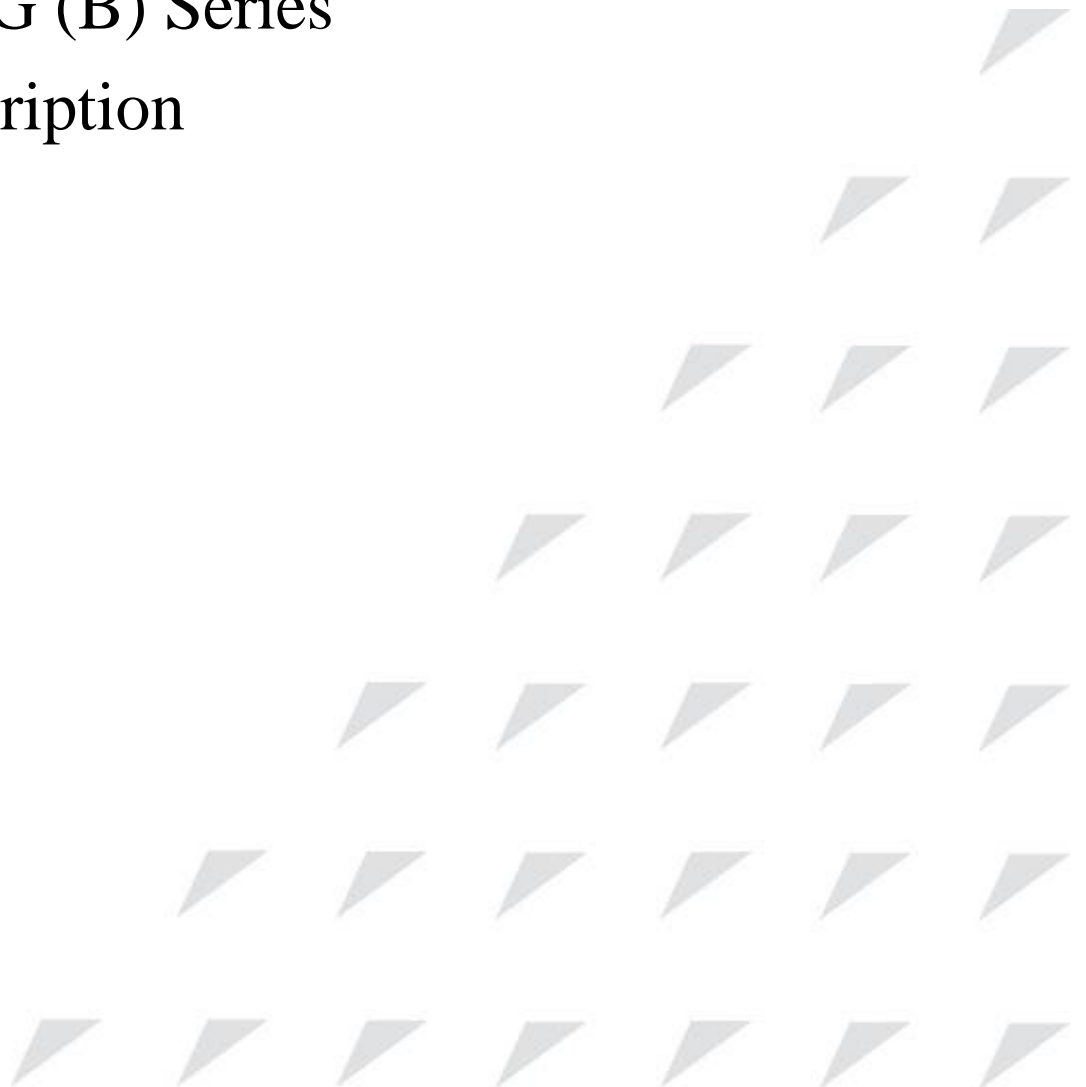


www.raisecom.com

ISCOM3000G (B) Series
Product Description
(Rel_05)



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Preface

Objectives

This document describes the Layer 3 ISCOM3000G (B) series switch (hereinafter referred to as the ISCOM3000G series switch) in terms of overview, device structure, device installation, and technical specifications.

The appendix describes cables and SFP modules, and lists terms, acronyms, and abbreviations involved in this document.

Versions





The following table lists the product versions related to this document.

Product name	Hardware version	Software version
ISCOM3024GF-4C	B	V3.50
ISCOM3048G-4C	B	V3.50
ISCOM3024G-4GE	B	V3.50
ISCOM3024G-4C	B	V3.50
ISCOM3024GF-4GE	B	V3.50
ISCOM3048GF-4C	B	V3.50
ISCOM3024C	B	V3.50
ISCOM3024GF	B	V3.50
ISCOM3052G	B	V3.50
ISCOM3024G-4C-PWR	B	V3.50
ISCOM3048G-4C-PWR	B	V3.50
ISCOM3024G-4GF-PWR	B	V3.50

Conventions

Symbol conventions

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

Symbol	Description
 Warning	Indicate a hazard with a medium or low level of risk which, if not avoided, could result in minor or moderate injury.
 Caution	Indicate a potentially hazardous situation that, if not avoided, could cause equipment damage, data loss, and performance degradation, or unexpected results.
 Note	Provide additional information to emphasize or supplement important points of the main text.
 Tip	Indicate a tip that may help you solve a problem or save time.

General conventions

Convention	Description
Times New Roman	Normal paragraphs are in Times New Roman.
Arial	Paragraphs in Warning, Caution, Notes, and Tip are in Arial.
Boldface	Buttons and navigation path are in Boldface .
<i>Italic</i>	Book titles are in <i>italics</i> .
Lucida Console	Terminal display is in Lucida Console.
Book Antiqua	Heading 1, Heading 2, Heading 3, and Block are in Book Antiqua.

Change history

Updates between document versions are cumulative. Therefore, the latest document version contains all updates made to previous versions.

Issue 05 (2018-05-16)

Fifth commercial release

- Upgraded the software version to V3.50.
- Modified some features.

Issue 04 (2017-08-15)

Fourth commercial release

- Added models ISCOM3024G-4C-PWR-AC/D, ISCOM3024G-4C-PWR-AC/S, ISCOM3048G-4C-PWR-AC/D, ISCOM3048G-4C-PWR-AC/S, ISCOM3024G-4GF-PWR-AC/D, and ISCOM3024G-4GF-PWR-AC/S, which support PoE.
- Fixed known bugs.

Issue 03 (2017-01-15)

Third commercial release

- Updated the software version to V3.41 and modified some features.

Issue 02 (2016-10-14)

Second commercial release

- Fixed known bugs.
- Added the ISCOM3024GF-AC/D, ISCOM3024GF-DC/D, and ISCOM3024GF-AC_DC.
- Added the ISCOM3052G-AC/D, ISCOM3052G-DC/D, and ISCOM3052G-AC_DC.

Issue 01 (2016-04-21)

Initial commercial release

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1 Overview

This chapter is an overview of the ISCOM3000G series switch, including the following sections:

- Introduction
- Features
- Networking applications
- Ordering information

1.1 Introduction

The Layer 3 ISCOM3000G series switch, developed by Raisecom, is an aggregation device designed for enterprises, campuses, residences, and carrier Customer Premises Network (CPN). It provides 1000 Mbit/s or 10 Gbit/s Layer 2 or Layer 3 wire-speed forwarding capabilities.

The ISCOM3000G series switch is integrated with advanced features, such as user authentication, access control, and bandwidth management. It features flexible networking, individualized Quality of Service (QoS), sound access control, complete network management, and high stability, thus fully meeting the requirements of carriers.

1.2 Features

Table 1-1 lists features of the ISCOM3000G series switch.

Table 1-1 Features

Feature	Description
Basic features	<ul style="list-style-type: none"> • Logging in to the device (Console/Telnet/SSHv2) • User management • CLI • File management (BootROM/system file/configuration file) • Loading and upgrading (automatic loading through TFTP, upgrading through BootROM, FTP, or TFTP) • Time management • Interface management • Basic information about the device (name, language mode, saving or deleting configurations, and restarting the device) • Task scheduling • Watchdog
ISF	Support ISF virtualization through service interfaces.
Ethernet	<ul style="list-style-type: none"> • MAC management • Port security MAC • VLAN (4094) • MAC and subnet-based VLAN • Voice VLAN • VLANIF interface • Basic QinQ and selective QinQ • VLAN mapping • Loop detection • Port mirroring • Interface isolation • Interface backup • STP/RSTP/MSTP • L2CP transparent transmission • Voice VLAN
Ring protection	G.8032
IP service	<ul style="list-style-type: none"> • ARP • IPv6 • NDP • DHCP Client • DHCP Server • DHCP Relay • DHCP Snooping • DHCP Option 82, DHCP Option 61, and IPv6 DHCP Option18 • DHCPv6 Client • DHCPv6 • DHCPv6 Snooping • RA Snooping
IP routing	<ul style="list-style-type: none"> • Static route (IPv4 and IPv6) • Route management • Policy routing • OSPF • BGP • RIP • ISIS

Feature	Description
PoE (supported by PoE models only)	<ul style="list-style-type: none"> • IEEE 802.3af and the latest IEEE 802.3at • Common PoE configurations • PD active check • PoE scheduling
QoS	<ul style="list-style-type: none"> • Priority mapping • Interface shaping • Queue scheduling • WRED • Filter • Traffic policy • Queue marking • CAR, CP CAR, and statistics
Multicast	<ul style="list-style-type: none"> • Static Layer 2 multicast • Route multicast management • IGMP • IGMP Snooping • IGMP MVR • IGMP filtering • IGMP Querier • PIM-SM • MLD • MVR • VLAN Copy
Security	<ul style="list-style-type: none"> • Port security MAC • ACL • Dynamic ARP detection • Anti-ARP attacks • RADIUS authentication • TACACS+ • 802.1X • PPPoE+ • Storm control • IP Source Guard • CPU protection • IPSG • Interface protection
Reliability	<ul style="list-style-type: none"> • Link aggregation • VRRP • Link-state tracking • mLACP • ICCP
OAM	IEEE802.3ah

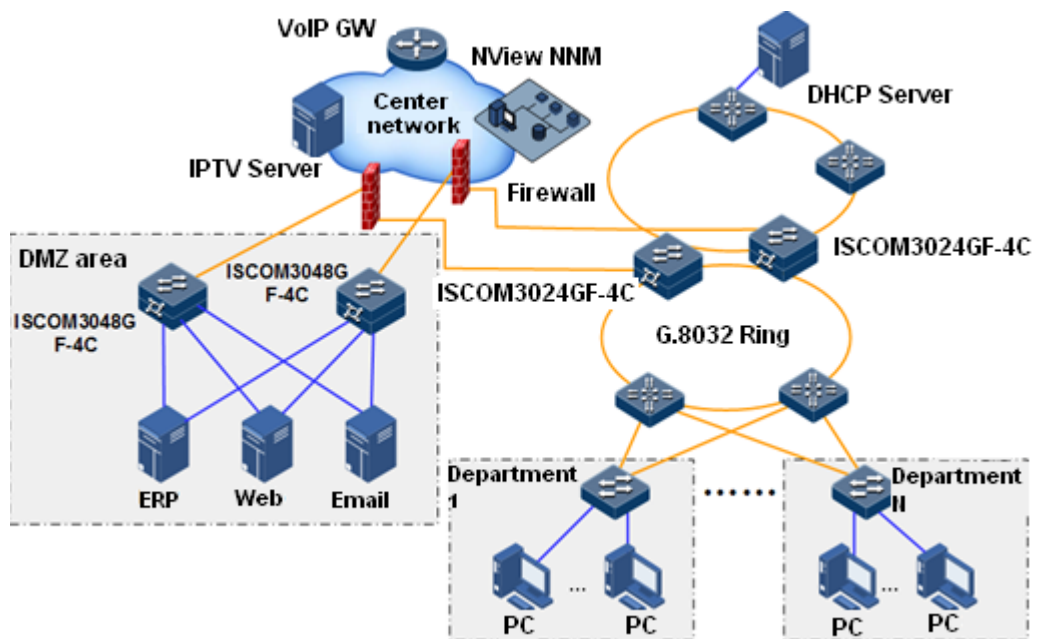
Feature	Description
System management	<ul style="list-style-type: none"> • SNMP (v2c and v3) • KeepAlive • RMON • LLDP • Optical module DDM • System log • Alarm management • Fan monitoring • Hardware monitoring • CPU control • Dual system • Loopback • Ping and Traceroute

1.3 Networking applications

1.3.1 Campus

As shown in Figure 1-1, in a campus with high reliability requirements, the ISCOM3000G series switch is deployed in the Demilitarized Zone (DMZ) or internal server zone to provide trunk tunnels for servers.

Figure 1-1 Park networking



1.3.2 Data center networking

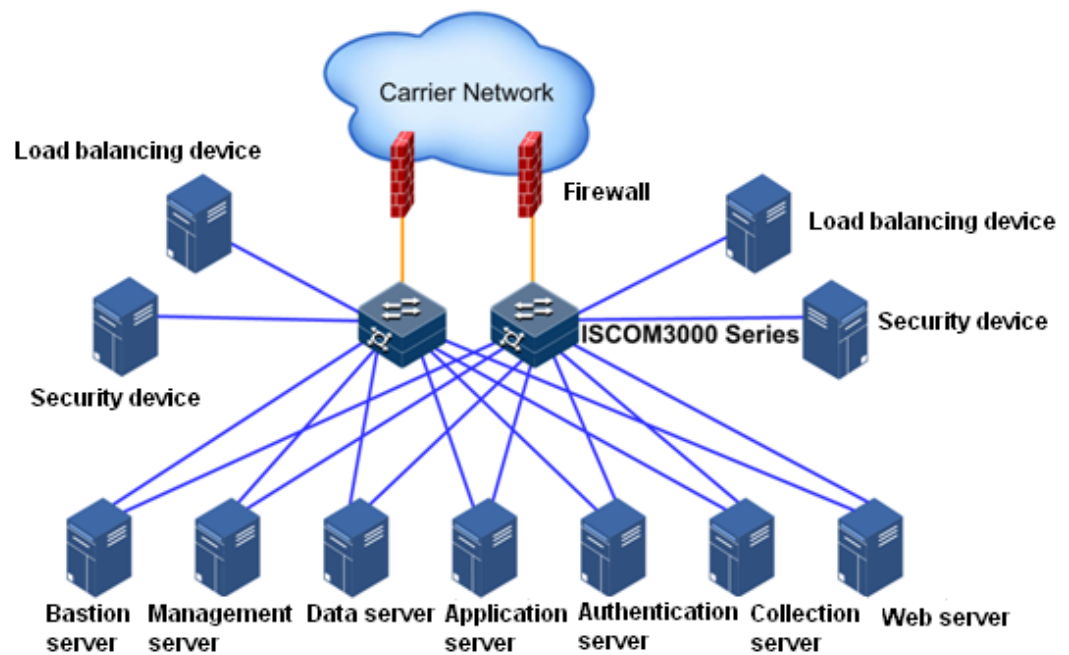
The enterprise-level uniform IT security monitoring and service platform constructed by carriers provides centralized monitoring, uniform analyses, and uniform service management

for the secure and routine operation, maintenance, and management. It implements uniform monitoring and analysis on security of the infrastructure, network, devices, and subsystems of the enterprise-level IT system, enhances system access control, implements control over accounts, access, authorization oriented to maintenance of the system software and hardware, and provides professional security service for system maintenance personnel, administrators, and leaders of the company.

The server cluster includes the database server, application server, collection server, bastion host, Web server, authentication server, and management server. The network devices include switches, firewall, load balancing device, remote security assessment system, and network security inspection platform.

As shown in Figure 1-2, the ISCOM3000G series switch, as the core switch in the security monitoring cloud, provides service, heartbeat, and management channel, and meanwhile controls access to the server through ACL.

Figure 1-2 Data center networking



1.4 Ordering information

1.4.1 Naming convention

ISCOM3000G series naming convention

Figure 1-3 and Table 1-2 show the naming convention of the ISCOM3000G series switch. Figure 1-4 and Table 1-3 show the naming convention of the ISCOM3024GF/3024C.

Figure 1-3 Naming convention of ISCOM3000G series switch

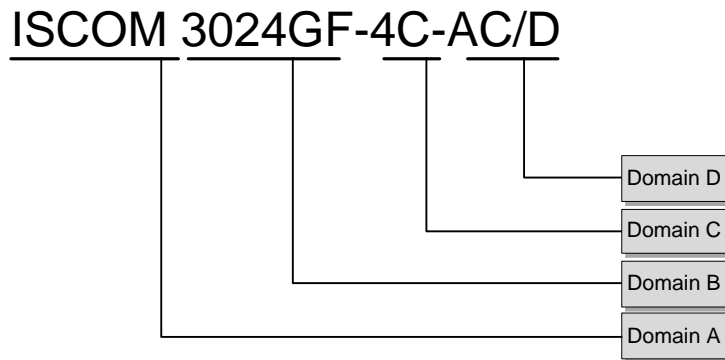


Table 1-2 describes the naming convention of the ISCOM3000G series switch.

Table 1-2 Naming convention

Domain	Indication	Value	Description
A	Product ID	ISCOM	Raisecom ISCOM series device
B	Subtype and number of interfaces	30	One of the ISCOM3000 series
		24GF	Provide 24 SFP optical interfaces.
		48G	Provide 48 RJ45 interfaces.
		24G	Provide 24 RJ45 interfaces.
C	Number of uplink interfaces and product property	4C	Support four 10 Gbit/s SFP+ uplink interfaces.
		4GE	Support four 1000 Mbit/s Combo uplink interfaces.
D	Power type	AC/D	Support dual AC power supplies.
		DC/D	Support dual DC power supplies.
		AC_DC	Support one AC + one DC power supplies.

ISCOM3024GF/3024C/3052G naming convention

Figure 1-4 shows the naming convention of ISCOM3024GF/3024C/3052G

Figure 1-4 Naming convention of ISCOM3024GF/3024C/3052G

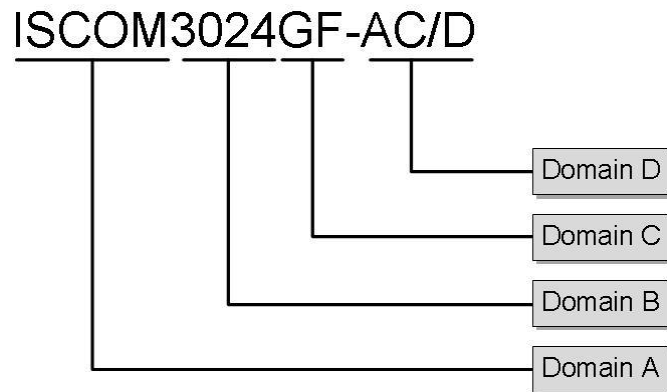


Table 1-3 describes the naming convention of the ISCOM3024GF/3024C/3052G.

Table 1-3 Naming convention of the ISCOM3024GF/3024C/3052G

Domain	Indication	Value	Description
A	Product ID	ISCOM	Raisecom ISCOM series device
B	Subtype and number of interfaces	30xx	One of the ISCOM3000 series
C	Interface type	GF	The ISCOM3024GF provides 1000 Mbit/s optical interfaces.
		C	The ISCOM3024C provides 10 Gbit/s SFP+ interfaces.
		G	The ISCOM3052G is a full-1000 Mbit/s product.
D	Power type	AC/D	Support dual AC power supplies.
		DC/D	Support dual DC power supplies.
		AC_DC	Support one AC + one DC power supplies.

1.4.2 Ordering information about device

Table 1-4 lists ordering information about the ISCOM3000G series switch.

Table 1-4 Ordering information about device

Model	Description
ISCOM3024GF-4C-AC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual 220 VAC power supplies.
ISCOM3024GF-4C-DC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual -48 VDC power supplies.
ISCOM3024GF-4C-AC_DC	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support one AC + one DC power supplies.
ISCOM3048G-4C-AC/D	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual 220 VAC power supplies.
ISCOM3048G-4C-DC/D	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual -48 VDC power supplies.
ISCOM3048G-4C-AC_DC	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support one AC + one DC power supplies.
ISCOM3024G-4C-AC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual 220 VAC power supplies.
ISCOM3024G-4C-DC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual -48 VDC power supplies.

Model	Description
ISCOM3024G-4C-AC_DC	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support one AC + one DC power supplies.
ISCOM3048GF-4C-AC/D	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual 220 VAC power supplies.
ISCOM3048GF-4C-DC/D	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual -48 VDC power supplies.
ISCOM3048GF-4C-AC_DC	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support one AC + one DC power supplies.
ISCOM3024GF-4GE-AC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s Combo uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual 220 VAC power supplies.
ISCOM3024GF-4GE-DC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s Combo uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual DC power supplies.
ISCOM3024GF-4GE-AC_DC	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s Combo uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support one AC + one DC power supplies.
ISCOM3024G-4GE-AC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s Combo uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual 220 VAC power supplies.

Model	Description
ISCOM3024G-4GE-DC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s Combo uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support one AC + one DC power supplies.
ISCOM3024G-4GE-AC_DC	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s Combo uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support one AC + one DC power supplies.
ISCOM3024C-AC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual 220 VAC power supplies.
ISCOM3024C-DC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual -48 VDC power supplies.
ISCOM3024C-AC_DC	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s or 10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support one AC + one DC power supplies.
ISCOM3024GF-AC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s Combo uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual 220 VAC power supplies.
ISCOM3024GF-DC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s Combo uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual DC power supplies.
ISCOM3024GF-AC_DC	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s SFP downlink interfaces. • Provide four 1000 Mbit/s Combo uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support one DC + one AC power supplies.

Model	Description
ISCOM3052G-AC/D	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s SFP uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual 220 VAC power supplies.
ISCOM3052G-DC/D	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s SFP uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support dual -48 VDC power supplies.
ISCOM3052G-AC_DC	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s SFP uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface which supports out-of-band management. • Support one DC + one AC power supplies.
ISCOM3024G-4GF-PWR-AC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s/10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface for out-of-band network management. • Support IEEE 802.3at and 802.3af. • For dual power supplies, all interfaces can work simultaneously at 30 W per interface. • Support dual 220 VAC power supplies.
ISCOM3024G-4GF-PWR-AC/S	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000M/10G SFP+ uplink interfaces. • RJ45 Console interface • Provide SNMP interface for out-of-band network management. • Support 802.3at and 802.3af. • For single power supply, half of the interfaces can work simultaneously at 30 W per interface and all interfaces can work simultaneously at 15.4 W per interface. • Support single 220 VAC power supply.
ISCOM3024G-4C-PWR-AC/D	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s/10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface for out-of-band network management. • Support IEEE 802.3at and 802.3af. • For dual power supplies, all interfaces can work simultaneously at 30W per interface. • Support dual 220 VAC power supplies.
ISCOM3024G-4C-PWR-AC/S	<ul style="list-style-type: none"> • Provide twenty-four 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000 Mbit/s/10 Gbit/s SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface for out-of-band network management. • Support IEEE 802.3at and 802.3af. • For single power supply, half of the interfaces can work simultaneously at 30 W per interface or all interfaces can work simultaneously at 15.4 W per interface. • Support single 220 VAC power supply.

Model	Description
ISCOM3048G-4C-PWR-AC/D	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000M/10G SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface for out-of-band network management. • When the power input ranges from 165 to 264 VAC, dual power supplies support that all interfaces work simultaneously at 30W per interface. • When the power input ranges from 90 to 165 VAC, dual power supplies support that half of the interfaces work simultaneously at 30 W per interface or all interfaces work simultaneously at 15.4W per interface. • Support dual 220 VAC power supplies.
ISCOM3048G-4C-PWR-AC/S	<ul style="list-style-type: none"> • Provide forty-eight 100/1000 Mbit/s RJ45 downlink interfaces. • Provide four 1000M/10G SFP+ uplink interfaces. • Provide the RJ45 Console interface. • Provide the SNMP interface for out-of-band network management. • When the power input ranges from 165 to 264 VAC, single power supply supports that all interfaces work simultaneously at 15.4 W per interface or half of the interfaces work simultaneously at 30 W per interface. • When the power input ranges from 90 to 165 VAC, single power supply supports that 12 interfaces work simultaneously at 30 W per interface and 24 interfaces work simultaneously at 15.4 W per interface. • Support single 220 VAC power supply.

1.4.3 Ordering information about auxiliary parts

The ISCOM3000G series switch can be equipped with the following auxiliary parts:

- 100 Mbit/s SFP optical module
- 100 Mbit/s SFP electrical module
- 1000 Mbit/s SFP optical module
- 1000 Mbit/s SFP electrical module
- 10 Gbit/s SFP+ optical module

100 Mbit/s SFP optical module

Table 1-5 lists ordering information about the 100 Mbit/s SFP optical module.

Table 1-5 Ordering information about 100 Mbit/s SFP optical module

Model	Description
USFP-03/M-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 155 Mbit/s • Transmission distance: 2 km • Tx wavelength: 1310 nm • Dual-fiber multi-mode SFP optical module

Model	Description
USFP-03/S1-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 155 Mbit/s • Transmission distance: 15 km • Tx wavelength: 1310 nm • Dual-fiber single-mode SFP optical module
USFP-03/S2-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 155 Mbit/s • Transmission distance: 40 km • Tx wavelength: 1310 nm • Dual-fiber single-mode SFP optical module
USFP-03/S3-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 155 Mbit/s • Transmission distance: 80 km • Tx wavelength: 1550 nm • Dual-fiber single-mode SFP optical module
USFP-03/SS13-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 155 Mbit/s • Transmission distance: 15 km • Tx wavelength: 1310 nm • Rx wavelength: 1550 nm • Single-fiber single-mode SFP optical module
USFP-03/SS15-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 155 Mbit/s • Transmission distance: 15 km • Tx wavelength: 1550 nm • Rx wavelength: 1310 nm • Single-fiber single-mode SFP optical module
USFP-03/SS23-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 155 Mbit/s • Transmission distance: 40 km • Tx wavelength: 1310 nm • Rx wavelength: 1550 nm • Single-fiber single-mode SFP optical module
USFP-03/SS25-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 155 Mbit/s • Transmission distance: 40 km • Tx wavelength: 1550 nm • Rx wavelength: 1310 nm • Single-fiber single-mode SFP optical module
USFP-03/SS34-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 155 Mbit/s • Transmission distance: 80 km • Tx wavelength: 1490 nm • Rx wavelength: 1550 nm • Single-fiber single-mode SFP optical module
USFP-03/SS35-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 155 Mbit/s • Transmission distance: 80 km • Tx wavelength: 1550 nm • Rx wavelength: 1490 nm • Single-fiber single-mode SFP optical module

100 Mbit/s SFP electrical module

Table 1-6 lists ordering information about the 100 Mbit/s SFP electrical module.

Table 1-6 Ordering information about 100 Mbit/s SFP electrical module

Model	Description
USFP-FE/AN-R/SW	<ul style="list-style-type: none"> • Transmission rate: 125 Mbit/s • Transmission distance: 100 m • Enabled with auto-negotiation • SerDes interface

1000 Mbit/s SFP optical module

Table 1-7 lists ordering information about the 1000 Mbit/s SFP optical module.

Table 1-7 Ordering information about 1000 Mbit/s SFP optical module

Model	Description
USFP-Gb/M-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 550 m • Tx wavelength: 850 nm • Dual-fiber multi-mode SFP optical module
USFP-Gb/S1-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 15 km • Tx wavelength: 1310 nm • Dual-fiber single-mode SFP optical module
USFP-Gb/S2-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 40 km • Tx wavelength: 1550 nm • Dual-fiber single-mode SFP optical module
USFP-Gb/S3-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 100 km • Tx wavelength: 1550 nm • Dual-fiber single-mode SFP optical module
USFP-Gb/LH1-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 40 km • Tx wavelength: 1310 nm • Dual-fiber single-mode SFP optical module
USFP-Gb/ZX-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 80 km • Tx wavelength: 1550 nm • Dual-fiber single-mode SFP optical module
USFP-Gb/EX-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 120 km • Tx wavelength: 1550 nm • Dual-fiber single-mode SFP optical module
USFP-Gb/SS13-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 15 km • Tx wavelength: 1310 nm • Rx wavelength: 1550 nm • Single-fiber single-mode SFP optical module

Model	Description
USFP-Gb/SS15-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 15 km • Tx wavelength: 1550 nm • Rx wavelength: 1550 nm • Single-fiber single-mode SFP optical module
USFP-Gb/SS13-4/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 15 km • Tx wavelength: 1310 nm • Rx wavelength: 1490 nm • Single-fiber single-mode SFP optical module
USFP-Gb/SS14-3/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 15 km • Tx wavelength: 1490 nm • Rx wavelength: 1310 nm • Single-fiber single-mode SFP optical module
USFP-Gb/SS24-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 40 km • Tx wavelength: 1490 nm • Rx wavelength: 1550 nm • Single-fiber single-mode SFP optical module
USFP-Gb/SS25-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 40 km • Tx wavelength: 1550 nm • Rx wavelength: 1490 nm • Single-fiber single-mode SFP optical module
USFP-Gb/SS34-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 80 km • Tx wavelength: 1490 nm • Rx wavelength: 1550 nm • Single-fiber single-mode SFP optical module
USFP-Gb/SS35-D-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1.25 Gbit/s • Transmission distance: 80 km • Tx wavelength: 1550 nm • Rx wavelength: 1490 nm • Single-fiber single-mode SFP optical module

1000 Mbit/s SFP electrical module

Table 1-8 lists ordering information about the 1000 Mbit/s SFP electrical module.

Table 1-8 Ordering information about 1000 Mbit/s SFP electrical module

Model	Description
USFP-GE-R/SW	<ul style="list-style-type: none"> • Transmission rate: 1000 Mbit/s • Transmission distance: 100 m • SerDes interface
USFP-GE/AN-R/SW	<ul style="list-style-type: none"> • Transmission rate: 10/100/1000 Mbit/s • Transmission distance: 100 m • SGMII interface

10 Gbit/s SFP+ optical module

Table 1-9 lists ordering information about the 10 Gbit/s SFP+ optical module.

Table 1-9 Ordering information about 10 Gbit/s SFP+ optical module

Model	Description
USFP+-192/M/SW	<ul style="list-style-type: none">• Transmission rate: 10 Gbit/s• Transmission distance: 300 m• Tx wavelength: 850 nm• Dual-fiber multi-mode SFP+ optical module
USFP+-192/S1/SW	<ul style="list-style-type: none">• Transmission rate: 10 Gbit/s• Transmission distance: 10 km• Tx wavelength: 1310 nm• Dual-fiber single-mode SFP+ optical module

2 System structure

This chapter describes system structure of the ISCOM3000G series switch, including the following sections:

- Panels
- Interfaces
- LEDs

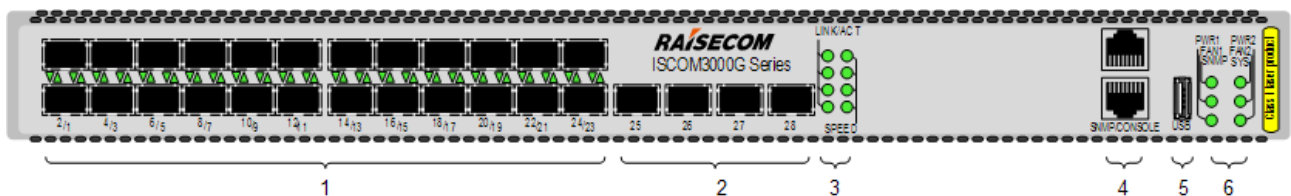
2.1 Panels

2.1.1 Front panels

ISCOM3024GF-4C

Figure 2-1 shows the front panel of the ISCOM3024GF-4C.

Figure 2-1 Front panel of ISCOM3024GF-4C

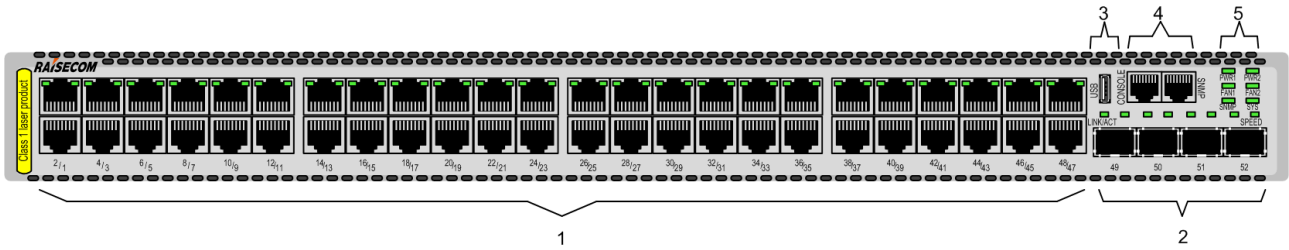


1	Service downlink interfaces (1–24) and LEDs	2	Service uplink interfaces (25–28)
3	Service uplink interface (25–28) LEDs	4	SNMP interface and Console interface
5	USB interface	6	PWR, FAN, and SYS LEDs

ISCOM3048G-4C

Figure 2-2 shows the front panel of the ISCOM3048G-4C.

Figure 2-2 Front panel of ISCOM3048G-4C

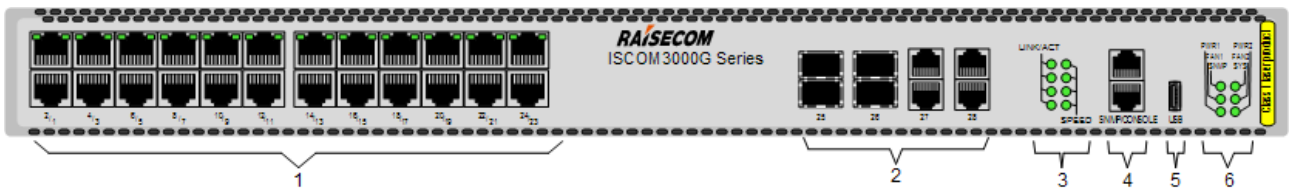


1	Service downlink interfaces (1–48) and LEDs	2	Service uplink interfaces (49–52) and LEDs
3	USB interface	4	SNMP interface and Console interface
5	PWR, FAN, and SYS LEDs		

ISCOM3024G-4GE

Figure 2-3 shows the front panel of the ISCOM3024G-4GE.

Figure 2-3 Front panel of ISCOM3024G-4GE

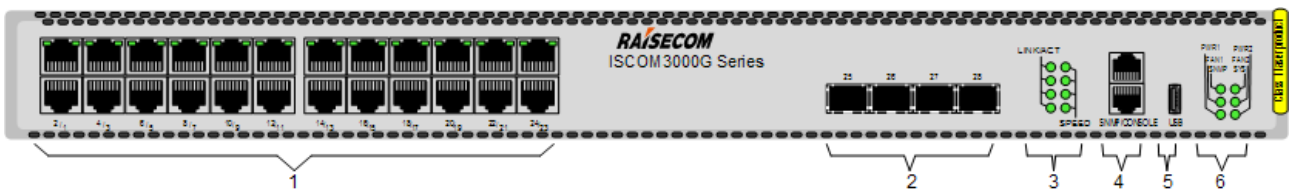


1	Service downlink interfaces (1–24) and LEDs	2	Service uplink interfaces (25–28)
3	Service uplink interfaces	4	SNMP interface and Console interface
5	USB interface	6	PWR, FAN, and SYS LEDs

ISCOM3024G-4C

Figure 2-4 shows the front panel of the ISCOM3024G-4C.

Figure 2-4 Front panel of ISCOM3024G-4C



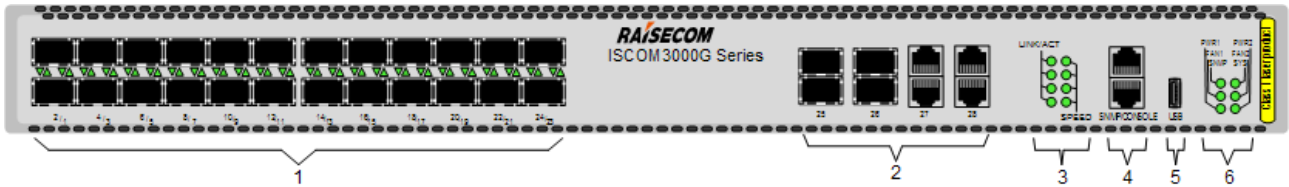
1	Service downlink interfaces (1–24) and LEDs	2	Service uplink interfaces (25–28)
3	Service uplink interface (25-28) LEDs	4	SNMP interface and Console interface

5	USB interface	6	PWR, FAN, and SYS LEDs
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ISCOM3024GF-4GE

Figure 2-5 shows the front panel of the ISCOM3024GF-4GE.

Figure 2-5 Front panel of ISCOM3024GF-4GE

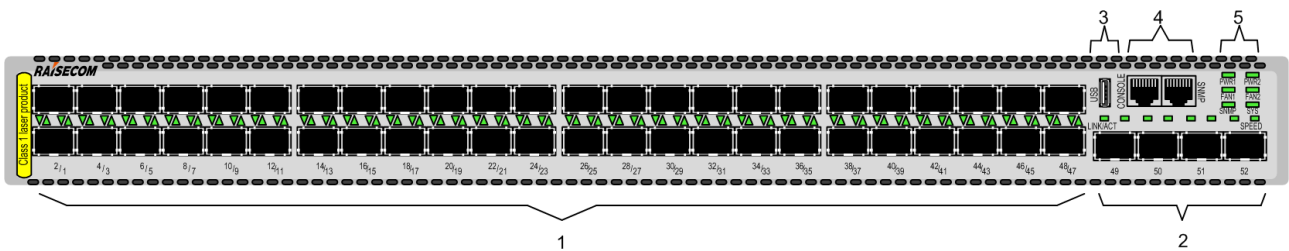


1	Service downlink interfaces (1–24) and LEDs	2	Service uplink interfaces (25–28)
3	Service uplink interface LEDs	4	SNMP interface and Console interface
5	USB interface	6	PWR, FAN, and SYS LEDs

ISCOM3048GF-4C

Figure 2-6 shows the front panel of the ISCOM3048GF-4C.

Figure 2-6 Front panel of ISCOM3048GF-4C

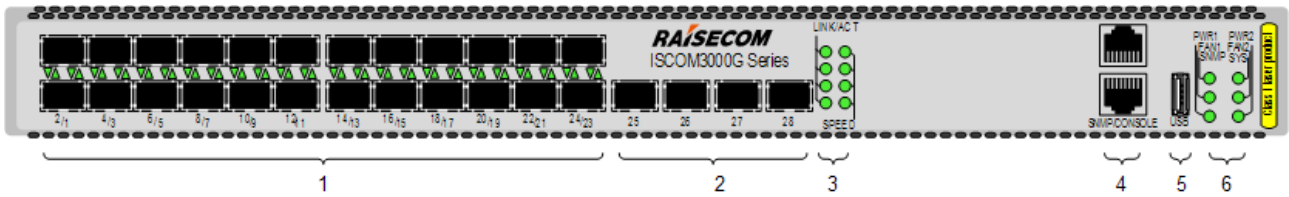


1	Service downlink interfaces (1–48) and LEDs	2	Service uplink interfaces (49–52) and LEDs
3	USB interface	4	SNMP interface and Console interface
5	PWR, FAN, and SYS LEDs		

ISCOM3024C

Figure 2-7 shows the front panel of the ISCOM3024C.

Figure 2-7 Front panel of ISCOM3024C

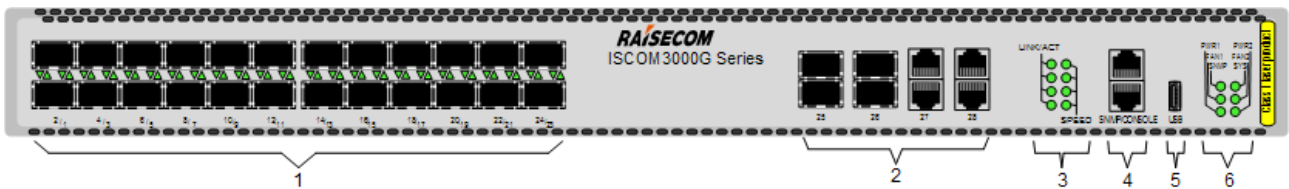


1	Service downlink interfaces (1–24) and LEDs	2	Service uplink interfaces (25–28) and LEDs
3	Service uplink interface (25–28) LEDs	4	SNMP interface and Console interface
5	USB interface	6	PWR, FAN, and SYS LEDs

ISCOM3024GF

Figure 2-8 shows the front panel of the ISCOM3024GF.

Figure 2-8 Front panel of ISCOM3024GF

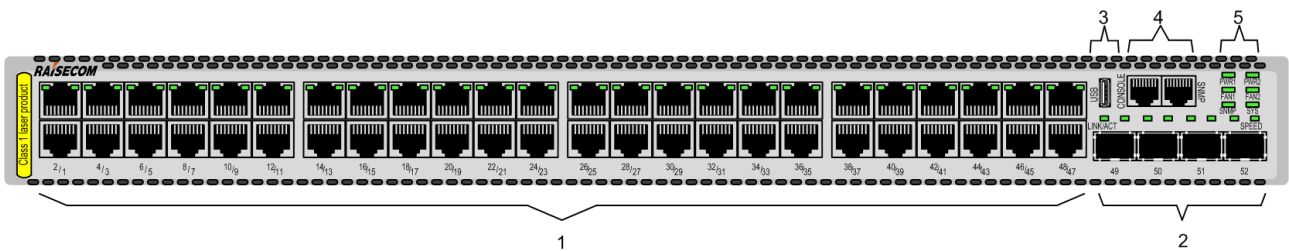


1	Service downlink interfaces (1–24) and LEDs	2	Service uplink interfaces (25–28)
3	Service uplink interface LEDs	4	SNMP interface and Console interface
5	USB interface	6	PWR, FAN, and SYS LEDs

ISCOM3052G

Figure 2-9 shows the front panel of the ISCOM3052G.

Figure 2-9 Front panel of ISCOM3052G



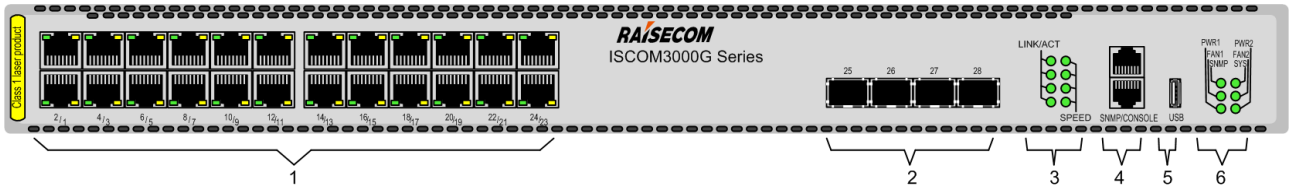
1	Service downlink interfaces (1–48) and LEDs	2	Service uplink interfaces (49–52) and LEDs
3	USB interface	4	SNMP interface and Console interface

5	PWR, FAN, and SYS LEDs	
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ISCOM3024G-4GF-PWR

Figure 2-10 shows the front panel of the ISCOM3024G-4GF-PWR.

Figure 2-10 Front panel of ISCOM3024G-4C-PWR

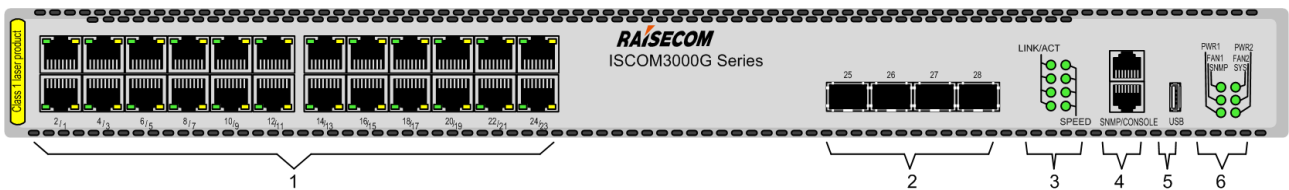


1	Service downlink interfaces (1–24) and LEDs	2	Service uplink interfaces (25–28)
3	Service uplink interface LEDs	4	SNMP interface and Console interface
5	USB interface (reserved)	6	PWR, FAN, and SYS LEDs

ISCOM3024G-4C-PWR

Figure 2-11 shows the front panel of the ISCOM3024G-4C-PWR.

Figure 2-11 Front panel of ISCOM3024G-4C-PWR

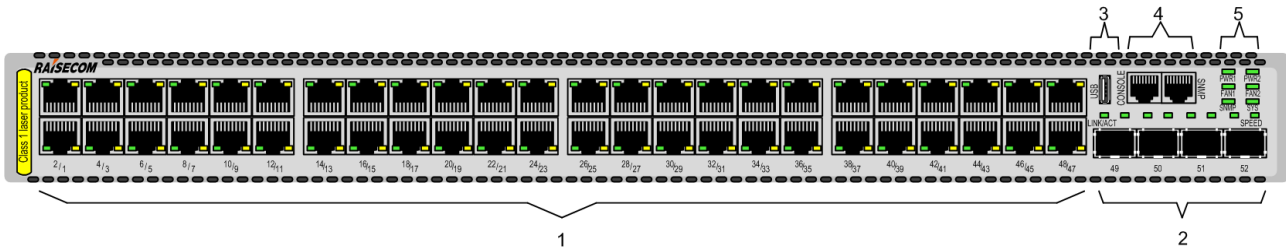


1	Service downlink interfaces (1–24) and LEDs	2	Service uplink interfaces (25–28)
3	Service uplink interface LEDs	4	SNMP interface and Console interface
5	USB interface (reserved)	6	PWR, FAN, and SYS LEDs

ISCOM3048G-4C-PWR

Figure 2-12 shows the front panel of the ISCOM3048G-4C-PWR.

Figure 2-12 Front panel of ISCOM3048G-4C-PWR



1	Service downlink interfaces (1–48) and LEDs	2	Service uplink interfaces (49–52) and LEDs
3	USB interface (reserved)	4	SNMP interface and Console interface
5	PWR, FAN, and SYS LEDs		

2.1.2 Rear panels

Figure 2-13 shows the rear panel of the ISCOM3000G with dual AC power supplies.

Figure 2-13 Rear panel of the ISCOM3000G with dual AC power supplies

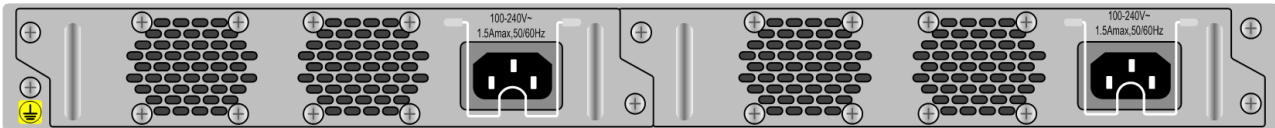


Figure 2-14 shows the rear panel of the ISCOM3000G with dual DC power supplies

Figure 2-14 Rear panel of the ISCOM3000G with dual DC power supplies

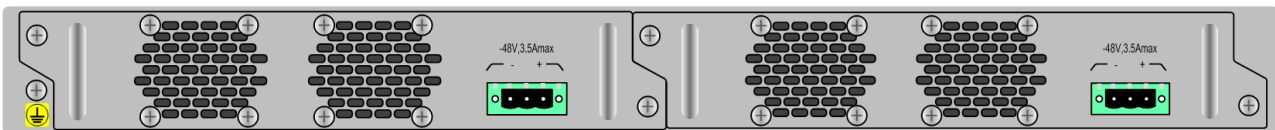


Figure 2-15 shows the rear panel of the SCOM3000G with hybrid AC/DC power supplies.

Figure 2-15 Rear panel of the SCOM3000G with hybrid AC/DC power supplies

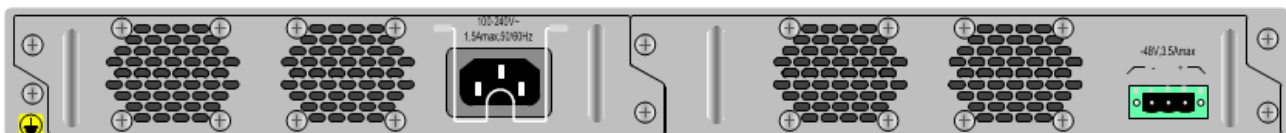


Figure 2-16 shows the rear panel of the ISCOM3024G-4C-PWR\ISCOM3024G-4GF-PWR with dual AC power supplies.

Figure 2-16 Rear panel of the ISCOM3024G-4C-PWR\ISCOM3024G-4GF-PWR with dual AC power supplies

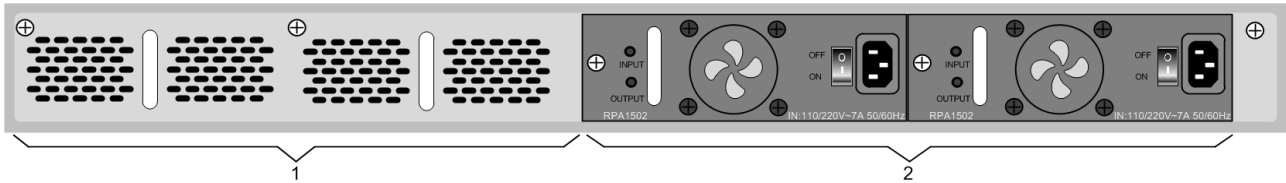
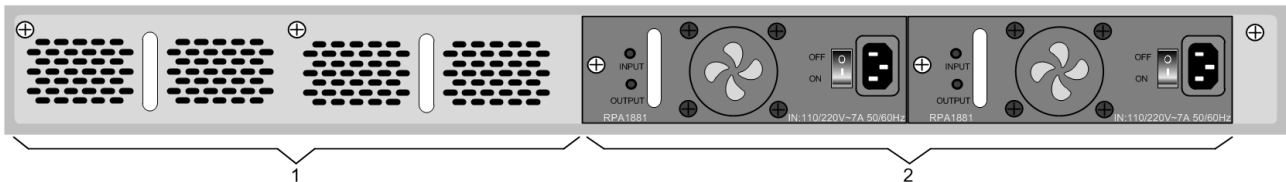


Figure 2-17 shows the rear panel of the ISCOM3048G-4C-PWR with dual AC power supplies.

Figure 2-17 Rear panel of the ISCOM3048G-4C-PWR with dual AC power supplies



Note

Choose the dual AC power module, dual DC power module, or hybrid AC/DC power modules as required.

2.2 Interfaces

2.2.1 Types



Note

We recommend using Raisecom optical modules for service interfaces. Otherwise, services may be unstable.

ISCOM3024GF-4C

Table 2-1 lists interfaces on the ISCOM3024GF-4C.

Table 2-1 Interfaces on ISCOM3024GF-4C

Interface	Usage	Type	Description
Port 1 to Port 24	Service downlink interface	SFP	<ul style="list-style-type: none"> The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
Port 25 to Port 28	Service uplink interface	SFP+	The 10 Gbit/s SFP+ optical interfaces support the 10GBASE-X SFP+ optical modules.

Interface	Usage	Type	Description
		SFP	<ul style="list-style-type: none"> The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

ISCOM3048G-4C

Table 2-2 lists interfaces on the ISCOM3048G-4C.

Table 2-2 Interfaces on ISCOM3048G-4C

Interface	Usage	Type	Description
Port 1 to Port 48	Service downlink interface	RJ45	10/100/1000BASE-T auto-negotiation electrical interfaces
Port 49 to Port 52	Service uplink interface	SFP+	The 10 Gbit/s SFP+ optical interfaces support the 10GBASE-X SFP+ optical modules.
		SFP	<ul style="list-style-type: none"> The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

ISCOM3024G-4GE

Table 2-3 lists interfaces on the ISCOM3024G-4GE.

Table 2-3 Interfaces on ISCOM3024G-4GE

Interface	Usage	Type	Description
Port 1 to Port 24	Service downlink interface	RJ45	10/100/1000BASE-T adaptive electrical interfaces
Port 25 to Port 28	Service uplink interface	Combo	1000 Mbit/s Combo interfaces The SFP interfaces support the following SFP optical modules: <ul style="list-style-type: none"> • 1000BASE-X • 100BASE-FX The SFP interfaces support the 1000BASE-T SFP electrical modules. The GE interfaces support the 10/100/1000BASE-T auto-negotiation electrical interfaces.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

ISCOM3024G-4C

Table 2-4 lists interfaces on the ISCOM3024G-4C.

Table 2-4 Interfaces on ISCOM3024G-4C

Interface	Usage	Type	Description
Port 1 to Port 24	Service downlink interface	RJ45	10/100/1000BASE-T auto-negotiation electrical interfaces
Port 25 to Port 28	Service uplink interface	SFP+	The 10 Gbit/s SFP+ optical interfaces support the 10GBASE-X SFP+ optical modules.
		SFP	<ul style="list-style-type: none"> • The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. • The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.

Interface	Usage	Type	Description
–	–	USB	Reserved

ISCOM3024GF-4GE

Table 2-5 lists interfaces on the ISCOM3024GF-4GE.

Table 2-5 Interfaces on ISCOM3024GF-4GE

Interface	Usage	Type	Description
Port 1 to Port 24	Service downlink interface	SFP	<ul style="list-style-type: none"> • The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. • The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
Port 25 to Port 28	Service uplink interface	Combo	1000 Mbit/s Combo interfaces The SFP interfaces support the following SFP optical modules: <ul style="list-style-type: none"> • 1000BASE-X • 100BASE-FX The SFP interfaces support the 1000BASE-T SFP electrical modules. The GE interfaces support the 10/100/1000BASE-T auto-negotiation electrical interfaces.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

ISCOM3048GF-4C

Table 2-6 lists interfaces on the ISCOM3048GF-4C.

Table 2-6 Interfaces on ISCOM3048GF-4C

Interface	Usage	Type	Description
Port 1 to Port 48	Service downlink interface	SFP	<ul style="list-style-type: none"> The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
Port 49 to Port 52	Service uplink interface	SFP+	The 10 Gbit/s SFP+ optical interfaces support the 10GBASE-X SFP+ optical modules.
		SFP	<ul style="list-style-type: none"> The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

ISCOM3024C

Table 2-7 lists interfaces on the ISCOM3024C.

Table 2-7 Interfaces on ISCOM3024C

Interface	Usage	Type	Description
Port 1 to Port 24	Service downlink interface	SFP	<ul style="list-style-type: none"> The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
Port 25 to Port 28	Service uplink interface	SFP+	The 10 Gbit/s SFP+ optical interfaces support the 10GBASE-X SFP+ optical modules.
		SFP	<ul style="list-style-type: none"> The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface

Interface	Usage	Type	Description
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

ISCOM3024GF

Table 2-8 lists interfaces on the ISCOM3024GF.

Table 2-8 Interfaces on ISCOM3024GF

Interface	Usage	Type	Description
Port 1 to Port 24	Service downlink interface	SFP	<ul style="list-style-type: none"> The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
Port 25 to Port 28	Service uplink interface	Combo	1000 Mbit/s Combo interfaces Available SFP optical module: <ul style="list-style-type: none"> 1000BASE-X 100BASE-FX The SFP interfaces support the 1000BASE-T SFP electrical modules. The GE interfaces support 10/100/1000BASE-T auto-negotiation electrical interfaces.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

ISCOM3052G

Table 2-9 lists interfaces on the ISCOM3052G.

Table 2-9 Interfaces on ISCOM3052G

Interface	Usage	Type	Description
Port 1 to Port 48	Service downlink interface	RJ45	10/100/1000BASE-T auto-negotiation interfaces

Interface	Usage	Type	Description
Port 49 to Port 52	Service uplink interface	SFP	<ul style="list-style-type: none"> The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

ISCOM3024G-4GF-PWR

Table 2-10 lists interfaces on the ISCOM3024G-4GF-PWR.

Table 2-10 Interfaces on ISCOM3024G-4GF-PWR

Interface	Usage	Type	Description
Port1 to Port24	Service downlink interface	RJ45	10/100/1000BASE-T auto-negotiation interfaces <ul style="list-style-type: none"> Support PoE. Support 802.3at and 802.3af. For dual power supplies, all interfaces can work simultaneously at 30 W per interface. For single power supply, half of the interfaces can work simultaneously at 30 W per interface and all interfaces can work simultaneously at 15.4 W per interface.
Port25 to Port28	Service uplink interface	SFP+	The 10 Gbit/s SFP+ optical interfaces support the 10GBASE-X SFP+ optical modules.
		SFP	<ul style="list-style-type: none"> The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

ISCOM3024G-4C-PWR

Table 2-11 lists interfaces on the ISCOM3024G-4C-PWR.

Table 2-11 Interfaces on ISCOM3024G-4C-PWR

Interface	Usage	Type	Description
Port1 to Port24	Service downlink interface	RJ45	10/100/1000BASE-T auto-negotiation electrical interfaces <ul style="list-style-type: none"> • Support PoE. • Support 802.3at and 802.3af. For dual power supplies, all interfaces can work simultaneously at 30 W per interface. For single power supply, half of the interfaces can work simultaneously at 30 W per interface and all interfaces can work simultaneously at 15.4 W per interface.
Port25 to Port28	Service uplink interface	SFP+	The 10 Gbit/s SFP+ optical interfaces support the 10GBASE-X SFP+ optical modules
		SFP	<ul style="list-style-type: none"> • The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. • The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

ISCOM3048G-4C-PWR

Table 2-11 lists interfaces on the ISCOM3048G-4C-PWR.

Table 2-12 Interfaces on ISCOM3048G-4C-PWR

Interface	Usage	Type	Description
Port1 to Port48	Service downlink interface	RJ45	10/100/1000BASE-T auto-negotiation electrical interfaces Support PoE. <ul style="list-style-type: none"> • When the power input ranges from 165 VAC to 264 VAC, dual power supplies support that all interfaces work simultaneously at 30W per interface while single power supply supports that half of the interfaces work simultaneously at 30 W per interface and all interfaces work simultaneously at 15.4W per interface. • When the power input ranges from 90 VAC to 165 VAC, dual power supplies support that half of the interfaces work simultaneously at 30 W per interface and all interfaces work simultaneously at 15.4W per interface while single power supply supports that 12 interfaces work simultaneously at 30 W per interface and 24 interfaces work simultaneously at 15.4 W per interface..
Port49 to Port52	Service uplink interface	SFP+	The 10 Gbit/s SFP+ optical interfaces support the 10GBASE-X SFP+ optical modules.
		SFP	<ul style="list-style-type: none"> • The 1000 Mbit/s SFP optical interfaces support the 1000BASE-X SFP optical modules. • The 1000 Mbit/s SFP electrical interfaces support the 1000BASE-T SFP electrical modules.
SNMP	NMS interface	RJ45	10/100BASE-TX auto-negotiation electrical interface
CONSOLE	Console interface	RJ45	Connect the PC through DB9 serial cable.
–	–	USB	Reserved

2.2.2 Interface properties

1000 Mbit/s SFP interface

Table 2-13 lists parameters of the 1000 Mbit/s SFP interface.

Table 2-13 Parameters of 1000 Mbit/s SFP interface

Parameter	Description
Connector type	LC/PC
Optical interface properties	Depend on the selected SFP optical module.
Coding type	8B/10B
Working mode	Full duplex
Standard	IEEE 802.3
Network protocol supported	IP

10 Gbit/s SFP+ optical interface

Table 2-14 lists parameters of the 10 Gbit/s SFP+ optical interface.

Table 2-14 Parameters of 10 Gbit/s SFP+ optical interface

Parameter	Description
Connector type	LC/PC
Optical interface properties	Depend on the selected SFP+ optical module.
Coding type	64B/66B
Transmission rate	10 Gbit/s
Working mode	Full duplex

1000 Mbit/s Ethernet electrical interface

Table 2-15 lists parameters of the 10/100/1000 Mbit/s Ethernet electrical interface.

Table 2-15 Parameters of 10/100/1000 Mbit/s Ethernet electrical interface

Parameter	Description
Connector type	RJ45
Working mode	<ul style="list-style-type: none"> Support 10/100/1000 Mbit/s, auto-negotiation. Support half/full duplex working mode, auto-negotiation.
Cable specification	<ul style="list-style-type: none"> In 10/100 Mbit/s mode, we recommend using the Cat 5 UTP cable. In 1000 Mbit/s mode, we recommend using super Cat 5 UTP or STP cable.
Standard	IEEE 802.3-compliant
Network protocol supported	IP

Console interface

Table 2-16 lists parameters of the Console interface.

Table 2-16 Parameters of Console interface

Parameter	Description
Connector type	RJ45
Working mode	Duplex UART
Electrical feature	RS-232
Baud rate	9600 baud
Cable specification	4-core STP

SNMP interface

Table 2-17 lists parameters of the SNMP interface.

Table 2-17 Parameters of SNMP interface

Parameter	Description
Connector type	RJ45
Transmission rate	10/100BASE-T auto-negotiation
Wiring	Support adaptation to straight-through cable and crossover cable in host mode.
Standard	IEEE 802.3-compliant

AC power interface

Table 2-18 lists parameters of the AC power interface

Table 2-18 Parameters of AC power interface

Parameter	Description
Connector type	3-pin plug C13 connector
Voltage	220 VAC
Voltage range	100–240 VAC
Frequency	50/60 Hz
Maximum input current	1.5 A
Maximum input current of PoE model	7 A

DC power interface

Table 2-19 lists parameters of the DC power interface.

Table 2-19 Parameters of DC power interface

Parameter	Description
Connector type	3-pin Phoenix connector (with spacing of 5.08 mm)
Voltage	-48 VDC
Voltage range	-36 to -72 VDC
Maximum input current	2 A

Table 2-20 lists details about the DC power interface.

Table 2-20 Details about DC power interface

Power interface	Type	Print	Usage
DC power interface	3-pin phoenix terminal	-	-48 V power input terminal
		+	GND power input terminal

2.3 LEDs

2.3.1 ISCOM3024GF-4C

Table 2-21 lists LEDs on the ISCOM3024GF-4C.

Table 2-21 LEDs on ISCOM3024GF-4C

LED	Status	Description
LNK/ACT Port 1–Port 28	Green	Link working status LED <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitting on the link. • Off: the link is disconnected or connected but not working.
SPEED Port 1–Port 24 (SFP optical module interface)	Green	Optical interface working rate LED <ul style="list-style-type: none"> • Green: the optical interface is working at 1000 Mbit/s. • Off: the optical interface is working at 100 Mbit/s or not working.

LED	Status	Description
SPEED Port 25–Port 28 (SFP+ optical module interface)	Green	Optical interface working rate LED <ul style="list-style-type: none"> • Green: the optical interface is working at 10 Gbit/s. • Off: the optical interface is working at 1000 Mbit/s or not working.
PWR1/2	Green	Power LED <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.
FAN1/2	Green	Fan LED <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	SNMP interface working status LED <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is receiving or sending data. • Off: the SNMP interface is disconnected or improperly connected.
SYS	Green	System working LED <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed. • Off: the system is working improperly.

2.3.2 ISCOM3048G-4C

Table 2-22 lists LEDs on the ISCOM3048G-4C.

Table 2-22 LEDs on ISCOM3048G-4C

LED	Status	Description
LNK/ACT Port 1–Port 48	Green	1000 Mbit/s Ethernet interface working status LED <ul style="list-style-type: none"> • Green: the link is working at 1000 Mbit/s. • Blinking green: there is data transmitting on the link while the link is working at 1000 Mbit/s. • Off: the link is disconnected or connected but not working.

LED	Status	Description
	Yellow	100 Mbit/s Ethernet interface working status LED <ul style="list-style-type: none"> • Green: the link is working at 10 Mbit/s or 100 Mbit/s. • Blinking green: there is data transmitting on the link while the link is working at 10 Mbit/s or 100 Mbit/s. • Off: the link is disconnected or connected but not working.
LINK/ACT Port 49–Port 52	Green	10 Gbit/s SFP+ interface working status LED <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitting on the link. • Off: the link is not connected or connected but not working.
SPEED Port 49–Port 52	Green	10 Gbit/s SFP+ interface working rate LED <ul style="list-style-type: none"> • Green: the SFP+ optical interface is working at 10 Gbit/s. • Off: the SFP+ optical interface is working at 1000 Mbit/s or not working.
PWR1/2	Green	Power LED <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.
FAN1/2	Green	Fan LED <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	SNMP interface working status LED <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is receiving or sending data. • Off: the SNMP interface is disconnected or improperly connected.
SYS	Green	System working LED <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed. • Off: the system is working improperly.

2.3.3 ISCOM3024G-4GE

Table 2-23 lists LEDs on the ISCOM3024G-4GE.

Table 2-23 LEDs on ISCOM3024G-4GE

LED	Status	Description
LNK/ACT Port 1–Port 24	Green	1000 Mbit/s Ethernet interface working status LED <ul style="list-style-type: none"> • Green: the link is working at 1000 Mbit/s. • Blinking green: there is data transmitting on the link while the link is working at 1000 Mbit/s. • Off: the link is disconnected or connected but not working.
	Yellow	100 Mbit/s Ethernet interface working status LED <ul style="list-style-type: none"> • Green: the link is working at 10 Mbit/s or 100 Mbit/s. • Blinking green: there is data transmitting on the link while the link is working at 10 Mbit/s or 100 Mbit/s. • Off: the link is disconnected or connected but not working.
LINK/ACT Port 25–Port 28	Green	1000 Mbit/s Combo interface working status LED <ul style="list-style-type: none"> • Green: the link is connected normally • Blinking green: there is data transmitting on the link. • Off: the link is disconnected or connected but not working.
SPEED Port 25–Port 28	Green	1000 Mbit/s Combo interface working rate LED <ul style="list-style-type: none"> • Green: the interface is working at 1000 Mbit/s. • Off: the interface is working at 10/100 Mbit/s or not working.
PWR1/2	Green	Power LED <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.
FAN1/2	Green	Fan LED <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	SNMP interface working status LED <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is receiving or sending data. • Off: the SNMP interface is disconnected or improperly connected.
SYS	Green	System working LED <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed. • Off: the system is working improperly.

2.3.4 ISCOM3024G-4C

Table 2-24 lists LEDs on the ISCOM3024G-4C.

Table 2-24 LEDs on ISCOM3024G-4C

LED	Status	Description
LNK/ACT Port 1–Port 24	Green	1000 Mbit/s Ethernet interface working status LED <ul style="list-style-type: none"> • Green: the link is working at 1000 Mbit/s. • Blinking green: there is data transmitting on the link while the link is working at 1000 Mbit/s. • Off: the link is disconnected or connected but not working.
	Yellow	100 Mbit/s Ethernet interface working status LED <ul style="list-style-type: none"> • Green: the link is working at 10 Mbit/s or 100 Mbit/s. • Blinking green: there is data transmitting on the link while the link is working at 10 Mbit/s or 100 Mbit/s. • Off: the link is disconnected or connected but not working.
LINK/ACT Port 25–Port 28	Green	10 Gbit/s SFP+ interface working status LED <ul style="list-style-type: none"> • Green: the link is connected normally • Blinking green: there is data transmitting on the link. • Off: the link is disconnected or connected but not working.
SPEED Port 25–Port 28	Green	10 Gbit/s SFP+ interface working rate LED <ul style="list-style-type: none"> • Green: the SFP+ optical interface is working at 10 Gbit/s. • Off: the SFP+ optical interface is working at 1000 Mbit/s or not working.
PWR1/2	Green	Power LED <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.
FAN1/2	Green	Fan LED <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	SNMP interface working status LED <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is receiving or sending data. • Off: the SNMP interface is disconnected or improperly connected.

LED	Status	Description
SYS	Green	<p>System working LED</p> <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed. • Off: the system is working improperly.

2.3.5 ISCOM3024GF-4GE

Table 2-25 lists LEDs on the ISCOM3024GF-4GE.

Table 2-25 LEDs on ISCOM3024GF-4GE

LED	Status	Description
LNK/ACT Port 1–Port 24	Green	<p>Link working LED</p> <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitting on the link. • Off: the link is disconnected or connected but not working.
LNK/ACT Port 25–Port 28	Green	<p>Combo Ethernet interface working status LED</p> <ul style="list-style-type: none"> • Green: the link is working at 1000 Mbit/s. • Blinking green: there is data transmitting on the link while the link is working at 1000 Mbit/s. • Off: the link is disconnected or connected but not working.
SPEED Port 1–Port 28	Green	<p>Combo optical interface working rate LED</p> <ul style="list-style-type: none"> • Green: the interface is working at 1000 Mbit/s. • Off: the interface is working at 10/100 Mbit/s or not working.
PWR1/2	Green	<p>Power LED</p> <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.
FAN1/2	Green	<p>Fan LED</p> <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	<p>SNMP interface working status LED</p> <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is receiving or sending data. • Off: the SNMP interface is disconnected or improperly connected.

LED	Status	Description
SYS	Green	<p>System working LED</p> <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed. • Off: the system is working improperly.

2.3.6 ISCOM3048GF-4C

Table 2-26 lists LEDs on the ISCOM3048GF-4C.

Table 2-26 LEDs on ISCOM3048GF-4C

LED	Status	Description
LNK/ACT Port 1–Port 48	Green	<p>1000 Mbit/s SFP optical interface working status LED</p> <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitting on the link. • Off: the link is disconnected or connected but not working.
SPEED Port 1–Port 48	Green	<p>1000 Mbit/s SFP optical interface working rate LED</p> <ul style="list-style-type: none"> • Green: the interface is working at 1000 Mbit/s. • Off: the interface is working at 100 Mbit/s or not working.
LNK/ACT Port 49–Port 52	Green	<p>10 Gbit/s SFP optical interface working status LED</p> <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitting on the link. • Off: the link is disconnected or connected but not working.
SPEED Port 49–Port 52	Green	<p>10 Gbit/s SFP optical interface working rate LED</p> <ul style="list-style-type: none"> • Green: the interface is working at 10 Gbit/s. • Off: the interface is working at 1000 Mbit/s or not working.
PWR1/2	Green	<p>Power LED</p> <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.
FAN1/2	Green	<p>Fan LED</p> <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.

LED	Status	Description
SNMP	Green	SNMP interface working status LED <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is receiving or sending data. • Off: the SNMP interface is disconnected or improperly connected.
SYS	Green	System working LED <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed. • Off: the system is working improperly.

2.3.7 ISCOM3024C

Table 2-26 lists LEDs on the ISCOM3024C.

Table 2-27 LEDs on ISCOM3024C

LED	Status	Description
LNK/ACT Port 1–Port 28	Green	Link working status LED <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitting on the link. • Off: the link is disconnected or connected but not working.
SPEED Port 1–Port 24 (SFP optical module interface)	Green	Optical interface working rate LED <ul style="list-style-type: none"> • Green: the interface is working at 1000 Mbit/s. • Off: the interface is working at 100 Mbit/s or not working.
SPEED Port 25–Port 28 (SFP+ optical module interface)	Green	Optical interface working rate LED <ul style="list-style-type: none"> • Green: the interface is working at 10 Gbit/s. • Off: the interface is working at 1000 Mbit/s or not working.
PWR1/2	Green	Power LED <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.

LED	Status	Description
FAN1/2	Green	Fan LED <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	SNMP interface working status LED <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is receiving or sending data. • Off: the SNMP interface is disconnected or improperly connected.
SYS	Green	System working LED <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed. • Off: the system is working improperly.

2.3.8 ISCOM3024GF

Table 2-28 lists LEDs on the ISCOM3024GF.

Table 2-28 LEDs on ISCOM3024GF

LED	Status	Description
LNK/ACT Port 1–Port 24	Green	Link working status LED <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitting on the link. • Off: the link is disconnected or connected but not working.
LNK/ACT Port 25–Port 28	Green	Combo Ethernet interface working status LED <ul style="list-style-type: none"> • Green: the link is working at 1000 Mbit/s. • Blinking green: the link is working at 1000 Mbit/s with data transmitting on it. • Off: the link is disconnected or connected but not working.
SPEED Port 1–Port 28	Green	Combo optical interface working rate LED <ul style="list-style-type: none"> • Green: the interface is working at 1000 Mbit/s. • Off: the interface is working at 10/100 Mbit/s or not working.
PWR1/2	Green	Power LED <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.

LED	Status	Description
FAN1/2	Green	<p>Fan LED</p> <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	<p>SNMP interface working status LED</p> <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is transmitting data. • Off: the SNMP interface is disconnected or improperly connected.
SYS	Green	<p>System working LED</p> <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed. • Off: the system is working improperly.

2.3.9 ISCOM3052G

Table 2-29 lists LEDs on the ISCOM3052G.

Table 2-29 LEDs on ISCOM3052G

LED	Status	Description
LNK/ACT Port 1–Port 48	Green	<p>1000 Mbit/s Ethernet interface working status LED</p> <ul style="list-style-type: none"> • Green: the link is working at 1000 Mbit/s. • Blinking green: the link is transmitting data at 1000 Mbit/s. • Off: the link is disconnected or connected but not working.
	Yellow	<p>100 Mbit/s Ethernet interface working status LED</p> <ul style="list-style-type: none"> • Yellow: the link is working at 10 Mbit/s or 100 Mbit/s. • Blinking green: the link is transmitting data at 10 Mbit/s or 100 Mbit/s. • Off: the link is disconnected or connected but not working.
LINK/ACT Port49– Port52	Green	<p>Optical interface working status LED</p> <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitted on the link. • Off: the link is disconnected or connected but not working.
SPEED Port49– Port52	Green	<p>Optical interface working rate LED</p> <ul style="list-style-type: none"> • Green: the optical interface is working at 10 Gbit/s. • Off: the optical interface is working at 1000 Mbit/s or not working.

LED	Status	Description
PWR1/2	Green	Power LED <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.
FAN1/2	Green	Fan LED <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	SNMP interface working status LED <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is transmitting data. • Off: the SNMP interface is disconnected or improperly connected.
SYS	Green	System working LED <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed. • Off: the system is working improperly.

2.3.10 ISCOM3024G-4GF-PWR

Table 2-30 lists LEDs on the ISCOM3024G-4GF –PWR.

Table 2-30 LEDs on ISCOM3024GF-4C-PWR

LED	Status	Description
LINK/ACT and PoE Port1 - Port24	Green	1000 Mbit/s Ethernet interface working status LED <ul style="list-style-type: none"> • Green: the link is working at 1000 Mbit/s. • Blinking green: the link is working at 1000 Mbit/s with data transmitted on it. • Off: the link is disconnected or connected but not working.
	Yellow	PoE LED <ul style="list-style-type: none"> • Green: it is supplying power for the remote PD. • Off: it is not supplying power for the remote PD or the power supply is abnormal.

LED	Status	Description
LINK/ACT Port25 - Port28	Green	10 Gbit/s SFP+ interface working status LED <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitted on the link. • Off: the link is disconnected or connected but not working.
SPEED Port25 - Port28	Green	10 Gbit/s SFP+ interface working rate LED <ul style="list-style-type: none"> • Green: the SFP+ optical interface is working at 10 Gbit/s. • Off: the SFP+ optical interface is working at 1000 Mbit/s or not working.
PWR1/2	Green	Power LED <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.
FAN1/2	Green	Fan LED <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	SNMP interface working status LED <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is transmitting data. • Off: the SNMP interface is disconnected or improperly connected.
SYS	Green	System working LED <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or auto-provisioning failed. • Off: the system is working improperly.

2.3.11 ISCOM3024G-4C-PWR

Table 2-31 lists LEDs on the ISCOM3024G-4C-PWR.

Table 2-31 LEDs on ISCOM3024G-4C-PWR

LED	Status	Description
LINK/ACT and PoE Port1–Port24	Green	1000 Mbit/s Ethernet interface working status LED <ul style="list-style-type: none"> • Green: the interface is working at 1000 Mbit/s. • Blinking green: the line is working at 1000 Mbit/s with data transmitted on it. • Off: the link is disconnected or connected but not working.
	Yellow	PoE LED <ul style="list-style-type: none"> • Green: it is supplying power for the remote PD. • Off: it is not supplying power for the remote PD or the power supply is abnormal.
LINK/ACT Port25–Port28	Green	10 Gbit/s SFP+ interface working status LED <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitted on the link. • Off: the link is disconnected or connected but not working.
SPEED Port25–Port28	Green	10 Gbit/s SFP+ interface working rate LED <ul style="list-style-type: none"> • Green: the SFP+ optical interface is working at 10 Gbit/s. • Off: the SFP+ optical interface is working at 1000 Mbit/s or not working.
PWR1/2	Green	Power LED <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.
FAN1/2	Green	Fan LED <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	SNMP interface working status LED <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is transmitting data. • Off: the SNMP interface is disconnected or improperly connected.
SYS	Green	System working LED <ul style="list-style-type: none"> • Green: the system is working improperly. • Blinking green without configurations (every 10s): it is the default configuration. • Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations. • Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed. • Off: the system is working improperly.

2.3.12 ISCOM3048G-4C-PWR

Table 2-32 lists LEDs on the ISCOM3048G-4C-PWR.

Table 2-32 LEDs on ISCOM3048G-4C-PWR

LED	Status	Description
LINK/ACT and PoE Port1–Port48	Green	1000 Mbit/s Ethernet interface working status LED <ul style="list-style-type: none"> • Green: the link is working at 1000 Mbit/s. • Blinking green: the link is working at 1000 Mbit/s with data transmitted on it. • Off: the link is disconnected or connected but not working.
	Yellow	PoE LED <ul style="list-style-type: none"> • Green: it is supplying power for the remote PD. • Off: it is not supplying power for the remote PD or the power supply is abnormal.
LINK/ACT Port49–Port52	Green	10 Gbit/s SFP+ interface working status LED <ul style="list-style-type: none"> • Green: the link is properly connected. • Blinking green: there is data transmitted on the link. • Off: the link is disconnected or connected but not working.
SPEED Port49–Port52	Green	10 Gbit/s SFP+ interface working rate LED <ul style="list-style-type: none"> • Green: the SFP+ optical interface is working at 10 Gbit/s. • Off: the SFP+ optical interface is working at 1000 Mbit/s or not working.
PWR1/2	Green	Power LED <ul style="list-style-type: none"> • Green: the power supply is working normally. • Off: the device is not powered on or the power supply is not installed properly.
FAN1/2	Green	Fan LED <ul style="list-style-type: none"> • Green: the fan is working normally. • Blinking green: the fan is working abnormally. • Off: the fan module is not installed.
SNMP	Green	SNMP interface working status LED <ul style="list-style-type: none"> • Green: the SNMP interface is properly connected. • Blinking green: the SNMP interface is transmitting data. • Off: the SNMP interface is disconnected or improperly connected.

LED	Status	Description
SYS	Green	<p>System working LED</p> <ul style="list-style-type: none">• Green: the system is working improperly.• Blinking green without configurations (every 10s): it is the default configuration.• Blinking green (every 2s): the system has loaded the configuration files or conducted management and configurations.• Fast blinking (every 60ms): the configuration files are being loaded or automatic deployment failed.• Off: the system is working improperly.

3 Device installation

This chapter describes how to install the ISCOM3000G series switch, including the following sections:

- Installing hardware
- Installing software

3.1 Installing hardware



Note

Here we take the ISCOM3048G-4C for example.

3.1.1 Preparing for installation

Environment conditions

Table 3-1 lists requirements on the environment for installing the ISCOM3000G series switch.

Table 3-1 Requirements on operation environment

Parameter	Description
Operating temperature (altitude 0–1800 m)	0–50 °C
Operating humidity	10%–90% RH (non-condensing)
Storage temperature	-25 to 60 °C
Air pressure	86–106 kPa



Note

When the altitude is from 1800 m to 5000 m, the maximum operating temperature will decrease by 1°C every time the altitude increases by 220 m.

Power supply conditions

Table 3-2 lists power supply requirements for operating the ISCOM3000G series switch.

Table 3-2 Power supply requirements for operating the ISCOM3000G series switch

Parameter	Description
Power supply	AC power <ul style="list-style-type: none">• Rated voltage: 220 VAC• Voltage range: 100–240 VAC DC power <ul style="list-style-type: none">• Rated voltage: -48 VDC• Voltage range: -36 to -72 VDC
Maximum power consumption	85 W



Warning

The ISCOM3000G series switch is supplied by multiple power supplies. Do remember to disconnect all power inputs when powering off the device.

Grounding conditions

The ISCOM3000G series switch adopts common earthing mode with the ground resistance not greater than 1 Ω . Well grounding is an important guarantee for lightning protection and anti-interference.

3.1.2 Installing device



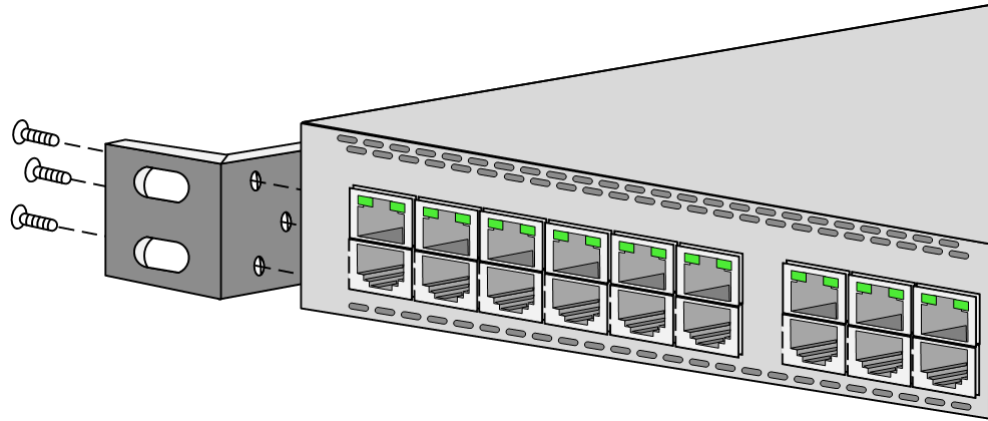
Caution

The device is heavy. The brackets, which cannot bear load independently, are for positioning only. Therefore, you have to install the device to a guide rail or a tray. Prepare the guide rail or tray by yourself.

Install the ISCOM3048G-4C in a rack as below:

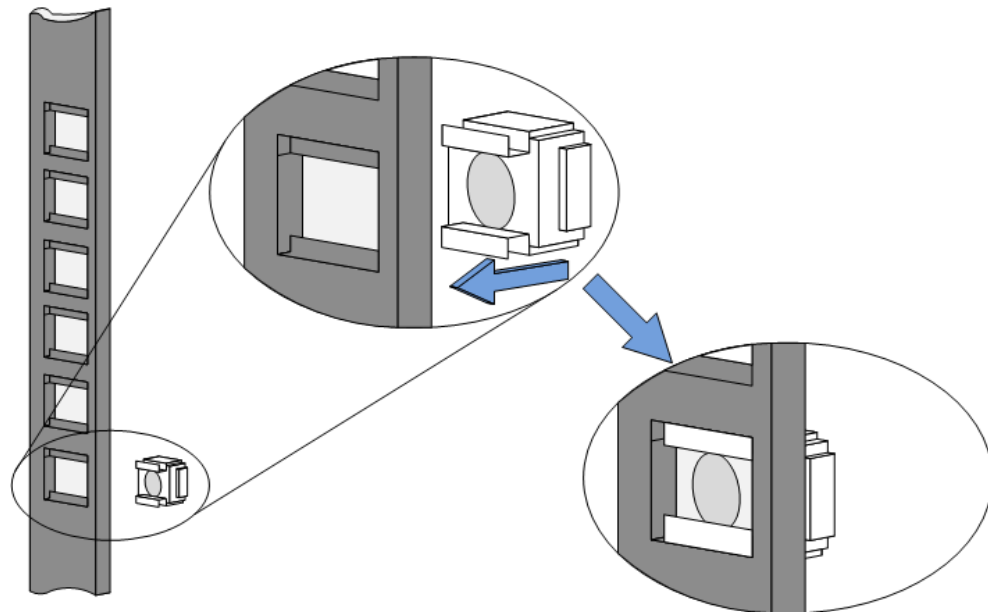
- Step 1 Ensure that the rack is stable.
- Step 2 Install two brackets on both sides of the ISCOM3000G series switch respectively, and fix them with screws, as shown in Figure 3-1.

Figure 3-1 Installing brackets



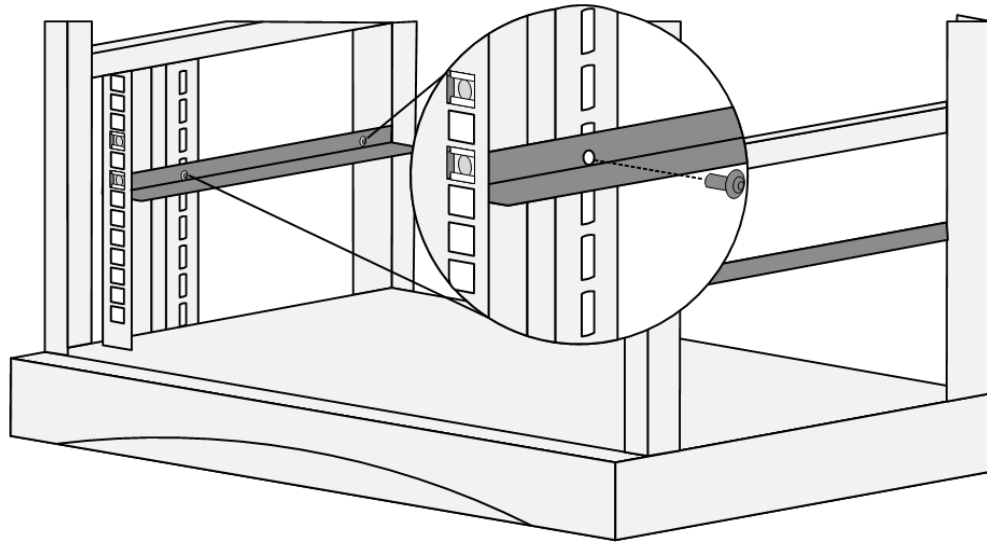
Step 3 Install floating nuts on the rack, as shown in Figure 3-2.

Figure 3-2 Installing floating nuts



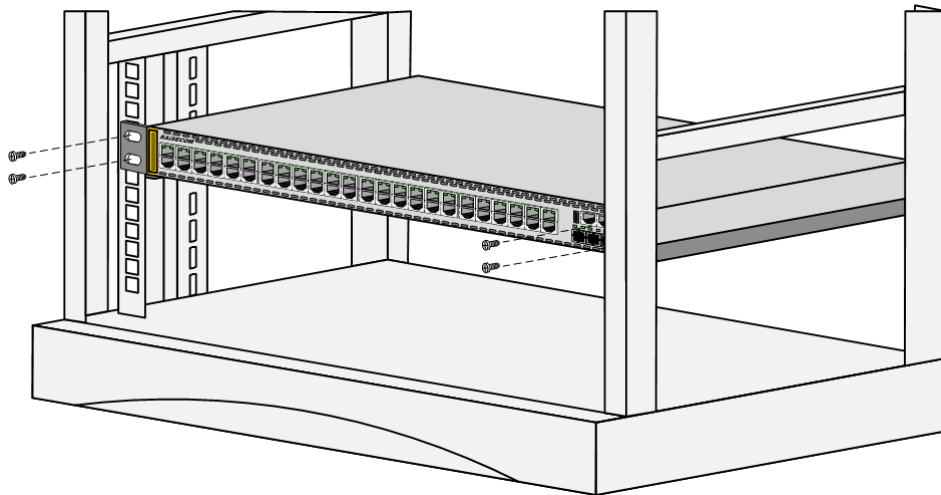
Step 4 Install guide rails in the rack, as shown in Figure 3-3.

Figure 3-3 Installing guide rails



Step 5 Use screws to fix two brackets to guide rail, and install the ISCOM3048G-4C horizontally on the rack, as shown in Figure 3-4.

Figure 3-4 Installing device horizontally on rack



 **Caution**

Do not lay heavy objects or covering objects on the ISCOM3000G series switch.

3.1.3 Connecting cables

Connecting fiber

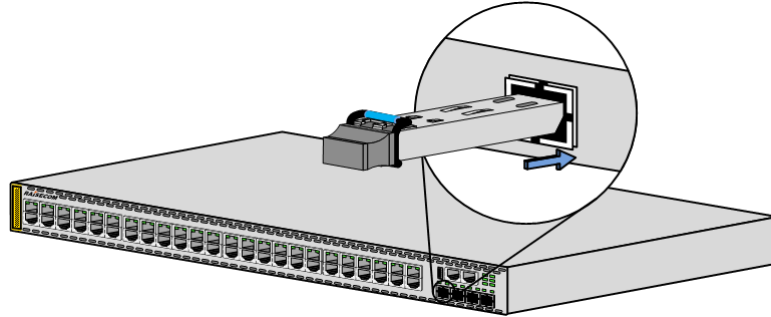
 **Warning**

There is invisible laser which harms eyes inside the ISCOM3000G series switch. Do not directly look into the optical interface, fiber connector, or breakage of fiber during installation.

Connect fiber as below:

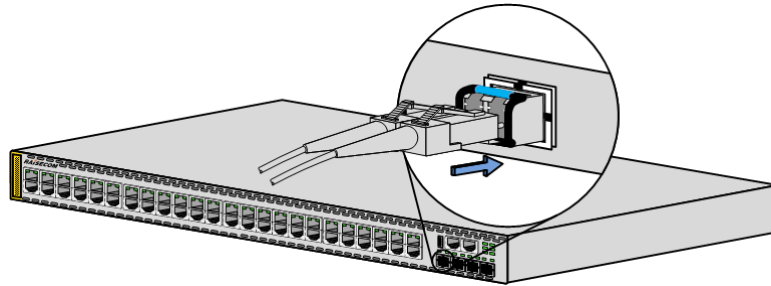
- Step 1 Remove the dustproof cover from the SFP optical interface and SFP optical module, and insert the SFP optical module into the SFP optical interface on the ISCOM3000G series switch, as shown in Figure 3-5.

Figure 3-5 Inserting SFP optical module



- Step 2 Remove the dustproof cover from the LC/PC fiber, align the fiber with the SFP optical interface, and insert the fiber slightly into the SFP optical interface, as shown in Figure 3-6.

Figure 3-6 Connecting fiber



Note

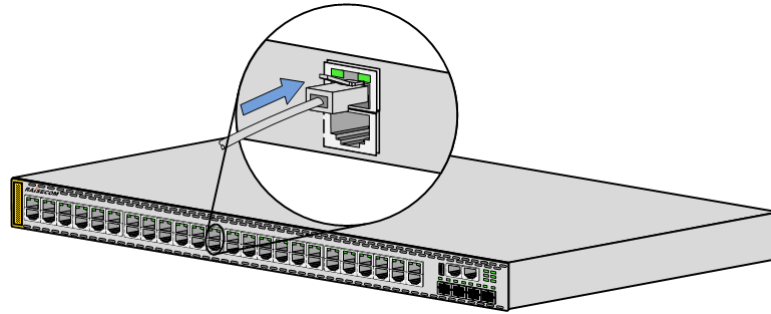
When the optical interface is idle, cover it with the dustproof cover to prevent dust and dirt which may cause the ISCOM3000G series switch working improperly.

Connecting Ethernet cable

Connect the Ethernet cable as below:

- Step 1 Choose a proper length for the Ethernet cable according to cabling path, and make an Ethernet cable accordingly.
- Step 2 Insert the RJ45 connector of the Ethernet cable into the Ethernet interface of the ISCOM3000G series switch, and insert the other RJ45 connector of the Ethernet cable into the Ethernet interface of the peer device, as shown in Figure 3-7.

Figure 3-7 Connecting Ethernet cable



Connecting ground cable

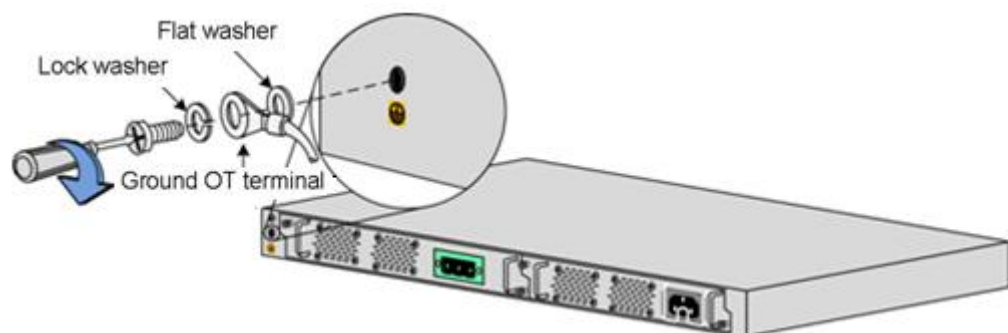


Connecting the ground cable properly is an important guarantee for lightning protection, shock proof, and anti-interference. When installing and using the device, ensure that the ground cable is properly connected; otherwise, personnel injury or device damage may occur.

Install the ground cable as below:

- Step 1 Unscrew ground terminal counterclockwise, and remove the screws and washers.
- Step 2 Put the flat washer, ground OT terminal, and lock washer over the screw according to the figure below.
- Step 3 Reinstall the screw to the ground terminal, and tighten the screws clockwise, as shown in Figure 3-8.

Figure 3-8 Connecting ground cable



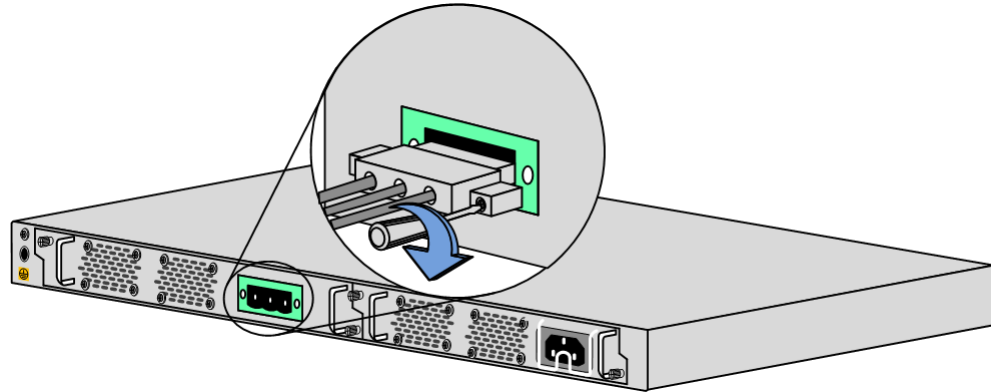
Connecting DC power cable

Install the DC power cable as below:

- Step 1 Ensure that the ISCOM3000G series switch is well grounded.
- Step 2 Insert the 3-pin phoenix terminal connector to the DC power interface on the front panel.
- Step 3 Insert one end of the DC power stripped cable into the phoenix terminal connector and tighten the screw on both sides of the phoenix terminal, as shown in Figure 3-9.

- Step 4 Connect the other end of the DC power cable to the power sourcing equipment in the equipment room.

Figure 3-9 Connecting DC power cable

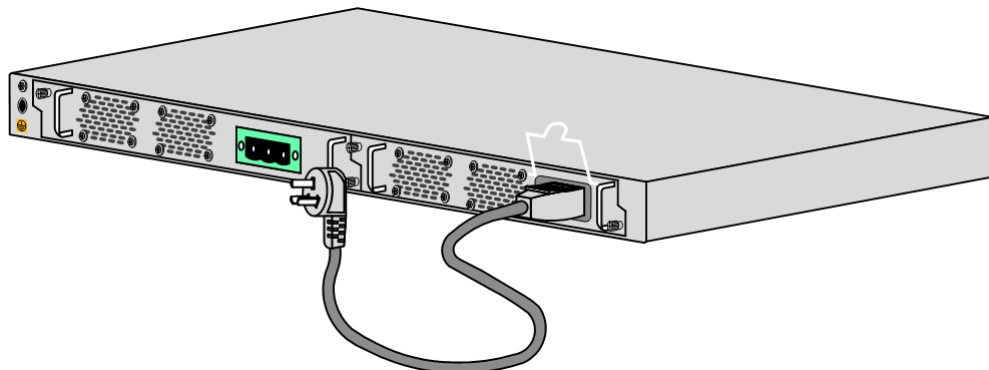


Connecting AC power cable

Install the AC power cable as below:

- Step 1 Ensure that the ISCOM3000G series switch is well grounded. Insert the C13 connector of the AC power cable into the AC power interface on the rear panel tightly.
- Step 2 Insert the power plug of the AC power cable into the AC power socket of the power sourcing equipment, as shown in Figure 3-10.

Figure 3-10 Connecting AC power cable

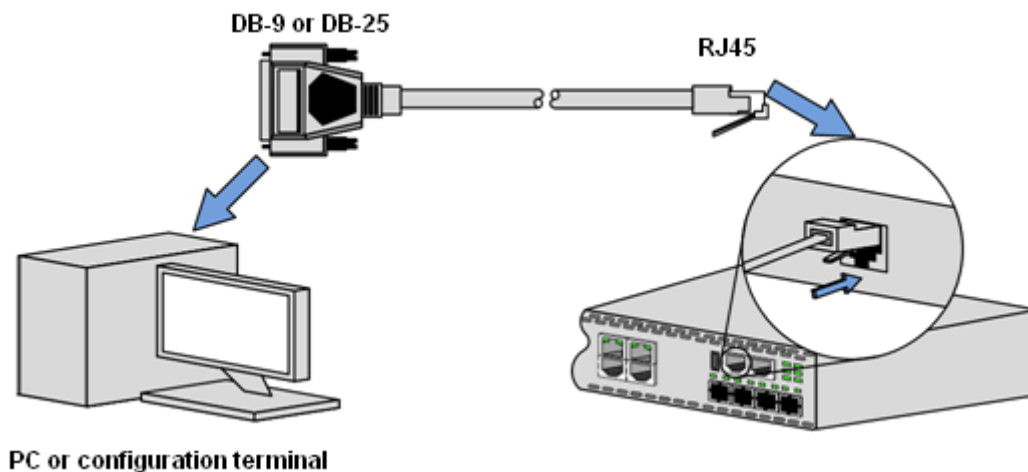


Connecting serial cable

Install the serial cable as below:

- Step 1 Insert the RJ45 connector of the serial cable into the Console interface on the ISCOM3000G series switch.
- Step 2 Insert the other end of the serial cable into the RS-232 serial interface on a PC (or maintenance terminal), as shown in Figure 3-11.

Figure 3-11 Connecting RJ45 Console cable



3.2 Installing software

The ISCOM3000G series switch is installed with all necessary software before delivery so that it can be powered on immediately for use after hardware installation is complete.

For upgrading software of the ISCOM3000G series switch, see *ISCOM3000G (B) Series Configuration Guide*. For installing NView NNM software, see *NView NNM Operation Guide*.

4 Technical specifications

This chapter describes overall parameters, system parameters, card parameters, and technical specifications, including the following sections:

- Overall parameters
- Laser safety class
- Reliability specifications
- Safety standards
- Environmental requirements
- Standards and protocols

4.1 Overall parameters

Table 4-1 lists overall parameters of the ISCOM3000G series switch.

Table 4-1 Overall parameters

Parameter	Description
Dimensions (mm)	440 mm (Width) × 360 mm (Depth) × 43.6 mm (Height)
Dimensions of PoE models	<ul style="list-style-type: none"> • ISCOM3024G-4GF-PWR: 440 mm (Width) × 420 mm (Depth) × 43.6 mm (Height) • ISCOM3024G-4C-PWR: 440 mm (Width) × 420 mm (Depth) × 43.6 mm (Height) • ISCOM3048G-4C-PWR: 440 mm (Width) × 420 mm (Depth) × 43.6 mm (Height)
Overall maximum power consumption (W)	<ul style="list-style-type: none"> • ISCOM3048G-4C: 80 • ISCOM3024GF-4C: 65 • ISCOM3024G-4GE: 55 • ISCOM3024G-4C: 55 • ISCOM3024GF-4GE: 55 • ISCOM3048GF-4C: 85 • ISCOM3024C: 65 • ISCOM3024GF: 55

Parameter		Description
Maximum power consumption of PoE models (W)		ISCOM3024G-4GF-PWR <ul style="list-style-type: none"> • AC/S:500W (PoE: 370 W) • AC/D:900W (PoE: 720 W)
		ISCOM3024G-4C-PWR <ul style="list-style-type: none"> • AC/S:500W (PoE: 370 W) • AC/D:900W (PoE: 720 W)
		ISCOM3048G-4C-PWR: AC/S <ul style="list-style-type: none"> • 90–165 VAC input:500 W (PoE: 370 W) • 165–264 VAC input:900 W (PoE: 740 W) AC/D <ul style="list-style-type: none"> • 90–165 VAC input: 900 W (PoE: 740 W) • 165–264 VAC input: 1800 W (PoE: 1440 W)
Overall maximum weight (kg)		<ul style="list-style-type: none"> • ISCOM3048G-4C: 8 • ISCOM3024GF-4C: 6 • ISCOM3024G-4GE: 6 • ISCOM3024G-4C: 6 • ISCOM3024GF-4GE: 6 • ISCOM3048GF-4C: 8 • ISCOM3024C: 6 • ISCOM3024GF: 6 • ISCOM3052G: 8 • ISCOM3024G-4GF-PWR: 8 • ISCOM3024G-4C-PWR: 8 • ISCOM3048G-4C-PWR: 8.5
Operating temperature (altitude 0–1800 m)		0–50 °C
Operating humidity		10%–90% RH (non-condensing)
DC power	Rated voltage	-48 VDC
	Voltage range	-36 to -72 VDC
AC power	Rated voltage	220 VAC
	Voltage range	100–240 VAC
	Frequency	50/60 Hz
Lightning protection level	AC power	<ul style="list-style-type: none"> • 6 kV in differential mode • 6 kV in common mode
	DC power	<ul style="list-style-type: none"> • 1 kV in differential mode • 2 kV in common mode
	Ethernet electrical interface	1 kV in common mode

4.2 Laser safety class

According to the Tx power of Laser, the ISCOM3000G series switch laser is Class 1 in safety class.

In Class 1, the maximum Tx power on the optical interface is smaller than 10 dBm (10 mW).



The laser inside the fiber may hurt your eyes. Do not look into the laser beam through the interface directly during installation and maintenance.

4.3 Reliability specifications

Table 4-2 lists reliability specifications of the ISCOM3000G series switch.

Table 4-2 Reliability specifications

Parameter	Description
System availability	99.999% The annual failure time for the ISCOM3000G series switch should be no longer than 5 minutes.
Annually system mean repair rate	< 1.5%
MTTR	< 2 hours

4.4 Safety standards

The ISCOM3000G series switch complies with the following safety standards:

- EN 60950
- UL 60950



The ISCOM3000G series switch is rated as a Class A device. In the living environment, they may cause radio interference. In this case, you may need to take practical measures against the interference.

4.5 Environmental requirements

The ISCOM3000G series switch complies with the following environmental requirements:

- NEBS GR-63-CORE: Network Equipment-Building System (NEBS) Requirements: Physical Protection

- European Telecommunication Standards Institute (ETSI) EN 300 019

4.5.1 Storage environment

Atmosphere environment

Table 4-3 lists environment requirements for the ISCOM3000G series switch during storage.

Table 4-3 Environment requirements during storage

Parameter	Description
Air pressure (kPa)	86–106
Temperature (°C)	-25 to 60
Relative humidity	10%–90% RH
Solar radiation (W/s ²)	≤ 1120
Heat radiation (W/s ²)	≤ 600
Wind speed (m/s)	≤ 20

Waterproof requirement

Requirements on the storage of customer devices: put them indoor.

Keep the ISCOM3000G series switch indoor with the following requirements:

- No ponding in the room
- No water dropping above
- Away from any water leakage area, such as the fire-fighting equipment or central heating facility

If you put the ISCOM3000G series switch outdoor, ensure the following four prerequisites:

- The package box is intact.
- Rainproof measures are taken so that rain will not leak into the package box.
- No ponding is around the package box.
- The package box is not directly exposed to the sun.

Biotic environment

Keep the ISCOM3000G series switch away from:

- Microorganism, such as fungus and mould
- Rodent animals, such as rats

Air environment

Ensure that the ISCOM3000G series switch is put in an environment without explosive, conductive, magnetic, and corrosive dust.

Table 4-4 lists concentration requirements on mechanical active substance.

Table 4-4 Concentration requirements on mechanical active substance

Mechanical active substance	Content
Suspended dust (mg/m ³)	≤ 5.00
Degradable dust (mg/m ² h)	≤ 20.0
Gravel (mg/m ³)	≤ 300

Table 4-5 lists concentration requirements on chemical active substance.

Table 4-5 Concentration requirements on chemical active substance

Chemical active substance	Content
SO ₂ (mg/m ³)	≤ 0.30
H ₂ S (mg/m ³)	≤ 0.10
NO ₂ (mg/m ³)	≤ 0.50
NH ₃ (mg/m ³)	≤ 1.00
Cl ₂ (mg/m ³)	≤ 0.10
HCl (mg/m ³)	≤ 0.10
HF (mg/m ³)	≤ 0.01
O ₃ (mg/m ³)	≤ 0.05

4.5.2 Transport environment

Atmosphere environment

Table 4-6 lists atmosphere requirements for the ISCOM3000G series switch during transportation.

Table 4-6 Atmosphere requirements during transportation

Parameter	Description
Air pressure (kPa)	86–106
Temperature (°C)	-25 to 60
Temperature change rate (°C/min)	≤ 1
Operating humidity	10%–90% RH
Solar radiation (W/s ²)	≤ 1120

Parameter	Description
Heat radiation (W/s ³)	≤ 600
Wind speed (m/s)	≤ 20

Waterproof environment

When transporting the ISCOM3000G series switch, ensure the following prerequisites:

- The package box is intact.
- Rainproof measures are taken that rain will not leak into the package box.
- No ponding is inside the transport vehicle.

Biotic environment

Keep the ISCOM3000G series switch away from:

- Microorganism, such as fungus and mould
- Rodent animals, such as rats

Air environment

Ensure that the ISCOM3000G series switch is put in an environment without explosive, conductive, magnetic, and corrosive dust.

Table 4-7 lists concentration requirements on mechanical active substance.

Table 4-7 Concentration requirements on mechanical active substance

Mechanical active substance	Content
Suspended dust (mg/m ³)	No requirement
Degradable dust (mg/m ²h)	≤ 3.0
Gravel (mg/m ³)	≤ 100

Table 4-8 lists concentration requirements on chemical active substance.

Table 4-8 Concentration requirements on chemical active substance

Chemical active substance	Content
SO ₂ (mg/m ³)	≤ 0.30
H ₂ S (mg/m ³)	≤ 0.10
NO ₂ (mg/m ³)	≤ 0.50
NH ₃ (mg/m ³)	≤ 1.00
Cl ₂ (mg/m ³)	≤ 0.10

Chemical active substance	Content
HCl (mg/m ³)	≤ 0.10
HF (mg/m ³)	≤ 0.01
O ₃ (mg/m ³)	≤ 0.05

4.5.3 Operation environment

Atmosphere environment

Table 4-9 lists atmosphere requirements for the ISCOM3000G series switch during operation.



The temperature and humidity referred to are measured 1.5 m above or 0.4 m in front of the ISCOM3000G series switch.

Table 4-9 Atmosphere requirements during operation

Parameter	Description
Air pressure (kPa)	86–106
Temperature (°C)	0–50
Relative humidity	5%–90% (non-condensing)
Temperature change rate (°C/min)	≤ 0.5
Solar radiation (W/s ²)	≤ 700
Heat radiation (W/s ²)	≤ 600
Wind speed (m/s)	≤ 5

Biotic environment

Keep the ISCOM3000G series switch away from:

- Microorganism, such as fungus and mould
- Rodent animals, such as rats

Air environment

Ensure that the ISCOM3000G series switch is put in an environment without explosive, conductive, magnetic, and corrosive dust.

Table 4-10 lists concentration requirements on mechanical active substance.

Table 4-10 Concentration requirements on mechanical active substance

Mechanical active substance	Content
Dust particles (particle/ m ³)	≤ 3×10 ⁵
Suspended dust (mg/m ³)	≤ 0.2
Degradable dust (mg/m ² h)	≤ 15
Gravel (mg/m ³)	≤ 100

Table 4-11 lists concentration requirements on chemical active substance.

Table 4-11 Concentration requirements on chemical active substance

Chemical active substance	Content
SO ₂ (mg/m ³)	≤ 0.30
H ₂ S (mg/m ³)	≤ 0.10
NH ₃ (mg/m ³)	≤ 3.00
Cl ₂ (mg/m ³)	≤ 0.10
HCl (mg/m ³)	≤ 0.10
HF (mg/m ³)	≤ 0.01
O ₃ (mg/m ³)	≤ 0.05

4.6 Standards and protocols

The ISCOM3000G series switch complies with the following standards and protocols:

- IEEE802.1AB Station and Media Access Control Connectivity Discovery
- IEEE 802.1D-2004 Part 3: Media Access Control (MAC) Bridges
- IEEE 802.1Q-2005 - Standard for Local and Metropolitan Area Networks - Virtual Bridged Local Area Networks
- IEEE 802.1d
- IEEE 802.1s-2002 - Amendment to 802.1Q Virtual Bridged Local Area Networks: Multiple Spanning Trees
- IEEE 802.1w-Rapid Reconfiguration of Spanning Tree
- IEEE 802.3-2005 Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications
- IEEE 802.1ag: Virtual Bridged Local Area Networks Amendment 5: Connectivity Fault Management
- IEEE 802.1ad Provider Bridges
- IEEE 802.1x -2004 - Port Based Network Access Control

- IEEE802.3ab 1000BASE-T
- IEEE802.3ad Link Aggregation
- IEEE802.3ae-2002, 10 Gb/s Ethernet
- IEEE802.3z Gigabit Ethernet
- IEEE802.3ah Ethernet in the First Mile
- MEF Technical Specification MEF 6.1 Ethernet Services Definitions - Phase 2
- MEF Technical Specification, MEF 9 Abstract Test Suite for Ethernet Services at the UNI
- MEF Technical Specification, MEF 10.2 Ethernet Services Attributes - Phase 2
- MEF Technical Specification, MEF 10.2.1 Performance Attributes Amendment to MEF 10.2
- MEF Technical Specification, MEF 11 User Network Interface (UNI) Requirements and Framework
- MEF Technical Specification, MEF 12.1 Carrier Ethernet Network Architecture Framework Part 2: Ethernet Services Layer - Basic Elements
- MEF Technical Specification, MEF 13 User Network Interface (UNI) Type 1 Implementation Agreement
- MEF Technical Specification, MEF 14 Abstract Test Suite for Traffic Management Phase 1
- MEF Technical Specification, MEF 16 Ethernet Local Management Interface
- MEF Technical Specification, MEF 17 Service OAM Requirements & Framework
- MEF Technical Specification, MEF 19 Abstract Test Suite for UNI Type 1
- MEF Technical Specification, MEF 20 User Network Interface (UNI) Type 2 Implementation Agreement
- MEF Technical Specification, MEF 21 Abstract Test Suite for UNI Type 2 Part 1 Link OAM
- MEF Technical Specification, MEF 23.1 Class of Service Phase 2 Implementation Agreement
- MEF Technical Specification, MEF 24 Abstract Test Suite for UNI Type 2 Part 2 E-LMI
- MEF Technical Specification, MEF 25 Abstract Test Suite for UNI Type 2 Part 3 Service OAM
- MEF Technical Specification, MEF 26.1 External Network Network Interface (ENNI)– Phase 2
- MEF Technical Specification, MEF30.1 Service OAM Fault Management Implementation Agreement Phase 2
- MEF Technical Specification, MEF33 Ethernet Access Services Definition
- MEF Technical Specification, MEF34 ATS for Ethernet Access Services
- MEF Technical Specification, MEF35 Service OAM Performance Monitoring Implementation Agreement
- MEF Technical Specification, MEF36 Service OAM SNMP MIB for Performance Monitoring
- MEF Technical Specification, MEF37 Abstract Test Suite for ENNI
- ITU-T Y.1541 Network Performance Objectives For IP-Based Services
- ITU-T Y.1731 OAM Functions and Mechanisms for Ethernet based networks
- ITU-T G.8031 Ethernet linear protection switching

- ITU-T G.8032 Ethernet ring protection switching
- RFC1349 Type of Service in the Internet Protocol Suite
- RFC2131 Dynamic Host Configuration Protocol
- RFC2132 DHCP Options and BOOTP Vendor Extensions
- RFC2819 Remote Network Monitoring Management Information Base
- RFC2863 The Interfaces Group MIB
- RFC2474 Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers
- RFC2475 An Architecture for Differentiated Services
- RFC2678
- RFC2598 An Expedited Forwarding PHB
- RFC2698 A Two Rate Three Color Marker
- RFC4115 A Differentiated Service Two-Rate, Three-Color Marker with Efficient Handling of in-Profile Traffic
- RFC4363 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual LAN Extensions
- SFF-8472

5 Appendix

The appendix lists cables, SFP modules, terms, acronyms, and abbreviations, including the following sections:

- Cables
- SFP modules
- Terms
- Acronyms and abbreviations

5.1 Cables

When connecting the ISCOM3000G series switch, you need to use the following cables:

- Fiber
- Ethernet cable
- Ground cable
- DC power cable
- AC power cable
- RJ45 Console cable

5.1.1 Fiber

Introduction

The ISCOM3000G series switch supports Single-mode Fiber (SMF) and Multi-mode Fiber (MMF).

Table 5-1 lists fiber connectors available for the ISCOM3000G series switch.

Table 5-1 Fiber connectors

Local connector	Remote connector	Fiber
LC/PC	LC/PC	2-mm SMF
		2-mm MMF

Local connector	Remote connector	Fiber
	FC/PC	2-mm SMF
		2-mm MMF
	SC/PC	2-mm SMF
		2-mm MMF

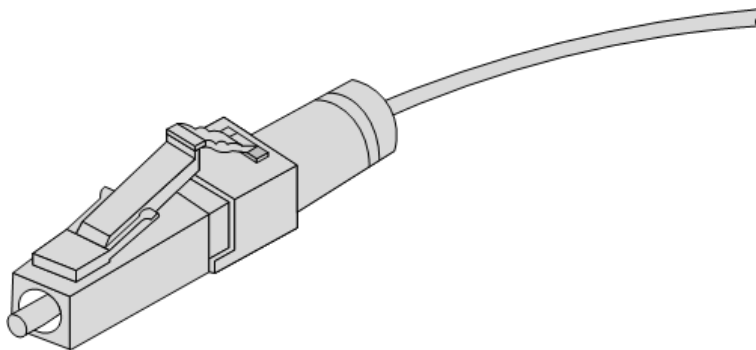
 **Note**

Choose the fiber connector properly as required on site. Otherwise, more loss will be caused to the fiber, service transmission will be deteriorated, and even the fiber connector and interface may be damaged.

Appearance

Figure 5-1 shows the LC/PC fiber connector.

Figure 5-1 LC/PC fiber connector



When connecting or removing the LC/PC optical connector, align the connector with the optical interface, and do not rotate the fiber. Operate the fiber as below:

- Align the head of the fiber jumper with the optical interface and insert the optical fiber into the interface gently.
- To remove the fiber, press the latch on the connector, press the fiber head inwards slightly, and pull the fiber out.

Wiring

Table 5-2 lists wiring of the fiber.

Table 5-2 Wiring of fiber

Wiring	Optical interface on local device	Direction of optical signals	Optical interface on peer device
Single-fiber wiring	Optical interface	<->	Optical interface

Wiring	Optical interface on local device	Direction of optical signals	Optical interface on peer device
Dual-fiber wiring	Tx optical interface	->	Rx optical interface
	Rx optical interface	<-	Tx optical interface

5.1.2 Ethernet cable

Introduction

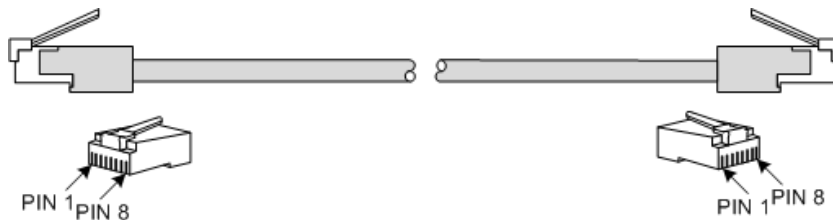
The Ethernet cable connects the Ethernet electrical interface and SFP electrical interface on the ISCOM3000G series switch.

The Ethernet interface on the ISCOM3000G series switch is adaptive to straight-through cable mode and crossover cable mode.

Appearance

Figure 5-2 shows the Ethernet cable.

Figure 5-2 Ethernet cable



Wiring

The Ethernet cables are divided into two types:

- Straight-through cable: used to connect devices of different type, such as between a PC and a switch, between a switch and a router
- Crossover cable: used to connect devices of the same type, such as between PCs, between switches, between routers, between a PC and a router (they are of the same type)

Table 5-3 lists wiring of EIA/TIA 568A and EIA/TIA 568B standards.

Table 5-3 Wiring of EIA/TIA 568A and EIA/TIA 568B standards

Connector (RJ45)	EIA/TIA 568A	EIA/TIA 568B
PIN 1	White/Green	White/Orange
PIN 2	Green	Orange
PIN 3	White/Orange	White/Green
PIN 4	Blue	Blue

Connector (RJ45)	EIA/TIA 568A	EIA/TIA 568B
PIN 5	White/Blue	White/Blue
PIN 6	Orange	Green
PIN 7	White/Brown	White/Brown
PIN 8	Brown	Brown

Both two RJ45 connectors of the 10/100/100 Mbit/s straight-through cable follow EIA/TIA568B standard wiring.

Figure 5-3 shows wiring of the 10/100/1000 Mbit/s straight-through cable.

Figure 5-3 Wiring of 10/100/1000 Mbit/s straight-through cable

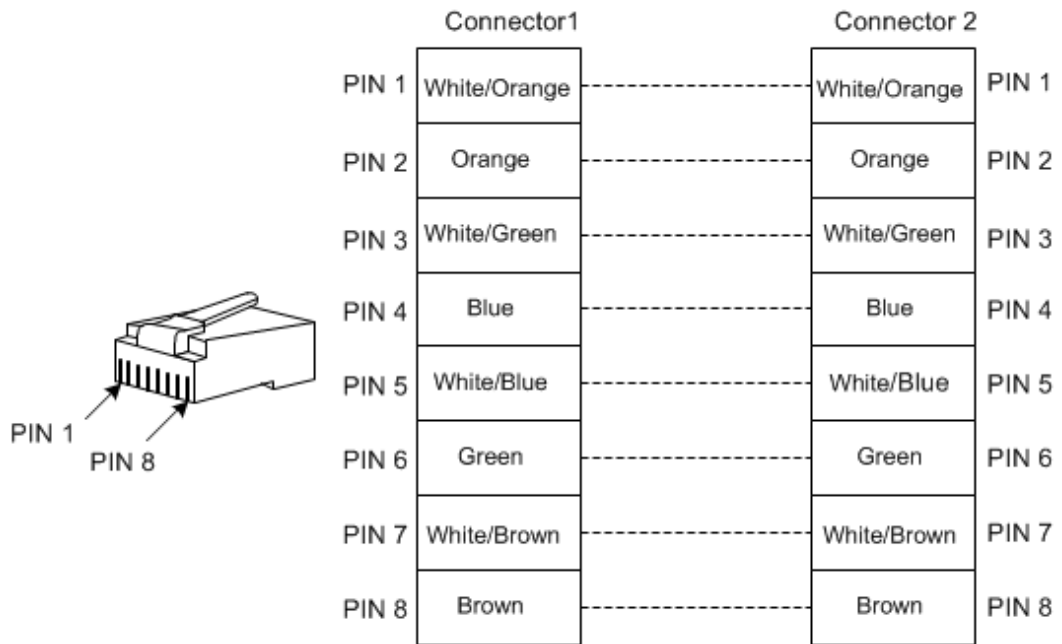


Figure 5-4 shows wiring of the 100 Mbit/s crossover cable.

Figure 5-4 Wiring of 100 Mbit/s crossover cable

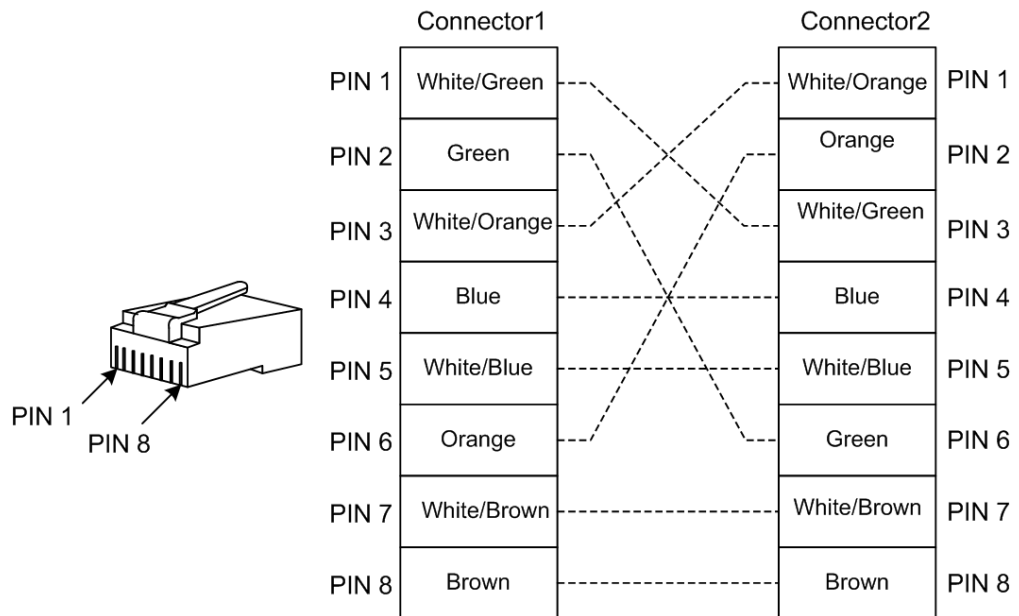
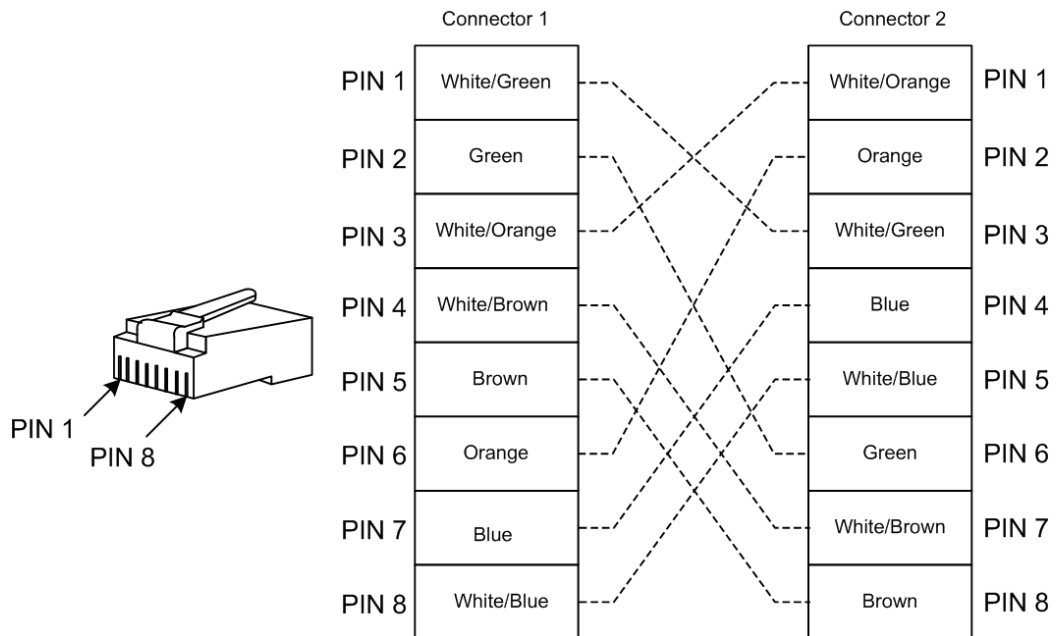


Figure 5-5 shows wiring of 1000 Mbit/s crossover cable.

Figure 5-5 Wiring of 1000 Mbit/s crossover cable



Technical specifications

Table 5-4 lists technical specifications of the Ethernet cable.

Table 5-4 Technical specifications of Ethernet cable

Parameter	Description
Name	CBL-ETH-RJ45/RJ45-D

Parameter	Description
Connector	RJ45 crystal head
Model	Cat 5 or better UTP (UTP-5 or UTP-5e) or Cat 5 STP cable
Number of cores	8
Length	The letter D is the length, indicating that the cable is customized. For example, if the customer requires 2-meter cables, they are named CBL-ETH-RJ45/RJ45-2m.

5.1.3 Ground cable

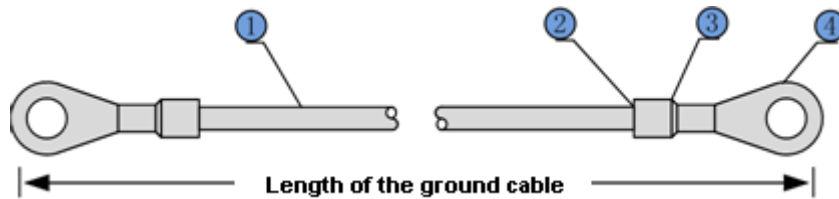
Introduction

The ground cable is used to connect the ISCOM3000G series switch to the ground.

Appearance

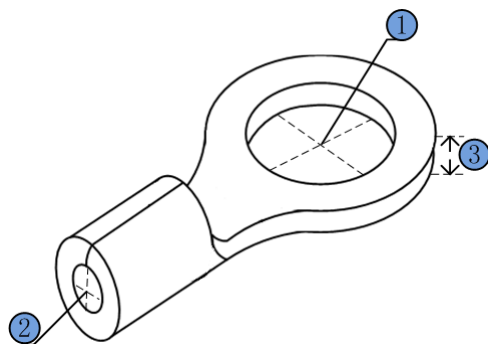
The ground cable is composed of ground terminals and the coaxial cable. The ground terminal is usually an OT non-insulated terminal. The coaxial cable is a yellow/green copper soft flame-retardant conducting wire. Figure 5-6 and Figure 5-7 show the ground cable and OT terminal.

Figure 5-6 Ground cable



1	Conducting wire	2	Stripped end (connected to the OT terminal)
3	Insulating sheath	4	OT terminal

Figure 5-7 OT terminal



1	Inner diameter of soldering lug	2	Inner diameter of sheath	3	Thickness of soldering terminal
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Technical specifications

Table 5-5 lists technical specifications of the ground cable.

Table 5-5 Technical specifications of ground cable

Parameter	Description
Model (recommended)	PIL-ground cable-Φ4-1m.
Conducting wire	Yellow/Green multi-strand copper-core conducting wire 16 AWG (1.25 mm ²)
Model	Ground round pressed terminal (M4)
Cross-sectional area of the conducting wire	16–15AWG (1.2–1.5 mm ²)
Length	1 m



Note

The ground cable cannot be longer than 30 m and should be as short as possible; otherwise, a ground bar should be used.

5.1.4 DC power cable

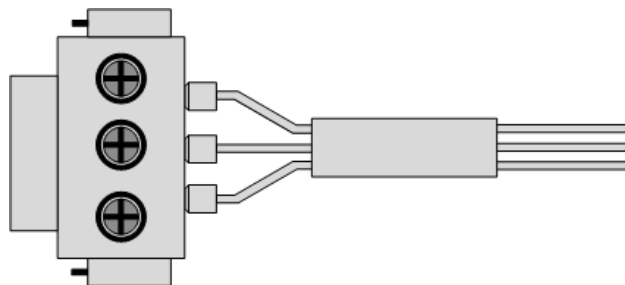
Introduction

The DC power cable transmits -48 VDC power to the power interface on the ISCOM3000G series switch, and supplies power for the whole device.

Appearance

A DC power cable is composed of DC connectors and coaxial cable, as shown in Figure 5-8.

Figure 5-8 DC power cable



Technical specifications

Table 5-6 lists technical specifications of the DC power cable.

Table 5-6 Technical specifications of DC power cable

Parameter		Description
Name		POL-DC-U-unstripped/stripped-1.5 m
Color	Outer	Black (plastic insulated sheath)
	Inner	Red (+VIN), black (-VIN), yellow/green strip (G)
Connector type		3-pin Phoenix connector (with the spacing of 5.08mm)
Stripped		Stripped end 10mm tinned
Unstrapped		Cut flat the conducting wire.
Cross-sectional area of the inner conductor		$3 \times 1.25\text{mm}^2$
Wire gauge of the inner conductor		16 AWG
Length		1.5 m

5.1.5 AC power cable

Introduction

The AC power cable transmits 220 VAC power to the power interface on the ISCOM3000G series switch, and supplies power for the whole device.

The AC power cables of the ISCOM3000G series switch vary with countries or regions, as lists in Table 5-7.

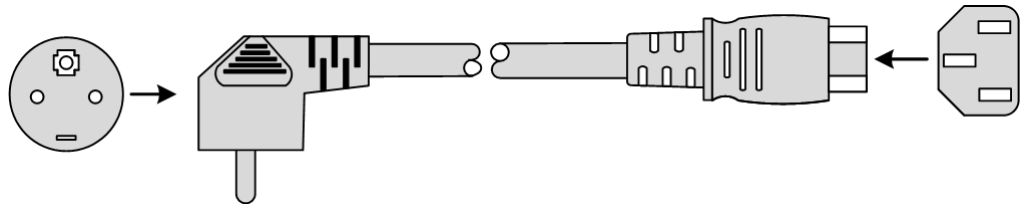
Table 5-7 AC power supply cable options

Regional standard	Cable
Europe	POL-AC-European-3-pin plug/C13 connector- 0.75mm^2 -1.5m/RoHS
America	POL-AC-American-3-pin plug/C13 connector-18AWG-1.5m/RoHS

Appearance

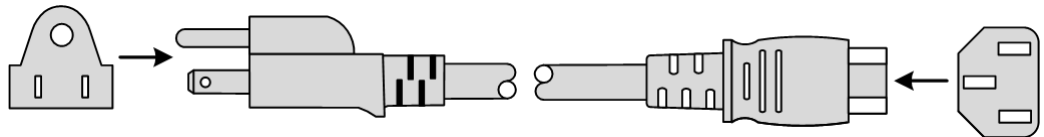
The AC power cable which meets European standard is composed of the European French mode 3-pin plug and C13 connector, as shown in Figure 5-9.

Figure 5-9 European AC power cable



The AC power cable which meets American standard is composed of the American 3-pin plug and C13 connector, as shown in Figure 5-10.

Figure 5-10 American AC power cable



Technical specifications

Table 5-8 lists specifications of the European AC power cable.

Table 5-8 Specifications of European AC power cable

Parameter		Description
Name		POL-AC-European-3-pin plug/C13 connector-0.75mm ² -1.5m/RoHS
Color	Outer	Black (PVC insulation layer)
	Inner	Blue (N), brown (L), and yellow/green stripe (E)
Connector 1		IEC60320-C13 connector
Connector 2		European 3-pin plug
Inner conductor cross-sectional area		3×0.75 mm ²
Length		1.5 m

Table 5-9 lists specifications of the American AC power cable.

Table 5-9 Specifications of American AC power cable

Parameter		Description
Name		POL-AC-American 3-pin plug/C13 connector-18AWG-1.5m/RoHS
Color	Outer	Black (PVC insulation layer)
	Inner	White (N), black (L), and green (E)
Connector 1		IEC60320-C13 connector

Parameter	Description
Connector 2	American 3-pin plug NEMA5-15
Inner conductor wire gauge	18 AWG
Length	1.5 m

5.1.6 RJ45 Console cable

Introduction

The RJ45 Console cable is used for connecting the ISCOM3000G series switch through the Console interface to the Console through the RS-232 interface, thus implementing data transmission. The console debugs and maintains the device through the Console interface.

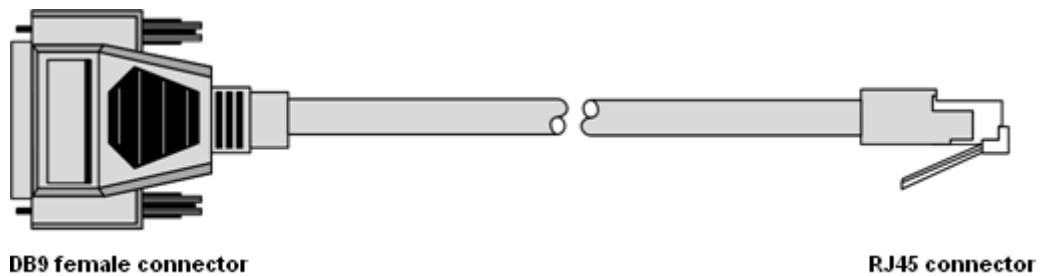
The connectors at the ends of the RJ45 Console cable include the following two types:

- RJ45 connector: connected to the Console interface on the ISCOM3000G series switch
- DB9 female connector: connected to the serial interface on the console

Appearance

Figure 5-11 shows the RJ45 Console cable.

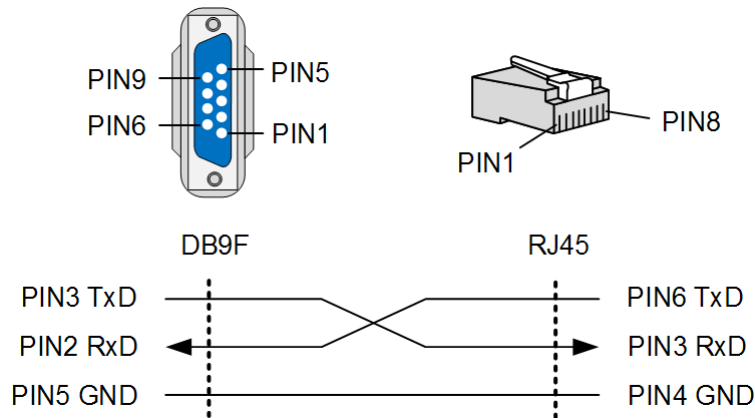
Figure 5-11 RJ45 Console cable



Wiring

Figure 5-12 shows wiring between the RS-232 serial interface and the RJ45 Ethernet interface on the ISCOM3000G series switch.

Figure 5-12 Wiring between DB9 female connector and RJ45 Ethernet interface



Technical specifications

Table 5-10 lists technical specifications of the RJ45 Console cable.

Table 5-10 Technical specifications of RJ45 Console cable

Parameter	Description
Name	CBL-RS232-DB9F/RJ45-2m/RoHS
Color	White
Model	Cat 3 UTP cable
Connector	RJ45 connector and DB9 female connector
Number of cores	4
Length	2 m

5.2 SFP modules

The ISCOM3000G series switch supports the following SFP modules:

- 100 Mbit/s SFP optical module
- 100 Mbit/s SFP electrical module
- 1000 Mbit/s SFP optical module
- 1000 Mbit/s SFP electrical module
- 10 Gbit/s SFP+ optical module

100 Mbit/s SFP optical module

Table 5-11 lists parameters of the 100 Mbit/s SFP optical module.

Table 5-11 Parameters of 100 Mbit/s SFP optical module

Model	Wavelength (nm) (Laser type)	Rx type	Tx optical power (dBm)	Minimum overload point (dBm)	Extinction ratio (dB)	Rx sensitivity (dBm)	Transmission distance (km)
USFP-03/M-D-R/SW	1310 (LED/FP)	PIN	-20 to -10	-10	10	-29	2
USFP-03/S1-D-R/SW	1310 (FP)	PIN	-15 to -8	-8	10	-34	15
USFP-03/S2-D-R/SW	1310 (FP/DFB)	PIN	-5 to 0	-8	8.2	-34	40
USFP-03/S3-D-R/SW	1550 (DFB)	PIN	-5 to 0	-10	10	-34	80
USFP-03/SS13-D-R/SW	TX1310/RX1550 (FP)	PIN	-15 to -8	-8	8.2	-28	15
USFP-03/SS15-D-R/SW	TX1550/RX1310 (FP/DFB)	PIN	-15 to -8	-8	8.2	-28	15
USFP-03/SS23-D-R/SW	TX1310/RX1550 (FP/DFB)	PIN	-5 to 0	-8	8.2	-32	40
USFP-03/SS25-D-R/SW	TX1550/RX1310 (DFB)	PIN	-5 to 0	-8	8.2	-32	40
USFP-03/SS34-D-R/SW	TX1490/RX1550 (DFB)	PIN	-3 to 2	-8	8.2	-32	80
USFP-03/SS35-D-R/SW	TX1550/RX1490 (DFB)	PIN	-3 to 2	-8	8.2	-32	80

100 Mbit/s SFP electrical module

Table 5-12 lists parameters of the 100 Mbit/s SFP electrical module.

Table 5-12 Parameters of 100 Mbit/s SFP electrical module

Model	Application code	Auto-negotiation	Data interface	LOS alarm	Transmission distance (m)
USFP-FE/AN-R/SW	10/100BASE-TX	Supported	SerDes	Supported	100

1000 Mbit/s SFP optical module

Table 5-13 lists parameters of the 1000 Mbit/s SFP optical module.

Table 5-13 Parameters of 1000 Mbit/s SFP optical module

Model	Wavelength (nm) (laser type)	Rx type	Tx optical power (dBm)	Minimum overload point (dBm)	Extinction ratio (dB)	Rx sensitivity (dBm)	Transmission distance (km)
USFP-Gb/M-D-R/SW	850 (VCSEL)	PIN	-9.5 to -3	0	9	-17	0.55
USFP-Gb/S1-D-R/SW	1310 (FP)	PIN	-10 to -3	-3	9	-21	15
USFP-Gb/LH1-D-R/SW	1310 (DFB)	PIN	-4 to 0	-3	9	-21	40
USFP-Gb/S2-D-R/SW	1550 (DFB)	PIN	-3 to 2	-3	9	-21	40
USFP-Gb/ZX-D-R/SW	1550 (DFB)	PIN	-2 to 3	-3	9	-22	80
USFP-Gb/S3-D-R/SW	1550 (DFB)	APD	-3 to 2	-9	9	-30	80
USFP-Gb/EX-D-R/SW	1550 (DFB)	APD	0-5	-9	9	-30	120
USFP-Gb/SS13-D-R/SW	TX1310/RX1550 (FP)	PIN	-10 to -3	-3	9	-21	15
USFP-Gb/SS15-D-R/SW	TX1550/RX1310 (DFB)	PIN	-10 to -3	-3	9	-21	15

Model	Wavelength (nm) (laser type)	Rx type	Tx optical power (dBm)	Minimum overload point (dBm)	Extinction ratio (dB)	Rx sensitivity (dBm)	Transmission distance (km)
USFP-Gb/SS13-4/SW	TX1310/RX1490 (FP)	PIN	-10 to -3	-3	9	-21	15
USFP-Gb/SS14-3/SW	TX1490/RX1310 (DFB)	PIN	-10 to -3	-3	9	-21	15
USFP-Gb/SS24-D-R/SW	TX1490/RX1550 (DFB)	PIN	-3 to 2	-3	9	-21	40
USFP-Gb/SS25-D-R/SW	TX1550/RX1490 (DFB)	PIN	-3 to 2	-3	9	-21	40
USFP-Gb/SS34-D-R/SW	TX1490/RX1550 (DFB)	APD	-2 to 3	-9	9	-30	80
USFP-Gb/SS35-D-R/SW	TX1550/RX1490 (DFB)	APD	-2 to 3	-9	9	-30	80

1000 Mbit/s SFP electrical module

Table 5-14 lists parameters of the 1000 Mbit/s SFP electrical module.

Table 5-14 Parameters of 1000 Mbit/s SFP electrical module

Model	Application code	Auto-negotiation	Data interface	LOS alarm	Transmission distance (m)
USFP-GE-R/SW	1000BASE-T	Not supported	SerDes	Supported	100

10 Gbit/s SFP+ optical module

Table 5-15 lists parameters of the 10 Gbit/s SFP+ optical module.

Table 5-15 Parameters of 10 Gbit/s SFP+ optical module

Model	Wavelength (nm)	Rx type	Tx optical power (dBm)	Maximum optical power	Extinction ratio (dB)	Rx sensitivity	Maximum transmission distance
USFP+-192/M/SW	850	PIN	-7.3 to -1.0	-1.0	3.0	-11.1	0.3
USFP+-192/S1/SW	1310	PIN	-8.2 to 0.5	0.5	3.5	-12.6	10

5.3 Terms

A

Access Control List (ACL)

A series of ordered rules composed of permit | deny sentences. These rules are based on the source MAC address, destination MAC address, source IP address, destination IP address, interface ID, etc. The device decides to receive or refuse the packets based on these rules.

Auto-negotiation

The interface automatically chooses the rate and duplex mode according to the result of negotiation. The auto-negotiation process is: the interface adapts its rate and duplex mode to the highest performance according to the peer interface, that is, both ends of the link adopt the highest rate and duplex mode they both support after auto-negotiation.

B

Bracket

It is a component at the flank side of the device, used for installing the chassis into the rack.

D

Dynamic ARP Inspection (DAI)

A security feature that can be used to verify the ARP data packets in the network. With DAI, the administrator can intercept, record, and discard ARP packets with invalid MAC address/IP address to prevent common ARP attacks.

F

Full duplex

In a communication link, both parties can receive and send data concurrently.

G

Ground cable

It is generally a yellow-and-green coaxial cable used for connecting the device to the ground.

H

Half duplex

In a communication link, both parties can receive or send data at a time.

L

Link Aggregation

With link aggregation, multiple physical Ethernet interfaces are combined to form a logical aggregation group. Multiple physical links in one aggregation group are taken as a logical link. Link aggregation helps share traffic among member interfaces in an aggregation group. In addition to effectively improving the reliability on links between devices, link aggregation can help gain greater bandwidth without upgrading hardware.

Link-state tracking

Link-state tracking provides an interface linkage scheme, extending the range of link backup. Through monitoring uplinks and synchronizing downlinks, faults of the upstream device can be transferred quickly to the downstream device, and primary/backup switching is triggered. In this way, it avoids traffic loss because the downstream device does not sense faults of the upstream link.

M

Multi-Mode Fiber (MMF)

In this fiber, multi-mode optical signals are transmitted.

Q

Quality of Service (QoS)

A network security mechanism, used to solve problems of network delay and congestion. When the network is overloaded or congested, QoS can ensure that packets of important services are not delayed or discarded and the network runs high efficiently. Depending on the specific system and service, it may relate to jitter, delay, packet loss ratio, bit error ratio, and signal-to-noise ratio.

R

RS232

It is an Asynchronous Transfer Mode (ATM), which does not contain hand-shaking signals. It can carry on point-to-point communication with RS232 and RS422 of other stations, featuring transparent transmission, with a maximum rate of 19.2 Kbit/s. Generally, the form of RS232 interface is DB9 or DB25.

Remote Authentication Dial In User Service (RADIUS)	RADIUS refers to a protocol used to authenticate and account users in the network. RADIUS works in client/server mode. The RADIUS server is responsible for receiving users' connection requests, authenticating users, and replying configurations required by all clients to provide services for users.
S	
SMF	In this fiber, single-mode optical signals are transmitted.

5.4 Acronyms and abbreviations

A	
AC	Alternating Current
ACL	Access Control List
AN	Access Node
APS	Automatic Protection Switching
ARP	Address Resolution Protocol
C	
CFM	Connectivity Fault Management
CoS	Class of Service
CPU	Central Processing Unit
CSMA/CD	Carrier Sense Multiple Access/Collision Detection
D	
DAI	Dynamic ARP Inspection
DC	Direct Current
DFB	Distributed Feed Back
DHCP	Dynamic Host Configuration Protocol
DiffServ	Differentiated Service
DS	Differentiated Services
DSCP	Differentiated Services Code Point
E	

EFM	Ethernet in the First Mile
ELPS	Ethernet Linear Protection Switching
EMC	Electro Magnetic Compatibility
ERPS	Ethernet Ring Protection Switching
ETS	European Telecommunications Standards
ETSI	European Telecommunications Standards Institute
F	
FE	Fast Ethernet
FTP	File Transfer Protocol
G	
GE	Gigabit Ethernet
I	
IEEE	Institute of Electrical and Electronics Engineers
IGMP	Internet Group Management Protocol
IP	Internet Protocol
ITU-T	International Telecommunications Union - Telecommunication Standardization Sector
L	
LLDP	Link Layer Discovery Protocol
LOS	Loss of Signal
M	
MAC	Medium Access Control
MEF	Metro Ethernet Forum
MTBF	Mean Time Between Failure
MVR	Multicast VLAN Registration
N	
NNM	Network Node Management

NView NNM	NView Network Node Management
O	
OAM	Operation
OSPF	Open Shortest Path First
P	
PC	Personal Computer
PHB	Per-Hop Behavior
PPPoE	PPP over Ethernet
PVC	Permanent Virtual Circuit
Q	
QoS	Quality of Service
R	
RADIUS	Remote Authentication Dial In User Service
RH	Relative Humidity
RMON	Remote Network Monitoring
S	
SFP	Small Form-factor Pluggable
SLA	Service Level Agreement
SNMP	Simple Network Management Protocol
SSHv2	Secure Shell v2
STP	Spanning Tree Protocol
T	
TACACS+	Terminal Access Controller Access Control System
TFTP	Trivial File Transfer Protocol
U	
UART	Universal Asynchronous Receiver/Transmitter

UL	Underwriter Laboratories
UNI	User Network Interface
V	
VLAN	Virtual Local Area Network

