data at 100/1000 Mbit/s. | <ul style="list-style-type: none"> <li>• <b>FE SFP/eSFP optical modules (only optical modules with transmission distances less than or equal to 15 km are supported)</b></li> <li>• <b>GE eSFP optical modules (only optical modules with transmission distances less than or equal to 10 km are supported)</b></li> </ul> |

## Indicators and Buttons

Table 4-22 Description of indicators on the device

| Indicator      | Color | Status    | Description  |
|----------------|-------|-----------|--|
| PWR indicator  | -     | Off       | The device is powered off.   |
|                | Green | Steady on | The power supply is normal.  |
| Port indicator | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.<br><b>NOTE</b><br>During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete. |
|                | Green | Blinking  | The port is sending or receiving data.   |

## Power Supply System

The device is powered by the power cable delivered with the device.

## Heat Dissipation System

The device has no fans and uses natural heat dissipation.

## Technical Specifications

**Table 4-23** Technical specifications of the S110-16T2S

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 320.0 mm x 210.0 mm (1.72 in. x 12.6 in. x 8.27 in.)<br><br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 320.0 mm x 217.0 mm (1.72 in. x 12.6 in. x 8.54 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 90.0 mm x 460.0 mm x 280.0 mm (3.54 in. x 18.11 in. x 11.02 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 1.74 kg (3.84 lb)   |
| Weight with packaging [kg(lb)]                          | 2.30 kg (5.07 lb)   |
| Typical power consumption [W]                           | 11.0 W  |
| Typical heat dissipation [BTU/hour]                     | 37.5 BTU/hour   |
| Maximum power consumption [W]                           | 12 W  |
| Maximum heat dissipation [BTU/hour]                     | 40.9 BTU/hour   |
| Static power consumption [W]                            | 3 W   |
| MTBF [years]  | 78.75 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | Noise-free (no fans), < 30  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | Noise-free (no fans), < 20  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 0   |

| Item   | Specification   |
|--|---|
| Working mode   | <ul style="list-style-type: none"> <li>• Standard mode</li> <li>• Port isolation</li> <li>• Uplink aggregation</li> <li>• Flow control disabling</li> </ul>       |
| MAC address entry  | 8K  |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | 0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |
| Power supply mode  | AC built-in   |
| Rated input voltage [V]  | AC input: 100-240 V AC; 50/60 Hz  |
| Input voltage range [V]  | AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz   |
| Maximum input current [A]  | 1 A   |
| Memory   | -   |
| Flash memory   | -   |
| Console port   | Not supported   |
| Eth Management port  | Not supported   |
| USB  | Not supported   |
| RTC  | Not supported   |
| RPS input  | Not supported   |
| Service port surge protection [kV]                               | Common mode: ±6 kV  |
| Power supply surge protection [kV]                               | ±2 kV in differential mode, ±4 kV in common mode  |

| Item  | Specification  |
|---|--|
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | None   |
| Heat dissipation mode                           | Natural heat dissipation   |
| Airflow direction                               | -  |
| PoE   | Not supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.5.6 S110-16LP2SR

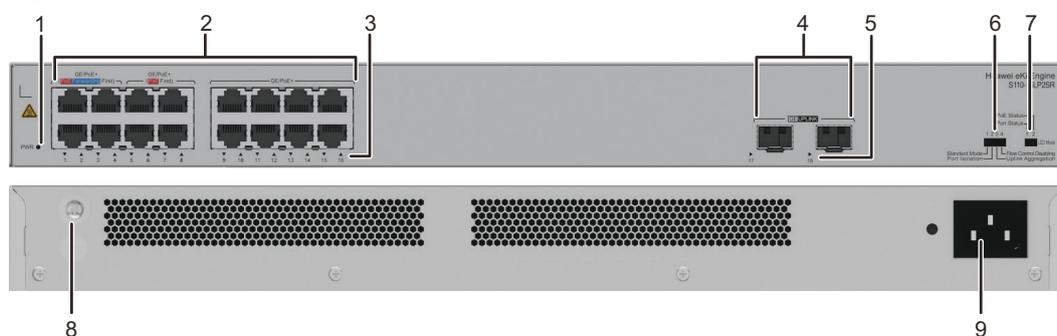
### Overview

**Table 4-24** Basic information about the S110-16LP2SR

| Item        | Details   |
|-------------|---|
| Description | S110-16LP2SR (16*10/100/1000BASE-T ports, 2*GE SFP ports, PoE+, AC power) |
| Part Number | 98012197  |
| Model       | S110-16LP2SR  |

### Components

**Figure 4-7** S110-16LP2SR appearance



 **NOTE**

To offer better experience, this model has had changes to its functions and appearance. On the new model, some ports support the Forwarding First (with the Forwarding First silkscreen on the front panel) and PoE First (with the PoE First silkscreen on the front panel) functions. The old model (without these silkscreens) does not support the two functions.

|   |                           |   |   |
|---|---------------------------|---|---|
| 1 | PWR indicator             | 2 | <b>Sixteen GE PoE+ electrical ports</b><br><br><b>NOTE</b><br>Only the new model with the Forwarding First and PoE First silkscreens on the front panel supports the following functions:<br><br><b>Forwarding First:</b> This function is available on ports 1 to 4. With this function, traffic on ports 1 to 4 is preferentially forwarded when traffic congestion occurs on uplink ports.<br><br><b>PoE First:</b> This function is available on ports 1 to 8. With this function, terminals connected to other ports will not preempt the power of ports 1 to 8 when the device cannot supply full PoE power to connected terminals; additionally, the power of these ports will be preferentially restored after the device restarts. |
| 3 | Electrical port indicator | 4 | Two GE optical ports  |
| 5 | Optical port indicator    | 6 | <b>Port mode switch button</b><br><br><b>NOTE</b><br><b>Standard Mode:</b> All ports are in the same VLAN, and the flow control function is enabled.<br><br><b>Port Isolation:</b> All downlink ports are isolated from each other and cannot communicate with each other. Downlink ports can communicate only with uplink ports. (The last two downlink electrical ports are not isolated.) Uplink ports are not isolated or aggregated.<br><br><b>Uplink Aggregation:</b> Two uplink optical ports are aggregated into a trunk interface. Eth-Trunk supports load balancing only based on source physical ports.<br><br><b>Flow Control Disabling:</b> All ports are in the same VLAN and flow control is disabled.                       |

|   |   |   |              |
|---|---|---|--------------|
| 7 | Port indicator status switch button<br><b>NOTE</b><br>Port status: The port indicator indicates the data transmission status of the port.<br>PoE status: The port indicator indicates the PoE status of the port. | 8 | Ground screw |
| 9 | AC socket<br><b>NOTE</b><br>Use the power cable delivered with the device.  | - | -            |

## Ports

**Table 4-25** Ports on the S110-16LP2SR

| Port                    | Connector Type | Description   | Available Components   |
|-------------------------|----------------|---|--|
| GE PoE+ electrical port | RJ45           | A GE PoE+ electrical port sends and receives service data at 10/100/1000 Mbit/s.<br>The port supports the PoE function. | <b>Ethernet cable</b>  |
| GE optical port         | SFP            | A GE optical port can send and receive data at 100/1000 Mbit/s.   | <ul style="list-style-type: none"> <li><b>FE SFP/eSFP optical modules (only optical modules with transmission distances less than or equal to 15 km are supported)</b></li> <li><b>GE eSFP optical modules (only optical modules with transmission distances less than or equal to 10 km are supported)</b></li> </ul> |

## Indicators and Buttons

**Table 4-26** Description of indicators on the device

| Indicator                    | Color | Status    | Description  |
|------------------------------|-------|-----------|--|
| PWR indicator                | -     | Off       | The device is powered off.   |
|                              | Green | Steady on | The power supply is normal.  |
| Port indicator (Port status) | -     | Off       | The port is not connected or has been shut down.   |
|                              | Green | Steady on | A link has been established on the port.<br><b>NOTE</b><br>During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete. |
|                              | Green | Blinking  | The port is sending or receiving data.   |
| Port indicator (PoE status)  | -     | Off       | The port is not supplying PoE power.   |
|                              | Green | Steady on | The port is supplying power to the connected PD.   |
|                              | Green | Blinking  | The PoE power of the device is insufficient, and the port cannot provide power to the PD.  |

## Power Supply System

The device uses the power adapter delivered with the device to supply power to the device and the connected PD. The device provides 16 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 124 W.

## Heat Dissipation System

The device has no fans and uses natural heat dissipation.

## Technical Specifications

**Table 4-27** Technical specifications of the S110-16LP2SR

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 260.0 mm (1.72 in. x 17.40 in. x 10.24 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 267.0 mm (1.72 in. x 17.40 in. x 10.51 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 90.0 mm x 555.0 mm x 400.0 mm (3.54 in. x 21.85 in. x 15.75 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 3.0 kg (6.61 lb)  |
| Weight with packaging [kg(lb)]                          | 3.7 kg (8.16 lb)  |
| Typical power consumption [W]                           | 22.0 W  |
| Typical heat dissipation [BTU/hour]                     | 75.07 BTU/hour  |
| Maximum power consumption [W]                           | Without PoE: 22.0 W<br>Full PoE load: 160.0 W (PoE: 124 W)  |
| Maximum heat dissipation [BTU/hour]                     | Without PoE: 75.07<br>Full PoE load: 545.94   |
| Static power consumption [W]                            | 12.0 W  |
| MTBF [years]  | 57.77 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | Noise-free (no fans), < 30  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | Noise-free (no fans), < 20  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 0   |

| Item   | Specification   |
|--|---|
| Working mode   | <ul style="list-style-type: none"><li>• Standard mode</li><li>• Port isolation</li><li>• Uplink aggregation</li><li>• Flow control disabling</li></ul>            |
| MAC address entry  | 8K  |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | 0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |
| Power supply mode  | AC built-in   |
| Rated input voltage [V]  | AC input: 100-240 V AC; 50/60 Hz  |
| Input voltage range [V]  | AC input: 90 V AC to 300 V AC; 47 Hz to 63 Hz   |
| Maximum input current [A]  | 3 A   |
| Memory   | -   |
| Flash memory   | -   |
| Console port   | Not supported   |
| Eth Management port  | Not supported   |
| USB  | Not supported   |
| RTC  | Not supported   |
| RPS input  | Not supported   |
| Service port surge protection [kV]                               | Common mode: ±4 kV  |
| Power supply surge protection [kV]                               | Differential mode: ±6 kV; common mode: ±6 kV  |

| Item  | Specification  |
|---|--|
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | None   |
| Heat dissipation mode                           | Natural heat dissipation   |
| Airflow direction                               | -  |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.5.7 S110-24T2SR

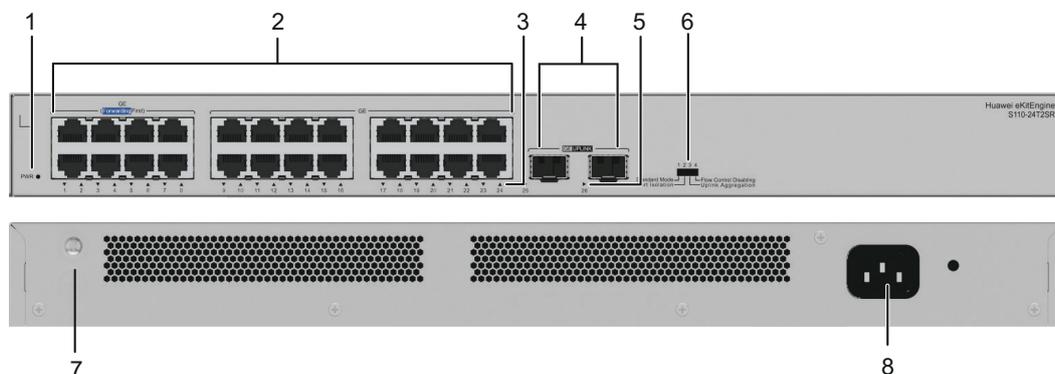
### Overview

**Table 4-28** Basic information about the S110-24T2SR

| Item        | Details  |
|-------------|--|
| Description | S110-24T2SR (24*10/100/1000BASE-T ports, 2*GE SFP ports, AC power) |
| Part Number | 98012196   |
| Model       | S110-24T2SR  |

### Components

**Figure 4-8** S110-24T2SR appearance



|   |                           |   |  |
|---|---------------------------|---|--|
| 1 | PWR indicator             | 2 | Twenty-four GE electrical ports<br><b>NOTE</b><br>Only the new model with the Forwarding First silkscreen on the front panel supports the Forwarding First function.<br>This function is available on ports 1 to 8. With this function, traffic on ports 1 to 8 is preferentially forwarded when traffic congestion occurs on uplink ports.  |
| 3 | Electrical port indicator | 4 | Two GE optical ports   |
| 5 | Optical port indicator    | 6 | Port mode switch button<br><b>NOTE</b><br>Standard Mode: All ports are in the same VLAN, and the flow control function is enabled.<br>Port Isolation: All downlink ports are isolated from each other and cannot communicate with each other. Downlink ports can communicate only with uplink ports. (The last two downlink electrical ports are not isolated.) Uplink ports are not isolated or aggregated.<br>Uplink Aggregation: Two uplink optical ports are aggregated into a trunk interface. Eth-Trunk supports load balancing only based on source physical ports.<br>Flow Control Disabling: All ports are in the same VLAN and flow control is disabled. |
| 7 | Ground screw              | 8 | AC socket<br><b>NOTE</b><br>Use the power cable delivered with the device.   |

## Ports

**Table 4-29** Ports on the S110-24T2SR

| Port               | Connector Type | Description   | Available Components   |
|--------------------|----------------|---|--|
| GE electrical port | RJ45           | A GE electrical port sends and receives service data at 10/100/1000 Mbit/s. | <b>Ethernet cable</b>  |
| GE optical port    | SFP            | A GE optical port can send and receive data at 100/1000 Mbit/s.             | <ul style="list-style-type: none"> <li>• <b>FE SFP/eSFP optical modules (only optical modules with transmission distances less than or equal to 15 km are supported)</b></li> <li>• <b>GE eSFP optical modules (only optical modules with transmission distances less than or equal to 10 km are supported)</b></li> </ul> |

## Indicators and Buttons

**Table 4-30** Description of indicators on the device

| Indicator      | Color | Status    | Description                                      |
|----------------|-------|-----------|--|
| PWR indicator  | -     | Off       | The device is powered off.                       |
|                | Green | Steady on | The power supply is normal.                      |
| Port indicator | -     | Off       | The port is not connected or has been shut down. |

| Indicator | Color | Status    | Description  |
|-----------|-------|-----------|--|
|           | Green | Steady on | A link has been established on the port.<br><b>NOTE</b><br>During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete. |
|           | Green | Blinking  | The port is sending or receiving data.   |

## Power Supply System

The device is powered by the power cable delivered with the device.

## Heat Dissipation System

The device has no fans and uses natural heat dissipation.

## Technical Specifications

**Table 4-31** Technical specifications of the S110-24T2SR

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 160.0 mm (1.72 in. x 17.40 in. x 6.30 in.)<br><br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 167.0 mm (1.72 in. x 17.40 in. x 6.57 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 550.0 mm x 260.0 mm (3.54 in. x 21.65 in. x 10.24 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 1.8 kg (3.97 lb)  |
| Weight with packaging [kg(lb)]                     | 2.3 kg (5.07 lb)  |
| Typical power consumption [W]                      | 16 W  |
| Typical heat dissipation [BTU/hour]                | 54.6 BTU/hour   |
| Maximum power consumption [W]                      | 17 W  |

| Item   | Specification   |
|--|---|
| Maximum heat dissipation [BTU/hour]                              | 58 BTU/hour   |
| Static power consumption [W]                                     | 5 W   |
| MTBF [years]   | 76.10 years   |
| Availability   | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]             | Noise-free (no fans), < 30  |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | Noise-free (no fans), < 20  |
| Number of card slots   | 0   |
| Number of power slots  | 0   |
| Number of fans modules   | 0   |
| Working mode   | <ul style="list-style-type: none"><li>• Standard mode</li><li>• Port isolation</li><li>• Uplink aggregation</li><li>• Flow control disabling</li></ul>            |
| MAC address entry  | 8K  |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | 0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |
| Power supply mode  | AC built-in   |
| Rated input voltage [V]  | AC input: 100-240 V AC; 50/60 Hz  |
| Input voltage range [V]  | AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz   |
| Maximum input current [A]  | 0.8 A   |

| Item  | Specification  |
|---|--|
| Memory  | -  |
| Flash memory                                    | -  |
| Console port                                    | Not supported  |
| Eth Management port                             | Not supported  |
| USB   | Not supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 1$ kV  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | None   |
| Heat dissipation mode                           | Natural heat dissipation   |
| Airflow direction                               | -  |
| PoE   | Not supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.5.8 S110-24LP2SR

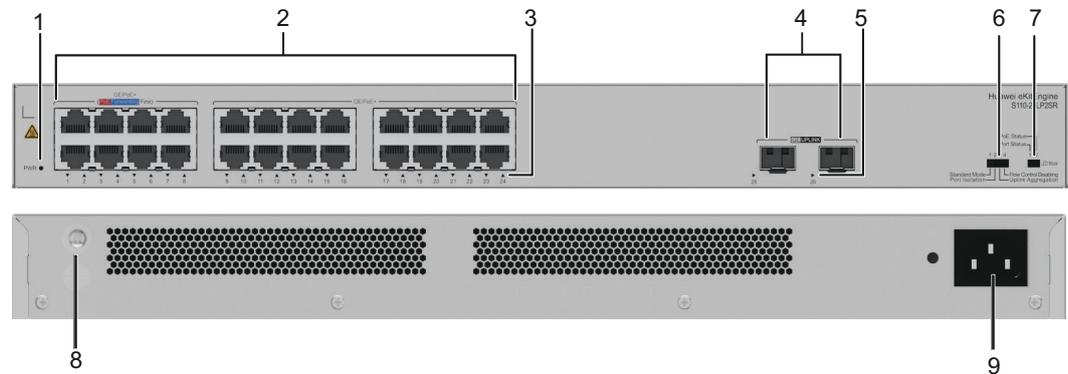
### Overview

**Table 4-32** Basic information about the S110-24LP2SR

| Item        | Details   |
|-------------|---|
| Description | S110-24LP2SR (24*10/100/1000BASE-T ports, 2*GE SFP ports, PoE+, AC power) |
| Part Number | 98012198  |
| Model       | S110-24LP2SR  |

## Components

Figure 4-9 S110-24LP2SR appearance



|   |                           |   |  |
|---|---------------------------|---|--|
| 1 | PWR indicator             | 2 | Twenty-four GE PoE+ electrical ports<br><br><b>NOTE</b><br>Only the new model with the Forwarding First and PoE First silkscreens on the front panel supports the following functions:<br><br>Forwarding First: This function is available on ports 1 to 8. With this function, traffic on ports 1 to 8 is preferentially forwarded when traffic congestion occurs on uplink ports.<br><br>PoE First: This function is available on ports 1 to 8. With this function, terminals connected to other ports will not preempt the power of ports 1 to 8 when the device cannot supply full PoE power to connected terminals; additionally, the power of these ports will be preferentially restored after the device restarts. |
| 3 | Electrical port indicator | 4 | Two GE optical ports   |

|   |   |   |  |
|---|---|---|--|
| 5 | Optical port indicator  | 6 | Port mode switch button<br><br><b>NOTE</b><br>Standard Mode: All ports are in the same VLAN, and the flow control function is enabled.<br>Port Isolation: All downlink ports are isolated from each other and cannot communicate with each other. Downlink ports can communicate only with uplink ports. (The last two downlink electrical ports are not isolated.) Uplink ports are not isolated or aggregated.<br>Uplink Aggregation: Two uplink optical ports are aggregated into a trunk interface. Eth-Trunk supports load balancing only based on source physical ports.<br>Flow Control Disabling: All ports are in the same VLAN and flow control is disabled. |
| 7 | Port indicator status switch button<br><br><b>NOTE</b><br>Port status: The port indicator indicates the data transmission status of the port.<br>PoE status: The port indicator indicates the PoE status of the port. | 8 | Ground screw   |
| 9 | AC socket<br><br><b>NOTE</b><br>Use the power cable delivered with the device.  | - | -  |

## Ports

**Table 4-33** Ports on the S110-24LP2SR

| Port                    | Connector Type | Description   | Available Components           |
|-------------------------|----------------|---|--------------------------------|
| GE PoE+ electrical port | RJ45           | A GE PoE+ electrical port sends and receives service data at 10/100/1000 Mbit/s.<br>The port supports the PoE function. | <a href="#">Ethernet cable</a> |

| Port            | Connector Type | Description   | Available Components   |
|-----------------|----------------|---|--|
| GE optical port | SFP            | A GE optical port can send and receive data at 100/1000 Mbit/s. | <ul style="list-style-type: none"> <li>• <b>FE SFP/eSFP optical modules (only optical modules with transmission distances less than or equal to 15 km are supported)</b></li> <li>• <b>GE eSFP optical modules (only optical modules with transmission distances less than or equal to 10 km are supported)</b></li> </ul> |

## Indicators and Buttons

**Table 4-34** Description of indicators on the device

| Indicator                    | Color | Status    | Description  |
|------------------------------|-------|-----------|--|
| PWR indicator                | -     | Off       | The device is powered off.   |
|                              | Green | Steady on | The power supply is normal.  |
| Port indicator (Port status) | -     | Off       | The port is not connected or has been shut down.   |
|                              | Green | Steady on | A link has been established on the port.<br><b>NOTE</b><br>During device startup, all port indicators are steady green for about 2 seconds and then off, indicating that service initialization is complete. |
|                              | Green | Blinking  | The port is sending or receiving data.   |
| Port indicator (PoE status)  | -     | Off       | The port is not supplying PoE power.   |
|                              | Green | Steady on | The port is supplying power to the connected PD.   |

| Indicator | Color | Status   | Description   |
|-----------|-------|----------|---|
|           | Green | Blinking | The PoE power of the device is insufficient, and the port cannot provide power to the PD. |

## Power Supply System

The device uses the power adapter delivered with the device to supply power to the device and the connected PD. The device provides 24 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 124 W.

## Heat Dissipation System

The device has no fans and uses natural heat dissipation.

## Technical Specifications

**Table 4-35** Technical specifications of the S110-24LP2SR

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 260.0 mm (1.72 in. x 17.40 in. x 10.24 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 267.0 mm (1.72 in. x 17.40 in. x 10.51 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 555.0 mm x 400.0 mm (3.54 in. x 21.85 in. x 15.75 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 3.2 kg (7.1 lb)   |
| Weight with packaging [kg(lb)]                     | 3.7 kg (8.16 lb)  |
| Typical power consumption [W]                      | 24 W  |
| Typical heat dissipation [BTU/hour]                | 81.89 BTU/hour  |
| Maximum power consumption [W]                      | Without PoE: 24 W<br>Full PoE load: 165 W (PoE: 124 W)  |

| Item   | Specification   |
|--|---|
| Maximum heat dissipation [BTU/hour]                              | Without PoE: 81.89<br>Full PoE load: 563  |
| Static power consumption [W]                                     | 13 W  |
| MTBF [years]   | 42.92 years   |
| Availability   | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]             | Noise-free (no fans), < 30  |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | Noise-free (no fans), < 20  |
| Number of card slots   | 0   |
| Number of power slots  | 0   |
| Number of fans modules   | 0   |
| Working mode   | <ul style="list-style-type: none"> <li>• Standard mode</li> <li>• Port isolation</li> <li>• Uplink aggregation</li> <li>• Flow control disabling</li> </ul>       |
| MAC address entry  | 8K  |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | 0°C to 40°C (32°F to 104°F) at an altitude of 0-1800 m (0-5906 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |
| Power supply mode  | AC built-in   |
| Rated input voltage [V]  | AC input: 100-240 V AC; 50/60 Hz  |
| Input voltage range [V]  | AC input: 90 V AC to 300 V AC; 47 Hz to 63 Hz   |
| Maximum input current [A]  | 3 A   |

| Item  | Specification  |
|---|--|
| Memory  | -  |
| Flash memory                                    | -  |
| Console port                                    | Not supported  |
| Eth Management port                             | Not supported  |
| USB   | Not supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 4$ kV  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | None   |
| Heat dissipation mode                           | Natural heat dissipation   |
| Airflow direction                               | -  |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.6 S220

### 4.6.1 S220-8T4S

#### Overview

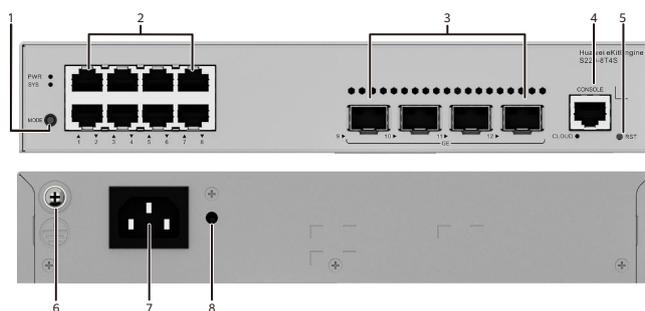
**Table 4-36** Basic information about the S220-8T4S

| Item        | Details   |
|-------------|---|
| Description | S220-8T4S(8*10/100/1000BASE-T ports, 4*GE SFP ports, built-in AC power) |
| Part Number | 98012551  |

| Item                    | Details           |
|-------------------------|-------------------|
| Model                   | S220-8T4S         |
| First supported version | V600R023C10SPC600 |

## Components

Figure 4-10 S220-8T4S appearance



|   |   |   |  |
|---|---|---|--|
| 1 | One MODE button   | 2 | Eight 10/100/1000BASE-T ports  |
| 3 | Four 1000BASE-X ports   | 4 | One console port   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <b>ground cable</b> .   |
| 7 | AC socket<br><b>NOTE</b><br>It is used with an <b>AC power cable</b> .  | 8 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch. |

## Ports

**Table 4-37** Ports on the S220-8T4S

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <b>Ethernet cable</b>   |
| 1000BASE-X port        | SFP            | A 1000BASE-X port can send and receive data at 1000 Mbit/s.   | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> </ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.                               | <b>Console cable</b>  |



| No. | Indicator | Name   | Color   | Status    | Description   |
|-----|-----------|--|---|-----------|---|
|     |           |  | Red   | Steady on | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | PoE       | PoE indicator  | -   | Off       | The PoE mode is not selected.   |
|     |           |  | Green   | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |
| 4   | MODE      | Mode switch button                                   | -   | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |           | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-39</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>   |

| No. | Indicator | Name   | Color | Status        | Description                                  |
|-----|-----------|--|-------|---------------|--|
| 6   | CLOUD     | Cloud indicator  | -     | Off           | The device is not connected to the cloud.    |
|     |           | <b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | Blue  | Fast blinking | The device is connecting to the cloud.       |
|     |           |  | Blue  | Slow blinking | The device is in the cloud management state. |

**Table 4-39** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down.   |
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

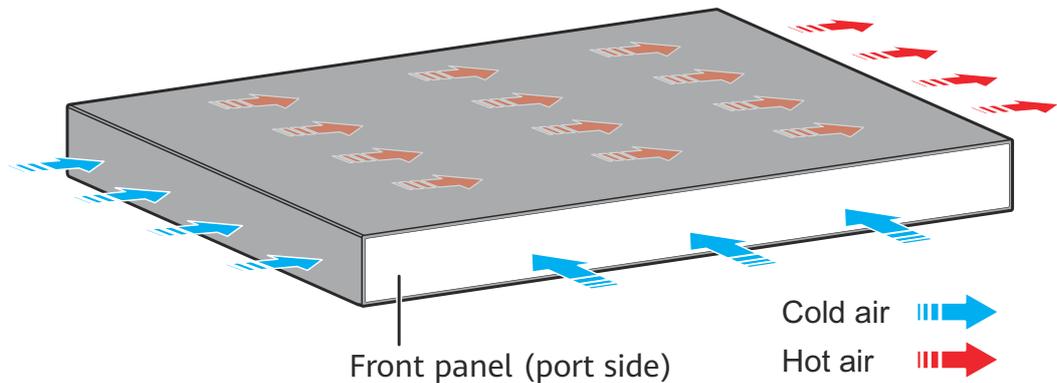
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has a built-in fan for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-40** Technical specifications of the S220-8T4S

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 250.0 mm x 180.0 mm (1.72 in. x 9.84 in. x 7.09 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 250.0 mm x 187.0 mm (1.72 in. x 9.84 in. x 7.36 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 370.0 mm x 380.0 mm (3.54 in. x 14.57 in. x 14.96 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 1.41 kg (3.11 lb)   |
| Weight with packaging [kg(lb)]                     | 2.22 kg (4.89 lb)   |
| Typical power consumption [W]                      | 15.95 W   |
| Typical heat dissipation [BTU/hour]                | 54.42 BTU/hour  |

| Item   | Specification  |
|--|--|
| Maximum power consumption [W]                                    | 21.52 W  |
| Maximum heat dissipation [BTU/hour]                              | 73.43 BTU/hour   |
| Static power consumption [W]                                     | 10.52 W  |
| MTBF [years]   | 75.32 years  |
| Availability   | > 0.99999  |
| Noise at normal temperature (acoustic power) [dB(A)]             | 44.5 dB(A)   |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 32.5 dB(A)   |
| Number of card slots   | 0  |
| Number of power slots  | 0  |
| Number of fans modules   | 1  |
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | AC input: 100–240 V AC; 50/60 Hz   |
| Input voltage range [V]  | AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz  |
| Maximum input current [A]  | 0.8 A  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |

| Item  | Specification  |
|---|--|
| Console port                                    | RJ45   |
| Eth Management port                             | Not supported  |
| USB   | Not supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and front, air exhaustion from right                |
| PoE   | Not supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.6.2 S220-8P4S

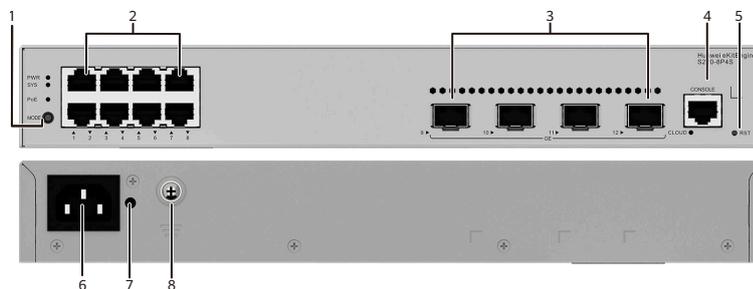
### Overview

**Table 4-41** Basic information about the S220-8P4S

| Item                    | Details   |
|-------------------------|---|
| Description             | S220-8P4S(8*10/100/1000BASE-T ports(125W PoE+),4*GE SFP ports, built-in AC power) |
| Part Number             | 98012552  |
| Model                   | S220-8P4S   |
| First supported version | V600R023C10SPC600   |

## Components

Figure 4-12 S220-8P4S appearance



|   |  |   |  |
|---|--|---|--|
| 1 | One MODE button  | 2 | Eight 10/100/1000BASE-T PoE+ ports                                     |
| 3 | Four 1000BASE-X ports  | 4 | One console port   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | AC socket<br><b>NOTE</b><br>It is used with an <b>AC power cable</b> . |
| 7 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.   | 8 | Ground screw<br><b>NOTE</b><br>It is used with a <b>ground cable</b> . |

## Ports

**Table 4-42** Ports on the S220-8P4S

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <b>Ethernet cable</b>   |
| 1000BASE-X port        | SFP            | A 1000BASE-X port can send and receive data at 1000 Mbit/s.   | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> </ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.                               | <b>Console cable</b>  |



| No. | Indicator | Name   | Color   | Status    | Description   |
|-----|-----------|--|---|-----------|---|
|     |           |  | Red   | Steady on | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | PoE       | PoE indicator  | -   | Off       | The PoE mode is not selected.   |
|     |           |  | Green   | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |
| 4   | MODE      | Mode switch button                                   | -   | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |           | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-44</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>   |

| No. | Indicator | Name   | Color | Status        | Description                                  |
|-----|-----------|--|-------|---------------|--|
| 6   | CLOUD     | Cloud indicator  | -     | Off           | The device is not connected to the cloud.    |
|     |           | <b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | Blue  | Fast blinking | The device is connecting to the cloud.       |
|     |           |  | Blue  | Slow blinking | The device is in the cloud management state. |

**Table 4-44** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down.   |
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

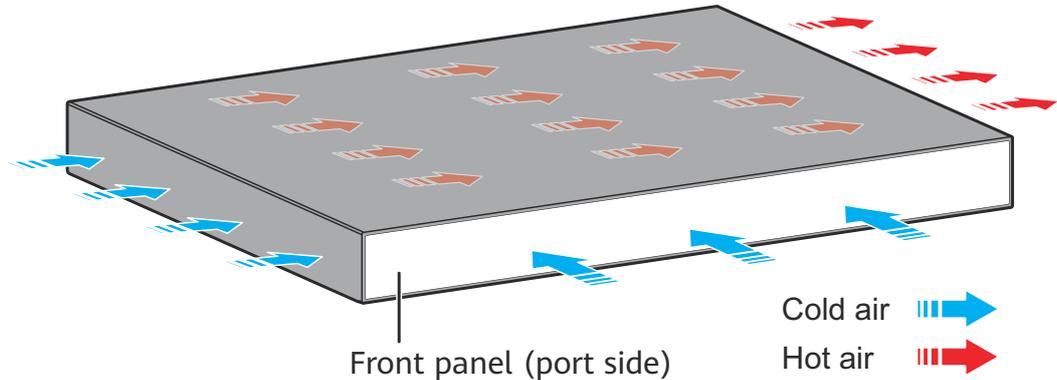
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 8 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 125 W.

## Heat Dissipation System

The switch has a built-in fan for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-45** Technical specifications of the S220-8P4S

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 320.0 mm x 210.0 mm (1.72 in. x 12.6 in. x 8.27 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 320.0 mm x 217.0 mm (1.72 in. x 12.6 in. x 8.54 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 465.0 mm x 380.0 mm (3.54 in. x 18.31 in. x 14.96 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 2.5 kg (5.51 lb)  |
| Weight with packaging [kg(lb)]                     | 3.05 kg (6.72 lb)   |
| Typical power consumption [W]                      | 19.99 W   |
| Typical heat dissipation [BTU/hour]                | 68.21 BTU/hour  |

| Item   | Specification  |
|--|--|
| Maximum power consumption [W]                                    | <ul style="list-style-type: none"> <li>Without PoE: 25.09 W</li> <li>Full PoE load: 166.65 W (PoE: 125 W)</li> </ul>   |
| Maximum heat dissipation [BTU/hour]                              | <ul style="list-style-type: none"> <li>Without PoE: 85.61</li> <li>Full PoE load: 568.63</li> </ul>  |
| Static power consumption [W]                                     | 17.19 W  |
| MTBF [years]   | 69.71 years  |
| Availability   | > 0.99999  |
| Noise at normal temperature (acoustic power) [dB(A)]             | 47 dB(A)   |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 35 dB(A)   |
| Number of card slots   | 0  |
| Number of power slots  | 0  |
| Number of fans modules   | 1  |
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | AC input: 100–240 V AC; 50/60 Hz   |
| Input voltage range [V]  | AC input: 90 V AC to 300 V AC; 47 Hz to 63 Hz  |
| Maximum input current [A]  | 3 A  |

| Item  | Specification  |
|---|--|
| Memory  | 2 GB   |
| Flash memory                                    | Physical space: 1 GB   |
| Console port                                    | RJ45   |
| Eth Management port                             | Not supported  |
| USB   | Not supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and front, air exhaustion from right                |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

### 4.6.3 S220-24T4X

#### Overview

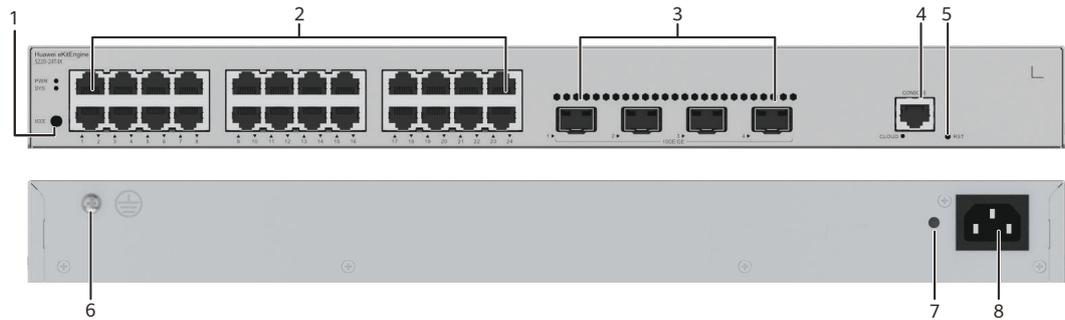
**Table 4-46** Basic information about the S220-24T4X

| Item        | Details   |
|-------------|---|
| Description | S220-24T4X (24*10/100/1000BASE-T ports, 4*10GE SFP+ ports, built-in AC power) |
| Part Number | 98012375  |
| Model       | S220-24T4X  |

| Item                    | Details     |
|-------------------------|-------------|
| First supported version | V600R023C00 |

## Components

Figure 4-14 S220-24T4X appearance



|   |  |   |   |
|---|--|---|---|
| 1 | One MODE button  | 2 | Twenty-four 10/100/1000BASE-T ports   |
| 3 | Four 10GE SFP+ ports   | 4 | One console port  |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |
| 7 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.   | 8 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |

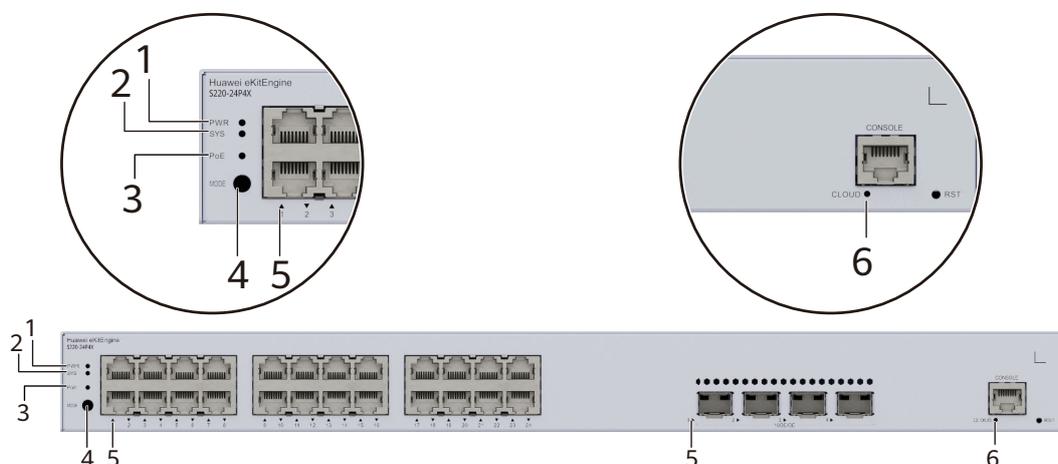
## Ports

**Table 4-47** Ports on the S220-24T4X

| Port                   | Connector Type | Description   | Available Components   |
|------------------------|----------------|---|--|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.                                     | <b>Ethernet cable</b>  |
| 10GE SFP+ port         | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> </ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>   |

## Indicators and Buttons

**Figure 4-15** Indicators on the Switch



**NOTE**

The S220-24P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-48** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.          |

| No. | Indicator | Name   | Color   | Status    | Description  |
|-----|-----------|--|---|-----------|--|
| 3   | PoE       | PoE indicator  | -   | Off       | The PoE mode is not selected.  |
|     |           |  | Green   | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.  |
| 4   | MODE      | Mode switch button                                   | -   | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>                     Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |           | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-49</a>.</p> <p><b>NOTE</b><br/>                     If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>   |

| No. | Indicator | Name  | Color | Status        | Description                                  |
|-----|-----------|---|-------|---------------|--|
| 6   | CLOUD     | Cloud indicator<br><br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -     | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue  | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue  | Slow blinking | The device is in the cloud management state. |

**Table 4-49** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down.   |
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

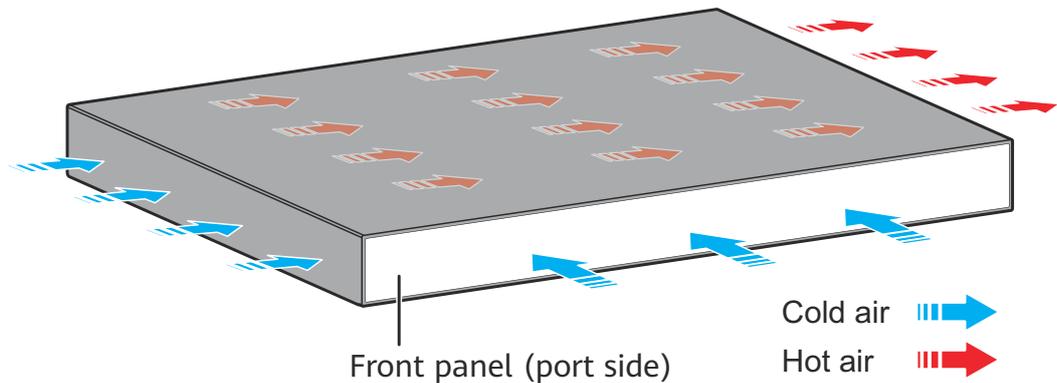
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has a built-in fan for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-50** Technical specifications of the S220-24T4X

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 2.32 kg (5.11 lb)   |
| Weight with packaging [kg(lb)]                     | 3.44 kg (7.58 lb)   |
| Typical power consumption [W]                      | 27.27 W   |
| Typical heat dissipation [BTU/hour]                | 93.05 BTU/hour  |

| Item   | Specification  |
|--|--|
| Maximum power consumption [W]                                    | 35.04 W  |
| Maximum heat dissipation [BTU/hour]                              | 119.56 BTU/hour  |
| Static power consumption [W]                                     | 19.00 W  |
| MTBF [years]   | 70.75 years  |
| Availability   | > 0.99999  |
| Noise at normal temperature (acoustic power) [dB(A)]             | 47 dB(A)   |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 35 dB(A)   |
| Number of card slots   | 0  |
| Number of power slots  | 0  |
| Number of fans modules   | 1  |
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | AC input: 100–240 V AC; 50/60 Hz   |
| Input voltage range [V]  | AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz  |
| Maximum input current [A]  | 0.8 A  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |

| Item  | Specification  |
|---|--|
| Console port                                    | RJ45   |
| Eth Management port                             | Not supported  |
| USB   | Not supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and front, air exhaustion from right                |
| PoE   | Not supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.6.4 S220-24P4X

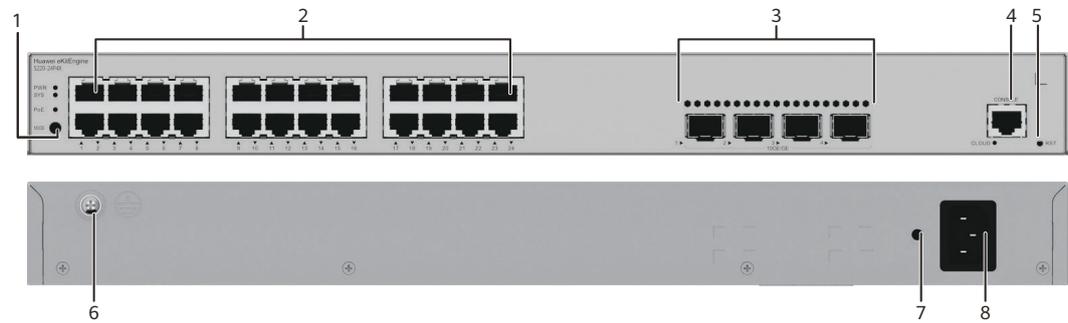
### Overview

**Table 4-51** Basic information about the S220-24P4X

| Item                    | Details  |
|-------------------------|--|
| Description             | S220-24P4X (24*10/100/1000BASE-T ports(400W PoE+), 4*10GE SFP+ ports, built-in AC power) |
| Part Number             | 98012376   |
| Model                   | S220-24P4X   |
| First supported version | V600R023C00  |

## Components

**Figure 4-16** S220-24P4X appearance



|   |  |   |  |
|---|--|---|--|
| 1 | One MODE button  | 2 | Twenty-four 10/100/1000BASE-T PoE+ ports                               |
| 3 | Four 10GE SFP+ ports   | 4 | One console port   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <b>ground cable</b> . |
| 7 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.   | 8 | AC socket<br><b>NOTE</b><br>It is used with an <b>AC power cable</b> . |

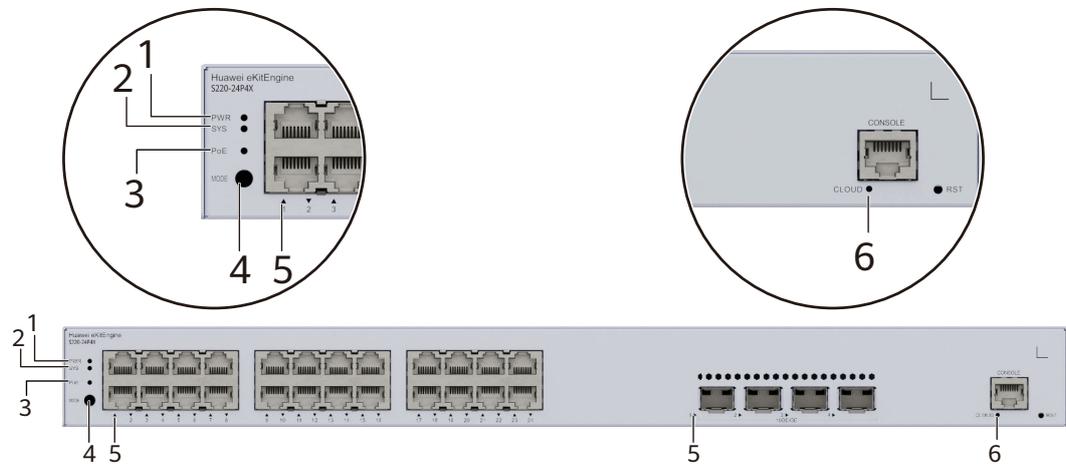
## Ports

**Table 4-52** Ports on the S220-24P4X

| Port                   | Connector Type | Description   | Available Components   |
|------------------------|----------------|---|--|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.                                     | <b>Ethernet cable</b>  |
| 10GE SFP+ port         | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> </ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>   |

## Indicators and Buttons

**Figure 4-17** Indicators on the Switch



**NOTE**

The S220-24P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-53** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.          |

| No. | Indicator | Name   | Color   | Status    | Description   |
|-----|-----------|--|---|-----------|---|
| 3   | PoE       | PoE indicator  | -   | Off       | The PoE mode is not selected.   |
|     |           |  | Green   | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |
| 4   | MODE      | Mode switch button                                   | -   | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |           | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-54</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>   |

| No. | Indicator | Name  | Color | Status        | Description                                  |
|-----|-----------|---|-------|---------------|--|
| 6   | CLOUD     | Cloud indicator<br><br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -     | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue  | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue  | Slow blinking | The device is in the cloud management state. |

**Table 4-54** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down.   |
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

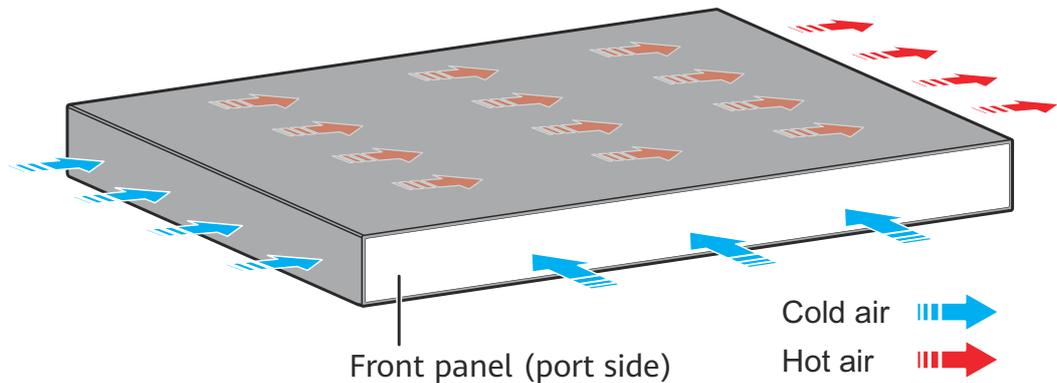
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 24 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 400 W.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-55** Technical specifications of the S220-24P4X

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 2.92 kg (6.44 lb)   |
| Weight with packaging [kg(lb)]                     | 3.79 kg (8.36 lb)   |
| Typical power consumption [W]                      | 37.12 W   |
| Typical heat dissipation [BTU/hour]                | 126.65 BTU/hour   |

| Item   | Specification   |
|--|---|
| Maximum power consumption [W]                                    | <ul style="list-style-type: none"> <li>Without PoE: 44.35 W</li> <li>Full PoE load: 485.91 W (PoE: 400 W)</li> </ul>  |
| Maximum heat dissipation [BTU/hour]                              | <ul style="list-style-type: none"> <li>Without PoE: 151.32</li> <li>Full PoE load: 1657.92</li> </ul>   |
| Static power consumption [W]                                     | 27.07 W   |
| MTBF [years]   | 60.18 years   |
| Availability   | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]             | 49.3 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 37.3 dB(A)  |
| Number of card slots   | 0   |
| Number of power slots  | 0   |
| Number of fans modules   | 2   |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)  |
| Restriction on the operating temperature variation rate [°C(°F)] | <p>When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).</p> <p>Devices cannot start when the temperature is lower than 0°C (32°F).</p> |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)  |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)  |
| Power supply mode  | AC built-in   |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> </ul>   |

| Item  | Specification   |
|---|---|
| Input voltage range [V]                         | <ul style="list-style-type: none"><li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li><li>High-voltage DC input: 190 V DC to 290 V DC</li></ul> |
| Maximum input current [A]                       | 6 A   |
| Memory  | 2 GB  |
| Flash memory                                    | Physical space: 1 GB  |
| Console port                                    | RJ45  |
| Eth Management port                             | Not supported   |
| USB   | Not supported   |
| RTC   | Not supported   |
| RPS input                                       | Not supported   |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV   |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV  |
| Ingress protection level (dustproof/waterproof) | IP20  |
| Types of fans                                   | Built-in  |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment  |
| Airflow direction                               | Air intake from left and front, air exhaustion from right   |
| PoE   | Supported   |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification  |

## 4.6.5 S220-48T4S

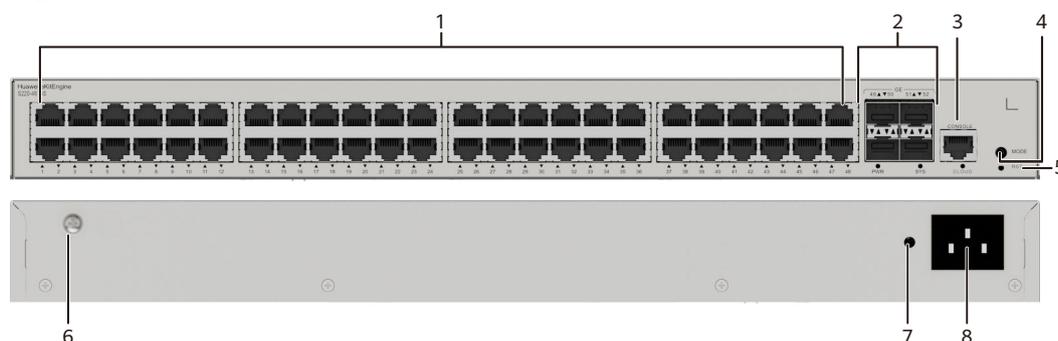
## Overview

**Table 4-56** Basic information about the S220-48T4S

| Item                    | Details  |
|-------------------------|--|
| Description             | S220-48T4S (48*10/100/1000BASE-T ports, 4*GE SFP ports, built-in AC power) |
| Part Number             | 98012380   |
| Model                   | S220-48T4S   |
| First supported version | V600R023C00  |

## Components

**Figure 4-18** S220-48T4S appearance



|   |  |   |   |
|---|--|---|---|
| 1 | Forty-eight 10/100/1000BASE-T ports  | 2 | Four 1000BASE-X ports   |
| 3 | One console port   | 4 | One MODE button   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |

|   |  |   |   |
|---|--|---|---|
| 7 | Jack for AC power cable locking strap<br><br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch. | 8 | AC socket<br><br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |
|---|--|---|---|

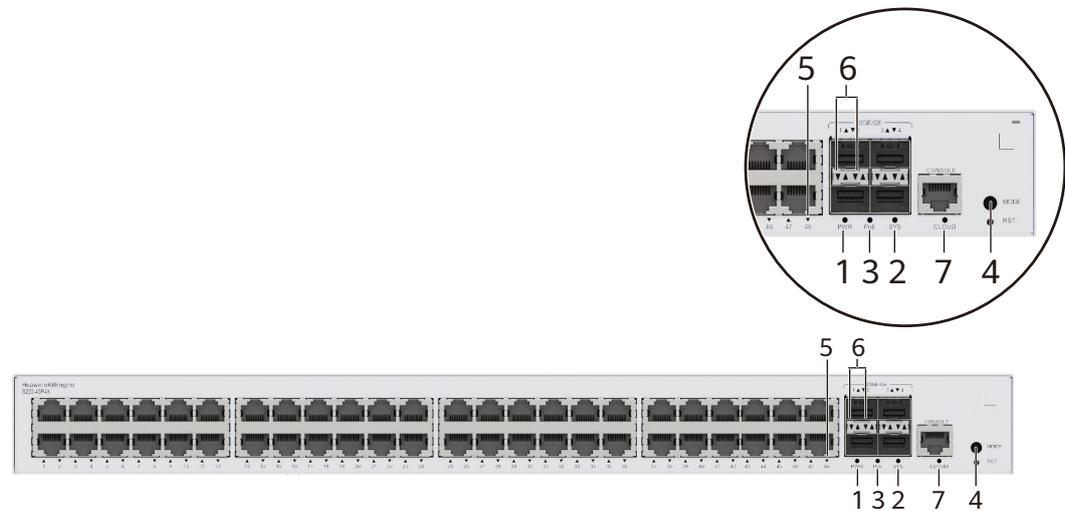
## Ports

**Table 4-57** Ports on the S220-48T4S

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a>  |
| 1000BASE-X port        | SFP            | A 1000BASE-X port can send and receive data at 1000 Mbit/s.   | <ul style="list-style-type: none"> <li>• <a href="#">GE eSFP optical modules</a></li> <li>• <a href="#">GE-CWDM eSFP optical modules</a></li> <li>• <a href="#">GE-DWDM eSFP optical modules</a></li> <li>• <a href="#">GE SFP copper module</a></li> </ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.                               | <a href="#">Console cable</a>   |

## Indicators and Buttons

Figure 4-19 Indicators on the Switch



**NOTE**

The S220-48P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

Table 4-58 Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |

| No. | Indicator | Name  | Color   | Status    | Description   |
|-----|-----------|---|---|-----------|---|
|     |           |   | Red   | Steady on | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | PoE       | PoE indicator   | -   | Off       | The PoE mode is not selected.   |
|     |           |   | Green   | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |
| 4   | MODE      | Mode switch button  | -   | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |           | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-59</a> and <a href="#">Table 4-60</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>  |

| No. | Indicator | Name  | Color  | Status        | Description                                  |
|-----|-----------|---|--|---------------|--|
| 6   | -         | Optical service port indicator (two indicators for each port)                                       | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |  |
| 7   | CLOUD     | Cloud indicator<br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -  | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state. |

**Table 4-59** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status | Description                                      |
|--------------|-------|--------|--|
| Default mode | -     | Off    | The port is not connected or has been shut down. |

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-60** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

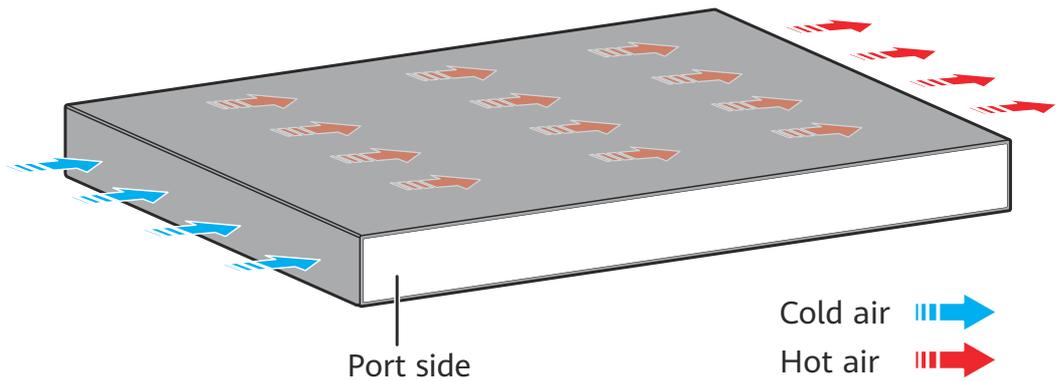
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has a built-in fan for forced air cooling. Air flows in from the left side, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



**NOTE**

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-61** Technical specifications of the S220-48T4S

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 2.71 kg (5.97 lb)   |
| Weight with packaging [kg(lb)]                     | 3.59 kg (7.91 lb)   |
| Typical power consumption [W]                      | 36.15 W   |
| Typical heat dissipation [BTU/hour]                | 123.35 BTU/hour   |
| Maximum power consumption [W]                      | 43.3 W  |
| Maximum heat dissipation [BTU/hour]                | 147.74 BTU/hour   |
| Static power consumption [W]                       | 18.8 W  |
| MTBF [years]                                       | 40.61 years   |
| Availability                                       | > 0.99999   |

| Item   | Specification   |
|--|---|
| Noise at normal temperature (acoustic power) [dB(A)]             | 46.6 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 34.6 dB(A)  |
| Number of card slots   | 0   |
| Number of power slots  | 0   |
| Number of fans modules   | 1   |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)  |
| Restriction on the operating temperature variation rate [°C(°F)] | <p>When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).</p> <p>Devices cannot start when the temperature is lower than 0°C (32°F).</p> <p>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used.</p> <p>The device does not support dying gasp when the ambient temperature is higher than 40°C (104°F).</p> |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |
| Power supply mode  | AC built-in   |
| Rated input voltage [V]  | AC input: 100–240 V AC; 50/60 Hz  |
| Input voltage range [V]  | AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz   |
| Maximum input current [A]  | 1.6 A   |
| Memory   | 2 GB  |
| Flash memory   | Physical space: 1 GB  |

| Item  | Specification  |
|---|--|
| Console port                                    | RJ45   |
| Eth Management port                             | Not supported  |
| USB   | Not supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and air exhaust from right                          |
| PoE   | Not supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.6.6 S220-48T4X

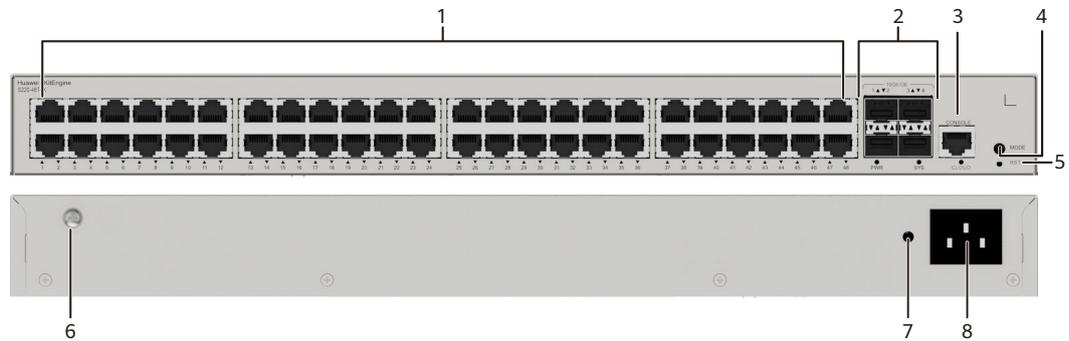
### Overview

**Table 4-62** Basic information about the S220-48T4X

| Item                    | Details   |
|-------------------------|---|
| Description             | S220-48T4X (48*10/100/1000BASE-T ports, 4*10GE SFP+ ports, built-in AC power) |
| Part Number             | 98012377  |
| Model                   | S220-48T4X  |
| First supported version | V600R023C00   |

## Components

Figure 4-20 S220-48T4X appearance



|   |   |   |   |
|---|---|---|---|
| 1 | Forty-eight 10/100/1000BASE-T ports   | 2 | Four 10GE SFP+ ports  |
| 3 | One console port  | 4 | One MODE button   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |
| 7 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.  | 8 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |

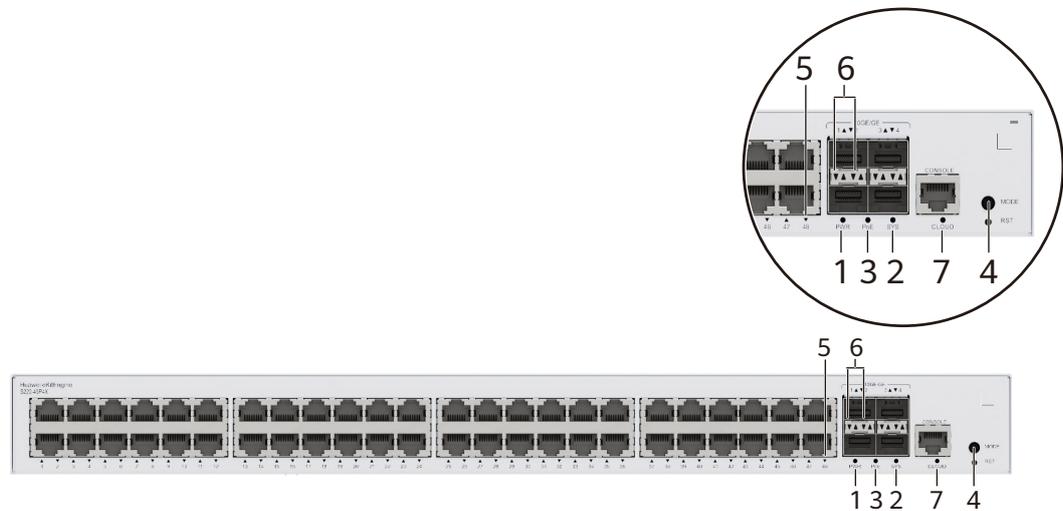
## Ports

**Table 4-63** Ports on the S220-48T4X

| Port                   | Connector Type | Description   | Available Components   |
|------------------------|----------------|---|--|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.                                     | <b>Ethernet cable</b>  |
| 10GE SFP+ port         | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> </ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>   |

## Indicators and Buttons

Figure 4-21 Indicators on the Switch



**NOTE**

The S220-48P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

Table 4-64 Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |

| No. | Indicator | Name  | Color   | Status    | Description   |
|-----|-----------|---|---|-----------|---|
|     |           |   | Red   | Steady on | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | PoE       | PoE indicator   | -   | Off       | The PoE mode is not selected.   |
|     |           |   | Green   | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |
| 4   | MODE      | Mode switch button  | -   | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |           | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-65</a> and <a href="#">Table 4-66</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>  |

| No. | Indicator | Name  | Color  | Status        | Description                                  |
|-----|-----------|---|--|---------------|--|
| 6   | -         | Optical service port indicator (two indicators for each port)                                       | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |  |
| 7   | CLOUD     | Cloud indicator<br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -  | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state. |

**Table 4-65** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status | Description                                      |
|--------------|-------|--------|--|
| Default mode | -     | Off    | The port is not connected or has been shut down. |

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-66** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

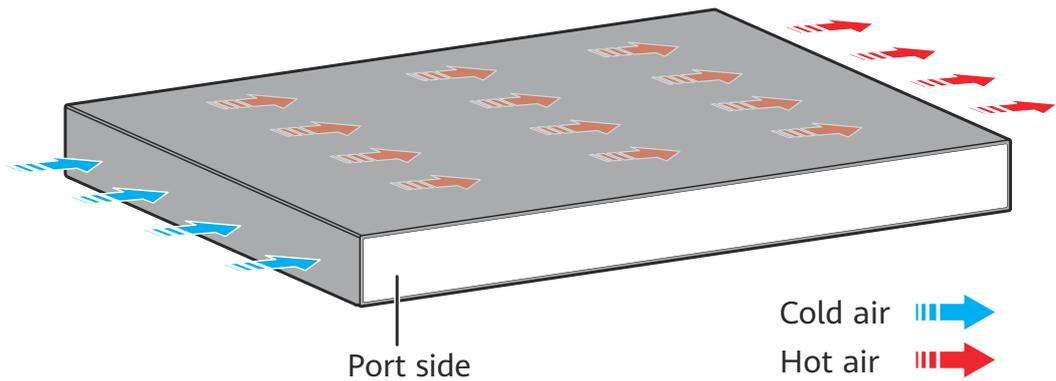
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has a built-in fan for forced air cooling. Air flows in from the left side, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



**NOTE**

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-67** Technical specifications of the S220-48T4X

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 2.71 kg (5.97 lb)   |
| Weight with packaging [kg(lb)]                     | 3.59 kg (7.91 lb)   |
| Typical power consumption [W]                      | 36.95 W   |
| Typical heat dissipation [BTU/hour]                | 126.07 BTU/hour   |
| Maximum power consumption [W]                      | 44.3 W  |
| Maximum heat dissipation [BTU/hour]                | 151.15 BTU/hour   |
| Static power consumption [W]                       | 18.8 W  |
| MTBF [years]                                       | 40.61 years   |
| Availability                                       | > 0.99999   |

| Item   | Specification   |
|--|---|
| Noise at normal temperature (acoustic power) [dB(A)]             | 46.6 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 34.6 dB(A)  |
| Number of card slots   | 0   |
| Number of power slots  | 0   |
| Number of fans modules   | 1   |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)  |
| Restriction on the operating temperature variation rate [°C(°F)] | <p>When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).</p> <p>Devices cannot start when the temperature is lower than 0°C (32°F).</p> <p>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used.</p> <p>The device does not support dying gasp when the ambient temperature is higher than 40°C (104°F).</p> |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |
| Power supply mode  | AC built-in   |
| Rated input voltage [V]  | AC input: 100–240 V AC; 50/60 Hz  |
| Input voltage range [V]  | AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz   |
| Maximum input current [A]  | 1.6 A   |
| Memory   | 2 GB  |
| Flash memory   | Physical space: 1 GB  |

| Item  | Specification  |
|---|--|
| Console port                                    | RJ45   |
| Eth Management port                             | Not supported  |
| USB   | Not supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and air exhaust from right                          |
| PoE   | Not supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.6.7 S220-48P4S

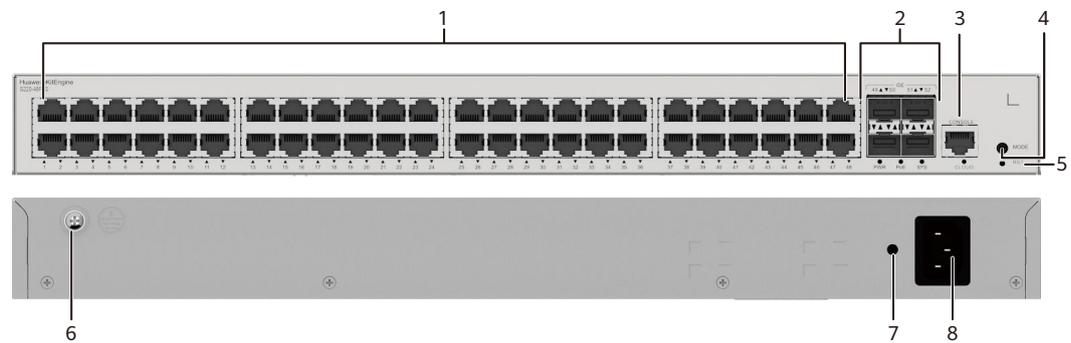
### Overview

**Table 4-68** Basic information about the S220-48P4S

| Item                    | Details   |
|-------------------------|---|
| Description             | S220-48P4S (48*10/100/1000BASE-T ports(380W PoE+), 4*GE SFP ports, built-in AC power) |
| Part Number             | 98012379  |
| Model                   | S220-48P4S  |
| First supported version | V600R023C00   |

## Components

Figure 4-22 S220-48P4S appearance



|   |   |   |   |
|---|---|---|---|
| 1 | Forty-eight 10/100/1000BASE-T PoE + ports   | 2 | Four 1000BASE-X ports   |
| 3 | One console port  | 4 | One MODE button   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |
| 7 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.  | 8 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |

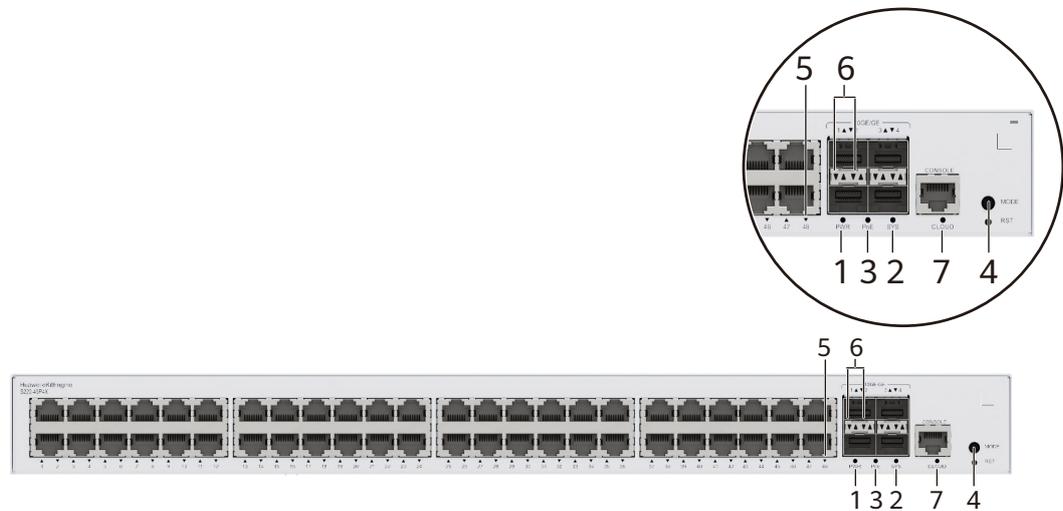
## Ports

**Table 4-69** Ports on the S220-48P4S

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <b>Ethernet cable</b>   |
| 1000BASE-X port        | SFP            | A 1000BASE-X port can send and receive data at 1000 Mbit/s.   | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> </ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.                               | <b>Console cable</b>  |

## Indicators and Buttons

**Figure 4-23** Indicators on the Switch



**NOTE**

The S220-48P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-70** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |

| No. | Indicator | Name  | Color   | Status    | Description   |
|-----|-----------|---|---|-----------|---|
|     |           |   | Red   | Steady on | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | PoE       | PoE indicator   | -   | Off       | The PoE mode is not selected.   |
|     |           |   | Green   | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |
| 4   | MODE      | Mode switch button  | -   | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |           | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-71</a> and <a href="#">Table 4-72</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>  |

| No. | Indicator | Name  | Color  | Status        | Description                                  |
|-----|-----------|---|--|---------------|--|
| 6   | -         | Optical service port indicator (two indicators for each port)                                       | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |  |
| 7   | CLOUD     | Cloud indicator<br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -  | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state. |

**Table 4-71** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status | Description                                      |
|--------------|-------|--------|--|
| Default mode | -     | Off    | The port is not connected or has been shut down. |

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-72** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

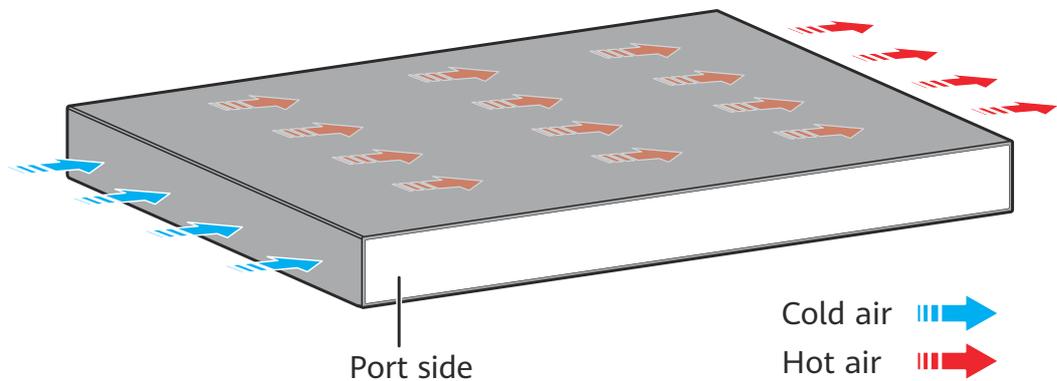
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 48 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 380 W.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



**NOTE**

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-73** Technical specifications of the S220-48P4S

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 3.24 kg (7.14 lb)   |
| Weight with packaging [kg(lb)]                     | 4.29 kg (9.46 lb)   |
| Typical power consumption [W]                      | 48.64 W   |
| Typical heat dissipation [BTU/hour]                | 165.96 BTU/hour   |
| Maximum power consumption [W]                      | <ul style="list-style-type: none"> <li>Without PoE: 63.70 W</li> <li>Full PoE load: 462.80 W (PoE: 380 W)</li> </ul>  |

| Item   | Specification   |
|--|---|
| Maximum heat dissipation [BTU/hour]                              | <ul style="list-style-type: none"> <li>Without PoE: 217.35</li> <li>Full PoE load: 1579.12</li> </ul>   |
| Static power consumption [W]                                     | 34.04 W   |
| MTBF [years]   | 48.14 years   |
| Availability   | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]             | 49.3 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 37.3 dB(A)  |
| Number of card slots   | 0   |
| Number of power slots  | 0   |
| Number of fans modules   | 2   |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)  |
| Restriction on the operating temperature variation rate [°C(°F)] | <p>When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).</p> <p>Devices cannot start when the temperature is lower than 0°C (32°F).</p> <p>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used.</p> |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)  |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)  |
| Power supply mode  | AC built-in   |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> </ul>   |

| Item  | Specification   |
|---|---|
| Input voltage range [V]                         | <ul style="list-style-type: none"><li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li><li>High-voltage DC input: 190 V DC to 290 V DC</li></ul> |
| Maximum input current [A]                       | 6 A   |
| Memory  | 2 GB  |
| Flash memory                                    | Physical space: 1 GB  |
| Console port                                    | RJ45  |
| Eth Management port                             | Not supported   |
| USB   | Not supported   |
| RTC   | Not supported   |
| RPS input                                       | Not supported   |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV   |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV  |
| Ingress protection level (dustproof/waterproof) | IP20  |
| Types of fans                                   | Built-in  |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment  |
| Airflow direction                               | Air intake from left and air exhaust from right   |
| PoE   | Supported   |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification  |

## 4.6.8 S220-48P4X

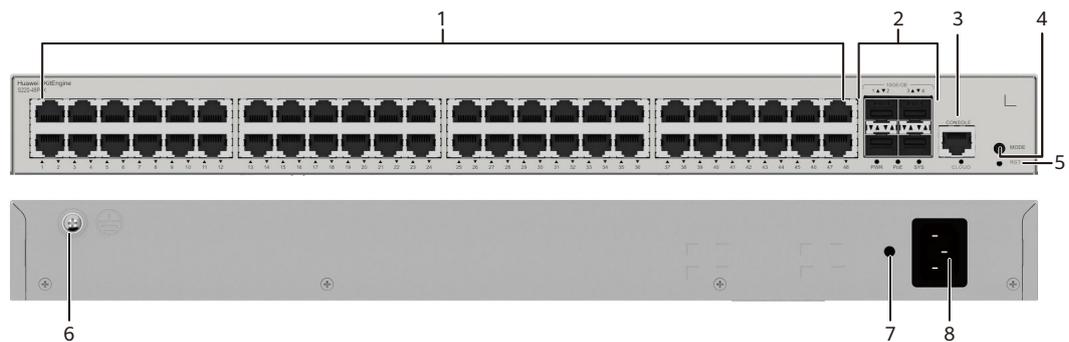
## Overview

**Table 4-74** Basic information about the S220-48P4X

| Item                    | Details  |
|-------------------------|--|
| Description             | S220-48P4X (48*10/100/1000BASE-T ports(380W PoE+), 4*10GE SFP+ ports, built-in AC power) |
| Part Number             | 98012378   |
| Model                   | S220-48P4X   |
| First supported version | V600R023C00  |

## Components

**Figure 4-24** S220-48P4X appearance



|   |  |   |   |
|---|--|---|---|
| 1 | Forty-eight 10/100/1000BASE-T PoE + ports  | 2 | Four 10GE SFP+ ports  |
| 3 | One console port   | 4 | One MODE button   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |

|   |  |   |   |
|---|--|---|---|
| 7 | Jack for AC power cable locking strap<br><br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch. | 8 | AC socket<br><br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |
|---|--|---|---|

## Ports

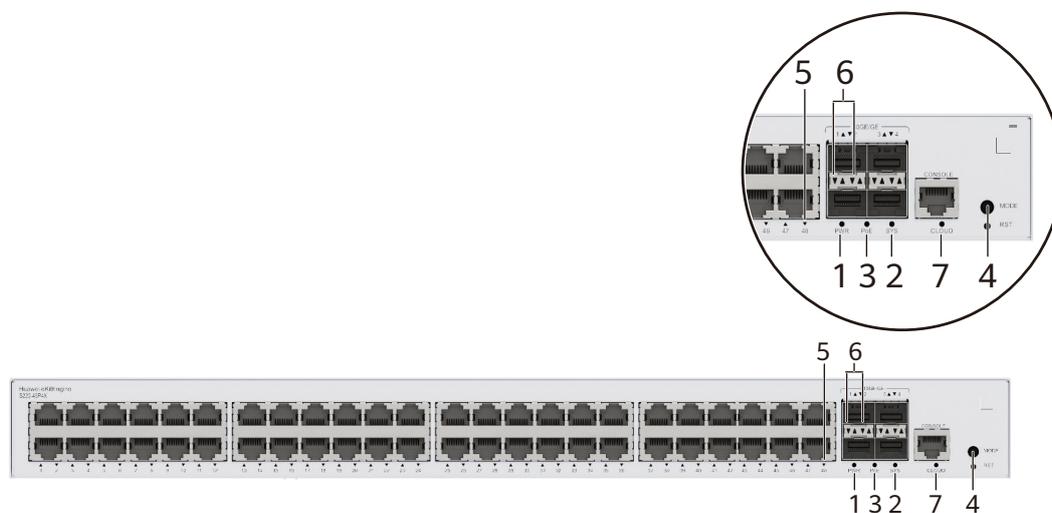
**Table 4-75** Ports on the S220-48P4X

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.                                     | <a href="#">Ethernet cable</a>  |
| 10GE SFP+ port         | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <a href="#">GE eSFP optical modules</a></li> <li>• <a href="#">GE-CWDM eSFP optical modules</a></li> <li>• <a href="#">GE-DWDM eSFP optical modules</a></li> <li>• <a href="#">GE SFP copper module</a></li> <li>• <a href="#">10GE SFP+ optical modules</a></li> <li>• <a href="#">10GE-CWDM SFP+ optical modules</a></li> <li>• <a href="#">10GE-DWDM SFP+ optical modules</a></li> <li>• <a href="#">1 m and 3 m SFP+ high-speed copper cables</a></li> <li>• <a href="#">10 m SFP+ AOC cables</a></li> </ul> |

| Port         | Connector Type | Description   | Available Components          |
|--------------|----------------|---|-------------------------------|
| Console port | RJ45           | The console port is connected to a console for on-site configuration. | <a href="#">Console cable</a> |

## Indicators and Buttons

Figure 4-25 Indicators on the Switch



### NOTE

The S220-48P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

Table 4-76 Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description                   |
|-----|-----------|-------------------------|--------|---------------|-------------------------------|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.    |
|     |           |                         | Green  | Steady on     | The power supply is normal.   |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal. |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.    |
|     |           |                         | Green  | Fast blinking | The system is starting.       |

| No. | Indicator | Name               | Color | Status        | Description   |
|-----|-----------|--------------------|-------|---------------|---|
|     |           |                    | Green | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.  |
|     |           |                    | Green | Slow blinking | The system is running normally.   |
|     |           |                    | Red   | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | PoE       | PoE indicator      | -     | Off           | The PoE mode is not selected.   |
|     |           |                    | Green | Steady on     | The PoE mode is selected, and service port indicators show the PoE status of each port.   |
| 4   | MODE      | Mode switch button | -     | -             | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |

| No. | Indicator | Name  | Color | Status | Description   |
|-----|-----------|---|-------|--------|---|
| 5   | -         | Electrical service port indicator (one indicator for each port) |       |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-77</a> and <a href="#">Table 4-78</a>.</p> <p><b>NOTE</b><br/>                     If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p> |
| 6   | -         | Optical service port indicator (two indicators for each port)   |       |        | <p>Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).</p> <p>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>   |

| No. | Indicator | Name  | Color | Status        | Description                                  |
|-----|-----------|---|-------|---------------|--|
| 7   | CLOUD     | Cloud indicator<br><br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -     | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue  | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue  | Slow blinking | The device is in the cloud management state. |

**Table 4-77** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down.   |
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-78** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

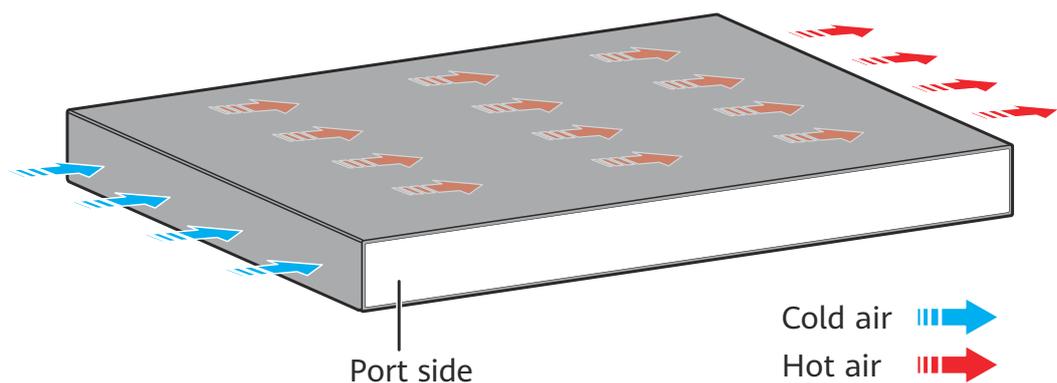
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 48 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 380 W.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-79** Technical specifications of the S220-48P4X

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 3.24 kg (7.14 lb)   |
| Weight with packaging [kg(lb)]                          | 4.29 kg (9.46 lb)   |
| Typical power consumption [W]                           | 49.44 W   |
| Typical heat dissipation [BTU/hour]                     | 168.69 BTU/hour   |
| Maximum power consumption [W]                           | <ul style="list-style-type: none"> <li>Without PoE: 64.7 W</li> <li>Full PoE load: 462.80 W (PoE: 380 W)</li> </ul>   |
| Maximum heat dissipation [BTU/hour]                     | <ul style="list-style-type: none"> <li>Without PoE: 220.76</li> <li>Full PoE load: 1579.12</li> </ul>   |
| Static power consumption [W]                            | 34.04 W   |
| MTBF [years]  | 48.14 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 49.3 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 37.3 dB(A)  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 2   |
| Redundant power supply                                  | Not supported   |

| Item   | Specification  |
|--|--|
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F).<br>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used. |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | <ul style="list-style-type: none"><li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li><li>High-voltage DC input: 240 V DC</li></ul>   |
| Input voltage range [V]  | <ul style="list-style-type: none"><li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li><li>High-voltage DC input: 190 V DC to 290 V DC</li></ul>  |
| Maximum input current [A]  | 6 A  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | Not supported  |
| USB  | Not supported  |
| RTC  | Not supported  |
| RPS input  | Not supported  |
| Service port surge protection [kV]                               | Common mode: ±7 kV   |

| Item  | Specification  |
|---|--|
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and air exhaust from right                          |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.7 S310

### 4.7.1 S310-24T4S

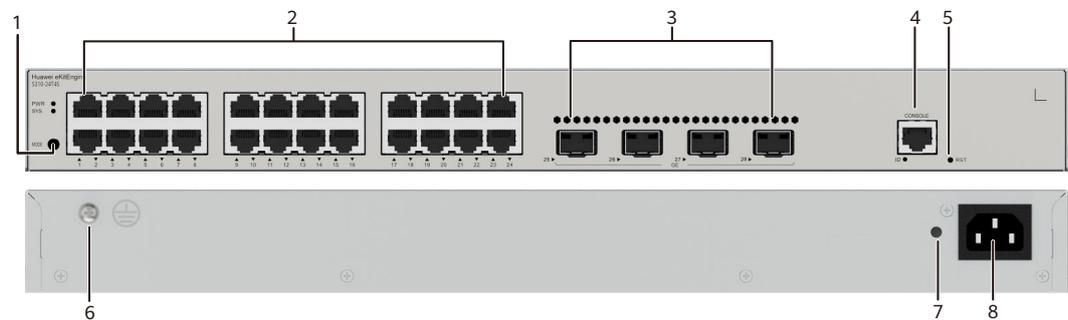
#### Overview

**Table 4-80** Basic information about the S310-24T4S

| Item                    | Details   |
|-------------------------|---|
| Description             | S310-24T4S (24*10/100/1000BASE-T ports, 4*GE SFP ports, AC power) |
| Part Number             | 98012202  |
| Model                   | S310-24T4S  |
| First supported version | V600R022C10   |

## Components

**Figure 4-26** S310-24T4S appearance



**NOTE**

This model has had changes to its appearance and branding (from CloudEngine to eKitEngine), and devices delivered over different periods may have different appearances but have no differences in functions.

|   |  |   |   |
|---|--|---|---|
| 1 | One MODE button  | 2 | Twenty-four 10/100/1000BASE-T ports   |
| 3 | Four 1000BASE-X ports  | 4 | One console port  |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the switch, hold down the button for at least 6 seconds.<br>To reset the switch, press the button.<br>Resetting the switch will cause service interruption. Exercise caution when you press the PNP button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |
| 7 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.   | 8 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |

## Ports

**Table 4-81** Ports on the S310-24T4S

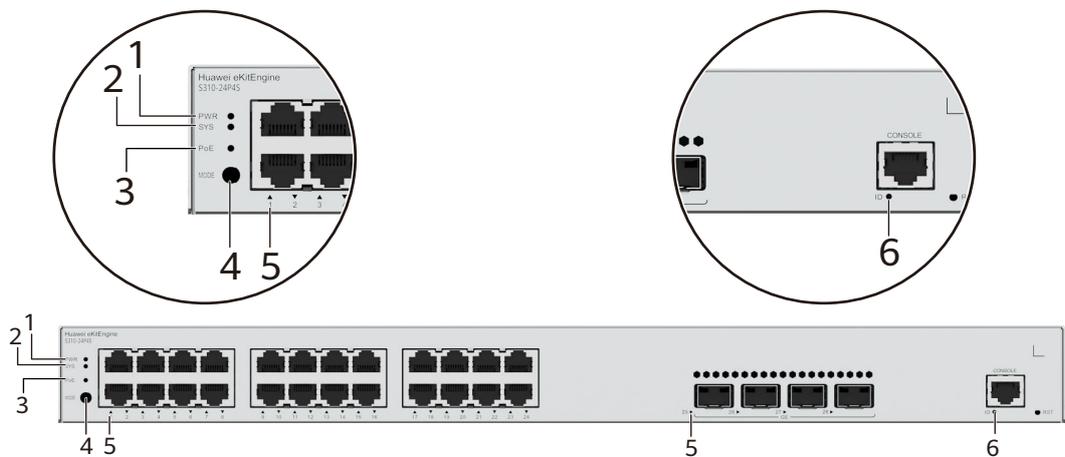
| Port                       | Connector Type | Description  | Available Components  |
|----------------------------|----------------|--|-----------------------|
| 10/100/1000BASE<br>-T port | RJ45           | A<br>10/100/1000BASE<br>-T Ethernet<br>electrical port<br>sends and<br>receives service<br>data at<br>10/100/1000<br>Mbit/s. | <b>Ethernet cable</b> |

| Port            | Connector Type | Description   | Available Components  |
|-----------------|----------------|---|---|
| 1000BASE-X port | SFP            | A 1000BASE-X port can send and receive data at 1000 Mbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules (only used for stack connection, supported in V600R023C00 and later versions)</b></li> <li>• <b>10GE-CWDM SFP+ optical modules (only used for stack connection, supported in V600R023C00 and later versions)</b></li> <li>• <b>10GE-DWDM SFP+ optical modules (only used for stack connection, supported in V600R023C00 and later versions)</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables (only used for stack connection, supported in V600R023C00 and later versions)</b></li> </ul> |

| Port         | Connector Type | Description   | Available Components  |
|--------------|----------------|---|---|
|              |                |   | <ul style="list-style-type: none"> <li>10 m SFP+ AOC cables (only used for stack connection, supported in V600R023C00 and later versions)</li> <li>0.5 m and 1.5 m SFP+ dedicated stack cables (only used for stack connection, supported in V600R023C00 and later versions)</li> </ul> |
| Console port | RJ45           | The console port is connected to a console for on-site configuration. | Console cable   |

## Indicators and Buttons

Figure 4-27 Indicators on the Switch



**NOTE**

The S310-24P4S model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-82** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.          |
| 3   | PoE       | PoE indicator           | -      | Off           | The PoE mode is not selected.  |
|     |           |                         | Green  | Steady on     | The PoE mode is selected, and service port indicators show the PoE status of each port.                                  |

| No. | Indicator | Name                   | Color  | Status    | Description  |
|-----|-----------|------------------------|--|-----------|--|
| 4   | MODE      | Mode switch button     | -  | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>In V600R023C00 and later versions, hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Service port indicator | Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-83</a> . <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p> |           |  |
| 6   | ID        | ID indicator           | -  | Off       | The ID indicator is not used (default state).  |
|     |           |                        | Blue   | Steady on | The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.  |

**Table 4-83** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down.   |
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

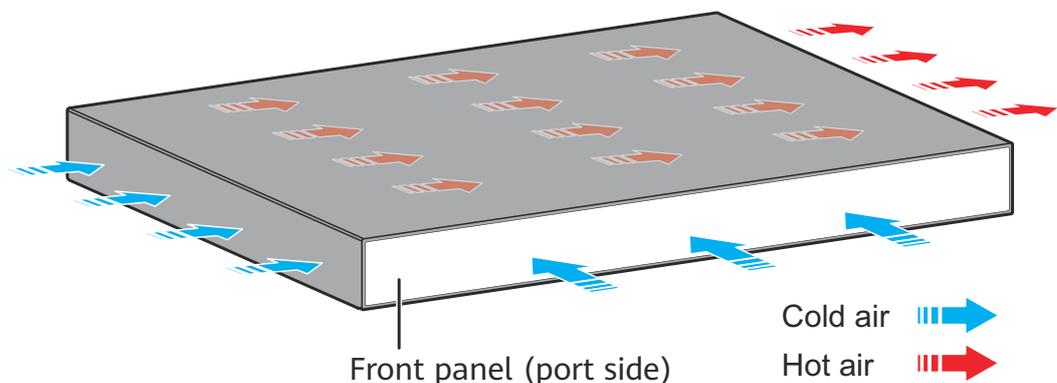
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has a built-in fan for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



 NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-84** Technical specifications of the S310-24T4S

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br><br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 2.32 kg (5.11 lb)   |
| Weight with packaging [kg(lb)]                          | 3.44 kg (7.58 lb)   |
| Typical power consumption [W]                           | 26.37 W   |
| Typical heat dissipation [BTU/hour]                     | 89.98 BTU/hour  |
| Maximum power consumption [W]                           | 34.04 W   |
| Maximum heat dissipation [BTU/hour]                     | 116.15 BTU/hour   |
| Static power consumption [W]                            | 19.00 W   |
| MTBF [years]  | 70.75 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 47 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 35 dB(A)  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 1   |
| Redundant power supply                                  | Not supported   |

| Item   | Specification  |
|--|--|
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | AC input: 100–240 V AC; 50/60 Hz   |
| Input voltage range [V]  | AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz  |
| Maximum input current [A]  | 0.8 A  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | Not supported  |
| USB  | Not supported  |
| RTC  | Not supported  |
| RPS input  | Not supported  |
| Service port surge protection [kV]                               | Common mode: ±7 kV   |
| Power supply surge protection [kV]                               | Differential mode: ±6 kV; common mode: ±6 kV   |
| Ingress protection level (dustproof/waterproof)                  | IP20   |
| Types of fans  | Built-in   |
| Heat dissipation mode  | Air cooling for heat dissipation, intelligent fan speed adjustment   |

| Item              | Specification  |
|-------------------|--|
| Airflow direction | Air intake from left and front, air exhaustion from right                |
| PoE               | Not supported  |
| Certification     | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.7.2 S310-24P4S

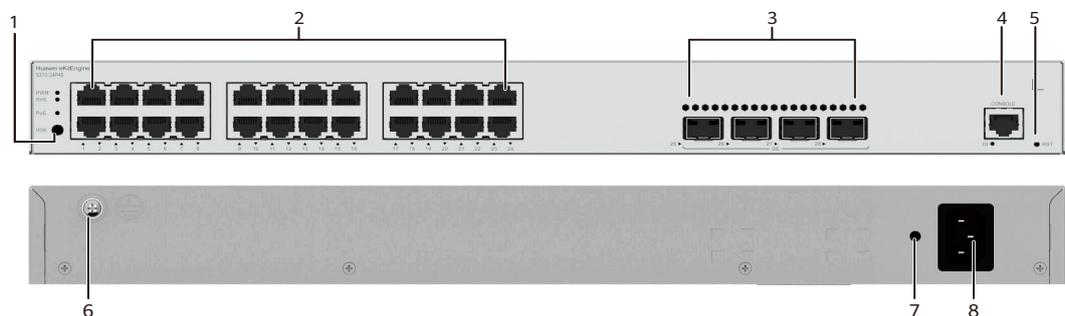
### Overview

**Table 4-85** Basic information about the S310-24P4S

| Item                    | Details   |
|-------------------------|---|
| Description             | S310-24P4S (24*10/100/1000BASE-T ports, 4*GE SFP ports, PoE+, AC power) |
| Part Number             | 98012201  |
| Model                   | S310-24P4S  |
| First supported version | V600R022C10   |

### Components

**Figure 4-28** S310-24P4S appearance



#### **NOTE**

This model has had changes to its appearance and branding (from CloudEngine to eKitEngine), and devices delivered over different periods may have different appearances but have no differences in functions.

|   |   |   |   |
|---|---|---|---|
| 1 | One MODE button   | 2 | Twenty-four 10/100/1000BASE-T PoE+ ports  |
| 3 | Four 1000BASE-X ports   | 4 | One console port  |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the switch, hold down the button for at least 6 seconds.<br>To reset the switch, press the button. Resetting the switch will cause service interruption. Exercise caution when you press the PNP button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |
| 7 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.  | 8 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |

## Ports

**Table 4-86** Ports on the S310-24P4S

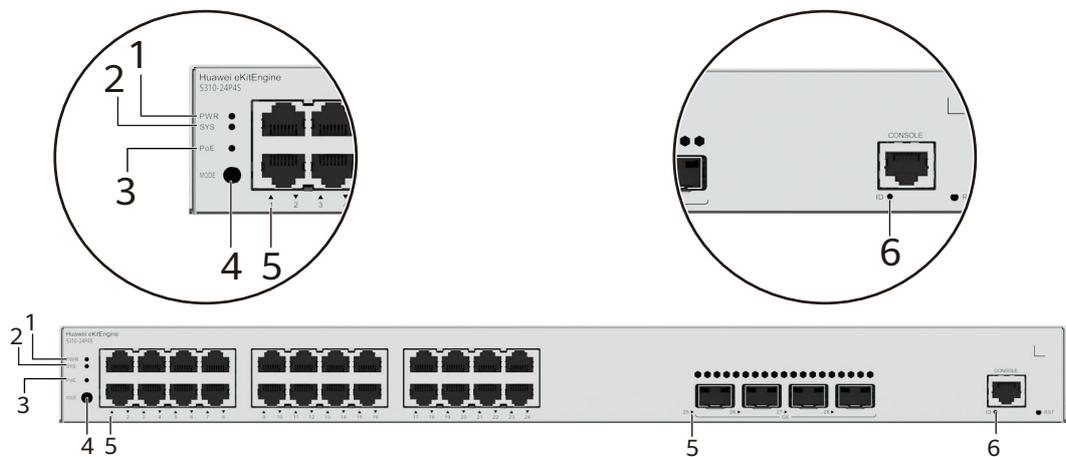
| Port                        | Connector Type | Description   | Available Components           |
|-----------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T PoE+ port | RJ45           | A 10/100/1000BASE-T PoE+ Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.<br>The port supports the PoE function. | <a href="#">Ethernet cable</a> |

| Port            | Connector Type | Description   | Available Components  |
|-----------------|----------------|---|---|
| 1000BASE-X port | SFP            | A 1000BASE-X port can send and receive data at 1000 Mbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules (only used for stack connection, supported in V600R023C00 and later versions)</b></li> <li>• <b>10GE-CWDM SFP+ optical modules (only used for stack connection, supported in V600R023C00 and later versions)</b></li> <li>• <b>10GE-DWDM SFP+ optical modules (only used for stack connection, supported in V600R023C00 and later versions)</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables (only used for stack connection, supported in V600R023C00 and later versions)</b></li> </ul> |

| Port         | Connector Type | Description   | Available Components  |
|--------------|----------------|---|---|
|              |                |   | <ul style="list-style-type: none"> <li>10 m SFP+ AOC cables (only used for stack connection, supported in V600R023C00 and later versions)</li> <li>0.5 m and 1.5 m SFP+ dedicated stack cables (only used for stack connection, supported in V600R023C00 and later versions)</li> </ul> |
| Console port | RJ45           | The console port is connected to a console for on-site configuration. | Console cable   |

## Indicators and Buttons

Figure 4-29 Indicators on the Switch



### NOTE

The S310-24P4S model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-87** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.          |
| 3   | PoE       | PoE indicator           | -      | Off           | The PoE mode is not selected.  |
|     |           |                         | Green  | Steady on     | The PoE mode is selected, and service port indicators show the PoE status of each port.                                  |

| No. | Indicator | Name                   | Color  | Status    | Description  |
|-----|-----------|------------------------|--|-----------|--|
| 4   | MODE      | Mode switch button     | -  | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>In V600R023C00 and later versions, hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Service port indicator | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-88</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p> |           |  |
| 6   | ID        | ID indicator           | -  | Off       | The ID indicator is not used (default state).  |
|     |           |                        | Blue   | Steady on | The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.  |

**Table 4-88** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down.   |
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

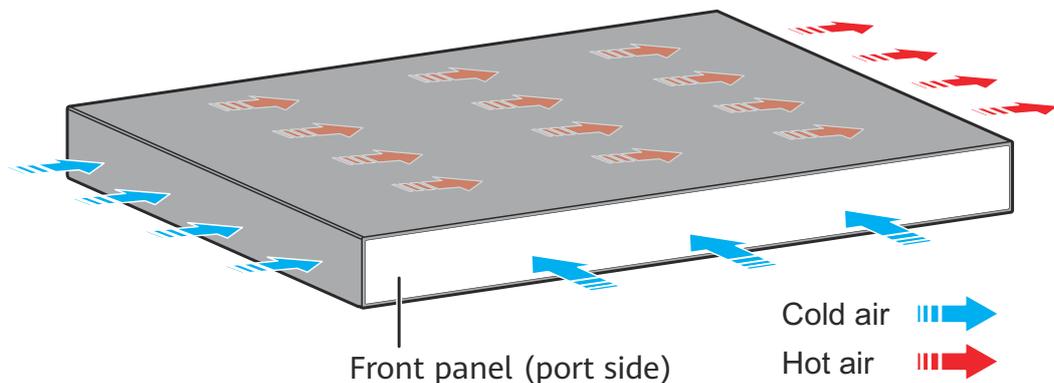
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 24 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 400 W.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



 NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-89** Technical specifications of the S310-24P4S

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br><br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 2.92 kg (6.44 lb)   |
| Weight with packaging [kg(lb)]                          | 3.79 kg (8.36 lb)   |
| Typical power consumption [W]                           | 40.07 W   |
| Typical heat dissipation [BTU/hour]                     | 136.72 BTU/hour   |
| Maximum power consumption [W]                           | <ul style="list-style-type: none"> <li>● Without PoE: 47.1 W</li> <li>● Full PoE load: 491.66 W (PoE: 400 W)</li> </ul>   |
| Maximum heat dissipation [BTU/hour]                     | <ul style="list-style-type: none"> <li>● Without PoE: 160.71</li> <li>● Full PoE load: 1677.59</li> </ul>   |
| Static power consumption [W]                            | 30.82 W   |
| MTBF [years]  | 60.18 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 49.3 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 37.3 dB(A)  |
| Number of card slots                                    | 0   |

| Item   | Specification  |
|--|--|
| Number of power slots  | 0  |
| Number of fans modules   | 2  |
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | <ul style="list-style-type: none"><li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li><li>High-voltage DC input: 240 V DC</li></ul>   |
| Input voltage range [V]  | <ul style="list-style-type: none"><li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li><li>High-voltage DC input: 190 V DC to 290 V DC</li></ul>  |
| Maximum input current [A]  | 6 A  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | Not supported  |
| USB  | Not supported  |
| RTC  | Not supported  |
| RPS input  | Not supported  |
| Service port surge protection [kV]                               | Common mode: ±7 kV   |

| Item  | Specification  |
|---|--|
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and front, air exhaustion from right                |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

### 4.7.3 S310-48T4S

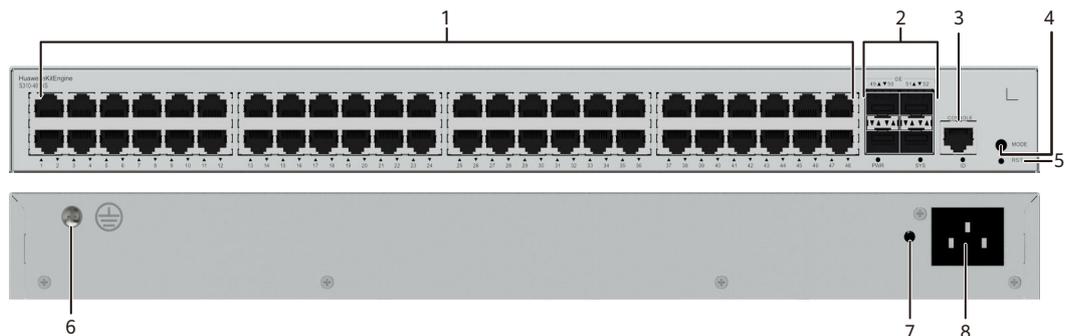
#### Overview

**Table 4-90** Basic information about the S310-48T4S

| Item                    | Details   |
|-------------------------|---|
| Description             | S310-48T4S (48*10/100/1000BASE-T ports, 4*GE SFP ports, AC power) |
| Part Number             | 98012203  |
| Model                   | S310-48T4S  |
| First supported version | V600R022C10   |

#### Components

**Figure 4-30** S310-48T4S appearance



 **NOTE**

This model has had changes to its appearance and branding (from CloudEngine to eKitEngine), and devices delivered over different periods may have different appearances but have no differences in functions.

|   |  |   |   |
|---|--|---|---|
| 1 | Forty-eight 10/100/1000BASE-T ports  | 2 | Four 1000BASE-X ports   |
| 3 | One console port   | 4 | One MODE button   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the switch, hold down the button for at least 6 seconds.<br>To reset the switch, press the button.<br>Resetting the switch will cause service interruption. Exercise caution when you press the PNP button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |
| 7 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.   | 8 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |

## Ports

**Table 4-91** Ports on the S310-48T4S

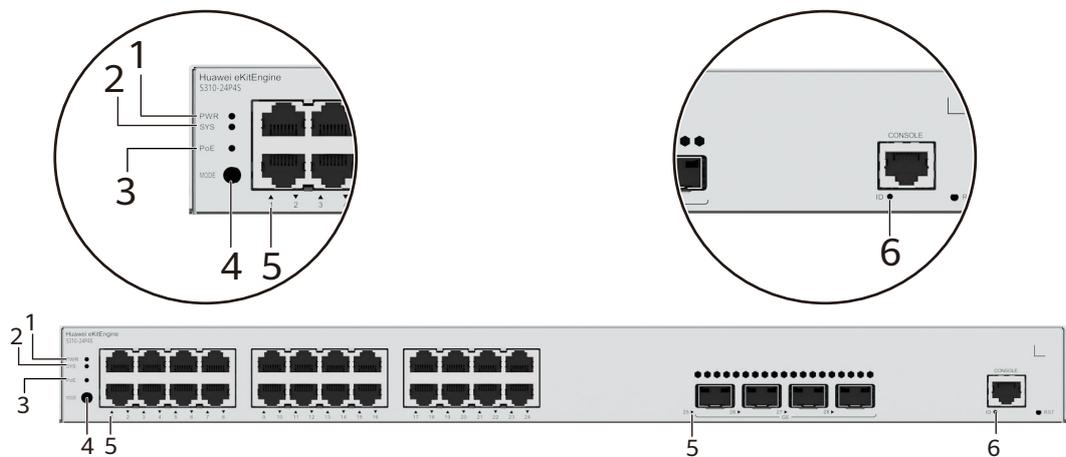
| Port                   | Connector Type | Description   | Available Components           |
|------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

| Port            | Connector Type | Description   | Available Components  |
|-----------------|----------------|---|---|
| 1000BASE-X port | SFP            | A 1000BASE-X port can send and receive data at 1000 Mbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules (only used for stack connection, supported in V600R023C00 and later versions)</b></li> <li>• <b>10GE-CWDM SFP+ optical modules (only used for stack connection, supported in V600R023C00 and later versions)</b></li> <li>• <b>10GE-DWDM SFP+ optical modules (only used for stack connection, supported in V600R023C00 and later versions)</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables (only used for stack connection, supported in V600R023C00 and later versions)</b></li> </ul> |

| Port         | Connector Type | Description   | Available Components  |
|--------------|----------------|---|---|
|              |                |   | <ul style="list-style-type: none"> <li>10 m SFP+ AOC cables (only used for stack connection, supported in V600R023C00 and later versions)</li> <li>0.5 m and 1.5 m SFP+ dedicated stack cables (only used for stack connection, supported in V600R023C00 and later versions)</li> </ul> |
| Console port | RJ45           | The console port is connected to a console for on-site configuration. | Console cable   |

## Indicators and Buttons

Figure 4-31 Indicators on the Switch



### NOTE

The S310-24P4S model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-92** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.          |
| 3   | PoE       | PoE indicator           | -      | Off           | The PoE mode is not selected.  |
|     |           |                         | Green  | Steady on     | The PoE mode is selected, and service port indicators show the PoE status of each port.                                  |

| No. | Indicator | Name                   | Color   | Status    | Description   |
|-----|-----------|------------------------|---|-----------|---|
| 4   | MODE      | Mode switch button     | -   | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>                     In V600R023C00 and later versions, hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Service port indicator | Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-93</a> .<br><b>NOTE</b><br>If a power failure occurs on a device's PCB board, indicators of the last four optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds. |           |   |
| 6   | ID        | ID indicator           | -   | Off       | The ID indicator is not used (default state).   |
|     |           |                        | Blue  | Steady on | The indicator identifies the switch to maintain. The ID indicator can be turned on or off remotely to help field engineers find the switch to maintain.   |

**Table 4-93** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down.   |
|              | Green | Steady on | A link has been established on the port.   |
|              | Green | Blinking  | The port is sending or receiving data.   |
| PoE mode     | -     | Off       | The port is not providing power to a powered device (PD).  |
|              | Green | Steady on | The port is providing power to a PD.   |
|              | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

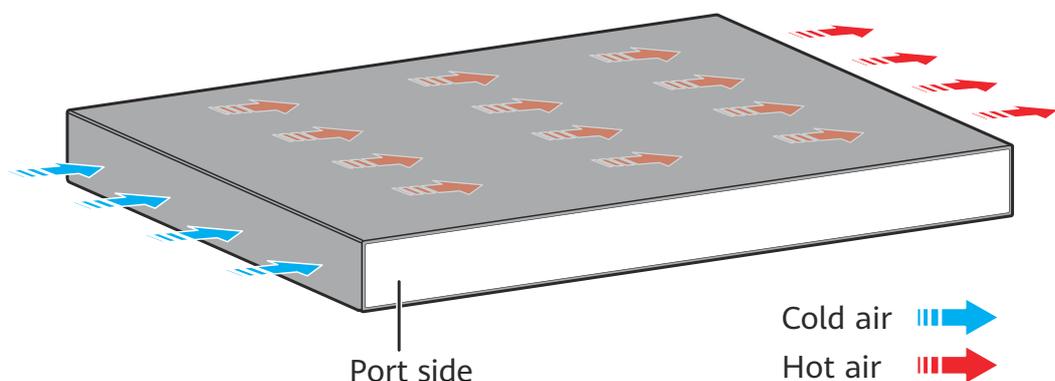
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has a built-in fan for forced air cooling. Air flows in from the left side, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



 NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-94** Technical specifications of the S310-48T4S

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br><br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 2.71 kg (5.97 lb)   |
| Weight with packaging [kg(lb)]                          | 3.59 kg (7.91 lb)   |
| Typical power consumption [W]                           | 44.9 W  |
| Typical heat dissipation [BTU/hour]                     | 153.2 BTU/hour  |
| Maximum power consumption [W]                           | 52.05 W   |
| Maximum heat dissipation [BTU/hour]                     | 177.6 BTU/hour  |
| Static power consumption [W]                            | 27.55 W   |
| MTBF [years]  | 40.61 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 46.6 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 34.6 dB(A)  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 1   |
| Redundant power supply                                  | Not supported   |

| Item   | Specification   |
|--|---|
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)  |
| Restriction on the operating temperature variation rate [°C(°F)] | <p>When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).</p> <p>Devices cannot start when the temperature is lower than 0°C (32°F).</p> <p>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used.</p> <p>The device does not support dying gasp when the ambient temperature is higher than 40°C (104°F).</p> |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)  |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)  |
| Power supply mode  | AC built-in   |
| Rated input voltage [V]  | AC input: 100–240 V AC; 50/60 Hz  |
| Input voltage range [V]  | AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz   |
| Maximum input current [A]  | 1.6 A   |
| Memory   | 2 GB  |
| Flash memory   | Physical space: 1 GB  |
| Console port   | RJ45  |
| Eth Management port  | Not supported   |
| USB  | Not supported   |
| RTC  | Not supported   |
| RPS input  | Not supported   |
| Service port surge protection [kV]                               | Common mode: ±7 kV  |
| Power supply surge protection [kV]                               | Differential mode: ±6 kV; common mode: ±6 kV  |

| Item  | Specification  |
|---|--|
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and air exhaust from right                          |
| PoE   | Not supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.7.4 S310-24T4X

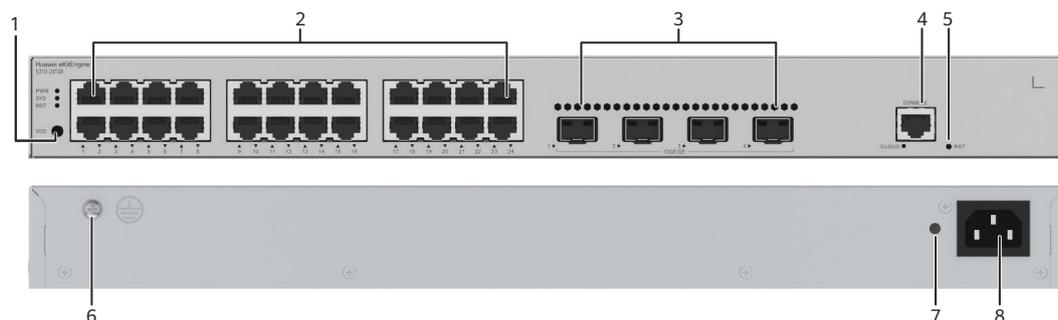
### Overview

**Table 4-95** Basic information about the S310-24T4X

| Item                    | Details   |
|-------------------------|---|
| Description             | S310-24T4X (24*10/100/1000BASE-T ports, 4*10GE SFP+ ports, built-in AC power) |
| Part Number             | 98012381  |
| Model                   | S310-24T4X  |
| First supported version | V600R023C00   |

### Components

**Figure 4-32** S310-24T4X appearance



|   |  |   |   |
|---|--|---|---|
| 1 | One MODE button  | 2 | Twenty-four 10/100/1000BASE-T ports   |
| 3 | Four 10GE SFP+ ports   | 4 | One console port  |
| 5 | <p>One RST button</p> <p><b>NOTICE</b></p> <p>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.</p> <p>To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button.</p> | 6 | <p>Ground screw</p> <p><b>NOTE</b></p> <p>It is used with a <a href="#">ground cable</a>.</p> |
| 7 | <p>Jack for AC power cable locking strap</p> <p><b>NOTE</b></p> <p>The AC power cable locking strap is not delivered with the switch.</p>  | 8 | <p>AC socket</p> <p><b>NOTE</b></p> <p>It is used with an <a href="#">AC power cable</a>.</p> |

## Ports

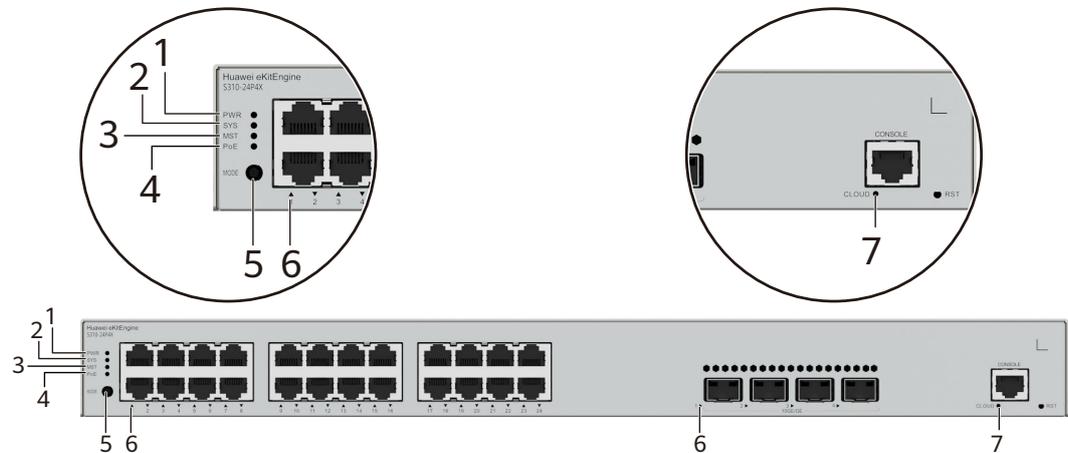
**Table 4-96** Ports on the S310-24T4X

| Port                   | Connector Type | Description   | Available Components           |
|------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

| Port           | Connector Type | Description   | Available Components  |
|----------------|----------------|---|---|
| 10GE SFP+ port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only used for zero-configuration stacking and supported from V600R024C10)</b></li> </ul> |
| Console port   | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>  |

## Indicators and Buttons

**Figure 4-33** Indicators on the Switch



**NOTE**

The S310-24P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-97** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.          |

| No. | Indicator | Name            | Color | Status    | Description   |
|-----|-----------|-----------------|-------|-----------|---|
| 3   | MST       | Stack indicator | -     | Off       | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul>  |
|     |           |                 | Green | Steady on | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.  |
|     |           |                 | Green | Blinking  | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |
| 4   | PoE       | PoE indicator   | -     | Off       | The PoE mode is not selected.   |
|     |           |                 | Green | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |

| No. | Indicator | Name   | Color   | Status | Description  |
|-----|-----------|--|---|--------|--|
| 5   | MODE      | Mode switch button                                   | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a third time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 6   | -         | Service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-98</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>  |

| No. | Indicator | Name   | Color | Status        | Description                                  |
|-----|-----------|--|-------|---------------|--|
| 7   | CLOUD     | Cloud indicator  | -     | Off           | The device is not connected to the cloud.    |
|     |           | <b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | Blue  | Fast blinking | The device is connecting to the cloud.       |
|     |           |  | Blue  | Slow blinking | The device is in the cloud management state. |

**Table 4-98** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
| Default mode   | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch. |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.      |
| PoE mode       | -     | Off       | The port is not providing power to a powered device (PD).  |
|                | Green | Steady on | The port is providing power to a PD.   |

| Display Mode | Color | Status   | Description  |
|--------------|-------|----------|--|
|              | Green | Blinking | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

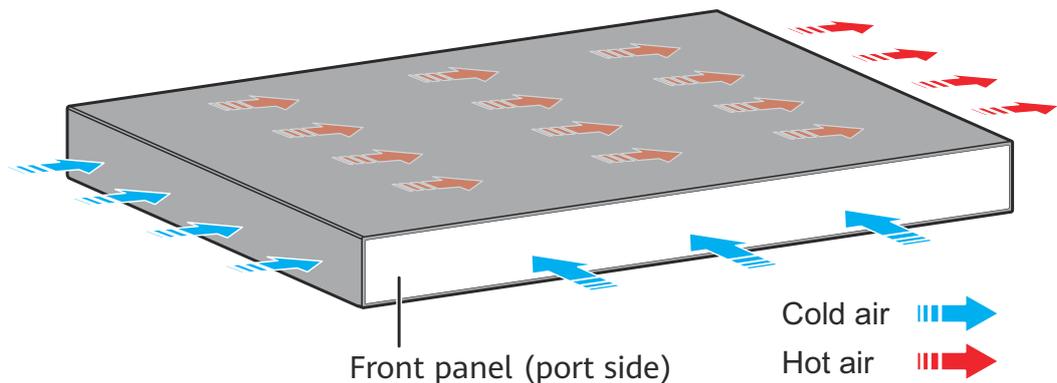
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has a built-in fan for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-99** Technical specifications of the S310-24T4X

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 2.32 kg (5.11 lb)   |
| Weight with packaging [kg(lb)]                          | 3.44 kg (7.58 lb)   |
| Typical power consumption [W]                           | 27.27 W   |
| Typical heat dissipation [BTU/hour]                     | 93.05 BTU/hour  |
| Maximum power consumption [W]                           | 35.04 W   |
| Maximum heat dissipation [BTU/hour]                     | 119.56 BTU/hour   |
| Static power consumption [W]                            | 19.00 W   |
| MTBF [years]  | 70.75 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 47 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 35 dB(A)  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 1   |
| Redundant power supply                                  | Not supported   |
| Long-term operating temperature [°C(°F)]                | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)  |

| Item   | Specification  |
|--|--|
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | –40°C to +70°C (–40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | AC input: 100–240 V AC; 50/60 Hz   |
| Input voltage range [V]  | AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz  |
| Maximum input current [A]  | 0.8 A  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | Not supported  |
| USB  | Not supported  |
| RTC  | Not supported  |
| RPS input  | Not supported  |
| Service port surge protection [kV]                               | Common mode: ±7 kV   |
| Power supply surge protection [kV]                               | Differential mode: ±6 kV; common mode: ±6 kV   |
| Ingress protection level (dustproof/waterproof)                  | IP20   |
| Types of fans  | Built-in   |
| Heat dissipation mode  | Air cooling for heat dissipation, intelligent fan speed adjustment   |
| Airflow direction  | Air intake from left and front, air exhaustion from right  |
| PoE  | Not supported  |

| Item          | Specification  |
|---------------|--|
| Certification | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.7.5 S310-24P4X

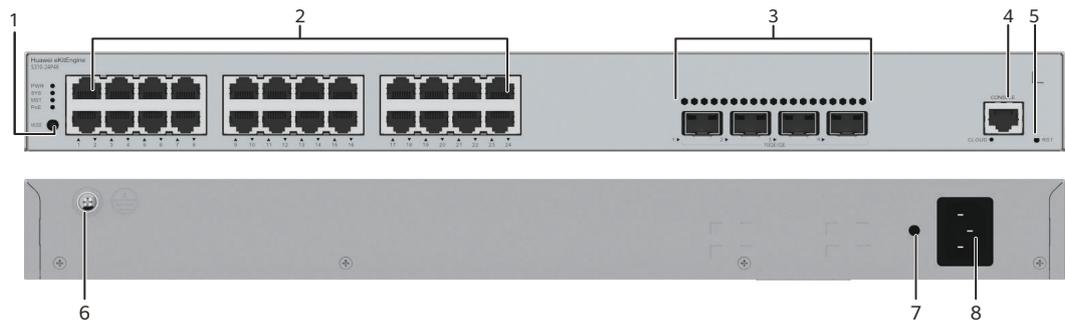
### Overview

**Table 4-100** Basic information about the S310-24P4X

| Item                    | Details  |
|-------------------------|--|
| Description             | S310-24P4X (24*10/100/1000BASE-T ports(400W PoE+), 4*10GE SFP+ ports, built-in AC power) |
| Part Number             | 98012382   |
| Model                   | S310-24P4X   |
| First supported version | V600R023C00  |

### Components

**Figure 4-34** S310-24P4X appearance



|   |                      |   |  |
|---|----------------------|---|--|
| 1 | One MODE button      | 2 | Twenty-four 10/100/1000BASE-T PoE+ ports |
| 3 | Four 10GE SFP+ ports | 4 | One console port                         |

|   |   |   |   |
|---|---|---|---|
| 5 | <p>One RST button</p> <p><b>NOTICE</b></p> <p>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.</p> <p>To reset the device, press the button.</p> <p>Resetting the device will cause service interruption. Exercise caution when you press the button.</p> | 6 | <p>Ground screw</p> <p><b>NOTE</b></p> <p>It is used with a <a href="#">ground cable</a>.</p> |
| 7 | <p>Jack for AC power cable locking strap</p> <p><b>NOTE</b></p> <p>The AC power cable locking strap is not delivered with the switch.</p>   | 8 | <p>AC socket</p> <p><b>NOTE</b></p> <p>It is used with an <a href="#">AC power cable</a>.</p> |

## Ports

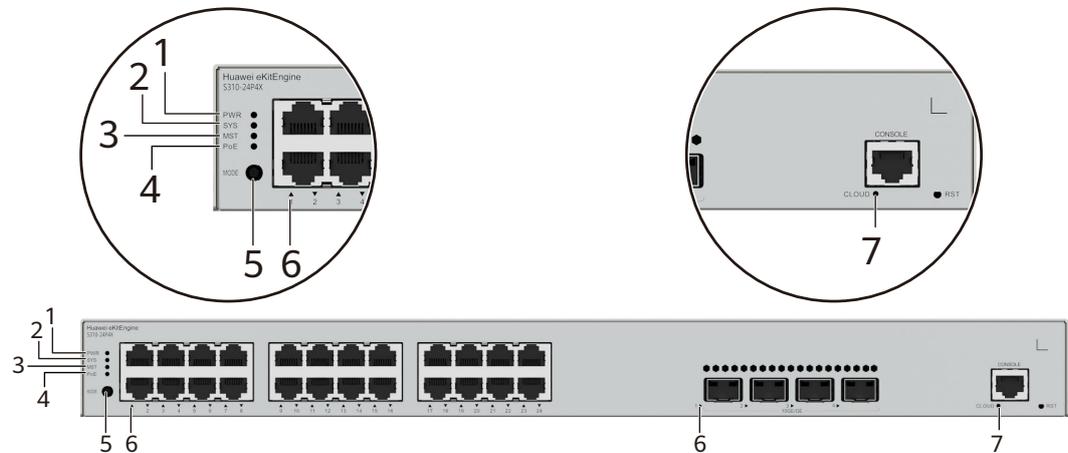
**Table 4-101** Ports on the S310-24P4X

| Port                   | Connector Type | Description   | Available Components           |
|------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

| Port           | Connector Type | Description   | Available Components  |
|----------------|----------------|---|---|
| 10GE SFP+ port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <a href="#">GE eSFP optical modules</a></li> <li>• <a href="#">GE-CWDM eSFP optical modules</a></li> <li>• <a href="#">GE-DWDM eSFP optical modules</a></li> <li>• <a href="#">GE SFP copper module</a></li> <li>• <a href="#">10GE SFP+ optical modules</a></li> <li>• <a href="#">10GE-CWDM SFP+ optical modules</a></li> <li>• <a href="#">10GE-DWDM SFP+ optical modules</a></li> <li>• <a href="#">1 m and 3 m SFP+ high-speed copper cables</a></li> <li>• <a href="#">10 m SFP+ AOC cables</a></li> <li>• <a href="#">0.5 m and 1.5 m SFP+ dedicated stack cables (only used for zero-configuration stacking and supported from V600R024C10)</a></li> </ul> |
| Console port   | RJ45           | The console port is connected to a console for on-site configuration.   | <a href="#">Console cable</a>   |

## Indicators and Buttons

**Figure 4-35** Indicators on the Switch



**NOTE**

The S310-24P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-102** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.          |

| No. | Indicator | Name            | Color | Status    | Description   |
|-----|-----------|-----------------|-------|-----------|---|
| 3   | MST       | Stack indicator | -     | Off       | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul>  |
|     |           |                 | Green | Steady on | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.  |
|     |           |                 | Green | Blinking  | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |
| 4   | PoE       | PoE indicator   | -     | Off       | The PoE mode is not selected.   |
|     |           |                 | Green | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |

| No. | Indicator | Name   | Color   | Status | Description   |
|-----|-----------|--|---|--------|---|
| 5   | MODE      | Mode switch button                                   | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a third time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>                     Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 6   | -         | Service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-103</a>.</p> <p><b>NOTE</b><br/>                     If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>   |

| No. | Indicator | Name   | Color | Status        | Description                                  |
|-----|-----------|--|-------|---------------|--|
| 7   | CLOUD     | Cloud indicator  | -     | Off           | The device is not connected to the cloud.    |
|     |           | <b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | Blue  | Fast blinking | The device is connecting to the cloud.       |
|     |           |  | Blue  | Slow blinking | The device is in the cloud management state. |

**Table 4-103** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
| Default mode   | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch. |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.      |
| PoE mode       | -     | Off       | The port is not providing power to a powered device (PD).  |
|                | Green | Steady on | The port is providing power to a PD.   |

| Display Mode | Color | Status   | Description  |
|--------------|-------|----------|--|
|              | Green | Blinking | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

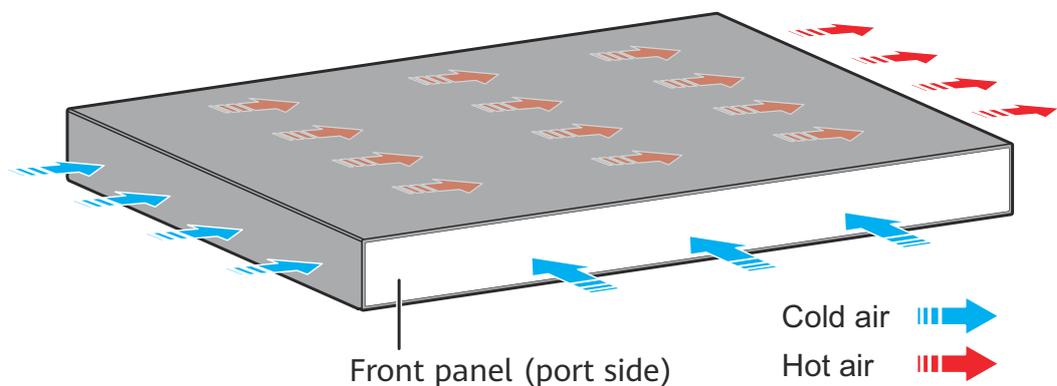
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 24 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 400 W.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-104** Technical specifications of the S310-24P4X

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 2.92 kg (6.44 lb)   |
| Weight with packaging [kg(lb)]                          | 3.79 kg (8.36 lb)   |
| Typical power consumption [W]                           | 37.12 W   |
| Typical heat dissipation [BTU/hour]                     | 126.65 BTU/hour   |
| Maximum power consumption [W]                           | <ul style="list-style-type: none"> <li>Without PoE: 44.35 W</li> <li>Full PoE load: 485.91 W (PoE: 400 W)</li> </ul>  |
| Maximum heat dissipation [BTU/hour]                     | <ul style="list-style-type: none"> <li>Without PoE: 151.32</li> <li>Full PoE load: 1657.92</li> </ul>   |
| Static power consumption [W]                            | 27.07 W   |
| MTBF [years]  | 60.18 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 49.3 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 37.3 dB(A)  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 2   |
| Redundant power supply                                  | Not supported   |

| Item   | Specification  |
|--|--|
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> </ul>  |
| Input voltage range [V]  | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li> <li>High-voltage DC input: 190 V DC to 290 V DC</li> </ul>   |
| Maximum input current [A]  | 6 A  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | Not supported  |
| USB  | Not supported  |
| RTC  | Not supported  |
| RPS input  | Not supported  |
| Service port surge protection [kV]                               | Common mode: ±7 kV   |
| Power supply surge protection [kV]                               | Differential mode: ±6 kV; common mode: ±6 kV   |
| Ingress protection level (dustproof/waterproof)                  | IP20   |
| Types of fans  | Built-in   |

| Item                  | Specification  |
|-----------------------|--|
| Heat dissipation mode | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction     | Air intake from left and front, air exhaustion from right                |
| PoE                   | Supported  |
| Certification         | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.7.6 S310-24U4X

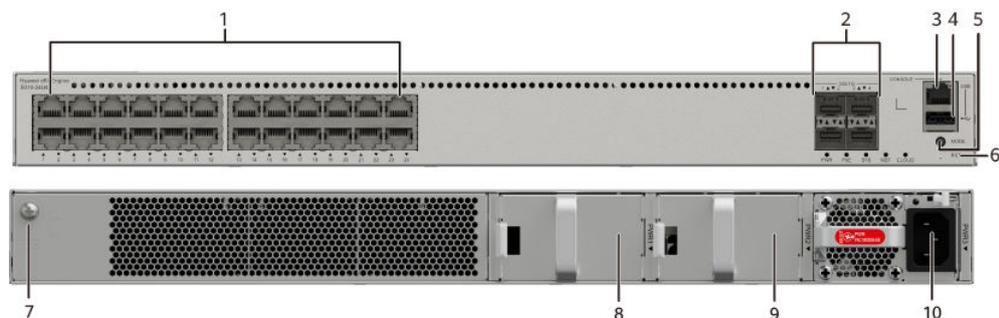
### Overview

**Table 4-105** Basic information about the S310-24U4X

| Item                    | Details   |
|-------------------------|---|
| Description             | S310-24U4X (24*10/100/1000BASE-T ports(PoE++), 4*10GE SFP+ ports, with 1*AC power module) |
| Part Number             | 98012947  |
| Model                   | S310-24U4X  |
| First supported version | V600R024C10   |

### Components

**Figure 4-36** S310-24U4X appearance



|   |   |    |  |
|---|---|----|--|
| 1 | Twenty-four 10/100/1000BASE-T PoE++ ports   | 2  | Four 10GE SFP+ ports   |
| 3 | One console port  | 4  | One USB port   |
| 5 | One MODE button   | 6  | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. |
| 7 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> .   | 8  | Power module slot 1<br><b>NOTE</b><br>Applicable power modules:<br><ul style="list-style-type: none"> <li>• <a href="#">PAC600S56-EB</a></li> <li>• <a href="#">PAC1000S56-EB</a></li> <li>• <a href="#">PDC1000S56-EB</a></li> </ul>  |
| 9 | Power module slot 2<br><b>NOTE</b><br>Applicable power modules:<br><ul style="list-style-type: none"> <li>• <a href="#">PAC600S56-EB</a></li> <li>• <a href="#">PAC1000S56-EB</a></li> <li>• <a href="#">PDC1000S56-EB</a></li> </ul> | 10 | Power module slot 3<br><b>NOTE</b><br>Applicable power modules:<br><ul style="list-style-type: none"> <li>• <a href="#">PAC600S56-EB</a> (one delivered by default)</li> <li>• <a href="#">PAC1000S56-EB</a></li> <li>• <a href="#">PDC1000S56-EB</a></li> </ul>                     |

## Ports

**Table 4-106** Ports on the S310-24U4X

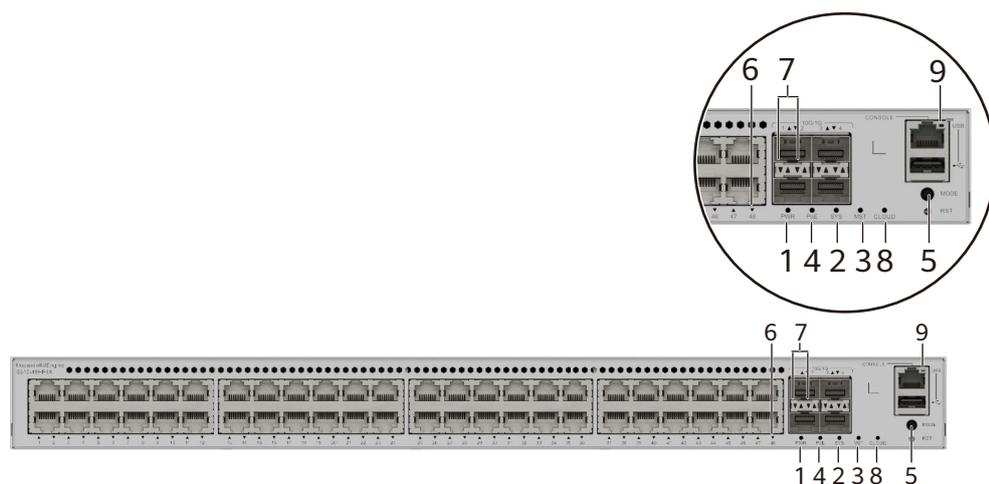
| Port                   | Connector Type | Description   | Available Components           |
|------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper modules</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>10GE SFP+ copper modules</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>  |

| Port     | Connector Type | Description  | Available Components |
|----------|----------------|--|----------------------|
| USB port | USB 2.0 Type A | <p>The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.</p> <p>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor.</p> | USB flash drive      |

## Indicators and Buttons

Figure 4-37 Indicators on the Switch



### NOTE

The S310-48HP4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-107** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.   |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.  |
| 3   | MST       | Stack indicator         | -      | Off           | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul> |
|     |           |                         | Green  | Steady on     | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.   |

| No. | Indicator | Name          | Color | Status    | Description   |
|-----|-----------|---------------|-------|-----------|---|
|     |           |               | Green | Blinking  | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |
| 4   | PoE       | PoE indicator | -     | Off       | The PoE mode is not selected.   |
|     |           |               | Green | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |

| No. | Indicator | Name  | Color   | Status | Description  |
|-----|-----------|---|---|--------|--|
| 5   | MODE      | Mode switch button  | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a third time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 6   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-108</a> and <a href="#">Table 4-109</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE, 10GE, or 25GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>  |

| No. | Indicator | Name  | Color  | Status        | Description   |
|-----|-----------|---|--|---------------|---|
| 7   | -         | Optical service port indicator (two indicators for each port) | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |   |
| 8   | CLOUD     | Cloud indicator   | -  | Off           | The device is not connected to the cloud.   |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.  |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state.  |
| 9   | USB       | USB-based deployment indicator                                | -  | Off           | No USB flash drive is installed, or the indicator fails.  |
|     |           |   | Green  | Steady on     | USB-based deployment succeeds. If there is no deployment configuration file, deployment will be repeatedly performed. In this case, the indicator is also steady green. |
|     |           |   | Green  | Blinking      | USB-based deployment is in progress.  |
|     |           |   | Red  | Steady on     | USB-based deployment fails.   |

**Table 4-108** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
| Default mode   | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch.   |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.  |
| PoE mode       | -     | Off       | The port is not providing power to a powered device (PD).  |
|                | Green | Steady on | The port is providing power to a PD.   |
|                | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-109** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color | Status | Description                                      |
|-------------------------------|-------|--------|--|
| Default mode (LINK indicator) | -     | Off    | The port is not connected or has been shut down. |

| Display Mode                 | Color  | Status    | Description   |
|------------------------------|--------|-----------|---|
|                              | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator) | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                              | Yellow | Blinking  | The port is sending or receiving data.  |

## Power Supply System

The switch is a PoE switch and supports three power module slots, each of which can have a 1000 W PoE or 600 W PoE power module installed. Pluggable AC and DC PoE power modules can be used together in the same switch.

**Table 4-110** Power supply configurations

| Power Module 1    | Power Module 2 | Power Module 3 | Available PoE Power | Maximum Number of Ports (Fully Loaded)  |
|-------------------|----------------|----------------|---------------------|---|
| 1000 W AC (220 V) | -              | -              | 846 W               | <ul style="list-style-type: none"> <li>● 802.3af (15.4 W per port): 24</li> <li>● 802.3at (30 W per port): 24</li> <li>● 802.3bt (60 W per port): 14</li> <li>● 802.3bt (90 W per port): 9</li> </ul> |
| 1000 W AC (110 V) | -              | -              | 756 W               | <ul style="list-style-type: none"> <li>● 802.3af (15.4 W per port): 24</li> <li>● 802.3at (30 W per port): 24</li> <li>● 802.3bt (60 W per port): 12</li> <li>● 802.3bt (90 W per port): 8</li> </ul> |
| 1000 W DC         | -              | -              | 846 W               | <ul style="list-style-type: none"> <li>● 802.3af (15.4 W per port): 24</li> <li>● 802.3at (30 W per port): 24</li> <li>● 802.3bt (60 W per port): 14</li> <li>● 802.3bt (90 W per port): 9</li> </ul> |

| Power Module 1                 | Power Module 2                 | Power Module 3 | Available PoE Power | Maximum Number of Ports (Fully Loaded)   |
|--------------------------------|--------------------------------|----------------|---------------------|--|
| 600 W AC (220 V)               | -                              | -              | 513 W               | <ul style="list-style-type: none"> <li>802.3af (15.4 W per port): 24</li> <li>802.3at (30 W per port): 17</li> <li>802.3bt (60 W per port): 8</li> <li>802.3bt (90 W per port): 5</li> </ul>   |
| 600 W AC (110 V)               | -                              | -              | 228 W               | <ul style="list-style-type: none"> <li>802.3af (15.4 W per port): 14</li> <li>802.3at (30 W per port): 7</li> <li>802.3bt (60 W per port): 3</li> <li>802.3bt (90 W per port): 2</li> </ul>    |
| 1000 W AC (220 V)<br>1000 W DC | 1000 W AC (220 V)<br>1000 W DC | -              | 1746 W              | <ul style="list-style-type: none"> <li>802.3af (15.4 W per port): 24</li> <li>802.3at (30 W per port): 24</li> <li>802.3bt (60 W per port): 24</li> <li>802.3bt (90 W per port): 19</li> </ul> |
| 1000 W AC (110 V)<br>1000 W DC | 1000 W AC (110 V)              | -              | 1566 W              | <ul style="list-style-type: none"> <li>802.3af (15.4 W per port): 24</li> <li>802.3at (30 W per port): 24</li> <li>802.3bt (60 W per port): 24</li> <li>802.3bt (90 W per port): 17</li> </ul> |
| 600 W AC (220 V)               | 600 W AC (220 V)               | -              | 1083 W              | <ul style="list-style-type: none"> <li>802.3af (15.4 W per port): 24</li> <li>802.3at (30 W per port): 24</li> <li>802.3bt (60 W per port): 18</li> <li>802.3bt (90 W per port): 12</li> </ul> |

| Power Module 1                 | Power Module 2                 | Power Module 3                 | Available PoE Power | Maximum Number of Ports (Fully Loaded)   |
|--------------------------------|--------------------------------|--------------------------------|---------------------|--|
| 1000 W AC (220 V)<br>1000 W DC | 600 W AC (220 V)               | –                              | 1386 W              | <ul style="list-style-type: none"> <li>• 802.3af (15.4 W per port): 24</li> <li>• 802.3at (30 W per port): 24</li> <li>• 802.3bt (60 W per port): 23</li> <li>• 802.3bt (90 W per port): 15</li> </ul> |
| 600 W AC (110 V)               | 600 W AC (110 V)               | –                              | 513 W               | <ul style="list-style-type: none"> <li>• 802.3af (15.4 W per port): 24</li> <li>• 802.3at (30 W per port): 17</li> <li>• 802.3bt (60 W per port): 8</li> <li>• 802.3bt (90 W per port): 5</li> </ul>   |
| 1000 W AC (220 V)<br>1000 W DC | 1000 W AC (220 V)<br>1000 W DC | 1000 W AC (220 V)<br>1000 W DC | 2268 W              | <ul style="list-style-type: none"> <li>• 802.3af (15.4 W per port): 24</li> <li>• 802.3at (30 W per port): 24</li> <li>• 802.3bt (60 W per port): 24</li> <li>• 802.3bt (90 W per port): 24</li> </ul> |
| 600 W AC (220 V)               | 600 W AC (220 V)               | 600 W AC (220 V)               | 1653 W              | <ul style="list-style-type: none"> <li>• 802.3af (15.4 W per port): 24</li> <li>• 802.3at (30 W per port): 24</li> <li>• 802.3bt (60 W per port): 24</li> <li>• 802.3bt (90 W per port): 18</li> </ul> |
| 1000 W AC (220 V)<br>1000 W DC | 1000 W AC (220 V)<br>1000 W DC | 600 W AC (220 V)               | 2268 W              | <ul style="list-style-type: none"> <li>• 802.3af (15.4 W per port): 24</li> <li>• 802.3at (30 W per port): 24</li> <li>• 802.3bt (60 W per port): 24</li> <li>• 802.3bt (90 W per port): 24</li> </ul> |

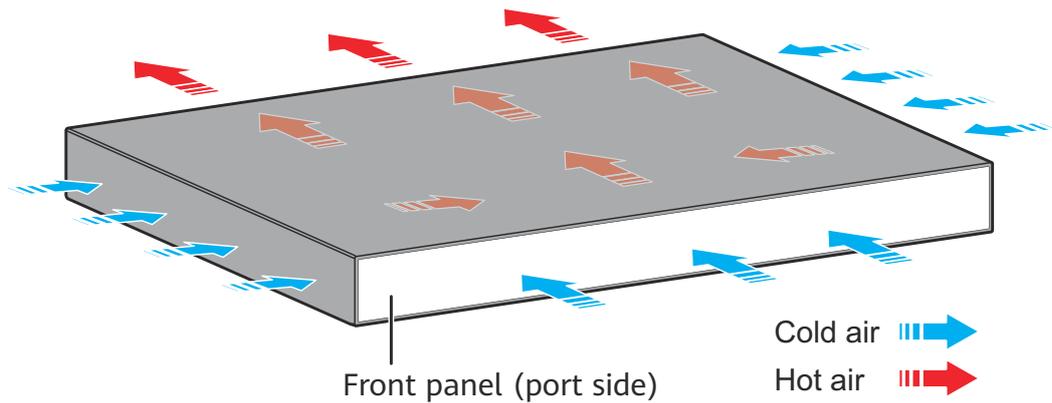
| Power Module 1                 | Power Module 2                 | Power Module 3    | Available PoE Power | Maximum Number of Ports (Fully Loaded)   |
|--------------------------------|--------------------------------|-------------------|---------------------|--|
| 1000 W AC (220 V)<br>1000 W DC | 600 W AC (220 V)               | 600 W AC (220 V)  | 1926 W              | <ul style="list-style-type: none"> <li>• 802.3af (15.4 W per port): 24</li> <li>• 802.3at (30 W per port): 24</li> <li>• 802.3bt (60 W per port): 24</li> <li>• 802.3bt (90 W per port): 21</li> </ul> |
| 1000 W AC (110 V)<br>1000 W DC | 1000 W AC (110 V)<br>1000 W DC | 1000 W AC (110 V) | 2268 W              | <ul style="list-style-type: none"> <li>• 802.3af (15.4 W per port): 24</li> <li>• 802.3at (30 W per port): 24</li> <li>• 802.3bt (60 W per port): 24</li> <li>• 802.3bt (90 W per port): 24</li> </ul> |
| 600 W AC (110 V)               | 600 W AC (110 V)               | 600 W AC (110 V)  | 798 W               | <ul style="list-style-type: none"> <li>• 802.3af (15.4 W per port): 24</li> <li>• 802.3at (30 W per port): 24</li> <li>• 802.3bt (60 W per port): 13</li> <li>• 802.3bt (90 W per port): 8</li> </ul>  |

 **NOTE**

When a switch has multiple power modules installed, the multiple power modules work in load balancing mode to provide power for PDs.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left, right, and front sides, and exhausts from the rear panel.



**NOTE**

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-111** Technical specifications of the S310-24U4X

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.)<br><br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.0 mm (1.72 in. x 17.40 in. x 17.56 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 185.0 mm x 650.0 mm x 550.0 mm (7.28 in. x 25.59 in. x 21.65 in.)   |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 5.92 kg (13.05 lb)  |
| Weight with packaging [kg(lb)]                     | 7.99 kg (17.61 lb)  |
| Typical power consumption [W]                      | 36.98 W   |
| Typical heat dissipation [BTU/hour]                | 126.18 BTU/hour   |

| Item  | Specification   |
|---|---|
| Maximum power consumption [W]                           | - Without PoE:<br>51.60 W (with two 600 W AC power modules)<br>54.70 W (with two 1000 W AC power modules)<br>65.30 W (with two 1000 W DC power modules)<br>- Full PoE load: 2428.11 W (PoE: 2268 W, with three 1000 W AC power modules) |
| Maximum heat dissipation [BTU/hour]                     | - Without PoE:<br>176.06 (with two 600 W AC power modules)<br>186.64 (with two 1000 W AC power modules)<br>222.81 (with two 1000 W DC power modules)<br>- Full PoE load: 8284.95 (PoE: 7738.64, with three 1000 W AC power modules)     |
| Static power consumption [W]                            | 28.8 W  |
| MTBF [years]  | 92.58 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | Three 600 W AC PoE power modules with 30% load: 50 dBA<br>Three 1000 W AC PoE power modules with 30% load: 49.9 dBA<br>Three 1000 W DC PoE power modules with 30% load: 48.5 dBA  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | Three 600 W AC PoE power modules with 30% load: 38 dBA<br>Three 1000 W AC PoE power modules with 30% load: 37.9 dBA<br>Three 1000 W DC PoE power modules with 30% load: 36.5 dBA  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 3   |
| Number of fans modules                                  | 2   |

| Item   | Specification  |
|--|--|
| Redundant power supply   | 1+1+1<br>Pluggable AC and DC power modules can be used together on the same device.  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | Pluggable power supply   |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 130 V AC, 200 V AC to 240 V AC; 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> <li>DC input: -48 V DC to -60 V DC</li> </ul>  |
| Input voltage range [V]  | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 290 V AC; 45–65 Hz</li> <li>High-voltage DC input: 190 V DC to 290 V DC</li> <li>DC input: -38.4 V DC to -72 V DC</li> </ul>   |
| Maximum input current [A]  | The current specifications are related to the pluggable power module. For details, see Pluggable Power Modules.  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | Not supported  |
| USB  | Supported  |
| RTC  | Not supported  |

| Item  | Specification   |
|---|---|
| RPS input                                       | Not supported   |
| Power supply surge protection [kV]              | <ul style="list-style-type: none"><li>Configured with AC power modules: <math>\pm 6</math> kV in differential mode and <math>\pm 6</math> kV in common mode</li><li>Configured with DC power modules: <math>\pm 2</math> kV in differential mode and <math>\pm 4</math> kV in common mode</li></ul> |
| Ingress protection level (dustproof/waterproof) | IP20  |
| Types of fans                                   | Built-in  |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment  |
| Airflow direction                               | Air intake from left, front, and right and air exhaust from rear  |
| PoE   | Supported   |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification  |

## 4.7.7 S310-24ST4X

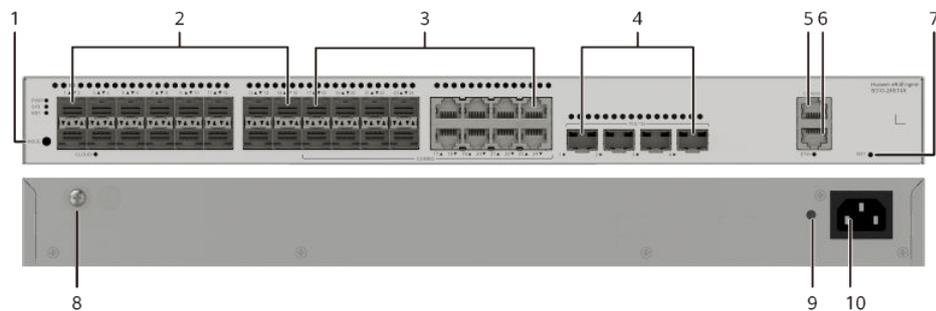
### Overview

**Table 4-112** Basic information about the S310-24ST4X

| Item                    | Details  |
|-------------------------|--|
| Description             | S310-24ST4X(24*GE SFP ports, 8 of which are dual-purpose 10/100/1000 or SFP, 4*10GE SFP+ ports, built-in AC power) |
| Part Number             | 98012532   |
| Model                   | S310-24ST4X  |
| First supported version | V600R023C10SPC600  |

## Components

Figure 4-38 S310-24ST4X appearance



|   |  |    |   |
|---|--|----|---|
| 1 | One MODE button  | 2  | Sixteen 100/1000BASE-X ports  |
| 3 | Eight Combo ports (100/1000BASE-X optical ports and 10/100/1000BASE-T electrical ports)<br><b>NOTE</b><br>In the default working mode, the electrical ports in the combo ports are available.  | 4  | Four 10GE SFP+ ports  |
| 5 | One console port   | 6  | One ETH management port   |
| 7 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. | 8  | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |
| 9 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.   | 10 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |

## Ports

**Table 4-113** Ports on the S310-24ST4X

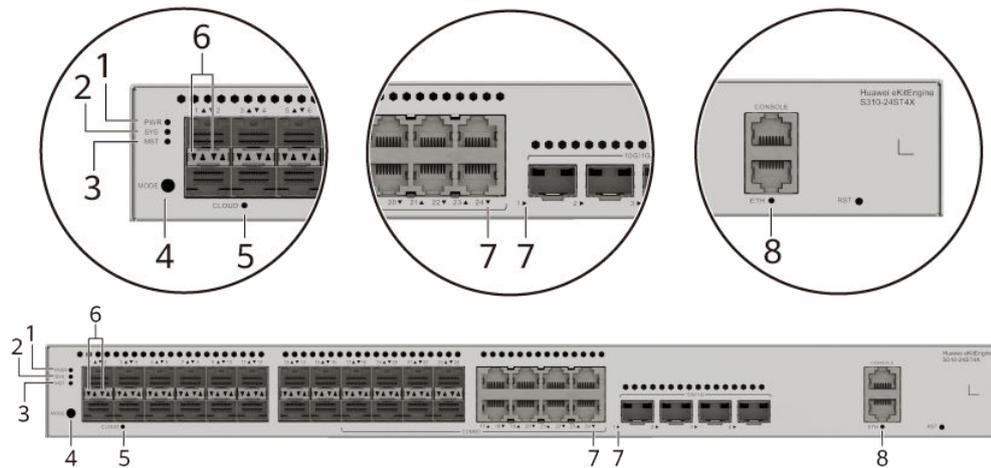
| Port  | Connector Type | Description  | Available Components  |
|---|----------------|--|---|
| 100/1000BASE-X port                             | SFP            | A 100/1000BASE-X port can send and receive data at 100/1000 Mbit/s.  | <ul style="list-style-type: none"> <li>• <b>FE SFP/eSFP optical modules</b></li> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> </ul> |
| Combo port (10/100/1000BASE-T + 100/1000BASE-X) | RJ45/SFP       | A combo port refers to a pair of ports consisting of an optical Ethernet port and an electrical Ethernet port on the panel. Each combo port matches only one internal forwarding port. A combo port can be configured as an electrical port or an optical port, but only one port can be active at a time. When one port is active, the other port is shut down. | <ul style="list-style-type: none"> <li>• <b>Ethernet cable</b></li> <li>• <b>FE SFP/eSFP optical modules</b></li> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> </ul>       |

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>1 m, 2 m, and 3 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>  |

| Port                | Connector Type | Description   | Available Components           |
|---------------------|----------------|---|--------------------------------|
| ETH management port | RJ45           | You can connect a switch to a configuration terminal or network management workstation through the ETH management port to configure the switch locally or remotely. | <a href="#">Ethernet cable</a> |

## Indicators and Buttons

**Figure 4-39** Indicators on the Switch



**Table 4-114** Description of indicators on the switch

| No. | Indicator | Name                    | Color | Status        | Description                 |
|-----|-----------|-------------------------|-------|---------------|-----------------------------|
| 1   | PWR       | Power module indicator  | -     | Off           | The switch is powered off.  |
|     |           |                         | Green | Steady on     | The power supply is normal. |
| 2   | SYS       | System status indicator | -     | Off           | The system is not running.  |
|     |           |                         | Green | Fast blinking | The system is starting.     |

| No. | Indicator | Name            | Color | Status        | Description   |
|-----|-----------|-----------------|-------|---------------|---|
|     |           |                 | Green | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.  |
|     |           |                 | Green | Slow blinking | The system is running normally.   |
|     |           |                 | Red   | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | MST       | Stack indicator | -     | Off           | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul>  |
|     |           |                 | Green | Steady on     | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.  |
|     |           |                 | Green | Blinking      | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |

| No. | Indicator | Name  | Color | Status        | Description   |
|-----|-----------|---|-------|---------------|---|
| 4   | MODE      | Mode switch button  | -     | -             | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | CLOUD     | Cloud indicator<br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -     | Off           | The device is not connected to the cloud.   |
|     |           |   | Blue  | Fast blinking | The device is connecting to the cloud.  |
|     |           |   | Blue  | Slow blinking | The device is in the cloud management state.  |

| No. | Indicator | Name   | Color  | Status    | Description   |
|-----|-----------|--|--|-----------|---|
| 6   | -         | Optical service port indicator (two indicators for each port)              | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |           | Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-115</a> and <a href="#">Table 4-116</a> .<br><br><b>NOTE</b><br>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds. |
| 7   | -         | Electrical or optical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.  |           |   |
| 8   | ETH       | ETH port indicator   | -  | Off       | The ETH port is not connected.  |
|     |           |  | Green  | Steady on | The ETH port is connected.  |
|     |           |  | Green  | Blinking  | The ETH port is sending or receiving data.  |

**Table 4-115** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description                                      |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down. |
|              | Green | Steady on | A link has been established on the port.         |
|              | Green | Blinking  | The port is sending or receiving data.           |

**Table 4-116** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                    | Color  | Status    | Description  |
|---------------------------------|--------|-----------|--|
| Default mode (LINK indicator)   | -      | Off       | The port is not connected or has been shut down.   |
|                                 | Green  | Steady on | A link has been established on the port.   |
| Default mode (ACT indicator)    | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received.  |
|                                 | Yellow | Blinking  | The port is sending or receiving data.   |
| MST stack mode (LINK indicator) | -      | Off       | Port indicators do not show the stack ID of the switch.  |
|                                 | Green  | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch. |
|                                 | Green  | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.      |
| MST stack mode (ACT indicator)  | -      | Off       | Port indicators do not show the stack ID of the switch.  |

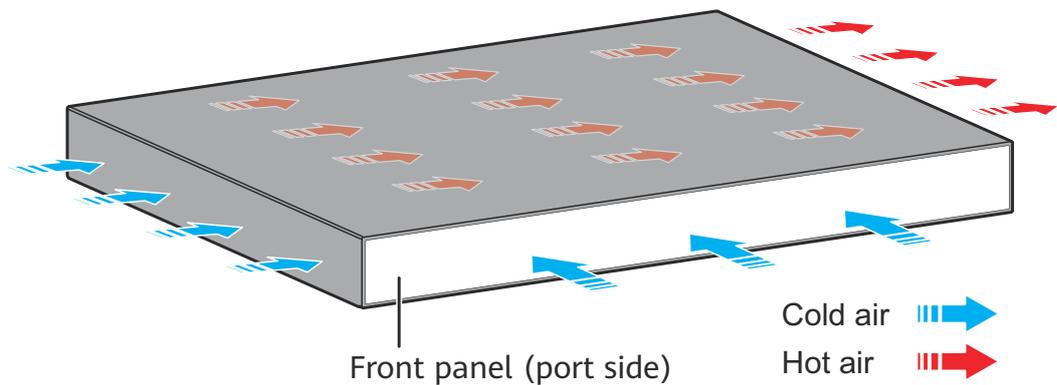
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-117** Technical specifications of the S310-24ST4X

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                 | 1 U   |
| Weight without packaging [kg(lb)]                  | 2.9 kg (6.39 lb)  |
| Weight with packaging [kg(lb)]                     | 3.55 kg (7.83 lb)   |

| Item   | Specification  |
|--|--|
| Typical power consumption [W]                                    | 32.6 W   |
| Typical heat dissipation [BTU/hour]                              | 111.23 BTU/hour  |
| Maximum power consumption [W]                                    | 41.7 W   |
| Maximum heat dissipation [BTU/hour]                              | 142.28 BTU/hour  |
| Static power consumption [W]                                     | 17.57 W  |
| MTBF [years]   | 47.39 years  |
| Availability   | > 0.99999  |
| Noise at normal temperature (acoustic power) [dB(A)]             | 38.1 dB(A)   |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 26.1 dB(A)   |
| Number of card slots   | 0  |
| Number of power slots  | 0  |
| Number of fans modules   | 2  |
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800-5000 m (5906-16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)   |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>• AC input: 100 V AC to 240 V AC; 50/60 Hz</li> <li>• High-voltage DC input: 110 V DC to 250 V DC</li> </ul>  |

| Item  | Specification   |
|---|---|
| Input voltage range [V]                         | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 264 V AC; 47 Hz to 63 Hz</li> <li>High-voltage DC input: 88 V DC to 300 V DC</li> </ul> |
| Maximum input current [A]                       | 2 A   |
| Memory  | 2 GB  |
| Flash memory                                    | Physical space: 1 GB  |
| Console port                                    | RJ45  |
| Eth Management port                             | RJ45  |
| USB   | Not supported   |
| RTC   | Not supported   |
| RPS input                                       | Not supported   |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV  |
| Ingress protection level (dustproof/waterproof) | IP20  |
| Types of fans                                   | Built-in  |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment  |
| Airflow direction                               | Air intake from left and front, air exhaustion from right   |
| PoE   | Not supported   |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification  |

## 4.7.8 S310-24PN4X

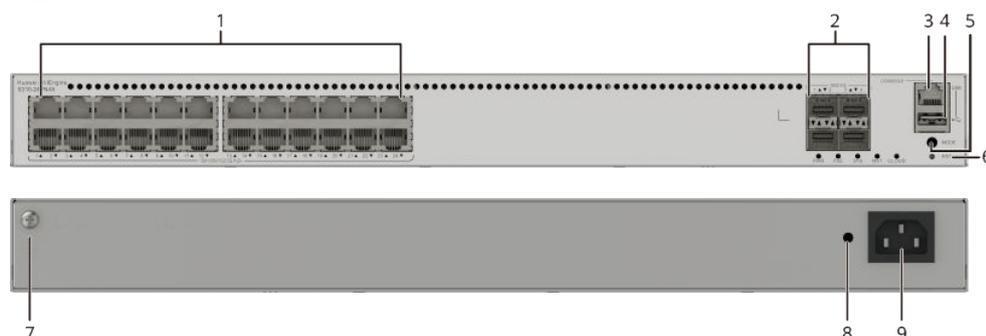
## Overview

**Table 4-118** Basic information about the S310-24PN4X

| Item                    | Details  |
|-------------------------|--|
| Description             | S310-24PN4X(24*10/100/1000/2.5GBA SE-T ports(400W PoE+), 4*10GE SFP+ ports, built-in AC power) |
| Part Number             | 98012534   |
| Model                   | S310-24PN4X  |
| First supported version | V600R023C10SPC600  |

## Components

**Figure 4-40** S310-24PN4X appearance



|   |  |   |  |
|---|--|---|--|
| 1 | Twenty-four 10M/100M/1000M/ 2.5GE BASE-T PoE+ ports (multi-GE ports) | 2 | Four 10GE SFP+ ports   |
| 3 | One console port   | 4 | One USB port   |
| 5 | One MODE button  | 6 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. |

|   |  |   |  |
|---|--|---|--|
| 7 | Ground screw<br><b>NOTE</b><br>It is used with a <b>ground cable</b> . | 8 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch. |
| 9 | AC socket<br><b>NOTE</b><br>It is used with an <b>AC power cable</b> . | - | -  |

## Ports

**Table 4-119** Maximum transmission distances of different cables on multi-GE ports

| Cable Type (6-a-1 Bundle)                                | Multi-GE Port (Different Rates) |       |
|--|---------------------------------|-------|
|  | 10M/100M/1000M                  | 2.5GE |
| Category 5e unshielded twisted pair (Cat5e UTP)          | 100 m                           | 100 m |
| Category 5e shielded twisted pair (Cat5e STP)            | 100 m                           | 100 m |
| Category 6 unshielded twisted pair (Cat6 UTP)            | 100 m                           | 100 m |
| Category 6 shielded twisted pair (Cat6 STP)              | 100 m                           | 100 m |
| Category 6A unshielded twisted pair (Cat6A U/UTP)        | 100 m                           | 100 m |
| Category 6A foiled/unshielded twisted pair (Cat6A F/UTP) | 100 m                           | 100 m |
| Category 6A shielded twisted pair (Cat6A STP)            | 100 m                           | 100 m |
| Category 7 twisted pair (Cat7)                           | 100 m                           | 100 m |

 **NOTE**

6-a-1 stands for the six-around-one cable bundle mode, with one cable in the center and six cables bundled evenly around it.

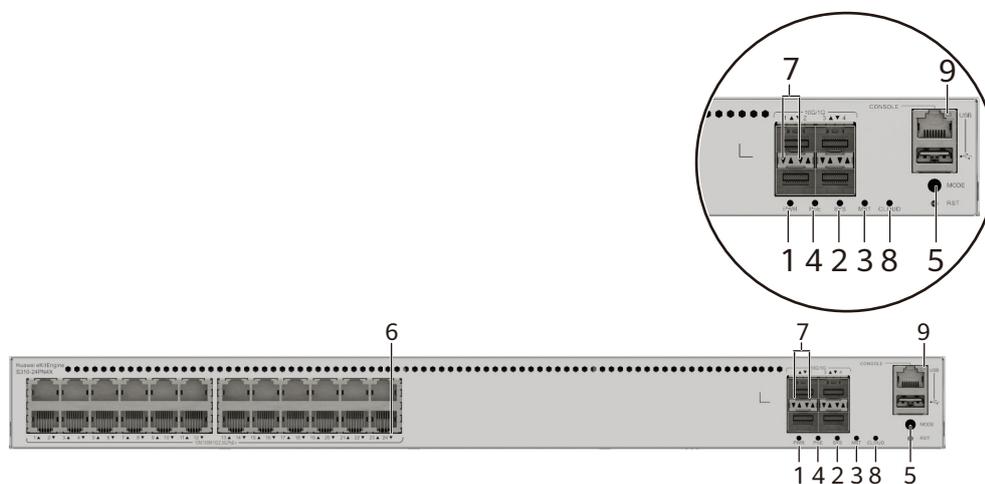
**Table 4-120** Ports on the S310-24PN4X

| Port  | Connector Type | Description   | Available Components  |
|---|----------------|---|---|
| 10M/100M/1G/<br>2.5GE BASE-T PoE<br>+ port (multi-GE<br>port) | RJ45           | A 10M/100M/1G/<br>2.5GE BASE-T PoE<br>+ port (multi-GE<br>port) sends and<br>receives service<br>data at 10 Mbit/s,<br>100 Mbit/s, 1<br>Gbit/s, or 2.5<br>Gbit/s.<br><br>The port supports<br>the PoE function. | If the 2.5 Gbit/s<br>speed is required,<br>the port must use<br>an Ethernet cable<br>of Cat5e or higher<br>category.  |
| 10GE SFP+ optical<br>port                                     | SFP+           | A 10GE SFP+<br>Ethernet optical<br>port supports<br>auto-sensing to<br>1000 Mbit/s. It<br>sends and<br>receives service<br>data at 1000<br>Mbit/s or 10<br>Gbit/s.  | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |

| Port         | Connector Type | Description   | Available Components          |
|--------------|----------------|---|-------------------------------|
| Console port | RJ45           | The console port is connected to a console for on-site configuration.   | <a href="#">Console cable</a> |
| USB port     | USB 2.0 Type A | The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.<br><br>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor. | USB flash drive               |

## Indicators and Buttons

**Figure 4-41** Indicators on the Switch



**Table 4-121** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.   |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.  |
| 3   | MST       | Stack indicator         | -      | Off           | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul> |
|     |           |                         | Green  | Steady on     | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.   |

| No. | Indicator | Name          | Color | Status    | Description   |
|-----|-----------|---------------|-------|-----------|---|
|     |           |               | Green | Blinking  | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |
| 4   | PoE       | PoE indicator | -     | Off       | The PoE mode is not selected.   |
|     |           |               | Green | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |

| No. | Indicator | Name  | Color   | Status | Description  |
|-----|-----------|---|---|--------|--|
| 5   | MODE      | Mode switch button  | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a third time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 6   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-122</a> and <a href="#">Table 4-123</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>   |

| No. | Indicator | Name  | Color  | Status        | Description   |
|-----|-----------|---|--|---------------|---|
| 7   | -         | Optical service port indicator (two indicators for each port)                                       | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |   |
| 8   | CLOUD     | Cloud indicator<br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -  | Off           | The device is not connected to the cloud.   |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.  |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state.  |
| 9   | USB       | USB-based deployment indicator  | -  | Off           | No USB flash drive is installed, or the indicator fails.  |
|     |           |   | Green  | Steady on     | USB-based deployment succeeds. If there is no deployment configuration file, deployment will be repeatedly performed. In this case, the indicator is also steady green. |
|     |           |   | Green  | Blinking      | USB-based deployment is in progress.  |

| No. | Indicator | Name | Color | Status    | Description                 |
|-----|-----------|------|-------|-----------|-----------------------------|
|     |           |      | Red   | Steady on | USB-based deployment fails. |

**Table 4-122** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
| Default mode   | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch.   |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.  |
| PoE mode       | -     | Off       | The port is not providing power to a powered device (PD).  |
|                | Green | Steady on | The port is providing power to a PD.   |
|                | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-123** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

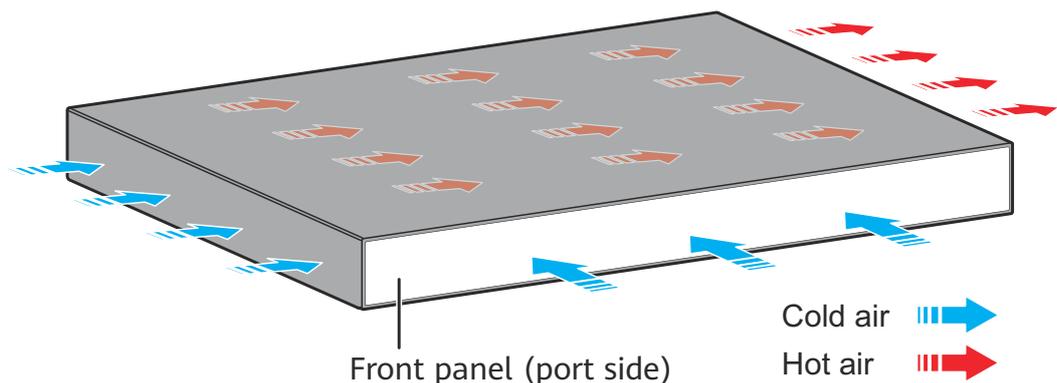
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 24 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 400 W.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-124** Technical specifications of the S310-24PN4X

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.4 in. x 16.54 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.0 mm (1.72 in. x 17.4 in. x 17.56 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 185.0 mm x 650.0 mm x 550.0 mm (7.28 in. x 25.59 in. x 21.65 in.)   |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 4.71 kg (10.38 lb)  |
| Weight with packaging [kg(lb)]                          | 6.89 kg (15.19 lb)  |
| Typical power consumption [W]                           | 54.8 W  |
| Typical heat dissipation [BTU/hour]                     | 186.98 BTU/hour   |
| Maximum power consumption [W]                           | <ul style="list-style-type: none"> <li>Without PoE: 77.70 W</li> <li>Full PoE load: 517.30 W (PoE: 400 W)</li> </ul>  |
| Maximum heat dissipation [BTU/hour]                     | <ul style="list-style-type: none"> <li>Without PoE: 265.12</li> <li>Full PoE load: 1765.08</li> </ul>   |
| Static power consumption [W]                            | 37.1 W  |
| MTBF [years]  | 54.48 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 47.9 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 34.22 dB(A)   |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 2   |

| Item   | Specification  |
|--|--|
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +45°C (23°F to 113°F) at an altitude of 0 to 1800 m (0 to 5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F).<br>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used. |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> </ul>  |
| Input voltage range [V]  | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li> <li>High-voltage DC input: 190 V DC to 290 V DC</li> </ul>   |
| Maximum input current [A]  | 6 A  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | Not supported  |
| USB  | Supported  |
| RTC  | Not supported  |
| RPS input  | Not supported  |

| Item  | Specification  |
|---|--|
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and front, air exhaustion from right                |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.7.9 S310-48T4X

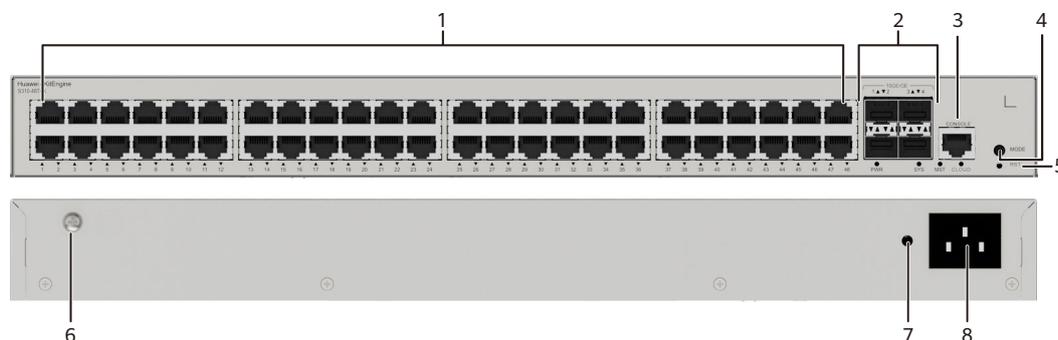
### Overview

**Table 4-125** Basic information about the S310-48T4X

| Item                    | Details   |
|-------------------------|---|
| Description             | S310-48T4X (48*10/100/1000BASE-T ports, 4*10GE SFP+ ports, built-in AC power) |
| Part Number             | 98012383  |
| Model                   | S310-48T4X  |
| First supported version | V600R023C00   |

## Components

Figure 4-42 S310-48T4X appearance



|   |   |   |   |
|---|---|---|---|
| 1 | Forty-eight 10/100/1000BASE-T ports   | 2 | Four 10GE SFP+ ports  |
| 3 | One console port  | 4 | One MODE button   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |
| 7 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.  | 8 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |

## Ports

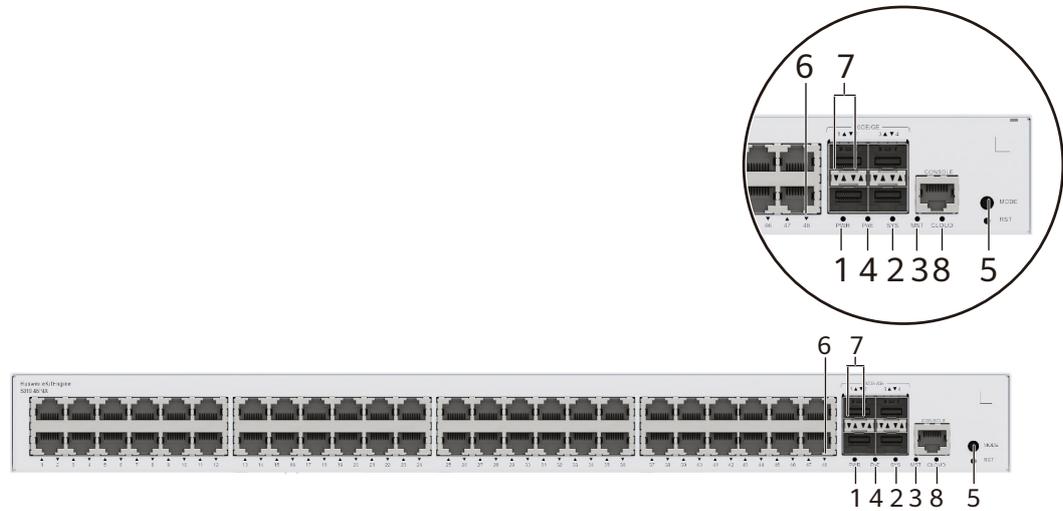
**Table 4-126** Ports on the S310-48T4X

| Port                       | Connector Type | Description  | Available Components  |
|----------------------------|----------------|--|-----------------------|
| 10/100/1000BASE<br>-T port | RJ45           | A<br>10/100/1000BASE<br>-T Ethernet<br>electrical port<br>sends and<br>receives service<br>data at<br>10/100/1000<br>Mbit/s. | <b>Ethernet cable</b> |

| Port           | Connector Type | Description   | Available Components  |
|----------------|----------------|---|---|
| 10GE SFP+ port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <a href="#">GE eSFP optical modules</a></li> <li>• <a href="#">GE-CWDM eSFP optical modules</a></li> <li>• <a href="#">GE-DWDM eSFP optical modules</a></li> <li>• <a href="#">GE SFP copper module</a></li> <li>• <a href="#">10GE SFP+ optical modules</a></li> <li>• <a href="#">10GE-CWDM SFP+ optical modules</a></li> <li>• <a href="#">10GE-DWDM SFP+ optical modules</a></li> <li>• <a href="#">1 m and 3 m SFP+ high-speed copper cables</a></li> <li>• <a href="#">10 m SFP+ AOC cables</a></li> <li>• <a href="#">0.5 m and 1.5 m SFP+ dedicated stack cables (only used for zero-configuration stacking and supported from V600R024C10)</a></li> </ul> |
| Console port   | RJ45           | The console port is connected to a console for on-site configuration.   | <a href="#">Console cable</a>   |

## Indicators and Buttons

Figure 4-43 Indicators on the Switch



**NOTE**

The S310-48P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

Table 4-127 Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |

| No. | Indicator | Name            | Color | Status    | Description   |
|-----|-----------|-----------------|-------|-----------|---|
|     |           |                 | Red   | Steady on | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | MST       | Stack indicator | -     | Off       | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul>  |
|     |           |                 | Green | Steady on | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.  |
|     |           |                 | Green | Blinking  | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |
| 4   | PoE       | PoE indicator   | -     | Off       | The PoE mode is not selected.   |
|     |           |                 | Green | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |

| No. | Indicator | Name  | Color   | Status | Description  |
|-----|-----------|---|---|--------|--|
| 5   | MODE      | Mode switch button  | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a third time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 6   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-128</a> and <a href="#">Table 4-129</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>   |

| No. | Indicator | Name  | Color  | Status        | Description                                  |
|-----|-----------|---|--|---------------|--|
| 7   | -         | Optical service port indicator (two indicators for each port)                                       | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |  |
| 8   | CLOUD     | Cloud indicator<br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -  | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state. |

**Table 4-128** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status | Description                                      |
|--------------|-------|--------|--|
| Default mode | -     | Off    | The port is not connected or has been shut down. |

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch.   |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.  |
| PoE mode       | -     | Off       | The port is not providing power to a powered device (PD).  |
|                | Green | Steady on | The port is providing power to a PD.   |
|                | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-129** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

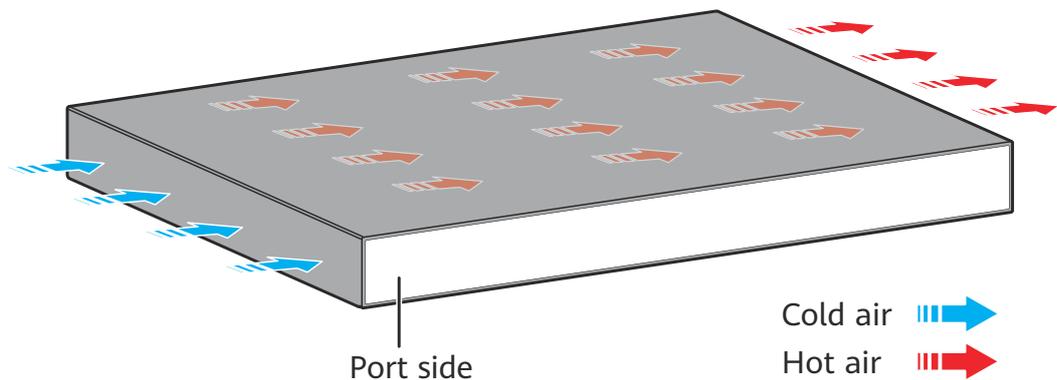
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has a built-in fan for forced air cooling. Air flows in from the left side, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-130** Technical specifications of the S310-48T4X

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br><br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 2.71 kg (5.97 lb)   |

| Item   | Specification   |
|--|---|
| Weight with packaging [kg(lb)]                                   | 3.59 kg (7.91 lb)   |
| Typical power consumption [W]                                    | 36.95 W   |
| Typical heat dissipation [BTU/hour]                              | 126.07 BTU/hour   |
| Maximum power consumption [W]                                    | 44.3 W  |
| Maximum heat dissipation [BTU/hour]                              | 151.15 BTU/hour   |
| Static power consumption [W]                                     | 18.8 W  |
| MTBF [years]   | 40.61 years   |
| Availability   | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]             | 46.6 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 34.6 dB(A)  |
| Number of card slots   | 0   |
| Number of power slots  | 0   |
| Number of fans modules   | 1   |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)  |
| Restriction on the operating temperature variation rate [°C(°F)] | <p>When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).</p> <p>Devices cannot start when the temperature is lower than 0°C (32°F).</p> <p>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used.</p> <p>The device does not support dying gasp when the ambient temperature is higher than 40°C (104°F).</p> |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)  |

| Item  | Specification  |
|---|--|
| Storage altitude [m(ft.)]                       | 0-5000 m (0-16404 ft.)   |
| Power supply mode                               | AC built-in  |
| Rated input voltage [V]                         | AC input: 100–240 V AC; 50/60 Hz   |
| Input voltage range [V]                         | AC input: 90 V AC to 264 V AC; 45 Hz to 65 Hz                            |
| Maximum input current [A]                       | 1.6 A  |
| Memory  | 2 GB   |
| Flash memory                                    | Physical space: 1 GB   |
| Console port                                    | RJ45   |
| Eth Management port                             | Not supported  |
| USB   | Not supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and air exhaust from right                          |
| PoE   | Not supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.7.10 S310-48P4S

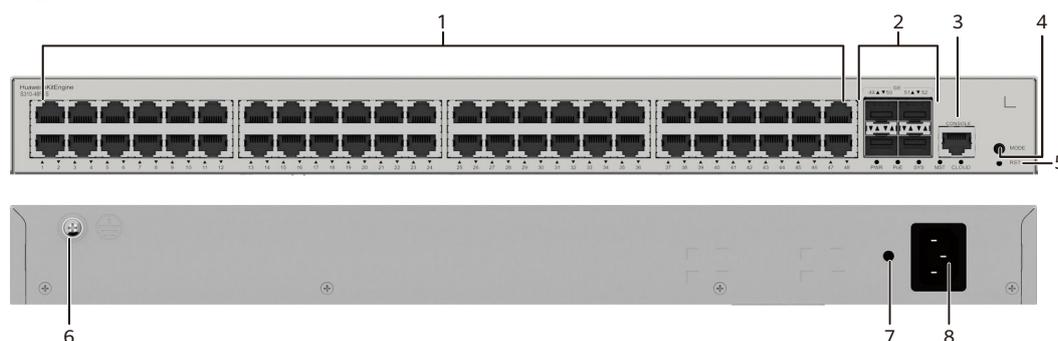
## Overview

**Table 4-131** Basic information about the S310-48P4S

| Item                    | Details   |
|-------------------------|---|
| Description             | S310-48P4S (48*10/100/1000BASE-T ports(380W PoE+), 4*GE SFP ports, built-in AC power) |
| Part Number             | 98012384  |
| Model                   | S310-48P4S  |
| First supported version | V600R023C00   |

## Components

**Figure 4-44** S310-48P4S appearance



|   |  |   |   |
|---|--|---|---|
| 1 | Forty-eight 10/100/1000BASE-T PoE + ports  | 2 | Four 1000BASE-X ports   |
| 3 | One console port   | 4 | One MODE button   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |

|   |  |   |   |
|---|--|---|---|
| 7 | Jack for AC power cable locking strap<br><br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch. | 8 | AC socket<br><br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |
|---|--|---|---|

## Ports

**Table 4-132** Ports on the S310-48P4S

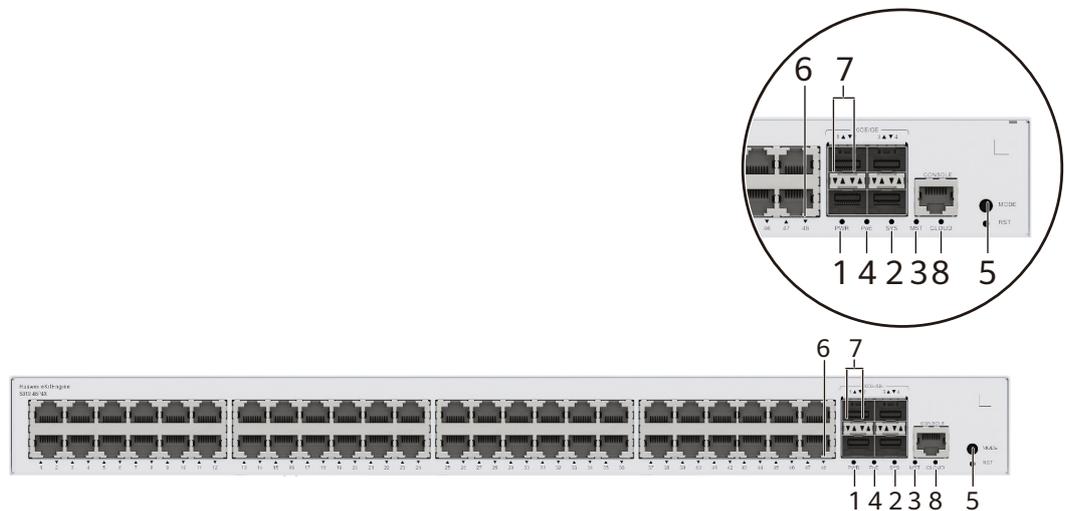
| Port                   | Connector Type | Description   | Available Components           |
|------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

| Port            | Connector Type | Description   | Available Components   |
|-----------------|----------------|---|--|
| 1000BASE-X port | SFP            | A 1000BASE-X port can send and receive data at 1000 Mbit/s. | <ul style="list-style-type: none"> <li>● <b>GE eSFP optical modules</b></li> <li>● <b>GE-CWDM eSFP optical modules</b></li> <li>● <b>GE-DWDM eSFP optical modules</b></li> <li>● <b>GE SFP copper module</b></li> <li>● <b>10GE SFP+ optical modules (only used for stack connection)</b></li> <li>● <b>10GE-CWDM SFP+ optical modules (only used for stack connection)</b></li> <li>● <b>10GE-DWDM SFP+ optical modules (only used for stack connection)</b></li> <li>● <b>1 m and 3 m SFP+ high-speed copper cables (only used for stack connection)</b></li> <li>● <b>10 m SFP+ AOC cables (only used for stack connection)</b></li> <li>● <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only used for stack connection; zero-configuration)</b></li> </ul> |

| Port         | Connector Type | Description   | Available Components       |
|--------------|----------------|---|----------------------------|
|              |                |   | <b>stacking supported)</b> |
| Console port | RJ45           | The console port is connected to a console for on-site configuration. | <b>Console cable</b>       |

## Indicators and Buttons

Figure 4-45 Indicators on the Switch



### NOTE

The S310-48P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

Table 4-133 Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status    | Description                   |
|-----|-----------|-------------------------|--------|-----------|-------------------------------|
| 1   | PWR       | Power module indicator  | -      | Off       | The switch is powered off.    |
|     |           |                         | Green  | Steady on | The power supply is normal.   |
|     |           |                         | Yellow | Steady on | The power supply is abnormal. |
| 2   | SYS       | System status indicator | -      | Off       | The system is not running.    |

| No. | Indicator | Name            | Color | Status        | Description   |
|-----|-----------|-----------------|-------|---------------|---|
|     |           |                 | Green | Fast blinking | The system is starting.   |
|     |           |                 | Green | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.  |
|     |           |                 | Green | Slow blinking | The system is running normally.   |
|     |           |                 | Red   | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | MST       | Stack indicator | -     | Off           | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul>  |
|     |           |                 | Green | Steady on     | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.  |
|     |           |                 | Green | Blinking      | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |
| 4   | PoE       | PoE indicator   | -     | Off           | The PoE mode is not selected.   |

| No. | Indicator | Name               | Color | Status    | Description  |
|-----|-----------|--------------------|-------|-----------|--|
|     |           |                    | Green | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.  |
| 5   | MODE      | Mode switch button | -     | -         | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a third time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>                     Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.<br/>                     If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |

| No. | Indicator | Name  | Color | Status | Description  |
|-----|-----------|---|-------|--------|--|
| 6   | -         | Electrical service port indicator (one indicator for each port) |       |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-134</a> and <a href="#">Table 4-135</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p> |
| 7   | -         | Optical service port indicator (two indicators for each port)   |       |        | <p>Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).</p> <p>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top.</p>  |

| No. | Indicator | Name  | Color | Status        | Description                                  |
|-----|-----------|---|-------|---------------|--|
| 8   | CLOUD     | Cloud indicator<br><br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -     | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue  | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue  | Slow blinking | The device is in the cloud management state. |

**Table 4-134** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
| Default mode   | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch. |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.      |
| PoE mode       | -     | Off       | The port is not providing power to a powered device (PD).  |
|                | Green | Steady on | The port is providing power to a PD.   |

| Display Mode | Color | Status   | Description  |
|--------------|-------|----------|--|
|              | Green | Blinking | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-135** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

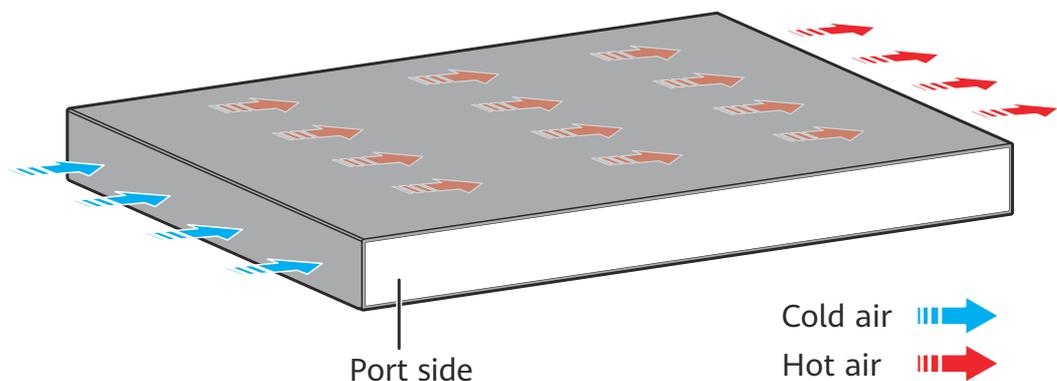
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 48 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 380 W.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



 NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-136** Technical specifications of the S310-48P4S

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br><br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 3.24 kg (7.14 lb)   |
| Weight with packaging [kg(lb)]                          | 4.29 kg (9.46 lb)   |
| Typical power consumption [W]                           | 48.64 W   |
| Typical heat dissipation [BTU/hour]                     | 165.96 BTU/hour   |
| Maximum power consumption [W]                           | <ul style="list-style-type: none"> <li>• Without PoE: 63.7 W</li> <li>• Full PoE load: 462.80 W (PoE: 380 W)</li> </ul>   |
| Maximum heat dissipation [BTU/hour]                     | <ul style="list-style-type: none"> <li>• Without PoE: 217.34</li> <li>• Full PoE load: 1579.12</li> </ul>   |
| Static power consumption [W]                            | 34.04 W   |
| MTBF [years]  | 48.14 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 49.3 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 37.3 dB(A)  |
| Number of card slots                                    | 0   |

| Item   | Specification  |
|--|--|
| Number of power slots  | 0  |
| Number of fans modules   | 2  |
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F).<br>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used. |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | <ul style="list-style-type: none"><li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li><li>High-voltage DC input: 240 V DC</li></ul>   |
| Input voltage range [V]  | <ul style="list-style-type: none"><li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li><li>High-voltage DC input: 190 V DC to 290 V DC</li></ul>  |
| Maximum input current [A]  | 6 A  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | Not supported  |
| USB  | Not supported  |
| RTC  | Not supported  |

| Item  | Specification  |
|---|--|
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and air exhaust from right                          |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.7.11 S310-48P4X

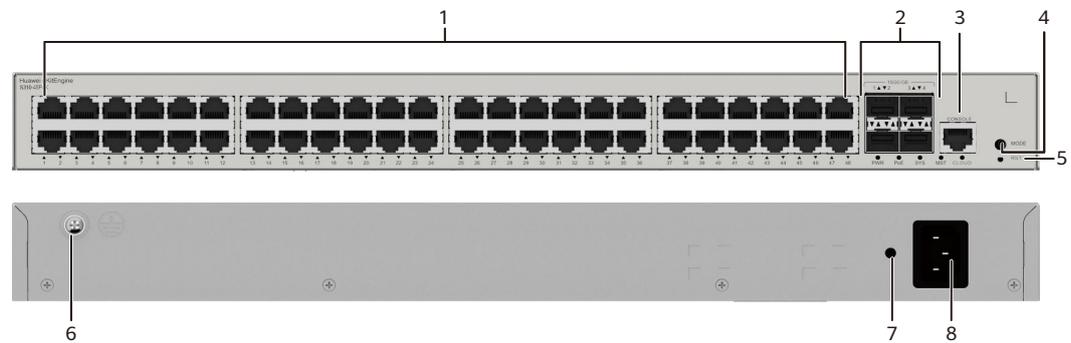
### Overview

**Table 4-137** Basic information about the S310-48P4X

| Item                    | Details  |
|-------------------------|--|
| Description             | S310-48P4X (48*10/100/1000BASE-T ports(380W PoE+), 4*10GE SFP+ ports, built-in AC power) |
| Part Number             | 98012385   |
| Model                   | S310-48P4X   |
| First supported version | V600R023C00  |

## Components

**Figure 4-46** S310-48P4X appearance



|   |   |   |   |
|---|---|---|---|
| 1 | Forty-eight 10/100/1000BASE-T PoE + ports   | 2 | Four 10GE SFP+ ports  |
| 3 | One console port  | 4 | One MODE button   |
| 5 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button. Resetting the device will cause service interruption. Exercise caution when you press the button. | 6 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . |
| 7 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.  | 8 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . |

## Ports

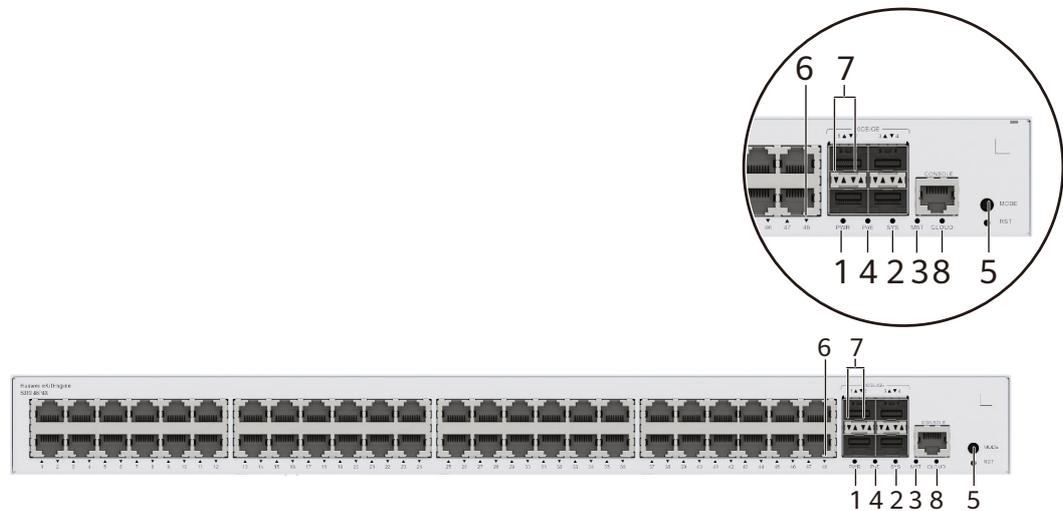
**Table 4-138** Ports on the S310-48P4X

| Port                       | Connector Type | Description  | Available Components  |
|----------------------------|----------------|--|-----------------------|
| 10/100/1000BASE<br>-T port | RJ45           | A<br>10/100/1000BASE<br>-T Ethernet<br>electrical port<br>sends and<br>receives service<br>data at<br>10/100/1000<br>Mbit/s. | <b>Ethernet cable</b> |

| Port           | Connector Type | Description   | Available Components   |
|----------------|----------------|---|--|
| 10GE SFP+ port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"><li>• <b>GE eSFP optical modules</b></li><li>• <b>GE-CWDM eSFP optical modules</b></li><li>• <b>GE-DWDM eSFP optical modules</b></li><li>• <b>GE SFP copper module</b></li><li>• <b>10GE SFP+ optical modules</b></li><li>• <b>10GE-CWDM SFP+ optical modules</b></li><li>• <b>10GE-DWDM SFP+ optical modules</b></li><li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li><li>• <b>10 m SFP+ AOC cables</b></li><li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only used for zero-configuration stacking and supported from V600R024C10)</b></li></ul> |
| Console port   | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>   |

## Indicators and Buttons

Figure 4-47 Indicators on the Switch



**NOTE**

The S310-48P4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

Table 4-139 Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |

| No. | Indicator | Name            | Color | Status    | Description   |
|-----|-----------|-----------------|-------|-----------|---|
|     |           |                 | Red   | Steady on | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | MST       | Stack indicator | -     | Off       | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul>  |
|     |           |                 | Green | Steady on | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.  |
|     |           |                 | Green | Blinking  | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |
| 4   | PoE       | PoE indicator   | -     | Off       | The PoE mode is not selected.   |
|     |           |                 | Green | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |

| No. | Indicator | Name  | Color   | Status | Description  |
|-----|-----------|---|---|--------|--|
| 5   | MODE      | Mode switch button  | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a third time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 6   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-140</a> and <a href="#">Table 4-141</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>   |

| No. | Indicator | Name  | Color  | Status        | Description                                  |
|-----|-----------|---|--|---------------|--|
| 7   | -         | Optical service port indicator (two indicators for each port)                                       | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |  |
| 8   | CLOUD     | Cloud indicator<br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -  | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state. |

**Table 4-140** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status | Description                                      |
|--------------|-------|--------|--|
| Default mode | -     | Off    | The port is not connected or has been shut down. |

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch.   |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.  |
| PoE mode       | -     | Off       | The port is not providing power to a powered device (PD).  |
|                | Green | Steady on | The port is providing power to a PD.   |
|                | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-141** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

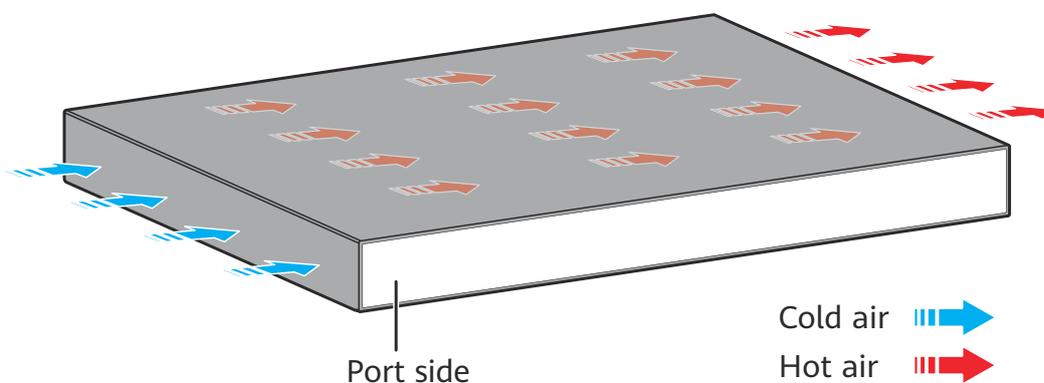
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 48 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 380 W.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



**NOTE**

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-142** Technical specifications of the S310-48P4X

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br><br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |

| Item   | Specification   |
|--|---|
| Weight without packaging [kg(lb)]                                | 3.24 kg (7.14 lb)   |
| Weight with packaging [kg(lb)]                                   | 4.29 kg (9.46 lb)   |
| Typical power consumption [W]                                    | 49.44 W   |
| Typical heat dissipation [BTU/hour]                              | 168.69 BTU/hour   |
| Maximum power consumption [W]                                    | <ul style="list-style-type: none"> <li>Without PoE: 64.7 W</li> <li>Full PoE load: 462.80 W (PoE: 380 W)</li> </ul>   |
| Maximum heat dissipation [BTU/hour]                              | <ul style="list-style-type: none"> <li>Without PoE: 220.76</li> <li>Full PoE load: 1579.12</li> </ul>   |
| Static power consumption [W]                                     | 34.04 W   |
| MTBF [years]   | 48.14 years   |
| Availability   | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]             | 49.3 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 37.3 dB(A)  |
| Number of card slots   | 0   |
| Number of power slots  | 0   |
| Number of fans modules   | 2   |
| Redundant power supply   | Not supported   |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)  |
| Restriction on the operating temperature variation rate [°C(°F)] | <p>When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).</p> <p>Devices cannot start when the temperature is lower than 0°C (32°F).</p> <p>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used.</p> |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)  |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing   |

| Item  | Specification   |
|---|---|
| Long-term operating altitude [m(ft.)]           | 0–5000 m (0–16404 ft.)  |
| Storage altitude [m(ft.)]                       | 0–5000 m (0–16404 ft.)  |
| Power supply mode                               | AC built-in   |
| Rated input voltage [V]                         | <ul style="list-style-type: none"><li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li><li>High-voltage DC input: 240 V DC</li></ul>                  |
| Input voltage range [V]                         | <ul style="list-style-type: none"><li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li><li>High-voltage DC input: 190 V DC to 290 V DC</li></ul> |
| Maximum input current [A]                       | 6 A   |
| Memory  | 2 GB  |
| Flash memory                                    | Physical space: 1 GB  |
| Console port                                    | RJ45  |
| Eth Management port                             | Not supported   |
| USB   | Not supported   |
| RTC   | Not supported   |
| RPS input                                       | Not supported   |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV   |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV  |
| Ingress protection level (dustproof/waterproof) | IP20  |
| Types of fans                                   | Built-in  |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment  |
| Airflow direction                               | Air intake from left and air exhaust from right   |
| PoE   | Supported   |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification  |

## 4.7.12 S310-24T8J4X

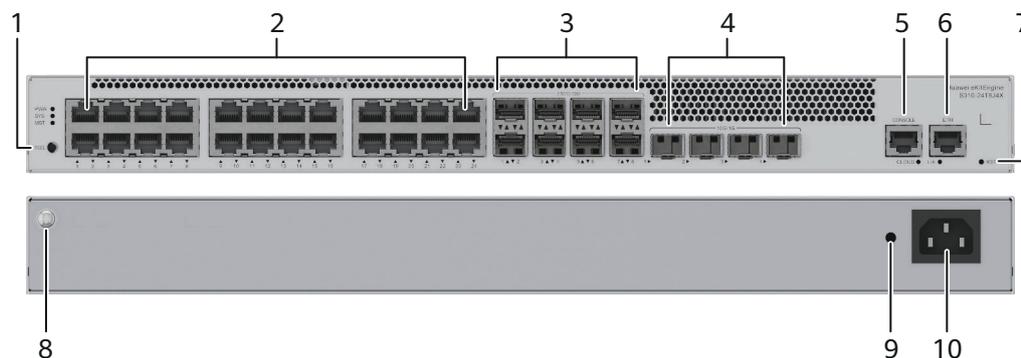
### Overview

**Table 4-143** Basic information about the S310-24T8J4X

| Item                    | Details   |
|-------------------------|---|
| Description             | S310-24T8J4X (24*10/100/1000BASE-T ports, 8*100M/1000M/2.5GE SFP ports, 4*10GE SFP+ ports, built-in AC power) |
| Part Number             | 98012570  |
| Model                   | S310-24T8J4X  |
| First supported version | V600R024C10   |

### Components

**Figure 4-48** S310-24T8J4X appearance



|   |                       |   |                                     |
|---|-----------------------|---|-------------------------------------|
| 1 | One MODE button       | 2 | Twenty-four 10/100/1000BASE-T ports |
| 3 | Eight 2.5GE SFP ports | 4 | Four 10GE SFP+ ports                |
| 5 | One console port      | 6 | One ETH management port             |

|   |   |    |   |
|---|---|----|---|
| 7 | <p>One RST button</p> <p><b>NOTICE</b></p> <p>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.</p> <p>To reset the device, press the button.</p> <p>Resetting the device will cause service interruption. Exercise caution when you press the button.</p> | 8  | <p>Ground screw</p> <p><b>NOTE</b></p> <p>It is used with a <a href="#">ground cable</a>.</p> |
| 9 | <p>Jack for AC power cable locking strap</p> <p><b>NOTE</b></p> <p>The AC power cable locking strap is not delivered with the switch.</p>   | 10 | <p>AC socket</p> <p><b>NOTE</b></p> <p>It is used with an <a href="#">AC power cable</a>.</p> |

## Ports

**Table 4-144** Ports on the S310-24T8J4X

| Port                   | Connector Type | Description   | Available Components           |
|------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

| Port                           | Connector Type | Description   | Available Components  |
|--------------------------------|----------------|---|---|
| 2.5GE/GE/100M SFP optical port | SFP            | A 2.5GE/GE/100M SFP Ethernet optical port sends and receives service data at 100 Mbit/s, 1000 Mbit/s or 2.5 Gbit/s. | <ul style="list-style-type: none"> <li>● <a href="#">FE SFP/eSFP optical modules</a></li> <li>● <a href="#">GE eSFP optical modules</a></li> <li>● <a href="#">GE-CWDM eSFP optical modules</a></li> <li>● <a href="#">GE-DWDM eSFP optical modules</a></li> <li>● <a href="#">GE SFP copper modules</a></li> <li>● <a href="#">2.5GE eSFP optical modules</a></li> </ul> |

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"><li>• <b>GE eSFP optical modules</b></li><li>• <b>GE-CWDM eSFP optical modules</b></li><li>• <b>GE-DWDM eSFP optical modules</b></li><li>• <b>GE SFP copper modules</b></li><li>• <b>10GE SFP+ optical modules</b></li><li>• <b>10GE-CWDM SFP+ optical modules</b></li><li>• <b>10GE-DWDM SFP+ optical modules</b></li><li>• <b>10GE SFP+ copper modules</b></li><li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li><li>• <b>10 m SFP+ AOC cables</b></li><li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li></ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>  |

| Port                | Connector Type | Description   | Available Components           |
|---------------------|----------------|---|--------------------------------|
| ETH management port | RJ45           | You can connect a switch to a configuration terminal or network management workstation through the ETH management port to configure the switch locally or remotely. | <a href="#">Ethernet cable</a> |

## Indicators and Buttons

Figure 4-49 Indicators on the Switch

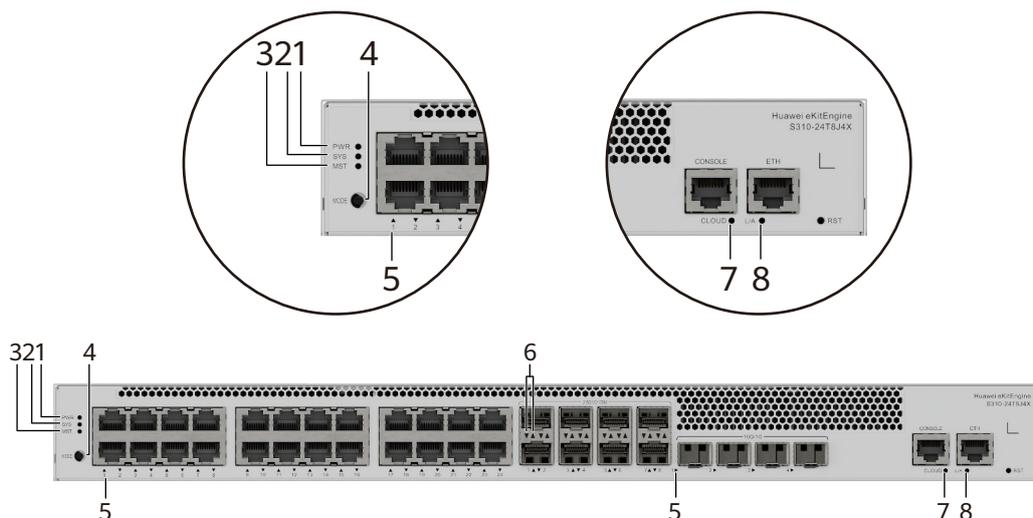


Table 4-145 Description of indicators on the switch

| No. | Indicator | Name                    | Color | Status        | Description                 |
|-----|-----------|-------------------------|-------|---------------|-----------------------------|
| 1   | PWR       | Power module indicator  | -     | Off           | The switch is powered off.  |
|     |           |                         | Green | Steady on     | The power supply is normal. |
| 2   | SYS       | System status indicator | -     | Off           | The system is not running.  |
|     |           |                         | Green | Fast blinking | The system is starting.     |

| No. | Indicator | Name            | Color | Status        | Description   |
|-----|-----------|-----------------|-------|---------------|---|
|     |           |                 | Green | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.  |
|     |           |                 | Green | Slow blinking | The system is running normally.   |
|     |           |                 | Red   | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.   |
| 3   | MST       | Stack indicator | -     | Off           | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul>  |
|     |           |                 | Green | Steady on     | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.  |
|     |           |                 | Green | Blinking      | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |

| No. | Indicator | Name   | Color   | Status | Description   |
|-----|-----------|--|---|--------|---|
| 4   | MODE      | Mode switch button   | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.<br/>If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Electrical or optical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-146</a> and <a href="#">Table 4-147</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>  |

| No. | Indicator | Name  | Color  | Status        | Description                                  |
|-----|-----------|---|--|---------------|--|
| 6   | -         | Optical service port indicator (two indicators for each port) | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |  |
| 7   | CLOUD     | Cloud indicator   | -  | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state. |
| 8   | L/A       | ETH port indicator  | -  | Off           | The ETH port is not connected.               |
|     |           |   | Green  | Steady on     | The ETH port is connected.                   |
|     |           |   | Green  | Blinking      | The ETH port is sending or receiving data.   |

**Table 4-146** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
| Default mode   | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch. |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.      |

**Table 4-147** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

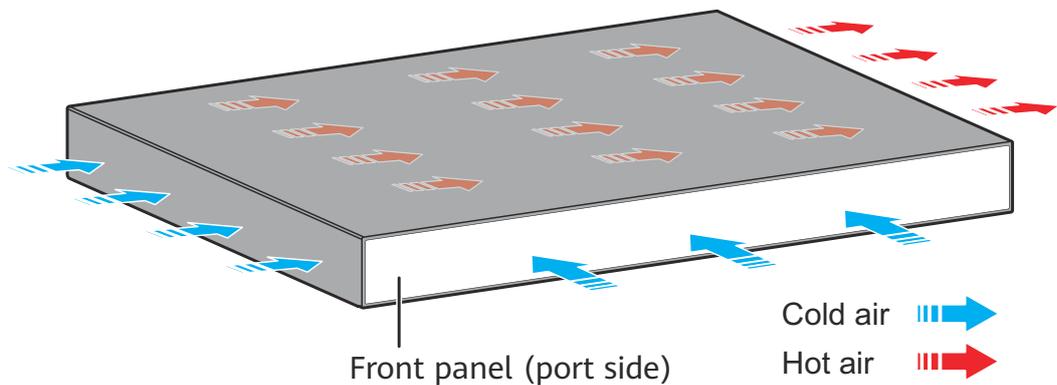
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-148** Technical specifications of the S310-24T8J4X

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.0 mm (1.72 in. x 17.40 in. x 17.56 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 185.0 mm x 650.0 mm x 550.0 mm (7.28 in. x 25.59 in. x 21.65 in.)   |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 4.13 kg (9.1 lb)  |
| Weight with packaging [kg(lb)]                     | 6.57 kg (14.48 lb)  |
| Typical power consumption [W]                      | 39.18 W   |

| Item   | Specification  |
|--|--|
| Typical heat dissipation [BTU/hour]                              | 133.69 BTU/hour  |
| Maximum power consumption [W]                                    | 49.52 W  |
| Maximum heat dissipation [BTU/hour]                              | 168.97 BTU/hour  |
| Static power consumption [W]                                     | 22.26 W  |
| MTBF [years]   | 39.69 years  |
| Availability   | > 0.99999  |
| Noise at normal temperature (acoustic power) [dB(A)]             | 41.9 dB(A)   |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 29.9 dB(A)   |
| Number of card slots   | 0  |
| Number of power slots  | 0  |
| Number of fans modules   | 2  |
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F).<br>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used. |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | AC built-in  |

| Item  | Specification   |
|---|---|
| Rated input voltage [V]                         | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC; 50/60 Hz</li> <li>High-voltage DC input: 110 V DC to 250 V DC</li> </ul>     |
| Input voltage range [V]                         | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 264 V AC; 47 Hz to 63 Hz</li> <li>High-voltage DC input: 88 V DC to 300 V DC</li> </ul> |
| Maximum input current [A]                       | 2 A   |
| Memory  | 2 GB  |
| Flash memory                                    | Physical space: 1 GB  |
| Console port                                    | RJ45  |
| Eth Management port                             | RJ45  |
| USB   | Not supported   |
| RTC   | Not supported   |
| RPS input                                       | Not supported   |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV  |
| Ingress protection level (dustproof/waterproof) | IP20  |
| Types of fans                                   | Built-in  |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment  |
| Airflow direction                               | Air intake from left and front, air exhaustion from right   |
| PoE   | Not supported   |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification  |

### 4.7.13 S310-48S4X

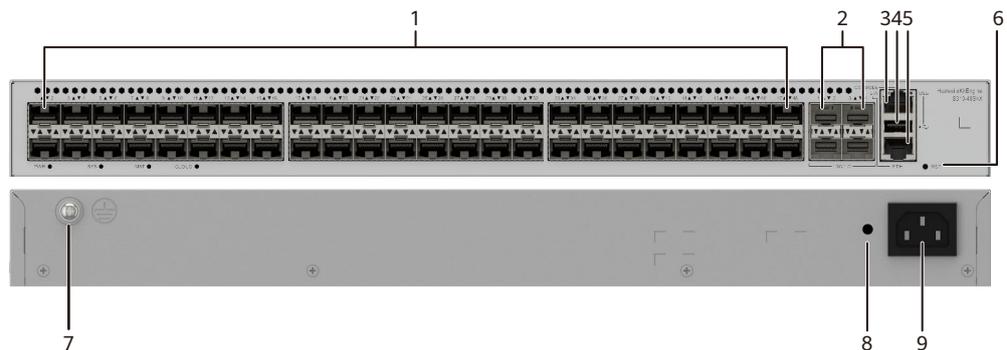
## Overview

**Table 4-149** Basic information about the S310-48S4X

| Item                    | Details  |
|-------------------------|--|
| Description             | S310-48S4X (48*GE SFP ports, 4*10GE SFP+ ports, built-in AC power)           |
| Part Number             | 98012564   |
| Model                   | S310-48S4X   |
| First supported version | V600R024C10  |
| Remarks                 | Copper modules can be installed on a maximum of 24 1000BASE-X optical ports. |

## Components

**Figure 4-50** S310-48S4X appearance



|   |                                  |   |  |
|---|----------------------------------|---|--|
| 1 | Forty-eight 100/1000BASE-X ports | 2 | Four 10GE SFP+ ports   |
| 3 | One console port                 | 4 | One USB port   |
| 5 | One ETH management port          | 6 | One RST button<br><br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. |

|   |   |   |  |
|---|---|---|--|
| 7 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . | 8 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch. |
| 9 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . | - | -  |

## Ports

**Table 4-150** Ports on the S310-48S4X

| Port                | Connector Type | Description   | Available Components  |
|---------------------|----------------|---|---|
| 100/1000BASE-X port | SFP            | A 100/1000BASE-X port can send and receive data at 100/1000 Mbit/s. | <ul style="list-style-type: none"> <li>• <a href="#">FE SFP/eSFP optical modules</a></li> <li>• <a href="#">GE eSFP optical modules</a></li> <li>• <a href="#">GE-CWDM eSFP optical modules</a></li> <li>• <a href="#">GE-DWDM eSFP optical modules</a></li> <li>• <a href="#">GE SFP copper modules</a></li> </ul> |

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"><li>• <b>GE eSFP optical modules</b></li><li>• <b>GE-CWDM eSFP optical modules</b></li><li>• <b>GE-DWDM eSFP optical modules</b></li><li>• <b>GE SFP copper modules</b></li><li>• <b>10GE SFP+ optical modules</b></li><li>• <b>10GE-CWDM SFP+ optical modules</b></li><li>• <b>10GE-DWDM SFP+ optical modules</b></li><li>• <b>10GE SFP+ copper modules</b></li><li>• <b>1 m, 2 m, and 3 m SFP+ high-speed copper cables</b></li><li>• <b>10 m SFP+ AOC cables</b></li><li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li></ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>  |

| Port                | Connector Type | Description  | Available Components           |
|---------------------|----------------|--|--------------------------------|
| ETH management port | RJ45           | You can connect a switch to a configuration terminal or network management workstation through the ETH management port to configure the switch locally or remotely.  | <a href="#">Ethernet cable</a> |
| USB port            | USB 2.0 Type A | <p>The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.</p> <p>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor.</p> | USB flash drive                |

## Indicators and Buttons

Figure 4-51 Indicators on the Switch

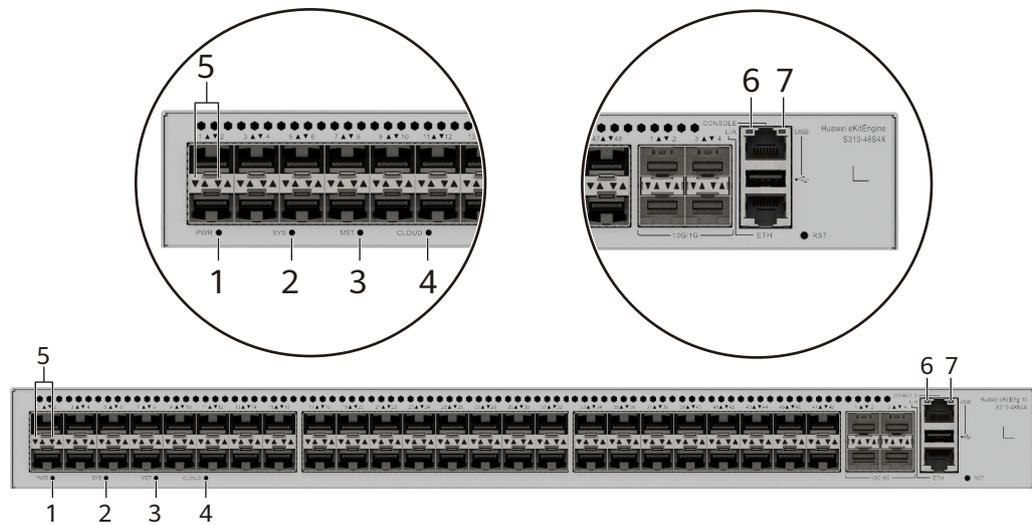


Table 4-151 Description of indicators on the switch

| No. | Indicator | Name                    | Color | Status        | Description  |
|-----|-----------|-------------------------|-------|---------------|--|
| 1   | PWR       | Power module indicator  | -     | Off           | The switch is powered off.   |
|     |           |                         | Green | Steady on     | The power supply is normal.  |
| 2   | SYS       | System status indicator | -     | Off           | The system is not running.   |
|     |           |                         | Green | Fast blinking | The system is starting.  |
|     |           |                         | Green | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds. |
|     |           |                         | Green | Slow blinking | The system is running normally.  |
| 3   | MST       | Stack indicator         | -     | Off           | The switch is not the master switch in a stack.  |
|     |           |                         | Green | Blinking      | The switch is the master switch in a stack or a standalone switch.   |

| No. | Indicator | Name  | Color  | Status        | Description  |
|-----|-----------|---|--|---------------|--|
| 4   | CLOUD     | Cloud indicator                                       | -  | Off           | The device is not connected to the cloud.  |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.   |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state.   |
| 5   | -         | Service port indicator (two indicators for each port) | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               | Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-152</a> .<br><br><b>NOTE</b><br>If a power failure occurs on a device's PCB board, indicators of the last four GE, 10GE, or 25GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds. |
| 6   | L/A       | ETH port indicator                                    | -  | Off           | The ETH port is not connected.   |
|     |           |   | Green  | Steady on     | The ETH port is connected.   |
|     |           |   | Green  | Blinking      | The ETH port is sending or receiving data.   |
| 7   | USB       | USB-based deployment indicator                        | -  | Off           | No USB flash drive is installed, or the indicator fails.   |

| No. | Indicator | Name | Color | Status    | Description   |
|-----|-----------|------|-------|-----------|---|
|     |           |      | Green | Steady on | USB-based deployment succeeds. If there is no deployment configuration file, deployment will be repeatedly performed. In this case, the indicator is also steady green. |
|     |           |      | Green | Blinking  | USB-based deployment is in progress.  |
|     |           |      | Red   | Steady on | USB-based deployment fails.   |

**Table 4-152** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                    | Color  | Status    | Description  |
|---------------------------------|--------|-----------|--|
| Default mode (LINK indicator)   | -      | Off       | The port is not connected or has been shut down.   |
|                                 | Green  | Steady on | A link has been established on the port.   |
| Default mode (ACT indicator)    | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received.  |
|                                 | Yellow | Blinking  | The port is sending or receiving data.   |
| MST stack mode (LINK indicator) | -      | Off       | Port indicators do not show the stack ID of the switch.  |
|                                 | Green  | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch. |
|                                 | Green  | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.      |
| MST stack mode (ACT indicator)  | -      | Off       | Port indicators do not show the stack ID of the switch.  |

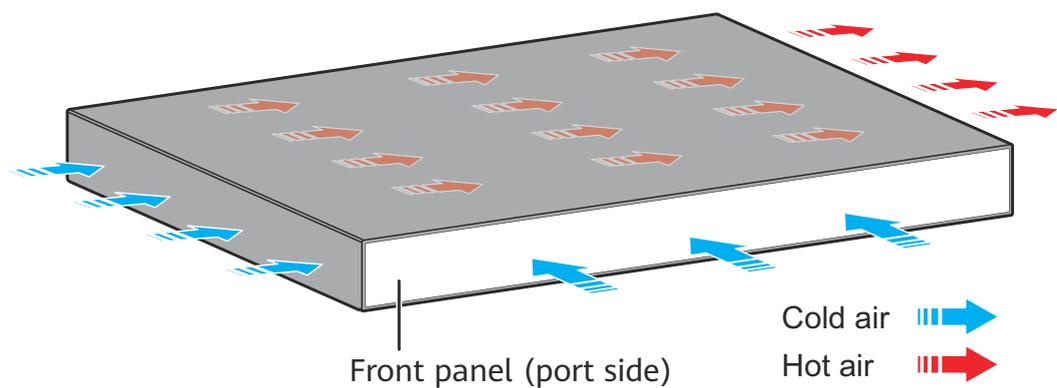
## Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-153** Technical specifications of the S310-48S4X

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 220.0 mm (1.72 in. x 17.4 in. x 8.66 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 227.0 mm (1.72 in. x 17.4 in. x 8.94 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 90.0 mm x 550.0 mm x 360.0 mm (3.54 in. x 21.65 in. x 14.17 in.)  |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 2.96 kg (6.53 lb)   |

| Item   | Specification  |
|--|--|
| Weight with packaging [kg(lb)]                                   | 3.74 kg (8.25 lb)  |
| Typical power consumption [W]                                    | 65.6 W   |
| Typical heat dissipation [BTU/hour]                              | 223.83 BTU/hour  |
| Maximum power consumption [W]                                    | 84.1 W   |
| Maximum heat dissipation [BTU/hour]                              | 286.96 BTU/hour  |
| Static power consumption [W]                                     | 32 W   |
| MTBF [years]   | 47.14 years  |
| Availability   | > 0.99999  |
| Noise at normal temperature (acoustic power) [dB(A)]             | 45.6 dB(A)   |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 33.6 dB(A)   |
| Number of card slots   | 0  |
| Number of power slots  | 0  |
| Number of fans modules   | 2  |
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | AC input: 100–240 V AC; 50/60 Hz   |
| Input voltage range [V]  | AC input: 90 V AC to 264 V AC, 47 Hz to 63 Hz  |

| Item  | Specification  |
|---|--|
| Maximum input current [A]                       | 3 A  |
| Memory  | 2 GB   |
| Flash memory                                    | Physical space: 1 GB   |
| Console port                                    | RJ45   |
| Eth Management port                             | RJ45   |
| USB   | Supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and front, air exhaustion from right                |
| PoE   | Not supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.7.14 S310-48HP4X

### Overview

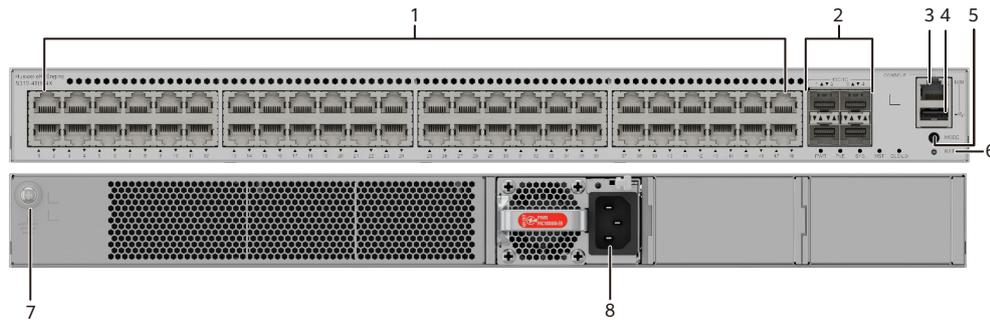
**Table 4-154** Basic information about the S310-48HP4X

| Item        | Details  |
|-------------|--|
| Description | S310-48HP4X (48*10/100/1000BASE-T ports (846 W PoE+), 4*10GE SFP+ ports, with 1*AC power module) |
| Part Number | 98012566   |
| Model       | S310-48HP4X  |

| Item                    | Details     |
|-------------------------|-------------|
| First supported version | V600R024C10 |

## Components

Figure 4-52 S310-48HP4X appearance



|   |   |   |  |
|---|---|---|--|
| 1 | Forty-eight 10/100/1000BASE-T PoE + ports                                       | 2 | Four 10GE SFP+ ports   |
| 3 | One console port  | 4 | One USB port   |
| 5 | One MODE button   | 6 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. |
| 7 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . | 8 | Power module slot<br><b>NOTE</b><br>Applicable power modules:<br>• <a href="#">PAC1000S56-EB</a>   |

## Ports

**Table 4-155** Ports on the S310-48HP4X

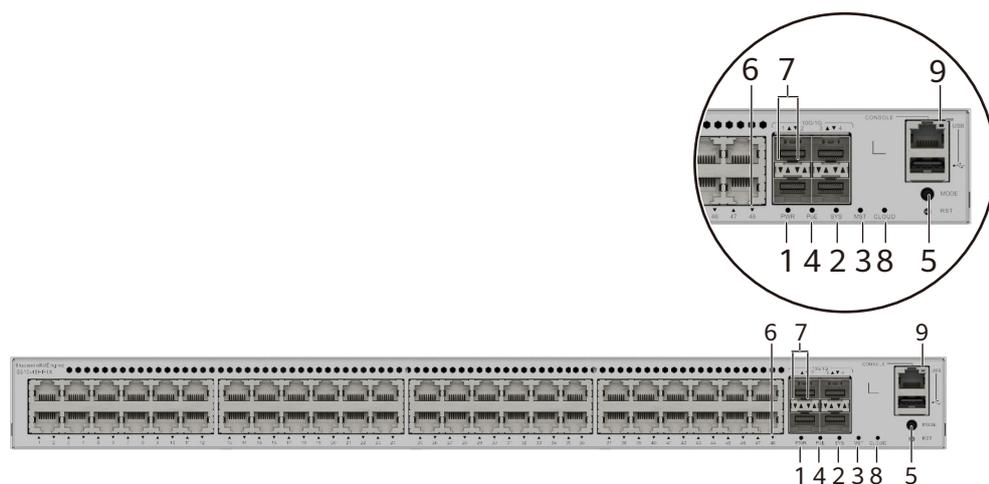
| Port                       | Connector Type | Description  | Available Components  |
|----------------------------|----------------|--|-----------------------|
| 10/100/1000BASE<br>-T port | RJ45           | A<br>10/100/1000BASE<br>-T Ethernet<br>electrical port<br>sends and<br>receives service<br>data at<br>10/100/1000<br>Mbit/s. | <b>Ethernet cable</b> |

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"><li>• <b>GE eSFP optical modules</b></li><li>• <b>GE-CWDM eSFP optical modules</b></li><li>• <b>GE-DWDM eSFP optical modules</b></li><li>• <b>GE SFP copper modules</b></li><li>• <b>10GE SFP+ optical modules</b></li><li>• <b>10GE-CWDM SFP+ optical modules</b></li><li>• <b>10GE-DWDM SFP+ optical modules</b></li><li>• <b>10GE SFP+ copper modules</b></li><li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li><li>• <b>10 m SFP+ AOC cables</b></li><li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li></ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>  |

| Port     | Connector Type | Description  | Available Components |
|----------|----------------|--|----------------------|
| USB port | USB 2.0 Type A | <p>The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.</p> <p>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor.</p> | USB flash drive      |

## Indicators and Buttons

Figure 4-53 Indicators on the Switch



**NOTE**

The S310-48HP4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-156** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.   |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.  |
| 3   | MST       | Stack indicator         | -      | Off           | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul> |
|     |           |                         | Green  | Steady on     | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.   |

| No. | Indicator | Name          | Color | Status    | Description   |
|-----|-----------|---------------|-------|-----------|---|
|     |           |               | Green | Blinking  | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |
| 4   | PoE       | PoE indicator | -     | Off       | The PoE mode is not selected.   |
|     |           |               | Green | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |

| No. | Indicator | Name  | Color      | Status   | Description   |
|-----|-----------|---|------------|--|---|
| 5   | MODE      | Mode switch button  | -          | -  | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a third time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>                     Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 6   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads | show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-157</a> and <a href="#">Table 4-158</a>.</p> <p><b>NOTE</b><br/>                     If a power failure occurs on a device's PCB board, indicators of the last four GE, 10GE, or 25GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>  |

| No. | Indicator | Name  | Color  | Status        | Description   |
|-----|-----------|---|--|---------------|---|
| 7   | -         | Optical service port indicator (two indicators for each port) | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |   |
| 8   | CLOUD     | Cloud indicator   | -  | Off           | The device is not connected to the cloud.   |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.  |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state.  |
| 9   | USB       | USB-based deployment indicator                                | -  | Off           | No USB flash drive is installed, or the indicator fails.  |
|     |           |   | Green  | Steady on     | USB-based deployment succeeds. If there is no deployment configuration file, deployment will be repeatedly performed. In this case, the indicator is also steady green. |
|     |           |   | Green  | Blinking      | USB-based deployment is in progress.  |
|     |           |   | Red  | Steady on     | USB-based deployment fails.   |

**Table 4-157** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
| Default mode   | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch.   |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.  |
| PoE mode       | -     | Off       | The port is not providing power to a powered device (PD).  |
|                | Green | Steady on | The port is providing power to a PD.   |
|                | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-158** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color | Status | Description                                      |
|-------------------------------|-------|--------|--|
| Default mode (LINK indicator) | -     | Off    | The port is not connected or has been shut down. |

| Display Mode                 | Color  | Status    | Description   |
|------------------------------|--------|-----------|---|
|                              | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator) | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                              | Yellow | Blinking  | The port is sending or receiving data.  |

## Power Supply System

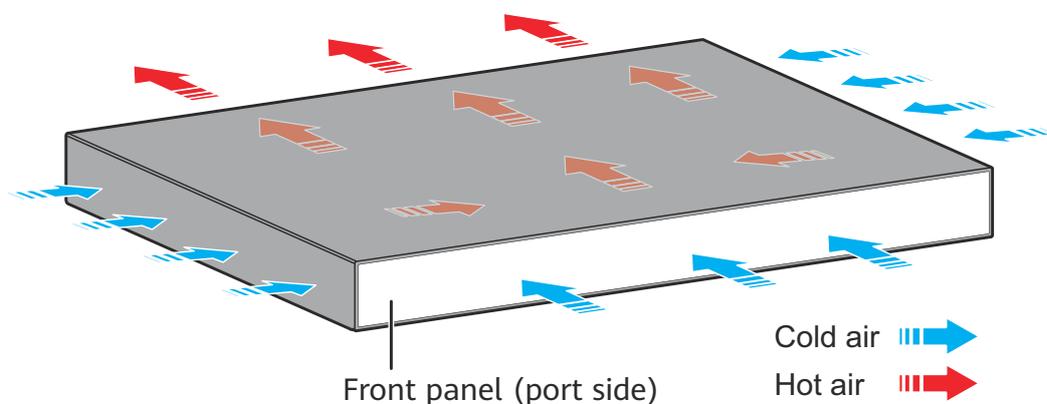
The switch is a PoE switch and supports one power module slot, which can have a 1000 W PoE power module installed.

**Table 4-159** Power supply configurations

| Power Module      | Available PoE Power | Maximum Number of Ports (Fully Loaded)   |
|-------------------|---------------------|--|
| 1000 W AC (220 V) | 846 W               | <ul style="list-style-type: none"> <li>802.3af (15.4 W per port): 48</li> <li>802.3at (30 W per port): 28</li> </ul> |
| 1000 W AC (110 V) | 756 W               | <ul style="list-style-type: none"> <li>802.3af (15.4 W per port): 48</li> <li>802.3at (30 W per port): 25</li> </ul> |

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left, right, and front sides, and exhausts from the rear panel.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-160** Technical specifications of the S310-48HP4X

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.0 mm (1.72 in. x 17.40 in. x 17.56 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 185.0 mm x 650.0 mm x 550.0 mm (7.28 in. x 25.59 in. x 21.65 in.)   |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 5.83 kg (12.85 lb)  |
| Weight with packaging [kg(lb)]                          | 8.04 kg (17.72 lb)  |
| Typical power consumption [W]                           | 52.78 W   |
| Typical heat dissipation [BTU/hour]                     | 180.09 BTU/hour   |
| Maximum power consumption [W]                           | <ul style="list-style-type: none"> <li>Without PoE: 74.66 W</li> <li>Full PoE load: 991.74 W (PoE: 846 W)</li> </ul>  |
| Maximum heat dissipation [BTU/hour]                     | <ul style="list-style-type: none"> <li>Without PoE: 254.75</li> <li>Full PoE load: 3383.92</li> </ul>   |
| Static power consumption [W]                            | 36.75 W   |
| MTBF [years]  | 46.89 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 67 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 55 dB(A)  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 1   |
| Number of fans modules                                  | 2   |

| Item   | Specification  |
|--|--|
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0-5000 m (0-16404 ft.)   |
| Storage altitude [m(ft.)]  | 0-5000 m (0-16404 ft.)   |
| Power supply mode  | Pluggable power supply   |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> </ul>  |
| Input voltage range [V]  | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li> <li>High-voltage DC input: 190 V DC to 290 V DC</li> </ul>   |
| Maximum input current [A]  | The current specifications are related to the pluggable power module. For details, see Pluggable Power Modules.  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | Not supported  |
| USB  | Supported  |
| RTC  | Not supported  |
| RPS input  | Not supported  |
| Service port surge protection [kV]                               | Common mode: ±6 kV   |
| Power supply surge protection [kV]                               | Differential mode: ±6 kV; common mode: ±6 kV   |

| Item  | Specification  |
|---|--|
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left, front, and right and air exhaust from rear         |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.7.15 S310-48PN4X

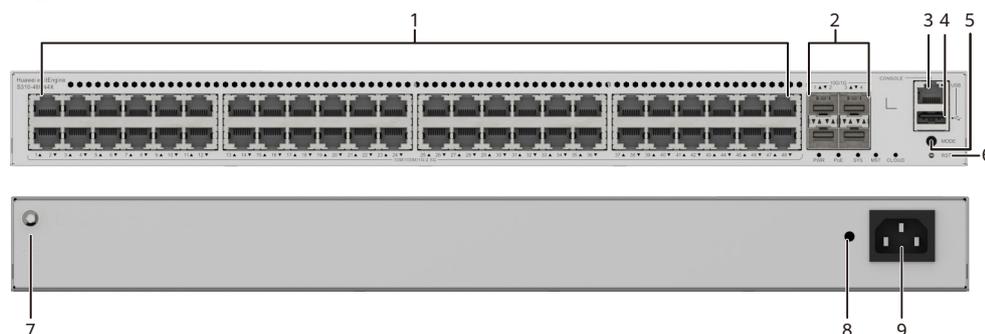
### Overview

**Table 4-161** Basic information about the S310-48PN4X

| Item                    | Details   |
|-------------------------|---|
| Description             | S310-48PN4X<br>(48*10/100/1000/2.5GBASE-T ports<br>(360 W PoE+), 4*10GE SFP+ ports,<br>built-in AC power) |
| Part Number             | 98012568  |
| Model                   | S310-48PN4X   |
| First supported version | V600R024C10   |

### Components

**Figure 4-54** S310-48PN4X appearance



|   |   |   |  |
|---|---|---|--|
| 1 | Forty-eight 10M/100M/1000M/2.5GE BASE-T PoE+ ports (multi-GE ports)             | 2 | Four 10GE SFP+ ports   |
| 3 | One console port  | 4 | One USB port   |
| 5 | One MODE button   | 6 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. |
| 7 | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> . | 8 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.   |
| 9 | AC socket<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> . | - | -  |

## Ports

**Table 4-162** Maximum transmission distances of different cables on multi-GE ports

| Cable Type (6-a-1 Bundle)                         | Multi-GE Port (Different Rates) |       |
|---|---------------------------------|-------|
|   | 10M/100M/1000M                  | 2.5GE |
| Category 5e unshielded twisted pair (Cat5e UTP)   | 100 m                           | 100 m |
| Category 5e shielded twisted pair (Cat5e STP)     | 100 m                           | 100 m |
| Category 6 unshielded twisted pair (Cat6 UTP)     | 100 m                           | 100 m |
| Category 6 shielded twisted pair (Cat6 STP)       | 100 m                           | 100 m |
| Category 6A unshielded twisted pair (Cat6A U/UTP) | 100 m                           | 100 m |

| Cable Type (6-a-1 Bundle)                                | Multi-GE Port (Different Rates) |       |
|--|---------------------------------|-------|
|  | 10M/100M/1000M                  | 2.5GE |
| Category 6A foiled/unshielded twisted pair (Cat6A F/UTP) | 100 m                           | 100 m |
| Category 6A shielded twisted pair (Cat6A STP)            | 100 m                           | 100 m |
| Category 7 twisted pair (Cat7)                           | 100 m                           | 100 m |

 **NOTE**

6-a-1 stands for the six-around-one cable bundle mode, with one cable in the center and six cables bundled evenly around it.

**Table 4-163** Ports on the S310-48PN4X

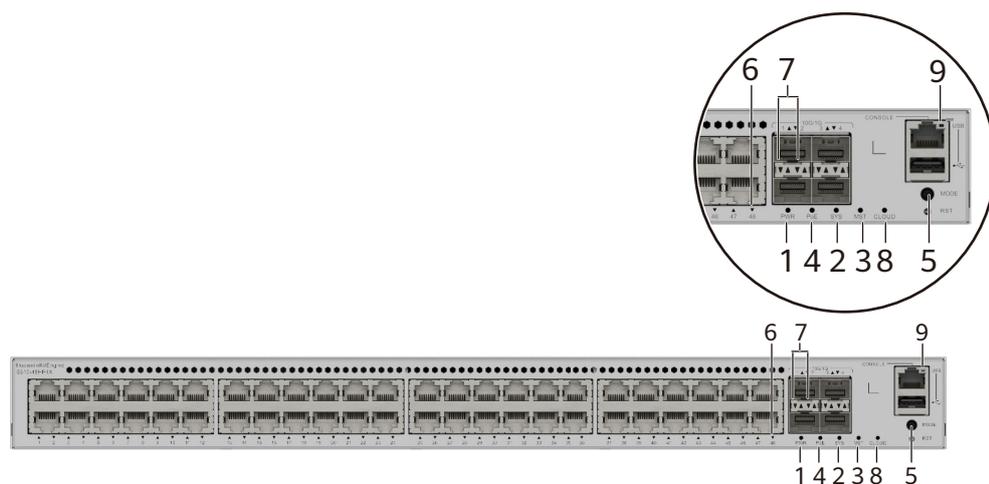
| Port  | Connector Type | Description   | Available Components   |
|---|----------------|---|--|
| 10M/100M/1G/<br>2.5GE BASE-T PoE<br>+ port (multi-GE<br>port) | RJ45           | A 10M/100M/1G/<br>2.5GE BASE-T PoE<br>+ port (multi-GE<br>port) sends and<br>receives service<br>data at 10 Mbit/s,<br>100 Mbit/s, 1<br>Gbit/s, or 2.5<br>Gbit/s.<br><br>The port supports<br>the PoE function. | If the 2.5 Gbit/s<br>speed is required,<br>the port must use<br>an Ethernet cable<br>of Cat5e or higher<br>category. |

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper modules</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>10GE SFP+ copper modules</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |
| Console port           | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>  |

| Port     | Connector Type | Description  | Available Components |
|----------|----------------|--|----------------------|
| USB port | USB 2.0 Type A | <p>The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.</p> <p>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor.</p> | USB flash drive      |

## Indicators and Buttons

Figure 4-55 Indicators on the Switch



**NOTE**

The S310-48HP4X model is used as an example. Non-PoE models do not have PoE indicator and PoE mode.

**Table 4-164** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.   |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or a fan alarm or a temperature alarm has been generated.  |
| 3   | MST       | Stack indicator         | -      | Off           | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul> |
|     |           |                         | Green  | Steady on     | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.   |

| No. | Indicator | Name          | Color | Status    | Description   |
|-----|-----------|---------------|-------|-----------|---|
|     |           |               | Green | Blinking  | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |
| 4   | PoE       | PoE indicator | -     | Off       | The PoE mode is not selected.   |
|     |           |               | Green | Steady on | The PoE mode is selected, and service port indicators show the PoE status of each port.   |

| No. | Indicator | Name  | Color   | Status | Description  |
|-----|-----------|---|---|--------|--|
| 5   | MODE      | Mode switch button  | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators change to the PoE mode and show the PoE status of each service port.</li> <li>When you press this button a third time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode. In this case, the PoE indicator is off.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 6   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-165</a> and <a href="#">Table 4-166</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE, 10GE, or 25GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>  |

| No. | Indicator | Name  | Color  | Status        | Description   |
|-----|-----------|---|--|---------------|---|
| 7   | -         | Optical service port indicator (two indicators for each port) | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |   |
| 8   | CLOUD     | Cloud indicator   | -  | Off           | The device is not connected to the cloud.   |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.  |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state.  |
| 9   | USB       | USB-based deployment indicator                                | -  | Off           | No USB flash drive is installed, or the indicator fails.  |
|     |           |   | Green  | Steady on     | USB-based deployment succeeds. If there is no deployment configuration file, deployment will be repeatedly performed. In this case, the indicator is also steady green. |
|     |           |   | Green  | Blinking      | USB-based deployment is in progress.  |
|     |           |   | Red  | Steady on     | USB-based deployment fails.   |

**Table 4-165** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
| Default mode   | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch.   |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.  |
| PoE mode       | -     | Off       | The port is not providing power to a powered device (PD).  |
|                | Green | Steady on | The port is providing power to a PD.   |
|                | Green | Blinking  | The power of the PD connected to the port exceeds the power capacity of the port or the power threshold configured on the port. Alternatively, the PD does not comply with IEEE standards. |

**Table 4-166** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color | Status | Description                                      |
|-------------------------------|-------|--------|--|
| Default mode (LINK indicator) | -     | Off    | The port is not connected or has been shut down. |

| Display Mode                 | Color  | Status    | Description   |
|------------------------------|--------|-----------|---|
|                              | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator) | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                              | Yellow | Blinking  | The port is sending or receiving data.  |

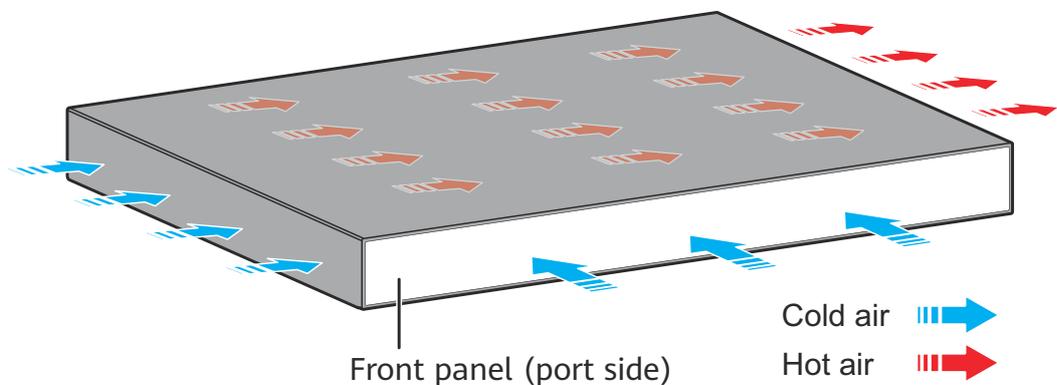
### Power Supply System

The switch has a built-in AC power module and does not support pluggable power modules. The device provides 48 PoE ports. The maximum output power of a PoE port is 30 W, and the maximum PoE output power of the entire device is 360 W.

### Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.

When working properly at a normal temperature, the device meets the desktop-class noise requirements. However, the fan speed may be high and the noise may be loud during device startup.



**NOTE**

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-167** Technical specifications of the S310-48PN4X

| Item  | Specification   |
|---|---|
| Dimensions without packaging (H x W x D) [mm(in.)]      | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.4 in. x 16.54 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.0 mm (1.72 in. x 17.4 in. x 17.56 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]         | 185.0 mm x 650.0 mm x 550.0 mm (7.28 in. x 25.59 in. x 21.65 in.)   |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 5.33 kg (11.75 lb)  |
| Weight with packaging [kg(lb)]                          | 7.43 kg (16.38 lb)  |
| Typical power consumption [W]                           | 87.15 W   |
| Typical heat dissipation [BTU/hour]                     | 297.36 BTU/hour   |
| Maximum power consumption [W]                           | <ul style="list-style-type: none"> <li>Without PoE: 115.20 W</li> <li>Full PoE load: 510.50 W (PoE: 360 W)</li> </ul>   |
| Maximum heat dissipation [BTU/hour]                     | <ul style="list-style-type: none"> <li>Without PoE: 393.07</li> <li>Full PoE load: 1741.88</li> </ul>   |
| Static power consumption [W]                            | 54.9 W  |
| MTBF [years]  | 43.36 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 51.4 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 37.72 dB(A)   |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 0   |
| Number of fans modules                                  | 2   |

| Item   | Specification  |
|--|--|
| Redundant power supply   | Not supported  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +45°C (23°F to 113°F) at an altitude of 0 to 1800 m (0 to 5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F).<br>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used. |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | AC built-in  |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> </ul>  |
| Input voltage range [V]  | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li> <li>High-voltage DC input: 190 V DC to 290 V DC</li> </ul>   |
| Maximum input current [A]  | 6 A  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | Not supported  |
| USB  | Supported  |
| RTC  | Not supported  |
| RPS input  | Not supported  |

| Item  | Specification  |
|---|--|
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV                   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment       |
| Airflow direction                               | Air intake from left and front, air exhaustion from right                |
| PoE   | Supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.8 S530

### 4.8.1 S530-24T4XE

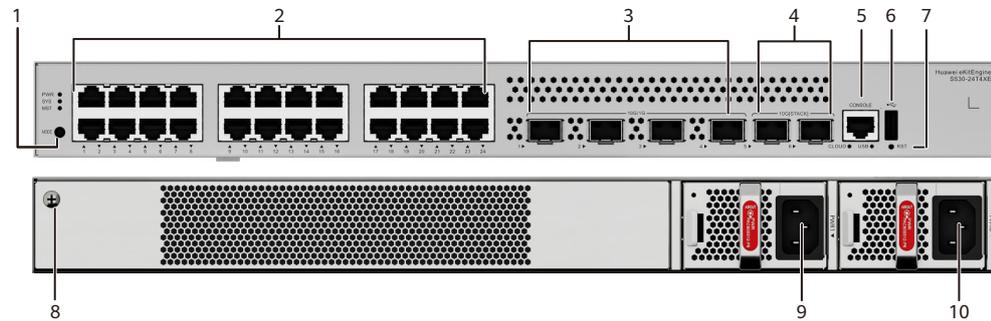
#### Overview

**Table 4-168** Basic information about the S530-24T4XE

| Item                    | Details  |
|-------------------------|--|
| Description             | S530-24T4XE(24*10/100/1000BASE-T ports, 4*10GE SFP+ ports, 2*10GE stack ports, with 1*AC power module) |
| Part Number             | 98012554   |
| Model                   | S530-24T4XE  |
| First supported version | V600R023C10SPC600  |

## Components

Figure 4-56 S530-24T4XE appearance



|   |  |    |  |
|---|--|----|--|
| 1 | One MODE button  | 2  | Twenty-four 10/100/1000BASE-T ports  |
| 3 | Four 10GE SFP+ ports   | 4  | Two stack ports<br><b>NOTE</b><br>These stack ports are available only in CLI-based O&M scenarios.   |
| 5 | One console port   | 6  | One USB port   |
| 7 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button.   | 8  | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> .  |
| 9 | Power module slot 1<br><b>NOTE</b><br>Applicable power modules:<br><ul style="list-style-type: none"> <li>• <a href="#">PAC80S12-CN</a></li> <li>• <a href="#">PAC180S12-CN</a></li> <li>• <a href="#">PDC240S12-CN</a> (available since V600R024C00 version)</li> <li>• <a href="#">PAC600S12-PB</a></li> <li>• <a href="#">PDC1K2S12-CE</a></li> </ul> | 10 | Power module slot 2<br><b>NOTE</b><br>Applicable power modules:<br><ul style="list-style-type: none"> <li>• <a href="#">PAC80S12-CN</a></li> <li>• <a href="#">PAC180S12-CN</a></li> <li>• <a href="#">PDC240S12-CN</a> (available since V600R024C00 version)</li> <li>• <a href="#">PAC600S12-PB</a></li> <li>• <a href="#">PDC1K2S12-CE</a></li> </ul> |

## Ports

**Table 4-169** Ports on the S530-24T4XE

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s.                                     | <b>Ethernet cable</b>   |
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |

| Port         | Connector Type | Description  | Available Components   |
|--------------|----------------|--|--|
| Stack port   | SFP+           | A stack port connects multiple switches through stack cables to virtualize them into one switch logically. It is used only in stacking scenarios and does not need to be configured. These stack ports are available only in CLI-based O&M scenarios.  | <ul style="list-style-type: none"> <li>• <b>1 m SFP+ high-speed copper cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables</b></li> </ul> |
| Console port | RJ45           | The console port is connected to a console for on-site configuration.  | <b>Console cable</b>   |
| USB port     | USB 2.0 Type A | <p>The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.</p> <p>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor.</p> | USB flash drive  |

## Indicators and Buttons

Figure 4-57 Indicators on the Switch

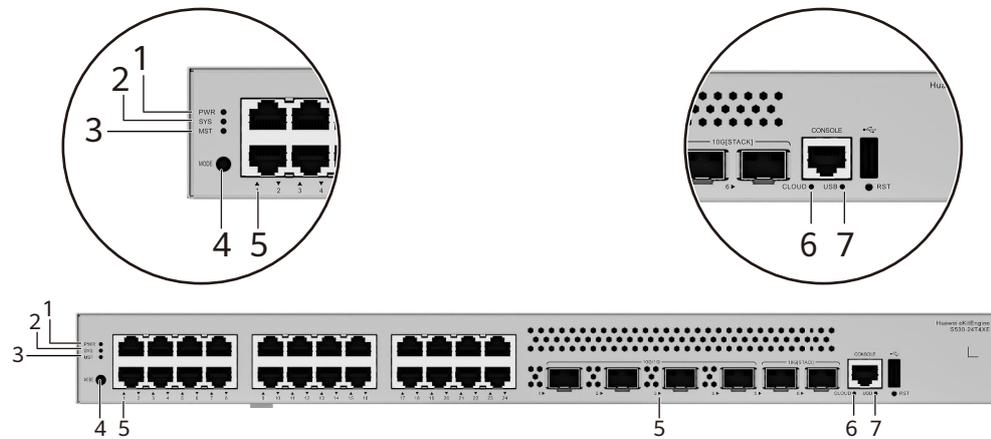


Table 4-170 Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The switch has multiple power modules installed. Any of the following situations occurs in a power module slot: <ul style="list-style-type: none"> <li>A power module is available in this slot but it is not connected to a power source.</li> <li>The power module in this slot has failed.</li> </ul> |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.   |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |

| No. | Indicator | Name            | Color | Status    | Description   |
|-----|-----------|-----------------|-------|-----------|---|
|     |           |                 | Red   | Steady on | The system does not work normally after registration, or alarms such as fan module, power module, optical module, or temperature alarms are generated.  |
| 3   | MST       | Stack indicator | -     | Off       | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul>  |
|     |           |                 | Green | Steady on | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.  |
|     |           |                 | Green | Blinking  | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul> |

| No. | Indicator | Name   | Color   | Status | Description   |
|-----|-----------|--|---|--------|---|
| 4   | MODE      | Mode switch button                                   | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-171</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>  |

| No. | Indicator | Name  | Color | Status        | Description   |
|-----|-----------|---|-------|---------------|---|
| 6   | CLOUD     | Cloud indicator<br><br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | -     | Off           | The device is not connected to the cloud.   |
|     |           |   | Blue  | Fast blinking | The device is connecting to the cloud.  |
|     |           |   | Blue  | Slow blinking | The device is in the cloud management state.  |
| 7   | USB       | USB-based deployment indicator  | -     | Off           | No USB flash drive is installed, or the indicator fails.  |
|     |           |   | Green | Steady on     | USB-based deployment succeeds. If there is no deployment configuration file, deployment will be repeatedly performed. In this case, the indicator is also steady green. |
|     |           |   | Green | Blinking      | USB-based deployment is in progress.  |
|     |           |   | Red   | Steady on     | USB-based deployment fails.   |

**Table 4-171** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description   |
|----------------|-------|-----------|---|
| Default mode   | -     | Off       | The port is not connected or has been shut down.        |
|                | Green | Steady on | A link has been established on the port.                |
|                | Green | Blinking  | The port is sending or receiving data.                  |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch. |

| Display Mode | Color | Status    | Description  |
|--------------|-------|-----------|--|
|              | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch. |
|              | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.      |

## Power Supply System

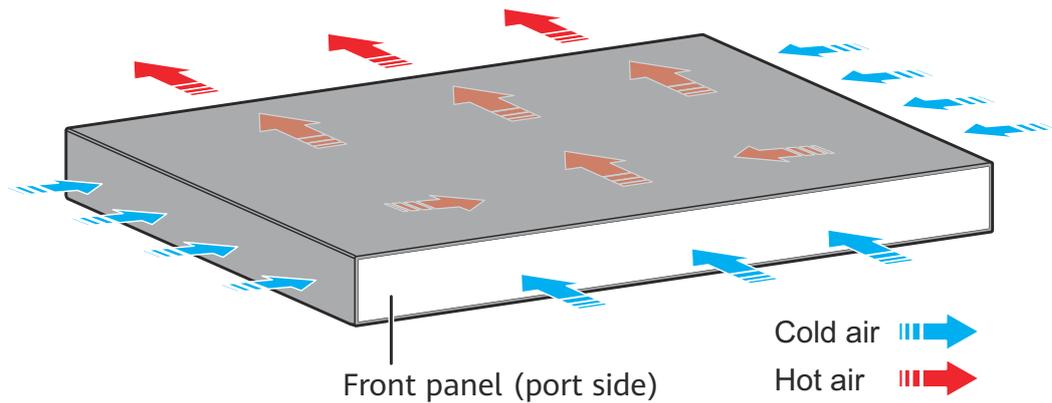
The switch can use a single power module or two power modules for 1+1 power redundancy. The power modules with fans and power modules without fans cannot be installed on the same switch.

**Table 4-172** Power supply configurations

| Power Module  | Heat Dissipation                            | Note   |
|---|---|--|
| 80 W AC power module (one delivered by default)             | No fan, natural heat dissipation            | 80 W AC power module, 180 W AC power module, and 240 W DC power module can be used together. |
| 180 W AC power module                                       | No fan, natural heat dissipation            |  |
| 240 W DC power module (available since V600R024C00 version) | No fan, natural heat dissipation            |  |
| 600 W AC power module                                       | With fans, air cooling for heat dissipation | It cannot be used together with other power modules.   |

## Heat Dissipation System

The switch has one built-in fan for forced air cooling. Air flows in from the left, right, and front sides, and exhausts from the rear panel.



**NOTE**

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-173** Technical specifications of the S530-24T4XE

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.0 mm (1.72 in. x 17.40 in. x 17.56 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 185.0 mm x 650.0 mm x 550.0 mm (7.28 in. x 25.59 in. x 21.65 in.)   |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 5.4 kg (11.9 lb)  |
| Weight with packaging [kg(lb)]                     | 7.3 kg (16.09 lb)   |
| Typical power consumption [W]                      | 26.20 W   |
| Typical heat dissipation [BTU/hour]                | 89.40 BTU/hour  |

| Item   | Specification  |
|--|--|
| Maximum power consumption [W]                                    | <ul style="list-style-type: none"> <li>• 33.10 W (with two 80 W AC power modules)</li> <li>• 45.75 W (with two 180 W AC power modules)</li> <li>• 85.20 W (with two 1200 W DC power modules)</li> </ul>                                  |
| Maximum heat dissipation [BTU/hour]                              | <ul style="list-style-type: none"> <li>• 112.94 (with two 80 W AC power modules)</li> <li>• 156.10 (with two 180 W AC power modules)</li> <li>• 290.71 (with two 1200 W DC power modules)</li> </ul>                                     |
| Static power consumption [W]                                     | 23.2 W   |
| MTBF [years]   | 168.93 years   |
| Availability   | > 0.99999  |
| Noise at normal temperature (acoustic power) [dB(A)]             | 47 dB(A)   |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 35 dB(A)   |
| Number of card slots   | 0  |
| Number of power slots  | 2  |
| Number of fans modules   | 1  |
| Redundant power supply   | 1+1<br>Power modules without fans and power modules with fans cannot be installed in the same chassis.   |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |

| Item  | Specification  |
|---|--|
| Long-term operating altitude [m(ft.)]           | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]                       | 0-5000 m (0-16404 ft.)   |
| Power supply mode                               | Pluggable power supply   |
| Rated input voltage [V]                         | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC; 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> <li>DC input: –48 V DC to –60 V DC</li> </ul>  |
| Input voltage range [V]                         | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 290 V AC; 45–65 Hz</li> <li>High-voltage DC input: 190 V DC to 290 V DC</li> <li>DC input: -38.4 V DC to -72 V DC</li> </ul>   |
| Maximum input current [A]                       | The current specifications are related to the pluggable power module. For details, see Pluggable Power Modules.  |
| Memory  | 2 GB   |
| Flash memory                                    | Physical space: 1 GB   |
| Console port                                    | RJ45   |
| Eth Management port                             | Not supported  |
| USB   | Supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Service port surge protection [kV]              | Common mode: $\pm 7$ kV  |
| Power supply surge protection [kV]              | <ul style="list-style-type: none"> <li>Configured with AC power modules: <math>\pm 6</math> kV in differential mode and <math>\pm 6</math> kV in common mode</li> <li>Configured with DC power modules: <math>\pm 2</math> kV in differential mode and <math>\pm 4</math> kV in common mode</li> </ul> |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment   |
| Airflow direction                               | Air intake from left, front, and right and air exhaust from rear   |

| Item          | Specification  |
|---------------|--|
| PoE           | Not supported  |
| Certification | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.8.2 S530-24T8J4XE

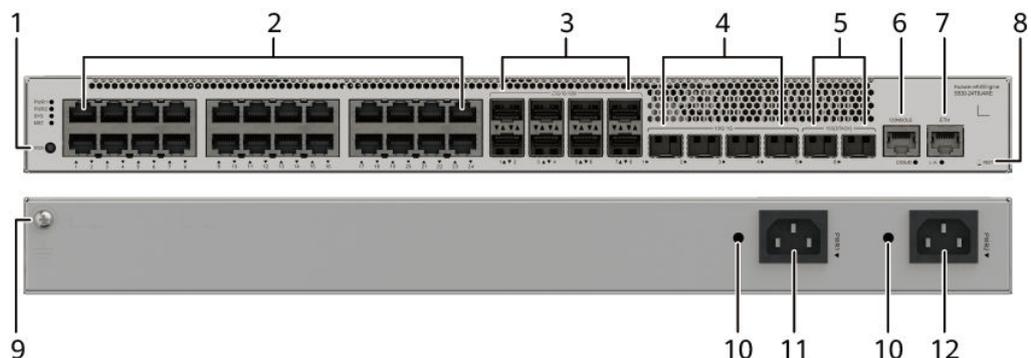
### Overview

**Table 4-174** Basic information about the S530-24T8J4XE

| Item                    | Details  |
|-------------------------|--|
| Description             | S530-24T8J4XE (24*10/100/1000BASE-T ports, 8*2.5GE/GE/100M SFP ports, 4*10GE SFP+ ports, 2*10GE stack ports, dual built-in AC power) |
| Part Number             | 98012949   |
| Model                   | S530-24T8J4XE  |
| First supported version | V600R024C10  |

### Components

**Figure 4-58** S530-24T8J4XE appearance



|   |                 |   |                                     |
|---|-----------------|---|-------------------------------------|
| 1 | One MODE button | 2 | Twenty-four 10/100/1000BASE-T ports |
|---|-----------------|---|-------------------------------------|

|    |  |    |  |
|----|--|----|--|
| 3  | Eight 2.5GE SFP ports  | 4  | Four 10GE SFP+ ports   |
| 5  | Two stack ports<br><b>NOTE</b><br>These stack ports are available only in CLI-based O&M scenarios. | 6  | One console port   |
| 7  | One ETH management port  | 8  | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. |
| 9  | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> .                    | 10 | Jack for AC power cable locking strap<br><b>NOTE</b><br>The AC power cable locking strap is not delivered with the switch.   |
| 11 | AC socket 1<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> .                  | 12 | AC socket 2<br><b>NOTE</b><br>It is used with an <a href="#">AC power cable</a> .  |

## Ports

**Table 4-175** Ports on the S530-24T8J4XE

| Port                   | Connector Type | Description   | Available Components           |
|------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

| Port                           | Connector Type | Description   | Available Components  |
|--------------------------------|----------------|---|---|
| 2.5GE/GE/100M SFP optical port | SFP            | A 2.5GE/GE/100M SFP Ethernet optical port sends and receives service data at 100 Mbit/s, 1000 Mbit/s or 2.5 Gbit/s. | <ul style="list-style-type: none"> <li>• <a href="#">FE SFP/eSFP optical modules</a></li> <li>• <a href="#">GE eSFP optical modules</a></li> <li>• <a href="#">GE-CWDM eSFP optical modules</a></li> <li>• <a href="#">GE-DWDM eSFP optical modules</a></li> <li>• <a href="#">GE SFP copper modules</a></li> <li>• <a href="#">2.5GE eSFP optical modules</a></li> </ul> |

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>● <b>GE eSFP optical modules</b></li> <li>● <b>GE-CWDM eSFP optical modules</b></li> <li>● <b>GE-DWDM eSFP optical modules</b></li> <li>● <b>GE SFP copper modules</b></li> <li>● <b>10GE SFP+ optical modules</b></li> <li>● <b>10GE-CWDM SFP+ optical modules</b></li> <li>● <b>10GE-DWDM SFP+ optical modules</b></li> <li>● <b>10GE SFP+ copper modules</b></li> <li>● <b>1 m and 3 m SFP+ high-speed copper cables</b></li> <li>● <b>10 m SFP+ AOC cables</b></li> <li>● <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |

| Port                | Connector Type | Description   | Available Components  |
|---------------------|----------------|---|---|
| Stack port          | SFP+           | A stack port connects multiple switches through stack cables to virtualize them into one switch logically. It is used only in stacking scenarios and does not need to be configured. These stack ports are available only in CLI-based O&M scenarios. | <ul style="list-style-type: none"><li>• <b>1 m SFP+ high-speed copper cables</b></li><li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables</b></li></ul> |
| Console port        | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>  |
| ETH management port | RJ45           | You can connect a switch to a configuration terminal or network management workstation through the ETH management port to configure the switch locally or remotely.   | <b>Ethernet cable</b>   |

## Indicators and Buttons

Figure 4-59 Indicators on the Switch

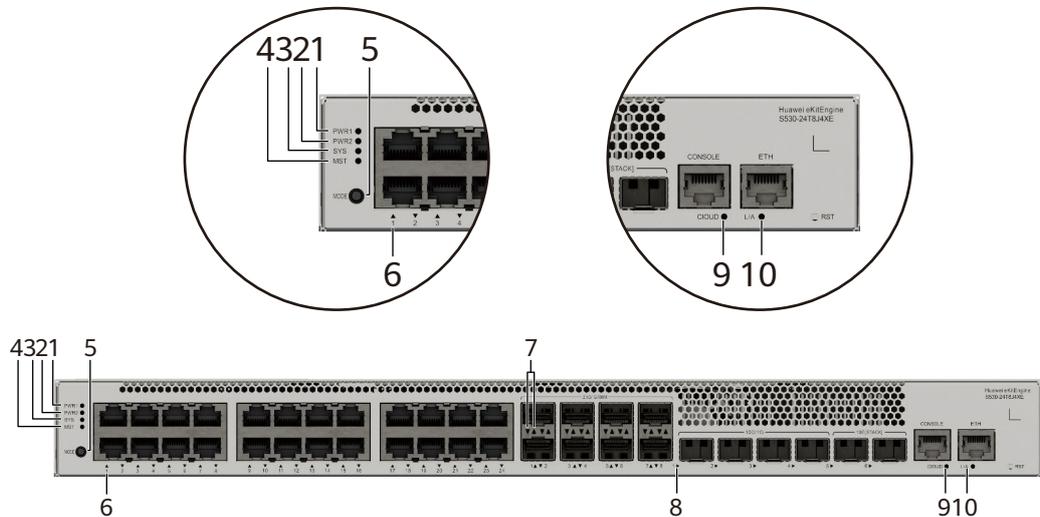


Table 4-176 Description of indicators on the switch

| No. | Indicator | Name                    | Color | Status        | Description  |
|-----|-----------|-------------------------|-------|---------------|--|
| 1   | PWR 1     | Power 1 indicator       | -     | Off           | No power is supplied to AC socket 1.   |
|     |           |                         | Green | Steady on     | The power supply of AC socket 1 is normal.   |
| 2   | PWR 2     | Power 2 indicator       | -     | Off           | No power is supplied to AC socket 2.   |
|     |           |                         | Green | Steady on     | The power supply of AC socket 2 is normal.   |
| 3   | SYS       | System status indicator | -     | Off           | The system is not running.   |
|     |           |                         | Green | Fast blinking | The system is starting.  |
|     |           |                         | Green | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.                               |
|     |           |                         | Green | Slow blinking | The system is running normally.  |
|     |           |                         | Red   | Steady on     | The system does not work normally after registration, or alarms such as fan module, power module, optical module, or temperature alarms are generated. |

| No. | Indicator | Name            | Color | Status    | Description  |
|-----|-----------|-----------------|-------|-----------|--|
| 4   | MST       | Stack indicator | -     | Off       | <ul style="list-style-type: none"><li>• If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li><li>• If you are changing the indicator mode: The stack mode is not selected.</li></ul>  |
|     |           |                 | Green | Steady on | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.   |
|     |           |                 | Green | Blinking  | <ul style="list-style-type: none"><li>• If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li><li>• If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li></ul> |

| No. | Indicator | Name  | Color   | Status | Description   |
|-----|-----------|---|---|--------|---|
| 5   | MODE      | Mode switch button  | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.<br/>If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 6   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-177</a> and <a href="#">Table 4-178</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE, 10GE, or 25GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>   |

| No. | Indicator | Name  | Color  | Status        | Description                                  |
|-----|-----------|---|--|---------------|--|
| 7   | -         | Optical service port indicator (two indicators for each port) | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |  |
| 8   | -         | Optical service port indicator (one indicator for each port)  | Arrowheads show the positions of ports.  |               |  |
| 9   | CLOUD     | Cloud indicator   | -  | Off           | The device is not connected to the cloud.    |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.       |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state. |
| 10  | L/A       | ETH port indicator  | -  | Off           | The ETH port is not connected.               |
|     |           |   | Green  | Steady on     | The ETH port is connected.                   |

| No. | Indicator | Name | Color | Status   | Description                                |
|-----|-----------|------|-------|----------|--|
|     |           |      | Green | Blinking | The ETH port is sending or receiving data. |

**Table 4-177** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
| Default mode   | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch. |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.      |

**Table 4-178** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color | Status    | Description   |
|-------------------------------|-------|-----------|---|
| Default mode (LINK indicator) | -     | Off       | The port is not connected or has been shut down.  |
|                               | Green | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -     | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |

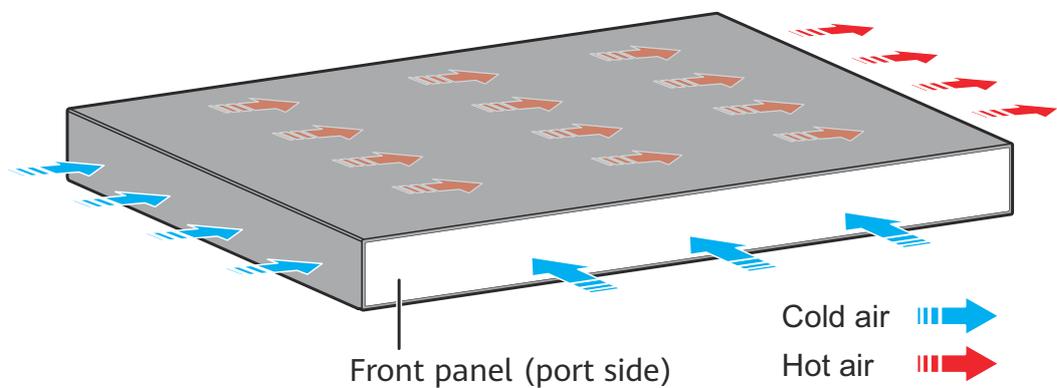
| Display Mode | Color  | Status   | Description                            |
|--------------|--------|----------|--|
|              | Yellow | Blinking | The port is sending or receiving data. |

## Power Supply System

The switch has two built-in AC power modules for power redundancy.

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left side and front panel, and exhausts from the right side.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-179** Technical specifications of the S530-24T8J4XE

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.0 mm (1.72 in. x 17.40 in. x 17.56 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 185.0 mm x 650.0 mm x 550.0 mm (7.28 in. x 25.59 in. x 21.65 in.)   |
| Chassis height [U]                                 | 1 U   |

| Item   | Specification  |
|--|--|
| Chassis material   | Metal  |
| Weight without packaging [kg(lb)]                                | 4.89 kg (10.78 lb)   |
| Weight with packaging [kg(lb)]                                   | 6.98 kg (15.39 lb)   |
| Typical power consumption [W]                                    | 41.18 W  |
| Typical heat dissipation [BTU/hour]                              | 140.51 BTU/hour  |
| Maximum power consumption [W]                                    | 53.12 W  |
| Maximum heat dissipation [BTU/hour]                              | 181.25 BTU/hour  |
| Static power consumption [W]                                     | 22.45 W  |
| MTBF [years]   | 59.93 years  |
| Availability   | > 0.99999  |
| Noise at normal temperature (acoustic power) [dB(A)]             | 41.9 dB(A)   |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 29.9 dB(A)   |
| Number of card slots   | 0  |
| Number of power slots  | 0  |
| Number of fans modules   | 2  |
| Redundant power supply   | Dual built-in power modules in 1+1 backup mode   |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F).<br>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used. |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |

| Item  | Specification  |
|---|--|
| Long-term operating altitude [m(ft.)]           | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]                       | 0-5000 m (0-16404 ft.)   |
| Power supply mode                               | AC built-in  |
| Rated input voltage [V]                         | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC, 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> </ul>                  |
| Input voltage range [V]                         | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 290 V AC; 45 Hz to 65 Hz</li> <li>High-voltage DC input: 190 V DC to 290 V DC</li> </ul> |
| Maximum input current [A]                       | 4.0 A  |
| Memory  | 2 GB   |
| Flash memory                                    | Physical space: 1 GB   |
| Console port                                    | RJ45   |
| Eth Management port                             | RJ45   |
| USB   | Not supported  |
| RTC   | Not supported  |
| RPS input                                       | Not supported  |
| Power supply surge protection [kV]              | Differential mode: $\pm 6$ kV; common mode: $\pm 6$ kV   |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Built-in   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment   |
| Airflow direction                               | Air intake from left and front, air exhaustion from right  |
| PoE   | Not supported  |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification   |

### 4.8.3 S530-24ST4XE

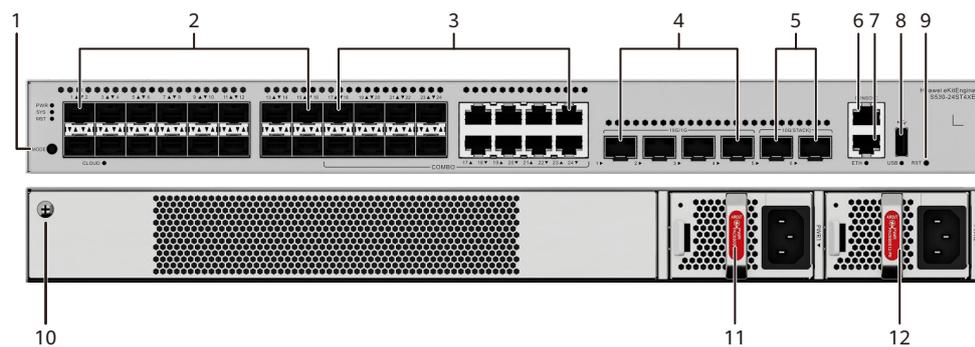
## Overview

**Table 4-180** Basic information about the S530-24ST4XE

| Item                    | Details  |
|-------------------------|--|
| Description             | S530-24ST4XE(24*GE SFP ports, 8 of which are dual-purpose 10/100/1000 or SFP, 4*10GE SFP+ ports, 2*10GE stack ports, with 1*AC power module) |
| Part Number             | 98012556   |
| Model                   | S530-24ST4XE   |
| First supported version | V600R023C10SPC600  |

## Components

**Figure 4-60** S530-24ST4XE appearance



|   |   |   |                              |
|---|---|---|------------------------------|
| 1 | One MODE button   | 2 | Sixteen 100/1000BASE-X ports |
| 3 | Eight Combo ports (100/1000BASE-X optical ports and 10/100/1000BASE-T electrical ports)<br><b>NOTE</b><br>In the default working mode, the electrical ports in the combo ports are available. | 4 | Four 10GE SFP+ ports         |
| 5 | Two stack ports<br><b>NOTE</b><br>These stack ports are available only in CLI-based O&M scenarios.  | 6 | One console port             |
| 7 | One ETH management port   | 8 | One USB port                 |

|        |   |        |   |
|--------|---|--------|---|
| 9      | <p>One RST button</p> <p><b>NOTICE</b></p> <p>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.</p> <p>To reset the device, press the button.</p> <p>Resetting the device will cause service interruption. Exercise caution when you press the button.</p>             | 1<br>0 | <p>Ground screw</p> <p><b>NOTE</b></p> <p>It is used with a <b>ground cable</b>.</p>  |
| 1<br>1 | <p>Power module slot 1</p> <p><b>NOTE</b></p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>• <b>PAC80S12-CN</b></li> <li>• <b>PAC180S12-CN</b></li> <li>• <b>PDC240S12-CN</b> (available since V600R024C00 version)</li> <li>• <b>PAC600S12-PB</b></li> <li>• <b>PDC1K2S12-CE</b></li> </ul> | 1<br>2 | <p>Power module slot 2</p> <p><b>NOTE</b></p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>• <b>PAC80S12-CN</b></li> <li>• <b>PAC180S12-CN</b></li> <li>• <b>PDC240S12-CN</b> (available since V600R024C00 version)</li> <li>• <b>PAC600S12-PB</b></li> <li>• <b>PDC1K2S12-CE</b></li> </ul> |

## Ports

**Table 4-181** Ports on the S530-24ST4XE

| Port                | Connector Type | Description   | Available Components  |
|---------------------|----------------|---|---|
| 100/1000BASE-X port | SFP            | A 100/1000BASE-X port can send and receive data at 100/1000 Mbit/s. | <ul style="list-style-type: none"> <li>• <b>FE SFP/eSFP optical modules</b></li> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> </ul> |

| Port  | Connector Type | Description  | Available Components   |
|---|----------------|--|--|
| Combo port<br>(10/100/1000BAS<br>E-T +<br>100/1000BASE-X) | RJ45/SFP       | A combo port refers to a pair of ports consisting of an optical Ethernet port and an electrical Ethernet port on the panel. Each combo port matches only one internal forwarding port. A combo port can be configured as an electrical port or an optical port, but only one port can be active at a time. When one port is active, the other port is shut down. | <ul style="list-style-type: none"> <li>• <a href="#">Ethernet cable</a></li> <li>• <a href="#">FE SFP/eSFP optical modules</a></li> <li>• <a href="#">GE eSFP optical modules</a></li> <li>• <a href="#">GE-CWDM eSFP optical modules</a></li> <li>• <a href="#">GE-DWDM eSFP optical modules</a></li> </ul> |

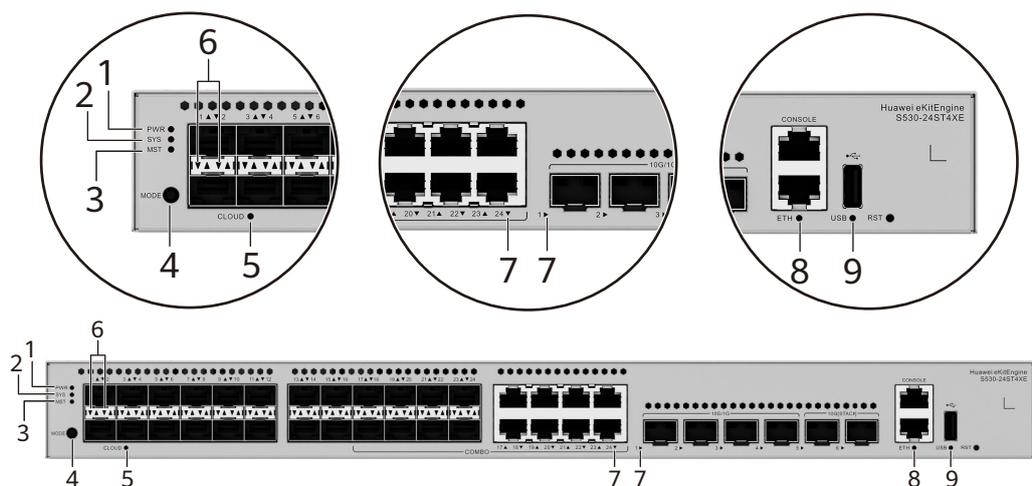
| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>● <b>GE eSFP optical modules</b></li> <li>● <b>GE-CWDM eSFP optical modules</b></li> <li>● <b>GE-DWDM eSFP optical modules</b></li> <li>● <b>GE SFP copper module</b></li> <li>● <b>10GE SFP+ optical modules</b></li> <li>● <b>10GE-CWDM SFP+ optical modules</b></li> <li>● <b>10GE-DWDM SFP+ optical modules</b></li> <li>● <b>1 m, 2 m, and 3 m SFP+ high-speed copper cables</b></li> <li>● <b>10 m SFP+ AOC cables</b></li> <li>● <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |

| Port                | Connector Type | Description   | Available Components  |
|---------------------|----------------|---|---|
| Stack port          | SFP+           | A stack port connects multiple switches through stack cables to virtualize them into one switch logically. It is used only in stacking scenarios and does not need to be configured. These stack ports are available only in CLI-based O&M scenarios. | <ul style="list-style-type: none"><li>• <b>1 m SFP+ high-speed copper cables</b></li><li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables</b></li></ul> |
| Console port        | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>  |
| ETH management port | RJ45           | You can connect a switch to a configuration terminal or network management workstation through the ETH management port to configure the switch locally or remotely.   | <b>Ethernet cable</b>   |

| Port     | Connector Type | Description  | Available Components |
|----------|----------------|--|----------------------|
| USB port | USB 2.0 Type A | <p>The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.</p> <p>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor.</p> | USB flash drive      |

## Indicators and Buttons

Figure 4-61 Indicators on the Switch



**Table 4-182** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The switch has multiple power modules installed. Any of the following situations occurs in a power module slot: <ul style="list-style-type: none"> <li>A power module is available in this slot but it is not connected to a power source.</li> <li>The power module in this slot has failed.</li> </ul> |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.   |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or alarms such as fan module, power module, optical module, or temperature alarms are generated.   |
| 3   | MST       | Stack indicator         | -      | Off           | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li> <li>If you are changing the indicator mode: The stack mode is not selected.</li> </ul>       |
|     |           |                         | Green  | Steady on     | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.   |

| No. | Indicator | Name               | Color | Status   | Description   |
|-----|-----------|--------------------|-------|----------|---|
|     |           |                    | Green | Blinking | <ul style="list-style-type: none"> <li>If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li> <li>If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li> </ul>   |
| 4   | MODE      | Mode switch button | -     | -        | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode.</p> <p><b>NOTE</b><br/>                     Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode.<br/>                     If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |

| No. | Indicator | Name   | Color  | Status  | Description                                  |
|-----|-----------|--|--|---|--|
| 5   | CLOUD     | Cloud indicator  | -  | Off   | The device is not connected to the cloud.    |
|     |           | <b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved. | Blue   | Fast blinking   | The device is connecting to the cloud.       |
|     |           |  | Blue   | Slow blinking   | The device is in the cloud management state. |
| 6   | -         | Optical service port indicator (two indicators for each port)                    | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. | Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-183</a> and <a href="#">Table 4-184</a> .<br><br><b>NOTE</b><br>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds. |  |

| No. | Indicator | Name   | Color   | Status    | Description   |
|-----|-----------|--|---|-----------|---|
| 7   | -         | Electrical or optical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |           |   |
| 8   | ETH       | ETH port indicator   | -   | Off       | The ETH port is not connected.  |
|     |           |  | Green   | Steady on | The ETH port is connected.  |
|     |           |  | Green   | Blinking  | The ETH port is sending or receiving data.  |
| 9   | USB       | USB-based deployment indicator   | -   | Off       | No USB flash drive is installed, or the indicator fails.  |
|     |           |  | Green   | Steady on | USB-based deployment succeeds. If there is no deployment configuration file, deployment will be repeatedly performed. In this case, the indicator is also steady green. |
|     |           |  | Green   | Blinking  | USB-based deployment is in progress.  |
|     |           |  | Red   | Steady on | USB-based deployment fails.   |

**Table 4-183** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description                                      |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down. |
|              | Green | Steady on | A link has been established on the port.         |
|              | Green | Blinking  | The port is sending or receiving data.           |

**Table 4-184** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                    | Color  | Status    | Description  |
|---------------------------------|--------|-----------|--|
| Default mode (LINK indicator)   | -      | Off       | The port is not connected or has been shut down.   |
|                                 | Green  | Steady on | A link has been established on the port.   |
| Default mode (ACT indicator)    | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received.  |
|                                 | Yellow | Blinking  | The port is sending or receiving data.   |
| MST stack mode (LINK indicator) | -      | Off       | Port indicators do not show the stack ID of the switch.  |
|                                 | Green  | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch. |
|                                 | Green  | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.      |
| MST stack mode (ACT indicator)  | -      | Off       | Port indicators do not show the stack ID of the switch.  |

## Power Supply System

The switch can use a single power module or two power modules for 1+1 power redundancy. The power modules with fans and power modules without fans cannot be installed on the same switch.

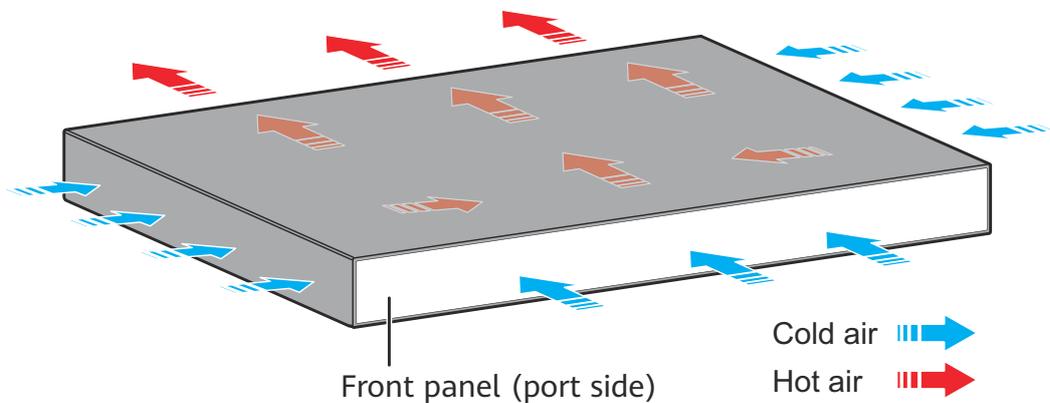
**Table 4-185** Power supply configurations

| Power Module                                    | Heat Dissipation                 | Note   |
|---|----------------------------------|--|
| 80 W AC power module (one delivered by default) | No fan, natural heat dissipation | 80 W AC power module, 180 W AC power module, and 240 W DC power module can be used together. |
| 180 W AC power module                           | No fan, natural heat dissipation |  |

| Power Module  | Heat Dissipation                            | Note   |
|---|---|--|
| 240 W DC power module (available since V600R024C00 version) | No fan, natural heat dissipation            |  |
| 600 W AC power module                                       | With fans, air cooling for heat dissipation | It cannot be used together with other power modules. |

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left, right, and front sides, and exhausts from the rear panel.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-186** Technical specifications of the S530-24ST4XE

| Item   | Specification  |
|--|--|
| Dimensions without packaging (H x W x D) [mm(in.)] | <p>Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.)</p> <p>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.0 mm (1.72 in. x 17.40 in. x 17.56 in.)</p> |

| Item  | Specification   |
|---|---|
| Dimensions with packaging (H x W x D) [mm(in.)]         | 185.0 mm x 650.0 mm x 550.0 mm<br>(7.28 in. x 25.59 in. x 21.65 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 5.6 kg (12.35 lb)   |
| Weight with packaging [kg(lb)]                          | 7.4 kg (16.31 lb)   |
| Typical power consumption [W]                           | 31.6 W  |
| Typical heat dissipation [BTU/hour]                     | 107.82 BTU/hour   |
| Maximum power consumption [W]                           | <ul style="list-style-type: none"><li>• 48.70 W (with two 80 W AC power modules)</li><li>• 85.78 W (with two 1200 W DC power modules)</li></ul> |
| Maximum heat dissipation [BTU/hour]                     | <ul style="list-style-type: none"><li>• 166.17 (with two 80 W AC power modules)</li><li>• 292.69 (with two 1200 W DC power modules)</li></ul>   |
| Static power consumption [W]                            | 14 W  |
| MTBF [years]  | 112.03 years  |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 38.1 dB(A)  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 26.1 dB(A)  |
| Number of card slots                                    | 0   |
| Number of power slots                                   | 2   |
| Number of fans modules                                  | 2   |
| Redundant power supply                                  | 1+1<br>Power modules without fans and power modules with fans cannot be installed in the same chassis.  |
| Long-term operating temperature [°C(°F)]                | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)  |

| Item   | Specification  |
|--|--|
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | –40°C to +70°C (–40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | Pluggable power supply   |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 240 V AC; 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> <li>DC input: –48 V DC to –60 V DC</li> </ul>  |
| Input voltage range [V]  | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 290 V AC; 45–65 Hz</li> <li>High-voltage DC input: 190 V DC to 290 V DC</li> <li>DC input: –38.4 V DC to –72 V DC</li> </ul>   |
| Maximum input current [A]  | The current specifications are related to the pluggable power module. For details, see Pluggable Power Modules.  |
| Memory   | 2 GB   |
| Flash memory   | Physical space: 1 GB   |
| Console port   | RJ45   |
| Eth Management port  | RJ45   |
| USB  | Supported  |
| RTC  | Not supported  |
| RPS input  | Not supported  |

| Item  | Specification   |
|---|---|
| Power supply surge protection [kV]              | <ul style="list-style-type: none"><li>Configured with AC power modules: <math>\pm 6</math> kV in differential mode and <math>\pm 6</math> kV in common mode</li><li>Configured with DC power modules: <math>\pm 2</math> kV in differential mode and <math>\pm 4</math> kV in common mode</li></ul> |
| Ingress protection level (dustproof/waterproof) | IP20  |
| Types of fans                                   | Built-in  |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment  |
| Airflow direction                               | Air intake from left, front, and right and air exhaust from rear  |
| PoE   | Not supported   |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification  |

## 4.8.4 S530-48S4XE

### Overview

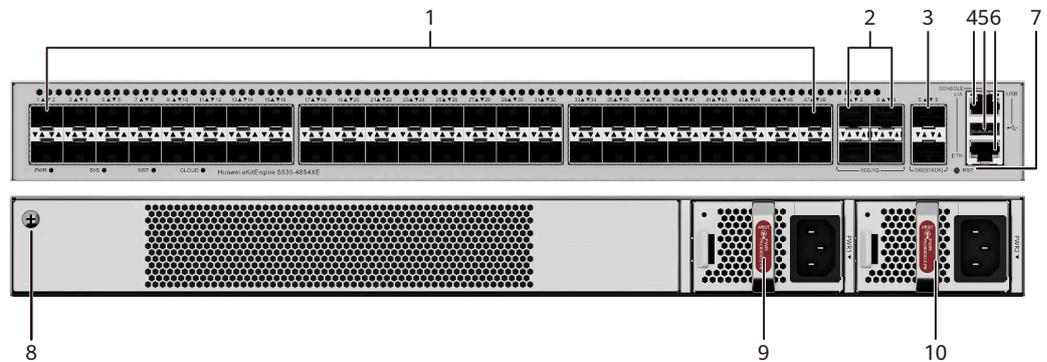
**Table 4-187** Basic information about the S530-48S4XE

| Item                    | Details   |
|-------------------------|---|
| Description             | S530-48S4XE(48*GE SFP ports, 4*10GE SFP+ ports, 2*10GE stack ports, with 1*AC power module) |
| Part Number             | 98012558  |
| Model                   | S530-48S4XE   |
| First supported version | V600R023C10SPC600   |

| Item    | Details   |
|---------|---|
| Remarks | <ul style="list-style-type: none"> <li>When 25 or more GE optical modules with a transmission distance of 40 km or longer are installed on 1000BASE-X optical ports, power modules with at least 180 W power are required.</li> <li>Copper modules can be installed on a maximum of 24 1000BASE-X optical ports.</li> </ul> |

## Components

Figure 4-62 S530-48S4XE appearance



|   |  |   |  |
|---|--|---|--|
| 1 | Forty-eight 100/1000BASE-X ports   | 2 | Four 10GE SFP+ ports   |
| 3 | Two stack ports<br><b>NOTE</b><br>These stack ports are available only in CLI-based O&M scenarios.   | 4 | One console port   |
| 5 | One USB port   | 6 | One ETH management port  |
| 7 | One RST button<br><b>NOTICE</b><br>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.<br>To reset the device, press the button.<br>Resetting the device will cause service interruption. Exercise caution when you press the button. | 8 | Ground screw<br><b>NOTE</b><br>It is used with a <b>ground cable</b> . |

|   |  |    |  |
|---|--|----|--|
| 9 | <p>Power module slot 1</p> <p><b>NOTE</b></p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>• <a href="#">PAC80S12-CN</a></li> <li>• <a href="#">PAC180S12-CN</a></li> <li>• <a href="#">PDC240S12-CN</a> (available since V600R024C00 version)</li> <li>• <a href="#">PAC600S12-PB</a></li> <li>• <a href="#">PDC1K2S12-CE</a></li> </ul> <p>When 1000BASE-X Ethernet optical ports use 25 or more GE optical modules with a distance of 40 km or longer, a power module with a minimum power of 180 W is required.</p> | 10 | <p>Power module slot 2</p> <p><b>NOTE</b></p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>• <a href="#">PAC80S12-CN</a></li> <li>• <a href="#">PAC180S12-CN</a></li> <li>• <a href="#">PDC240S12-CN</a> (available since V600R024C00 version)</li> <li>• <a href="#">PAC600S12-PB</a></li> <li>• <a href="#">PDC1K2S12-CE</a></li> </ul> <p>When 1000BASE-X Ethernet optical ports use 25 or more GE optical modules with a distance of 40 km or longer, a power module with a minimum power of 180 W is required.</p> |
|---|--|----|--|

## Ports

**Table 4-188** Ports on the S530-48S4XE

| Port                | Connector Type | Description   | Available Components   |
|---------------------|----------------|---|--|
| 100/1000BASE-X port | SFP            | A 100/1000BASE-X port can send and receive data at 100/1000 Mbit/s. | <ul style="list-style-type: none"> <li>• <a href="#">FE SFP/eSFP optical modules</a></li> <li>• <a href="#">GE eSFP optical modules</a></li> <li>• <a href="#">GE-CWDM eSFP optical modules</a></li> <li>• <a href="#">GE-DWDM eSFP optical modules</a></li> <li>• <a href="#">GE SFP copper module</a></li> </ul> |

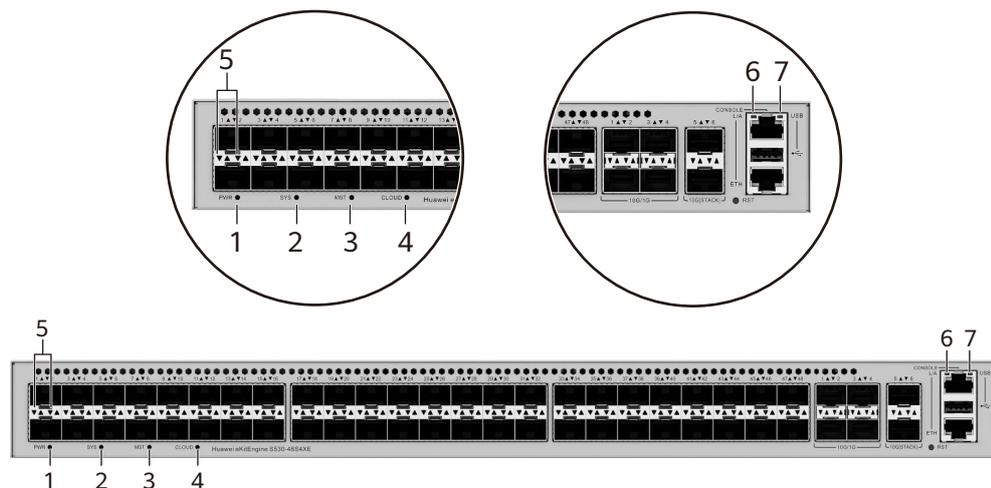
| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>● <b>GE eSFP optical modules</b></li> <li>● <b>GE-CWDM eSFP optical modules</b></li> <li>● <b>GE-DWDM eSFP optical modules</b></li> <li>● <b>GE SFP copper module</b></li> <li>● <b>10GE SFP+ optical modules</b></li> <li>● <b>10GE-CWDM SFP+ optical modules</b></li> <li>● <b>10GE-DWDM SFP+ optical modules</b></li> <li>● <b>1 m, 2 m, and 3 m SFP+ high-speed copper cables</b></li> <li>● <b>10 m SFP+ AOC cables</b></li> <li>● <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |

| Port                | Connector Type | Description   | Available Components  |
|---------------------|----------------|---|---|
| Stack port          | SFP+           | A stack port connects multiple switches through stack cables to virtualize them into one switch logically. It is used only in stacking scenarios and does not need to be configured. These stack ports are available only in CLI-based O&M scenarios. | <ul style="list-style-type: none"><li>• <b>1 m SFP+ high-speed copper cables</b></li><li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables</b></li></ul> |
| Console port        | RJ45           | The console port is connected to a console for on-site configuration.   | <b>Console cable</b>  |
| ETH management port | RJ45           | You can connect a switch to a configuration terminal or network management workstation through the ETH management port to configure the switch locally or remotely.   | <b>Ethernet cable</b>   |

| Port     | Connector Type | Description  | Available Components |
|----------|----------------|--|----------------------|
| USB port | USB 2.0 Type A | <p>The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.</p> <p>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor.</p> | USB flash drive      |

## Indicators and Buttons

Figure 4-63 Indicators on the Switch



**Table 4-189** Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The switch has multiple power modules installed. Any of the following situations occurs in a power module slot: <ul style="list-style-type: none"> <li>• A power module is available in this slot but it is not connected to a power source.</li> <li>• The power module in this slot has failed.</li> </ul> |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.   |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or alarms such as fan module, power module, optical module, or temperature alarms are generated.   |
| 3   | MST       | Stack indicator         | -      | Off           | The switch is not the master switch in a stack.  |
|     |           |                         | Green  | Blinking      | The switch is the master switch in a stack or a standalone switch.   |

| No. | Indicator | Name   | Color | Status        | Description   |
|-----|-----------|--|-------|---------------|---|
| 4   | CLOUD     | Cloud indicator<br><br><b>NOTE</b><br>In versions earlier than V600R024C00, this indicator is reserved.  | -     | Off           | The device is not connected to the cloud.   |
|     |           |  | Blue  | Fast blinking | The device is connecting to the cloud.  |
|     |           |  | Blue  | Slow blinking | The device is in the cloud management state.  |
| 5   | -         | Service port indicator (two indicators for each port)<br><br><b>NOTE</b><br>Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |       |               | Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-190</a> .<br><br><b>NOTE</b><br>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds. |
| 6   | L/A       | ETH port indicator   | -     | Off           | The ETH port is not connected.  |
|     |           |  | Green | Steady on     | The ETH port is connected.  |
|     |           |  | Green | Blinking      | The ETH port is sending or receiving data.  |
| 7   | USB       | USB-based deployment indicator   | -     | Off           | No USB flash drive is installed, or the indicator fails.  |
|     |           |  | Green | Steady on     | USB-based deployment succeeds. If there is no deployment configuration file, deployment will be repeatedly performed. In this case, the indicator is also steady green.   |
|     |           |  | Green | Blinking      | USB-based deployment is in progress.  |
|     |           |  | Red   | Steady on     | USB-based deployment fails.   |

**Table 4-190** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

## Power Supply System

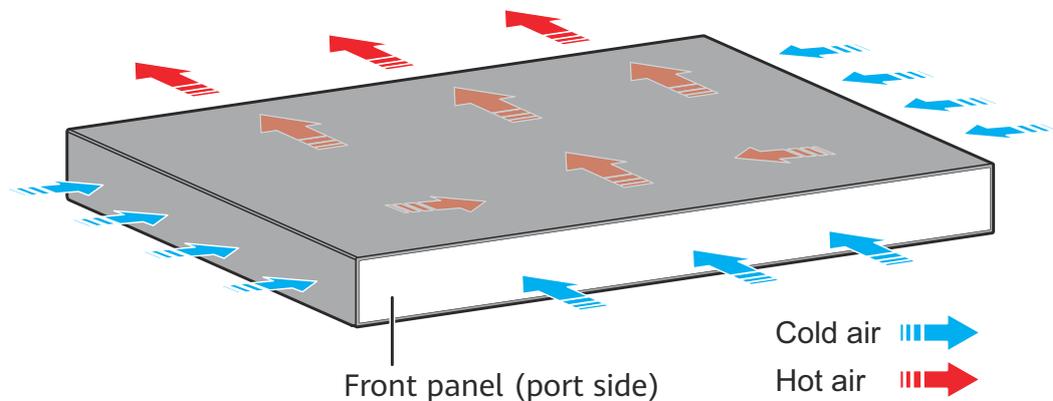
The switch can use a single power module or two power modules for 1+1 power redundancy. The power modules with fans and power modules without fans cannot be installed on the same switch.

**Table 4-191** Power supply configurations

| Power Module  | Heat Dissipation                            | Note   |
|---|---|--|
| 80 W AC power module  | No fan, natural heat dissipation            | When 1000BASE-X Ethernet optical ports use 25 or more GE optical modules with a distance of 40 km or longer, a power module with a minimum power of 180 W is required.<br>80 W AC power module, 180 W AC power module, and 240 W DC power module can be used together. |
| 180 W AC power module (one delivered by default)            | No fan, natural heat dissipation            |  |
| 240 W DC power module (available since V600R024C00 version) | No fan, natural heat dissipation            |  |
| 600 W AC power module                                       | With fans, air cooling for heat dissipation | 600 W AC power module and 1200 W DC power module can be used together.   |
| 1200 W DC power module                                      | With fans, air cooling for heat dissipation |  |

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left, right, and front sides, and exhausts from the rear panel.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-192** Technical specifications of the S530-48S4XE

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.0 mm (1.72 in. x 17.40 in. x 17.56 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 185.0 mm x 650.0 mm x 550.0 mm (7.28 in. x 25.59 in. x 21.65 in.)   |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 6.0 kg (13.23 lb)   |
| Weight with packaging [kg(lb)]                     | 7.9 kg (17.42 lb)   |
| Typical power consumption [W]                      | 72.3 W  |
| Typical heat dissipation [BTU/hour]                | 246.69 BTU/hour   |

| Item   | Specification  |
|--|--|
| Maximum power consumption [W]                                    | <ul style="list-style-type: none"> <li>96.40 W (with two 80 W AC power modules)</li> <li>104.70 W (with two 180 W AC power modules)</li> <li>130.05 W (with two 1200 W DC power modules)</li> </ul>                                      |
| Maximum heat dissipation [BTU/hour]                              | <ul style="list-style-type: none"> <li>328.93 (with two 80 W AC power modules)</li> <li>357.25 (with two 180 W AC power modules)</li> <li>443.74 (with two 1200 W DC power modules)</li> </ul>   |
| Static power consumption [W]                                     | 31.5 W   |
| MTBF [years]   | 78.95 years  |
| Availability   | > 0.99999  |
| Noise at normal temperature (acoustic power) [dB(A)]             | 43.8 dB(A)   |
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 31.80 dB(A)  |
| Number of card slots   | 0  |
| Number of power slots  | 2  |
| Number of fans modules   | 2  |
| Redundant power supply   | 1+1<br>Power modules without fans and power modules with fans cannot be installed in the same chassis.   |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F). |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |

| Item  | Specification   |
|---|---|
| Long-term operating altitude [m(ft.)]           | 0–5000 m (0–16404 ft.)  |
| Storage altitude [m(ft.)]                       | 0–5000 m (0–16404 ft.)  |
| Power supply mode                               | Pluggable power supply  |
| Rated input voltage [V]                         | <ul style="list-style-type: none"><li>AC input: 100 V AC to 240 V AC; 50/60 Hz</li><li>High-voltage DC input: 240 V DC</li><li>DC input: –48 V DC to –60 V DC</li></ul>   |
| Input voltage range [V]                         | <ul style="list-style-type: none"><li>AC input: 90 V AC to 290 V AC; 45–65 Hz</li><li>High-voltage DC input: 190 V DC to 290 V DC</li><li>DC input: –38.4 V DC to –72 V DC</li></ul>  |
| Maximum input current [A]                       | The current specifications are related to the pluggable power module. For details, see Pluggable Power Modules.   |
| Memory  | 2 GB  |
| Flash memory                                    | Physical space: 1 GB  |
| Console port                                    | RJ45  |
| Eth Management port                             | RJ45  |
| USB   | Supported   |
| RTC   | Not supported   |
| RPS input                                       | Not supported   |
| Power supply surge protection [kV]              | <ul style="list-style-type: none"><li>Configured with AC power modules: <math>\pm 6</math> kV in differential mode and <math>\pm 6</math> kV in common mode</li><li>Configured with DC power modules: <math>\pm 2</math> kV in differential mode and <math>\pm 4</math> kV in common mode</li></ul> |
| Ingress protection level (dustproof/waterproof) | IP20  |
| Types of fans                                   | Built-in  |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment  |
| Airflow direction                               | Air intake from left, front, and right and air exhaust from rear  |
| PoE   | Not supported   |

| Item          | Specification  |
|---------------|--|
| Certification | EMC certification<br>Safety certification<br>Manufacturing certification |

## 4.8.5 S530-48T4XE

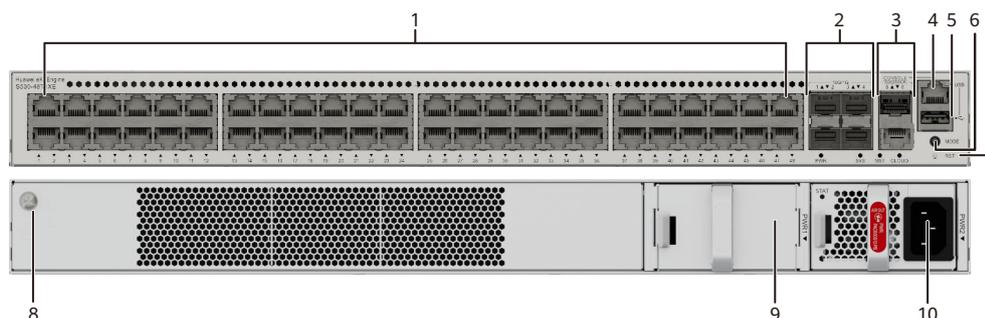
### Overview

**Table 4-193** Basic information about the S530-48T4XE

| Item                    | Details   |
|-------------------------|---|
| Description             | S530-48T4XE (48*10/100/1000BASE-T ports, 4*10GE SFP+ ports, 2*10GE stack ports, with 1*AC power module) |
| Part Number             | 98012951  |
| Model                   | S530-48T4XE   |
| First supported version | V600R024C10   |

### Components

**Figure 4-64** S530-48T4XE appearance



|   |  |   |                      |
|---|--|---|----------------------|
| 1 | Forty-eight 10/100/1000BASE-T ports  | 2 | Four 10GE SFP+ ports |
| 3 | Two stack ports<br><b>NOTE</b><br>These stack ports are available only in CLI-based O&M scenarios. | 4 | One console port     |

|   |  |    |  |
|---|--|----|--|
| 5 | One USB port   | 6  | One MODE button  |
| 7 | <p>One RST button</p> <p><b>NOTICE</b></p> <p>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.</p> <p>To reset the device, press the button.</p> <p>Resetting the device will cause service interruption. Exercise caution when you press the button.</p>                    | 8  | <p>Ground screw</p> <p><b>NOTE</b></p> <p>It is used with a <a href="#">ground cable</a>.</p>  |
| 9 | <p>Power module slot 1</p> <p><b>NOTE</b></p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>• <a href="#">PAC80S12-CN</a></li> <li>• <a href="#">PAC180S12-CN</a></li> <li>• <a href="#">PDC240S12-CN</a></li> <li>• <a href="#">PAC600S12-PB</a></li> <li>• <a href="#">PDC1K2S12-CE</a></li> </ul> | 10 | <p>Power module slot 2</p> <p><b>NOTE</b></p> <p>Applicable power modules:</p> <ul style="list-style-type: none"> <li>• <a href="#">PAC80S12-CN</a></li> <li>• <a href="#">PAC180S12-CN</a></li> <li>• <a href="#">PDC240S12-CN</a></li> <li>• <a href="#">PAC600S12-PB</a></li> <li>• <a href="#">PDC1K2S12-CE</a></li> </ul> |

## Ports

**Table 4-194** Ports on the S530-48T4XE

| Port                   | Connector Type | Description   | Available Components           |
|------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | A 10GE SFP+ Ethernet optical port supports auto-sensing to 1000 Mbit/s. It sends and receives service data at 1000 Mbit/s or 10 Gbit/s. | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper modules</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>10GE SFP+ copper modules</b></li> <li>• <b>1 m and 3 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |

| Port         | Connector Type | Description  | Available Components   |
|--------------|----------------|--|--|
| Stack port   | SFP+           | A stack port connects multiple switches through stack cables to virtualize them into one switch logically. It is used only in stacking scenarios and does not need to be configured. These stack ports are available only in CLI-based O&M scenarios.  | <ul style="list-style-type: none"> <li>• <b>1 m SFP+ high-speed copper cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables</b></li> </ul> |
| Console port | RJ45           | The console port is connected to a console for on-site configuration.  | <b>Console cable</b>   |
| USB port     | USB 2.0 Type A | <p>The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.</p> <p>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor.</p> | USB flash drive  |

## Indicators and Buttons

Figure 4-65 Indicators on the Switch

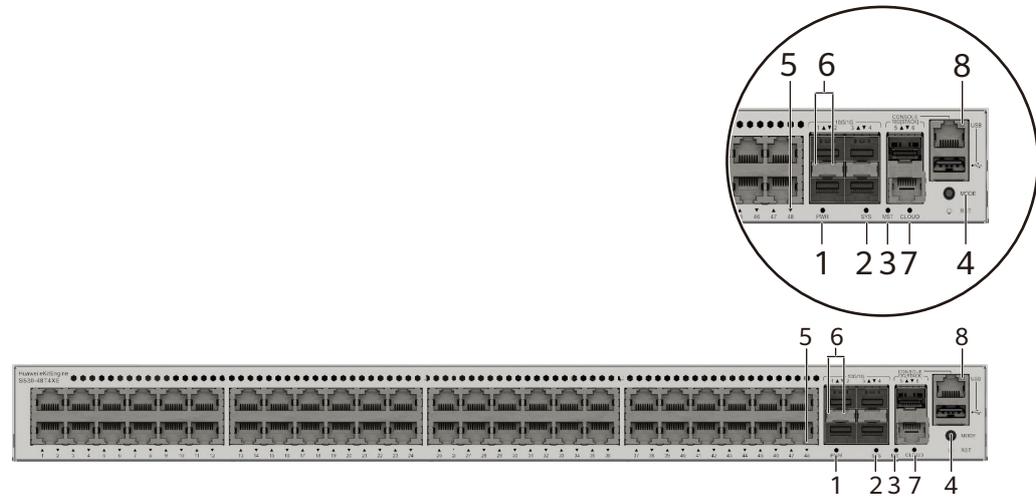


Table 4-195 Description of indicators on the switch

| No. | Indicator | Name                    | Color  | Status        | Description  |
|-----|-----------|-------------------------|--------|---------------|--|
| 1   | PWR       | Power module indicator  | -      | Off           | The switch is powered off.   |
|     |           |                         | Green  | Steady on     | The power supply is normal.  |
|     |           |                         | Yellow | Steady on     | The power supply is abnormal.  |
| 2   | SYS       | System status indicator | -      | Off           | The system is not running.   |
|     |           |                         | Green  | Fast blinking | The system is starting.  |
|     |           |                         | Green  | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.                               |
|     |           |                         | Green  | Slow blinking | The system is running normally.  |
|     |           |                         | Red    | Steady on     | The system does not work normally after registration, or alarms such as fan module, power module, optical module, or temperature alarms are generated. |

| No. | Indicator | Name            | Color | Status    | Description  |
|-----|-----------|-----------------|-------|-----------|--|
| 3   | MST       | Stack indicator | -     | Off       | <ul style="list-style-type: none"><li>• If you are not changing the indicator mode (default): The switch is a standby or slave switch in a stack or the stacking function is not enabled on the switch.</li><li>• If you are changing the indicator mode: The stack mode is not selected.</li></ul>  |
|     |           |                 | Green | Steady on | The stack mode is selected. The switch is a standby or slave switch in a stack, and the service port indicators show the stack ID of the switch.   |
|     |           |                 | Green | Blinking  | <ul style="list-style-type: none"><li>• If you are not changing the indicator mode (default): The switch is the master switch in a stack or a standalone switch with the stacking function enabled.</li><li>• If you are changing the indicator mode: The stack mode is selected. The switch is the master switch in a stack or a standalone switch, and the service port indicators show the stack ID of the master switch. After 45 seconds, the service port indicators automatically restore to the status mode.</li></ul> |

| No. | Indicator | Name  | Color   | Status | Description   |
|-----|-----------|---|---|--------|---|
| 4   | MODE      | Mode switch button  | -   | -      | <ul style="list-style-type: none"> <li>When you press this button once, the service port indicators change to the stack mode and show the stack ID of the local switch.</li> <li>When you press this button a second time, the service port indicators restore to the default mode and show the connection status and link activity of each service port.</li> </ul> <p>If you do not press the MODE button within 45 seconds, the service port indicators restore to the default mode.</p> <p><b>NOTE</b><br/>Hold down the mode switch button for 6s and release it to start the web initial login mode. Either of the following situations will occur:</p> <ul style="list-style-type: none"> <li>If the switch has no configuration file, the system attempts to enter the web initial login mode. If the system enters the web initial login mode successfully, the MST mode indicator turns green and stays on for a maximum of 45 seconds.</li> <li>If the login fails, check whether the device uses factory default settings.</li> </ul> |
| 5   | -         | Electrical service port indicator (one indicator for each port) | Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |        | <p>Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-196</a> and <a href="#">Table 4-197</a>.</p> <p><b>NOTE</b><br/>If a power failure occurs on a device's PCB board, indicators of the last four GE or 10GE optical ports on the device's front panel blink green cyclically at an interval of 1 second, with each indicator illuminating for 0.25 seconds.</p>  |

| No. | Indicator | Name  | Color  | Status        | Description   |
|-----|-----------|---|--|---------------|---|
| 6   | -         | Optical service port indicator (two indicators for each port) | Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |               |   |
| 7   | CLOUD     | Cloud indicator   | -  | Off           | The device is not connected to the cloud.   |
|     |           |   | Blue   | Fast blinking | The device is connecting to the cloud.  |
|     |           |   | Blue   | Slow blinking | The device is in the cloud management state.  |
| 8   | USB       | USB-based deployment indicator                                | -  | Off           | No USB flash drive is installed, or the indicator fails.  |
|     |           |   | Green  | Steady on     | USB-based deployment succeeds. If there is no deployment configuration file, deployment will be repeatedly performed. In this case, the indicator is also steady green. |
|     |           |   | Green  | Blinking      | USB-based deployment is in progress.  |
|     |           |   | Red  | Steady on     | USB-based deployment fails.   |

**Table 4-196** Description of service port indicators in different modes (one indicator for each port)

| Display Mode   | Color | Status    | Description  |
|----------------|-------|-----------|--|
| Default mode   | -     | Off       | The port is not connected or has been shut down.   |
|                | Green | Steady on | A link has been established on the port.   |
|                | Green | Blinking  | The port is sending or receiving data.   |
| MST stack mode | -     | Off       | Port indicators do not show the stack ID of the switch.  |
|                | Green | Steady on | The switch is not the master switch in a stack.<br>If the indicator of a port is steady on, the number of this port is the stack ID of the switch. |
|                | Green | Blinking  | The switch is the master switch in a stack.<br>If the indicator of a port is blinking, the number of this port is the stack ID of the switch.      |

**Table 4-197** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description   |
|-------------------------------|--------|-----------|---|
| Default mode (LINK indicator) | -      | Off       | The port is not connected or has been shut down.  |
|                               | Green  | Steady on | A link has been established on the port.  |
| Default mode (ACT indicator)  | -      | Off       | The port is not connected or has been shut down, or no data is transmitted or received. |
|                               | Yellow | Blinking  | The port is sending or receiving data.  |

## Power Supply System

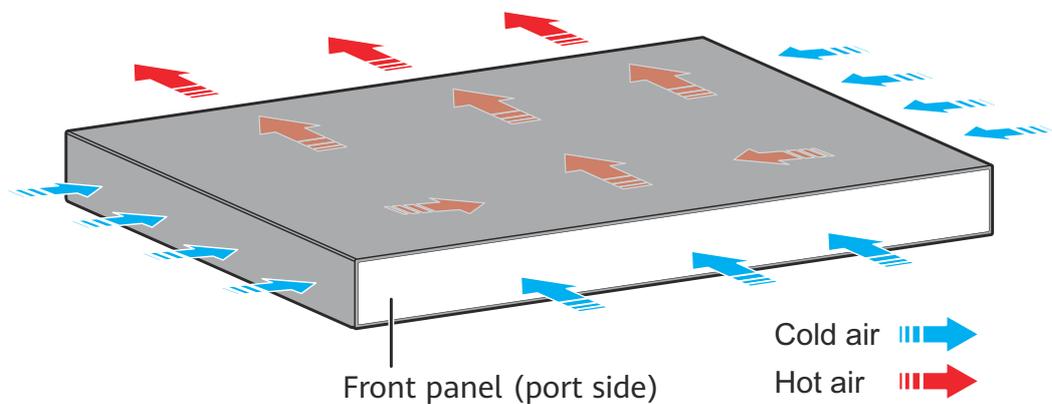
The switch can use a single power module or two power modules for 1+1 power redundancy. The power modules with fans and power modules without fans cannot be installed on the same switch.

**Table 4-198** Power supply configurations

| Power Module                                    | Heat Dissipation                            | Note   |
|---|---|--|
| 80 W AC power module (one delivered by default) | No fan, natural heat dissipation            | 80 W AC power module, 180 W AC power module, and 240 W DC power module can be used together. |
| 180 W AC power module                           | No fan, natural heat dissipation            |  |
| 240 W DC power module                           | No fan, natural heat dissipation            |  |
| 600 W AC power module                           | With fans, air cooling for heat dissipation | It cannot be used together with other power modules.   |

## Heat Dissipation System

The switch has two built-in fans for forced air cooling. Air flows in from the left, right, and front sides, and exhausts from the rear panel.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-199** Technical specifications of the S530-48T4XE

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)]   | Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.)<br>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 446.0 mm (1.72 in. x 17.40 in. x 17.56 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]      | 185.0 mm x 650.0 mm x 550.0 mm (7.28 in. x 25.59 in. x 21.65 in.)   |
| Chassis height [U]                                   | 1 U   |
| Chassis material                                     | Metal   |
| Weight without packaging [kg(lb)]                    | 5.43 kg (11.97 lb)  |
| Weight with packaging [kg(lb)]                       | 7.19 kg (15.85 lb)  |
| Typical power consumption [W]                        | 39.10 W   |
| Typical heat dissipation [BTU/hour]                  | 133.41 BTU/hour   |
| Maximum power consumption [W]                        | <ul style="list-style-type: none"> <li>• 55.12 W (with two 80 W AC power modules)</li> <li>• 64.51 W (with two 180 W AC power modules)</li> <li>• 93.26 W (with two 1200 W DC power modules)</li> </ul>   |
| Maximum heat dissipation [BTU/hour]                  | <ul style="list-style-type: none"> <li>• 188.07 (with two 80 W AC power modules)</li> <li>• 220.11 (with two 180 W AC power modules)</li> <li>• 318.21 (with two 1200 W DC power modules)</li> </ul>  |
| Static power consumption [W]                         | 25.31 W   |
| MTBF [years]   | 124.62 years  |
| Availability   | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)] | 41.9 dB(A)  |

| Item   | Specification  |
|--|--|
| Noise at normal temperature (acoustic pressure) [dB(A)]          | 29.9 dB(A)   |
| Number of card slots   | 0  |
| Number of power slots  | 2  |
| Number of fans modules   | 2  |
| Redundant power supply   | 1+1<br>Power modules without fans and power modules with fans cannot be installed in the same chassis.   |
| Long-term operating temperature [°C(°F)]                         | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>Devices cannot start when the temperature is lower than 0°C (32°F).<br>The operating temperature ranges from -5°C (23°F) to +45°C (113°F) when optical modules with transmission distances greater than or equal to 60 km are used. |
| Storage temperature [°C(°F)]                                     | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | Pluggable power supply   |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>● AC input: 100 V AC to 240 V AC; 50/60 Hz</li> <li>● High-voltage DC input: 240 V DC</li> <li>● DC input: -48 V DC to -60 V DC</li> </ul>  |
| Input voltage range [V]  | <ul style="list-style-type: none"> <li>● AC input: 90 V AC to 290 V AC; 45–65 Hz</li> <li>● High-voltage DC input: 190 V DC to 290 V DC</li> <li>● DC input: -38.4 V DC to -72 V DC</li> </ul>   |

| Item  | Specification   |
|---|---|
| Maximum input current [A]                       | The current specifications are related to the pluggable power module. For details, see Pluggable Power Modules.   |
| Memory  | 2 GB  |
| Flash memory                                    | Physical space: 1 GB  |
| Console port                                    | RJ45  |
| Eth Management port                             | Not supported   |
| USB   | Supported   |
| RTC   | Not supported   |
| RPS input                                       | Not supported   |
| Power supply surge protection [kV]              | <ul style="list-style-type: none"><li>Configured with AC power modules: <math>\pm 6</math> kV in differential mode and <math>\pm 6</math> kV in common mode</li><li>Configured with DC power modules: <math>\pm 2</math> kV in differential mode and <math>\pm 4</math> kV in common mode</li></ul> |
| Ingress protection level (dustproof/waterproof) | IP20  |
| Types of fans                                   | Built-in  |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment  |
| Airflow direction                               | Air intake from left, front, and right and air exhaust from rear  |
| PoE   | Not supported   |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification  |

## 4.9 S620

### 4.9.1 S620-16X8YZ

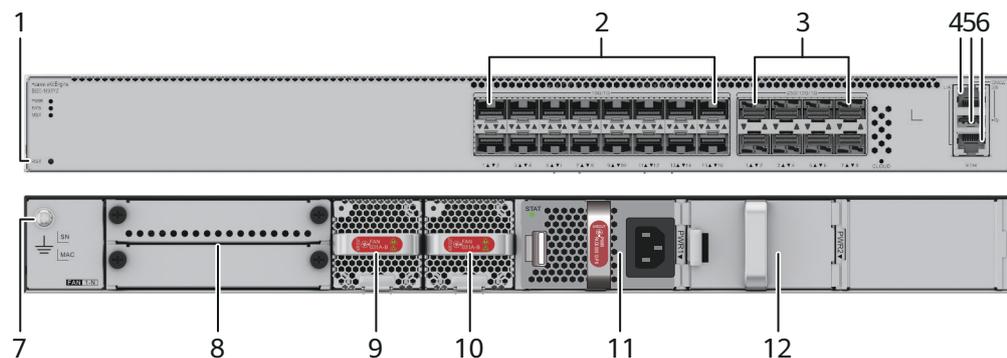
## Overview

**Table 4-200** Basic information about the S620-16X8YZ

| Item                    | Details   |
|-------------------------|---|
| Description             | S620-16X8YZ (16*10GE SFP+ ports, 8*25GE SFP28 ports, expansion card slot, with 1*AC power module) |
| Part Number             | 98012580  |
| Model                   | S620-16X8YZ   |
| First supported version | V600R024C10   |

## Components

**Figure 4-66** S620-16X8YZ appearance



|   |   |   |  |
|---|---|---|--|
| 1 | <p>One RST button</p> <p><b>NOTICE</b></p> <p>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.</p> <p>To reset the device, press the button.</p> <p>Resetting the device will cause service interruption. Exercise caution when you press the button.</p> | 2 | Sixteen GE/2.5GE/10GE SFP+ optical ports |
| 3 | Eight GE/2.5GE/10GE/25GE SFP28 optical ports  | 4 | One console port                         |
| 5 | One USB port  | 6 | One ETH management port                  |

|    |  |    |  |
|----|--|----|--|
| 7  | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> .  | 8  | Card slot<br><b>NOTE</b><br>Applicable card:<br><a href="#">HSIC-X08S000</a>   |
| 9  | Fan module slot 1<br><b>NOTE</b><br>Applicable fan module: <a href="#">7.1 FAN-031A-B (Fan Box (B, Fan Panel Side Exhaust))</a>  | 10 | Fan module slot 2<br><b>NOTE</b><br>Applicable fan module: <a href="#">7.1 FAN-031A-B (Fan Box (B, Fan Panel Side Exhaust))</a>  |
| 11 | Power module slot 1<br><b>NOTE</b><br>Applicable power modules: <ul style="list-style-type: none"> <li>• <a href="#">PAC180S12-CN</a></li> <li>• <a href="#">PDC240S12-CN</a></li> <li>• <a href="#">PDC400S12-CB</a></li> <li>• <a href="#">PAC600S12-PB</a></li> </ul> | 12 | Power module slot 2<br><b>NOTE</b><br>Applicable power modules: <ul style="list-style-type: none"> <li>• <a href="#">PAC180S12-CN</a></li> <li>• <a href="#">PDC240S12-CN</a></li> <li>• <a href="#">PDC400S12-CB</a></li> <li>• <a href="#">PAC600S12-PB</a></li> </ul> |

## Ports

**Table 4-201** Ports on the S620-16X8YZ

| Port                            | Connector Type | Description   | Available Components   |
|---------------------------------|----------------|---|--|
| GE/2.5GE/10GE SFP+ optical port | SFP+           | <p>A GE/2.5GE/10GE SFP+ optical port sends and receives service data at 1 Gbit/s, 2.5 Gbit/s, or 10 Gbit/s.</p> <p>When a 10GE optical module is connected to a port, the port can automatically adjust its rate to 10 Gbit/s.</p> <p>When a GE optical module is connected to a port, the port can automatically adjust its rate to 1 Gbit/s.</p> <p>Before installing a 2.5GE optical module on a port, run the port mode 2.5G command to configure the port to work at 2.5 Gbit/s.</p> | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>2.5GE eSFP optical modules</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>10GE SFP+ copper modules</b></li> <li>• <b>1 m, 3 m, 5 m, and 10 m SFP + high-speed copper cables</b></li> <li>• <b>3 m and 10 m SFP+ AOC cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |

| Port                                  | Connector Type | Description   | Available Components   |
|---------------------------------------|----------------|---|--|
| GE/2.5GE/10GE/25GE SFP28 optical port | SFP28          | <p>A GE/2.5GE/10GE/25GE SFP28 optical port sends and receives service data at 1 Gbit/s, 2.5 Gbit/s, 10 Gbit/s, or 25 Gbit/s.</p> <p>When a 25GE optical module is connected to a port, the port can automatically adjust its rate to 25 Gbit/s.</p> <p>When a 10GE optical module is connected to a port, the port can automatically adjust its rate to 10 Gbit/s.</p> <p>Before installing a 2.5GE optical module on a port, run the port mode 2.5G command to configure the port to work at 2.5 Gbit/s.</p> <p>Before installing a GE optical module or GE copper module on a port, run the port mode GE command to configure the port to work at 1 Gbit/s.</p> | <ul style="list-style-type: none"> <li>• <a href="#">GE eSFP optical modules</a></li> <li>• <a href="#">GE-CWDM eSFP optical modules</a></li> <li>• <a href="#">GE-DWDM eSFP optical modules</a></li> <li>• <a href="#">GE SFP copper module</a></li> <li>• <a href="#">2.5GE eSFP optical modules</a></li> <li>• <a href="#">10GE SFP+ optical modules</a></li> <li>• <a href="#">10GE-CWDM SFP+ optical modules</a></li> <li>• <a href="#">10GE-DWDM SFP+ optical modules</a></li> <li>• <a href="#">10GE SFP+ copper modules</a></li> <li>• <a href="#">25GE SFP28 optical modules</a></li> <li>• <a href="#">1 m, 3 m, 5 m, and 10 m SFP + high-speed copper cables</a></li> <li>• <a href="#">3 m and 10 m SFP+ AOC cables</a></li> <li>• <a href="#">1 m and 3 m SFP28 high-speed copper cables</a></li> <li>• <a href="#">3 m, 5 m, 7 m, and 10 m SFP28 AOC cables</a></li> </ul> |

| Port                | Connector Type | Description  | Available Components           |
|---------------------|----------------|--|--------------------------------|
| Console port        | RJ45           | The console port is connected to a console for on-site configuration.  | <a href="#">Console cable</a>  |
| ETH management port | RJ45           | You can connect a switch to a configuration terminal or network management workstation through the ETH management port to configure the switch locally or remotely.  | <a href="#">Ethernet cable</a> |
| USB port            | USB 2.0 Type A | <p>The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.</p> <p>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor.</p> | USB flash drive                |

## Indicators and Buttons

The S620-16X8YZ has the same types of indicators as the S620-24T16X8Y2CZ. For details, see the S620-24T16X8Y2CZ.

## Power Supply System

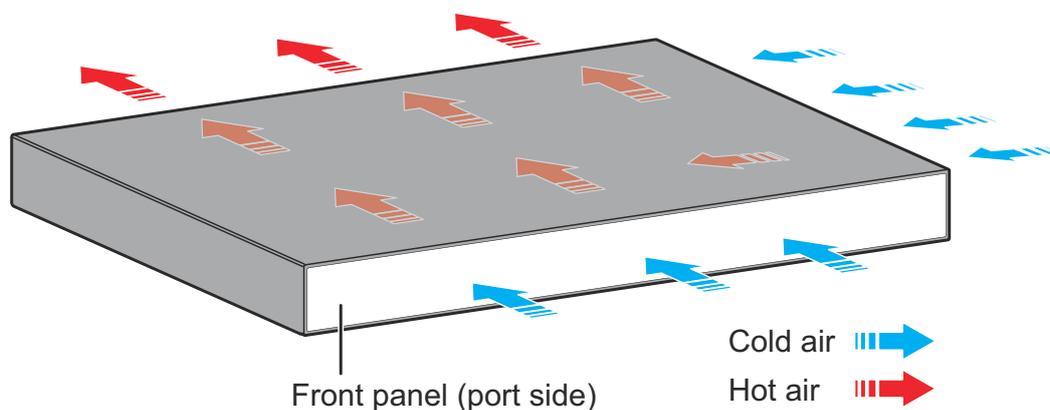
The switch can use a single power module or two power modules for 1+1 power redundancy. The power modules with fans and power modules without fans cannot be installed on the same switch.

**Table 4-202** Power supply configurations

| Power Module                                     | Heat Dissipation                            | Note  |
|--|---|---|
| 180 W AC power module (one delivered by default) | No fan, natural heat dissipation            | 180 W AC power module and 240 W DC power module can be used together. |
| 240 W DC power module                            | No fan, natural heat dissipation            |   |
| 400 W DC power module                            | With fans, air cooling for heat dissipation | 600 W AC power module and 400 W DC power module can be used together. |
| 600 W AC power module                            | With fans, air cooling for heat dissipation |   |

## Heat Dissipation System

The switch uses pluggable fan modules for forced air cooling. Air flows in from the right and front sides, and exhausts from the rear panel.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-203** Technical specifications of the S620-16X8YZ

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | <p>Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.)</p> <p>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 454.0 mm (1.72 in. x 17.4 in. x 17.87 in.)</p> |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 145.0 mm x 650.0 mm x 550.0 mm (5.71 in. x 25.59 in. x 21.65 in.)   |
| Chassis height [U]                                 | 1 U   |
| Chassis material                                   | Metal   |
| Weight without packaging [kg(lb)]                  | 6.0 kg (13.23 lb)   |
| Weight with packaging [kg(lb)]                     | 8.49 kg(lb)   |
| Typical power consumption [W]                      | <p>30% traffic under the ATIS standard and dual power modules:</p> <ul style="list-style-type: none"> <li>• 79 W (with two 180 W AC power modules)</li> <li>• 73 W (with two 240 W DC power modules)</li> </ul>   |
| Typical heat dissipation [BTU/hour]                | <p>30% traffic under the ATIS standard and dual power modules:</p> <ul style="list-style-type: none"> <li>• 270 (with two 180 W AC power modules)</li> <li>• 249 (with two 240 W DC power modules)</li> </ul>   |
| Maximum power consumption [W]                      | <p>100% traffic under the ATIS standard and dual power modules:</p> <ul style="list-style-type: none"> <li>• 85 W (with two 180 W AC power modules)</li> <li>• 78 W (with two 240 W DC power modules)</li> </ul>  |

| Item  | Specification  |
|---|--|
| Maximum heat dissipation [BTU/hour]                     | 100% traffic under the ATIS standard and dual power modules: <ul style="list-style-type: none"><li>• 290 (with two 180 W AC power modules)</li><li>• 266 (with two 240 W DC power modules)</li></ul> |
| Static power consumption [W]                            | 50 W   |
| MTBF [years]  | 81.40 years  |
| Availability  | > 0.99999  |
| Noise at normal temperature (acoustic power) [dB(A)]    | 54.2 dBA   |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 41.2 dBA   |
| Number of card slots                                    | 1  |
| Number of power slots                                   | 2  |
| Number of fans modules                                  | 2  |
| Redundant power supply                                  | 1+1<br>Pluggable AC and DC power modules can be used together on the same device.<br><b>NOTE</b><br>Power modules with fans and power modules without fans cannot be installed on the same device.   |
| Long-term operating temperature [°C(°F)]                | -5°C to +45°C (23°F to 113°F) at an altitude of 0 to 1800 m (0 to 5905.44 ft.)   |
| Short-term operating temperature [°C(°F)]               | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)   |

| Item   | Specification  |
|--|--|
| Restriction on the operating temperature variation rate [°C(°F)] | <p>When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).</p> <p>The device can work for a short period of time when the operating temperature is beyond the normal range, but the following conditions must be met:</p> <ul style="list-style-type: none"> <li>• The operating temperature exceeds 45°C (113°F) for a maximum of 96 consecutive hours in a year.</li> <li>• The total time when the operating temperature exceeds 45°C (113°F) in a year is less than or equal to 360 hours.</li> <li>• The number of times the operating temperature exceeds 45°C (113°F) is less than or equal to 15 in one year.</li> </ul> <p>If any of the preceding conditions is not met, the device may be damaged or an unknown error may occur.</p> <p>Devices cannot start when the temperature is lower than 0°C (32°F). The maximum transmission distance of an optical module used for short-term operation cannot exceed 10 km.</p> |
| Storage temperature [°C(°F)]                                     | –40°C to +70°C (–40°F to +158°F)   |
| Long-term operating relative humidity [RH]                       | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]                            | 0–5000 m (0–16404 ft.)   |
| Storage altitude [m(ft.)]  | 0–5000 m (0–16404 ft.)   |
| Power supply mode  | Pluggable power supply   |
| Rated input voltage [V]  | <ul style="list-style-type: none"> <li>• AC input: 100 V AC to 130 V AC, 200 V AC to 240 V AC; 50/60 Hz</li> <li>• High-voltage DC input: 240 V DC</li> <li>• DC input: –48 V DC to –60 V DC</li> </ul>  |

| Item  | Specification   |
|---|---|
| Input voltage range [V]                         | <ul style="list-style-type: none"><li>AC input: 90 V AC to 290 V AC; 45 Hz to 66 Hz</li><li>High-voltage DC input: 190 V DC to 290 V DC</li><li>DC input: -38.4 V DC to -72 V DC</li></ul>  |
| Maximum input current [A]                       | The current specifications are related to the pluggable power module. For details, see Pluggable Power Modules.   |
| Memory  | 4 GB  |
| Flash memory                                    | Physical space: 2 GB  |
| Console port                                    | RJ45  |
| Eth Management port                             | RJ45  |
| USB   | Supported   |
| RTC   | Supported   |
| RPS input                                       | Not supported   |
| Power supply surge protection [kV]              | <ul style="list-style-type: none"><li>Configured with AC power modules: <math>\pm 6</math> kV in differential mode and <math>\pm 6</math> kV in common mode</li><li>Configured with DC power modules: <math>\pm 2</math> kV in differential mode and <math>\pm 4</math> kV in common mode</li></ul> |
| Ingress protection level (dustproof/waterproof) | IP20  |
| Types of fans                                   | Pluggable   |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment  |
| Airflow direction                               | Air intake from front and right and air exhaust from rear   |
| PoE   | Not supported   |
| Certification                                   | EMC certification<br>Safety certification<br>Manufacturing certification  |

## 4.9.2 S620-24T16X8Y2CZ

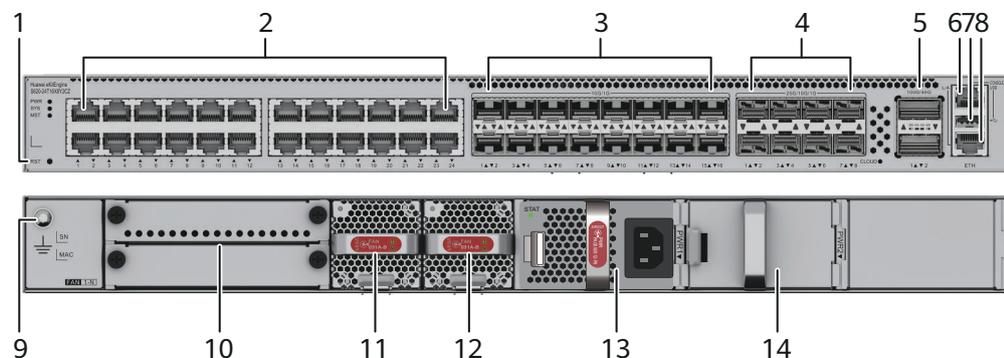
## Overview

**Table 4-204** Basic information about the S620-24T16X8Y2CZ

| Item                    | Details   |
|-------------------------|---|
| Description             | S620-24T16X8Y2CZ<br>(24*10/100/1000BASE-T ports, 16*10GE SFP+ ports, 8*25GE SFP28 ports, 2*100GE QSFP28 ports, expansion card slot, with 1*AC power module) |
| Part Number             | 98012536  |
| Model                   | S620-24T16X8Y2CZ  |
| First supported version | V600R024C00   |
| Remarks                 | When cards are used, power modules with a power of 240 W or higher must be used.  |

## Components

**Figure 4-67** S620-24T16X8Y2CZ appearance



|   |   |   |  |
|---|---|---|--|
| 1 | <p>One RST button</p> <p><b>NOTICE</b></p> <p>To restore the factory settings and reset the device, hold down the button for at least 6 seconds.</p> <p>To reset the device, press the button.</p> <p>Resetting the device will cause service interruption. Exercise caution when you press the button.</p> | 2 | <p>Twenty-four 10/100/1000BASE-T ports</p> |
|---|---|---|--|

|    |   |    |   |
|----|---|----|---|
| 3  | Sixteen FE/GE/2.5GE/10GE SFP+ optical ports   | 4  | Eight GE/2.5GE/10GE/25GE SFP28 optical ports  |
| 5  | Two 40GE/100GE QSFP28 optical ports   | 6  | One console port  |
| 7  | One USB port  | 8  | One ETH management port   |
| 9  | Ground screw<br><b>NOTE</b><br>It is used with a <a href="#">ground cable</a> .   | 10 | Card slot<br><b>NOTE</b><br>Applicable card:<br><a href="#">HSIC-X08S000</a>  |
| 11 | Fan module slot 1<br><b>NOTE</b><br>Applicable fan module: <a href="#">7.1 FAN-031A-B (Fan Box (B, Fan Panel Side Exhaust))</a>   | 12 | Fan module slot 2<br><b>NOTE</b><br>Applicable fan module: <a href="#">7.1 FAN-031A-B (Fan Box (B, Fan Panel Side Exhaust))</a>   |
| 13 | Power module slot 1<br><b>NOTE</b><br>Applicable power modules:<br><ul style="list-style-type: none"> <li>• <a href="#">PAC180S12-CN</a></li> <li>• <a href="#">PDC240S12-CN</a></li> <li>• <a href="#">PDC400S12-CB</a></li> <li>• <a href="#">PAC600S12-PB</a></li> </ul> | 14 | Power module slot 2<br><b>NOTE</b><br>Applicable power modules:<br><ul style="list-style-type: none"> <li>• <a href="#">PAC180S12-CN</a></li> <li>• <a href="#">PDC240S12-CN</a></li> <li>• <a href="#">PDC400S12-CB</a></li> <li>• <a href="#">PAC600S12-PB</a></li> </ul> |

## Ports

**Table 4-205** Ports on the S620-24T16X8Y2CZ

| Port                   | Connector Type | Description   | Available Components           |
|------------------------|----------------|---|--------------------------------|
| 10/100/1000BASE-T port | RJ45           | A 10/100/1000BASE-T Ethernet electrical port sends and receives service data at 10/100/1000 Mbit/s. | <a href="#">Ethernet cable</a> |

| Port                               | Connector Type | Description  | Available Components  |
|------------------------------------|----------------|--|---|
| FE/GE/2.5GE/10GE SFP+ optical port | SFP+           | <p>A FE/GE/2.5GE/10GE SFP+ optical port sends and receives service data at 100 Mbit/s, 1 Gbit/s, 2.5 Gbit/s, or 10 Gbit/s.</p> <p>When a 10GE optical module is connected to a port, the port can automatically adjust its rate to 10 Gbit/s.</p> <p>When a GE optical module is connected to a port, the port can automatically adjust its rate to 1 Gbit/s.</p> <p>When a FE optical module is connected to a port, the port can automatically adjust its rate to 100 Mbit/s.</p> <p>Before installing a 2.5GE optical module on a port, run the port mode 2.5G command to configure the port to work at 2.5 Gbit/s.</p> | <ul style="list-style-type: none"> <li>• <b>FE SFP/eSFP optical modules</b></li> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>2.5GE eSFP optical modules</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>10GE SFP+ copper modules</b></li> <li>• <b>1 m, 3 m, 5 m, and 10 m SFP+ high-speed copper cables</b></li> <li>• <b>3 m and 10 m SFP+ AOC cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> </ul> |

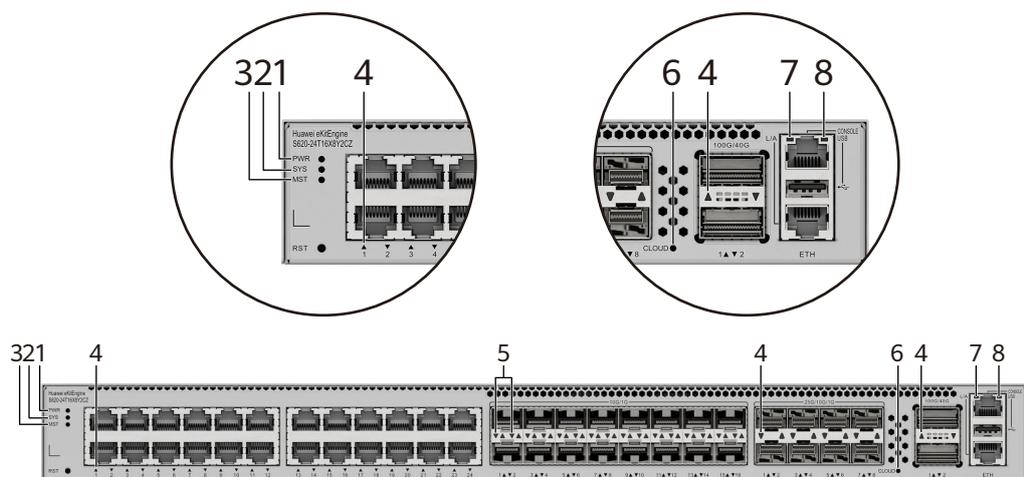
| Port                                  | Connector Type | Description   | Available Components   |
|---------------------------------------|----------------|---|--|
| GE/2.5GE/10GE/25GE SFP28 optical port | SFP28          | <p>A GE/2.5GE/10GE/25GE SFP28 optical port sends and receives service data at 1 Gbit/s, 2.5 Gbit/s, 10 Gbit/s, or 25 Gbit/s.</p> <p>When a 25GE optical module is connected to a port, the port can automatically adjust its rate to 25 Gbit/s.</p> <p>When a 10GE optical module is connected to a port, the port can automatically adjust its rate to 10 Gbit/s.</p> <p>Before installing a 2.5GE optical module on a port, run the port mode 2.5G command to configure the port to work at 2.5 Gbit/s.</p> <p>Before installing a GE optical module or GE copper module on a port, run the port mode GE command to configure the port to work at 1 Gbit/s.</p> | <ul style="list-style-type: none"> <li>• <a href="#">GE eSFP optical modules</a></li> <li>• <a href="#">GE-CWDM eSFP optical modules</a></li> <li>• <a href="#">GE-DWDM eSFP optical modules</a></li> <li>• <a href="#">GE SFP copper module</a></li> <li>• <a href="#">2.5GE eSFP optical modules</a></li> <li>• <a href="#">10GE SFP+ optical modules</a></li> <li>• <a href="#">10GE-CWDM SFP+ optical modules</a></li> <li>• <a href="#">10GE-DWDM SFP+ optical modules</a></li> <li>• <a href="#">10GE SFP+ copper modules</a></li> <li>• <a href="#">25GE SFP28 optical modules</a></li> <li>• <a href="#">1 m, 3 m, 5 m, and 10 m SFP + high-speed copper cables</a></li> <li>• <a href="#">3 m and 10 m SFP+ AOC cables</a></li> <li>• <a href="#">1 m and 3 m SFP28 high-speed copper cables</a></li> <li>• <a href="#">3 m, 5 m, 7 m, and 10 m SFP28 AOC cables</a></li> </ul> |

| Port                           | Connector Type | Description  | Available Components  |
|--------------------------------|----------------|--|---|
| 40GE/100GE QSFP28 optical port | QSFP28         | A QSFP28 Ethernet optical port is a 100GE port by default and supports auto-sensing to 40GE. An interface can be split into four 25GE ports using commands. The interface can be automatically converted into four 10GE ports using one-to-four QSFP+ optical modules or AOC optical cables. | <ul style="list-style-type: none"> <li>• <b>40GE QSFP+ optical modules</b></li> <li>• <b>1 m, 3 m, and 5 m QSFP+ to QSFP+ high-speed copper cables</b></li> <li>• <b>10 m QSFP+ AOC cable</b></li> <li>• <b>100GE QSFP28 optical modules</b></li> <li>• <b>1 m and 3 m QSFP28 to QSFP28 high-speed copper cables</b></li> <li>• <b>10 m QSFP28 AOC cable</b></li> <li>• <b>2 m QSFP28 dedicated stack cable (only for zero-configuration stacking)</b></li> </ul> |
| Console port                   | RJ45           | The console port is connected to a console for on-site configuration.  | <b>Console cable</b>  |
| ETH management port            | RJ45           | You can connect a switch to a configuration terminal or network management workstation through the ETH management port to configure the switch locally or remotely.  | <b>Ethernet cable</b>   |

| Port     | Connector Type | Description  | Available Components |
|----------|----------------|--|----------------------|
| USB port | USB 2.0 Type A | <p>The USB port can have a USB flash drive connected to upgrade the switch, or transfer configuration files or other files. The USB port can only connect to a USB flash drive that complies with USB 2.0.</p> <p>USB flash drives from different vendors differ in model compatibility and drivers. If a USB flash drive cannot be used, try to replace it with another one from a mainstream vendor.</p> | USB flash drive      |

## Indicators and Buttons

Figure 4-68 Indicators on the switch



### NOTE

The S620-24T16X8Y2CZ model is used as an example.

**Table 4-206** Description of indicators on the switch

| No. | Indicator | Name   | Color   | Status        | Description  |
|-----|-----------|--|---|---------------|--|
| 1   | PWR       | Power module indicator   | -   | Off           | The switch is powered off.   |
|     |           |  | Green   | Steady on     | The power supply is normal.  |
|     |           |  | Yellow  | Steady on     | The switch has multiple power modules installed. Any of the following situations occurs in a power module slot: <ul style="list-style-type: none"> <li>A power module is available in this slot but it is not connected to a power source.</li> <li>The power module in this slot has failed.</li> </ul> |
| 2   | SYS       | System status indicator  | -   | Off           | The system is not running.   |
|     |           |  | Green   | Fast blinking | The system is starting.  |
|     |           |  | Green   | Steady on     | During the system startup preparation phase, the SYS indicator is steady green, which lasts for a maximum of 30 seconds.   |
|     |           |  | Green   | Slow blinking | The system is running normally.  |
|     |           |  | Red   | Steady on     | The system does not work normally after registration, or alarms such as fan module, power module, optical module, or temperature alarms are generated.   |
| 3   | MST       | Stack indicator  | -   | Off           | The switch is not the master switch in a stack.  |
|     |           |  | Green   | Blinking      | The switch is the master switch in a stack or a standalone switch.   |
| 4   | -         | Service port indicator (one indicator for each port)<br><b>NOTE</b><br>Each optical port has one single-color indicator. Arrowheads show the positions of ports. | Meanings of service port indicators vary in different modes. For details, see <a href="#">Table 4-207</a> and <a href="#">Table 4-208</a> . |               |  |

| No. | Indicator | Name   | Color | Status        | Description   |
|-----|-----------|--|-------|---------------|---|
| 5   | -         | Service port indicator (two indicators for each port)<br><br><b>NOTE</b><br>Each optical port has two single-color indicators. The one on the left is the ACT indicator (yellow), and the one on the right is the LINK indicator (green).<br><br>Arrowheads show the positions of ports. A down arrowhead indicates a port at the bottom, and an up arrowhead indicates a port at the top. |       |               |   |
| 6   | CLOUD     | Cloud indicator  | -     | Off           | The device is not connected to the cloud.   |
|     |           |  | Blue  | Fast blinking | The device is connecting to the cloud.  |
|     |           |  | Blue  | Slow blinking | The device is in the cloud management state.  |
| 7   | L/A       | ETH port indicator   | -     | Off           | The ETH port is not connected.  |
|     |           |  | Green | Steady on     | The ETH port is connected.  |
|     |           |  | Green | Blinking      | The Eth port is sending or receiving data.  |
| 8   | USB       | USB-based deployment indicator   | -     | Off           | No USB flash drive is installed, or the indicator fails.  |
|     |           |  | Green | Steady on     | USB-based deployment succeeds. If there is no deployment configuration file, deployment will be repeatedly performed. In this case, the indicator is also steady green. |
|     |           |  | Green | Blinking      | USB-based deployment is in progress.  |
|     |           |  | Red   | Steady on     | USB-based deployment fails.   |

**Table 4-207** Description of service port indicators in different modes (one indicator for each port)

| Display Mode | Color | Status    | Description                                      |
|--------------|-------|-----------|--|
| Default mode | -     | Off       | The port is not connected or has been shut down. |
|              | Green | Steady on | A link has been established on the port.         |
|              | Green | Blinking  | The port is sending or receiving data.           |

**Table 4-208** Description of service port indicators in different modes (two indicators for each port)

| Display Mode                  | Color  | Status    | Description                                      |
|-------------------------------|--------|-----------|--|
| Default mode (LINK indicator) | Green  | Off       | The port is not connected or has been shut down. |
|                               | Green  | Steady on | A link has been established on the port.         |
| Default mode (ACT indicator)  | Yellow | Off       | The port is not sending or receiving data.       |
|                               | Yellow | Blinking  | The port is sending or receiving data.           |

## Power Supply System

The switch can use a single power module or two power modules for 1+1 power redundancy. The power modules with fans and power modules without fans cannot be installed on the same switch.

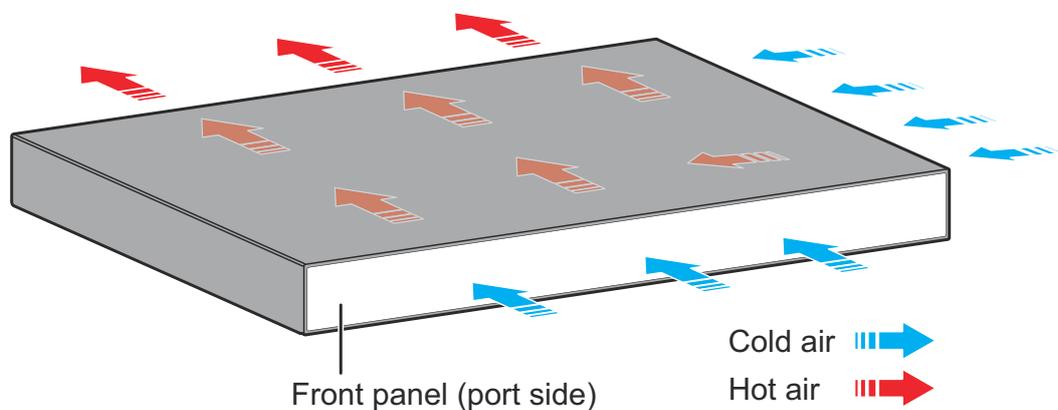
**Table 4-209** Power supply configurations

| Power Module          | Heat Dissipation                 | Note  |
|-----------------------|----------------------------------|---|
| 180 W AC power module | No fan, natural heat dissipation | When cards are used, power modules with a power of 240 W or higher must be used.<br>180 W AC power module and 240 W DC power module can be used together. |
| 240 W DC power module | No fan, natural heat dissipation |   |

| Power Module                                     | Heat Dissipation                            | Note  |
|--|---|---|
| 400 W DC power module                            | With fans, air cooling for heat dissipation | 600 W AC power module and 400 W DC power module can be used together. |
| 600 W AC power module (one delivered by default) | With fans, air cooling for heat dissipation |   |

## Heat Dissipation System

The switch uses pluggable fan modules for forced air cooling. Air flows in from the right and front sides, and exhausts from the rear panel.



### NOTE

This figure only shows the airflow direction and does not depict the actual device.

## Technical Specifications

**Table 4-210** Technical specifications of the S620-24T16X8Y2CZ

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | <p>Basic dimensions (excluding the parts protruding from the body): 43.6 mm x 442.0 mm x 420.0 mm (1.72 in. x 17.40 in. x 16.54 in.)</p> <p>Maximum dimensions (the depth is the distance from ports on the front panel to the parts protruding from the rear panel): 43.6 mm x 442.0 mm x 454.0 mm (1.72 in. x 17.4 in. x 17.87 in.)</p> |

| Item  | Specification   |
|---|---|
| Dimensions with packaging (H x W x D) [mm(in.)]         | 145.0 mm x 650.0 mm x 550.0 mm<br>(5.71 in. x 25.59 in. x 21.65 in.)  |
| Chassis height [U]                                      | 1 U   |
| Chassis material  | Metal   |
| Weight without packaging [kg(lb)]                       | 6.31 kg (13.91 lb)  |
| Weight with packaging [kg(lb)]                          | 8.76 kg (19.31 lb)  |
| Typical power consumption [W]                           | 30% traffic under the ATIS standard and dual power modules: <ul style="list-style-type: none"> <li>• 122 W (with two 180 W AC power modules)</li> <li>• 118 W (with two 240 W DC power modules)</li> </ul>    |
| Typical heat dissipation [BTU/hour]                     | 30% traffic under the ATIS standard and dual power modules: <ul style="list-style-type: none"> <li>• 416.26 (with two 180 W AC power modules)</li> <li>• 402.61 (with two 240 W DC power modules)</li> </ul>  |
| Maximum power consumption [W]                           | 100% traffic under the ATIS standard and dual power modules: <ul style="list-style-type: none"> <li>• 127 W (with two 180 W AC power modules)</li> <li>• 123 W (with two 240 W DC power modules)</li> </ul>   |
| Maximum heat dissipation [BTU/hour]                     | 100% traffic under the ATIS standard and dual power modules: <ul style="list-style-type: none"> <li>• 433.32 (with two 180 W AC power modules)</li> <li>• 419.67 (with two 240 W DC power modules)</li> </ul> |
| Static power consumption [W]                            | 77 W  |
| MTBF [years]  | 47.17 years   |
| Availability  | > 0.99999   |
| Noise at normal temperature (acoustic power) [dB(A)]    | 54.2 dBA  |
| Noise at normal temperature (acoustic pressure) [dB(A)] | 41.2 dBA  |
| Number of card slots                                    | 1   |

| Item   | Specification   |
|--|---|
| Number of power slots  | 2   |
| Number of fans modules   | 2   |
| Redundant power supply   | 1+1<br>Pluggable AC and DC power modules can be used together on the same device.<br><b>NOTE</b><br>Power modules with fans and power modules without fans cannot be installed on the same device.  |
| Long-term operating temperature [°C(°F)]                         | -5°C to +45°C (23°F to 113°F) at an altitude of 0 to 1800 m (0 to 5905.44 ft.)  |
| Short-term operating temperature [°C(°F)]                        | -5°C to +50°C (23°F to 122°F) at an altitude of 0-1800 m (0-5905.44 ft.)  |
| Restriction on the operating temperature variation rate [°C(°F)] | When the altitude is 1800–5000 m (5906–16404 ft.), the highest operating temperature reduces by 1°C (1.8°F) every time the altitude increases by 220 m (722 ft.).<br>The device can work for a short period of time when the operating temperature is beyond the normal range, but the following conditions must be met: <ul style="list-style-type: none"> <li>• The operating temperature exceeds 45°C (113°F) for a maximum of 96 consecutive hours in a year.</li> <li>• The total time when the operating temperature exceeds 45°C (113°F) in a year is less than or equal to 360 hours.</li> <li>• The number of times the operating temperature exceeds 45°C (113°F) is less than or equal to 15 in one year.</li> </ul> If any of the preceding conditions is not met, the device may be damaged or an unknown error may occur.<br>Devices cannot start when the temperature is lower than 0°C (32°F).<br>The maximum transmission distance of an optical module used for short-term operation cannot exceed 10 km. |

| Item  | Specification  |
|---|--|
| Storage temperature [°C(°F)]                    | -40°C to +70°C (-40°F to +158°F)   |
| Long-term operating relative humidity [RH]      | 5% RH to 95% RH, non-condensing  |
| Long-term operating altitude [m(ft.)]           | 0-5000 m (0-16404 ft.)   |
| Storage altitude [m(ft.)]                       | 0-5000 m (0-16404 ft.)   |
| Power supply mode                               | Pluggable power supply   |
| Rated input voltage [V]                         | <ul style="list-style-type: none"> <li>AC input: 100 V AC to 130 V AC, 200 V AC to 240 V AC; 50/60 Hz</li> <li>High-voltage DC input: 240 V DC</li> <li>DC input: -48 V DC to -60 V DC</li> </ul>                                      |
| Input voltage range [V]                         | <ul style="list-style-type: none"> <li>AC input: 90 V AC to 290 V AC; 45 Hz to 66 Hz</li> <li>High-voltage DC input: 190 V DC to 290 V DC</li> <li>DC input: -38.4 V DC to -72 V DC</li> </ul>   |
| Maximum input current [A]                       | The current specifications are related to the pluggable power module. For details, see Pluggable Power Modules.  |
| Memory  | 4 GB   |
| Flash memory                                    | Physical space: 2 GB   |
| Console port                                    | RJ45   |
| Eth Management port                             | RJ45   |
| USB   | Supported  |
| RTC   | Supported  |
| RPS input                                       | Not supported  |
| Power supply surge protection [kV]              | <ul style="list-style-type: none"> <li>Configured with AC power modules: ±6 kV in differential mode and ±6 kV in common mode</li> <li>Configured with DC power modules: ±2 kV in differential mode and ±4 kV in common mode</li> </ul> |
| Ingress protection level (dustproof/waterproof) | IP20   |
| Types of fans                                   | Pluggable  |
| Heat dissipation mode                           | Air cooling for heat dissipation, intelligent fan speed adjustment   |

| Item              | Specification  |
|-------------------|--|
| Airflow direction | Air intake from front and right and air exhaust from rear                |
| PoE               | Not supported  |
| Certification     | EMC certification<br>Safety certification<br>Manufacturing certification |

# 5 Power Modules

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## NOTICE

- All power modules are hot swappable, but it is highly recommended that you power off a switch before removing or installing a power module in the switch to protect personal and equipment safety.
- Before replacing a power module in a switch, make sure that the switch can be powered by the other power module after the power module is removed. Otherwise, services on the switches will be interrupted by a power failure when the power module is removed.
- Before powering off a switch, shut down all of its power supply units.
- A switch can only use power modules matching its chassis model. Using unsupported power modules will cause unexpected risks.
- If a switch has two power modules for 1+1 power redundancy and one of them is powered off, the indicator of this power module will not turn off immediately. This is a normal situation.

5.1 PAC80S12-CN (80W AC Power Module(66mm Width Case, No Fans))

5.2 PAC180S12-CN (180W AC&240 V DC Power Module (66 mm Width case, No Fans))

5.3 PDC240S12-CN (240W DC Power Module (66 mm Width case, No Fans))

5.4 PDC400S12-CB (400W DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust))

5.5 PAC600S12-PB (600W AC &240 V DC Power Module(66 mm Width Case, Back to Front, Power panel side exhaust))

5.6 PAC600S56-EB (600 W PoE AC&240 V DC Power Module (66mm Width Case, Back to Front, Power panel side exhaust))

5.7 PAC1000S56-EB (02314APU: 1000 W PoE AC&240 V DC Power Module (66 mm Width Case, Back to Front, Power panel side exhaust))

5.8 PDC1000S56-EB (1000 W PoE DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust))

[5.9 PDC1K2S12-CE \(1200W DC Power Module \(66 mm Width case, Back to Front, Power panel side exhaust\)\)](#)

## 5.1 PAC80S12-CN (80W AC Power Module(66mm Width Case, No Fans))

### Overview

**Table 5-1** Basic information about the PAC80S12-CN

| Item        | Details                                       |
|-------------|---|
| Description | 80W AC Power Module(66mm Width Case, No Fans) |
| Part Number | 02131835                                      |
| Model       | PAC80S12-CN                                   |

### Appearance

**Figure 5-1** Appearance of the PAC80S12-CN



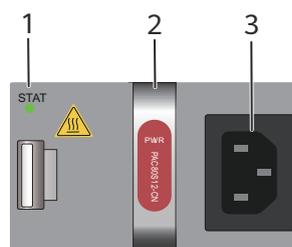
## Version Mapping

**Table 5-2** Mappings between PAC80S12-CN and product models

| Product | Product Model              | First Supported Version | Limitations |
|---------|----------------------------|-------------------------|-------------|
| S530    | S530-24ST4XE<br>(98012556) | V600R023C10SPC<br>600   | -           |
| S530    | S530-24T4XE<br>(98012554)  | V600R023C10SPC<br>600   | -           |
| S530    | S530-48S4XE<br>(98012558)  | V600R023C10SPC<br>600   | -           |
| S530    | S530-48T4XE<br>(98012951)  | V600R024C10             | -           |

## Panel

**Figure 5-2** Panel of the PAC80S12-CN



|                           |           |                 |   |
|---------------------------|-----------|-----------------|---|
| 1. Power indicator (STAT) | 2. Handle | 3. Power socket | - |
|---------------------------|-----------|-----------------|---|

**Table 5-3** Indicators on the PAC80S12-CN

| Silkscreen | Name                     | Color | Status     | Description  |
|------------|--------------------------|-------|------------|--|
| STAT       | Running status indicator | -     | Steady off | The power input is abnormal (for example, no input, overvoltage, or undervoltage) or the power output is abnormal (for example, overvoltage, overcurrent, short circuit occurs, undervoltage, or overtemperature). |
|            |                          | Green | Steady on  | The power module is working normally.  |

## Functions and Features

**Table 5-4** Functions of an 80 W AC power module

| Function         |                               | Description   |
|------------------|-------------------------------|---|
| Input protection | Input undervoltage protection | In this protection state, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply. |
|                  | Input overvoltage protection  | In this protection state, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply. |
|                  | Input overcurrent protection  | In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.          |

| Function                   |                                 | Description  |
|----------------------------|---------------------------------|--|
| Output protection          | Output overvoltage protection   | In this protection state, the power module stops supplying power intermittently. When the output voltage restores to the normal range, the power module automatically resumes power supply.                            |
|                            | Output overcurrent protection   | In this protection state, the power module supplies power intermittently. When the output current is within a range, the power module automatically resumes power supply.  |
|                            | Output short-circuit protection | In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.  |
| Overtemperature protection |                                 | When the temperature of the power module exceeds a specified threshold, the power module stops supplying power. When the temperature falls into the normal range, the power module automatically resumes power supply. |
| Hot swapping               |                                 | Supported  |

 NOTE

When a power module enters overtemperature protection state, take measures to lower the ambient temperature. The power module can automatically start supplying power again when the temperature falls within the normal range.

## Technical Specifications

**Table 5-5** Technical specifications of the PAC80S12-CN

| Item   | Specification  |
|--|--|
| Dimensions without packaging (H x W x D) [mm(in.)] | 39.6 mm x 66 mm x 215 mm (1.56 in. x 2.6 in. x 8.46 in.) |
| Weight without packaging [kg(lb)]                  | 0.525 kg (1.16 lb)                                       |
| Number of inputs                                   | 1  |
| Rated input voltage [V]                            | 100 V AC to 240 V AC, 50 Hz/60 Hz<br>240 V DC            |
| Input voltage range [V]                            | 90 V AC to 290 V AC; 45 Hz~66 Hz<br>190 V DC to 290 V DC |
| Maximum input current [A]                          | 2 A  |
| Rated output voltage [V]                           | 12 V   |

| Item                     | Specification                         |
|--------------------------|---------------------------------------|
| Rated output current [A] | 6.67 A                                |
| Rated output power [W]   | 80 W                                  |
| Power dissipation Mode   | Natural heat dissipation without fans |
| Hot swapping             | Supported                             |

## 5.2 PAC180S12-CN (180W AC&240 V DC Power Module (66 mm Width case, No Fans))

### Overview

**Table 5-6** Basic information about the PAC180S12-CN

| Item        | Details   |
|-------------|---|
| Description | 180W AC&240 V DC Power Module (66 mm Width case, No Fans) |
| Part Number | 02131754  |
| Model       | PAC180S12-CN  |

### Appearance

**Figure 5-3** Appearance of the PAC180S12-CN



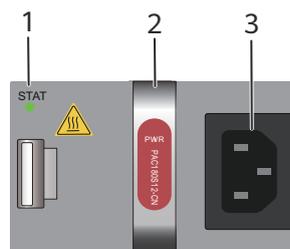
## Version Mapping

**Table 5-7** Mappings between PAC180S12-CN and product models

| Product | Product Model                   | First Supported Version | Limitations  |
|---------|---------------------------------|-------------------------|--|
| S530    | S530-24ST4XE<br>(98012556)      | V600R023C10SPC<br>600   | -  |
| S530    | S530-24T4XE<br>(98012554)       | V600R023C10SPC<br>600   | -  |
| S530    | S530-48S4XE<br>(98012558)       | V600R023C10SPC<br>600   | -  |
| S530    | S530-48T4XE<br>(98012951)       | V600R024C10             | -  |
| S620    | S620-16X8YZ<br>(98012580)       | V600R024C10             | -  |
| S620    | S620-24T16X8Y2C<br>Z (98012536) | V600R024C00             | When cards are used, power modules with a power of 240 W or higher must be used. |

## Panel

**Figure 5-4** Panel of the PAC180S12-CN



|                           |           |                 |   |
|---------------------------|-----------|-----------------|---|
| 1. Power indicator (STAT) | 2. Handle | 3. Power socket | - |
|---------------------------|-----------|-----------------|---|

**Table 5-8** Indicators on the PAC180S12-CN

| Silkscreen | Name                     | Color | Status     | Description  |
|------------|--------------------------|-------|------------|--|
| STAT       | Running status indicator | -     | Steady off | The power input is abnormal (for example, no input, overvoltage, or undervoltage) or the power output is abnormal (for example, overvoltage, overcurrent, short circuit occurs, undervoltage, or overtemperature). |
|            |                          | Green | Steady on  | The power module is working normally.  |

## Functions and Features

**Table 5-9** Functions of a 180 W AC power module

| Function         |                               | Description   |
|------------------|-------------------------------|---|
| Input protection | Input undervoltage protection | In this protection state, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply. |
|                  | Input overvoltage protection  | In this protection state, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply. |
|                  | Input overcurrent protection  | In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.          |

| Function                   |                                 | Description  |
|----------------------------|---------------------------------|--|
| Output protection          | Output overvoltage protection   | In this protection state, the power module stops supplying power intermittently. When the output voltage restores to the normal range, the power module automatically resumes power supply.                            |
|                            | Output overcurrent protection   | In this protection state, the power module supplies power intermittently. When the output current is within a range, the power module automatically resumes power supply.  |
|                            | Output short-circuit protection | In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.  |
| Overtemperature protection |                                 | When the temperature of the power module exceeds a specified threshold, the power module stops supplying power. When the temperature falls into the normal range, the power module automatically resumes power supply. |
| Hot swapping               |                                 | Supported  |

 NOTE

When a power module enters overtemperature protection state, take measures to lower the ambient temperature. The power module can automatically start supplying power again when the temperature falls within the normal range.

## Technical Specifications

**Table 5-10** Technical specifications of the PAC180S12-CN

| Item   | Specification  |
|--|--|
| Dimensions without packaging (H x W x D) [mm(in.)] | 39.6 mm x 66 mm x 215 mm (1.56 in. x 2.6 in. x 8.46 in.) |
| Weight without packaging [kg(lb)]                  | 0.67 kg (1.48 lb)  |
| Number of inputs                                   | 1  |
| Rated input voltage [V]                            | 100 V AC to 240 V AC, 50 Hz/60 Hz<br>240 V DC            |
| Input voltage range [V]                            | 90 V AC to 290 V AC; 45 Hz~66 Hz<br>190 V DC to 290 V DC |
| Maximum input current [A]                          | 3 A  |
| Rated output voltage [V]                           | 12 V   |

| Item                     | Specification                         |
|--------------------------|---------------------------------------|
| Rated output current [A] | 15 A                                  |
| Rated output power [W]   | 180 W                                 |
| Power dissipation Mode   | Natural heat dissipation without fans |
| Hot swapping             | Supported                             |

## 5.3 PDC240S12-CN (240W DC Power Module (66 mm Width case, No Fans))

### Overview

**Table 5-11** Basic information about the PDC240S12-CN

| Item        | Details  |
|-------------|--|
| Description | 240W DC Power Module (66 mm Width case, No Fans) |
| Part Number | 02314VUJ   |
| Model       | PDC240S12-CN                                     |

### Appearance

**Figure 5-5** Appearance of the PDC240S12-CN



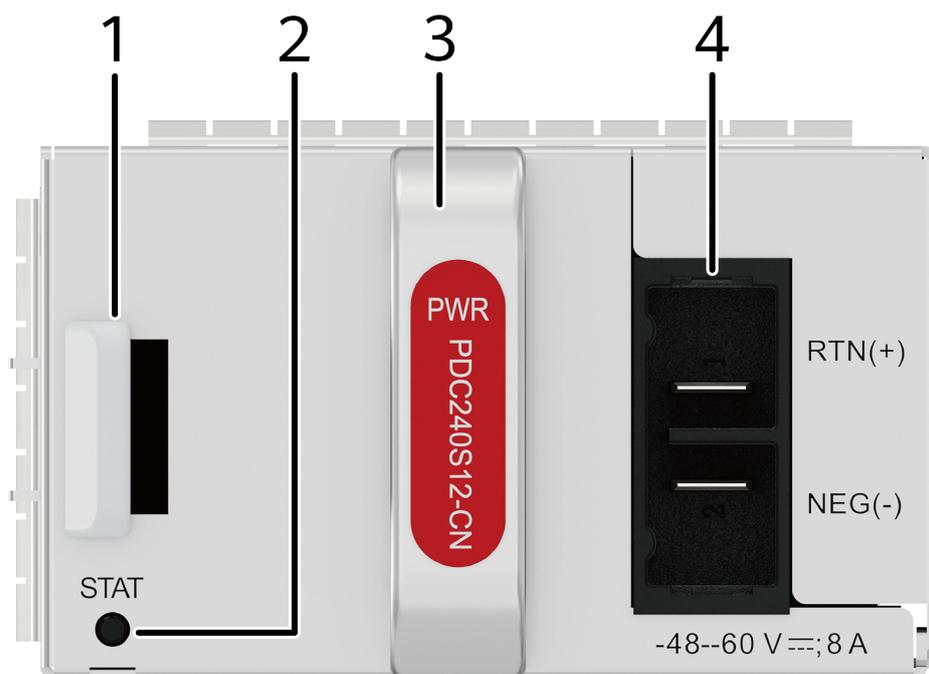
## Version Mapping

**Table 5-12** Mappings between PDC240S12-CN and product models

| Product | Product Model                   | First Supported Version | Limitations |
|---------|---------------------------------|-------------------------|-------------|
| S530    | S530-24ST4XE<br>(98012556)      | V600R024C00             | -           |
| S530    | S530-24T4XE<br>(98012554)       | V600R024C00             | -           |
| S530    | S530-48S4XE<br>(98012558)       | V600R024C00             | -           |
| S530    | S530-48T4XE<br>(98012951)       | V600R024C10             | -           |
| S620    | S620-16X8YZ<br>(98012580)       | V600R024C10             | -           |
| S620    | S620-24T16X8Y2C<br>Z (98012536) | V600R024C00             | -           |

## Panel

**Figure 5-6** Panel of the PDC240S12-CN



|         |              |           |                 |
|---------|--------------|-----------|-----------------|
| 1. Lock | 2. Indicator | 3. Handle | 4. Power socket |
|---------|--------------|-----------|-----------------|

**Table 5-13** Indicators on the PDC240S12-CN

| Silkscreen | Name                   | Color | Status    | Description   |
|------------|------------------------|-------|-----------|---|
| STAT       | Power status indicator | Green | Steady on | The power module is working normally.   |
|            |                        | Green | Blinking  | The power module is in loading.   |
|            |                        | -     | Off       | The power input is abnormal (for example, no input, overvoltage, or undervoltage) or the power output is abnormal (for example, overcurrent, overvoltage, short circuit, or undervoltage) |

## Functions and Features

**Table 5-14** Functions and features of the PDC240S12-CN

| Functions and Features        | Description  |
|-------------------------------|--|
| Input undervoltage protection | Stops power output and automatically restores power output after the input voltage becomes normal. |
| Input overvoltage protection  | Stops power output and automatically restores power output after the input voltage becomes normal. |

| Functions and Features             | Description  |
|------------------------------------|--|
| Input overcurrent protection       | Stops power output and does not automatically restore power output after the input current becomes normal.   |
| Output current limiting protection | Intermittently provides output and automatically restores normal output after the output current falls within a normal range.  |
| Output overvoltage protection      | Intermittently stops output and automatically restores output after the overvoltage condition is removed.  |
| Output short circuit protection    | Intermittently provides output and automatically restores normal output after the output short circuit is removed.   |
| Overtemperature protection         | When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range. |
| Heat dissipation                   | The heat dissipation is provided by the fan of the power module.   |
| Hot swap                           | The device has power module redundancy. You can hot-swap a power module without interrupting device operation.   |

 **NOTE**

When a power module enters the overtemperature protection state, take measures to lower its temperature. The power module can automatically resume power supply when its temperature returns to within the normal range.

## Technical Specifications

**Table 5-15** Technical specifications of the PDC240S12-CN

| Item   | Specification  |
|--|--|
| Dimensions without packaging (H x W x D) [mm(in.)] | 39.6 mm x 66.0 mm x 215 mm (1.56 in. x 2.6 in. x 8.46 in.) |
| Weight without packaging [kg(lb)]                  | 0.61 kg (1.34 lb)  |

| Item                      | Specification   |
|---------------------------|---|
| Number of inputs          | 1   |
| Rated input voltage [V]   | <ul style="list-style-type: none"> <li>+48 V DC</li> <li>-48 V DC to -60 V DC</li> </ul>  |
| Input voltage range [V]   | <ul style="list-style-type: none"> <li>+40 V DC to +57 V DC</li> <li>-38.4 V DC to -72 V DC</li> </ul>                                  |
| Maximum input current [A] | 8 A   |
| Rated output voltage [V]  | 12 V  |
| Rated output current [A]  | <ul style="list-style-type: none"> <li>-25°C to +55°C (-13°F to +131°F): 20 A</li> <li>55°C to 65°C (131°F to 149°F): 15 A</li> </ul>   |
| Rated output power [W]    | <ul style="list-style-type: none"> <li>-25°C to +55°C (-13°F to +131°F): 240 W</li> <li>55°C to 65°C (131°F to 149°F): 180 W</li> </ul> |
| Power dissipation Mode    | Natural heat dissipation  |
| Hot swapping              | Supported   |

## 5.4 PDC400S12-CB (400W DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust))

### Overview

**Table 5-16** Basic information about the PDC400S12-CB

| Item        | Details  |
|-------------|--|
| Description | 400W DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust) |
| Part Number | 02314VUG   |
| Model       | PDC400S12-CB   |

## Appearance

**Figure 5-7** Appearance of the PDC400S12-CB



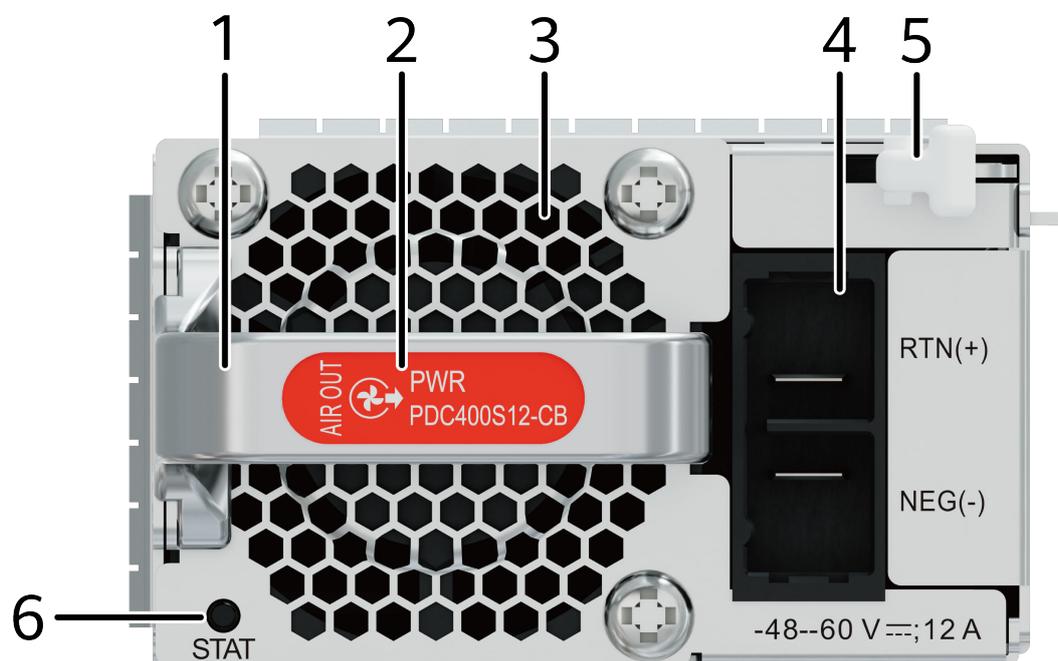
## Version Mapping

**Table 5-17** Mappings between PDC400S12-CB and product models

| Product | Product Model                   | First Supported Version | Limitations |
|---------|---------------------------------|-------------------------|-------------|
| S620    | S620-16X8YZ<br>(98012580)       | V600R024C10             | -           |
| S620    | S620-24T16X8Y2C<br>Z (98012536) | V600R024C00             | -           |

## Panel

Figure 5-8 Panel of the PDC400S12-CB



|           |                           |             |                 |
|-----------|---------------------------|-------------|-----------------|
| 1. Handle | 2. Airflow flag (air out) | 3. Air vent | 4. Power socket |
| 5. Lock   | 6. Indicator              | -           | -               |

Table 5-18 Indicators on the PDC400S12-CB

| Silkscreen | Name                     | Color | Status     | Description  |
|------------|--------------------------|-------|------------|--|
| STAT       | Running status indicator | Green | Steady off | The power input is abnormal (for example, no input or undervoltage) , or the power output is abnormal (for example, overvoltage or undervoltage) |

| Silkscreen | Name | Color | Status          | Description                           |
|------------|------|-------|-----------------|---------------------------------------|
|            |      | Green | Steady on       | The power module is working properly. |
|            |      | Green | Blinking (4 Hz) | Online loading                        |

## Functions and Features

**Table 5-19** Functions and features of the PDC400S12-CB

| Functions and Features                                   | Description   |
|--|---|
| Input overvoltage protection and undervoltage protection | In this protection state, the power module stops supplying power. When the input voltage restores to the normal range, the power module automatically resumes power supply.                   |
| Input overcurrent protection                             | In this protection state, the power module stops supplying power and cannot automatically resume power supply when the input current restores to the normal range.                            |
| Output overvoltage protection                            | In this protection state, the power adapter stops supplying power intermittently. When the output voltage restores to the normal range, the power adapter automatically resumes power supply. |
| Output overcurrent protection                            | In this protection state, the power module supplies power intermittently. When the output current is limited within a range, the power module automatically resumes power supply.             |
| Output short-circuit protection                          | In this protection state, the power module supplies power intermittently. When the short circuit is removed, the power module automatically resumes power supply.                             |

| Functions and Features     | Description  |
|----------------------------|--|
| Overtemperature protection | When the temperature of the power module exceeds a specified threshold, the power module stops supplying power. When the temperature falls into the normal range, the power module automatically resumes power supply. |
| Heat dissipation           | The heat dissipation is provided by the fan of the power module.   |
| Hot swap                   | The device has power module redundancy. You can hot-swap a power module without interrupting device operation.   |

 **NOTE**

When a power module enters the overtemperature protection state, take measures to lower its temperature. The power module can automatically resume power supply when its temperature returns to within the normal range.

## Technical Specifications

**Table 5-20** Technical specifications of the PDC400S12-CB

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | 39.6 mm x 66.0 mm x 215 mm (1.56 in. x 2.6 in. x 8.46 in.)  |
| Weight without packaging [kg(lb)]                  | 0.679 kg (1.5 lb)   |
| Number of inputs                                   | 1   |
| Rated input voltage [V]                            | <ul style="list-style-type: none"><li>+48 V DC</li><li>-48 V DC to -60 V DC</li></ul>               |
| Input voltage range [V]                            | <ul style="list-style-type: none"><li>+40 V DC to +57 V DC</li><li>-38.4 V DC to -72 V DC</li></ul> |
| Maximum input current [A]                          | 12 A  |
| Rated output voltage [V]                           | 12.3 V  |
| Rated output current [A]                           | 32.52 A   |
| Rated output power [W]                             | 400 W   |
| Power dissipation Mode                             | Heat dissipation with fan   |
| Hot swapping                                       | Supported   |

## 5.5 PAC600S12-PB (600W AC &240 V DC Power Module(66 mm Width Case, Back to Front, Power panel side exhaust))

### Overview

Table 5-21 Basic information about the PAC600S12-PB

| Item        | Details   |
|-------------|---|
| Description | 600W AC &240 V DC Power Module(66 mm Width Case, Back to Front, Power panel side exhaust) |
| Part Number | 02313BUS  |
| Model       | PAC600S12-PB  |

### Appearance

Figure 5-9 Appearance of the PAC600S12-PB



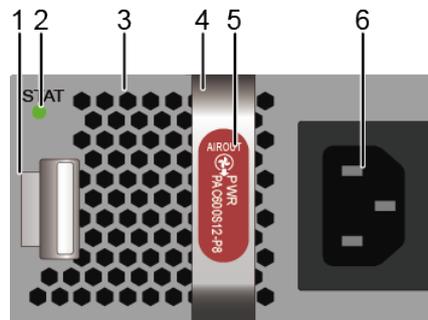
## Version Mapping

**Table 5-22** Mappings between PAC600S12-PB and product models

| Product | Product Model                   | First Supported Version | Limitations |
|---------|---------------------------------|-------------------------|-------------|
| S530    | S530-24ST4XE<br>(98012556)      | V600R023C10SPC<br>600   | -           |
| S530    | S530-24T4XE<br>(98012554)       | V600R023C10SPC<br>600   | -           |
| S530    | S530-48S4XE<br>(98012558)       | V600R023C10SPC<br>600   | -           |
| S530    | S530-48T4XE<br>(98012951)       | V600R024C10             | -           |
| S620    | S620-16X8YZ<br>(98012580)       | V600R024C10             | -           |
| S620    | S620-24T16X8Y2C<br>Z (98012536) | V600R024C00             | -           |

## Panel

**Figure 5-10** Panel of the PAC600S12-PB



|                           |                 |                 |           |
|---------------------------|-----------------|-----------------|-----------|
| 1. Lock                   | 2. Indicator    | 3. Fan air vent | 4. Handle |
| 5. Airflow flag (air out) | 6. Power socket | -               | -         |

**Table 5-23** Indicators on the PAC600S12-PB

| Silkscreen | Name                   | Color | Status    | Description  |
|------------|------------------------|-------|-----------|--|
| STAT       | Power status indicator | Green | Steady on | The output of the AC power module is normal.   |
|            |                        | -     | Off       | <ul style="list-style-type: none"> <li>The input of the AC power module is out of range. For example, no AC input, AC input overvoltage, or AC input undervoltage has occurred.</li> <li>The output of the AC power module is out of range. For example, undervoltage, or overtemperature has occurred.</li> </ul> |

## Functions and Features

**Table 5-24** Functions and features of the PAC600S12-PB

| Functions and Features        | Description  |
|-------------------------------|--|
| Input undervoltage protection | Stops power output and automatically restores power output after the input voltage becomes normal. |
| Input overvoltage protection  | Stops power output and automatically restores power output after the input voltage becomes normal. |

| Functions and Features             | Description  |
|------------------------------------|--|
| Input overcurrent protection       | Stops power output and does not automatically restore power output after the input current becomes normal.   |
| Output current limiting protection | Intermittently provides output and automatically restores normal output after the output current falls within a normal range.  |
| Output overvoltage protection      | Intermittently stops output and automatically restores output after the overvoltage condition is removed.  |
| Output short circuit protection    | Intermittently provides output and automatically restores normal output after the output short circuit is removed.   |
| Overtemperature protection         | When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range. |
| Heat dissipation                   | The heat dissipation is provided by the fan of the power module.   |
| Hot swap                           | The device has power module redundancy. You can hot-swap a power module without interrupting device operation.   |

 **NOTE**

When a power module enters the overtemperature protection state, take measures to lower its temperature. The power module can automatically resume power supply when its temperature returns to within the normal range.

## Technical Specifications

**Table 5-25** Technical specifications of the PAC600S12-PB

| Item   | Specification  |
|--|--|
| Dimensions without packaging (H x W x D) [mm(in.)] | 39.6 mm x 66.0 mm x 215 mm (1.56 in. x 2.6 in. x 8.46 in.) |
| Weight without packaging [kg(lb)]                  | 1 kg (2.20 lb)   |

| Item                      | Specification   |
|---------------------------|---|
| Number of inputs          | 1   |
| Rated input voltage [V]   | <ul style="list-style-type: none"><li>AC input: 100 V to 240 V, 50 Hz/60 Hz</li><li>High-voltage DC input: 240 V DC</li></ul>               |
| Input voltage range [V]   | <ul style="list-style-type: none"><li>AC input: 90 V to 290 V, 45 Hz to 65 Hz</li><li>High-voltage DC input: 190 V DC to 290 V DC</li></ul> |
| Maximum input current [A] | 100 V AC to 240 V AC: 8 A<br>240 V DC: 4 A  |
| Rated output voltage [V]  | 12 V  |
| Rated output current [A]  | 50 A  |
| Rated output power [W]    | 600 W   |
| Power dissipation Mode    | Heat dissipation with fan   |
| Hot swapping              | Supported   |

## 5.6 PAC600S56-EB (600 W PoE AC&240 V DC Power Module (66mm Width Case, Back to Front, Power panel side exhaust))

### Overview

**Table 5-26** Basic information about the PAC600S56-EB

| Item        | Details   |
|-------------|---|
| Description | 600 W PoE AC&240 V DC Power Module (66mm Width Case, Back to Front, Power panel side exhaust) |
| Part Number | 02314APV  |
| Model       | PAC600S56-EB  |

## Appearance

**Figure 5-11** Appearance of the PAC600S56-EB



**NOTE**

Figures in the document are for reference only, and the actual appearance of the devices may vary depending on the exact device model.

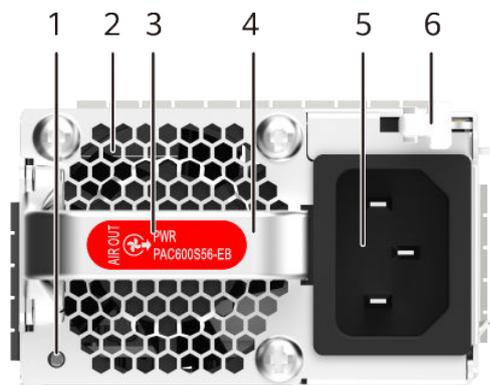
## Version Mapping

**Table 5-27** Mappings between PAC600S56-EB and product models

| Product | Product Model            | First Supported Version | Limitations |
|---------|--------------------------|-------------------------|-------------|
| S310    | S310-24U4X<br>(98012947) | V600R024C10             | -           |

## Panel

**Figure 5-12** Panel of the PAC600S56-EB



|                             |                  |                           |           |
|-----------------------------|------------------|---------------------------|-----------|
| 1. Running status indicator | 2. Air vent hole | 3. Airflow flag (air out) | 4. Handle |
| 5. C13 Power socket         | 6. Lock          | -                         | -         |

**Table 5-28** Indicators on the PAC600S56-EB

| Silkscreen | Name                     | Color | Status               | Description                        |
|------------|--------------------------|-------|----------------------|------------------------------------|
| -          | Running status indicator | Green | Steady on            | The power module output is normal. |
|            |                          | Green | Fast blinking (4 Hz) | Online loading                     |

| Silkscreen | Name | Color | Status     | Description   |
|------------|------|-------|------------|---|
|            |      | -     | Steady off | <ul style="list-style-type: none"> <li>The power module is powered on but not inserted into the system.</li> <li>The power module input is normal but there is no output due to power overtemperature protection, output overcurrent, output overvoltage protection, short circuit protection, or component failure.</li> <li>The input is abnormal or there is no output due to no input.</li> </ul> |

## Functions and Features

**Table 5-29** Functions and features of the PAC600S56-EB

| Functions and Features       | Description   |
|------------------------------|---|
| Input overvoltage protection | In this protection state, the power module is turned off and stops supplying power. When the fault is eliminated, the power module can automatically resume power supply. |

| Functions and Features          | Description   |
|---------------------------------|---|
| Input undervoltage protection   | In this protection state, the power module is turned off and stops supplying power. When the fault is eliminated, the power module can automatically resume power supply.   |
| Output overvoltage protection   | In this protection state, the power module is in hiccup protection mode. If the power module enters this mode multiple times, the power output will be locked and the power module cannot automatically resume power supply.  |
| Output overcurrent protection   | <p>In this protection state, the power module is in hiccup protection mode. If the power module enters this mode multiple times, the power output will be locked.</p> <p>You can use any of the following methods to unlock the power module:</p> <ul style="list-style-type: none"> <li>● Power off the power module for 2s.</li> <li>● Clear the 0x03 alarm.</li> <li>● Run the reset command.</li> </ul> |
| Output short-circuit protection | <p>In this protection state, the power module is in hiccup protection mode. If the power module enters this mode multiple times, the power output will be locked.</p> <p>You can use any of the following methods to unlock the power module:</p> <ul style="list-style-type: none"> <li>● Power off the power module for 2s.</li> <li>● Clear the 0x03 alarm.</li> <li>● Run the reset command.</li> </ul> |
| Overtemperature protection      | When the temperature of the power module exceeds a specified threshold, the power module stops supplying power. When the temperature falls into the normal range, the power module automatically resumes power supply.  |

## Technical Specifications

**Table 5-30** Technical specifications of the PAC600S56-EB

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | 40 mm x 66 mm x 215 mm (1.57 in. x 2.6 in. x 8.46 in.)  |
| Weight without packaging [kg(lb)]                  | 0.9 kg (1.98 lb)  |
| Number of inputs                                   | 1   |
| Rated input voltage [V]                            | 100 V AC to 130 V AC; 50/60 Hz<br>200 V AC to 240 V AC; 50/60 Hz<br>240 V DC  |
| Input voltage range [V]                            | 90 V AC to 290 V AC; 45 Hz~66 Hz<br>190 V DC to 290 V DC  |
| Maximum input current [A]                          | 100 V AC to 130 V AC: 8 A<br>200 V AC to 240 V AC: 8 A<br>240 V DC: 4 A   |
| Rated output voltage [V]                           | 53.5 V or 55.5 V  |
| Rated output current [A]                           | 11.21 A @53.5 V, 10.81 A @55.5 V  |
| Rated output power [W]                             | 100 V AC to 130 V AC input:<br>· Total power: 300 W<br>200 V AC to 240 V AC input and 240 V DC input:<br>· Total power: 600 W |
| Power dissipation Mode                             | Heat dissipation with fan   |
| Hot swapping                                       | Supported   |

## 5.7 PAC1000S56-EB (02314APU: 1000 W PoE AC&240 V DC Power Module (66 mm Width Case, Back to Front, Power panel side exhaust))

## Overview

**Table 5-31** Basic information about the PAC1000S56-EB

| Item        | Details   |
|-------------|---|
| Description | 1000 W PoE AC&240 V DC Power Module (66 mm Width Case, Back to Front, Power panel side exhaust) |
| Part Number | 02314APU  |
| Model       | PAC1000S56-EB   |

## Appearance

**Figure 5-13** Appearance of the PAC1000S56-EB



### NOTE

Figures in the document are for reference only, and the actual appearance of the devices may vary depending on the exact device model.

## Version Mapping

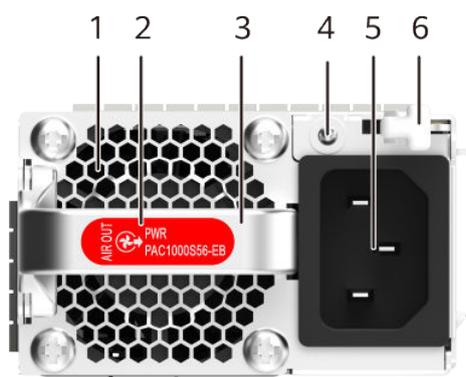
**Table 5-32** Mappings between PAC1000S56-EB and product models

| Product | Product Model            | First Supported Version | Limitations |
|---------|--------------------------|-------------------------|-------------|
| S310    | S310-24U4X<br>(98012947) | V600R024C10             | -           |

| Product | Product Model             | First Supported Version | Limitations |
|---------|---------------------------|-------------------------|-------------|
| S310    | S310-48HP4X<br>(98012566) | V600R024C10             | -           |

## Panel

**Figure 5-14** Panel of the PAC1000S56-EB



|                     |                           |           |                             |
|---------------------|---------------------------|-----------|-----------------------------|
| 1. Air vent hole    | 2. Airflow flag (air out) | 3. Handle | 4. Running status indicator |
| 5. C13 Power socket | 6. Lock                   | -         | -                           |

**Table 5-33** Indicators on the PAC1000S56-EB

| Silkscreen | Name                     | Color | Status               | Description                        |
|------------|--------------------------|-------|----------------------|------------------------------------|
| -          | Running status indicator | Green | Steady on            | The power module output is normal. |
|            |                          | Green | Fast blinking (4 Hz) | Online loading                     |

| Silkscreen | Name | Color | Status     | Description   |
|------------|------|-------|------------|---|
|            |      | -     | Steady off | <ul style="list-style-type: none"> <li>The power module is powered on but not inserted into the system.</li> <li>The power module input is normal but there is no output due to power overtemperature protection, output overcurrent, output overvoltage protection, short circuit protection, or component failure.</li> <li>The input is abnormal or there is no output due to no input.</li> </ul> |

## Functions and Features

**Table 5-34** Functions and features of the PAC1000S56-EB

| Functions and Features       | Description   |
|------------------------------|---|
| Input overvoltage protection | In this protection state, the power module is turned off and stops supplying power. When the fault is eliminated, the power module can automatically resume power supply. |

| Functions and Features          | Description  |
|---------------------------------|--|
| Input undervoltage protection   | In this protection state, the power module is turned off and stops supplying power. When the fault is eliminated, the power module can automatically resume power supply.  |
| Output overvoltage protection   | In this protection state, the power module is in hiccup protection mode. When the fault is eliminated, the power module can automatically resume power supply.   |
| Output overcurrent protection   | In this protection state, the power module is in hiccup protection mode. If the power module enters this mode multiple times, the power output will be locked and the power module cannot automatically resume power supply. |
| Output short-circuit protection | In this protection state, the power module is in hiccup protection mode. If the power module enters this mode multiple times, the power output will be locked and the power module cannot automatically resume power supply. |
| Overtemperature protection      | When the temperature of the power module exceeds a specified threshold, the power module stops supplying power. When the temperature falls into the normal range, the power module automatically resumes power supply.       |

## Technical Specifications

**Table 5-35** Technical specifications of the PAC1000S56-EB

| Item   | Specification  |
|--|--|
| Dimensions without packaging (H x W x D) [mm(in.)] | 40 mm x 66 mm x 215 mm (1.57 in. x 2.6 in. x 8.46 in.) |
| Weight without packaging [kg(lb)]                  | 1.1 kg (2.43 lb)                                       |
| Number of inputs                                   | 1  |

| Item                      | Specification  |
|---------------------------|--|
| Rated input voltage [V]   | 100 V AC to 130 V AC, 50/60 Hz<br>200 V AC to 240 V AC, 50/60 Hz<br>240 V DC   |
| Input voltage range [V]   | 90 V AC to 290 V AC; 45 Hz~66 Hz<br>190 V DC to 290 V DC   |
| Maximum input current [A] | 100 V AC to 130 V AC: 12 A<br>200 V AC to 240 V AC: 8 A<br>240 V DC: 8 A   |
| Rated output voltage [V]  | 53.5 V or 55.5 V   |
| Rated output current [A]  | 18.69 A @53.5 V, 18.02 A @55.5 V   |
| Rated output power [W]    | 100 V AC to 130 V AC input:<br>- Total power: 900 W<br>200 V AC to 240 V AC and 240 V DC input:<br>- Total power: 1000 W |
| Power dissipation Mode    | Heat dissipation with fan  |
| Hot swapping              | Supported  |

## 5.8 PDC1000S56-EB (1000 W PoE DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust))

### Overview

**Table 5-36** Basic information about the PDC1000S56-EB

| Item        | Details  |
|-------------|--|
| Description | 1000 W PoE DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust) |
| Part Number | 02313XRB   |
| Model       | PDC1000S56-EB  |

## Appearance

**Figure 5-15** Appearance of the PDC1000S56-EB



 **NOTE**

Figures in the document are for reference only, and the actual appearance of the devices may vary depending on the exact device model.

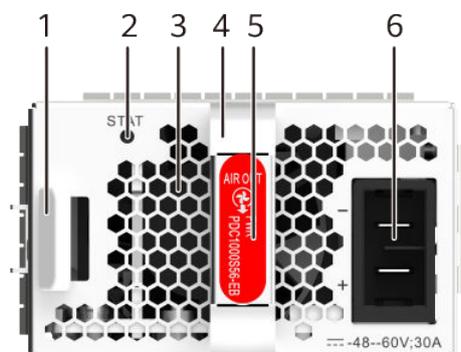
## Version Mapping

**Table 5-37** Mappings between PDC1000S56-EB and product models

| Product | Product Model            | First Supported Version | Limitations |
|---------|--------------------------|-------------------------|-------------|
| S310    | S310-24U4X<br>(98012947) | V600R024C10             | -           |

## Panel

**Figure 5-16** Panel of the PDC1000S56-EB



|                           |                             |                  |           |
|---------------------------|-----------------------------|------------------|-----------|
| 1. Lock                   | 2. Running status indicator | 3. Air vent hole | 4. Handle |
| 5. Airflow flag (air out) | 6. Power socket             | -                | -         |

**Table 5-38** Indicators on the PDC1000S56-EB

| Silkscreen | Name                     | Color | Status               | Description                        |
|------------|--------------------------|-------|----------------------|------------------------------------|
| STAT       | Running status indicator | Green | Steady on            | The power module output is normal. |
|            |                          | Green | Fast blinking (4 Hz) | Online loading                     |

| Silkscreen | Name | Color | Status     | Description   |
|------------|------|-------|------------|---|
|            |      | -     | Steady off | <ul style="list-style-type: none"> <li>The power module is powered on but not inserted into the system.</li> <li>The power module input is normal but there is no output due to power overtemperature protection, output overcurrent, output overvoltage protection, short circuit protection, or component failure.</li> <li>The input is abnormal or there is no output due to no input.</li> </ul> |

## Functions and Features

**Table 5-39** Functions and features of the PDC1000S56-EB

| Functions and Features        | Description   |
|-------------------------------|---|
| Input undervoltage protection | In this protection state, the power module is turned off and stops supplying power. When the fault is eliminated, the power module can automatically resume power supply. |

| Functions and Features          | Description  |
|---------------------------------|--|
| Output overvoltage protection   | In this protection state, the power output is locked and the power module cannot automatically resume power supply.  |
| Output overcurrent protection   | In this protection state, the power module is in hiccup protection mode. If the power module enters this mode multiple times, the power output will be locked and the power module cannot automatically resume power supply. |
| Output short-circuit protection | In this protection state, the power module is in hiccup protection mode. If the power module enters this mode multiple times, the power output will be locked and the power module cannot automatically resume power supply. |
| Overtemperature protection      | When the temperature of the power module exceeds a specified threshold, the power module stops supplying power. When the temperature falls into the normal range, the power module automatically resumes power supply.       |

## Technical Specifications

**Table 5-40** Technical specifications of the PDC1000S56-EB

| Item   | Specification  |
|--|--|
| Dimensions without packaging (H x W x D) [mm(in.)] | 40 mm x 66 mm x 215 mm (1.57 in. x 2.6 in. x 8.46 in.) |
| Weight without packaging [kg(lb)]                  | 1 kg (2.20 lb)   |
| Number of inputs                                   | 1  |
| Rated input voltage [V]                            | -48 V DC to -60 V DC                                   |
| Input voltage range [V]                            | -38.4 V DC to -72 V DC                                 |
| Maximum input current [A]                          | 30 A   |
| Rated output voltage [V]                           | 53.5 V or 55.5 V                                       |
| Rated output current [A]                           | 18.69 A @ 53.5 V, 18.02 A @55.5 V                      |

| Item                   | Specification             |
|------------------------|---------------------------|
| Rated output power [W] | 1000 W                    |
| Power dissipation Mode | Heat dissipation with fan |
| Hot swapping           | Supported                 |

## 5.9 PDC1K2S12-CE (1200W DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust))

### Overview

**Table 5-41** Basic information about the PDC1K2S12-CE

| Item        | Details   |
|-------------|---|
| Description | 1200W DC Power Module (66 mm Width case, Back to Front, Power panel side exhaust) |
| Part Number | 02270205  |
| Model       | PDC1K2S12-CE  |

### Appearance

**Figure 5-17** Appearance of the PDC1K2S12-CE



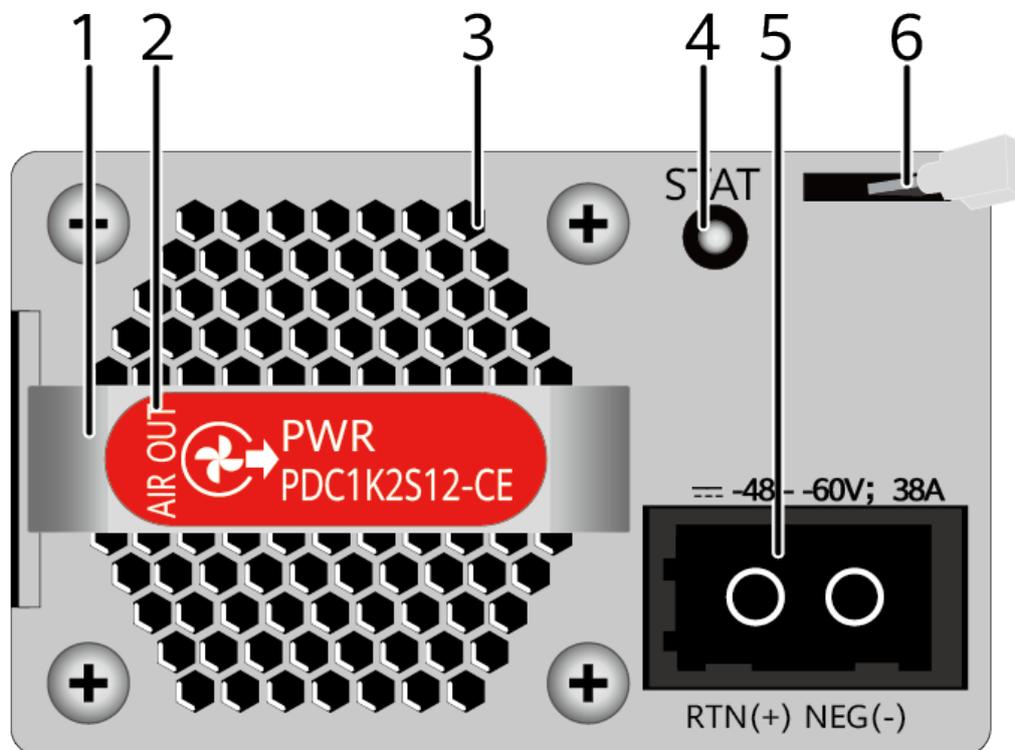
## Version Mapping

**Table 5-42** Mappings between PDC1K2S12-CE and product models

| Product | Product Model              | First Supported Version | Limitations |
|---------|----------------------------|-------------------------|-------------|
| S530    | S530-24ST4XE<br>(98012556) | V600R023C10SPC<br>600   | -           |
| S530    | S530-24T4XE<br>(98012554)  | V600R023C10SPC<br>600   | -           |
| S530    | S530-48S4XE<br>(98012558)  | V600R023C10SPC<br>600   | -           |
| S530    | S530-48T4XE<br>(98012951)  | V600R024C10             | -           |

## Panel

**Figure 5-18** Panel of the PDC1K2S12-CE



|   |                           |             |              |
|---|---------------------------|-------------|--------------|
| 1. Handle<br><b>NOTE</b><br>Each power module is delivered with a velcro strap on the handle. This velcro strap is used to strap the power cable to the handle. | 2. Airflow flag (air out) | 3. Air vent | 4. Indicator |
| 5. Power socket   | 6. Lock                   | -           | -            |

**Table 5-43** Indicators on the PDC1K2S12-CE

| Silkscreen | Name                   | Color | Status    | Description   |
|------------|------------------------|-------|-----------|---|
| STAT       | Power status indicator | Green | Steady on | The power module is working normally.   |
|            |                        | Green | Blinking  | The power module is in loading.   |
|            |                        | -     | Off       | The power input is abnormal (for example, no input, overvoltage, or undervoltage) or the power output is abnormal (for example, overcurrent, overvoltage, short circuit, or undervoltage) |

## Functions and Features

**Table 5-44** Functions and features of the PDC1K2S12-CE

| Functions and Features             | Description  |
|------------------------------------|--|
| Input undervoltage protection      | Stops power output and automatically restores power output after the input voltage becomes normal.   |
| Input overvoltage protection       | Stops power output and automatically restores power output after the input voltage becomes normal.   |
| Input overcurrent protection       | Stops power output and does not automatically restore power output after the input current becomes normal.   |
| Output current limiting protection | Intermittently provides output and automatically restores normal output after the output current falls within a normal range.  |
| Output overvoltage protection      | Intermittently stops output and automatically restores output after the overvoltage condition is removed.  |
| Output short circuit protection    | Intermittently provides output and automatically restores normal output after the output short circuit is removed.   |
| Overtemperature protection         | When the temperature of the power module reaches a preset threshold, the power module stops power output and will automatically restore power output after the temperature drops back to the normal range. |
| Heat dissipation                   | The heat dissipation is provided by the fan of the power module.   |
| Hot swap                           | The device has power module redundancy. You can hot-swap a power module without interrupting device operation.   |

**NOTE**

When a power module enters the overtemperature protection state, take measures to lower its temperature. The power module can automatically resume power supply when its temperature returns to within the normal range.

## Technical Specifications

**Table 5-45** Technical specifications of the PDC1K2S12-CE

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | 39.6 mm x 66.0 mm x 215 mm (1.56 in. x 2.6 in. x 8.46 in.)  |
| Weight without packaging [kg(lb)]                  | 1.0 kg (2.2 lb)   |
| Number of inputs                                   | 1   |
| Rated input voltage [V]                            | <ul style="list-style-type: none"><li>• +48 V DC</li><li>• -48 V DC to -60 V DC</li></ul>               |
| Input voltage range [V]                            | <ul style="list-style-type: none"><li>• +40 V DC to +57 V DC</li><li>• -38.4 V DC to -72 V DC</li></ul> |
| Maximum input current [A]                          | 38 A  |
| Rated output voltage [V]                           | 12 V  |
| Rated output current [A]                           | 100 A   |
| Rated output power [W]                             | 1200 W  |
| Power dissipation Mode                             | Heat dissipation with fan   |
| Hot swapping                                       | Supported   |

# 6 Independent Power

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[6.1 HW-120100D0D \(Adapter Power-HW-120100D0D-Desktop-Black-12W\)](#)

[6.2 AD-540278D0D \(Adapter Power-AD-540278D0D-Desktop-150W-ErP 6-White\)](#)

[6.3 HW-560268D0D \(Adapter-HW-560268D0D-Tabletop-150W-ERP6\)](#)

## 6.1 HW-120100D0D (Adapter Power-HW-120100D0D-Desktop-Black-12W)

### Overview

**Table 6-1** Basic information about the HW-120100D0D

| Item        | Details                                      |
|-------------|--|
| Description | Adapter Power-HW-120100D0D-Desktop-Black-12W |
| Part Number | 02221222                                     |
| Model       | HW-120100D0D                                 |

## Appearance

**Figure 6-1** Appearance of the HW-120100D0D



## Version Mapping

**Table 6-2** Mappings between HW-120100D0D and product models

| Product | Product Model            | First Supported Version | Limitations |
|---------|--------------------------|-------------------------|-------------|
| S110    | S110-8T2ST<br>(98012199) | V200R023C10             | -           |

## Technical Specifications

**Table 6-3** Technical specifications of the HW-120100D0D

| Item   | Specification  |
|--|--|
| Dimensions without packaging (H x W x D) [mm(in.)] | 30 mm x 46 mm x 96 mm (1.18 in. x 1.81 in. x 3.78 in.) |
| Weight without packaging [kg(lb)]                  | 0.1 kg (0.22 lb)                                       |
| Number of inputs                                   | 1  |
| Rated input voltage [V]                            | 100 V AC to 240 V AC, 50/60 Hz                         |
| Input voltage range [V]                            | 90 V AC to 300 V AC; 47 Hz to 63 Hz                    |
| Maximum input current [A]                          | 0.5 A  |
| Rated output voltage [V]                           | 12 V   |
| Rated output current [A]                           | 1 A  |
| Rated output power [W]                             | 12 W   |

| Item                   | Specification                         |
|------------------------|---------------------------------------|
| Power dissipation Mode | Natural heat dissipation without fans |

## 6.2 AD-540278D0D (Adapter Power-AD-540278D0D-Desktop-150W-ErP 6-White)

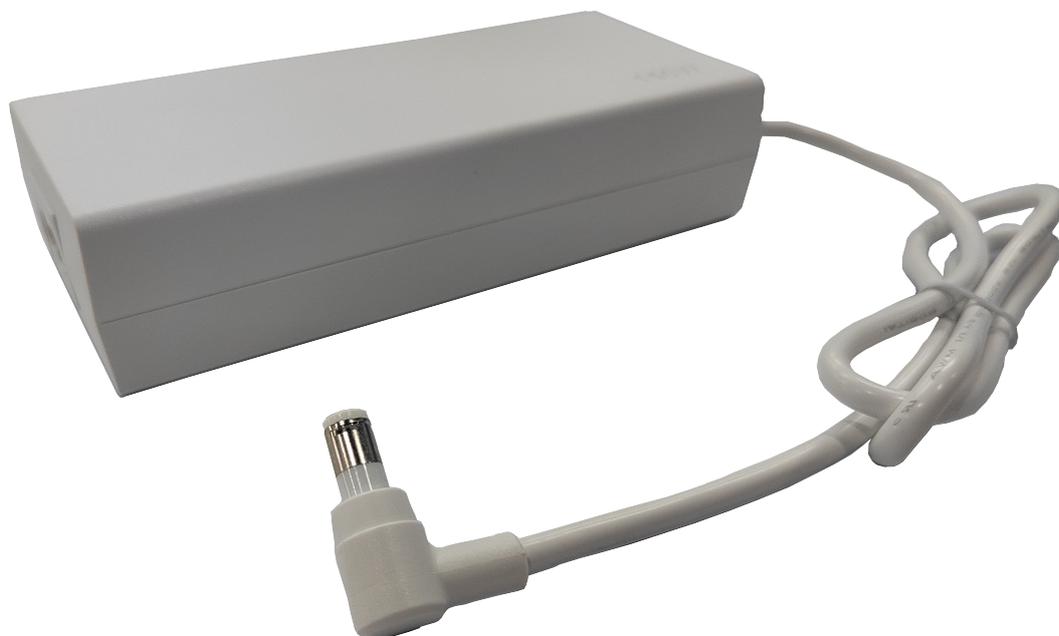
### Overview

**Table 6-4** Basic information about the AD-540278D0D

| Item        | Details   |
|-------------|---|
| Description | Adapter Power-AD-540278D0D-Desktop-150W-ErP 6-White |
| Part Number | 02222067  |
| Model       | AD-540278D0D  |

### Appearance

**Figure 6-2** Appearance of the AD-540278D0D



## Version Mapping

**Table 6-5** Mappings between AD-540278D0D and product models

| Product | Product Model            | First Supported Version | Limitations |
|---------|--------------------------|-------------------------|-------------|
| S110    | S110-8P2ST<br>(98012269) | V200R023C10             | -           |

## Technical Specifications

**Table 6-6** Technical specifications of the AD-540278D0D

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | 35 mm x 70 mm x 150 mm (1.38 in. x 2.76 in. x 5.91 in.) |
| Weight without packaging [kg(lb)]                  | 0.4 kg (0.88 lb)  |
| Number of inputs                                   | 1   |
| Rated input voltage [V]                            | 170 V AC to 240 V AC; 50/60 Hz                          |
| Input voltage range [V]                            | 170 V AC to 264 V AC; 47 Hz to 63 Hz                    |
| Maximum input current [A]                          | 2 A   |
| Rated output voltage [V]                           | 54 V  |
| Rated output current [A]                           | 2.78 A  |
| Rated output power [W]                             | 150 W   |
| Power dissipation Mode                             | Natural heat dissipation without fans                   |

## 6.3 HW-560268D0D (Adapter-HW-560268D0D-Tabletop-150W-ERP6)

### Overview

**Table 6-7** Basic information about the HW-560268D0D

| Item        | Details                                 |
|-------------|---|
| Description | Adapter-HW-560268D0D-Tabletop-150W-ERP6 |

| Item        | Details      |
|-------------|--------------|
| Part Number | 02221024     |
| Model       | HW-560268D0D |

## Appearance

**Figure 6-3** Appearance of the HW-560268D0D



## Version Mapping

**Table 6-8** Mappings between HW-560268D0D and product models

| Product | Product Model            | First Supported Version | Limitations |
|---------|--------------------------|-------------------------|-------------|
| S110    | S110-8P2ST<br>(98012195) | V200R023C10             | -           |

## Technical Specifications

**Table 6-9** Technical specifications of the HW-560268D0D

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | 41.5 mm x 80 mm x 180 mm (1.63 in. x 3.15 in. x 7.09 in.) |
| Weight without packaging [kg(lb)]                  | 0.8 kg (1.76 lb)  |
| Number of inputs                                   | 1   |
| Rated input voltage [V]                            | 100 V AC to 240 V AC, 50/60 Hz                            |

| Item                      | Specification                         |
|---------------------------|---------------------------------------|
| Input voltage range [V]   | 90 V AC to 290 V AC, 47 Hz to 63 Hz   |
| Maximum input current [A] | 2 A                                   |
| Rated output voltage [V]  | 56 V                                  |
| Rated output current [A]  | 2.68 A                                |
| Rated output power [W]    | 150 W                                 |
| Power dissipation Mode    | Natural heat dissipation without fans |
| Hot swapping              | Supported                             |

# 7 Fan Modules

## NOTE

If one fan module (including the built-in fan module) of a switch is faulty, the other fan modules run at full speed to ensure proper heat dissipation and normal operation of the system.

Fan modules are delivered with the switch by default.

### [7.1 FAN-031A-B \(Fan Box \(B, Fan Panel Side Exhaust\)\)](#)

## 7.1 FAN-031A-B (Fan Box (B, Fan Panel Side Exhaust))

### Overview

**Table 7-1** Basic information about the FAN-031A-B

| Item        | Details                             |
|-------------|-------------------------------------|
| Description | Fan Box (B, Fan Panel Side Exhaust) |
| Part Number | 02352CAB                            |
| Model       | FAN-031A-B                          |

## Appearance

Figure 7-1 Appearance of the FAN-031A-B



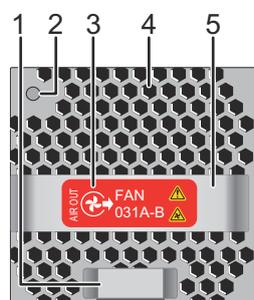
## Version Mapping

Table 7-2 Mappings between FAN-031A-B and product models

| Product | Product Model                  | First Supported Version |
|---------|--------------------------------|-------------------------|
| S620    | S620-16X8YZ<br>(98012580)      | V600R024C10             |
| S620    | S620-24T16X8Y2CZ<br>(98012536) | V600R024C00             |

## Panel

Figure 7-2 Panel of the FAN-031A-B



|         |              |                           |  |           |
|---------|--------------|---------------------------|--|-----------|
| 1. Lock | 2. Indicator | 3. Airflow flag (air out) | 4. Fan air vent<br><b>NOTE</b><br>The diameter of the fan vent can be 3 mm or 5 mm. The diameter of the fan vent varies according to the delivery batch. | 5. Handle |
|---------|--------------|---------------------------|--|-----------|

**Table 7-3** Indicators on the FAN-031A-B

| Silkscreen | Name                 | Color | Status        | Description   |
|------------|----------------------|-------|---------------|---|
| -          | Fan status indicator | -     | Off           | The fan module is not running.  |
|            |                      | Green | Steady on     | The fan module is starting.   |
|            |                      | Green | Slow blinking | The fan module is working properly.   |
|            |                      | Red   | Steady on     | The fan module has a hardware fault and must be replaced. Common causes include short circuits, fan blades blocked, and faults of the fan module. |

## Functions and Features

**Table 7-4** Functions and features of the FAN-031A-B

| Functions and Features | Description  |
|------------------------|--|
| Basic function         | The fan module has only one fan to cool the chassis. |
| Hot swapping           | Supported  |

## Technical Specifications

**Table 7-5** Technical specifications of the FAN-031A-B

| Item   | Specification   |
|--|---|
| Dimensions without packaging (H x W x D) [mm(in.)] | 40 mm x 40 mm x 100.3 mm (1.57 in. x 1.57 in. x 3.95 in.) |
| Weight without packaging [kg(lb)]                  | 0.1 kg (0.22 lb)  |
| Number of fans                                     | 1   |
| Maximum power consumption [W]                      | 21.6 W  |
| Maximum heat dissipation [BTU/hour]                | 73.7 BTU/hour   |
| Maximum fan speed [RPM]                            | 24500 ± 10 %  |
| Maximum airflow [CFM]                              | 31 CFM  |
| Airflow direction                                  | Air exhausted from the panel side of the fan tray         |

# 8 Cards

8.1 HSIC-X08S000 (HSIC-X08S000 (Interface card with 8\*10GE SFP+ ports or 4\*25GE SFP28 ports (only ports 1 to 4 support 25GE)))

## 8.1 HSIC-X08S000 (HSIC-X08S000 (Interface card with 8\*10GE SFP+ ports or 4\*25GE SFP28 ports (only ports 1 to 4 support 25GE)))

### Overview

**Table 8-1** Basic information about the HSIC-X08S000

| Item        | Details   |
|-------------|---|
| Description | HSIC-X08S000 (Interface card with 8*10GE SFP+ ports or 4*25GE SFP28 ports (only ports 1 to 4 support 25GE)) |
| Part Number | 02314VYH  |
| Model       | HSIC-X08S000  |
| Card Type   | Flexible card   |

## Appearance

Figure 8-1 Appearance of the HSIC-X08S000



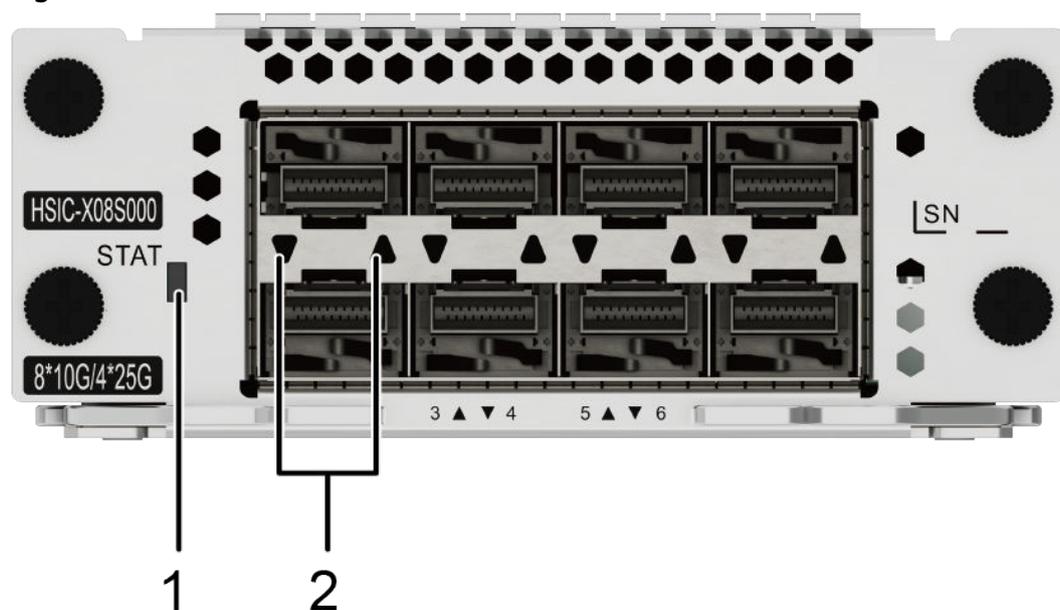
## Version Mapping

Table 8-2 Mappings between HSIC-X08S000 and product models

| Product | Product Model                   | First Supported Version | Limitations |
|---------|---------------------------------|-------------------------|-------------|
| S620    | S620-16X8YZ<br>(98012580)       | V600R024C10             | -           |
| S620    | S620-24T16X8Y2C<br>Z (98012536) | V600R024C00             | -           |

## Indicators

Figure 8-2 Indicators on the HSIC-X08S000



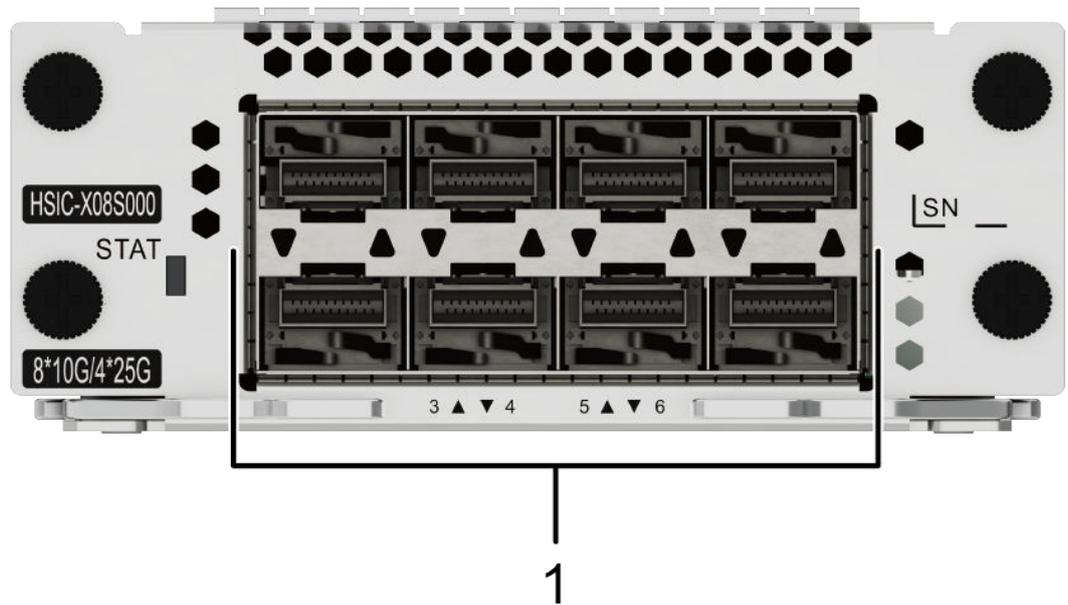
|                                   |                                 |
|-----------------------------------|---------------------------------|
| 1. STAT: running status indicator | 2. LINK/ACT indicators of ports |
|-----------------------------------|---------------------------------|

**Table 8-3** Indicators on the HSIC-X08S000

| Silkscreen | Name                   | Color | Status        | Description   |
|------------|------------------------|-------|---------------|---|
| STAT       | Card status indicator  | Green | Off           | The system software is not running.   |
|            |                        | Green | Fast blinking | The system is starting.   |
|            |                        | Green | Slow blinking | The system is running properly.   |
|            |                        | Red   | Steady on     | A fault that affects services has occurred. The fault cannot be rectified automatically and requires manual intervention. |
| -          | Service port indicator | Green | Steady on     | A link is established on the port.  |
|            |                        | Green | Blinking      | The port is sending or receiving data.  |
|            |                        | Green | Off           | No link is established on the port.   |

## Ports

**Figure 8-3** Ports on the HSIC-X08S000



1. Eight 10GE SFP+ or four 25GE SFP28 optical ports

**Table 8-4** Ports on the HSIC-X08S000

| Port                   | Connector Type | Description   | Available Components  |
|------------------------|----------------|---|---|
| 10GE SFP+ optical port | SFP+           | <p>The 10GE SFP+ optical port supports GE/10GE. When a GE optical module or copper module is connected to a 10GE SFP+ optical port, the port can automatically adjust its rate to 1 Gbit/s.</p> <p>You can run the port combination-mode card command to change the port mode. After this command is configured, the first four ports are 10GE/25GE SFP28 optical ports, and the last four ports become unavailable. When a 10GE optical module, copper module or cable is connected to a 25GE SFP28 optical port, the port can automatically adjust its rate to 10 Gbit/s.</p> | <ul style="list-style-type: none"> <li>• <b>GE eSFP optical modules</b></li> <li>• <b>GE-CWDM eSFP optical modules</b></li> <li>• <b>GE-DWDM eSFP optical modules</b></li> <li>• <b>GE SFP copper module</b></li> <li>• <b>10GE SFP+ optical modules</b></li> <li>• <b>10GE-CWDM SFP+ optical modules</b></li> <li>• <b>10GE-DWDM SFP+ optical modules</b></li> <li>• <b>10GE SFP+ copper module</b></li> <li>• <b>1 m, 3 m, 5 m, and 10 m SFP+ high-speed copper cables</b></li> <li>• <b>10 m SFP+ AOC cables</b></li> <li>• <b>0.5 m and 1.5 m SFP+ dedicated stack cables (only for zero-configuration stacking)</b></li> <li>• <b>25GE SFP28 optical modules</b></li> <li>• <b>1 m, 3 m, and 5 m SFP28 high-speed copper cables</b></li> <li>• <b>3 m, 5 m, 7 m, and 10 m</b></li> </ul> |

| Port | Connector Type | Description | Available Components |
|------|----------------|-------------|----------------------|
|      |                |             | SFP28 AOC cables     |

## Functions and Features

**Table 8-5** Functions and features of the HSIC-X08S000

| Functions and Features | Description   |
|------------------------|---|
| Basic function         | Provides eight GE/10GE SFP+ or four 10GE/25GE SFP28 optical ports for data access and switching. You can run the port combination-mode card command to change the port mode. After this command is configured, the first 4 ports are 10GE/25GE ports and the last 4 ports become unavailable. |
| Hot swapping           | Supported   |

## Technical Specifications

**Table 8-6** Technical specifications of the HSIC-X08S000

| Item   | Specification  |
|--|--|
| Dimensions without packaging (H x W x D) [mm(in.)] | 39.1 mm x 100.1 mm x 220 mm (1.54 in. x 3.94 in. x 8.66 in.) |
| Dimensions with packaging (H x W x D) [mm(in.)]    | 80 mm x 160 mm x 305 mm (3.15 in. x 6.30 in. x 12.01 in.)    |
| Weight without packaging [kg(lb)]                  | 0.44 kg (0.97 lb)  |
| Maximum power consumption [W]                      | 38.5 W   |
| Maximum heat dissipation [BTU/hour]                | 131.37 BTU/hour  |

# 9 Cables

---

- [9.1 Ground Cable](#)
- [9.2 Optical Fiber](#)
- [9.3 Ethernet Cable](#)
- [9.4 AC Power Cable](#)
- [9.5 Console Cable](#)
- [9.6 Dedicated Stack Cable](#)
- [9.7 Copper Cable](#)

## 9.1 Ground Cable

### Appearance and Structure

**Figure 9-1** shows the appearance of a typical ground cable.

 **NOTE**

Other types of ground cables are similar to the example shown in the figure, except for their cross-sectional area, size of the cable lugs, and cable length.

**Figure 9-1** Appearance of a ground cable



Figure 9-2 shows the structure of a ground cable.

Figure 9-2 Structure of a ground cable



## Pin Assignments

Table 9-1 lists the pin assignments of a ground cable.

Table 9-1 Pin assignments of a ground cable

| X1   | X2   | Wire Color   | Conductor Cross-Sectional Area | Length |
|------|------|--------------|--------------------------------|--------|
| OT-4 | OT-6 | Green-yellow | 4 mm <sup>2</sup>              | 0.4 m  |

## Connection

A ground cable grounds a device to protect it from lightning and electromagnetic interference. A ground cable is connected to a chassis in the following way:

- The OT-4 naked crimping connector connects to the ground point on the chassis.
- The OT-6 naked crimping connector connects to the ground point on the cabinet.

## 9.2 Optical Fiber

### AOC

An active optical cable (AOC) is a fixed-length optical fiber with optical modules at both ends. It can be directly connected to an optical port on a device. In short-distance connection scenarios, AOCs can replace optical modules and optical fibers.

**Figure 9-3** SFP+ to SFP+ or SFP28 to SFP28 AOC



**Figure 9-4** QSFP+ to QSFP+ or QSFP28 to QSFP28 AOC



**Figure 9-5** QSFP+ to 4\*SFP+ AOC



**Table 9-2** lists the models and attributes of AOCs.

**Table 9-2** Attributes of AOCs

| Model         | Length | Bend Radius | Connector Type | Part Number | Operating Temperature |
|---------------|--------|-------------|----------------|-------------|-----------------------|
| SFP-10G-AOC3M | 3 m    | 30 mm       | SFP+ to SFP+   | 02310QWG    | 0°C to 70°C           |

| Model              | Length | Bend Radius | Connector Type   | Part Number | Operating Temperature |
|--------------------|--------|-------------|------------------|-------------|-----------------------|
| SFP-10G-AOC10M     | 10 m   | 30 mm       | SFP+ to SFP+     | 02310QWH    | 0°C to 70°C           |
| SFP-25G-AOC-3M     | 3 m    | 30 mm       | SFP28 to SFP28   | 02311MPE    | 0°C to 70°C           |
| SFP-25G-AOC-5M     | 5 m    | 30 mm       | SFP28 to SFP28   | 02311MPD    | 0°C to 70°C           |
| SFP-25G-AOC-7M     | 7 m    | 30 mm       | SFP28 to SFP28   | 02311MPC    | 0°C to 70°C           |
| SFP-25G-AOC-10M    | 10 m   | 30 mm       | SFP28 to SFP28   | 02311KNT    | 0°C to 70°C           |
| SFP-25G-AOC-3M-A   | 3 m    | 30 mm       | SFP28 to SFP28   | 02314QWG    | 0°C to 70°C           |
| SFP-25G-AOC-5M-A   | 5 m    | 30 mm       | SFP28 to SFP28   | 02311YJH    | 0°C to 70°C           |
| SFP-25G-AOC-7M-A   | 7 m    | 30 mm       | SFP28 to SFP28   | 02311YJK    | 0°C to 70°C           |
| SFP-25G-AOC-10M-A  | 10 m   | 30 mm       | SFP28 to SFP28   | 02311YJM    | 0°C to 70°C           |
| QSFP-H40G-AOC10M   | 10 m   | 25 mm       | QSFP+ to QSFP+   | 02310SSH    | 0°C to 70°C           |
| QSFP-4SFP10-AOC10M | 10 m   | 25 mm       | QSFP+ to 4*SFP+  | 02310SSJ    | 0°C to 70°C           |
| QSFP-100G-AOC-10M  | 10 m   | 25 mm       | QSFP28 to QSFP28 | 02311KNQ    | 0°C to 70°C           |

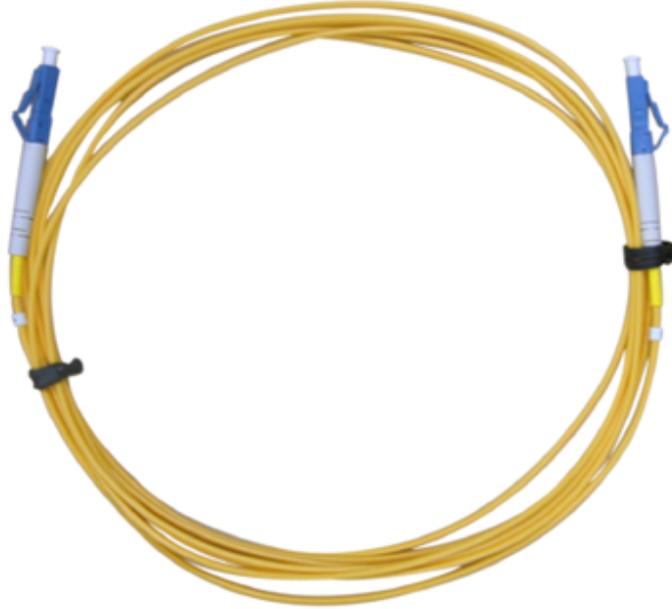
## Fiber Jumper

A fiber jumper consists of one or more optical fibers of a certain length and the optical connectors at both ends. A fiber jumper connects an optical module to a fiber terminal box.

### NOTE

- The MPO-MPO and MPO-2\*MPO fibers have similar appearances except for the number of MPO connectors at the other end (1 and 2, respectively). The following figures show an MPO-MPO fiber for example.
- The MPO-4\*DLC and MPO-10\*DLC fibers have similar appearances except for the number of DLC connectors at the other end (4 pairs and 10 pairs, respectively).
- The MPO-MPO fibers for S series devices use type B connectors (key Up/key Up).

**Figure 9-6** Single-mode LC/PC fiber jumper



**Figure 9-7** Multimode LC/PC fiber jumper



**Figure 9-8** Single-mode SC/PC fiber jumper



**Figure 9-9** MPO-MPO fiber jumper



**Figure 9-10** MPO-4\*DLC fiber jumper



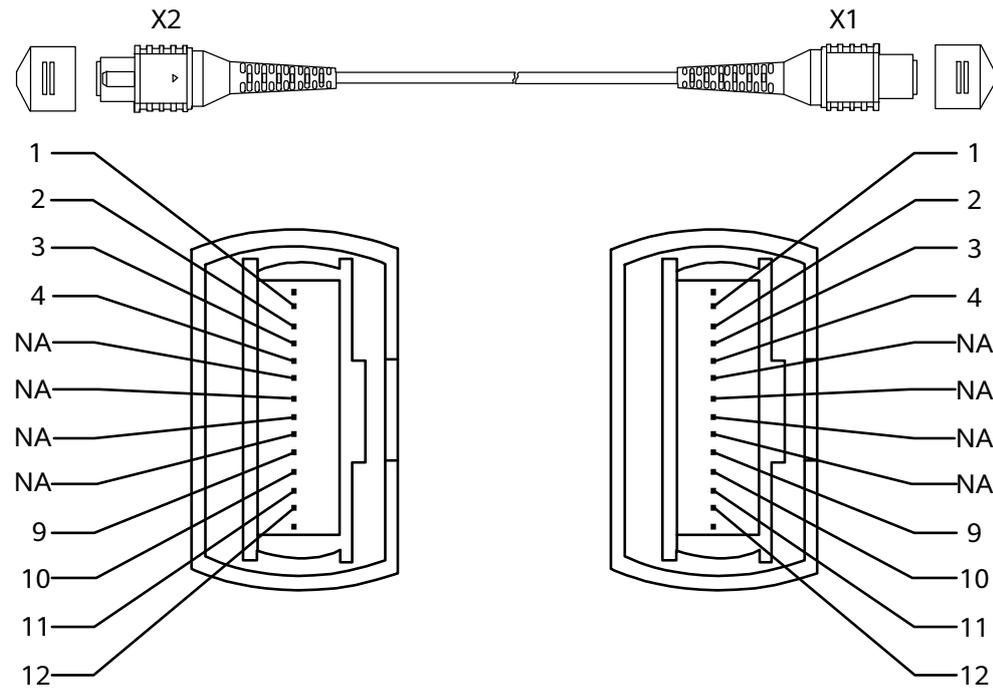
Comply with the following rules when selecting fiber jumpers:

1. Determine the length of fiber jumpers based on the onsite cabling distance.

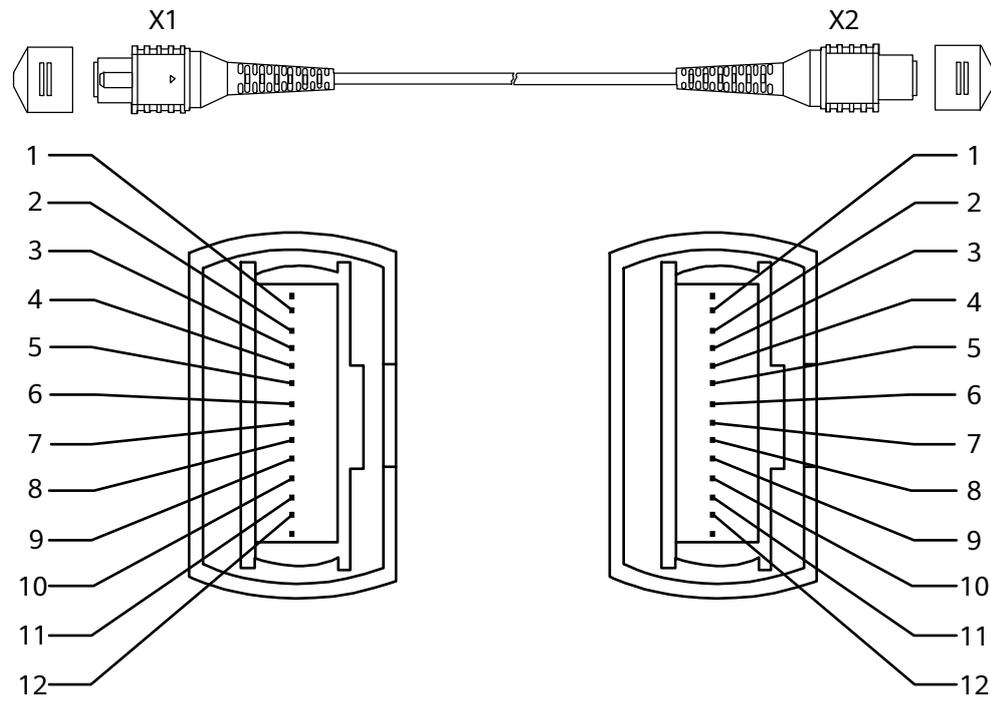
2. Determine the fiber type based on the optical module type.
  - Use a multimode fiber jumper for a multimode optical module.
  - Use a single-mode fiber jumper for a single-mode optical module.
3. Determine the optical connector type based on the interface type.

Ensure that the optical connector at each end of a fiber jumper is the same type as the interface to which it will be connected.

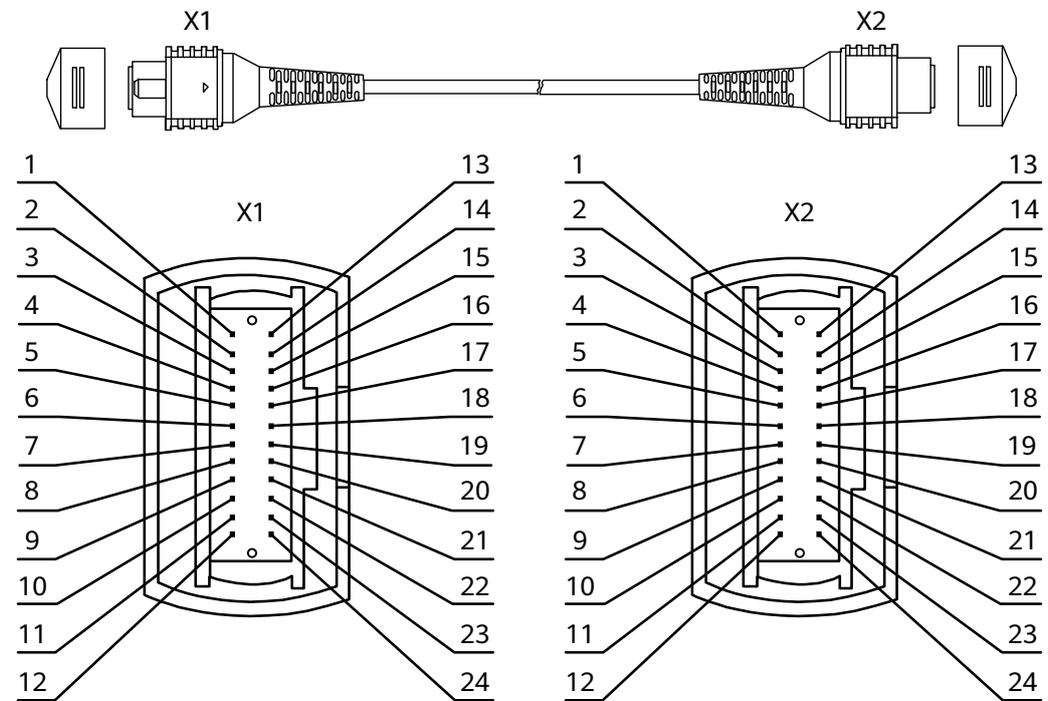
**Figure 9-11** Structure of an 8-strand MPO-MPO fiber jumper



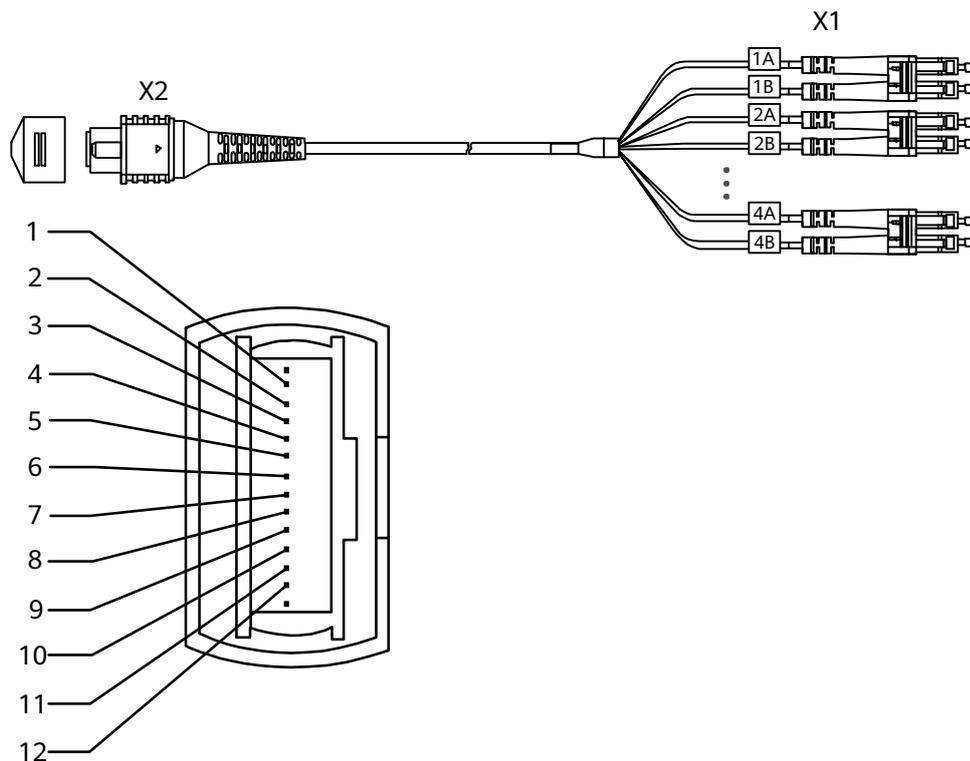
**Figure 9-12** Structure of a 12-strand MPO-MPO fiber jumper



**Figure 9-13** Structure of a 24-strand MPO-MPO fiber jumper



**Figure 9-14** Structure of an MPO-4\*DLC fiber jumper



**Table 9-3** Pin assignments of an 8-strand MPO-MPO fiber jumper

| X1 Pin | X2 Pin |
|--------|--------|
| 1      | 12     |
| 2      | 11     |
| 3      | 10     |
| 4      | 9      |
| NA     | NA     |
| 9      | 4      |
| 10     | 3      |
| 11     | 2      |
| 12     | 1      |

**Table 9-4** Pin assignments of a 12-strand MPO-MPO fiber jumper

| X1 Pin | X2 Pin |
|--------|--------|
| 1      | 12     |
| 2      | 11     |
| 3      | 10     |
| 4      | 9      |
| 5      | 8      |
| 6      | 7      |
| 7      | 6      |
| 8      | 5      |
| 9      | 4      |
| 10     | 3      |
| 11     | 2      |
| 12     | 1      |

**Table 9-5** Pin assignments of a 24-strand MPO-MPO fiber jumper

| X1 Pin | X2 Pin | X1 Pin | X2 Pin |
|--------|--------|--------|--------|
| 1      | 24     | 13     | 12     |
| 2      | 23     | 14     | 11     |
| 3      | 22     | 15     | 10     |
| 4      | 21     | 16     | 9      |
| 5      | 20     | 17     | 8      |
| 6      | 19     | 18     | 7      |
| 7      | 18     | 19     | 6      |
| 8      | 17     | 20     | 5      |
| 9      | 16     | 21     | 4      |
| 10     | 15     | 22     | 3      |
| 11     | 14     | 23     | 2      |
| 12     | 13     | 24     | 1      |

**Table 9-6** Pin assignments of an MPO-4\*DLC fiber jumper

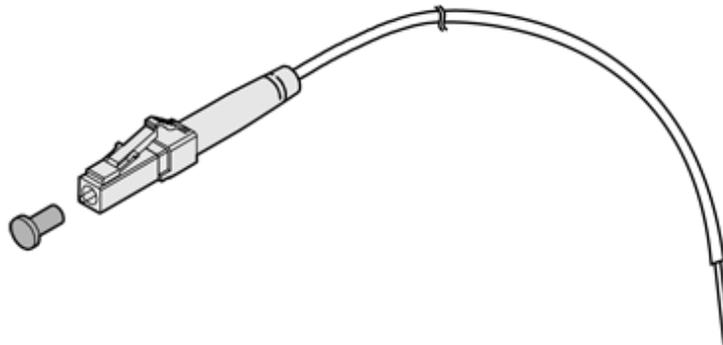
| X2 Pin | X1 Pin |
|--------|--------|
| 1      | 1A     |
| 2      | 2A     |
| 3      | 3A     |
| 4      | 4A     |
| 9      | 4B     |
| 10     | 3B     |
| 11     | 2B     |
| 12     | 1B     |

## Fiber Pigtail

A fiber pigtail is an optical fiber that has an optical connector at one end and a piece of exposed fiber at the other end. The exposed fiber can be fused to another optical fiber. Fiber pigtails are commonly used to connect optical fibers to optical modules in fiber terminal boxes (optical couplers and jumpers are also used).

**Figure 9-15** shows the structure of a fiber pigtail.

**Figure 9-15** Structure of a fiber pigtail



Fiber pigtails are classified into single-mode and multimode fiber pigtails and are used for short-distance connections.

## Optical Fiber, Optical Connector, and Fiber Adapter

### Optical Fiber

Optical fibers are classified into single-mode fibers and multimode fibers.

- Single-mode fibers have a diameter of 5-10  $\mu\text{m}$  and transmit laser in one mode under a specified wavelength. These fibers support a wide frequency band and a large transmission capacity, so they are used for long-distance transmission. Most single-mode fibers are yellow, as shown in **Figure 9-6**.

- Multimode fibers have a diameter of 50  $\mu\text{m}$  or 62.5  $\mu\text{m}$  and transmit laser light in multiple modes under a specified wavelength. These fibers have a lower transmission capacity than single-mode fibers and are used for short-distance transmission. Modal dispersion occurs during transmission over multimode fibers.

In the latest cabling infrastructure of ISO/IEC 11801, multimode fibers are classified into four categories: OM1, OM2, OM3, and OM4.

- OM1: traditional 62.5/125  $\mu\text{m}$  multimode fibers. OM1 fibers have a large core diameter and numerical aperture, and provide high light gathering ability and bending resistance.
- OM2: traditional 50/125  $\mu\text{m}$  multimode fibers. OM2 fibers have a small core diameter and numerical aperture. Compared with OM1 fibers, OM2 fibers provide higher bandwidth because they significantly reduce the modal dispersion. When transmitting data at 1 Gbit/s with 850 nm wavelength, OM1 and OM2 fibers support maximum link lengths of 220 m and 550 m, respectively. OM1 and OM2 fibers can provide sufficient bandwidth within a distance of 300 m. Generally, OM1 and OM2 fibers are orange, as shown in [Figure 9-7](#).
- OM3: new-generation multimode fibers, with longer transmission distances than OM1 and OM2 fibers.
- OM4: laser optimized multimode fibers with 50  $\mu\text{m}$  core diameter. OM4 is an improvement to OM3 and only increases the modal bandwidth. OM4 fibers provide 4700 MHz\*km of modal bandwidth, whereas OM3 fibers provide only 2000 MHz\*km of modal bandwidth. Generally, OM3 and OM4 fibers are light green. You can identify OM3 and OM4 fibers by their labels or printed marks.

MPO fibers are used for 40G and 100G optical modules. An MPO fiber consists of multiple multi-mode fiber strands, and each multi-mode fiber strand provides one laser transmission channel. Some fiber suppliers produce 8-strand MPO optical fibers, while some suppliers produce 12-strand or 24-strand MPO fibers.

- A 40G optical module uses four channels to transmit laser and four channels to receive laser. That is, a total of eight channels are required for a 40G optical module. 8-strand and 12-strand MPO fibers use the same definition of fiber channels. Therefore, they are equivalent in functionality when connecting to 40G optical modules.
- When 100G optical modules are used, choose MPO fibers according to the following rules:
  - For CFP optical modules, choose 24-strand fibers for the CFP-100G-SR10 module and 8-strand or 12-strand fibers for other modules.
  - Choose 8-strand or 12-strand fibers for QSFP28 modules.

### Optical Connector

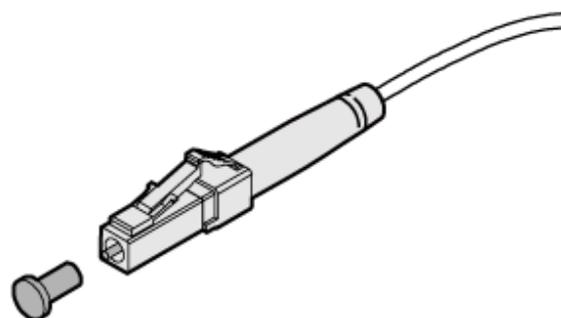
Optical connectors are used to connect optical fibers of the same type. [Table 9-7](#) lists common optical connectors.

**Table 9-7** Common optical connectors

| Connect or Type  | Optical Connector  |  |   |  |
|------------------|--|--|---|--|
| Square connector | SC/PC connector<br> | LC/PC connector<br> | MTRJ/PC connector<br> | MPO connector<br> |
| Round connector  | FC/PC connector<br> | ST/PC connector<br> | -   | -  |

**Figure 9-16** shows an LC/PC optical connector.

**Figure 9-16** LC/PC optical connector



**NOTICE**

When connecting or removing an LC/PC optical connector, align the connector with the optical port and do not rotate the fiber. Pay attention to the following points:

- To connect a fiber, align the optical connector with the optical port and gently insert the optical fiber into the port.
- To remove a fiber, press the clip on the connector and pull the fiber out.

**Fiber Adapter**

A fiber adapter (also called a flange) is a fiber connection component. Two fiber connectors need to be connected using a fiber adapter. Fiber adapters are widely used in optical distribution frames (ODFs), fiber transmission equipment, and optical instruments.

## 9.3 Ethernet Cable

### Introduction

An Ethernet cable connects a maintenance terminal to the console port on the device for local or remote maintenance.

According to the frequency and signal-to-noise ratio (SNR), common network cables include Category 5 cable (Cat 5), Category 5 enhanced (Cat 5e), and Category 6 cable (Cat 6). These are twisted pair cables that use RJ45 connectors, with a maximum transmission distance of 100 m. Network cables also include Category 1 cable (Cat 1), Category 2 cable (Cat 2), Category 3 cable (Cat 3), Category 4 cable (Cat 4), Category 6a (Cat 6a), and Category 7 cable (Cat 7). Generally, a higher number indicates a later version, more advanced technology, and higher bandwidth and cost.

Depending on whether the shield layer is available, network cables can be classified into shielded twisted pair (STP) and unshielded twisted pair (UTP). STP cables can reduce radiation and prevent information from being intercepted and external electromagnetic interference from entering. Compared with the same type of UTP cables, STP cables boast higher transmission rate, but they are more expensive and more difficult to install. UTP cables feature low cost, light weight, and are easy to bend. They rarely cause great impact on common networks. Therefore, UTP cables are more widely used. However, to implement a full-duplex transmission rate of up to 10 Gbit/s, only Category 7 STP-7 can be used.

**Table 9-8** describes the basic parameters of several network cables.

**Table 9-8** Basic parameters of network cables

| Network Cable Type | Usage Scenario                  | Transmissi on Frequency | Maximum Transmission Rate | Transmission Distance |
|--------------------|---------------------------------|-------------------------|---------------------------|-----------------------|
| Cat 5              | 100Base-T and 10Base-T networks | 1 MHz to 100 MHz        | 100 Mbit/s                | 100 m                 |
| Cat 5e             | 1000Base-T networks             | 1 MHz to 100 MHz        | 1000 Mbit/s               | 100 m                 |
| Cat 6              | 1000Base-T networks             | 1 MHz to 250 MHz        | 1000 Mbit/s               | 100 m                 |
| Cat 6a             | 10GBase-T networks              | 1 MHz to 500 MHz        | 10 Gbit/s                 | 100 m                 |
| Cat 7              | 10GBase-T networks              | 1 MHz to 600 MHz        | 10 Gbit/s                 | 100 m                 |

## Types of Ethernet Cables

Ethernet cables are classified into straight-through cables and crossover cables.

- **Straight-through cable:** The twisted pairs in the RJ45 connectors at both ends are crimped in the same sequence. A straight-through cable connects two devices of different types, for example, a PC and a switch.
- **Crossover cable:** The twisted pairs in the RJ45 connectors at two ends are crimped in different sequences. A crossover cable connects two devices or interfaces of the same type, for example, two PCs.

Crossover and straight cables only differ in wire sequences, and function the same when transmitting data.

Huawei S series models support both straight-through and crossover cables and their ports are adaptive to the cable types.

Use shielded Ethernet cables when devices complying with EN 50121-4 are used in environments that meet EN 50121-4 requirements.

## Appearance and Structure

### NOTE

The straight-through cable and the crossover cable have the same appearance and use the RJ45 connector.

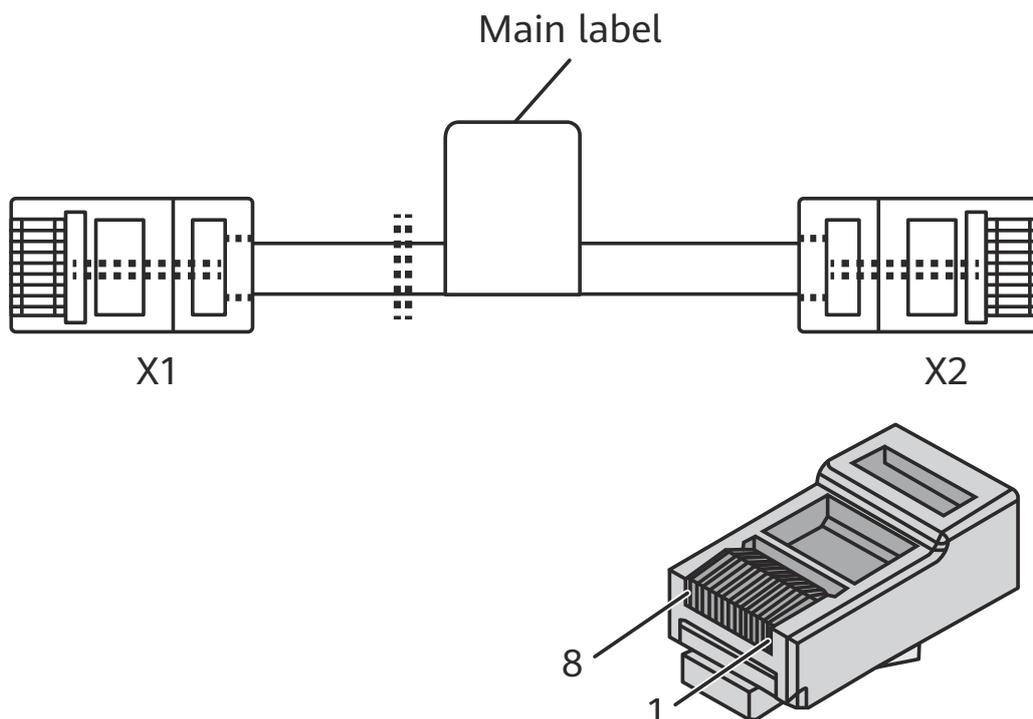
**Figure 9-17** shows the appearance of an Ethernet cable.

**Figure 9-17** Appearance of an Ethernet cable



**Figure 9-18** shows the structure of an Ethernet cable.

**Figure 9-18** Structure of an Ethernet cable



## Pin Assignments

**Table 9-9** lists pin assignments of a straight-through cable.

**Table 9-9** Pin assignments of a straight-through cable

| Connector X1 | Connector X2 | Color        | Relationship |
|--------------|--------------|--------------|--------------|
| X1.2         | X2.2         | Orange       | Twisted pair |
| X1.1         | X2.1         | White/Orange |              |
| X1.6         | X2.6         | Green        | Twisted pair |
| X1.3         | X2.3         | White/Green  |              |
| X1.4         | X2.4         | Blue         | Twisted pair |
| X1.5         | X2.5         | White/Blue   |              |
| X1.8         | X2.8         | Brown        | Twisted pair |
| X1.7         | X2.7         | White/Brown  |              |

**Table 9-10** lists pin assignments of a crossover cable.

**Table 9-10** Pin assignments of a crossover cable

| Connector X1 | Connector X2 | Color        | Relationship |
|--------------|--------------|--------------|--------------|
| X1.6         | X2.2         | Orange       | Twisted pair |
| X1.3         | X2.1         | White/Orange |              |
| X1.2         | X2.6         | Green        | Twisted pair |
| X1.1         | X2.3         | White/Green  |              |
| X1.4         | X2.4         | Blue         | Twisted pair |
| X1.5         | X2.5         | White/Blue   |              |
| X1.8         | X2.8         | Brown        | Twisted pair |
| X1.7         | X2.7         | White/Brown  |              |

**NOTE**

To achieve the best electrical transmission performance, ensure that the wires connected to pins 1 and 2 and to pins 3 and 6 are twisted pairs.

## 9.4 AC Power Cable

### Appearance and Structure

**Figure 9-19** C13 straight female to PI straight male AC power cable (used in China)



**Figure 9-20** C13 straight female to C14 straight male AC power cable (China)



**Figure 9-21** Appearance of a power adapter (black)



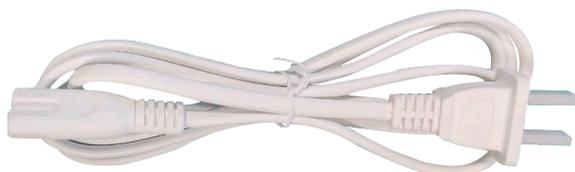
**Figure 9-22** C7 straight female to PG curving male AC power cable (used in Britain)



**Figure 9-23** Appearance of a power adapter (white)



**Figure 9-24** C7 straight female to PA straight male AC power cable (used in China)



**NOTE**

The AC power cables used in different countries and regions have different connector types. [Figure 9-19](#) , [Figure 9-24](#) and [Figure 9-22](#) use Chinese and Britain AC power cables as examples. The power cable and plug delivered with the chassis can only be used on this chassis, and cannot be used on other devices.

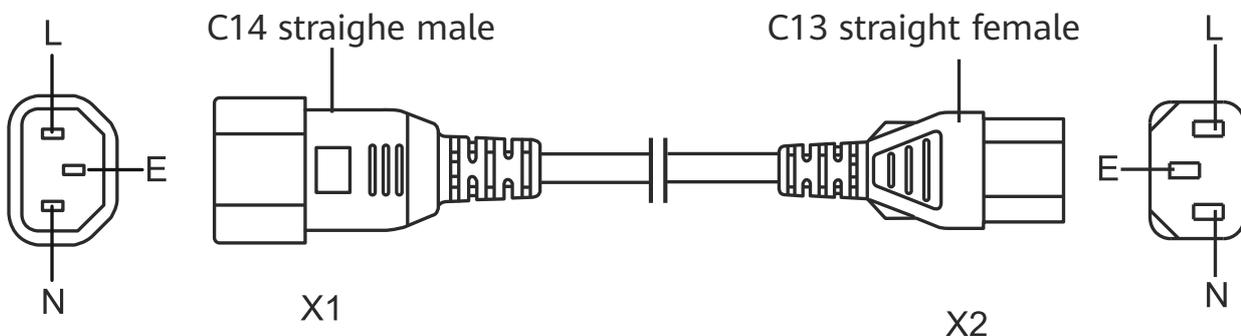
The color and appearance of the power adapter vary according to the model. The preceding figures are only examples. The color and appearance of the power adapter are subject to the actual delivery.

## Types of AC Power Cables

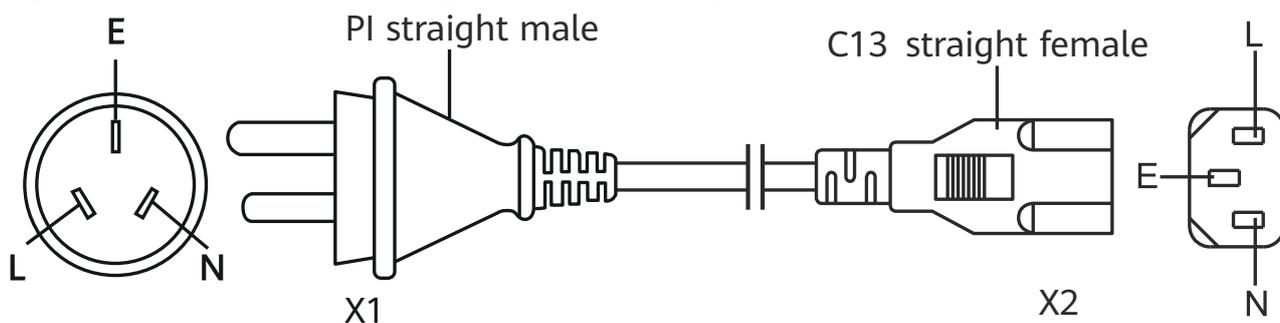
Select power cables based on the power supply system in your equipment room. When the device uses 240 V high-voltage DC input or 110 V/220 V AC input, use the C13 straight-female AC power cable. Standard and country-specific AC power cables can be directly connected to power modules.

- Standard power cables: used to transmit power from a PDU. **Figure 9-25** shows the structure of a C14 straight male to C13 straight female AC power cable.
- Country-specific power cables: used to transmit power from a country-specific power strip. The cables are delivered in compliance with standards of the destination country or region. For example, PI straight male to C13 straight female AC power cable (**Figure 9-26**) is used in China.
- The AC power cables connected to a power distribution box must have cord end terminals. **Figure 9-27** shows the structure of a cord end to C13 straight female AC power cable.

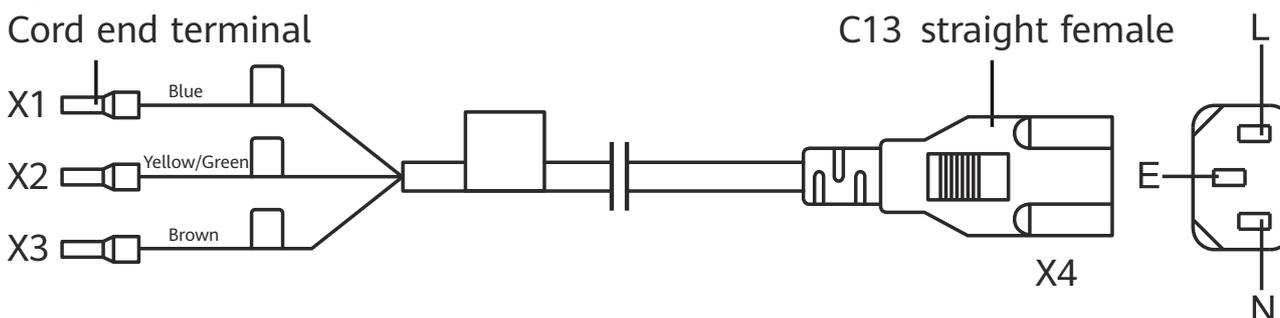
**Figure 9-25** Structure of a C14 straight male to C13 straight female AC power cable



**Figure 9-26** Structure of a PI straight male to C13 straight female AC power cable (used in China)



**Figure 9-27** Structure of a Cord end to C13 straight female AC power cable (used in China)



## Connection

**Table 9-11** shows connections of various AC power cables.

**Table 9-11** Connections of AC power cables

| Power Cable Type   | Connector Type and Connection  |  |
|--|--|--|
| C14 straight male to C13 straight female AC power cable                | C14 straight male connector: connected to a PDU  | C13 straight female connector: connected to the AC power socket on the switch.<br>The current rating of the power cable is 10 A. |
| PI straight male to C13 straight female AC power cable (used in China) | PI straight male connector: connected to a country-specific power strip  |  |
| Cord end to C13 straight female AC power cable (used in China)         | Cord end terminal: connected to a power distribution box or power distribution frame.<br>Connect the brown wire to the L terminal, blue wire to the N terminal, and the yellow/green wire to the ground terminal.<br>Different AC power cables may be delivered in compliance with local regulations or customer requirements. |  |

| Power Cable Type                                      | Connector Type and Connection   |   |
|---|---|---|
| C7 straight female to country-specific AC power cable | Country-specific connector: connected to a country-specific power strip | C7 straight female connector: connected to the power input port on the power adapter. |

## 9.5 Console Cable

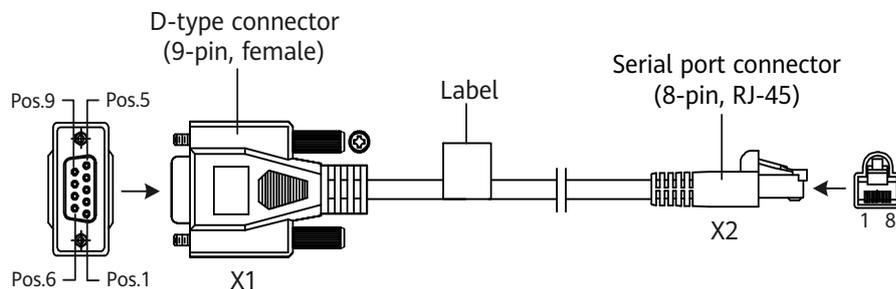
### Appearance and Structure

[Figure 9-28](#) and [Figure 9-29](#) show the appearance and structure of a console cable.

**Figure 9-28** Appearance of a console cable



**Figure 9-29** Structure of a console cable



### Pin Assignments

[Table 9-12](#) lists the pin assignments of console cable connectors.

**Table 9-12** Pin assignments of console cable connectors

| Connector      | X1 (DB9) | X2 (RJ45) |
|----------------|----------|-----------|
| Pin assignment | 2        | 3         |
|                | 3        | 6         |
|                | 5        | 5         |

## Connection

A console cable connects the console port of the device to the serial port of an operation terminal to transmit configuration data. A shielded cable or an unshielded cable can be used according to the onsite situation.

A console cable connects the device and terminal as follows:

- The 8-pin RJ45 connector is inserted into the console port of the device.
- The DB9 connector is inserted into the terminal serial port.

## 9.6 Dedicated Stack Cable

### Types of Dedicated Stack Cables

Dedicated stack cables are also copper cables, which are used for device stacking. Stacking using stack cables removes the need of configurations.

**Table 9-13** lists the applicable dedicated stack cables.

**Table 9-13** Dedicated stack cables

| Model           | Length | Electrical Attribute | Bend Radius | Connector Type   | Part Number |
|-----------------|--------|----------------------|-------------|------------------|-------------|
| SFP+STACK-CU0M5 | 0.5 m  | Passive              | 25 mm       | SFP+ to SFP+     | 02311VGK    |
| SFP+STACK-CU1M5 | 1.5 m  | Passive              | 25 mm       | SFP+ to SFP+     | 02311VGN    |
| QSFP-100G-CU2M  | 2 m    | Passive              | 45 mm       | QSFP28 to QSFP28 | 02313HVK    |

## Appearance and Structure

Figure 9-30 Dedicated stack cable appearance

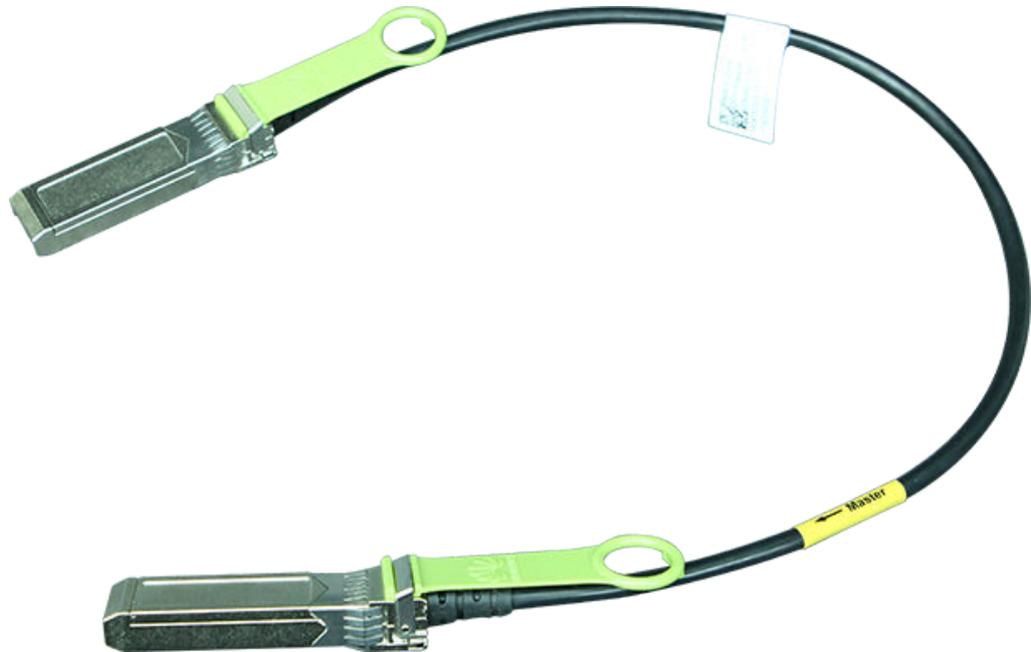
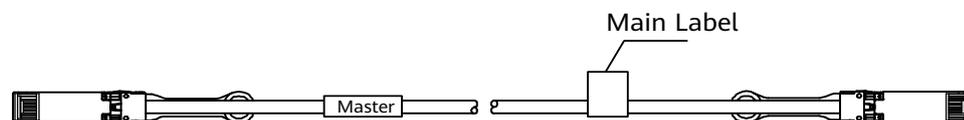


Figure 9-31 shows the structure of a dedicated stack cable.

Figure 9-31 Dedicated stack cable structure



## 9.7 Copper Cable

### Types of Copper Cables

A copper cable, also known as the Direct Attach Copper (DAC) cable, consists of connectors and copper wires and is easy to use. It can directly connect to an optical port on a device. The difference between copper cables and AOC cables is that copper cables use copper wires to transmit signals, whereas AOC cables use optical fibers to transmit signals.

Table 9-14 shows the types of copper cables.

**Table 9-14** Types of copper cables

| Model            | Length | Electrical attribute | Bend Radius | Connector Type   | Part Number |
|------------------|--------|----------------------|-------------|------------------|-------------|
| SFP-10G-CU1M     | 1 m    | Passive              | 25 mm       | SFP+ to SFP+     | 02310MUN    |
| SFP-10G-CU2M     | 2 m    | Passive              | 25 mm       | SFP+ to SFP+     | 02311JFJ    |
| SFP-10G-CU3M     | 3 m    | Passive              | 25 mm       | SFP+ to SFP+     | 02310MUP    |
| SFP-10G-CU5M     | 5 m    | Passive              | 30 mm       | SFP+ to SFP+     | 02310QPR    |
| SFP-10G-AC10M    | 10 m   | Active               | 25 mm       | SFP+ to SFP+     | 02310MUQ    |
| SFP-25G-CU1M     | 1 m    | Passive              | 35 mm       | SFP28 to SFP28   | 02311NKS    |
| SFP-25G-CU3M     | 3 m    | Passive              | 35 mm       | SFP28 to SFP28   | 02311NKV    |
| SFP-25G-CU3M-N   | 3 m    | Passive              | 40 mm       | SFP28 to SFP28   | 02311MNV    |
| QSFP-40G-CU1M    | 1 m    | Passive              | 35 mm       | QSFP+ to QSFP+   | 02310MUG    |
| QSFP-40G-CU3M    | 3 m    | Passive              | 40 mm       | QSFP+ to QSFP+   | 02310MUH    |
| QSFP-40G-CU5M    | 5 m    | Passive              | 45 mm       | QSFP+ to QSFP+   | 02310MUJ    |
| QSFP28-100G-CU1M | 1 m    | Passive              | 70 mm       | QSFP28 to QSFP28 | 02311KNW    |
| QSFP28-100G-CU3M | 3 m    | Passive              | 70 mm       | QSFP28 to QSFP28 | 02311KNX    |

**NOTICE**

The two ends of a copper cable must be covered by electrostatic discharge (ESD) caps.

Copper cables can only be used to connect Huawei S switches of the same subseries. AOC optical cables or optical modules can be used to connect to all Huawei S switches. In versions earlier than V600R023C00, copper cables cannot be used for data transmission on service ports. In V600R023C00 and later versions, copper cables can be used for data transmission or stacking on service ports.

## Appearance and Structure

**Figure 9-32** shows the appearance of an SFP/SFP+/SFP28 copper cable.

**Figure 9-32** Appearance of an SFP/SFP+/SFP28 copper cable



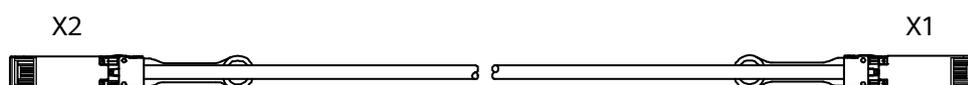
**Figure 9-33** shows the appearance of a QSFP+/QSFP28 copper cable.

**Figure 9-33** Appearance of a QSFP+/QSFP28 copper cable



**Figure 9-34** shows the structure of an SFP/SFP+/SFP28 copper cable.

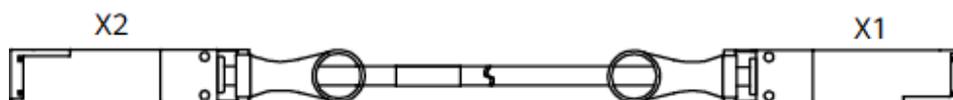
**Figure 9-34** Structure of an SFP/SFP+/SFP28 copper cable



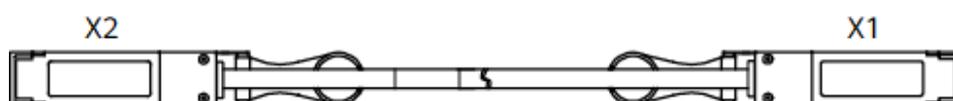
**Figure 9-35** shows the structure of a QSFP+/QSFP28 copper cable.

**Figure 9-35** Structure of a QSFP+/QSFP28 copper cable

Front view:



Rear view:



# 10 Pluggable Modules for Interfaces

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- [10.1 Important Notes About Using Optical Modules Certified for Huawei Switches](#)
- [10.2 Understanding Optical Modules](#)
- [10.3 Understanding Copper Modules](#)
- [10.4 FE SFP/eSFP Optical Modules](#)
- [10.5 GE eSFP Optical Modules](#)
- [10.6 GE-CWDM eSFP Optical Modules](#)
- [10.7 GE-DWDM eSFP Optical Modules](#)
- [10.8 GE SFP Copper Modules](#)
- [10.9 2.5GE eSFP Optical Modules](#)
- [10.10 10GE SFP+ Optical Modules](#)
- [10.11 10GE SFP+ Copper Modules](#)
- [10.12 10GE-CWDM SFP+ Optical Modules](#)
- [10.13 10GE-DWDM SFP+ Optical Modules](#)
- [10.14 25GE SFP28 Optical Modules](#)
- [10.15 40GE QSFP+ Optical Modules](#)
- [10.16 100GE QSFP28 Optical Modules](#)

## 10.1 Important Notes About Using Optical Modules Certified for Huawei Switches

### 10.1.1 How to Identify Huawei-Certified Switch Optical Modules

## NOTICE

- A switch must use optical or copper modules that have been certified for use on Huawei S switches. Non-certified optical or copper modules cannot ensure transmission reliability and may affect service stability. Huawei is not liable for any problem caused by the use of non-certified optical or copper modules and will not fix such problems.
- The methods provided here are only for reference. To confirm whether optical modules you are using have been certified for use on Huawei S switches, contact Huawei technical support.

## 10GE or Lower Speed Optical Modules

Huawei started certification on 10GE or lower speed optical modules for S switch products on July 1, 2013.

To determine whether optical modules delivered for Huawei S switches before July 1, 2013 are certified ones, contact Huawei technical support.

If your optical modules are delivered after July 1, 2013, use either of the following methods to determine whether they have been certified by Huawei.

### Method 1: Check for "HUAWEI" on the label

If an optical module has been certified by Huawei, its label contains "HUAWEI", as shown in [Figure 10-1](#).

**Figure 10-1** "HUAWEI" on the label of a Huawei-certified S switch optical module



### Method 2: Run the command

An optical module has received Huawei S switch certification if it meets the following conditions:

For a device running V600 version:

- In the **display device elabel** command output, the **Manufactured** field displays a date later than 2013-07-01.
- In the **display version** command output, the displayed version is V600R021C00 or later.
- In the **display interface transceiver** command output, the **Vendor Name** field displays **HUAWEI**.

### NOTE

The SFP-FE-SX-MM1310 (part number: 02315233) is a Huawei-certified 100M optical module. However, the **Vendor Name** field displays the original manufacturer name, instead of **HUAWEI**.

For copper modules, the **Vendor Name** field also displays the original manufacturer name, instead of **HUAWEI**.

## 25GE, 40GE, and 100GE Optical Modules

Huawei started certification on 25GE, 40GE, and 100GE optical modules for S switch products on January 1, 2016.

To determine whether optical modules delivered for Huawei S switches before January 1, 2016 are certified ones, contact Huawei technical support.

If your optical modules are delivered after January 1, 2016, use either of the following methods to determine whether they have been certified by Huawei.

### Method 1: Check for "HUAWEI" on the label

If an optical module has been certified by Huawei, its label contains "HUAWEI", as shown in [Figure 10-1](#).

### Method 2: Run the command

A 25GE, 40GE, or 100GE optical module has received Huawei S switch certification if it meets the following conditions:

For a device running V600 version:

- In the **display device elabel** command output, the **Manufactured** field displays a date later than 2016-01-01.
- In the **display version** command output, the displayed version is V600R021C00 or later.
- In the **display interface transceiver** command output, the **Vendor Name** field displays **HUAWEI**.

#### NOTE

For the optical modules connected to high-speed cables or AOC cables, the **Vendor Name** field displays the original manufacturer name, instead of **HUAWEI**. For the methods of checking whether such an optical module has been certified by Huawei, contact Huawei technical support personnel.

## 10.1.2 Risks of Using Non-Huawei-Certified Switch Optical Modules

During certification of optical modules for Huawei switches, Huawei completes comprehensive functionality verification to ensure quality of optical modules. The verified items include optical module plug/unplug, transmit optical power, receive optical power, signal transmission quality, data reading, error tolerance, compatibility, electromagnetic compatibility (EMC), and environmental parameters.

Non-Huawei-certified switch optical modules may cause the following problems:

- Non-standard structure and size cause failures to install optical modules on adjacent optical interfaces.

Structures or sizes of some non-Huawei-certified optical modules do not comply with the Multi-Source Agreement (MSA). When such an optical module is installed on an optical interface, the size of this optical module hinders optical module installation on adjacent optical interfaces.

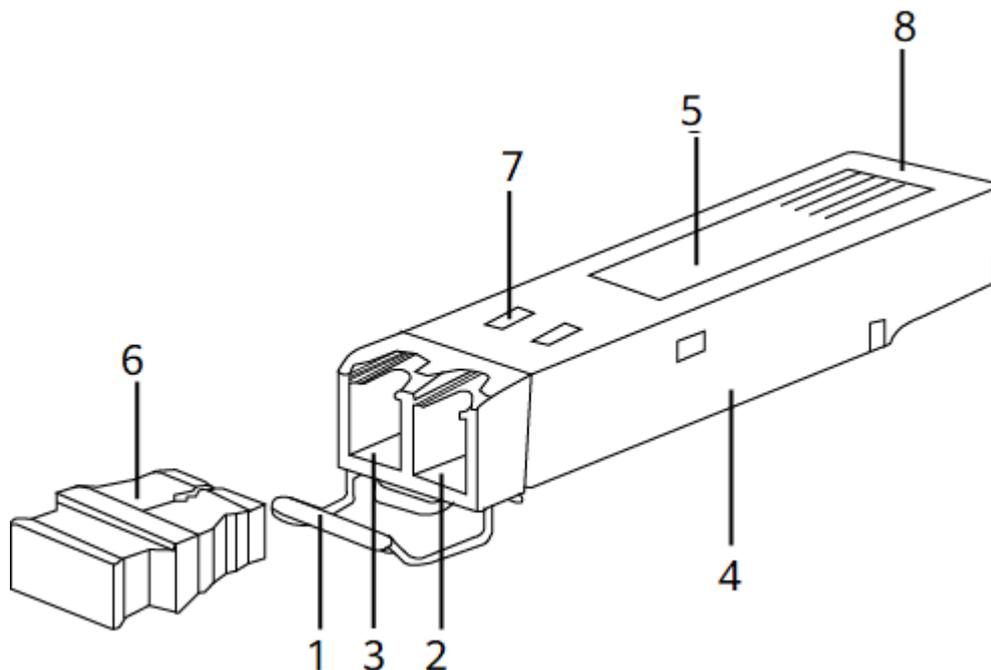
- Data bus defects cause suspension of a switch's data bus.  
Some non-Huawei-certified optical modules have defects in data bus designs. Using such an optical module on a switch causes suspension of the connected data bus on the switch. As a result, data on the suspended bus cannot be read.
- Improper edge connector size damages electronic devices of optical interfaces.  
If a non-Huawei-certified switch optical module with improper edge connector size is used on an optical interface, electronic devices of the optical interface will be damaged by short circuits.
- Unnormalized temperature monitoring causes incorrect alarms.  
The temperature monitoring systems of some non-Huawei-certified switch optical modules do not comply with industry standards and report temperature values higher than the real temperature. When such optical modules are used on a switch, the system will report incorrect temperature alarms.
- Improper register settings cause errors or failures in reading parameters or diagnostic information.  
Some non-Huawei-certified switch optical modules have improper register values on page A0, which can cause errors or failures when the system attempts to read parameters or diagnostic information from a data bus.
- Some non-Huawei-certified switch optical modules are not designed in compliance with EMC standards and have low anti-interference capability. Additionally, they bring electromagnetic interference to nearby devices.
- The operating temperature ranges of non-Huawei-certified switch optical modules cannot meet service requirements. When they are used under relatively high temperature, the optical power decreases, resulting in service interruption.

## 10.2 Understanding Optical Modules

### 10.2.1 What Is an Optical Module

On an optical network, a sender needs to convert electrical signals into optical signals before sending them to a receiver, and the receiver needs to convert received optical signals into electrical signals. An optical module is a component that completes electrical/optical conversion on an optical network. [Figure 10-2](#) shows the structure of an optical module.

**Figure 10-2** Structure of an optical module (using an SFP/eSFP optical module as an example)



|           |              |                |
|-----------|--------------|----------------|
| 1. Handle | 2. Receiver  | 3. Transmitter |
| 4. Shell  | 5. Label     | 6. Dust plug   |
| 7. Spring | 8. Connector | -              |

**Figure 10-3** shows an SFP/eSFP optical module.

Figure 10-3 SFP/eSFP optical module



## 10.2.2 Parameter Description

|                                     |  |
|-------------------------------------|--|
| <b>Transmit optical power</b>       | Output optical power of an optical module when it is working properly. When two optical modules are connected, the transmit optical power of one end must be within the range of receive optical power on the other end.   |
| <b>Receive optical power</b>        | Average input optical power that the receiver of an optical module can receive within a range of bit error rate ( $BER = 10^{-12}$ ). The upper limit of this parameter is the overload optical power and the lower limit is the maximum receiver sensitivity. When two optical modules are connected, the receive optical power on one end determines the range of transmit optical power on the other end. |
| <b>Maximum receiver sensitivity</b> | Minimum average input optical power that the receiver of an optical module can receive within a range of bit error rate ( $BER = 10^{-12}$ ). When two optical modules are connected, the maximum receiver sensitivity on one end determines the minimum value of transmit optical power on the other end.   |
| <b>Overload optical power</b>       | Maximum average input optical power that the receiver of an optical module can receive within a range of bit error rate ( $BER = 10^{-12}$ ). When two optical modules are connected, the overload optical power on one end determines the maximum transmit optical power on the other end.  |

|                              |   |
|------------------------------|---|
| <b>Extinction ratio</b>      | Minimum ratio of the average optical power with signals transmitted against the average optical power without signals transmitted in complete modulation mode. The extinction ratio indicates the capability of an optical module to identify signal 0 and signal 1. This parameter is a quality indicator for optical modules. Optical modules with a large extinction ratio may not have good quality. Qualified optical modules should have an extinction ratio complying with IEEE 802.3.   |
| <b>Fiber mode</b>            | Mode of optical fibers defined based on core diameters and features of optical fibers. Optical fibers are classified into single-mode and multimode fibers. Generally, multimode fibers have large core diameters and severe dispersion, so they transmit optical signals over short distances. Single-mode fibers have low dispersion and can transmit optical signals over long distances.  |
| <b>Modal bandwidth</b>       | Bandwidth measured at a point with transmit power several dB lower than that of the point with the peak center wavelength. Modal bandwidth reflects spectrum characteristics of multimode fibers. The higher modal bandwidth a multimode fiber has, the longer transmission distance the fiber supports.  |
| <b>Fiber diameter</b>        | Diameter of the core of a fiber. According to international standards for optical fibers, the diameter of a multimode fiber is 62.5 $\mu\text{m}$ or 50 $\mu\text{m}$ , and the diameter of a single-mode fiber is 9 $\mu\text{m}$ . Select optical fibers with diameters supported by the optical modules.   |
| <b>Fiber class</b>           | Optical signals with different wavelengths have their best working windows in different optical fibers. To help efficiently adjust wavelengths or dispersion features of optical fibers and change their refractive indexes, the following fiber classes are defined: multimode fiber (G.651), common single-mode fiber (G.652), shifted dispersion fiber (G.653), and non-zero shifted dispersion fiber (G.655). G.651 and G.652 are commonly used fiber classes. Optical fibers of higher classes support longer transmission distances. When selecting optical fibers for optical modules, determine the classes of fibers based on the required transmission distances. |
| <b>Connector type</b>        | Type of the interface on an optical module to accommodate a fiber. Commonly used connector types are LC (applicable to all the SFP, SFP+, and XFP modules), SC, and MPO (applicable to 150 m QSFP+ and CXP modules). Select optical fibers with connectors supported by the optical modules.  |
| <b>Transmission distance</b> | Maximum distance over which optical signals can transmit. Optical signals sent from different types of sources can transmit over different distances due to negative effects of optical fibers, such as dispersion and attenuation. When connecting optical interfaces, select optical modules and fibers based on the maximum signal transmission distance.  |

|                          |   |
|--------------------------|---|
| <b>Interface rate</b>    | Maximum rate of electrical signals that an optical component can transmit without bit errors. The interface rates defined in Ethernet standards include 125 Mbit/s, 1.25 Gbit/s, 10.3125 Gbit/s, and 41.25 Gbit/s. When connecting optical interfaces, select optical modules and fibers based on the maximum signal transmission rate. |
| <b>Center wavelength</b> | Wavelength measured at the midpoint of the half-amplitude line in the transmit spectrum. Two connected optical modules must have the same center wavelength.  |
| <b>MSA</b>               | Multi-Source Agreement, a non-profit organization jointly established by optical module manufacturers. This agreement defines the structure and dimensions of optical transceivers by referring to Optical Internetworking Forum (OIF) and International Telecommunication Union (ITU) standards.                                       |

## 10.2.3 How to View Optical Module Parameters

### Viewing the Hardware Description

If you know the model or type of an optical module, you can view the section "Pluggable Modules for Interfaces" in the *Hardware Description* to look up parameters of the optical module, including the center wavelength, transmission distance, fiber types supported, receive optical power, and transmit optical power.

### Using a Command

If an optical module is installed in a running device, you can run the **display interface transceiver** command to view parameters of the optical module, including the center wavelength, transmission distance, fiber types supported, receive optical power, and transmit optical power.

## 10.2.4 Rules for Optical Module Interoperation

### Interoperation Rules

Optical modules with the same standards can interoperate with each other. The standards define the rate, wavelength, and transmission distance of optical modules, but not their encapsulation modes (two interoperated optical modules can have different encapsulation modes).

If you need to achieve interoperability between optical modules with different standards, contact technical support personnel.

When S series devices are connected to other products such as routers, comply with the preceding optical module interoperation rules.

### Standards Description

The following describes the standards, using 1000BASE-LX10 as an example:

- 1000 indicates the rate (1000 Mbit/s, in this case). Other rates include 10 Mbit/s, 100 Mbit/s, 10 Gbit/s, 40 Gbit/s, and 100 Gbit/s.

- BASE indicates baseband transmission.
- L represents a center wavelength of the laser. Currently, the following center wavelengths are available: S (short wavelength: 850 nm), L (long wavelength: 1310 nm), E (extra long wavelength: 1550 nm), and B (single-fiber bidirectional long wavelength).
- X represents the encoding format. The encoding formats include T (twisted pair), X (8B/10B), R (64B/66B), and W (WIS).
- 10 indicates the number of channels. Currently, the value can be 4 or 10. If there is no number, the value is 1.

 **NOTE**

This example provides the definitions in IEEE standards, which are not applicable to all optical modules, for example, non-standard optical modules.

The following organizations or agreements define standards related to optical modules:

- IEEE 802.3, which defines MAC and PHY standards
- Small Form Factor (SFF) committee or Multi-Source Agreements (MSAs), which define optical module hardware, software, and structure standards

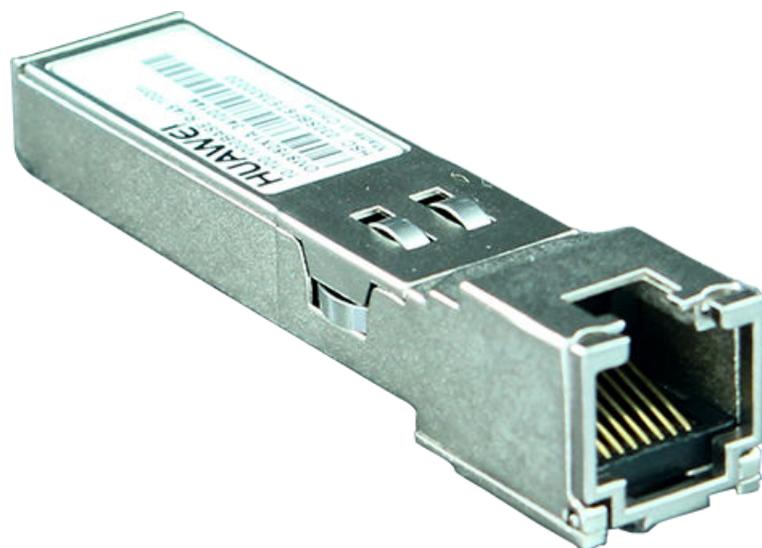
## 10.3 Understanding Copper Modules

Copper modules are also called RJ45 modules. Unlike optical modules, copper modules do not perform electrical-optical conversion. When two optical interfaces have copper modules installed, the interfaces can be connected using a copper cable.

Huawei copper modules can work properly only after the switch software supports them. Therefore, it is not recommended that Huawei copper modules be used on third-party switches. If you need to use this module, notify the third-party switch vendor to adapt to this module in advance.

**Figure 10-4** shows a copper module.

**Figure 10-4** Appearance of a copper module



## 10.4 FE SFP/eSFP Optical Modules

### 10.4.1 S-SFP-FE-LH40-SM1310

Table 10-1 S-SFP-FE-LH40-SM1310 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | S-SFP-FE-LH40-SM1310        |
| Part Number                                | 02317344                    |
| Model                                      | S-SFP-FE-LH40-SM1310        |
| Form factor                                | eSFP                        |
| Application standard                       | Non-standard                |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 100 Mbit/s                  |
| Target transmission distance [km]          | Single-mode fiber: 40 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1310 nm                     |
| Maximum Tx optical power [dBm]             | 0 dBm                       |
| Minimum Tx optical power [dBm]             | -5.0 dBm                    |
| Minimum extinction ratio [dB]              | 10.5 dB                     |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -37.0 dBm                   |
| Overload power [dBm]                       | -10.0 dBm                   |

## 10.4.2 S-SFP-FE-LH80-SM1550

**Table 10-2** S-SFP-FE-LH80-SM1550 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | S-SFP-FE-LH80-SM1550        |
| Part Number                                | 02317345                    |
| Model                                      | S-SFP-FE-LH80-SM1550        |
| Form factor                                | eSFP                        |
| Application standard                       | Non-standard                |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 100 Mbit/s                  |
| Target transmission distance [km]          | Single-mode fiber: 80 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1550 nm                     |
| Maximum Tx optical power [dBm]             | 0 dBm                       |
| Minimum Tx optical power [dBm]             | -5.0 dBm                    |
| Minimum extinction ratio [dB]              | 10.5 dB                     |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -37.0 dBm                   |
| Overload power [dBm]                       | -10.0 dBm                   |

## 10.4.3 SFP-FE-LX-SM1310-BIDI

**Table 10-3** SFP-FE-LX-SM1310-BIDI specifications

| Item                     | Value                 |
|--------------------------|-----------------------|
| <b>Basic Information</b> |                       |
| Module name              | SFP-FE-LX-SM1310-BIDI |

| Item  | Value                        |
|---|------------------------------|
| Part Number   | 02315203                     |
| Model   | SFP-FE-LX-SM1310-BIDI        |
| Form factor   | eSFP                         |
| Application standard  | 100BASE-BX                   |
| Connector type  | LC                           |
| Optical fiber type  | SMF                          |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)   | Supported                    |
| Transmission rate [bit/s]   | 100 Mbit/s                   |
| Target transmission distance [km]   | Single-mode fiber: 15 km     |
| <b>Transmitter Optical Characteristics</b>  |                              |
| Center wavelength [nm]  | 1550 nm (RX)<br>1310 nm (TX) |
| Maximum Tx optical power [dBm]  | -8.0 dBm                     |
| Minimum Tx optical power [dBm]  | -15.0 dBm                    |
| Minimum extinction ratio [dB]   | 8.5 dB                       |
| <b>Receiver Optical Characteristics</b>   |                              |
| Rx sensitivity [dBm]  | -32.0 dBm                    |
| Overload power [dBm]  | -8.0 dBm                     |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>BIDI optical modules must be used in pairs. For example, SFP-FE-LX-SM1310-BIDI must be used with SFP-FE-LX-SM1550-BIDI. |                              |

## 10.4.4 SFP-FE-LX-SM1550-BIDI

**Table 10-4** SFP-FE-LX-SM1550-BIDI specifications

| Item                     | Value                 |
|--------------------------|-----------------------|
| <b>Basic Information</b> |                       |
| Module name              | SFP-FE-LX-SM1550-BIDI |
| Part Number              | 02315202              |

| Item   | Value                        |
|--|------------------------------|
| Model  | SFP-FE-LX-SM1550-BIDI        |
| Form factor  | eSFP                         |
| Application standard   | 100BASE-BX                   |
| Connector type   | LC                           |
| Optical fiber type   | SMF                          |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)  | Supported                    |
| Transmission rate [bit/s]  | 100 Mbit/s                   |
| Target transmission distance [km]  | Single-mode fiber: 15 km     |
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1310 nm (RX)<br>1550 nm (TX) |
| Maximum Tx optical power [dBm]   | -8.0 dBm                     |
| Minimum Tx optical power [dBm]   | -15.0 dBm                    |
| Minimum extinction ratio [dB]  | 8.5 dB                       |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -32.0 dBm                    |
| Overload power [dBm]   | -8.0 dBm                     |
| <p><b>NOTE</b><br/>Supports the single-fiber bidirectional function.<br/>BIDI optical modules must be used in pairs. For example, SFP-FE-LX-SM1550-BIDI must be used with SFP-FE-LX-SM1310-BIDI.</p> |                              |

## 10.4.5 SFP-FE-SX-MM1310

Table 10-5 SFP-FE-SX-MM1310 specifications

| Item                     | Value            |
|--------------------------|------------------|
| <b>Basic Information</b> |                  |
| Module name              | SFP-FE-SX-MM1310 |
| Part Number              | 02315233         |
| Model                    | SFP-FE-SX-MM1310 |

| Item                                       | Value   |
|--|---|
| Form factor                                | SFP   |
| Application standard                       | 100BASE-FX  |
| Connector type                             | LC  |
| Optical fiber type                         | MMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                       |
| Digital diagnostic monitoring (DDM)        | Not supported                                     |
| Transmission rate [bit/s]                  | 100 Mbit/s  |
| Target transmission distance [km]          | Multimode fiber (50 μm or 62.5 μm diameter): 2 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1310 nm   |
| Maximum Tx optical power [dBm]             | -14.0 dBm   |
| Minimum Tx optical power [dBm]             | -19.0 dBm   |
| Minimum extinction ratio [dB]              | 10 dB   |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -30.0 dBm   |
| Overload power [dBm]                       | -14.0 dBm   |

## 10.4.6 eSFP-FE-LX-SM1310

**Table 10-6** eSFP-FE-LX-SM1310 specifications

| Item                     | Value             |
|--------------------------|-------------------|
| <b>Basic Information</b> |                   |
| Module name              | eSFP-FE-LX-SM1310 |
| Part Number              | 02315205          |
| Model                    | eSFP-FE-LX-SM1310 |
| Form factor              | eSFP              |
| Application standard     | Non-standard      |
| Connector type           | LC                |
| Optical fiber type       | SMF               |

| Item                                       | Value                       |
|--|-----------------------------|
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 100 Mbit/s                  |
| Target transmission distance [km]          | Single-mode fiber: 15 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1310 nm                     |
| Maximum Tx optical power [dBm]             | -8.0 dBm                    |
| Minimum Tx optical power [dBm]             | -15.0 dBm                   |
| Minimum extinction ratio [dB]              | 8.2 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -28.0 dBm                   |
| Overload power [dBm]                       | -8.0 dBm                    |

## 10.5 GE eSFP Optical Modules

### 10.5.1 LE2MGSC40DE0

Table 10-7 LE2MGSC40DE0 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | LE2MGSC40DE0                |
| Part Number                         | 02310KVV                    |
| Model                               | LE2MGSC40DE0                |
| Form factor                         | eSFP                        |
| Application standard                | 1000BASE-BX                 |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 1 Gbit/s                    |

| Item   | Value                        |
|--|------------------------------|
| Target transmission distance [km]  | Single-mode fiber: 40 km     |
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1490 nm (RX)<br>1310 nm (TX) |
| Maximum Tx optical power [dBm]   | 3.0 dBm                      |
| Minimum Tx optical power [dBm]   | -2.0 dBm                     |
| Minimum extinction ratio [dB]  | 9 dB                         |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -23 dBm                      |
| Overload power [dBm]   | -3.0 dBm                     |
| <b>NOTE</b><br>Single-fiber bidirectional transmission is supported.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, LE2MGSC40DE0 must be used with LE2MGSC40ED0. |                              |

## 10.5.2 LE2MGSC40ED0

Table 10-8 LE2MGSC40ED0 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | LE2MGSC40ED0                |
| Part Number                         | 02310KVU                    |
| Model                               | LE2MGSC40ED0                |
| Form factor                         | eSFP                        |
| Application standard                | 1000BASE-BX                 |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 1 Gbit/s                    |
| Target transmission distance [km]   | Single-mode fiber: 40 km    |

| Item   | Value                        |
|--|------------------------------|
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1310 nm (RX)<br>1490 nm (TX) |
| Maximum Tx optical power [dBm]   | 3.0 dBm                      |
| Minimum Tx optical power [dBm]   | -2.0 dBm                     |
| Minimum extinction ratio [dB]  | 9 dB                         |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -23 dBm                      |
| Overload power [dBm]   | -3.0 dBm                     |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, LE2MGSC40ED0 must be used with LE2MGSC40DE0. |                              |

### 10.5.3 S-SFP-GE-LH40-SM1310

Table 10-9 S-SFP-GE-LH40-SM1310 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | S-SFP-GE-LH40-SM1310        |
| Part Number                                | 02317346                    |
| Model                                      | S-SFP-GE-LH40-SM1310        |
| Form factor                                | eSFP                        |
| Application standard                       | 1000BASE-EX (non-standard)  |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 40 km    |
| <b>Transmitter Optical Characteristics</b> |                             |

| Item                                    | Value    |
|---|----------|
| Center wavelength [nm]                  | 1310 nm  |
| Maximum Tx optical power [dBm]          | 0 dBm    |
| Minimum Tx optical power [dBm]          | -5.0 dBm |
| Minimum extinction ratio [dB]           | 9 dB     |
| <b>Receiver Optical Characteristics</b> |          |
| Rx sensitivity [dBm]                    | -23 dBm  |
| Overload power [dBm]                    | -3.0 dBm |

## 10.5.4 S-SFP-GE-LH40-SM1550

**Table 10-10** S-SFP-GE-LH40-SM1550 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | S-SFP-GE-LH40-SM1550        |
| Part Number                                | 02317347                    |
| Model                                      | S-SFP-GE-LH40-SM1550        |
| Form factor                                | eSFP                        |
| Application standard                       | Non-standard                |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 40 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1550 nm                     |
| Maximum Tx optical power [dBm]             | 0 dBm                       |
| Minimum Tx optical power [dBm]             | -5.0 dBm                    |
| Minimum extinction ratio [dB]              | 9 dB                        |
| <b>Receiver Optical Characteristics</b>    |                             |

| Item                 | Value    |
|----------------------|----------|
| Rx sensitivity [dBm] | -22 dBm  |
| Overload power [dBm] | -3.0 dBm |

## 10.5.5 S-SFP-GE-LH80-SM1550

Table 10-11 S-SFP-GE-LH80-SM1550 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | S-SFP-GE-LH80-SM1550        |
| Part Number                                | 02317348                    |
| Model                                      | S-SFP-GE-LH80-SM1550        |
| Form factor                                | eSFP                        |
| Application standard                       | 1000BASE-ZX                 |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 80 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1550 nm                     |
| Maximum Tx optical power [dBm]             | 5.0 dBm                     |
| Minimum Tx optical power [dBm]             | -2.0 dBm                    |
| Minimum extinction ratio [dB]              | 9 dB                        |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -23 dBm                     |
| Overload power [dBm]                       | -3.0 dBm                    |

## 10.5.6 SFP-GE-BXU1-SC

**Table 10-12** SFP-GE-BXU1-SC specifications

| Item   | Value                        |
|--|------------------------------|
| <b>Basic Information</b>   |                              |
| Module name  | SFP-GE-BXU1-SC               |
| Part Number  | 02310TQH                     |
| Model  | SFP-GE-BXU1-SC               |
| Form factor  | eSFP                         |
| Application standard   | Non-standard                 |
| Connector type   | SC                           |
| Optical fiber type   | SMF                          |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)  | Supported                    |
| Transmission rate [bit/s]  | 1 Gbit/s                     |
| Target transmission distance [km]  | Single-mode fiber: 10 km     |
| <b>Transmitter Optical Characteristics</b>                                   |                              |
| Center wavelength [nm]   | 1310 nm (RX)<br>1490 nm (TX) |
| Maximum Tx optical power [dBm]   | -3.0 dBm                     |
| Minimum Tx optical power [dBm]   | -9.0 dBm                     |
| Minimum extinction ratio [dB]  | 9 dB                         |
| <b>Receiver Optical Characteristics</b>                                      |                              |
| Rx sensitivity [dBm]   | -19.5 dBm                    |
| Overload power [dBm]   | -3.0 dBm                     |
| <b>NOTE</b><br>This module supports the single-fiber bidirectional function. |                              |

## 10.5.7 SFP-GE-EX-C

**Table 10-13** SFP-GE-EX-C specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | SFP-GE-EX-C                 |
| Part Number                                | 02312UUD                    |
| Model                                      | SFP-GE-EX-C                 |
| Form factor                                | eSFP                        |
| Application standard                       | 1000BASE-EX (non-standard)  |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 40 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1310 nm                     |
| Maximum Tx optical power [dBm]             | 0 dBm                       |
| Minimum Tx optical power [dBm]             | -5.0 dBm                    |
| Minimum extinction ratio [dB]              | 9 dB                        |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -23 dBm                     |
| Overload power [dBm]                       | -3.0 dBm                    |

## 10.5.8 SFP-GE-LX-SM1310 (02315200)

**Table 10-14** SFP-GE-LX-SM1310 specifications

| Item                     | Value            |
|--------------------------|------------------|
| <b>Basic Information</b> |                  |
| Module name              | SFP-GE-LX-SM1310 |

| Item                                       | Value                       |
|--|-----------------------------|
| Part Number                                | 02315200                    |
| Model                                      | SFP-GE-LX-SM1310            |
| Form factor                                | eSFP                        |
| Application standard                       | 1000BASE-LX10/LH            |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 10 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1310 nm                     |
| Maximum Tx optical power [dBm]             | -3.0 dBm                    |
| Minimum Tx optical power [dBm]             | -9.0 dBm                    |
| Minimum extinction ratio [dB]              | 9 dB                        |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -20.0 dBm                   |
| Overload power [dBm]                       | -3.0 dBm                    |

## 10.5.9 SFP-GE-LX-SM1310-BIDI (02315285)

**Table 10-15** SFP-GE-LX-SM1310-BIDI specifications

| Item                     | Value                 |
|--------------------------|-----------------------|
| <b>Basic Information</b> |                       |
| Module name              | SFP-GE-LX-SM1310-BIDI |
| Part Number              | 02315285              |
| Model                    | SFP-GE-LX-SM1310-BIDI |
| Form factor              | eSFP                  |
| Application standard     | 1000BASE-BX10         |
| Connector type           | LC                    |

| Item   | Value                        |
|--|------------------------------|
| Optical fiber type   | SMF                          |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)  | Supported                    |
| Transmission rate [bit/s]  | 1 Gbit/s                     |
| Target transmission distance [km]  | Single-mode fiber: 10 km     |
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1490 nm (RX)<br>1310 nm (TX) |
| Maximum Tx optical power [dBm]   | -3.0 dBm                     |
| Minimum Tx optical power [dBm]   | -9.0 dBm                     |
| Minimum extinction ratio [dB]  | 6 dB                         |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -19.5 dBm                    |
| Overload power [dBm]   | -3.0 dBm                     |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-LX-SM1310-BIDI must be used with SFP-GE-LX-SM1490-BIDI. |                              |

## 10.5.10 SFP-GE-LX-SM1490-BIDI (02315286)

**Table 10-16** SFP-GE-LX-SM1490-BIDI specifications

| Item                     | Value                 |
|--------------------------|-----------------------|
| <b>Basic Information</b> |                       |
| Module name              | SFP-GE-LX-SM1490-BIDI |
| Part Number              | 02315286              |
| Model                    | SFP-GE-LX-SM1490-BIDI |
| Form factor              | eSFP                  |
| Application standard     | 1000BASE-BX10         |
| Connector type           | LC                    |
| Optical fiber type       | SMF                   |

| Item   | Value                        |
|--|------------------------------|
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)  | Supported                    |
| Transmission rate [bit/s]  | 1 Gbit/s                     |
| Target transmission distance [km]  | Single-mode fiber: 10 km     |
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1310 nm (RX)<br>1490 nm (TX) |
| Maximum Tx optical power [dBm]   | -3.0 dBm                     |
| Minimum Tx optical power [dBm]   | -9.0 dBm                     |
| Minimum extinction ratio [dB]  | 6 dB                         |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -19.5 dBm                    |
| Overload power [dBm]   | -3.0 dBm                     |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-LX-SM1490-BIDI must be used with SFP-GE-LX-SM1310-BIDI. |                              |

## 10.5.11 SFP-GE-LX10-C

Table 10-17 SFP-GE-LX10-C specifications

| Item                              | Value                       |
|-----------------------------------|-----------------------------|
| <b>Basic Information</b>          |                             |
| Module name                       | SFP-GE-LX10-C               |
| Part Number                       | 02312UUC                    |
| Model                             | SFP-GE-LX10-C               |
| Form factor                       | eSFP                        |
| Application standard              | 1000BASE-LX10/LH            |
| Connector type                    | LC                          |
| Optical fiber type                | SMF                         |
| Working case temperature [°C(°F)] | 0°C to 70°C (32°F to 158°F) |

| Item                                       | Value                    |
|--|--------------------------|
| Digital diagnostic monitoring (DDM)        | Supported                |
| Transmission rate [bit/s]                  | 1 Gbit/s                 |
| Target transmission distance [km]          | Single-mode fiber: 10 km |
| <b>Transmitter Optical Characteristics</b> |                          |
| Center wavelength [nm]                     | 1310 nm                  |
| Maximum Tx optical power [dBm]             | -3.0 dBm                 |
| Minimum Tx optical power [dBm]             | -9.0 dBm                 |
| Minimum extinction ratio [dB]              | 9 dB                     |
| <b>Receiver Optical Characteristics</b>    |                          |
| Rx sensitivity [dBm]                       | -20.0 dBm                |
| Overload power [dBm]                       | -3.0 dBm                 |

## 10.5.12 SFP-GE-SX-C (02312UUB)

Table 10-18 SFP-GE-SX-C specifications

| Item                                | Value                           |
|-------------------------------------|---------------------------------|
| <b>Basic Information</b>            |                                 |
| Module name                         | SFP-GE-SX-C                     |
| Part Number                         | 02312UUB                        |
| Model                               | SFP-GE-SX-C                     |
| Form factor                         | eSFP                            |
| Application standard                | 1000BASE-SX                     |
| Connector type                      | LC                              |
| Optical fiber type                  | MMF                             |
| Working case temperature [°C(°F)]   | -20°C to +85°C (-4°F to +185°F) |
| Digital diagnostic monitoring (DDM) | Supported                       |
| Transmission rate [bit/s]           | 1 Gbit/s                        |

| Item                                       | Value   |
|--|---|
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km<br>Multimode fiber (OM1): 0.275 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km<br>Multimode fiber (OM2): 0.55 km<br>Multimode fiber (OM3/OM4): 1 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | -2.5 dBm  |
| Minimum Tx optical power [dBm]             | -9.5 dBm  |
| Minimum extinction ratio [dB]              | 9 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -17.0 dBm   |
| Overload power [dBm]                       | 0 dBm   |

### 10.5.13 SFP-GE-ZBXD1

**Table 10-19** SFP-GE-ZBXD1 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | SFP-GE-ZBXD1                |
| Part Number                         | 02311DDB                    |
| Model                               | SFP-GE-ZBXD1                |
| Form factor                         | eSFP                        |
| Application standard                | Non-standard                |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |

| Item   | Value                        |
|--|------------------------------|
| Transmission rate [bit/s]  | 1 Gbit/s                     |
| Target transmission distance [km]  | Single-mode fiber: 80 km     |
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1490 nm (RX)<br>1570 nm (TX) |
| Maximum Tx optical power [dBm]   | 4.0 dBm                      |
| Minimum Tx optical power [dBm]   | -2.0 dBm                     |
| Minimum extinction ratio [dB]  | 9 dB                         |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -26 dBm                      |
| Overload power [dBm]   | -3.0 dBm                     |
| <b>NOTE</b><br>Single-fiber bidirectional transmission is supported.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-ZBXD1 must be used with SFP-GE-ZBXU1. |                              |

## 10.5.14 SFP-GE-ZBXU1

**Table 10-20** SFP-GE-ZBXU1 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | SFP-GE-ZBXU1                |
| Part Number                         | 02311DDC                    |
| Model                               | SFP-GE-ZBXU1                |
| Form factor                         | eSFP                        |
| Application standard                | Non-standard                |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 1 Gbit/s                    |

| Item   | Value                        |
|--|------------------------------|
| Target transmission distance [km]  | Single-mode fiber: 80 km     |
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1570 nm (RX)<br>1490 nm (TX) |
| Maximum Tx optical power [dBm]   | 4.0 dBm                      |
| Minimum Tx optical power [dBm]   | -2.0 dBm                     |
| Minimum extinction ratio [dB]  | 9 dB                         |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -26 dBm                      |
| Overload power [dBm]   | -3.0 dBm                     |
| <b>NOTE</b><br>Single-fiber bidirectional transmission is supported.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-ZBXU1 must be used with SFP-GE-ZBXD1. |                              |

## 10.5.15 eSFP-GE-SX-MM850 (02315204)

**Table 10-21** eSFP-GE-SX-MM850 specifications

| Item                                | Value                           |
|-------------------------------------|---------------------------------|
| <b>Basic Information</b>            |                                 |
| Module name                         | eSFP-GE-SX-MM850                |
| Part Number                         | 02315204                        |
| Model                               | eSFP-GE-SX-MM850                |
| Form factor                         | eSFP                            |
| Application standard                | 1000BASE-SX                     |
| Connector type                      | LC                              |
| Optical fiber type                  | MMF                             |
| Working case temperature [°C(°F)]   | -20°C to +85°C (-4°F to +185°F) |
| Digital diagnostic monitoring (DDM) | Supported                       |
| Transmission rate [bit/s]           | 1 Gbit/s                        |

| Item                                       | Value   |
|--|---|
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km<br>Multimode fiber (OM1): 0.275 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km<br>Multimode fiber (OM2): 0.55 km<br>Multimode fiber (OM3/OM4): 1 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | -2.5 dBm  |
| Minimum Tx optical power [dBm]             | -9.5 dBm  |
| Minimum extinction ratio [dB]              | 9 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -17.0 dBm   |
| Overload power [dBm]                       | 0 dBm   |

## 10.5.16 eSFP-GE-ZX100-SM1550

**Table 10-22** eSFP-GE-ZX100-SM1550 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | eSFP-GE-ZX100-SM1550        |
| Part Number                         | 02315206                    |
| Model                               | eSFP-GE-ZX100-SM1550        |
| Form factor                         | eSFP                        |
| Application standard                | 1000BASE-ZX                 |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |

| Item                                       | Value                     |
|--|---------------------------|
| Transmission rate [bit/s]                  | 1 Gbit/s                  |
| Target transmission distance [km]          | Single-mode fiber: 100 km |
| <b>Transmitter Optical Characteristics</b> |                           |
| Center wavelength [nm]                     | 1550 nm                   |
| Maximum Tx optical power [dBm]             | 5 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                     |
| Minimum extinction ratio [dB]              | 9.5 dB                    |
| <b>Receiver Optical Characteristics</b>    |                           |
| Rx sensitivity [dBm]                       | -30.0 dBm                 |
| Overload power [dBm]                       | -9.0 dBm                  |

## 10.5.17 OGSC10DD0

**Table 10-23** OGSC10DD0 specifications

| Item                                       | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>                   |                                  |
| Module name                                | OGSC10DD0                        |
| Part Number                                | 02310LJH                         |
| Model                                      | OGSC10DD0                        |
| Form factor                                | eSFP                             |
| Application standard                       | 1000BASE-LX10/LH                 |
| Connector type                             | LC                               |
| Optical fiber type                         | SMF                              |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)        | Supported                        |
| Transmission rate [bit/s]                  | 1 Gbit/s                         |
| Target transmission distance [km]          | Single-mode fiber: 10 km         |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1310 nm                          |
| Maximum Tx optical power [dBm]             | -3.0 dBm                         |

| Item                                    | Value    |
|---|----------|
| Minimum Tx optical power [dBm]          | -9.0 dBm |
| Minimum extinction ratio [dB]           | 9.5 dB   |
| <b>Receiver Optical Characteristics</b> |          |
| Rx sensitivity [dBm]                    | -19 dBm  |
| Overload power [dBm]                    | -3.0 dBm |

## 10.5.18 OGSC40DD0

**Table 10-24** OGSC40DD0 specifications

| Item                                       | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>                   |                                  |
| Module name                                | OGSC40DD0                        |
| Part Number                                | 02310LJJ                         |
| Model                                      | OGSC40DD0                        |
| Form factor                                | eSFP                             |
| Application standard                       | Non-standard                     |
| Connector type                             | LC                               |
| Optical fiber type                         | SMF                              |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)        | Supported                        |
| Transmission rate [bit/s]                  | 1 Gbit/s                         |
| Target transmission distance [km]          | Single-mode fiber: 40 km         |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1310 nm                          |
| Maximum Tx optical power [dBm]             | 0 dBm                            |
| Minimum Tx optical power [dBm]             | -5.0 dBm                         |
| Minimum extinction ratio [dB]              | 9 dB                             |
| <b>Receiver Optical Characteristics</b>    |                                  |
| Rx sensitivity [dBm]                       | -22.5 dBm                        |
| Overload power [dBm]                       | -3.0 dBm                         |

## 10.5.19 OGSM01880

**Table 10-25** OGSM01880 specifications

| Item                                       | Value  |
|--|--|
| <b>Basic Information</b>                   |  |
| Module name                                | OGSM01880  |
| Part Number                                | 02310LJG   |
| Model                                      | OGSM01880  |
| Form factor                                | eSFP   |
| Application standard                       | 1000BASE-SX  |
| Connector type                             | LC   |
| Optical fiber type                         | MMF  |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F)   |
| Digital diagnostic monitoring (DDM)        | Supported  |
| Transmission rate [bit/s]                  | 1 Gbit/s   |
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km<br>Multimode fiber (OM1): 0.275 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km<br>Multimode fiber (OM2): 0.55 km |
| <b>Transmitter Optical Characteristics</b> |  |
| Center wavelength [nm]                     | 850 nm   |
| Maximum Tx optical power [dBm]             | -2.5 dBm   |
| Minimum Tx optical power [dBm]             | -10 dBm  |
| Minimum extinction ratio [dB]              | 9 dB   |
| <b>Receiver Optical Characteristics</b>    |  |
| Rx sensitivity [dBm]                       | -17.0 dBm  |
| Overload power [dBm]                       | 0 dBm  |

## 10.5.20 SFP-GE-BX-D1-I

**Table 10-26** SFP-GE-BX-D1-I specifications

| Item   | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>   |                                  |
| Module name  | SFP-GE-BX-D1-I                   |
| Part Number  | 02311DMA                         |
| Model  | SFP-GE-BX-D1-I                   |
| Form factor  | SFP                              |
| Application standard   | 1000BASE-BX                      |
| Connector type   | LC                               |
| Optical fiber type   | SMF                              |
| Working case temperature [°C(°F)]  | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)  | Supported                        |
| Transmission rate [bit/s]  | 1 Gbit/s                         |
| Target transmission distance [km]  | Single-mode fiber: 10 km         |
| <b>Transmitter Optical Characteristics</b>   |                                  |
| Center wavelength [nm]   | 1310 nm (RX)<br>1490 nm (TX)     |
| Maximum Tx optical power [dBm]   | -3 dBm                           |
| Minimum Tx optical power [dBm]   | -9 dBm                           |
| Minimum extinction ratio [dB]  | 9 dB                             |
| <b>Receiver Optical Characteristics</b>  |                                  |
| Rx sensitivity [dBm]   | -19.5 dBm                        |
| Overload power [dBm]   | -3 dBm                           |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-BX-D1-I must be used with SFP-GE-BX-U1-I. |                                  |

## 10.5.21 SFP-GE-BX-U1-I

**Table 10-27** SFP-GE-BX-U1-I specifications

| Item   | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>   |                                  |
| Module name  | SFP-GE-BX-U1-I                   |
| Part Number  | 02311DMF                         |
| Model  | SFP-GE-BX-U1-I                   |
| Form factor  | SFP                              |
| Application standard   | 1000BASE-BX                      |
| Connector type   | LC                               |
| Optical fiber type   | SMF                              |
| Working case temperature [°C(°F)]  | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)  | Supported                        |
| Transmission rate [bit/s]  | 1 Gbit/s                         |
| Target transmission distance [km]  | Single-mode fiber: 10 km         |
| <b>Transmitter Optical Characteristics</b>   |                                  |
| Center wavelength [nm]   | 1490 nm (RX)<br>1310 nm (TX)     |
| Maximum Tx optical power [dBm]   | -3 dBm                           |
| Minimum Tx optical power [dBm]   | -9 dBm                           |
| Minimum extinction ratio [dB]  | 9 dB                             |
| <b>Receiver Optical Characteristics</b>  |                                  |
| Rx sensitivity [dBm]   | -19.5 dBm                        |
| Overload power [dBm]   | -3 dBm                           |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-BX-D1-I must be used with SFP-GE-BX-U1-I. |                                  |

## 10.5.22 SFP-GE-BX40-D-I

**Table 10-28** SFP-GE-BX40-D-I specifications

| Item  | Value                            |
|---|----------------------------------|
| <b>Basic Information</b>  |                                  |
| Module name   | SFP-GE-BX40-D-I                  |
| Part Number   | 02312TMC                         |
| Model   | SFP-GE-BX40-D-I                  |
| Form factor   | SFP                              |
| Application standard  | 1000BASE-BX                      |
| Connector type  | LC                               |
| Optical fiber type  | SMF                              |
| Working case temperature [°C(°F)]   | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)   | Supported                        |
| Transmission rate [bit/s]   | 1 Gbit/s                         |
| Target transmission distance [km]   | Single-mode fiber: 40 km         |
| <b>Transmitter Optical Characteristics</b>  |                                  |
| Center wavelength [nm]  | 1310 nm (RX)<br>1490 nm (TX)     |
| Maximum Tx optical power [dBm]  | 6.5 dBm                          |
| Minimum Tx optical power [dBm]  | 1.5 dBm                          |
| Minimum extinction ratio [dB]   | 8.2 dB                           |
| <b>Receiver Optical Characteristics</b>   |                                  |
| Rx sensitivity [dBm]  | -26 dBm                          |
| Overload power [dBm]  | -7 dBm                           |
| <p><b>NOTE</b></p> <p>Supports the single-fiber bidirectional function.</p> <p>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-BX40-D-I must be used with SFP-GE-BX40-U-I.</p> |                                  |

## 10.5.23 SFP-GE-BX40-U-I

**Table 10-29** SFP-GE-BX40-U-I specifications

| Item   | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>   |                                  |
| Module name  | SFP-GE-BX40-U-I                  |
| Part Number  | 02312TMB                         |
| Model  | SFP-GE-BX40-U-I                  |
| Form factor  | SFP                              |
| Application standard   | 1000BASE-BX                      |
| Connector type   | LC                               |
| Optical fiber type   | SMF                              |
| Working case temperature [°C(°F)]  | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)  | Supported                        |
| Transmission rate [bit/s]  | 1 Gbit/s                         |
| Target transmission distance [km]  | Single-mode fiber: 40 km         |
| <b>Transmitter Optical Characteristics</b>   |                                  |
| Center wavelength [nm]   | 1490 nm (RX)<br>1310 nm (TX)     |
| Maximum Tx optical power [dBm]   | 6.5 dBm                          |
| Minimum Tx optical power [dBm]   | 1.5 dBm                          |
| Minimum extinction ratio [dB]  | 8.2 dB                           |
| <b>Receiver Optical Characteristics</b>  |                                  |
| Rx sensitivity [dBm]   | -26 dBm                          |
| Overload power [dBm]   | -7 dBm                           |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-BX40-U-I must be used with SFP-GE-BX40-D-I. |                                  |

## 10.5.24 eSFP-GE-SX-MM850 (02313URD)

**Table 10-30** eSFP-GE-SX-MM850 specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | eSFP-GE-SX-MM850  |
| Part Number                                | 02313URD  |
| Model                                      | eSFP-GE-SX-MM850  |
| Form factor                                | eSFP  |
| Application standard                       | 1000BASE-SX   |
| Connector type                             | LC  |
| Optical fiber type                         | MMF   |
| Working case temperature [°C(°F)]          | -20°C to +85°C (-4°F to +185°F)   |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 1 Gbit/s  |
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km<br>Multimode fiber (OM1): 0.275 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km<br>Multimode fiber (OM2): 0.55 km<br>Multimode fiber (OM3/OM4): 1 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | -2.5 dBm  |
| Minimum Tx optical power [dBm]             | -9.5 dBm  |
| Minimum extinction ratio [dB]              | 9 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -17.0 dBm   |
| Overload power [dBm]                       | 0 dBm   |

## 10.5.25 SFP-GE-LX-SM1310 (02313URF)

**Table 10-31** SFP-GE-LX-SM1310 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | SFP-GE-LX-SM1310            |
| Part Number                                | 02313URF                    |
| Model                                      | SFP-GE-LX-SM1310            |
| Form factor                                | eSFP                        |
| Application standard                       | 1000BASE-LX10/LH            |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 10 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1310 nm                     |
| Maximum Tx optical power [dBm]             | -3.0 dBm                    |
| Minimum Tx optical power [dBm]             | -9.0 dBm                    |
| Minimum extinction ratio [dB]              | 9 dB                        |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -20.0 dBm                   |
| Overload power [dBm]                       | -3.0 dBm                    |

## 10.5.26 SFP-GE-SX-C (02314KKF)

**Table 10-32** SFP-GE-SX-C specifications

| Item                     | Value       |
|--------------------------|-------------|
| <b>Basic Information</b> |             |
| Module name              | SFP-GE-SX-C |

| Item                                       | Value   |
|--|---|
| Part Number                                | 02314KKF  |
| Model                                      | SFP-GE-SX-C   |
| Form factor                                | eSFP  |
| Application standard                       | 1000BASE-SX   |
| Connector type                             | LC  |
| Optical fiber type                         | MMF   |
| Working case temperature [°C(°F)]          | -20°C to +85°C (-4°F to +185°F)   |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 1 Gbit/s  |
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km<br>Multimode fiber (OM1): 0.275 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km<br>Multimode fiber (OM2): 0.55 km<br>Multimode fiber (OM3/OM4): 1 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | -2.5 dBm  |
| Minimum Tx optical power [dBm]             | -9.5 dBm  |
| Minimum extinction ratio [dB]              | 9 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -17.0 dBm   |
| Overload power [dBm]                       | 0 dBm   |

## 10.5.27 SFP-GE-LX-SM1310-BIDI (02314KKJ)

**Table 10-33** SFP-GE-LX-SM1310-BIDI specifications

| Item                     | Value |
|--------------------------|-------|
| <b>Basic Information</b> |       |

| Item   | Value                        |
|--|------------------------------|
| Module name  | SFP-GE-LX-SM1310-BIDI        |
| Part Number  | 02314KKJ                     |
| Model  | SFP-GE-LX-SM1310-BIDI        |
| Form factor  | eSFP                         |
| Application standard   | 1000BASE-BX10                |
| Connector type   | LC                           |
| Optical fiber type   | SMF                          |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)  | Supported                    |
| Transmission rate [bit/s]  | 1 Gbit/s                     |
| Target transmission distance [km]  | Single-mode fiber: 10 km     |
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1490 nm (RX)<br>1310 nm (TX) |
| Maximum Tx optical power [dBm]   | -3.0 dBm                     |
| Minimum Tx optical power [dBm]   | -9.0 dBm                     |
| Minimum extinction ratio [dB]  | 6 dB                         |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -19.5 dBm                    |
| Overload power [dBm]   | -3.0 dBm                     |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-LX-SM1310-BIDI must be used with SFP-GE-LX-SM1490-BIDI. |                              |

## 10.5.28 SFP-GE-LX-SM1490-BIDI (02314KKH)

Table 10-34 SFP-GE-LX-SM1490-BIDI specifications

| Item                     | Value                 |
|--------------------------|-----------------------|
| <b>Basic Information</b> |                       |
| Module name              | SFP-GE-LX-SM1490-BIDI |

| Item   | Value                        |
|--|------------------------------|
| Part Number  | 02314KKH                     |
| Model  | SFP-GE-LX-SM1490-BIDI        |
| Form factor  | eSFP                         |
| Application standard   | 1000BASE-BX10                |
| Connector type   | LC                           |
| Optical fiber type   | SMF                          |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)  | Supported                    |
| Transmission rate [bit/s]  | 1 Gbit/s                     |
| Target transmission distance [km]  | Single-mode fiber: 10 km     |
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1310 nm (RX)<br>1490 nm (TX) |
| Maximum Tx optical power [dBm]   | -3.0 dBm                     |
| Minimum Tx optical power [dBm]   | -9.0 dBm                     |
| Minimum extinction ratio [dB]  | 6 dB                         |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -19.5 dBm                    |
| Overload power [dBm]   | -3.0 dBm                     |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-GE-LX-SM1490-BIDI must be used with SFP-GE-LX-SM1310-BIDI. |                              |

## 10.5.29 SFP-GE-LX10-eKit

**Table 10-35** SFP-GE-LX10-eKit specifications

| Item                     | Value            |
|--------------------------|------------------|
| <b>Basic Information</b> |                  |
| Module name              | SFP-GE-LX10-eKit |
| Part Number              | 02315HNQ         |

| Item                                       | Value                       |
|--|-----------------------------|
| Model                                      | SFP-GE-LX10-eKit            |
| Form factor                                | eSFP                        |
| Application standard                       | 1000BASE-LX10/LH            |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 10 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1310 nm                     |
| Maximum Tx optical power [dBm]             | -3.0 dBm                    |
| Minimum Tx optical power [dBm]             | -9.0 dBm                    |
| Minimum extinction ratio [dB]              | 9 dB                        |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -20.0 dBm                   |
| Overload power [dBm]                       | -3.0 dBm                    |

### 10.5.30 SFP-GE-SX-eKit

**Table 10-36** SFP-GE-SX-eKit specifications

| Item                     | Value          |
|--------------------------|----------------|
| <b>Basic Information</b> |                |
| Module name              | SFP-GE-SX-eKit |
| Part Number              | 02315HNY       |
| Model                    | SFP-GE-SX-eKit |
| Form factor              | eSFP           |
| Application standard     | 1000BASE-SX    |
| Connector type           | LC             |
| Optical fiber type       | MMF            |

| Item                                       | Value   |
|--|---|
| Working case temperature [°C(°F)]          | -20°C to +85°C (-4°F to +185°F)   |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 1 Gbit/s  |
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.22 km<br>Multimode fiber (OM1): 0.275 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.5 km<br>Multimode fiber (OM2): 0.55 km<br>Multimode fiber (OM3/OM4): 1 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | -2.5 dBm  |
| Minimum Tx optical power [dBm]             | -9.5 dBm  |
| Minimum extinction ratio [dB]              | 9 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -17.0 dBm   |
| Overload power [dBm]                       | 0 dBm   |

## 10.6 GE-CWDM eSFP Optical Modules

### 10.6.1 CWDM-SFPGE-1471

Table 10-37 CWDM-SFPGE-1471 specifications

| Item                     | Value           |
|--------------------------|-----------------|
| <b>Basic Information</b> |                 |
| Module name              | CWDM-SFPGE-1471 |
| Part Number              | 02310LPN        |
| Model                    | CWDM-SFPGE-1471 |
| Form factor              | eSFP            |

| Item                                       | Value                       |
|--|-----------------------------|
| Application standard                       | GE-CWDM                     |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 80 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1471 nm                     |
| Maximum Tx optical power [dBm]             | 5.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.5 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -28.0 dBm                   |
| Overload power [dBm]                       | -9.0 dBm                    |

## 10.6.2 CWDM-SFPGE-1491

**Table 10-38** CWDM-SFPGE-1491 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | CWDM-SFPGE-1491             |
| Part Number                         | 02310LPK                    |
| Model                               | CWDM-SFPGE-1491             |
| Form factor                         | eSFP                        |
| Application standard                | GE-CWDM                     |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |

| Item                                       | Value                    |
|--|--------------------------|
| Transmission rate [bit/s]                  | 1 Gbit/s                 |
| Target transmission distance [km]          | Single-mode fiber: 80 km |
| <b>Transmitter Optical Characteristics</b> |                          |
| Center wavelength [nm]                     | 1491 nm                  |
| Maximum Tx optical power [dBm]             | 5.0 dBm                  |
| Minimum Tx optical power [dBm]             | 0 dBm                    |
| Minimum extinction ratio [dB]              | 8.5 dB                   |
| <b>Receiver Optical Characteristics</b>    |                          |
| Rx sensitivity [dBm]                       | -28.0 dBm                |
| Overload power [dBm]                       | -9.0 dBm                 |

### 10.6.3 CWDM-SFPGE-1511

**Table 10-39** CWDM-SFPGE-1511 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | CWDM-SFPGE-1511             |
| Part Number                                | 02310LPH                    |
| Model                                      | CWDM-SFPGE-1511             |
| Form factor                                | eSFP                        |
| Application standard                       | GE-CWDM                     |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 80 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1511 nm                     |
| Maximum Tx optical power [dBm]             | 5.0 dBm                     |

| Item                                    | Value     |
|---|-----------|
| Minimum Tx optical power [dBm]          | 0 dBm     |
| Minimum extinction ratio [dB]           | 8.5 dB    |
| <b>Receiver Optical Characteristics</b> |           |
| Rx sensitivity [dBm]                    | -28.0 dBm |
| Overload power [dBm]                    | -9.0 dBm  |

## 10.6.4 CWDM-SFPGE-1531

**Table 10-40** CWDM-SFPGE-1531 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | CWDM-SFPGE-1531             |
| Part Number                                | 02310LPL                    |
| Model                                      | CWDM-SFPGE-1531             |
| Form factor                                | eSFP                        |
| Application standard                       | GE-CWDM                     |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 80 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1531 nm                     |
| Maximum Tx optical power [dBm]             | 5.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.5 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -28.0 dBm                   |
| Overload power [dBm]                       | -9.0 dBm                    |

## 10.6.5 CWDM-SFPGE-1551

**Table 10-41** CWDM-SFPGE-1551 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | CWDM-SFPGE-1551             |
| Part Number                                | 02312AXN                    |
| Model                                      | CWDM-SFPGE-1551             |
| Form factor                                | eSFP                        |
| Application standard                       | GE-CWDM                     |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 80 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1551 nm                     |
| Maximum Tx optical power [dBm]             | 5.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.5 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -28.0 dBm                   |
| Overload power [dBm]                       | -9.0 dBm                    |

## 10.6.6 CWDM-SFPGE-1571

**Table 10-42** CWDM-SFPGE-1571 specifications

| Item                     | Value           |
|--------------------------|-----------------|
| <b>Basic Information</b> |                 |
| Module name              | CWDM-SFPGE-1571 |

| Item                                       | Value                       |
|--|-----------------------------|
| Part Number                                | 02312AXM                    |
| Model                                      | CWDM-SFPGE-1571             |
| Form factor                                | eSFP                        |
| Application standard                       | GE-CWDM                     |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 80 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1571 nm                     |
| Maximum Tx optical power [dBm]             | 5.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.5 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -28.0 dBm                   |
| Overload power [dBm]                       | -9.0 dBm                    |

## 10.6.7 CWDM-SFPGE-1591

**Table 10-43** CWDM-SFPGE-1591 specifications

| Item                     | Value           |
|--------------------------|-----------------|
| <b>Basic Information</b> |                 |
| Module name              | CWDM-SFPGE-1591 |
| Part Number              | 02312AXK        |
| Model                    | CWDM-SFPGE-1591 |
| Form factor              | eSFP            |
| Application standard     | GE-CWDM         |
| Connector type           | LC              |

| Item                                       | Value                       |
|--|-----------------------------|
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 80 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1591 nm                     |
| Maximum Tx optical power [dBm]             | 5.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.5 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -28.0 dBm                   |
| Overload power [dBm]                       | -9.0 dBm                    |

## 10.6.8 CWDM-SFPGE-1611

**Table 10-44** CWDM-SFPGE-1611 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | CWDM-SFPGE-1611             |
| Part Number                         | 02310LPJ                    |
| Model                               | CWDM-SFPGE-1611             |
| Form factor                         | eSFP                        |
| Application standard                | GE-CWDM                     |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 1 Gbit/s                    |
| Target transmission distance [km]   | Single-mode fiber: 80 km    |

| Item                                       | Value     |
|--|-----------|
| <b>Transmitter Optical Characteristics</b> |           |
| Center wavelength [nm]                     | 1611 nm   |
| Maximum Tx optical power [dBm]             | 5.0 dBm   |
| Minimum Tx optical power [dBm]             | 0 dBm     |
| Minimum extinction ratio [dB]              | 8.5 dB    |
| <b>Receiver Optical Characteristics</b>    |           |
| Rx sensitivity [dBm]                       | -28.0 dBm |
| Overload power [dBm]                       | -9.0 dBm  |

## 10.7 GE-DWDM eSFP Optical Modules

### 10.7.1 DWDM-SFPGE-1560-61

Table 10-45 DWDM-SFPGE-1560-61 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | DWDM-SFPGE-1560-61          |
| Part Number                                | 02310LLE                    |
| Model                                      | DWDM-SFPGE-1560-61          |
| Form factor                                | eSFP                        |
| Application standard                       | GE-DWDM                     |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 1 Gbit/s                    |
| Target transmission distance [km]          | Single-mode fiber: 120 km   |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1560.61 nm                  |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |

| Item                                    | Value     |
|---|-----------|
| Minimum Tx optical power [dBm]          | 0 dBm     |
| Minimum extinction ratio [dB]           | 8.2 dB    |
| <b>Receiver Optical Characteristics</b> |           |
| Rx sensitivity [dBm]                    | -28.0 dBm |
| Overload power [dBm]                    | -8.0 dBm  |

## 10.8 GE SFP Copper Modules

### 10.8.1 SFP-1000BaseT (02314171)

**Table 10-46** SFP-1000BaseT specifications

| Item                                       | Value                               |
|--|-------------------------------------|
| <b>Basic Information</b>                   |                                     |
| Module name                                | SFP-1000BaseT                       |
| Part Number                                | 02314171                            |
| Model                                      | SFP-1000BaseT                       |
| Form factor                                | SFP                                 |
| Application standard                       | 1000BASE-T                          |
| Connector type                             | RJ45                                |
| Optical fiber type                         | -                                   |
| Digital diagnostic monitoring (DDM)        | Not supported                       |
| Transmission rate [bit/s]                  | 10 Mbit/s<br>100 Mbit/s<br>1 Gbit/s |
| Target transmission distance [km]          | Ethernet cable: 0.1 km              |
| <b>Transmitter Optical Characteristics</b> |                                     |
| Center wavelength [nm]                     | -                                   |
| Maximum Tx optical power [dBm]             | -                                   |
| Minimum Tx optical power [dBm]             | -                                   |
| Minimum extinction ratio [dB]              | -                                   |

| Item                                    | Value |
|---|-------|
| <b>Receiver Optical Characteristics</b> |       |
| Rx sensitivity [dBm]                    | -     |
| Overload power [dBm]                    | -     |

 **NOTE**

The supported rate depends on the port.

This module does not support the rate of 10 Mbit/s when it is used on a 10GE optical port or a GE optical port of a switch running V600 version, and does not support the rate of 10 Mbit/s or 100 Mbit/s when it is used on a 25GE optical port of a switch running V600 version.

## 10.8.2 SFP-1000BaseT (02313URG)

**Table 10-47** SFP-1000BaseT specifications

| Item                                       | Value                               |
|--|-------------------------------------|
| <b>Basic Information</b>                   |                                     |
| Module name                                | SFP-1000BaseT                       |
| Part Number                                | 02313URG                            |
| Model                                      | SFP-1000BaseT                       |
| Form factor                                | SFP                                 |
| Application standard                       | 1000BASE-T                          |
| Connector type                             | RJ45                                |
| Optical fiber type                         | -                                   |
| Digital diagnostic monitoring (DDM)        | Not supported                       |
| Transmission rate [bit/s]                  | 10 Mbit/s<br>100 Mbit/s<br>1 Gbit/s |
| Target transmission distance [km]          | Ethernet cable: 0.1 km              |
| <b>Transmitter Optical Characteristics</b> |                                     |
| Center wavelength [nm]                     | -                                   |
| Maximum Tx optical power [dBm]             | -                                   |
| Minimum Tx optical power [dBm]             | -                                   |
| Minimum extinction ratio [dB]              | -                                   |

| Item                                    | Value |
|---|-------|
| <b>Receiver Optical Characteristics</b> |       |
| Rx sensitivity [dBm]                    | -     |
| Overload power [dBm]                    | -     |

 **NOTE**

The supported rate depends on the port.

This module does not support the rate of 10 Mbit/s when it is used on a 10GE optical port or a GE optical port of a switch running V600 version, and does not support the rate of 10 Mbit/s or 100 Mbit/s when it is used on a 25GE optical port of a switch running V600 version.

### 10.8.3 SFP-1000BaseT-G2

**Table 10-48** SFP-1000BaseT-G2 specifications

| Item                                       | Value                               |
|--|-------------------------------------|
| <b>Basic Information</b>                   |                                     |
| Module name                                | SFP-1000BaseT-G2                    |
| Part Number                                | 02314BDD                            |
| Model                                      | SFP-1000BaseT-G2                    |
| Form factor                                | SFP                                 |
| Application standard                       | 1000BASE-T                          |
| Connector type                             | RJ45                                |
| Optical fiber type                         | -                                   |
| Digital diagnostic monitoring (DDM)        | Not supported                       |
| Transmission rate [bit/s]                  | 10 Mbit/s<br>100 Mbit/s<br>1 Gbit/s |
| Target transmission distance [km]          | Ethernet cable: 0.1 km              |
| <b>Transmitter Optical Characteristics</b> |                                     |
| Center wavelength [nm]                     | -                                   |
| Maximum Tx optical power [dBm]             | -                                   |
| Minimum Tx optical power [dBm]             | -                                   |
| Minimum extinction ratio [dB]              | -                                   |

| Item                                    | Value |
|---|-------|
| <b>Receiver Optical Characteristics</b> |       |
| Rx sensitivity [dBm]                    | -     |
| Overload power [dBm]                    | -     |

 **NOTE**

The supported rate depends on the port.

This module does not support the rate of 10 Mbit/s when it is used on a 10GE optical port or a GE optical port of a switch running V600 version, and does not support the rate of 10 Mbit/s or 100 Mbit/s when it is used on a 25GE optical port of a switch running V600 version.

## 10.8.4 SFP-GE-T-eKit

**Table 10-49** SFP-GE-T-eKit specifications

| Item                                       | Value                               |
|--|-------------------------------------|
| <b>Basic Information</b>                   |                                     |
| Module name                                | SFP-GE-T-eKit                       |
| Part Number                                | 02315HPA                            |
| Model                                      | SFP-GE-T-eKit                       |
| Form factor                                | SFP                                 |
| Application standard                       | 1000BASE-T                          |
| Connector type                             | RJ45                                |
| Optical fiber type                         | -                                   |
| Digital diagnostic monitoring (DDM)        | Not supported                       |
| Transmission rate [bit/s]                  | 10 Mbit/s<br>100 Mbit/s<br>1 Gbit/s |
| Target transmission distance [km]          | Ethernet cable: 0.1 km              |
| <b>Transmitter Optical Characteristics</b> |                                     |
| Center wavelength [nm]                     | -                                   |
| Maximum Tx optical power [dBm]             | -                                   |
| Minimum Tx optical power [dBm]             | -                                   |
| Minimum extinction ratio [dB]              | -                                   |

| Item                                    | Value |
|---|-------|
| <b>Receiver Optical Characteristics</b> |       |
| Rx sensitivity [dBm]                    | -     |
| Overload power [dBm]                    | -     |

## 10.9 2.5GE eSFP Optical Modules

### 10.9.1 SFP-2.5G-FR

**Table 10-50** SFP-2.5G-FR specifications

| Item                                       | Value  |
|--|--|
| <b>Basic Information</b>                   |  |
| Module name                                | SFP-2.5G-FR  |
| Part Number                                | 02314LBD   |
| Model                                      | SFP-2.5G-FR  |
| Form factor                                | eSFP   |
| Application standard                       | 1000BASE-LX/2.5G_FR                                |
| Connector type                             | LC   |
| Optical fiber type                         | SMF  |
| Working case temperature [°C(°F)]          | 0°C to 75°C (32°F to 167°F)                        |
| Digital diagnostic monitoring (DDM)        | Supported  |
| Transmission rate [bit/s]                  | 1 Gbit/s<br>2.5 Gbit/s                             |
| Target transmission distance [km]          | Single-mode fiber:<br>- 2.5GE: 2 km<br>- GE: 10 km |
| <b>Transmitter Optical Characteristics</b> |  |
| Center wavelength [nm]                     | 1310 nm  |
| Maximum Tx optical power [dBm]             | -3 dBm   |
| Minimum Tx optical power [dBm]             | -9 dBm   |

| Item                                    | Value                 |
|---|-----------------------|
| Minimum extinction ratio [dB]           | 2.5GE: 6.0<br>GE: 8.0 |
| <b>Receiver Optical Characteristics</b> |                       |
| Rx sensitivity [dBm]                    | -18 dBm               |
| Overload power [dBm]                    | -3 dBm                |

## 10.9.2 SFP-2.5G-SR-I

**Table 10-51** SFP-2.5G-SR-I specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | SFP-2.5G-SR-I   |
| Part Number                                | 02314LBB  |
| Model                                      | SFP-2.5G-SR-I   |
| Form factor                                | eSFP  |
| Application standard                       | 2.5G_SR   |
| Connector type                             | LC  |
| Optical fiber type                         | MMF   |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40.00°F to +185.00°F)  |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 2.5 Gbit/s  |
| Target transmission distance [km]          | Multimode fiber (OM1): 0.032 km<br>Multimode fiber (OM2): 0.12 km<br>Multimode fiber (OM3): 0.3 km<br>Multimode fiber (OM4): 0.3 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | -1 dBm  |
| Minimum Tx optical power [dBm]             | -9 dBm  |
| Minimum extinction ratio [dB]              | 3 dB  |
| <b>Receiver Optical Characteristics</b>    |   |

| Item                 | Value   |
|----------------------|---------|
| Rx sensitivity [dBm] | -17 dBm |
| Overload power [dBm] | -1 dBm  |

### 10.9.3 eSFP-2.5G-iLR-BXD1

**Table 10-52** eSFP-2.5G-iLR-BXD1 specifications

| Item                                       | Value                        |
|--|------------------------------|
| <b>Basic Information</b>                   |                              |
| Module name                                | eSFP-2.5G-iLR-BXD1           |
| Part Number                                | 02314VYF                     |
| Model                                      | eSFP-2.5G-iLR-BXD1           |
| Form factor                                | eSFP                         |
| Application standard                       | Non-standard                 |
| Connector type                             | LC                           |
| Optical fiber type                         | SMF                          |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)        | Supported                    |
| Transmission rate [bit/s]                  | 2.5 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 2 km      |
| <b>Transmitter Optical Characteristics</b> |                              |
| Center wavelength [nm]                     | 1310 nm (RX)<br>1490 nm (TX) |
| Maximum Tx optical power [dBm]             | 4.0 dBm                      |
| Minimum Tx optical power [dBm]             | -2.0 dBm                     |
| Minimum extinction ratio [dB]              | 9 dB                         |
| <b>Receiver Optical Characteristics</b>    |                              |
| Rx sensitivity [dBm]                       | -26 dBm                      |
| Overload power [dBm]                       | -3.0 dBm                     |

| Item   | Value |
|--|-------|
| <b>NOTE</b>  |       |
| Supports the single-fiber bidirectional function.  |       |
| Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, eSFP-2.5G-iLR-BXD1 must be used with eSFP-2.5G-iLR-BXU1. |       |

 **NOTE**

This module can only be used on a switch running V600R024C00 or a later version.

## 10.9.4 SFP-2.5G-LR

**Table 10-53** SFP-2.5G-LR specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | SFP-2.5G-LR                 |
| Part Number                                | 02315BSU                    |
| Model                                      | SFP-2.5G-LR                 |
| Form factor                                | eSFP                        |
| Application standard                       | 2.5G_LR                     |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 75°C (32°F to 167°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 2.5 Gbit/s                  |
| Target transmission distance [km]          | 10 km                       |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1310 nm                     |
| Maximum Tx optical power [dBm]             | -3 dBm                      |
| Minimum Tx optical power [dBm]             | -9 dBm                      |
| Minimum extinction ratio [dB]              | 2.5GE: 6.0<br>GE: 8.0       |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -18 dBm                     |

| Item                 | Value  |
|----------------------|--------|
| Overload power [dBm] | -3 dBm |

 NOTE

This module can only be used on a switch running V600R024C10 or a later version.

## 10.9.5 eSFP-2.5G-iLR-BXU1

**Table 10-54** eSFP-2.5G-iLR-BXU1 specifications

| Item                                       | Value                        |
|--|------------------------------|
| <b>Basic Information</b>                   |                              |
| Module name                                | eSFP-2.5G-iLR-BXU1           |
| Part Number                                | 02314VYJ                     |
| Model                                      | eSFP-2.5G-iLR-BXU1           |
| Form factor                                | eSFP                         |
| Application standard                       | Non-standard                 |
| Connector type                             | LC                           |
| Optical fiber type                         | SMF                          |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)        | Supported                    |
| Transmission rate [bit/s]                  | 2.5 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 2 km      |
| <b>Transmitter Optical Characteristics</b> |                              |
| Center wavelength [nm]                     | 1490 nm (RX)<br>1310 nm (TX) |
| Maximum Tx optical power [dBm]             | 4.0 dBm                      |
| Minimum Tx optical power [dBm]             | -2.0 dBm                     |
| Minimum extinction ratio [dB]              | 9 dB                         |
| <b>Receiver Optical Characteristics</b>    |                              |
| Rx sensitivity [dBm]                       | -26 dBm                      |
| Overload power [dBm]                       | -3.0 dBm                     |

| Item        | Value  |
|-------------|--|
| <b>NOTE</b> |  |
|             | Supports the single-fiber bidirectional function.  |
|             | Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, eSFP-2.5G-iLR-BXD1 must be used with eSFP-2.5G-iLR-BXU1. |

 **NOTE**

This module can only be used on a switch running V600R024C10 or a later version.

## 10.10 10GE SFP+ Optical Modules

### 10.10.1 OMXD30000 (02318169)

Table 10-55 OMXD30000 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | OMXD30000                   |
| Part Number                         | 02318169                    |
| Model                               | OMXD30000                   |
| Form factor                         | SFP+                        |
| Application standard                | 10GBASE-SR                  |
| Connector type                      | LC                          |
| Optical fiber type                  | MMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 10 Gbit/s                   |

| Item                                       | Value  |
|--|--|
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.026 km<br>Multimode fiber (OM1): 0.033 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.066 km<br>Multimode fiber (OM2): 0.082 km<br>Multimode fiber (OM3): 0.3 km<br>Multimode fiber (OM4): 0.4 km |
| <b>Transmitter Optical Characteristics</b> |  |
| Center wavelength [nm]                     | 850 nm   |
| Maximum Tx optical power [dBm]             | -1.0 dBm   |
| Minimum Tx optical power [dBm]             | -7.3 dBm   |
| Minimum extinction ratio [dB]              | 3.0 dB   |
| <b>Receiver Optical Characteristics</b>    |  |
| Rx sensitivity [dBm]                       | -11.1 dBm  |
| Overload power [dBm]                       | -1.0 dBm   |

## 10.10.2 OSX010000 (02318170)

**Table 10-56** OSX010000 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | OSX010000                   |
| Part Number                         | 02318170                    |
| Model                               | OSX010000                   |
| Form factor                         | SFP+                        |
| Application standard                | 10GBASE-LR                  |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |

| Item                                       | Value                    |
|--|--------------------------|
| Transmission rate [bit/s]                  | 10 Gbit/s                |
| Target transmission distance [km]          | Single-mode fiber: 10 km |
| <b>Transmitter Optical Characteristics</b> |                          |
| Center wavelength [nm]                     | 1310 nm                  |
| Maximum Tx optical power [dBm]             | 0.5 dBm                  |
| Minimum Tx optical power [dBm]             | -8.2 dBm                 |
| Minimum extinction ratio [dB]              | 3.5 dB                   |
| <b>Receiver Optical Characteristics</b>    |                          |
| Rx sensitivity [dBm]                       | -12.6 dBm                |
| Overload power [dBm]                       | 0.5 dBm                  |

### 10.10.3 OSX040N01 (02310CNF)

**Table 10-57** OSX040N01 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | OSX040N01                   |
| Part Number                                | 02310CNF                    |
| Model                                      | OSX040N01                   |
| Form factor                                | SFP+                        |
| Application standard                       | 10GBASE-ER                  |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 40 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1550 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |

| Item                                    | Value     |
|---|-----------|
| Minimum Tx optical power [dBm]          | -4.7 dBm  |
| Minimum extinction ratio [dB]           | 3.0 dB    |
| <b>Receiver Optical Characteristics</b> |           |
| Rx sensitivity [dBm]                    | -14.1 dBm |
| Overload power [dBm]                    | -1.0 dBm  |

## 10.10.4 SFP-10G-ER-1310

Table 10-58 SFP-10G-ER-1310 specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | SFP-10G-ER-1310                                 |
| Part Number                                | 02311RLX  |
| Model                                      | SFP-10G-ER-1310                                 |
| Form factor                                | SFP+  |
| Application standard                       | Non-standard and compatible with the 10Gbase-ER |
| Connector type                             | LC  |
| Optical fiber type                         | SMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                     |
| Digital diagnostic monitoring (DDM)        | Supported                                       |
| Transmission rate [bit/s]                  | 10 Gbit/s                                       |
| Target transmission distance [km]          | Single-mode fiber: 40 km                        |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1310 nm   |
| Maximum Tx optical power [dBm]             | 4.0 dBm   |
| Minimum Tx optical power [dBm]             | -2.0 dBm  |
| Minimum extinction ratio [dB]              | 3.5 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -20 dBm   |

| Item   | Value    |
|--|----------|
| Overload power [dBm]   | -7.0 dBm |
| <b>NOTE</b><br>If an SFP-10G-ER-1310 optical module is connected to a 10GBase-ER optical module (1550 nm, 10GE, 40 km), the maximum transmission distance is only 20 km due to different specifications such as the wavelength and receiver sensitivity. |          |

## 10.10.5 SFP-10G-ER-C

**Table 10-59** SFP-10G-ER-C specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | SFP-10G-ER-C                |
| Part Number                                | 02312UUH                    |
| Model                                      | SFP-10G-ER-C                |
| Form factor                                | SFP+                        |
| Application standard                       | 10GBASE-ER                  |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 40 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1550 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |
| Minimum Tx optical power [dBm]             | -4.7 dBm                    |
| Minimum extinction ratio [dB]              | 3.0 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -14.1 dBm                   |
| Overload power [dBm]                       | -1.0 dBm                    |

## 10.10.6 SFP-10G-ER-SM1270-BIDI

**Table 10-60** SFP-10G-ER-SM1270-BIDI specifications

| Item   | Value                        |
|--|------------------------------|
| <b>Basic Information</b>   |                              |
| Module name  | SFP-10G-ER-SM1270-BIDI       |
| Part Number  | 02311BJC                     |
| Model  | SFP-10G-ER-SM1270-BIDI       |
| Form factor  | SFP+                         |
| Application standard   | 10GBASE-BX                   |
| Connector type   | LC                           |
| Optical fiber type   | SMF                          |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)  | Supported                    |
| Transmission rate [bit/s]  | 10 Gbit/s                    |
| Target transmission distance [km]  | Single-mode fiber: 40 km     |
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1330 nm (RX)<br>1270 nm (TX) |
| Maximum Tx optical power [dBm]   | 5 dBm                        |
| Minimum Tx optical power [dBm]   | 0 dBm                        |
| Minimum extinction ratio [dB]  | 3.5 dB                       |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -18 dBm                      |
| Overload power [dBm]   | -9 dBm                       |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-10G-ER-SM1270-BIDI must be used with SFP-10G-ER-SM1330-BIDI. |                              |

## 10.10.7 SFP-10G-ER-SM1330-BIDI

**Table 10-61** SFP-10G-ER-SM1330-BIDI specifications

| Item   | Value                        |
|--|------------------------------|
| <b>Basic Information</b>   |                              |
| Module name  | SFP-10G-ER-SM1330-BIDI       |
| Part Number  | 02311BJB                     |
| Model  | SFP-10G-ER-SM1330-BIDI       |
| Form factor  | SFP+                         |
| Application standard   | 10GBASE-BX                   |
| Connector type   | LC                           |
| Optical fiber type   | SMF                          |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)  | Supported                    |
| Transmission rate [bit/s]  | 10 Gbit/s                    |
| Target transmission distance [km]  | Single-mode fiber: 40 km     |
| <b>Transmitter Optical Characteristics</b>   |                              |
| Center wavelength [nm]   | 1270 nm (RX)<br>1330 nm (TX) |
| Maximum Tx optical power [dBm]   | 5 dBm                        |
| Minimum Tx optical power [dBm]   | 0 dBm                        |
| Minimum extinction ratio [dB]  | 3.5 dB                       |
| <b>Receiver Optical Characteristics</b>  |                              |
| Rx sensitivity [dBm]   | -18 dBm                      |
| Overload power [dBm]   | -9 dBm                       |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-10G-ER-SM1330-BIDI must be used with SFP-10G-ER-SM1270-BIDI. |                              |

## 10.10.8 SFP-10G-LR-C (02312UUG)

**Table 10-62** SFP-10G-LR-C specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | SFP-10G-LR-C                |
| Part Number                                | 02312UUG                    |
| Model                                      | SFP-10G-LR-C                |
| Form factor                                | SFP+                        |
| Application standard                       | 10GBASE-LR                  |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 10 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1310 nm                     |
| Maximum Tx optical power [dBm]             | 0.5 dBm                     |
| Minimum Tx optical power [dBm]             | -8.2 dBm                    |
| Minimum extinction ratio [dB]              | 3.5 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -12.6 dBm                   |
| Overload power [dBm]                       | 0.5 dBm                     |

## 10.10.9 SFP-10G-SR-C

**Table 10-63** SFP-10G-SR-C specifications

| Item                     | Value        |
|--------------------------|--------------|
| <b>Basic Information</b> |              |
| Module name              | SFP-10G-SR-C |

| Item                                       | Value  |
|--|--|
| Part Number                                | 02312UUE   |
| Model                                      | SFP-10G-SR-C   |
| Form factor                                | SFP+   |
| Application standard                       | 10GBASE-SR   |
| Connector type                             | LC   |
| Optical fiber type                         | MMF  |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)        | Supported  |
| Transmission rate [bit/s]                  | 10 Gbit/s  |
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.026 km<br>Multimode fiber (OM1): 0.033 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.066 km<br>Multimode fiber (OM2): 0.082 km<br>Multimode fiber (OM3): 0.3 km<br>Multimode fiber (OM4): 0.4 km |
| <b>Transmitter Optical Characteristics</b> |  |
| Center wavelength [nm]                     | 850 nm   |
| Maximum Tx optical power [dBm]             | -1.0 dBm   |
| Minimum Tx optical power [dBm]             | -7.3 dBm   |
| Minimum extinction ratio [dB]              | 3.0 dB   |
| <b>Receiver Optical Characteristics</b>    |  |
| Rx sensitivity [dBm]                       | -11.1 dBm  |
| Overload power [dBm]                       | -1.0 dBm   |

### 10.10.10 SFP-10G-USR (02310MNW)

**Table 10-64** SFP-10G-USR specifications

| Item                     | Value |
|--------------------------|-------|
| <b>Basic Information</b> |       |

| Item                                       | Value                         |
|--|-------------------------------|
| Module name                                | SFP-10G-USR                   |
| Part Number                                | 02310MNW                      |
| Model                                      | SFP-10G-USR                   |
| Form factor                                | SFP+                          |
| Application standard                       | 10GBASE-USR (non-standard)    |
| Connector type                             | LC                            |
| Optical fiber type                         | MMF                           |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)   |
| Digital diagnostic monitoring (DDM)        | Supported                     |
| Transmission rate [bit/s]                  | 10 Gbit/s                     |
| Target transmission distance [km]          | Multimode fiber (OM3): 0.1 km |
| <b>Transmitter Optical Characteristics</b> |                               |
| Center wavelength [nm]                     | 850 nm                        |
| Maximum Tx optical power [dBm]             | -1.0 dBm                      |
| Minimum Tx optical power [dBm]             | -7.3 dBm                      |
| Minimum extinction ratio [dB]              | 3.0 dB                        |
| <b>Receiver Optical Characteristics</b>    |                               |
| Rx sensitivity [dBm]                       | -10.7 dBm                     |
| Overload power [dBm]                       | 0.5 dBm                       |

## 10.10.11 SFP-10G-ZR

**Table 10-65** SFP-10G-ZR specifications

| Item                     | Value      |
|--------------------------|------------|
| <b>Basic Information</b> |            |
| Module name              | SFP-10G-ZR |
| Part Number              | 02310SNN   |
| Model                    | SFP-10G-ZR |
| Form factor              | SFP+       |
| Application standard     | 10GBASE-ZR |

| Item                                       | Value                       |
|--|-----------------------------|
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 80 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1550 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 9 dB                        |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -24.0 dBm                   |
| Overload power [dBm]                       | -7.0 dBm                    |

## 10.10.12 OMXD30000 (02313URC)

**Table 10-66** OMXD30000 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | OMXD30000                   |
| Part Number                         | 02313URC                    |
| Model                               | OMXD30000                   |
| Form factor                         | SFP+                        |
| Application standard                | 10GBASE-SR                  |
| Connector type                      | LC                          |
| Optical fiber type                  | MMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 10 Gbit/s                   |

| Item                                       | Value  |
|--|--|
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.026 km<br>Multimode fiber (OM1): 0.033 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.066 km<br>Multimode fiber (OM2): 0.082 km<br>Multimode fiber (OM3): 0.3 km<br>Multimode fiber (OM4): 0.4 km |
| <b>Transmitter Optical Characteristics</b> |  |
| Center wavelength [nm]                     | 850 nm   |
| Maximum Tx optical power [dBm]             | -1.0 dBm   |
| Minimum Tx optical power [dBm]             | -7.3 dBm   |
| Minimum extinction ratio [dB]              | 3.0 dB   |
| <b>Receiver Optical Characteristics</b>    |  |
| Rx sensitivity [dBm]                       | -11.1 dBm  |
| Overload power [dBm]                       | -1.0 dBm   |

### 10.10.13 OSX010000 (02313URK)

**Table 10-67** OSX010000 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | OSX010000                   |
| Part Number                         | 02313URK                    |
| Model                               | OSX010000                   |
| Form factor                         | SFP+                        |
| Application standard                | 10GBASE-LR                  |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |

| Item                                       | Value                    |
|--|--------------------------|
| Transmission rate [bit/s]                  | 10 Gbit/s                |
| Target transmission distance [km]          | Single-mode fiber: 10 km |
| <b>Transmitter Optical Characteristics</b> |                          |
| Center wavelength [nm]                     | 1310 nm                  |
| Maximum Tx optical power [dBm]             | 0.5 dBm                  |
| Minimum Tx optical power [dBm]             | -8.2 dBm                 |
| Minimum extinction ratio [dB]              | 3.5 dB                   |
| <b>Receiver Optical Characteristics</b>    |                          |
| Rx sensitivity [dBm]                       | -12.6 dBm                |
| Overload power [dBm]                       | 0.5 dBm                  |

## 10.10.14 SFP-10G-USR (02313URN)

**Table 10-68** SFP-10G-USR specifications

| Item                                       | Value                         |
|--|-------------------------------|
| <b>Basic Information</b>                   |                               |
| Module name                                | SFP-10G-USR                   |
| Part Number                                | 02313URN                      |
| Model                                      | SFP-10G-USR                   |
| Form factor                                | SFP+                          |
| Application standard                       | 10GBASE-USR (non-standard)    |
| Connector type                             | LC                            |
| Optical fiber type                         | MMF                           |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)   |
| Digital diagnostic monitoring (DDM)        | Supported                     |
| Transmission rate [bit/s]                  | 10 Gbit/s                     |
| Target transmission distance [km]          | Multimode fiber (OM3): 0.1 km |
| <b>Transmitter Optical Characteristics</b> |                               |
| Center wavelength [nm]                     | 850 nm                        |
| Maximum Tx optical power [dBm]             | -1.0 dBm                      |

| Item                                    | Value     |
|---|-----------|
| Minimum Tx optical power [dBm]          | -7.3 dBm  |
| Minimum extinction ratio [dB]           | 3.0 dB    |
| <b>Receiver Optical Characteristics</b> |           |
| Rx sensitivity [dBm]                    | -10.7 dBm |
| Overload power [dBm]                    | 0.5 dBm   |

## 10.10.15 SFP+10GE-LH10-SM1310

**Table 10-69** SFP+10GE-LH10-SM1310 specifications

| Item                                       | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>                   |                                  |
| Module name                                | SFP+10GE-LH10-SM1310             |
| Part Number                                | 02311MUU                         |
| Model                                      | SFP+10GE-LH10-SM1310             |
| Form factor                                | SFP+                             |
| Application standard                       | 10GBASE-LR                       |
| Connector type                             | LC                               |
| Optical fiber type                         | SMF                              |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)        | Supported                        |
| Transmission rate [bit/s]                  | 10 Gbit/s                        |
| Target transmission distance [km]          | Single-mode fiber: 10 km         |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1310 nm                          |
| Maximum Tx optical power [dBm]             | 0.5 dBm                          |
| Minimum Tx optical power [dBm]             | -8.2 dBm                         |
| Minimum extinction ratio [dB]              | 3.5 dB                           |
| <b>Receiver Optical Characteristics</b>    |                                  |
| Rx sensitivity [dBm]                       | -14.4 dBm                        |
| Overload power [dBm]                       | 0.5 dBm                          |

## 10.10.16 SFP-10G-BXD1

**Table 10-70** SFP-10G-BXD1 specifications

| Item   | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>   |                                  |
| Module name  | SFP-10G-BXD1                     |
| Part Number  | 02310QDT                         |
| Model  | SFP-10G-BXD1                     |
| Form factor  | SFP+                             |
| Application standard   | 10GBASE-BX                       |
| Connector type   | LC                               |
| Optical fiber type   | SMF                              |
| Working case temperature [°C(°F)]  | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)  | Supported                        |
| Transmission rate [bit/s]  | 10 Gbit/s                        |
| Target transmission distance [km]  | Single-mode fiber: 10 km         |
| <b>Transmitter Optical Characteristics</b>   |                                  |
| Center wavelength [nm]   | 1270 nm (RX)<br>1330 nm (TX)     |
| Maximum Tx optical power [dBm]   | 0.5 dBm                          |
| Minimum Tx optical power [dBm]   | -8.2 dBm                         |
| Minimum extinction ratio [dB]  | 3.5 dB                           |
| <b>Receiver Optical Characteristics</b>  |                                  |
| Rx sensitivity [dBm]   | -14.4 dBm                        |
| Overload power [dBm]   | 0.5 dBm                          |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-10G-BXD1 must be used with SFP-10G-BXU1. |                                  |

## 10.10.17 SFP-10G-BXU1

**Table 10-71** SFP-10G-BXU1 specifications

| Item   | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>   |                                  |
| Module name  | SFP-10G-BXU1                     |
| Part Number  | 02310QBJ                         |
| Model  | SFP-10G-BXU1                     |
| Form factor  | SFP+                             |
| Application standard   | 10GBASE-BX                       |
| Connector type   | LC                               |
| Optical fiber type   | SMF                              |
| Working case temperature [°C(°F)]  | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)  | Supported                        |
| Transmission rate [bit/s]  | 10 Gbit/s                        |
| Target transmission distance [km]  | Single-mode fiber: 10 km         |
| <b>Transmitter Optical Characteristics</b>   |                                  |
| Center wavelength [nm]   | 1330 nm (RX)<br>1270 nm (TX)     |
| Maximum Tx optical power [dBm]   | 0.5 dBm                          |
| Minimum Tx optical power [dBm]   | -8.2 dBm                         |
| Minimum extinction ratio [dB]  | 3.5 dB                           |
| <b>Receiver Optical Characteristics</b>  |                                  |
| Rx sensitivity [dBm]   | -14.4 dBm                        |
| Overload power [dBm]   | 0.5 dBm                          |
| <b>NOTE</b><br>Supports the single-fiber bidirectional function.<br>Single-fiber bidirectional (BIDI) optical modules must be used in pairs. For example, SFP-10G-BXU1 must be used with SFP-10G-BXD1. |                                  |

## 10.10.18 SFP-10G-SR

**Table 10-72** SFP-10G-SR specifications

| Item                                       | Value                         |
|--|-------------------------------|
| <b>Basic Information</b>                   |                               |
| Module name                                | SFP-10G-SR                    |
| Part Number                                | 02311SKW                      |
| Model                                      | SFP-10G-SR                    |
| Form factor                                | SFP+                          |
| Application standard                       | 10GBASE-SR                    |
| Connector type                             | LC                            |
| Optical fiber type                         | MMF                           |
| Working case temperature [°C(°F)]          | 0°C to 85°C (32°F to 185°F)   |
| Digital diagnostic monitoring (DDM)        | Supported                     |
| Transmission rate [bit/s]                  | 10 Gbit/s                     |
| Target transmission distance [km]          | Multimode fiber (OM3): 0.3 km |
| <b>Transmitter Optical Characteristics</b> |                               |
| Center wavelength [nm]                     | 850 nm                        |
| Maximum Tx optical power [dBm]             | -1.0 dBm                      |
| Minimum Tx optical power [dBm]             | -7.3 dBm                      |
| Minimum extinction ratio [dB]              | 3.0 dB                        |
| <b>Receiver Optical Characteristics</b>    |                               |
| Rx sensitivity [dBm]                       | -11.1 dBm                     |
| Overload power [dBm]                       | -1.0 dBm                      |

## 10.10.19 SFP-10G-iLR

**Table 10-73** SFP-10G-iLR specifications

| Item                     | Value       |
|--------------------------|-------------|
| <b>Basic Information</b> |             |
| Module name              | SFP-10G-iLR |

| Item                                       | Value                             |
|--|-----------------------------------|
| Part Number                                | 02311BJJ                          |
| Model                                      | SFP-10G-iLR                       |
| Form factor                                | SFP+                              |
| Application standard                       | 10GBASE-iLR (non-standard)        |
| Connector type                             | LC                                |
| Optical fiber type                         | SMF                               |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F)  |
| Digital diagnostic monitoring (DDM)        | Supported                         |
| Transmission rate [bit/s]                  | 10 Gbit/s                         |
| Target transmission distance [km]          | Single-mode optical fiber: 1.4 km |
| <b>Transmitter Optical Characteristics</b> |                                   |
| Center wavelength [nm]                     | 1310 nm                           |
| Maximum Tx optical power [dBm]             | 0.5 dBm                           |
| Minimum Tx optical power [dBm]             | -8.2 dBm                          |
| Minimum extinction ratio [dB]              | 3.5 dB                            |
| <b>Receiver Optical Characteristics</b>    |                                   |
| Rx sensitivity [dBm]                       | -14.4 dBm                         |
| Overload power [dBm]                       | 0.5 dBm                           |

## 10.10.20 SFP-10G-iLR-C

**Table 10-74** SFP-10G-iLR-C specifications

| Item                     | Value                      |
|--------------------------|----------------------------|
| <b>Basic Information</b> |                            |
| Module name              | SFP-10G-iLR-C              |
| Part Number              | 02312UUF                   |
| Model                    | SFP-10G-iLR-C              |
| Form factor              | SFP+                       |
| Application standard     | 10GBASE-iLR (non-standard) |
| Connector type           | LC                         |

| Item                                       | Value                             |
|--|-----------------------------------|
| Optical fiber type                         | SMF                               |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F)  |
| Digital diagnostic monitoring (DDM)        | Supported                         |
| Transmission rate [bit/s]                  | 10 Gbit/s                         |
| Target transmission distance [km]          | Single-mode optical fiber: 1.4 km |
| <b>Transmitter Optical Characteristics</b> |                                   |
| Center wavelength [nm]                     | 1310 nm                           |
| Maximum Tx optical power [dBm]             | 0.5 dBm                           |
| Minimum Tx optical power [dBm]             | -8.2 dBm                          |
| Minimum extinction ratio [dB]              | 3.5 dB                            |
| <b>Receiver Optical Characteristics</b>    |                                   |
| Rx sensitivity [dBm]                       | -14.4 dBm                         |
| Overload power [dBm]                       | 0.5 dBm                           |

## 10.10.21 SFP-10G-LR-I (02313ABG)

Table 10-75 SFP-10G-LR-I specifications

| Item                                | Value                            |
|-------------------------------------|----------------------------------|
| <b>Basic Information</b>            |                                  |
| Module name                         | SFP-10G-LR-I                     |
| Part Number                         | 02313ABG                         |
| Model                               | SFP-10G-LR-I                     |
| Form factor                         | SFP+                             |
| Application standard                | 10GBASE-LR                       |
| Connector type                      | LC                               |
| Optical fiber type                  | SMF                              |
| Working case temperature [°C(°F)]   | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM) | Supported                        |
| Transmission rate [bit/s]           | 10 Gbit/s                        |
| Target transmission distance [km]   | Single-mode fiber: 10 km         |

| Item                                       | Value     |
|--|-----------|
| <b>Transmitter Optical Characteristics</b> |           |
| Center wavelength [nm]                     | 1310 nm   |
| Maximum Tx optical power [dBm]             | 0.5 dBm   |
| Minimum Tx optical power [dBm]             | -8.2 dBm  |
| Minimum extinction ratio [dB]              | 3.5 dB    |
| <b>Receiver Optical Characteristics</b>    |           |
| Rx sensitivity [dBm]                       | -14.4 dBm |
| Overload power [dBm]                       | 0.5 dBm   |

## 10.10.22 OSX040N01 (02314KKG)

Table 10-76 OSX040N01 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | OSX040N01                   |
| Part Number                                | 02314KKG                    |
| Model                                      | OSX040N01                   |
| Form factor                                | SFP+                        |
| Application standard                       | 10GBASE-ER                  |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 40 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1550 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |
| Minimum Tx optical power [dBm]             | -4.7 dBm                    |
| Minimum extinction ratio [dB]              | 3.0 dB                      |

| Item                                    | Value     |
|---|-----------|
| <b>Receiver Optical Characteristics</b> |           |
| Rx sensitivity [dBm]                    | -14.1 dBm |
| Overload power [dBm]                    | -1.0 dBm  |

### 10.10.23 SFP-10G-LR (02313URL)

Table 10-77 SFP-10G-LR specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | SFP-10G-LR  |
| Part Number                                | 02313URL  |
| Model                                      | SFP-10G-LR  |
| Form factor                                | SFP+  |
| Application standard                       | 10GBASE-LR  |
| Connector type                             | LC  |
| Optical fiber type                         | SMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                               |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 10Gbit/s  |
| Target transmission distance [km]          | Single-mode (G.652) optical fiber (diameter: 9 μm): 10 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1310 nm   |
| Maximum Tx optical power [dBm]             | 0.5 dBm   |
| Minimum Tx optical power [dBm]             | -8.2 dBm  |
| Minimum extinction ratio [dB]              | 3.5 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -12.6 dBm   |
| Overload power [dBm]                       | 0.5 dBm   |

## 10.10.24 SFP-10G-LR-C (02314KKE)

**Table 10-78** SFP-10G-LR-C specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | SFP-10G-LR-C                |
| Part Number                                | 02314KKE                    |
| Model                                      | SFP-10G-LR-C                |
| Form factor                                | SFP+                        |
| Application standard                       | 10GBASE-LR                  |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 10 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1310 nm                     |
| Maximum Tx optical power [dBm]             | 0.5 dBm                     |
| Minimum Tx optical power [dBm]             | -8.2 dBm                    |
| Minimum extinction ratio [dB]              | 3.5 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -12.6 dBm                   |
| Overload power [dBm]                       | 0.5 dBm                     |

## 10.10.25 SFP-10G-LR (02310QDJ)

**Table 10-79** SFP-10G-LR specifications

| Item                     | Value      |
|--------------------------|------------|
| <b>Basic Information</b> |            |
| Module name              | SFP-10G-LR |

| Item                                       | Value   |
|--|---|
| Part Number                                | 02310QDJ  |
| Model                                      | SFP-10G-LR  |
| Form factor                                | SFP+  |
| Application standard                       | 10GBASE-LR  |
| Connector type                             | LC  |
| Optical fiber type                         | SMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                               |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 10Gbit/s  |
| Target transmission distance [km]          | Single-mode (G.652) optical fiber (diameter: 9 μm): 10 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1310 nm   |
| Maximum Tx optical power [dBm]             | 0.5 dBm   |
| Minimum Tx optical power [dBm]             | -8.2 dBm  |
| Minimum extinction ratio [dB]              | 3.5 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -12.6 dBm   |
| Overload power [dBm]                       | 0.5 dBm   |

## 10.10.26 SFP-10G-LR-I (02314LBW)

**Table 10-80** SFP-10G-LR-I specifications

| Item                     | Value        |
|--------------------------|--------------|
| <b>Basic Information</b> |              |
| Module name              | SFP-10G-LR-I |
| Part Number              | 02314LBW     |
| Model                    | SFP-10G-LR-I |
| Form factor              | SFP+         |
| Application standard     | 10GBASE-LR   |

| Item                                       | Value                            |
|--|----------------------------------|
| Connector type                             | LC                               |
| Optical fiber type                         | SMF                              |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)        | Supported                        |
| Transmission rate [bit/s]                  | 10 Gbit/s                        |
| Target transmission distance [km]          | Single-mode fiber: 10 km         |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1310 nm                          |
| Maximum Tx optical power [dBm]             | 0.5 dBm                          |
| Minimum Tx optical power [dBm]             | -8.2 dBm                         |
| Minimum extinction ratio [dB]              | 3.5 dB                           |
| <b>Receiver Optical Characteristics</b>    |                                  |
| Rx sensitivity [dBm]                       | -14.4 dBm                        |
| Overload power [dBm]                       | 0.5 dBm                          |

## 10.10.27 SFP-10G-LR-eKit

**Table 10-81** SFP-10G-LR-eKit specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | SFP-10G-LR-eKit             |
| Part Number                         | 02315HNR                    |
| Model                               | SFP-10G-LR-eKit             |
| Form factor                         | SFP+                        |
| Application standard                | 10GBASE-LR                  |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 10 Gbit/s                   |

| Item                                       | Value                    |
|--|--------------------------|
| Target transmission distance [km]          | Single-mode fiber: 10 km |
| <b>Transmitter Optical Characteristics</b> |                          |
| Center wavelength [nm]                     | 1310 nm                  |
| Maximum Tx optical power [dBm]             | 0.5 dBm                  |
| Minimum Tx optical power [dBm]             | -8.2 dBm                 |
| Minimum extinction ratio [dB]              | 3.5 dB                   |
| <b>Receiver Optical Characteristics</b>    |                          |
| Rx sensitivity [dBm]                       | -12.6 dBm                |
| Overload power [dBm]                       | 0.5 dBm                  |

## 10.10.28 SFP-10G-SR-eKit

**Table 10-82** SFP-10G-SR-eKit specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | SFP-10G-SR-eKit             |
| Part Number                         | 02315HNN                    |
| Model                               | SFP-10G-SR-eKit             |
| Form factor                         | SFP+                        |
| Application standard                | 10GBASE-SR                  |
| Connector type                      | LC                          |
| Optical fiber type                  | MMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 10 Gbit/s                   |

| Item                                       | Value  |
|--|--|
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.026 km<br>Multimode fiber (OM1): 0.033 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.066 km<br>Multimode fiber (OM2): 0.082 km<br>Multimode fiber (OM3): 0.3 km<br>Multimode fiber (OM4): 0.4 km |
| <b>Transmitter Optical Characteristics</b> |  |
| Center wavelength [nm]                     | 850 nm   |
| Maximum Tx optical power [dBm]             | -1.0 dBm   |
| Minimum Tx optical power [dBm]             | -7.3 dBm   |
| Minimum extinction ratio [dB]              | 3.0 dB   |
| <b>Receiver Optical Characteristics</b>    |  |
| Rx sensitivity [dBm]                       | -11.1 dBm  |
| Overload power [dBm]                       | -1.0 dBm   |

## 10.11 10GE SFP+ Copper Modules

### 10.11.1 SFP-10GBaseT-SR

Table 10-83 SFP-10GBaseT-SR specifications

| Item                     | Value           |
|--------------------------|-----------------|
| <b>Basic Information</b> |                 |
| Module name              | SFP-10GBaseT-SR |
| Part Number              | 02314PHV        |
| Model                    | SFP-10GBaseT-SR |
| Form factor              | SFP+            |
| Application standard     | 10GBASE-T       |
| Connector type           | RJ45            |

| Item  | Value   |
|---|---|
| Optical fiber type  | -   |
| Working case temperature [°C(°F)]   | -5°C to +85°C (23°F to 185°F)<br>When a switch uses this module, the ambient temperature must range from -5°C to +50°C (23°F to 122°F)        |
| Digital diagnostic monitoring (DDM)   | Not supported   |
| Transmission rate [bit/s]   | 100 Mbit/s<br>1 Gbit/s<br>2.5 Gbit/s<br>5 Gbit/s<br>10 Gbit/s   |
| Target transmission distance [km]   | 10 Gbit/s: 30 m (Cat6A S/FTP or above)<br>2.5 Gbit/s or 5 Gbit/s: 30 m (Cat5E STP or above)<br>100 Mbit/s or 1 Gbit/s: 100 m (Cat5E or above) |
| <b>Transmitter Optical Characteristics</b>  |   |
| Center wavelength [nm]  | -   |
| Maximum Tx optical power [dBm]  | -   |
| Minimum Tx optical power [dBm]  | -   |
| Minimum extinction ratio [dB]   | -   |
| <b>Receiver Optical Characteristics</b>   |   |
| Rx sensitivity [dBm]  | -   |
| Overload power [dBm]  | -   |
| <b>NOTE</b><br>When a switch uses this module, the ambient temperature must range from 0°C to 45°C (32°F to 113°F). |   |

 **NOTE**

The supported rate depends on the port.

This module does not support the rate of 100 Mbit/s or 1000 Mbit/s when it is used on a 25GE optical port of a switch running V600 version.

## 10.12 10GE-CWDM SFP+ Optical Modules

## 10.12.1 SFP-10G-ZCW1471

**Table 10-84** SFP-10G-ZCW1471 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | SFP-10G-ZCW1471             |
| Part Number                                | 02310SSG                    |
| Model                                      | SFP-10G-ZCW1471             |
| Form factor                                | SFP+                        |
| Application standard                       | 10G-CWDM                    |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 70 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1471 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.2 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -23.0 dBm                   |
| Overload power [dBm]                       | -7.0 dBm                    |

## 10.12.2 SFP-10G-ZCW1491

**Table 10-85** SFP-10G-ZCW1491 specifications

| Item                     | Value           |
|--------------------------|-----------------|
| <b>Basic Information</b> |                 |
| Module name              | SFP-10G-ZCW1491 |

| Item                                       | Value                       |
|--|-----------------------------|
| Part Number                                | 02310SSF                    |
| Model                                      | SFP-10G-ZCW1491             |
| Form factor                                | SFP+                        |
| Application standard                       | 10G-CWDM                    |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 70 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1491 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.2 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -23.0 dBm                   |
| Overload power [dBm]                       | -7.0 dBm                    |

### 10.12.3 SFP-10G-ZCW1511

**Table 10-86** SFP-10G-ZCW1511 specifications

| Item                     | Value           |
|--------------------------|-----------------|
| <b>Basic Information</b> |                 |
| Module name              | SFP-10G-ZCW1511 |
| Part Number              | 02310SSE        |
| Model                    | SFP-10G-ZCW1511 |
| Form factor              | SFP+            |
| Application standard     | 10G-CWDM        |
| Connector type           | LC              |

| Item                                       | Value                       |
|--|-----------------------------|
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 70 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1511 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.2 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -23.0 dBm                   |
| Overload power [dBm]                       | -7.0 dBm                    |

## 10.12.4 SFP-10G-ZCW1531

Table 10-87 SFP-10G-ZCW1531 specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | SFP-10G-ZCW1531             |
| Part Number                         | 02310SSD                    |
| Model                               | SFP-10G-ZCW1531             |
| Form factor                         | SFP+                        |
| Application standard                | 10G-CWDM                    |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 10 Gbit/s                   |
| Target transmission distance [km]   | Single-mode fiber: 70 km    |

| Item                                       | Value     |
|--|-----------|
| <b>Transmitter Optical Characteristics</b> |           |
| Center wavelength [nm]                     | 1531 nm   |
| Maximum Tx optical power [dBm]             | 4.0 dBm   |
| Minimum Tx optical power [dBm]             | 0 dBm     |
| Minimum extinction ratio [dB]              | 8.2 dB    |
| <b>Receiver Optical Characteristics</b>    |           |
| Rx sensitivity [dBm]                       | -23.0 dBm |
| Overload power [dBm]                       | -7.0 dBm  |

## 10.12.5 SFP-10G-ZCW1551

**Table 10-88** SFP-10G-ZCW1551 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | SFP-10G-ZCW1551             |
| Part Number                                | 02310SSC                    |
| Model                                      | SFP-10G-ZCW1551             |
| Form factor                                | SFP+                        |
| Application standard                       | 10G-CWDM                    |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 70 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1551 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.2 dB                      |

| Item                                    | Value     |
|---|-----------|
| <b>Receiver Optical Characteristics</b> |           |
| Rx sensitivity [dBm]                    | -23.0 dBm |
| Overload power [dBm]                    | -7.0 dBm  |

## 10.12.6 SFP-10G-ZCW1571

**Table 10-89** SFP-10G-ZCW1571 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | SFP-10G-ZCW1571             |
| Part Number                                | 02310SSB                    |
| Model                                      | SFP-10G-ZCW1571             |
| Form factor                                | SFP+                        |
| Application standard                       | 10G-CWDM                    |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 70 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1571 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.2 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -23.0 dBm                   |
| Overload power [dBm]                       | -7.0 dBm                    |

## 10.12.7 SFP-10G-ZCW1591

**Table 10-90** SFP-10G-ZCW1591 specifications

| Item                                       | Value                       |
|--|-----------------------------|
| <b>Basic Information</b>                   |                             |
| Module name                                | SFP-10G-ZCW1591             |
| Part Number                                | 02310SSA                    |
| Model                                      | SFP-10G-ZCW1591             |
| Form factor                                | SFP+                        |
| Application standard                       | 10G-CWDM                    |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 70 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1591 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.2 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -23.0 dBm                   |
| Overload power [dBm]                       | -7.0 dBm                    |

## 10.12.8 SFP-10G-ZCW1611

**Table 10-91** SFP-10G-ZCW1611 specifications

| Item                     | Value           |
|--------------------------|-----------------|
| <b>Basic Information</b> |                 |
| Module name              | SFP-10G-ZCW1611 |

| Item                                       | Value                       |
|--|-----------------------------|
| Part Number                                | 02310SRY                    |
| Model                                      | SFP-10G-ZCW1611             |
| Form factor                                | SFP+                        |
| Application standard                       | 10G-CWDM                    |
| Connector type                             | LC                          |
| Optical fiber type                         | SMF                         |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)        | Supported                   |
| Transmission rate [bit/s]                  | 10 Gbit/s                   |
| Target transmission distance [km]          | Single-mode fiber: 70 km    |
| <b>Transmitter Optical Characteristics</b> |                             |
| Center wavelength [nm]                     | 1611 nm                     |
| Maximum Tx optical power [dBm]             | 4.0 dBm                     |
| Minimum Tx optical power [dBm]             | 0 dBm                       |
| Minimum extinction ratio [dB]              | 8.2 dB                      |
| <b>Receiver Optical Characteristics</b>    |                             |
| Rx sensitivity [dBm]                       | -23.0 dBm                   |
| Overload power [dBm]                       | -7.0 dBm                    |

## 10.13 10GE-DWDM SFP+ Optical Modules

### 10.13.1 SFP-10G-ZDWT

Table 10-92 SFP-10G-ZDWT specifications

| Item                     | Value        |
|--------------------------|--------------|
| <b>Basic Information</b> |              |
| Module name              | SFP-10G-ZDWT |
| Part Number              | 02310YUT     |
| Model                    | SFP-10G-ZDWT |
| Form factor              | SFP+         |

| Item   | Value                       |
|--|-----------------------------|
| Application standard   | 10GBASE-DWDM                |
| Connector type   | LC                          |
| Optical fiber type   | SMF                         |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)  | Supported                   |
| Transmission rate [bit/s]  | 10 Gbit/s                   |
| Target transmission distance [km]  | Single-mode fiber: 60 km    |
| <b>Transmitter Optical Characteristics</b>   |                             |
| Center wavelength [nm]   | 1529.16 nm - 1560.61 nm     |
| Maximum Tx optical power [dBm]   | 3 dBm                       |
| Minimum Tx optical power [dBm]   | -1 dBm                      |
| Minimum extinction ratio [dB]  | 8.2 dB                      |
| <b>Receiver Optical Characteristics</b>  |                             |
| Rx sensitivity [dBm]   | -24 dBm                     |
| Overload power [dBm]   | -1 dBm                      |
| <b>NOTE</b><br>The startup of the optical module takes a long time. Therefore, when the optical module is just installed into a switch port, the switch may incorrectly report an alarm indicating that the transmit optical power is low. |                             |

## 10.14 25GE SFP28 Optical Modules

### 10.14.1 SFP-25G-LR

**Table 10-93** SFP-25G-LR specifications

| Item                     | Value      |
|--------------------------|------------|
| <b>Basic Information</b> |            |
| Module name              | SFP-25G-LR |
| Part Number              | 02312LSE   |
| Model                    | SFP-25G-LR |
| Form factor              | SFP28      |

| Item                                       | Value                            |
|--|----------------------------------|
| Application standard                       | 25GBASE-LR                       |
| Connector type                             | LC                               |
| Optical fiber type                         | SMF                              |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)        | Supported                        |
| Transmission rate [bit/s]                  | 25 Gbit/s                        |
| Target transmission distance [km]          | Single-mode fiber: 10 km         |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1310 nm                          |
| Maximum Tx optical power [dBm]             | 2 dBm                            |
| Minimum Tx optical power [dBm]             | -7 dBm                           |
| Minimum extinction ratio [dB]              | 3.5 dB                           |
| <b>Receiver Optical Characteristics</b>    |                                  |
| Rx sensitivity [dBm]                       | -11.3 dBm                        |
| Overload power [dBm]                       | 2 dBm                            |

## 10.14.2 SFP-25G-SR (02311KNR)

Table 10-94 SFP-25G-SR specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | SFP-25G-SR                  |
| Part Number                         | 02311KNR                    |
| Model                               | SFP-25G-SR                  |
| Form factor                         | SFP28                       |
| Application standard                | 25GBASE-SR                  |
| Connector type                      | LC                          |
| Optical fiber type                  | MMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |

| Item                                       | Value   |
|--|---|
| Transmission rate [bit/s]                  | 25 Gbit/s   |
| Target transmission distance [km]          | Multimode fiber (OM3):<br>- Disables the RS-FEC function: 0.03 km<br>- Enables the RS-FEC function: 0.07 km<br><br>Multimode fiber (OM4):<br>- Disables the RS-FEC function: 0.04 km<br>- Enables the RS-FEC function: 0.1 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | 2.4 dBm   |
| Minimum Tx optical power [dBm]             | -8.4 dBm  |
| Minimum extinction ratio [dB]              | 2 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -10.3 dBm   |
| Overload power [dBm]                       | 2.4 dBm   |

### 10.14.3 SFP-25G-ESR

**Table 10-95** SFP-25G-ESR specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | SFP-25G-ESR                 |
| Part Number                         | 02313JFQ                    |
| Model                               | SFP-25G-ESR                 |
| Form factor                         | SFP28                       |
| Application standard                | 25GBASE-ESR (non-standard)  |
| Connector type                      | LC                          |
| Optical fiber type                  | MMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |

| Item  | Value  |
|---|--|
| Transmission rate [bit/s]   | 10/25 Gbit/s   |
| Target transmission distance [km]   | Multimode fiber (OM3): 0.2 km<br>Multimode fiber (OM4): 0.3 km |
| <b>Transmitter Optical Characteristics</b>  |  |
| Center wavelength [nm]  | 850 nm   |
| Maximum Tx optical power [dBm]  | 2.4 dBm  |
| Minimum Tx optical power [dBm]  | -4.4 dBm   |
| Minimum extinction ratio [dB]   | 3 dB   |
| <b>Receiver Optical Characteristics</b>   |  |
| Rx sensitivity [dBm]  | -10.3 dBm  |
| Overload power [dBm]  | 2.4 dBm  |
| <b>NOTE</b>   |  |
| When the optical module is used on a 25GE port, you can set the speed to 10 Gbit/s using a command.   |  |
| When the optical module works at 25 Gbit/s, the maximum transmission distance of the optical module depends on the quality of optical fibers. |  |

## 10.14.4 SFP-25G-LR-BXU1-I

**Table 10-96** SFP-25G-LR-BXU1-I specifications

| Item                                | Value                            |
|-------------------------------------|----------------------------------|
| <b>Basic Information</b>            |                                  |
| Module name                         | SFP-25G-LR-BXU1-I                |
| Part Number                         | 02314LBS                         |
| Model                               | SFP-25G-LR-BXU1-I                |
| Form factor                         | SFP28                            |
| Application standard                | 25GBASE-LR BiDi                  |
| Connector type                      | LC                               |
| Optical fiber type                  | SMF                              |
| Working case temperature [°C(°F)]   | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM) | Supported                        |
| Transmission rate [bit/s]           | 25 Gbit/s                        |

| Item                                       | Value                        |
|--|------------------------------|
| Target transmission distance [km]          | Single-mode fiber: 10 km     |
| <b>Transmitter Optical Characteristics</b> |                              |
| Center wavelength [nm]                     | 1270 nm (TX)<br>1330 nm (RX) |
| Maximum Tx optical power [dBm]             | 2 dBm                        |
| Minimum Tx optical power [dBm]             | -4 dBm                       |
| Minimum extinction ratio [dB]              | 3 dB                         |
| <b>Receiver Optical Characteristics</b>    |                              |
| Rx sensitivity [dBm]                       | -12 dBm                      |
| Overload power [dBm]                       | 2 dBm                        |

## 10.14.5 SFP-25G-LR-BXD1-I

**Table 10-97** SFP-25G-LR-BXD1-I specifications

| Item                                       | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>                   |                                  |
| Module name                                | SFP-25G-LR-BXD1-I                |
| Part Number                                | 02314LBU                         |
| Model                                      | SFP-25G-LR-BXD1-I                |
| Form factor                                | SFP28                            |
| Application standard                       | 25GBASE-LR BiDi                  |
| Connector type                             | LC                               |
| Optical fiber type                         | SMF                              |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)        | Supported                        |
| Transmission rate [bit/s]                  | 25 Gbit/s                        |
| Target transmission distance [km]          | Single-mode fiber: 10 km         |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1330 nm (TX)<br>1270 nm (RX)     |

| Item                                    | Value   |
|---|---------|
| Maximum Tx optical power [dBm]          | 2 dBm   |
| Minimum Tx optical power [dBm]          | -4 dBm  |
| Minimum extinction ratio [dB]           | 3 dB    |
| <b>Receiver Optical Characteristics</b> |         |
| Rx sensitivity [dBm]                    | -12 dBm |
| Overload power [dBm]                    | 2 dBm   |

### 10.14.6 SFP-25G-eLR-BXD1-I

**Table 10-98** SFP-25G-eLR-BXD1-I specifications

| Item                                       | Value                                |
|--|--------------------------------------|
| <b>Basic Information</b>                   |                                      |
| Module name                                | SFP-25G-eLR-BXD1-I                   |
| Part Number                                | 02314LCK                             |
| Model                                      | SFP-25G-eLR-BXD1-I                   |
| Form factor                                | SFP28                                |
| Application standard                       | 25GBASE-LR BiDi 20 km (non-standard) |
| Connector type                             | LC                                   |
| Optical fiber type                         | SMF                                  |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F)     |
| Digital diagnostic monitoring (DDM)        | Supported                            |
| Transmission rate [bit/s]                  | 25 Gbit/s                            |
| Target transmission distance [km]          | Single-mode fiber: 20 km             |
| <b>Transmitter Optical Characteristics</b> |                                      |
| Center wavelength [nm]                     | 1330 nm (TX)<br>1270 nm (RX)         |
| Maximum Tx optical power [dBm]             | 3 dBm                                |
| Minimum Tx optical power [dBm]             | -3 dBm                               |
| Minimum extinction ratio [dB]              | 3.5 dB                               |

| Item                                    | Value   |
|---|---------|
| <b>Receiver Optical Characteristics</b> |         |
| Rx sensitivity [dBm]                    | -14 dBm |
| Overload power [dBm]                    | 3 dBm   |

## 10.14.7 SFP-25G-eLR-BXU1-I

**Table 10-99** SFP-25G-eLR-BXU1-I specifications

| Item                                       | Value                                |
|--|--------------------------------------|
| <b>Basic Information</b>                   |                                      |
| Module name                                | SFP-25G-eLR-BXU1-I                   |
| Part Number                                | 02314LCJ                             |
| Model                                      | SFP-25G-eLR-BXU1-I                   |
| Form factor                                | SFP28                                |
| Application standard                       | 25GBASE-LR BiDi 20 km (non-standard) |
| Connector type                             | LC                                   |
| Optical fiber type                         | SMF                                  |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F)     |
| Digital diagnostic monitoring (DDM)        | Supported                            |
| Transmission rate [bit/s]                  | 25 Gbit/s                            |
| Target transmission distance [km]          | Single-mode fiber: 20 km             |
| <b>Transmitter Optical Characteristics</b> |                                      |
| Center wavelength [nm]                     | 1270 nm (TX)<br>1330 nm (RX)         |
| Maximum Tx optical power [dBm]             | 3 dBm                                |
| Minimum Tx optical power [dBm]             | -3 dBm                               |
| Minimum extinction ratio [dB]              | 3.5 dB                               |
| <b>Receiver Optical Characteristics</b>    |                                      |
| Rx sensitivity [dBm]                       | -14 dBm                              |
| Overload power [dBm]                       | 3 dBm                                |

## 10.14.8 SFP-25G-SR (02313URP)

**Table 10-100** SFP-25G-SR specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | SFP-25G-SR  |
| Part Number                                | 02313URP  |
| Model                                      | SFP-25G-SR  |
| Form factor                                | SFP28   |
| Application standard                       | 25GBASE-SR  |
| Connector type                             | LC  |
| Optical fiber type                         | MMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)   |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 25 Gbit/s   |
| Target transmission distance [km]          | Multimode fiber (OM3):<br>- Disables the RS-FEC function: 0.03 km<br>- Enables the RS-FEC function: 0.07 km<br>Multimode fiber (OM4):<br>- Disables the RS-FEC function: 0.04 km<br>- Enables the RS-FEC function: 0.1 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | 2.4 dBm   |
| Minimum Tx optical power [dBm]             | -8.4 dBm  |
| Minimum extinction ratio [dB]              | 2 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -10.3 dBm   |
| Overload power [dBm]                       | 2.4 dBm   |

## 10.14.9 SFP-25G-LR-eKit

**Table 10-101** SFP-25G-LR-eKit specifications

| Item                                       | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>                   |                                  |
| Module name                                | SFP-25G-LR-eKit                  |
| Part Number                                | 02315HPF                         |
| Model                                      | SFP-25G-LR-eKit                  |
| Form factor                                | SFP28                            |
| Application standard                       | 25GBASE-LR                       |
| Connector type                             | LC                               |
| Optical fiber type                         | SMF                              |
| Working case temperature [°C(°F)]          | -40°C to +85°C (-40°F to +185°F) |
| Digital diagnostic monitoring (DDM)        | Supported                        |
| Transmission rate [bit/s]                  | 25 Gbit/s                        |
| Target transmission distance [km]          | Single-mode fiber: 10 km         |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1310 nm                          |
| Maximum Tx optical power [dBm]             | 2 dBm                            |
| Minimum Tx optical power [dBm]             | -7 dBm                           |
| Minimum extinction ratio [dB]              | 3.5 dB                           |
| <b>Receiver Optical Characteristics</b>    |                                  |
| Rx sensitivity [dBm]                       | -11.3 dBm                        |
| Overload power [dBm]                       | 2 dBm                            |

## 10.14.10 SFP-25G-SR-eKit

**Table 10-102** SFP-25G-SR-eKit specifications

| Item                     | Value           |
|--------------------------|-----------------|
| <b>Basic Information</b> |                 |
| Module name              | SFP-25G-SR-eKit |

| Item                                       | Value   |
|--|---|
| Part Number                                | 02315HNP  |
| Model                                      | SFP-25G-SR-eKit   |
| Form factor                                | SFP28   |
| Application standard                       | 25GBASE-SR  |
| Connector type                             | LC  |
| Optical fiber type                         | MMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)   |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 25 Gbit/s   |
| Target transmission distance [km]          | Multimode fiber (OM3):<br>- Disables the RS-FEC function: 0.03 km<br>- Enables the RS-FEC function: 0.07 km<br><br>Multimode fiber (OM4):<br>- Disables the RS-FEC function: 0.04 km<br>- Enables the RS-FEC function: 0.1 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | 2.4 dBm   |
| Minimum Tx optical power [dBm]             | -8.4 dBm  |
| Minimum extinction ratio [dB]              | 2 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -10.3 dBm   |
| Overload power [dBm]                       | 2.4 dBm   |

## 10.15 40GE QSFP+ Optical Modules

## 10.15.1 QSFP-40G-ER4

**Table 10-103** QSFP-40G-ER4 specifications

| Item                                       | Value                           |
|--|---------------------------------|
| <b>Basic Information</b>                   |                                 |
| Module name                                | QSFP-40G-ER4                    |
| Part Number                                | 02311BKT                        |
| Model                                      | QSFP-40G-ER4                    |
| Form factor                                | QSFP+                           |
| Application standard                       | 40GBASE-ER4                     |
| Connector type                             | LC                              |
| Optical fiber type                         | SMF                             |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)     |
| Digital diagnostic monitoring (DDM)        | Supported                       |
| Transmission rate [bit/s]                  | 40 Gbit/s                       |
| Target transmission distance [km]          | Single-mode fiber: 40 km        |
| <b>Transmitter Optical Characteristics</b> |                                 |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm |
| Maximum Tx optical power [dBm]             | 4.5 dBm                         |
| Minimum Tx optical power [dBm]             | -2.7 dBm                        |
| Minimum extinction ratio [dB]              | 5.5 dB                          |
| <b>Receiver Optical Characteristics</b>    |                                 |
| Rx sensitivity [dBm]                       | -19.5 dBm                       |
| Overload power [dBm]                       | -4.5 dBm                        |

## 10.15.2 QSFP-40G-LR4 (02310MHS)

**Table 10-104** QSFP-40G-LR4 specifications

| Item                     | Value        |
|--------------------------|--------------|
| <b>Basic Information</b> |              |
| Module name              | QSFP-40G-LR4 |

| Item                                       | Value                           |
|--|---------------------------------|
| Part Number                                | 02310MHS                        |
| Model                                      | QSFP-40G-LR4                    |
| Form factor                                | QSFP+                           |
| Application standard                       | 40GBASE-LR4                     |
| Connector type                             | LC                              |
| Optical fiber type                         | SMF                             |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)     |
| Digital diagnostic monitoring (DDM)        | Supported                       |
| Transmission rate [bit/s]                  | 40 Gbit/s                       |
| Target transmission distance [km]          | Single-mode fiber: 10 km        |
| <b>Transmitter Optical Characteristics</b> |                                 |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm |
| Maximum Tx optical power [dBm]             | 2.3 dBm                         |
| Minimum Tx optical power [dBm]             | -7.0 dBm                        |
| Minimum extinction ratio [dB]              | 3.5 dB                          |
| <b>Receiver Optical Characteristics</b>    |                                 |
| Rx sensitivity [dBm]                       | -11.5 dBm                       |
| Overload power [dBm]                       | 3.3 dBm                         |

### 10.15.3 QSFP-40G-LX4

**Table 10-105** QSFP-40G-LX4 specifications

| Item                     | Value        |
|--------------------------|--------------|
| <b>Basic Information</b> |              |
| Module name              | QSFP-40G-LX4 |
| Part Number              | 02311HNP     |
| Model                    | QSFP-40G-LX4 |
| Form factor              | QSFP+        |
| Application standard     | 40GBASE-LX4  |
| Connector type           | LC           |

| Item   | Value  |
|--|--|
| Optical fiber type   | <ul style="list-style-type: none"> <li>• SMF</li> <li>• MMF</li> </ul> |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)  | Supported  |
| Transmission rate [bit/s]  | 40 Gbit/s  |
| Target transmission distance [km]  | Single-mode fiber: 2 km<br>Multimode fiber (OM3): 0.15 km              |
| <b>Transmitter Optical Characteristics</b>   |  |
| Center wavelength [nm]   | 1271 nm,1291 nm,1311 nm,1331 nm  |
| Maximum Tx optical power [dBm]   | 2.3 dBm  |
| Minimum Tx optical power [dBm]   | -7.0 dBm   |
| Minimum extinction ratio [dB]  | 3.5 dB   |
| <b>Receiver Optical Characteristics</b>  |  |
| Rx sensitivity [dBm]   | -11.5 dBm  |
| Overload power [dBm]   | 2.3 dBm  |
| <b>NOTE</b><br>When QSFP-40G-LX4 optical modules use multimode optical fibers, the fibers cannot be connected through multiple optical distribution frames (ODFs). |  |

## 10.15.4 QSFP-40G-SDLC-PAM

**Table 10-106** QSFP-40G-SDLC-PAM specifications

| Item                     | Value                       |
|--------------------------|-----------------------------|
| <b>Basic Information</b> |                             |
| Module name              | QSFP-40G-SDLC-PAM           |
| Part Number              | 02311PUU                    |
| Model                    | QSFP-40G-SDLC-PAM           |
| Form factor              | QSFP+                       |
| Application standard     | 40GBASE-PAM4 (non-standard) |
| Connector type           | LC                          |
| Optical fiber type       | MMF                         |

| Item   | Value  |
|--|--|
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)                                  |
| Digital diagnostic monitoring (DDM)  | Supported  |
| Transmission rate [bit/s]  | 40 Gbit/s  |
| Target transmission distance [km]  | Multimode fiber (OM3): 100 m<br>Multimode fiber (OM4): 150 m |
| <b>Transmitter Optical Characteristics</b>                                 |  |
| Center wavelength [nm]   | 850 nm   |
| Maximum Tx optical power [dBm]   | 2.4 dBm  |
| Minimum Tx optical power [dBm]   | -2.5 dBm   |
| Minimum extinction ratio [dB]  | 3 dB   |
| <b>Receiver Optical Characteristics</b>                                    |  |
| Rx sensitivity [dBm]   | -8.0 dBm   |
| Overload power [dBm]   | 2.4 dBm  |
| <b>NOTE</b><br>Unidirectional single-fiber communication is not supported. |  |

## 10.15.5 QSFP-40G-SR-BD

**Table 10-107** QSFP-40G-SR-BD specifications

| Item                     | Value                       |
|--------------------------|-----------------------------|
| <b>Basic Information</b> |                             |
| Module name              | QSFP-40G-SR-BD              |
| Part Number              | 02311FPA                    |
| Model                    | QSFP-40G-SR-BD              |
| Form factor              | QSFP+                       |
| Application standard     | 40GBASE-BIDI (non-standard) |
| Connector type           | LC                          |
| Optical fiber type       | MMF                         |

| Item  | Value  |
|---|--|
| Working case temperature [°C(°F)]   | 10°C to 70°C (50°F to 158°F)<br>Note:<br>When the operating temperature is lower than 10°C (50°F), intermittent disconnection or packet loss may occur on ports. |
| Digital diagnostic monitoring (DDM)   | Not supported  |
| Transmission rate [bit/s]   | 40 Gbit/s  |
| Target transmission distance [km]   | Multimode fiber (OM3): 0.1 km<br>Multimode fiber (OM4): 0.15 km  |
| <b>Transmitter Optical Characteristics</b>  |  |
| Center wavelength [nm]  | 850 nm,900 nm  |
| Maximum Tx optical power [dBm]  | 5 dBm  |
| Minimum Tx optical power [dBm]  | -4 dBm   |
| Minimum extinction ratio [dB]   | 4.5 dB   |
| <b>Receiver Optical Characteristics</b>   |  |
| Rx sensitivity [dBm]  | -4.5 dBm   |
| Overload power [dBm]  | 5 dBm  |
| <b>NOTE</b><br>The QSFP-40G-SR-BD optical module does not support some Digital Diagnostic Monitoring (DDM) functions.<br>The QSFP-40G-SR-BD optical module does not support unidirectional single-fiber communication. Each fiber provides 20 Gbit/s bandwidth.<br>The QSFP-40G-SR-BD optical module must use dual-LC fibers. |  |

## 10.15.6 QSFP-40G-SR4

**Table 10-108** QSFP-40G-SR4 specifications

| Item                     | Value        |
|--------------------------|--------------|
| <b>Basic Information</b> |              |
| Module name              | QSFP-40G-SR4 |
| Part Number              | 02310MHQ     |
| Model                    | QSFP-40G-SR4 |
| Form factor              | QSFP+        |

| Item   | Value   |
|--|---|
| Application standard   | 40GBASE-SR4   |
| Connector type   | MPO/PC (8-strand or 12-strand, type B, female connector)        |
| Optical fiber type   | MMF   |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)                                     |
| Digital diagnostic monitoring (DDM)  | Supported   |
| Transmission rate [bit/s]  | 40 Gbit/s   |
| Target transmission distance [km]  | Multimode fiber (OM3): 0.1 km<br>Multimode fiber (OM4): 0.15 km |
| <b>Transmitter Optical Characteristics</b>   |   |
| Center wavelength [nm]   | 850 nm  |
| Maximum Tx optical power [dBm]   | 2.4 dBm   |
| Minimum Tx optical power [dBm]   | -7.6 dBm  |
| Minimum extinction ratio [dB]  | 3.0 dB  |
| <b>Receiver Optical Characteristics</b>  |   |
| Rx sensitivity [dBm]   | -5.4 dBm  |
| Overload power [dBm]   | 2.4 dBm   |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 10GBase-SR optical module. |   |

## 10.15.7 QSFP-40G-eSDLC-PAM

**Table 10-109** QSFP-40G-eSDLC-PAM specifications

| Item                     | Value                        |
|--------------------------|------------------------------|
| <b>Basic Information</b> |                              |
| Module name              | QSFP-40G-eSDLC-PAM           |
| Part Number              | 02311QTR                     |
| Model                    | QSFP-40G-eSDLC-PAM           |
| Form factor              | QSFP+                        |
| Application standard     | 40GBASE-ePAM4 (non-standard) |
| Connector type           | LC                           |

| Item   | Value  |
|--|--|
| Optical fiber type   | MMF  |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)                                  |
| Digital diagnostic monitoring (DDM)  | Supported  |
| Transmission rate [bit/s]  | 40 Gbit/s  |
| Target transmission distance [km]  | Multimode fiber (OM3): 100 m<br>Multimode fiber (OM4): 300 m |
| <b>Transmitter Optical Characteristics</b>                                 |  |
| Center wavelength [nm]   | 850 nm   |
| Maximum Tx optical power [dBm]   | 2.4 dBm  |
| Minimum Tx optical power [dBm]   | -2 dBm   |
| Minimum extinction ratio [dB]  | 3 dB   |
| <b>Receiver Optical Characteristics</b>                                    |  |
| Rx sensitivity [dBm]   | -8.0 dBm   |
| Overload power [dBm]   | 2.4 dBm  |
| <b>NOTE</b><br>Unidirectional single-fiber communication is not supported. |  |

## 10.15.8 QSFP-40G-eSM4

Table 10-110 QSFP-40G-eSM4 specifications

| Item                              | Value   |
|-----------------------------------|---|
| <b>Basic Information</b>          |   |
| Module name                       | QSFP-40G-eSM4   |
| Part Number                       | 02311DTR  |
| Model                             | QSFP-40G-eSM4   |
| Form factor                       | QSFP+   |
| Application standard              | 40GBASE-eSM4 (non-standard)                               |
| Connector type                    | MPO/APC (8-strand or 12-strand, type B, female connector) |
| Optical fiber type                | SMF   |
| Working case temperature [°C(°F)] | 0°C to 70°C (32°F to 158°F)                               |

| Item  | Value                    |
|---|--------------------------|
| Digital diagnostic monitoring (DDM)   | Supported                |
| Transmission rate [bit/s]   | 40 Gbit/s                |
| Target transmission distance [km]   | Single-mode fiber: 10 km |
| <b>Transmitter Optical Characteristics</b>  |                          |
| Center wavelength [nm]  | 1310 nm                  |
| Maximum Tx optical power [dBm]  | 0.5 dBm                  |
| Minimum Tx optical power [dBm]  | -8.2 dBm                 |
| Minimum extinction ratio [dB]   | 3.5 dB                   |
| <b>Receiver Optical Characteristics</b>   |                          |
| Rx sensitivity [dBm]  | -12.6 dBm                |
| Overload power [dBm]  | 0.5 dBm                  |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 10Gbase-LR or 10Gbase-iLR optical module. |                          |

## 10.15.9 QSFP-40G-eSR4 (02310RMB)

Table 10-111 QSFP-40G-eSR4 specifications

| Item                                | Value  |
|-------------------------------------|--|
| <b>Basic Information</b>            |  |
| Module name                         | QSFP-40G-eSR4  |
| Part Number                         | 02310RMB   |
| Model                               | QSFP-40G-eSR4  |
| Form factor                         | QSFP+  |
| Application standard                | 40GBASE-eSR4 (non-standard)                              |
| Connector type                      | MPO/PC (8-strand or 12-strand, type B, female connector) |
| Optical fiber type                  | MMF  |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F)                              |
| Digital diagnostic monitoring (DDM) | Supported  |
| Transmission rate [bit/s]           | 40 Gbit/s  |

| Item   | Value  |
|--|--|
| Target transmission distance [km]  | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.026 km<br>Multimode fiber (OM1): 0.033 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.066 km<br>Multimode fiber (OM2): 0.082 km<br>Multimode fiber (OM3): 0.3 km<br>Multimode fiber (OM4): 0.4 km |
| <b>Transmitter Optical Characteristics</b>   |  |
| Center wavelength [nm]   | 850 nm   |
| Maximum Tx optical power [dBm]   | 0.5 dBm  |
| Minimum Tx optical power [dBm]   | -7.6 dBm   |
| Minimum extinction ratio [dB]  | 3.0 dB   |
| <b>Receiver Optical Characteristics</b>  |  |
| Rx sensitivity [dBm]   | -11.1 dBm  |
| Overload power [dBm]   | 2.4 dBm  |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 10GBase-SR optical module. |  |

## 10.15.10 QSFP-40G-iSM4

Table 10-112 QSFP-40G-iSM4 specifications

| Item                     | Value   |
|--------------------------|---|
| <b>Basic Information</b> |   |
| Module name              | QSFP-40G-iSM4   |
| Part Number              | 02311DRW  |
| Model                    | QSFP-40G-iSM4   |
| Form factor              | QSFP+   |
| Application standard     | 40GBASE-iSM4 (non-standard)                               |
| Connector type           | MPO/APC (8-strand or 12-strand, type B, female connector) |

| Item  | Value                       |
|---|-----------------------------|
| Optical fiber type  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM)   | Supported                   |
| Transmission rate [bit/s]   | 40 Gbit/s                   |
| Target transmission distance [km]   | Single-mode fiber: 1.4 km   |
| <b>Transmitter Optical Characteristics</b>  |                             |
| Center wavelength [nm]  | 1310 nm                     |
| Maximum Tx optical power [dBm]  | 0.5 dBm                     |
| Minimum Tx optical power [dBm]  | -8.2 dBm                    |
| Minimum extinction ratio [dB]   | 3.5 dB                      |
| <b>Receiver Optical Characteristics</b>   |                             |
| Rx sensitivity [dBm]  | -11.5 dBm                   |
| Overload power [dBm]  | 0.5 dBm                     |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 10Gbase-LR or 10Gbase-iLR optical module. |                             |

### 10.15.11 QSFP-40G-iSR4 (02310MHR)

Table 10-113 QSFP-40G-iSR4 specifications

| Item                              | Value  |
|-----------------------------------|--|
| <b>Basic Information</b>          |  |
| Module name                       | QSFP-40G-iSR4  |
| Part Number                       | 02310MHR   |
| Model                             | QSFP-40G-iSR4  |
| Form factor                       | QSFP+  |
| Application standard              | 40GBASE-SR4<br>40GBASE-iSR4 (non-standard)               |
| Connector type                    | MPO/PC (8-strand or 12-strand, type B, female connector) |
| Optical fiber type                | MMF  |
| Working case temperature [°C(°F)] | 0°C to 70°C (32°F to 158°F)                              |

| Item   | Value   |
|--|---|
| Digital diagnostic monitoring (DDM)  | Supported   |
| Transmission rate [bit/s]  | 40 Gbit/s   |
| Target transmission distance [km]  | Multimode fiber (OM3): 0.1 km<br>Multimode fiber (OM4): 0.15 km |
| <b>Transmitter Optical Characteristics</b>   |   |
| Center wavelength [nm]   | 850 nm  |
| Maximum Tx optical power [dBm]   | 0.5 dBm   |
| Minimum Tx optical power [dBm]   | -7.6 dBm  |
| Minimum extinction ratio [dB]  | 3.0 dB  |
| <b>Receiver Optical Characteristics</b>  |   |
| Rx sensitivity [dBm]   | -9.5 dBm  |
| Overload power [dBm]   | 2.4 dBm   |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 10GBase-SR optical module. |   |

## 10.15.12 QSFP-40G-LR4-Lite (02311YVB)

Table 10-114 QSFP-40G-LR4-Lite specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | QSFP-40G-LR4-Lite           |
| Part Number                         | 02311YVB                    |
| Model                               | QSFP-40G-LR4-Lite           |
| Form factor                         | QSFP+                       |
| Application standard                | 40GBASE-LR4 Lite            |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 40 Gbit/s                   |

| Item                                       | Value   |
|--|---|
| Target transmission distance [km]          | Single-mode fiber (G.652, diameter: 9 μm): 2 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm                 |
| Maximum Tx optical power [dBm]             | 2.3 dBm   |
| Minimum Tx optical power [dBm]             | -9.0 dBm  |
| Minimum extinction ratio [dB]              | 3.5 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -10.5 dBm                                       |
| Overload power [dBm]                       | 2.3 dBm   |

### 10.15.13 QSFP-40G-LX4-MM

Table 10-115 QSFP-40G-LX4-MM specifications

| Item                                       | Value  |
|--|--|
| <b>Basic Information</b>                   |  |
| Module name                                | QSFP-40G-LX4-MM  |
| Part Number                                | 02313NUG   |
| Model                                      | QSFP-40G-LX4-MM  |
| Form factor                                | QSFP+  |
| Application standard                       | 40GBASE-LX4  |
| Connector type                             | LC   |
| Optical fiber type                         | MMF  |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)        | Supported  |
| Transmission rate [bit/s]                  | 40 Gbit/s  |
| Target transmission distance [km]          | Multimode fiber (OM3, diameter: 50 μm): 150 m<br>Multimode fiber (OM4, diameter: 50 μm): 150 m |
| <b>Transmitter Optical Characteristics</b> |  |

| Item   | Value                           |
|--|---------------------------------|
| Center wavelength [nm]   | 1271 nm,1291 nm,1311 nm,1331 nm |
| Maximum Tx optical power [dBm]   | 2.3 dBm                         |
| Minimum Tx optical power [dBm]   | -7.0 dBm                        |
| Minimum extinction ratio [dB]  | 3.5 dB                          |
| <b>Receiver Optical Characteristics</b>  |                                 |
| Rx sensitivity [dBm]   | -10.5 dBm                       |
| Overload power [dBm]   | 3.5 dBm                         |
| <b>NOTE</b><br>Limitations:<br>- In actual applications, the number of connectors in an optical fiber link cannot exceed 4.<br>- This module is sensitive to fiber link contamination. During deployment, ensure that the fiber end face meets the fiber application standard. For details, refer to the requirements for single-mode connectors in the end face requirements for fiber ceramic ferrules under "Cables" > "Fiber Jumpers." |                                 |

## 10.15.14 QSFP-40G-LR4 (02313URY)

Table 10-116 QSFP-40G-LR4 specifications

| Item                                       | Value                           |
|--|---------------------------------|
| <b>Basic Information</b>                   |                                 |
| Module name                                | QSFP-40G-LR4                    |
| Part Number                                | 02313URY                        |
| Model                                      | QSFP-40G-LR4                    |
| Form factor                                | QSFP+                           |
| Application standard                       | 40GBASE-LR4                     |
| Connector type                             | LC                              |
| Optical fiber type                         | SMF                             |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)     |
| Digital diagnostic monitoring (DDM)        | Supported                       |
| Transmission rate [bit/s]                  | 40 Gbit/s                       |
| Target transmission distance [km]          | Single-mode fiber: 10 km        |
| <b>Transmitter Optical Characteristics</b> |                                 |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm |

| Item                                    | Value     |
|---|-----------|
| Maximum Tx optical power [dBm]          | 2.3 dBm   |
| Minimum Tx optical power [dBm]          | -7.0 dBm  |
| Minimum extinction ratio [dB]           | 3.5 dB    |
| <b>Receiver Optical Characteristics</b> |           |
| Rx sensitivity [dBm]                    | -11.5 dBm |
| Overload power [dBm]                    | 3.3 dBm   |

### 10.15.15 QSFP-40G-LR4-Lite (02313URS)

Table 10-117 QSFP-40G-LR4-Lite specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | QSFP-40G-LR4-Lite                               |
| Part Number                                | 02313URS  |
| Model                                      | QSFP-40G-LR4-Lite                               |
| Form factor                                | QSFP+   |
| Application standard                       | 40GBASE-LR4 Lite                                |
| Connector type                             | LC  |
| Optical fiber type                         | SMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                     |
| Digital diagnostic monitoring (DDM)        | Supported                                       |
| Transmission rate [bit/s]                  | 40 Gbit/s                                       |
| Target transmission distance [km]          | Single-mode fiber (G.652, diameter: 9 μm): 2 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm                 |
| Maximum Tx optical power [dBm]             | 2.3 dBm   |
| Minimum Tx optical power [dBm]             | -9.0 dBm  |
| Minimum extinction ratio [dB]              | 3.5 dB  |
| <b>Receiver Optical Characteristics</b>    |   |

| Item                 | Value     |
|----------------------|-----------|
| Rx sensitivity [dBm] | -10.5 dBm |
| Overload power [dBm] | 2.3 dBm   |

## 10.15.16 QSFP-40G-eSR4 (02313URU)

Table 10-118 QSFP-40G-eSR4 specifications

| Item                                       | Value  |
|--|--|
| <b>Basic Information</b>                   |  |
| Module name                                | QSFP-40G-eSR4  |
| Part Number                                | 02313URU   |
| Model                                      | QSFP-40G-eSR4  |
| Form factor                                | QSFP+  |
| Application standard                       | 40GBASE-eSR4 (non-standard)  |
| Connector type                             | MPO/PC (8-strand or 12-strand, type B, female connector)   |
| Optical fiber type                         | MMF  |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)        | Supported  |
| Transmission rate [bit/s]                  | 40 Gbit/s  |
| Target transmission distance [km]          | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.026 km<br>Multimode fiber (OM1): 0.033 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.066 km<br>Multimode fiber (OM2): 0.082 km<br>Multimode fiber (OM3): 0.3 km<br>Multimode fiber (OM4): 0.4 km |
| <b>Transmitter Optical Characteristics</b> |  |
| Center wavelength [nm]                     | 850 nm   |
| Maximum Tx optical power [dBm]             | 0.5 dBm  |
| Minimum Tx optical power [dBm]             | -7.6 dBm   |

| Item   | Value     |
|--|-----------|
| Minimum extinction ratio [dB]  | 3.0 dB    |
| <b>Receiver Optical Characteristics</b>  |           |
| Rx sensitivity [dBm]   | -11.1 dBm |
| Overload power [dBm]   | 2.4 dBm   |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 10GBase-SR optical module. |           |

## 10.15.17 QSFP-40G-iSR4 (02313URW)

Table 10-119 QSFP-40G-iSR4 specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | QSFP-40G-iSR4   |
| Part Number                                | 02313URW  |
| Model                                      | QSFP-40G-iSR4   |
| Form factor                                | QSFP+   |
| Application standard                       | 40GBASE-SR4<br>40GBASE-iSR4 (non-standard)                      |
| Connector type                             | MPO/PC (8-strand or 12-strand, type B, female connector)        |
| Optical fiber type                         | MMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                                     |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 40 Gbit/s   |
| Target transmission distance [km]          | Multimode fiber (OM3): 0.1 km<br>Multimode fiber (OM4): 0.15 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | 0.5 dBm   |
| Minimum Tx optical power [dBm]             | -7.6 dBm  |
| Minimum extinction ratio [dB]              | 3.0 dB  |

| Item   | Value    |
|--|----------|
| <b>Receiver Optical Characteristics</b>  |          |
| Rx sensitivity [dBm]   | -9.5 dBm |
| Overload power [dBm]   | 2.4 dBm  |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 10GBase-SR optical module. |          |

## 10.15.18 QSFP-40G-LR4-eKit

**Table 10-120** QSFP-40G-LR4-eKit specifications

| Item                                       | Value                           |
|--|---------------------------------|
| <b>Basic Information</b>                   |                                 |
| Module name                                | QSFP-40G-LR4-eKit               |
| Part Number                                | 02315HPC                        |
| Model                                      | QSFP-40G-LR4-eKit               |
| Form factor                                | QSFP+                           |
| Application standard                       | 40GBASE-LR4                     |
| Connector type                             | LC                              |
| Optical fiber type                         | SMF                             |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)     |
| Digital diagnostic monitoring (DDM)        | Supported                       |
| Transmission rate [bit/s]                  | 40 Gbit/s                       |
| Target transmission distance [km]          | Single-mode fiber: 10 km        |
| <b>Transmitter Optical Characteristics</b> |                                 |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm |
| Maximum Tx optical power [dBm]             | 2.3 dBm                         |
| Minimum Tx optical power [dBm]             | -7.0 dBm                        |
| Minimum extinction ratio [dB]              | 3.5 dB                          |
| <b>Receiver Optical Characteristics</b>    |                                 |
| Rx sensitivity [dBm]                       | -11.5 dBm                       |
| Overload power [dBm]                       | 3.3 dBm                         |

## 10.15.19 QSFP-40G-LR4L-eKit

Table 10-121 QSFP-40G-LR4L-eKit specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | QSFP-40G-LR4L-eKit                              |
| Part Number                                | 02315HPB  |
| Model                                      | QSFP-40G-LR4L-eKit                              |
| Form factor                                | QSFP+   |
| Application standard                       | 40GBASE-LR4 Lite                                |
| Connector type                             | LC  |
| Optical fiber type                         | SMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                     |
| Digital diagnostic monitoring (DDM)        | Supported                                       |
| Transmission rate [bit/s]                  | 40 Gbit/s                                       |
| Target transmission distance [km]          | Single-mode fiber (G.652, diameter: 9 μm): 2 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm                 |
| Maximum Tx optical power [dBm]             | 2.3 dBm   |
| Minimum Tx optical power [dBm]             | -9.0 dBm  |
| Minimum extinction ratio [dB]              | 3.5 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -10.5 dBm                                       |
| Overload power [dBm]                       | 2.3 dBm   |

## 10.15.20 QSFP-40G-eSR4-eKit

Table 10-122 QSFP-40G-eSR4-eKit specifications

| Item                     | Value              |
|--------------------------|--------------------|
| <b>Basic Information</b> |                    |
| Module name              | QSFP-40G-eSR4-eKit |

| Item   | Value  |
|--|--|
| Part Number  | 02315HNX   |
| Model  | QSFP-40G-eSR4-eKit   |
| Form factor  | QSFP+  |
| Application standard   | 40GBASE-eSR4 (non-standard)  |
| Connector type   | MPO/PC (8-strand or 12-strand, type B, female connector)   |
| Optical fiber type   | MMF  |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)  | Supported  |
| Transmission rate [bit/s]  | 40 Gbit/s  |
| Target transmission distance [km]  | Multimode fiber (with modal bandwidth of 160 MHz*km and diameter of 62.5 μm): 0.026 km<br>Multimode fiber (OM1): 0.033 km<br>Multimode fiber (with modal bandwidth of 400 MHz*km and diameter of 50 μm): 0.066 km<br>Multimode fiber (OM2): 0.082 km<br>Multimode fiber (OM3): 0.3 km<br>Multimode fiber (OM4): 0.4 km |
| <b>Transmitter Optical Characteristics</b>   |  |
| Center wavelength [nm]   | 850 nm   |
| Maximum Tx optical power [dBm]   | 0.5 dBm  |
| Minimum Tx optical power [dBm]   | -7.6 dBm   |
| Minimum extinction ratio [dB]  | 3.0 dB   |
| <b>Receiver Optical Characteristics</b>  |  |
| Rx sensitivity [dBm]   | -11.1 dBm  |
| Overload power [dBm]   | 2.4 dBm  |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 10GBase-SR optical module. |  |

## 10.15.21 QSFP-40G-iSR4-eKit

**Table 10-123** QSFP-40G-iSR4-eKit specifications

| Item   | Value   |
|--|---|
| <b>Basic Information</b>   |   |
| Module name  | QSFP-40G-iSR4-eKit  |
| Part Number  | 02315HPD  |
| Model  | QSFP-40G-iSR4-eKit  |
| Form factor  | QSFP+   |
| Application standard   | 40GBASE-SR4<br>40GBASE-iSR4 (non-standard)                      |
| Connector type   | MPO/PC (8-strand or 12-strand, type B, female connector)        |
| Optical fiber type   | MMF   |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)                                     |
| Digital diagnostic monitoring (DDM)  | Supported   |
| Transmission rate [bit/s]  | 40 Gbit/s   |
| Target transmission distance [km]  | Multimode fiber (OM3): 0.1 km<br>Multimode fiber (OM4): 0.15 km |
| <b>Transmitter Optical Characteristics</b>   |   |
| Center wavelength [nm]   | 850 nm  |
| Maximum Tx optical power [dBm]   | 0.5 dBm   |
| Minimum Tx optical power [dBm]   | -7.6 dBm  |
| Minimum extinction ratio [dB]  | 3.0 dB  |
| <b>Receiver Optical Characteristics</b>  |   |
| Rx sensitivity [dBm]   | -9.5 dBm  |
| Overload power [dBm]   | 2.4 dBm   |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 10GBase-SR optical module. |   |

## 10.16 100GE QSFP28 Optical Modules

## 10.16.1 QSFP-100G-CLR4

**Table 10-124** QSFP-100G-CLR4 specifications

| Item                                       | Value                           |
|--|---------------------------------|
| <b>Basic Information</b>                   |                                 |
| Module name                                | QSFP-100G-CLR4                  |
| Part Number                                | 02311MNP                        |
| Model                                      | QSFP-100G-CLR4                  |
| Form factor                                | QSFP28                          |
| Application standard                       | 100GBASE-CLR4 (non-standard)    |
| Connector type                             | LC                              |
| Optical fiber type                         | SMF                             |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)     |
| Digital diagnostic monitoring (DDM)        | Supported                       |
| Transmission rate [bit/s]                  | 100 Gbit/s                      |
| Target transmission distance [km]          | Single-mode fiber (G.652): 2 km |
| <b>Transmitter Optical Characteristics</b> |                                 |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm |
| Maximum Tx optical power [dBm]             | 2.5 dBm                         |
| Minimum Tx optical power [dBm]             | -6.5 dBm                        |
| Minimum extinction ratio [dB]              | 3.5 dB                          |
| <b>Receiver Optical Characteristics</b>    |                                 |
| Rx sensitivity [dBm]                       | -10.7 dBm                       |
| Overload power [dBm]                       | 2.5 dBm                         |

## 10.16.2 QSFP-100G-CWDM4

**Table 10-125** QSFP-100G-CWDM4 specifications

| Item                     | Value           |
|--------------------------|-----------------|
| <b>Basic Information</b> |                 |
| Module name              | QSFP-100G-CWDM4 |

| Item                                       | Value                           |
|--|---------------------------------|
| Part Number                                | 02311MNN                        |
| Model                                      | QSFP-100G-CWDM4                 |
| Form factor                                | QSFP28                          |
| Application standard                       | 100GBASE-CWDM4 (non-standard)   |
| Connector type                             | LC                              |
| Optical fiber type                         | SMF                             |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)     |
| Digital diagnostic monitoring (DDM)        | Supported                       |
| Transmission rate [bit/s]                  | 100 Gbit/s                      |
| Target transmission distance [km]          | Single-mode fiber (G.652): 2 km |
| <b>Transmitter Optical Characteristics</b> |                                 |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm |
| Maximum Tx optical power [dBm]             | 2.5 dBm                         |
| Minimum Tx optical power [dBm]             | -6.5 dBm                        |
| Minimum extinction ratio [dB]              | 3.5 dB                          |
| <b>Receiver Optical Characteristics</b>    |                                 |
| Rx sensitivity [dBm]                       | -9.8 dBm                        |
| Overload power [dBm]                       | 2.5 dBm                         |

### 10.16.3 QSFP-100G-ER4-Lite

**Table 10-126** QSFP-100G-ER4-Lite specifications

| Item                     | Value   |
|--------------------------|---|
| <b>Basic Information</b> |   |
| Module name              | QSFP-100G-ER4-Lite                                |
| Part Number              | 02311YXR  |
| Model                    | QSFP-100G-ER4-Lite                                |
| Form factor              | QSFP28  |
| Application standard     | Non-standard and compatible with the 100GBASE-ER4 |

| Item                                       | Value   |
|--|---|
| Connector type                             | LC  |
| Optical fiber type                         | SMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)   |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 100 Gbit/s  |
| Target transmission distance [km]          | Single-mode fiber (G.652):<br>Disables the RS-FEC function: 30 km<br>Enables the RS-FEC function: 40 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1295 nm,1300 nm,1304 nm,1309 nm   |
| Maximum Tx optical power [dBm]             | 2.9 dBm   |
| Minimum Tx optical power [dBm]             | -2.5 dBm  |
| Minimum extinction ratio [dB]              | 8 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -18.4 dBm   |
| Overload power [dBm]                       | -3.5 dBm  |

## 10.16.4 QSFP-100G-eSR4

Table 10-127 QSFP-100G-eSR4 specifications

| Item                              | Value  |
|-----------------------------------|--|
| <b>Basic Information</b>          |  |
| Module name                       | QSFP-100G-eSR4   |
| Part Number                       | 02311PSH   |
| Model                             | QSFP-100G-eSR4   |
| Form factor                       | QSFP28   |
| Application standard              | 100GBase-eSR4 (non-standard)                             |
| Connector type                    | MPO/PC (8-strand or 12-strand, type B, female connector) |
| Optical fiber type                | MMF  |
| Working case temperature [°C(°F)] | 0°C to 70°C (32°F to 158°F)                              |

| Item   | Value  |
|--|--|
| Digital diagnostic monitoring (DDM)  | Supported  |
| Transmission rate [bit/s]  | 100 Gbit/s   |
| Target transmission distance [km]  | Multimode fiber (OM3): 200 m<br>Multimode fiber (OM4): 300 m |
| <b>Transmitter Optical Characteristics</b>   |  |
| Center wavelength [nm]   | 850 nm   |
| Maximum Tx optical power [dBm]   | 2.4 dBm  |
| Minimum Tx optical power [dBm]   | -8.4 dBm   |
| Minimum extinction ratio [dB]  | 2 dB   |
| <b>Receiver Optical Characteristics</b>  |  |
| Rx sensitivity [dBm]   | -9.2 dBm   |
| Overload power [dBm]   | 2.4 dBm  |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 25Gbase-SR optical module. |  |

## 10.16.5 QSFP28-100G-10KM

Table 10-128 QSFP28-100G-10KM specifications

| Item                                | Value                       |
|-------------------------------------|-----------------------------|
| <b>Basic Information</b>            |                             |
| Module name                         | QSFP28-100G-10KM            |
| Part Number                         | 02311SYT                    |
| Model                               | QSFP28-100G-10KM            |
| Form factor                         | QSFP28                      |
| Application standard                | 100GBASE-LR4                |
| Connector type                      | LC                          |
| Optical fiber type                  | SMF                         |
| Working case temperature [°C(°F)]   | 0°C to 70°C (32°F to 158°F) |
| Digital diagnostic monitoring (DDM) | Supported                   |
| Transmission rate [bit/s]           | 100 Gbit/s                  |

| Item                                       | Value                            |
|--|----------------------------------|
| Target transmission distance [km]          | Single-mode fiber (G.652): 10 km |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1295 nm,1300 nm,1304 nm,1309 nm  |
| Maximum Tx optical power [dBm]             | 4.5 dBm                          |
| Minimum Tx optical power [dBm]             | -4.3 dBm                         |
| Minimum extinction ratio [dB]              | 4 dB                             |
| <b>Receiver Optical Characteristics</b>    |                                  |
| Rx sensitivity [dBm]                       | -8.6 dBm                         |
| Overload power [dBm]                       | 4.5 dBm                          |

## 10.16.6 QSFP28-100G-LR4 (02311KNU)

Table 10-129 QSFP28-100G-LR4 specifications

| Item                                       | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>                   |                                  |
| Module name                                | QSFP28-100G-LR4                  |
| Part Number                                | 02311KNU                         |
| Model                                      | QSFP28-100G-LR4                  |
| Form factor                                | QSFP28                           |
| Application standard                       | 100GBASE-LR4                     |
| Connector type                             | LC                               |
| Optical fiber type                         | SMF                              |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)      |
| Digital diagnostic monitoring (DDM)        | Supported                        |
| Transmission rate [bit/s]                  | 100 Gbit/s                       |
| Target transmission distance [km]          | Single-mode fiber (G.652): 10 km |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1295 nm,1300 nm,1304 nm,1309 nm  |
| Maximum Tx optical power [dBm]             | 4.5 dBm                          |
| Minimum Tx optical power [dBm]             | -4.3 dBm                         |

| Item                                    | Value    |
|---|----------|
| Minimum extinction ratio [dB]           | 4 dB     |
| <b>Receiver Optical Characteristics</b> |          |
| Rx sensitivity [dBm]                    | -8.6 dBm |
| Overload power [dBm]                    | 4.5 dBm  |

## 10.16.7 QSFP28-100G-PSM4

**Table 10-130** QSFP28-100G-PSM4 specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | QSFP28-100G-PSM4  |
| Part Number                                | 02311MNM  |
| Model                                      | QSFP28-100G-PSM4  |
| Form factor                                | QSFP28  |
| Application standard                       | 100GBASE-PSM4 (non-standard)                              |
| Connector type                             | MPO/APC (8-strand or 12-strand, type B, female connector) |
| Optical fiber type                         | SMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                               |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 100 Gbit/s  |
| Target transmission distance [km]          | Single-mode fiber (G.652): 500 m                          |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1310 nm   |
| Maximum Tx optical power [dBm]             | 2 dBm   |
| Minimum Tx optical power [dBm]             | -9.4 dBm  |
| Minimum extinction ratio [dB]              | 3.5 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -11.35 dBm  |
| Overload power [dBm]                       | 2.2 dBm   |

## 10.16.8 QSFP28-100G-SR4 (02311GBW)

**Table 10-131** QSFP28-100G-SR4 specifications

| Item   | Value   |
|--|---|
| <b>Basic Information</b>   |   |
| Module name  | QSFP28-100G-SR4   |
| Part Number  | 02311GBW  |
| Model  | QSFP28-100G-SR4   |
| Form factor  | QSFP28  |
| Application standard   | 100GBASE-SR4  |
| Connector type   | MPO/PC (8-strand or 12-strand, type B, female connector)    |
| Optical fiber type   | MMF   |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)                                 |
| Digital diagnostic monitoring (DDM)  | Supported   |
| Transmission rate [bit/s]  | 100 Gbit/s  |
| Target transmission distance [km]  | Multimode fiber (OM3): 70 m<br>Multimode fiber (OM4): 100 m |
| <b>Transmitter Optical Characteristics</b>   |   |
| Center wavelength [nm]   | 850 nm  |
| Maximum Tx optical power [dBm]   | 2.4 dBm   |
| Minimum Tx optical power [dBm]   | -8.4 dBm  |
| Minimum extinction ratio [dB]  | 2 dB  |
| <b>Receiver Optical Characteristics</b>  |   |
| Rx sensitivity [dBm]   | -8.5 dBm  |
| Overload power [dBm]   | 2.4 dBm   |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 25Gbase-SR optical module. |   |

## 10.16.9 QSFP-100G-ER4 (02313HLU)

**Table 10-132** QSFP-100G-ER4 specifications

| Item   | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>                           |                                  |
| Module name  | QSFP-100G-ER4                    |
| Part Number  | 02313HLU                         |
| Model  | QSFP-100G-ER4                    |
| Form factor  | QSFP28                           |
| Application standard                               | 100GBASE-ER4                     |
| Connector type                                     | LC                               |
| Optical fiber type                                 | SMF                              |
| Working case temperature [°C(°F)]                  | 0°C to 70°C (32°F to 158°F)      |
| Digital diagnostic monitoring (DDM)                | Supported                        |
| Transmission rate [bit/s]                          | 100 Gbit/s                       |
| Target transmission distance [km]                  | Single-mode fiber (G.652): 40 km |
| <b>Transmitter Optical Characteristics</b>         |                                  |
| Center wavelength [nm]                             | 1295 nm,1300 nm,1304 nm,1309 nm  |
| Maximum Tx optical power [dBm]                     | 2.9 dBm                          |
| Minimum Tx optical power [dBm]                     | -2.9 dBm                         |
| Minimum extinction ratio [dB]                      | 8 dB                             |
| <b>Receiver Optical Characteristics</b>            |                                  |
| Rx sensitivity [dBm]                               | -20.9 dBm                        |
| Overload power [dBm]                               | -3.5 dBm                         |
| <b>NOTE</b><br>The RS-FEC function can be enabled. |                                  |

## 10.16.10 QSFP-100G-FR1

**Table 10-133** QSFP-100G-FR1 specifications

| Item                     | Value |
|--------------------------|-------|
| <b>Basic Information</b> |       |

| Item                                       | Value   |
|--|---|
| Module name                                | QSFP-100G-FR1                                   |
| Part Number                                | 02314BDE  |
| Model                                      | QSFP-100G-FR1                                   |
| Form factor                                | QSFP28  |
| Application standard                       | 100GBASE-FR1                                    |
| Connector type                             | LC  |
| Optical fiber type                         | SMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                     |
| Digital diagnostic monitoring (DDM)        | Supported                                       |
| Transmission rate [bit/s]                  | 100 Gbit/s                                      |
| Target transmission distance [km]          | Single-mode fiber (G.652, diameter: 9 μm): 2 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1311 nm   |
| Maximum Tx optical power [dBm]             | 4 dBm   |
| Minimum Tx optical power [dBm]             | -3.1 dBm  |
| Minimum extinction ratio [dB]              | 3.5 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -7.1 dBm  |
| Overload power [dBm]                       | 4 dBm   |

## 10.16.11 QSFP28-100G-DR

**Table 10-134** QSFP28-100G-DR specifications

| Item                     | Value          |
|--------------------------|----------------|
| <b>Basic Information</b> |                |
| Module name              | QSFP28-100G-DR |
| Part Number              | 02312VSP       |
| Model                    | QSFP28-100G-DR |
| Form factor              | QSFP28         |

| Item                                       | Value  |
|--|--|
| Application standard                       | 100GBase-DR                                      |
| Connector type                             | LC   |
| Optical fiber type                         | SMF  |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                      |
| Digital diagnostic monitoring (DDM)        | Supported  |
| Transmission rate [bit/s]                  | 100 Gbit/s                                       |
| Target transmission distance [km]          | Single-mode fiber (G.652, diameter: 9 μm): 500 m |
| <b>Transmitter Optical Characteristics</b> |  |
| Center wavelength [nm]                     | 1311 nm  |
| Maximum Tx optical power [dBm]             | 4 dBm  |
| Minimum Tx optical power [dBm]             | -2.9 dBm   |
| Minimum extinction ratio [dB]              | 3.5 dB   |
| <b>Receiver Optical Characteristics</b>    |  |
| Rx sensitivity [dBm]                       | -5.9 dBm   |
| Overload power [dBm]                       | 4 dBm  |

## 10.16.12 QSFP-100G-BIDI-G2

**Table 10-135** QSFP-100G-BIDI-G2 specifications

| Item                              | Value                       |
|-----------------------------------|-----------------------------|
| <b>Basic Information</b>          |                             |
| Module name                       | QSFP-100G-BIDI-G2           |
| Part Number                       | 02314DBW                    |
| Model                             | QSFP-100G-BIDI-G2           |
| Form factor                       | QSFP28                      |
| Application standard              | 100G-BIDI                   |
| Connector type                    | LC                          |
| Optical fiber type                | MMF                         |
| Working case temperature [°C(°F)] | 0°C to 70°C (32°F to 158°F) |

| Item  | Value   |
|---|---|
| Digital diagnostic monitoring (DDM)   | Supported   |
| Transmission rate [bit/s]   | 100 Gbit/s  |
| Target transmission distance [km]   | Multimode fiber (OM3, diameter: 50 $\mu$ m): 70 m<br>Multimode fiber (OM4, diameter: 50 $\mu$ m): 100 m |
| <b>Transmitter Optical Characteristics</b>  |   |
| Center wavelength [nm]  | 850,910 nm  |
| Maximum Tx optical power [dBm]  | 4 dBm   |
| Minimum Tx optical power [dBm]  | -4.4 dBm  |
| Minimum extinction ratio [dB]   | 3 dB  |
| <b>Receiver Optical Characteristics</b>   |   |
| Rx sensitivity [dBm]  | max (-6.6, SECQ - 8)  |
| Overload power [dBm]  | 3.5 dBm   |
| <b>NOTE</b><br>The QSFP-100G-BIDI-G2 optical module does not support unidirectional single-fiber communication. Each fiber provides 50 Gbit/s bandwidth.<br>The QSFP-100G-BIDI-G2 optical module must use dual-LC fibers. |   |

### 10.16.13 QSFP-100G-CWDM4-Lite

Table 10-136 QSFP-100G-CWDM4-Lite specifications

| Item  | Value   |
|---|---|
| <b>Basic Information</b>                                |   |
| Module name   | QSFP-100G-CWDM4-Lite  |
| Part Number   | 02312UJN  |
| Model   | QSFP-100G-CWDM4-Lite  |
| Form factor   | QSFP28  |
| Application standard                                    | 100GBASE-CWDM4  |
| Connector type  | LC  |
| Optical fiber type                                      | SMF   |
| Working case temperature [ $^{\circ}$ C( $^{\circ}$ F)] | 0 $^{\circ}$ C to 70 $^{\circ}$ C (32 $^{\circ}$ F to 158 $^{\circ}$ F) |

| Item                                       | Value  |
|--|--|
| Digital diagnostic monitoring (DDM)        | Supported  |
| Transmission rate [bit/s]                  | 100 Gbit/s   |
| Target transmission distance [km]          | Single-mode fiber (G.652, diameter: 9 $\mu$ m): 0.5 km |
| <b>Transmitter Optical Characteristics</b> |  |
| Center wavelength [nm]                     | 1310 nm  |
| Maximum Tx optical power [dBm]             | 2.5 dBm  |
| Minimum Tx optical power [dBm]             | -6.5 dBm   |
| Minimum extinction ratio [dB]              | 3.5 dB   |
| <b>Receiver Optical Characteristics</b>    |  |
| Rx sensitivity [dBm]                       | -9.8 dBm   |
| Overload power [dBm]                       | 2.5 dBm  |

## 10.16.14 QSFP-100G-ER4 (02314HES)

**Table 10-137** QSFP-100G-ER4 specifications

| Item  | Value   |
|---|---|
| <b>Basic Information</b>                                |   |
| Module name   | QSFP-100G-ER4   |
| Part Number   | 02314HES  |
| Model   | QSFP-100G-ER4   |
| Form factor   | QSFP28  |
| Application standard                                    | 100GBASE-ER4  |
| Connector type  | LC  |
| Optical fiber type                                      | SMF   |
| Working case temperature [ $^{\circ}$ C( $^{\circ}$ F)] | 0 $^{\circ}$ C to 70 $^{\circ}$ C (32 $^{\circ}$ F to 158 $^{\circ}$ F) |
| Digital diagnostic monitoring (DDM)                     | Supported   |
| Transmission rate [bit/s]                               | 100 Gbit/s  |
| Target transmission distance [km]                       | Single-mode fiber (G.652): 40 km  |
| <b>Transmitter Optical Characteristics</b>              |   |

| Item   | Value                           |
|--|---------------------------------|
| Center wavelength [nm]                             | 1295 nm,1300 nm,1304 nm,1309 nm |
| Maximum Tx optical power [dBm]                     | 2.9 dBm                         |
| Minimum Tx optical power [dBm]                     | -2.9 dBm                        |
| Minimum extinction ratio [dB]                      | 8 dB                            |
| <b>Receiver Optical Characteristics</b>            |                                 |
| Rx sensitivity [dBm]                               | -20.9 dBm                       |
| Overload power [dBm]                               | -3.5 dBm                        |
| <b>NOTE</b><br>The RS-FEC function can be enabled. |                                 |

## 10.16.15 QSFP28-100G-LR4 (02313URT)

Table 10-138 QSFP28-100G-LR4 specifications

| Item                                       | Value                            |
|--|----------------------------------|
| <b>Basic Information</b>                   |                                  |
| Module name                                | QSFP28-100G-LR4                  |
| Part Number                                | 02313URT                         |
| Model                                      | QSFP28-100G-LR4                  |
| Form factor                                | QSFP28                           |
| Application standard                       | 100GBASE-LR4                     |
| Connector type                             | LC                               |
| Optical fiber type                         | SMF                              |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)      |
| Digital diagnostic monitoring (DDM)        | Supported                        |
| Transmission rate [bit/s]                  | 100 Gbit/s                       |
| Target transmission distance [km]          | Single-mode fiber (G.652): 10 km |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1295 nm,1300 nm,1304 nm,1309 nm  |
| Maximum Tx optical power [dBm]             | 4.5 dBm                          |
| Minimum Tx optical power [dBm]             | -4.3 dBm                         |

| Item                                    | Value    |
|---|----------|
| Minimum extinction ratio [dB]           | 4 dB     |
| <b>Receiver Optical Characteristics</b> |          |
| Rx sensitivity [dBm]                    | -8.6 dBm |
| Overload power [dBm]                    | 4.5 dBm  |

## 10.16.16 QSFP28-100G-SR4 (02313URQ)

**Table 10-139** QSFP28-100G-SR4 specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | QSFP28-100G-SR4   |
| Part Number                                | 02313URQ  |
| Model                                      | QSFP28-100G-SR4   |
| Form factor                                | QSFP28  |
| Application standard                       | 100GBASE-SR4  |
| Connector type                             | MPO/PC (8-strand or 12-strand, type B, female connector)    |
| Optical fiber type                         | MMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                                 |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 100 Gbit/s  |
| Target transmission distance [km]          | Multimode fiber (OM3): 70 m<br>Multimode fiber (OM4): 100 m |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | 2.4 dBm   |
| Minimum Tx optical power [dBm]             | -8.4 dBm  |
| Minimum extinction ratio [dB]              | 2 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -8.5 dBm  |

| Item   | Value   |
|--|---------|
| Overload power [dBm]   | 2.4 dBm |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 25Gbase-SR optical module. |         |

## 10.16.17 QSFP-100G-LX4-MM

**Table 10-140** QSFP-100G-LX4-MM specifications

| Item                                       | Value  |
|--|--|
| <b>Basic Information</b>                   |  |
| Module name                                | QSFP-100G-LX4-MM   |
| Part Number                                | 02314DBX   |
| Model                                      | QSFP-100G-LX4-MM   |
| Form factor                                | QSFP28   |
| Application standard                       | 100G-LX4   |
| Connector type                             | LC   |
| Optical fiber type                         | MMF  |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)  |
| Digital diagnostic monitoring (DDM)        | Supported  |
| Transmission rate [bit/s]                  | 100Gbit/s  |
| Target transmission distance [km]          | Multimode (OM3) fiber (diameter: 50 μm): 100 m<br>Multimode (OM4) fiber (diameter: 50 μm): 100 m |
| <b>Transmitter Optical Characteristics</b> |  |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm  |
| Maximum Tx optical power [dBm]             | 4.5 dBm  |
| Minimum Tx optical power [dBm]             | -3 dBm   |
| Minimum extinction ratio [dB]              | 3.5 dB   |
| <b>Receiver Optical Characteristics</b>    |  |
| Rx sensitivity [dBm]                       | -11.5 dBm  |
| Overload power [dBm]                       | 4.5 dBm  |

| Item  | Value |
|---|-------|
| <b>NOTE</b>   |       |
| Limitations:  |       |
| - In actual applications, the number of connectors in an optical fiber link cannot exceed 4.  |       |
| - This module is sensitive to fiber link contamination. During deployment, ensure that the fiber end face meets the fiber application standard. For details, refer to the requirements for single-mode connectors in the end face requirements for fiber ceramic ferrules under "Cables" > "Fiber Jumpers." |       |

## 10.16.18 QSFP-100G-LR1 (02314LBY)

Table 10-141 QSFP-100G-LR1 specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | QSFP-100G-LR1   |
| Part Number                                | 02314LBY  |
| Model                                      | QSFP-100G-LR1   |
| Form factor                                | QSFP28  |
| Application standard                       | 100GBASE-LR1  |
| Connector type                             | LC  |
| Optical fiber type                         | SMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)                               |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 100 Gbit/s  |
| Target transmission distance [km]          | Single-mode (G.652) optical fiber (diameter: 9 μm): 10 km |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 1311 nm   |
| Maximum Tx optical power [dBm]             | 4.8 dBm   |
| Minimum Tx optical power [dBm]             | -1.9 dBm  |
| Minimum extinction ratio [dB]              | 3.5 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | Max(-6.1,TECQ-7.5)  |
| Overload power [dBm]                       | 4.8 dBm   |

## 10.16.19 QSFP-100G-SWDM4 (02314LCB)

**Table 10-142** QSFP-100G-SWDM4 specifications

| Item                                       | Value   |
|--|---|
| <b>Basic Information</b>                   |   |
| Module name                                | QSFP-100G-SWDM4   |
| Part Number                                | 02314LCB  |
| Model                                      | QSFP-100G-SWDM4   |
| Form factor                                | QSFP28  |
| Application standard                       | 100G-SWDM4 MSA  |
| Connector type                             | LC  |
| Optical fiber type                         | MMF   |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)   |
| Digital diagnostic monitoring (DDM)        | Supported   |
| Transmission rate [bit/s]                  | 100 Gbit/s  |
| Target transmission distance [km]          | Multimode (OM3) optical fiber<br>(diameter: 50 μm): 75 m<br>Multimode (OM4) optical fiber<br>(diameter: 50 μm): 100 m |
| Modal bandwidth [MHz*km]                   | Multimode (OM3) optical fiber: 2000<br>MHz*km<br>Multimode (OM4) optical fiber: 4700<br>MHz*km                        |
| <b>Transmitter Optical Characteristics</b> |   |
| Center wavelength [nm]                     | 850 nm  |
| Maximum Tx optical power [dBm]             | 3.4 dBm   |
| Minimum Tx optical power [dBm]             | -7.5 dBm  |
| Minimum extinction ratio [dB]              | 2 dB  |
| <b>Receiver Optical Characteristics</b>    |   |
| Rx sensitivity [dBm]                       | -10.5 dBm   |
| Overload power [dBm]                       | 2.4 dBm   |

## 10.16.20 QSFP-100G-CWDM4-eKit

**Table 10-143** QSFP-100G-CWDM4-eKit specifications

| Item                                       | Value                           |
|--|---------------------------------|
| <b>Basic Information</b>                   |                                 |
| Module name                                | QSFP-100G-CWDM4-eKit            |
| Part Number                                | 02315HPG                        |
| Model                                      | QSFP-100G-CWDM4-eKit            |
| Form factor                                | QSFP28                          |
| Application standard                       | 100GBASE-CWDM4 (non-standard)   |
| Connector type                             | LC                              |
| Optical fiber type                         | SMF                             |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)     |
| Digital diagnostic monitoring (DDM)        | Supported                       |
| Transmission rate [bit/s]                  | 100 Gbit/s                      |
| Target transmission distance [km]          | Single-mode fiber (G.652): 2 km |
| <b>Transmitter Optical Characteristics</b> |                                 |
| Center wavelength [nm]                     | 1271 nm,1291 nm,1311 nm,1331 nm |
| Maximum Tx optical power [dBm]             | 2.5 dBm                         |
| Minimum Tx optical power [dBm]             | -6.5 dBm                        |
| Minimum extinction ratio [dB]              | 3.5 dB                          |
| <b>Receiver Optical Characteristics</b>    |                                 |
| Rx sensitivity [dBm]                       | -9.8 dBm                        |
| Overload power [dBm]                       | 2.5 dBm                         |

## 10.16.21 QSFP-100G-LR4-eKit

**Table 10-144** QSFP-100G-LR4-eKit specifications

| Item                     | Value              |
|--------------------------|--------------------|
| <b>Basic Information</b> |                    |
| Module name              | QSFP-100G-LR4-eKit |

| Item                                       | Value                            |
|--|----------------------------------|
| Part Number                                | 02315HNW                         |
| Model                                      | QSFP-100G-LR4-eKit               |
| Form factor                                | QSFP28                           |
| Application standard                       | 100GBASE-LR4                     |
| Connector type                             | LC                               |
| Optical fiber type                         | SMF                              |
| Working case temperature [°C(°F)]          | 0°C to 70°C (32°F to 158°F)      |
| Digital diagnostic monitoring (DDM)        | Supported                        |
| Transmission rate [bit/s]                  | 100 Gbit/s                       |
| Target transmission distance [km]          | Single-mode fiber (G.652): 10 km |
| <b>Transmitter Optical Characteristics</b> |                                  |
| Center wavelength [nm]                     | 1295 nm,1300 nm,1304 nm,1309 nm  |
| Maximum Tx optical power [dBm]             | 4.5 dBm                          |
| Minimum Tx optical power [dBm]             | -4.3 dBm                         |
| Minimum extinction ratio [dB]              | 4 dB                             |
| <b>Receiver Optical Characteristics</b>    |                                  |
| Rx sensitivity [dBm]                       | -8.6 dBm                         |
| Overload power [dBm]                       | 4.5 dBm                          |

## 10.16.22 QSFP-100G-SR4-eKit

**Table 10-145** QSFP-100G-SR4-eKit specifications

| Item                     | Value              |
|--------------------------|--------------------|
| <b>Basic Information</b> |                    |
| Module name              | QSFP-100G-SR4-eKit |
| Part Number              | 02315HNS           |
| Model                    | QSFP-100G-SR4-eKit |
| Form factor              | QSFP28             |
| Application standard     | 100GBASE-SR4       |

| Item   | Value   |
|--|---|
| Connector type   | MPO/PC (8-strand or 12-strand, type B, female connector)    |
| Optical fiber type   | MMF   |
| Working case temperature [°C(°F)]  | 0°C to 70°C (32°F to 158°F)                                 |
| Digital diagnostic monitoring (DDM)  | Supported   |
| Transmission rate [bit/s]  | 100 Gbit/s  |
| Target transmission distance [km]  | Multimode fiber (OM3): 70 m<br>Multimode fiber (OM4): 100 m |
| <b>Transmitter Optical Characteristics</b>   |   |
| Center wavelength [nm]   | 850 nm  |
| Maximum Tx optical power [dBm]   | 2.4 dBm   |
| Minimum Tx optical power [dBm]   | -8.4 dBm  |
| Minimum extinction ratio [dB]  | 2 dB  |
| <b>Receiver Optical Characteristics</b>  |   |
| Rx sensitivity [dBm]   | -8.5 dBm  |
| Overload power [dBm]   | 2.4 dBm   |
| <b>NOTE</b><br>This optical module supports 1-to-4 splitting. After the splitting, it can be connected to the 25Gbase-SR optical module. |   |