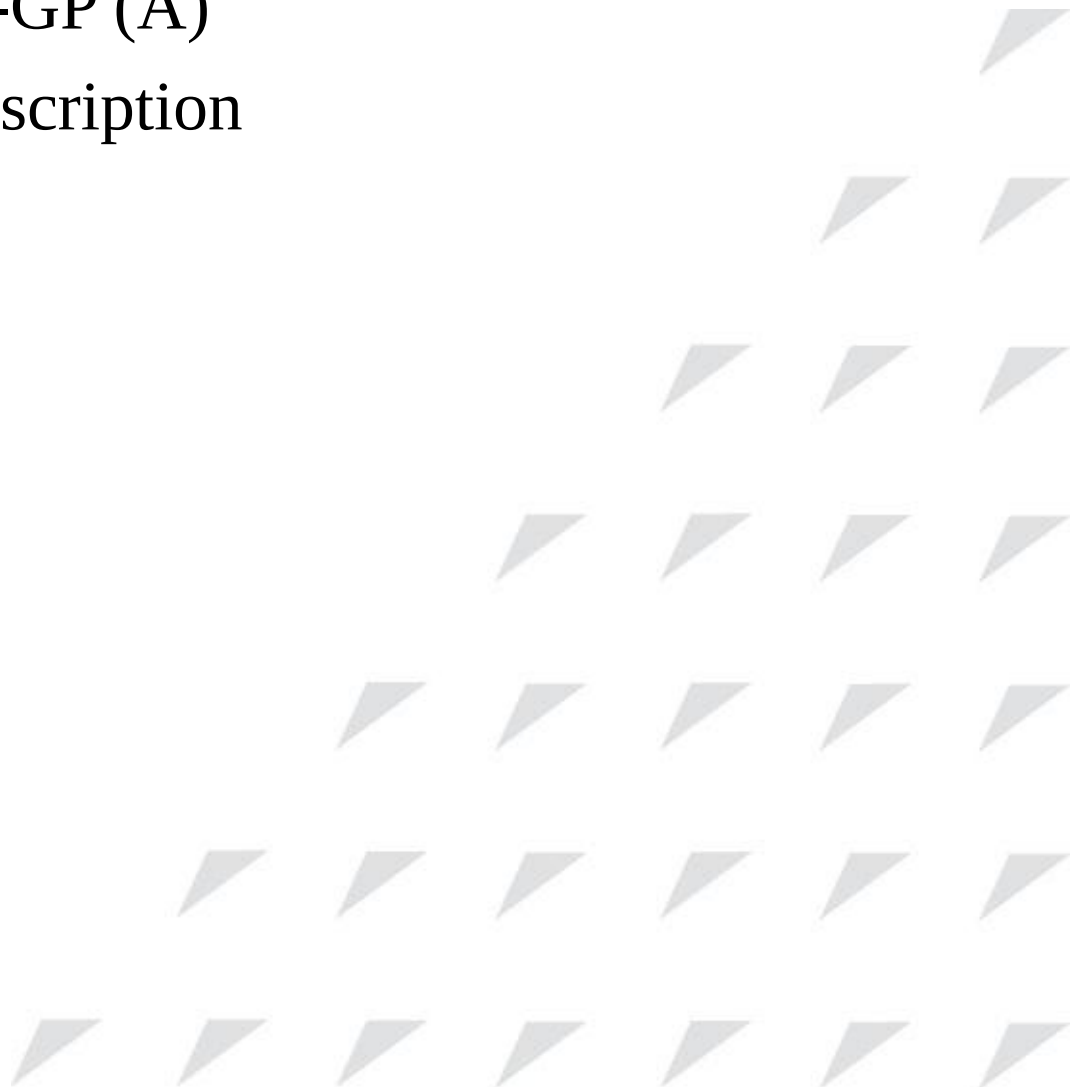


www.raisecom.com

ISCOM5508-GP (A)
Hardware Description
(Rel_03)



Raisecom Technology Co., Ltd. provides customers with comprehensive technical support and services. For any assistance, please contact our local office or company headquarters.

Website: <http://www.raisecom.com>

Tel: 8610-58963399

Fax: 8610-58963399-8886

Email: export@raisecom.com

Address: No. 11, East Area, No. 10 Block, East Xibeiwang Rd, Haidian District, Beijing, P.R.China

Postal code: 100094

Notice

Copyright © 2018

Raisecom

All rights reserved.

No part of this publication may be excerpted, reproduced, translated or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in Writing from **Raisecom Technology Co., Ltd.**

RAISECOM is the trademark of Raisecom Technology Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute the warranty of any kind, express or implied.

Preface

Objectives

This document describes the chassis, hardware components, and cables of the ISCOM5508-GP, including hardware features, components, supported functions of each component, and appearance and technical specifications of cables.

Versions

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

Product name	Hardware version	Software version
ISCOM5508-GP	A.00 or later	V2.61 or later

Related manuals

The following table lists manuals and their contents related to the ISCOM5508-GP.

Name	Description
<i>ISCOM5508-GP Hardware Description</i>	This guide mainly introduces the hardware structure and cards, including product overview, components, fiber and cables, pluggable optical module, lookup table of LEDs, lookup table of weight and power consumption.
<i>ISCOM5508-GP Configuration Guide</i>	This guide mainly introduces supported services of the ISCOM5508-GP from aspects of service introduction, default configurations, configuration methods, and configuration examples, including basic configuration, GPON service configuration, multicast service configuration, MAC address table configuration, VLAN configuration, Spanning Tree configuration, routing configuration, DHCP configuration, QoS configuration, system security configuration, link security configuration, and system management configuration.

Name	Description
<i>ISCOM5508-GP Installation Guide</i>	This guide mainly describes the precautions before installation, installation methods, and post-installation check, including safety instruction, installation instruction, chassis installation, installation of fan and air exhaust plenum, cards installation, cabling, hardware installation check, power-on test, device initialization, and installation reference.
<i>ISCOM5508-GP Quick Installation Guide</i>	This guide mainly describes the installation process after unpacking the device, including installation tools, precautions, installation scenarios, installation conditions, and installation steps.

Conventions

Symbol conventions

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

Symbol	Description
 Warning	Indicates a hazard with a medium or low level of risk which, if not avoided, could result in minor or moderate injury.
 Caution	Indicates a potentially hazardous situation that, if not avoided, could cause equipment damage, data loss, and performance degradation, or unexpected results.
 Note	Provides additional information to emphasize or supplement important points of the main text.
 Tip	Indicates 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	Names of files, directories, folders, and users are in boldface . For example, log in as user root .
<i>Italic</i>	Book titles are in <i>italics</i> .

Convention	Description
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 03 (2018-07-24)

Third commercial release

- Added the WDF4 card.
- Fixed known bugs.

Issue 02 (2016-01-27)

Second commercial release

- Updated configurations of cables.
- Fixed known bugs.

Issue 01 (2013-11-29)

Initial commercial release

Contents

1 Product overview.....	1
1.1 Overview	1
1.2 Appearance and slots.....	2
1.2.1 Appearance of chassis	2
1.2.2 Distribution of slots.....	2
1.3 Physical parameters.....	2
2 Components	4
2.1 Overview of components	4
2.1.1 Classification of components	4
2.1.2 Appearances of components.....	5
2.1.3 Hardware information label	7
2.2 Main control switching card (GPSC)	8
2.2.1 Introduction.....	8
2.2.2 Panel and slots.....	8
2.2.3 Interfaces.....	8
2.2.4 LEDs	10
2.2.5 Technical specifications	11
2.3 GP4A subcard.....	11
2.3.1 Introduction.....	11
2.3.2 Panel and slots.....	11
2.3.3 Interfaces.....	12
2.3.4 LEDs	12
2.3.5 Technical specifications	12
2.4 GE4B subcard	13
2.4.1 Introduction.....	13
2.4.2 Panel and slots.....	13
2.4.3 Interfaces.....	13
2.4.4 LEDs	13
2.4.5 Technical specifications	14
2.5 WDFA4 subcard	14
2.5.1 Introduction.....	14
2.5.2 Panel and slots.....	14

2.5.3 Interfaces	15
2.5.4 LEDs	15
2.5.5 Technical specifications	15
2.6 AC power module (RPA1101-SI-220S12)	17
2.6.1 Introduction.....	17
2.6.2 Panel and slots.....	17
2.6.3 Interfaces.....	18
2.6.4 LEDs	18
2.6.5 Technical specifications	18
2.7 DC power module (RPD1101-48S12).....	19
2.7.1 Introduction.....	19
2.7.2 Panel and slots.....	19
2.7.3 Interfaces.....	20
2.7.4 LEDs	20
2.7.5 Technical specifications	20
2.8 Fan module (FANS306)	21
2.8.1 Introduction.....	21
2.8.2 Panel and slots.....	21
2.8.3 LEDs	21
2.8.4 Technical specifications	22
3 Fiber and cables	23
3.1 Fiber	23
3.1.1 Introduction.....	23
3.1.2 Connector.....	24
3.1.3 Wiring	26
3.2 Ethernet cable.....	26
3.2.1 Introduction.....	26
3.2.2 Appearance.....	27
3.2.3 Technical specifications	27
3.3 Configuration cable	29
3.3.1 Appearance.....	30
3.3.2 Wiring	30
3.4 DC power cable.....	31
3.4.1 Introduction.....	31
3.4.2 Appearance.....	31
3.4.3 Technical specifications	31
3.5 AC power cable	32
3.5.1 Introduction.....	32
3.5.2 Appearance.....	32
3.5.3 Technical specifications	33
3.6 Ground cable	34

3.6.1 Introduction.....	34
3.6.2 Appearance.....	34
3.6.3 Technical specifications	35
4 Pluggable optical modules	37
4.1 1000 Mbit/s SFP optical module	37
4.1.1 Functions and appearance	37
4.1.2 Label	37
4.1.3 Technical specifications	38
4.2 10 Gbit/s SFP+ optical module	39
4.2.1 Functions and appearance	39
4.2.2 Technical specifications	39
4.3 PON SFP optical module	40
4.3.1 Functions and appearance	40
4.3.2 Standard	40
4.3.3 Technical specifications	41
5 Lookup table of LEDs.....	42
6 Lookup table of weight and power consumption	44
7 Appendix	46
7.1 Terms.....	46
7.2 Acronyms and abbreviations	47

Figures

Figure 1-1 Appearance of the ISCOM5508-GP chassis	2
Figure 1-2 Distribution of slots on the ISCOM5508-GP	2
Figure 2-1 Appearance of the main control switching card (GPSC)	5
Figure 2-2 Appearance of the GP4A subcard	5
Figure 2-3 Appearance of the GE4B subcard	6
Figure 2-4 Appearance of the WDFA4 subcard	6
Figure 2-5 Appearance of the power module	6
Figure 2-6 Appearance of the fan module	7
Figure 2-7 Hardware information label on the ISCOM5508-GP	7
Figure 2-8 Panel of the GPSC card	8
Figure 2-9 Panel of the GP4A subcard	11
Figure 2-10 Panel of the GE4B subcard	13
Figure 2-11 Panel of the WDFA4 subcard	14
Figure 2-12 Panel of the RPA1101 power module	18
Figure 2-13 Panel of the RPD1101 power module	19
Figure 2-14 Panel of the FANS306 module	21
Figure 3-1 LC/PC fiber connector	25
Figure 3-2 SC/PC fiber connector	25
Figure 3-3 FC/PC fiber connector	26
Figure 3-4 Ethernet cable	27
Figure 3-5 Straight-through cable wiring	28
Figure 3-6 Crossover cable wiring	29
Figure 3-7 Configuration cable	30
Figure 3-8 PINs and wiring	30
Figure 3-9 DC power cable	31
Figure 3-10 European AC power cable	32

Figure 3-11 American AC power cable	32
Figure 3-12 Ground cable	34
Figure 3-13 OT terminal	34
Figure 4-1 1000 Mbit/s SFP optical module	37
Figure 4-2 Label of the 1000 Mbit/s SFP optical module	38
Figure 4-3 SFP+ optical module	39
Figure 4-4 PON SFP optical module	40

Tables

Table 1-1 Physical parameters of the ISCOM5508-GP.....	3
Table 2-1 Components of the ISCOM5508-GP	4
Table 2-2 Items on the hardware information label.....	8
Table 2-3 Interfaces on the GPSC card	9
Table 2-4 Parameters of the Console interface.....	9
Table 2-5 Parameters of the SNMP interface	9
Table 2-6 Parameters of the GE interface based on 10/100/1000BASE-T standard	10
Table 2-7 LEDs on the GPSC card.....	10
Table 2-8 Technical specifications of the GPSC card.....	11
Table 2-9 Interfaces on the GP4A subcard	12
Table 2-10 LEDs on the GP4A subcard	12
Table 2-11 Technical specifications of the GP4A subcard	12
Table 2-12 Interfaces on the GE4B subcard.....	13
Table 2-13 LEDs on the GE4B subcard	13
Table 2-14 Technical specifications of the GE4B subcard	14
Table 2-15 Interfaces on the WDFA4 subcard	15
Table 2-16 LED on the WDFA4 subcard	15
Table 2-17 Physical technical specifications of the WDFA4 subcard	15
Table 2-18 Optical amplification technical specifications of the WDFA4 subcard	16
Table 2-19 Interface on the RPA1101 power module.....	18
Table 2-20 LEDs on the RPA1101 power module.....	18
Table 2-21 Technical specifications of the RPA1101 power module	19
Table 2-22 Interface on the RPD1101 power module	20
Table 2-23 LEDs on the RPD1101 power module	20
Table 2-24 Technical specifications of the RPD1101 power module	20
Table 2-25 LEDs on the FANS306 module.....	22

Table 2-26 Technical specifications of the FANS306 module.....	22
Table 3-1 Type and usage of the fiber	23
Table 3-2 Fiber connectors	24
Table 3-3 Wiring of the fiber	26
Table 3-4 PIN definitions of the straight-through cable	27
Table 3-5 PIN definitions of the crossover cable	28
Table 3-6 Technical specifications of the Ethernet cable	29
Table 3-7 PINs of the RS-232 interface	30
Table 3-8 PINs of the RJ45 Ethernet interface	31
Table 3-9 Technical specifications of the DC power cable	31
Table 3-10 AC power cable	32
Table 3-11 Technical specifications of the European AC power cable.....	33
Table 3-12 Technical specifications of the American AC power cable	33
Table 3-13 Technical specifications of the ground cable.....	35
Table 3-14 Technical specifications of the OT terminal.....	35
Table 4-1 Model of the 1000 Mbit/s SFP optical module.....	38
Table 4-2 Technical specifications of the 1000BASE-X SFP optical interface.....	38
Table 4-3 Technical specifications of the 1000BASE-X SFP optical module.....	39
Table 4-4 Technical specifications of the SFP+ optical interface.....	40
Table 4-5 Technical specifications of the SFP+ optical module.....	40
Table 4-6 Technical specifications of the Class B+ optical module	41
Table 4-7 Technical specifications of the Class C+ optical module	41
Table 5-1 LEDs of the ISCOM5508-GP	42
Table 6-1 Weight and power consumption of the ISCOM5508-GP	44

1 Product overview

This chapter describes orientation, appearance, and physical parameters of the ISCOM5508-GP, including the following sections:

- Overview
- Appearance and slots
- Physical parameters

1.1 Overview

The ISCOM5508-GP is a next-generation, small-capacity, 1U, and plug-in Gigabit Passive Optical Network (GPON) Optical Line Terminal (OLT). It is oriented to industrial customers, providing rich features and flexible networking solutions to meet low-density and long-distance requirements for optical fiber access.

- Act as an OLT in GPON and work with the Optical Network Unit (ONU).
- Meet Fiber to The Home (FTTH) and Fiber to The Building (FTTB) networking requirements.
- Support automatically collecting information about the power grid, and meet requirements on building the intelligent community.
- Support providing Triple Play services using the single-fiber.
- Meet networking requirements on bidirectional reconstruction of the Hybrid Fiber Coaxial (HFC) network (EPON+EoC).
- Provide high-bandwidth and long-distance access to solve small and medium-scale network fiber access problem.

The ISCOM5508-GP can be installed in the following scenarios:

- ETSI 600-mm cabinet
- 19-inch 450-mm cabinet
- 19-inch 600-mm cabinet
- Open rack
- Workbench



When installing the chassis to the 19-inch 600-mm cabinet, you need to purchase brackets applicable to the cabinet.

1.2 Appearance and slots

1.2.1 Appearance of chassis

The ISCOM5508-GP is a cartridge device, which is flexible to be deployed. Dimensions of the chassis are: 440 mm (Width) × 266 mm (Depth) × 44 mm (Height) (without brackets).

Figure 1-1 shows the appearance of the ISCOM5508-GP chassis.

Figure 1-1 Appearance of the ISCOM5508-GP chassis



1.2.2 Distribution of slots

The ISCOM5508-GP provides the following 6 slots:

- 1 main control switching card slot
- 2 expansion subcard slots
- 1 fan module slot
- 2 power module slots

Figure 1-2 shows distribution of slots on the ISCOM5508-GP.

Figure 1-2 Distribution of slots on the ISCOM5508-GP

Power module slot (Slot 4)	Power module slot (Slot 5)	Fan module slot (Slot 6)	Expansion subcard slot (Slot 2)	Expansion subcard slot (Slot 3)
MCC slot (Slot 1)				

1.3 Physical parameters

Table 1-1 lists physical parameters of the ISCOM5508-GP.

Table 1-1 Physical parameters of the ISCOM5508-GP

Technical specification		Description
Dimensions		440 mm (Width) × 266 mm (Depth) × 44 mm (Height) (without brackets)
Weight	Standard configuration	• DC: 5.0 kg • AC: 5.3 kg
	Full configuration	• DC: 5.6 kg • AC: 5.9 kg
Maximum power consumption	Standard configuration	• DC: 41 W • AC: 44 W
	Full configuration	• DC: 76 W • AC: 80 W
DC power	Rated voltage	-48 VDC
	Voltage range	-38 to -72 VDC
AC power	Rated voltage	110/220 VAC
	Voltage range	100–240 VAC
	Frequency	50/60 Hz



Note

- Standard configuration: chassis, main control switching card (GPSC), 2 power modules, and 1 fan module.
- Full configuration: chassis, main control switching card (GPSC), 2 extended subcards, 2 power modules, and 1 fan module.

2 Components

This chapter describes the appearances, dimensions, and technical specifications of components of the ISCOM5508-GP, including the following sections:

- Overview of components
- Main control switching card (GPSC)
- GP4A subcard
- GE4B subcard
- WDFA4 subcard
- AC power module (RPA1101-SI-220S12)
- DC power module (RPD1101-48S12)
- Fan module (FANS306)

2.1 Overview of components

2.1.1 Classification of components

The ISCOM5508-GP is composed of the following four types of components:

- Main control switching card
- Extended subcard
- Power module
- Fan module

Table 2-1 lists components of the ISCOM5508-GP.

Table 2-1 Components of the ISCOM5508-GP

Component	Name	Description
Main control switching card	GPSC	Control, management, aggregation, and switching card
Expansion subcard	GP4A	Provide 4 GPON interfaces.
	GE4B	Provide 4 GE interfaces.

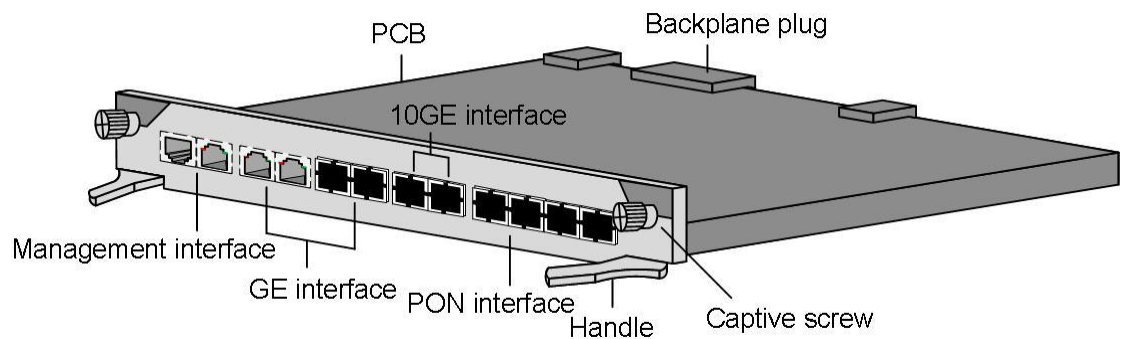
Component	Name	Description
	WDFA4	• Input 1 way of CATV services. • Input 4 ways of OLT data services. • Output 4 ways of wave multiplexing services.
Power module	RPA1101-SI-220S12	110/220 VAC power module
	RPD1101-48S12	-48 VDC power module
Fan module	FANS306	Fan module

2.1.2 Appearances of components

Appearance of main control switching card

Figure 2-1 shows the appearance of the main control switching card (GPSC).

Figure 2-1 Appearance of the main control switching card (GPSC)



Appearance of expansion subcards

Figure 2-2 shows the appearance of the GP4A subcard.

Figure 2-2 Appearance of the GP4A subcard

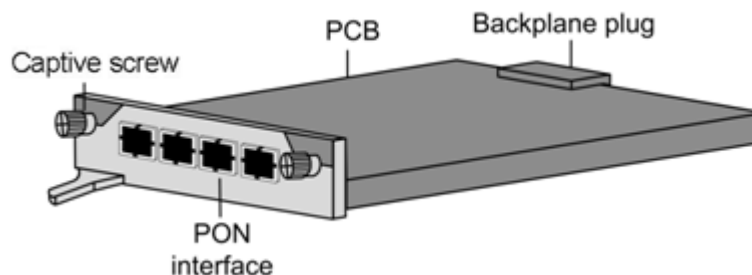


Figure 2-3 shows the appearance of the GE4B subcard.

Figure 2-3 Appearance of the GE4B subcard

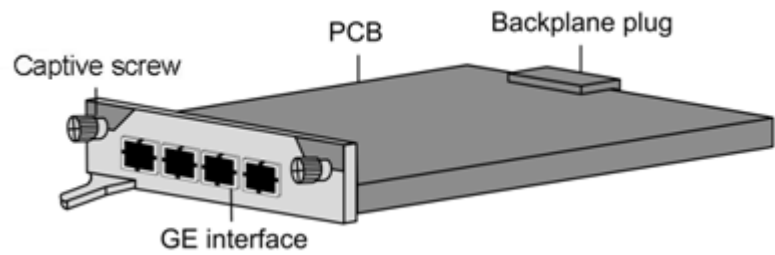
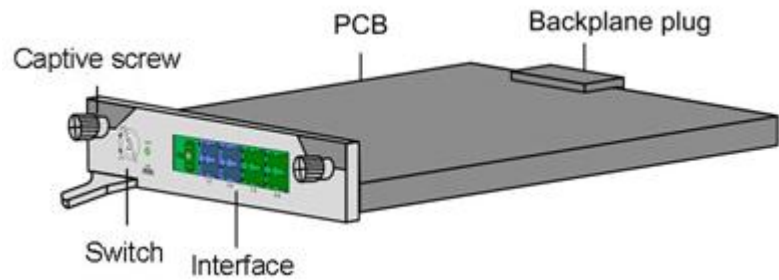


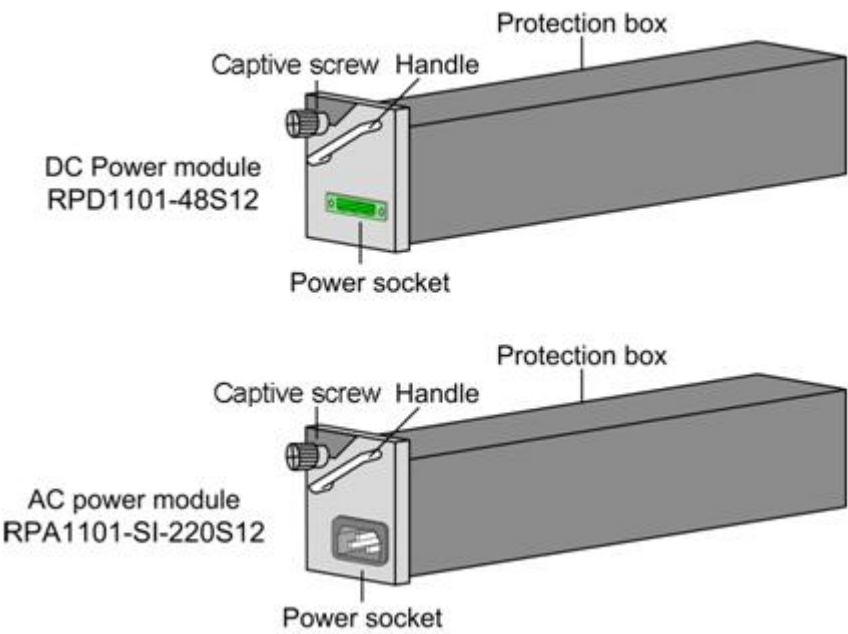
Figure 2-4 Appearance of the WDFA4 subcard



Appearance of power module

Figure 2-5 shows the appearance of the power module.

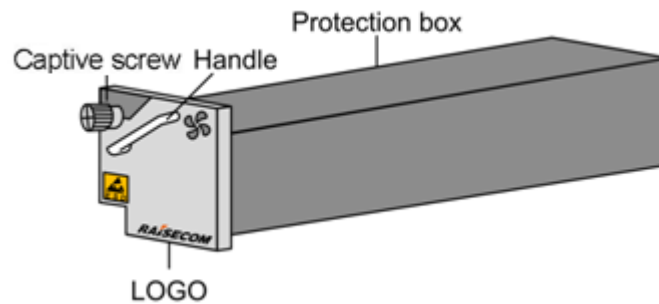
Figure 2-5 Appearance of the power module



Appearance of fan module

Figure 2-6 shows the appearance of the fan module.

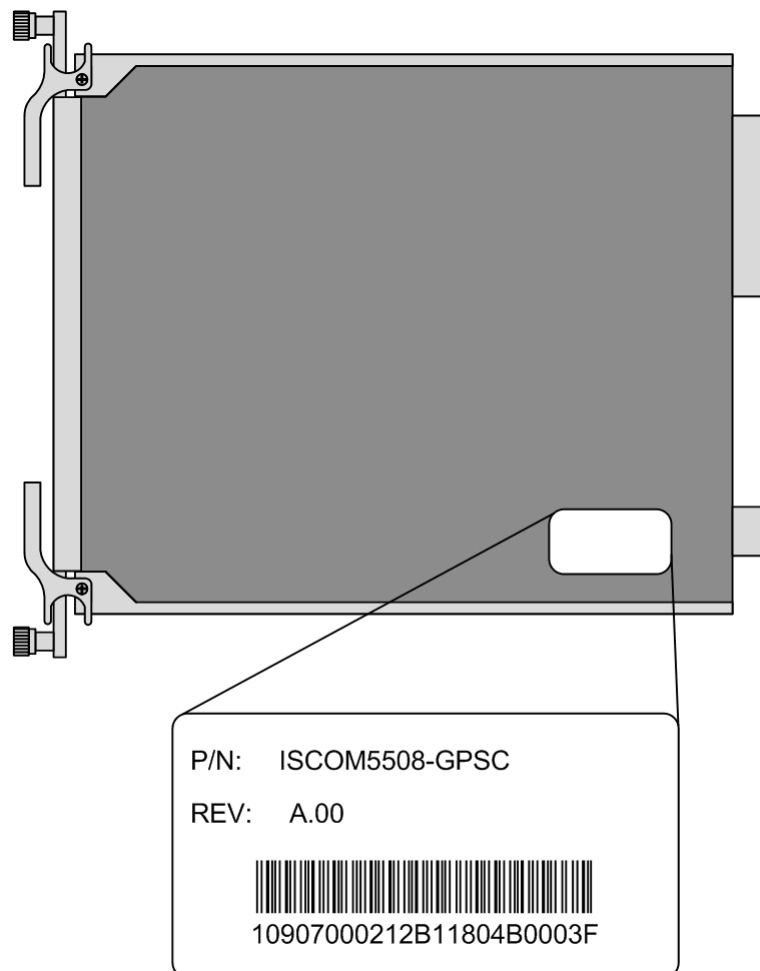
Figure 2-6 Appearance of the fan module



2.1.3 Hardware information label

Hardware information of ISCOM5508-GP components will be described by a label pasted on the Printed Circuit Board (PCB) to facilitate you to view it, as shown in Figure 2-7.

Figure 2-7 Hardware information label on the ISCOM5508-GP





Note

The position of hardware information labels may be different because the layouts of elements are different, so search for it carefully.

Table 2-2 lists items on the hardware information label.

Table 2-2 Items on the hardware information label

Item	Description
P/N	Name and type of the component
REV	Hardware version of the component, where "A" means a release version and "00" means a build
Bar code	Bar code of the component

2.2 Main control switching card (GPSC)

2.2.1 Introduction

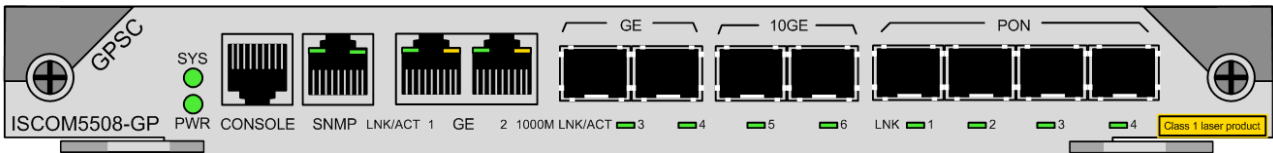
The GPSC card is the main unit for accessing, processing, and switching services. It provides 4 GPON optical interfaces, 2 GE electrical interfaces (RJ45), 2 GE optical interfaces (SFP), and two 10GE optical interfaces (SFP+). Moreover, it supports managing and maintaining the ISCOM5508-GP through the SNMP interface and Console interface.

2.2.2 Panel and slots

The GPSC card can be inserted into slot 1 only.

Figure 2-8 shows the panel of the GPSC card.

Figure 2-8 Panel of the GPSC card



2.2.3 Interfaces

There are 12 interfaces on the GPSC card.

Table 2-3 lists interfaces on the GPSC card.

Table 2-3 Interfaces on the GPSC card

Interface	Type	Usage	Description
CONSOLE	RJ45	Local management interface	RS-232 serial interface
SNMP	RJ45	Remote network management interface	10/100BASE-T self-adaptive electrical interface
GE 1/2	RJ45	Ethernet service interface	10/100/1000BASE-T self-adaptive electrical interface
GE 3/4	SFP	1000 Mbit/s Ethernet service interface	Available optical module type: 1000BASE-X
10GE 5/6	SFP+	10 Gbit/s Ethernet service interface	Available optical module type: 10GBASE-LX/SX
PON 1/2/3/4	PON SFP	GPON service interface	Available optical module type: Class B+ or Class C+

Table 2-4 lists parameters of the Console interface.

Table 2-4 Parameters of the Console interface

Parameter	Description
Connector	RJ45
Working mode	Duplex UART
Electrical features	RS-232
Baud rate	9600 Baud
Cable specifications	4-core shielded cable

Table 2-5 lists parameters of the SNMP interface.

Table 2-5 Parameters of the SNMP interface

Parameter	Description
Connector	RJ45
Interface rate	10/100BASE-T self-adaption
Wiring	Support straight-through and crossover cable self-adaption in host mode
Compliant standard	IEEE 802.3

Table 2-6 lists parameters of the GE interface.

Table 2-6 Parameters of the GE interface based on 10/100/1000BASE-T standard

Parameter	Description
Connector	RJ45
Working mode	• 10/100/1000 Mbit/s auto-negotiation • Full duplex and half duplex auto-negotiation
Cable specifications	• When the device works at 10 Mbit/s or 100 Mbit/s, we recommend using the Cat 5 UTP cable. • When the device works at 1000 Mbit/s, we recommend using Cat 5e STP cable.
Compliant standard	IEEE 802.3
Supported network protocol	IP

2.2.4 LEDs

There are 16 LEDs on the GPSC card, among which 6 LEDs are integrated on the RJ45 interface.

Table 2-7 lists LEDs on the GPSC card.

Table 2-7 LEDs on the GPSC card

LED	Status	Description
PWR	Green	Power LED • Green: the power supply is working properly. • Off: the power supply is working improperly.
SYS	Green	System working LED • Fast blinking green (4 Hz): the system is initializing. • Slow blinking green (0.5 Hz): the system is working properly. • Off: the system is working improperly.
LINK/ACT 3/4/5/6 (SFP optical interface)	Green	Line working LED • Green: the interface is connected properly. • Blinking green: the interface is transmitting data. • Off: the interface is disconnected or connected improperly.
LINK/ACT 1/2 (RJ45 electrical interface integrated LED)	Green	Line working LED • Green: the interface is connected properly and no data is being transmitted. • Blinking green: the interface is transmitting data. • Off: the interface is disconnected or connected improperly.

LED	Status	Description
1000M (RJ45 electrical interface integrated LED)	Yellow	Electrical interface working rate LED • Yellow: the electrical interface is working at 1000 Mbit/s. • Off: the electrical interface is working at 100 Mbit/s.
LINK 1/2/3/4	Green	PON interface working LED • Green: the PON interface is connected properly and there is a registered ONU working on the interface. • Off: the PON interface is disconnected or there is no registered ONU working on the interface.

2.2.5 Technical specifications

Table 2-8 lists technical specifications of the GPSC card.

Table 2-8 Technical specifications of the GPSC card

Item	Description
Dimensions	259.3 mm (Width) × 243.4 mm (Depth) × 19.8 mm (Height)
Weight	0.64 kg
Power consumption	< 34.5 W

2.3 GP4A subcard

2.3.1 Introduction

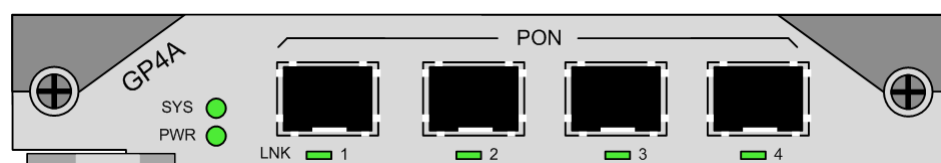
The GP4A subcard is a PON interface subcard of the ISCOM5508-GP, providing 4 GPON SFP interfaces.

2.3.2 Panel and slots

The GP4A subcard can be inserted into slot 3 of the ISCOM5508-GP.

Figure 2-9 shows the panel of the GP4A subcard.

Figure 2-9 Panel of the GP4A subcard



2.3.3 Interfaces

There are 4 interfaces on the GP4A subcard.

Table 2-9 lists interfaces on the GP4A subcard.

Table 2-9 Interfaces on the GP4A subcard

Interface	Type	Usage	Description
PON 1/2/3/4	PON SFP	GPON service interface	Available optical module type: Class B+ or Class C+

2.3.4 LEDs

There are 6 LEDs on the GP4A subcard.

Table 2-10 lists LEDs on the GP4A subcard.

Table 2-10 LEDs on the GP4A subcard

LED	Status	Description
PWR	Green	Power LED • Green: the power supply is working properly. • Off: the power supply is working improperly.
SYS	Green	System working LED • Fast blinking green (4 Hz): the system is initializing. • Slow blinking green (0.5 Hz): the system is working properly. • Off: the system is working improperly.
LNK 1/2/3/4	Green	PON interface working LED • Green: the PON interface is connected properly and there is a registered ONU working on the interface. • Off: the PON interface is disconnected or there is no registered ONU working on the interface.

2.3.5 Technical specifications

Table 2-11 lists technical specifications of the GP4A subcard.

Table 2-11 Technical specifications of the GP4A subcard

Item	Description
Dimensions	129.4 mm (Width) × 243.4 mm (Depth) × 19.8 mm (Height)
Weight	0.37 kg
Power consumption	< 14.5 W

2.4 GE4B subcard

2.4.1 Introduction

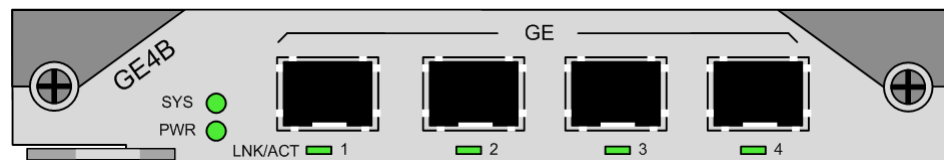
The GE4B subcard is a GE interface subcard of the ISCOM5508-GP, providing 4 SFP GE interfaces.

2.4.2 Panel and slots

The GE4B subcard can be inserted into slot 2 or slot 3.

Figure 2-10 shows the panel of the GE4B subcard.

Figure 2-10 Panel of the GE4B subcard



2.4.3 Interfaces

There are 4 interfaces on the GE4B subcard.

Table 2-12 lists interfaces on the GE4B subcard.

Table 2-12 Interfaces on the GE4B subcard

Interface	Type	Usage	Description
GE 1/2/3/4	SFP	1000 Mbit/s Ethernet service interface	Available optical module type: 1000BASE-X



Note

For details about the 1000BASE-X standard optical module, see chapter 4 Pluggable optical module.

2.4.4 LEDs

There are 6 LEDs on the GE4B subcard.

Table 2-13 lists LEDs on the GE4B subcard.

Table 2-13 LEDs on the GE4B subcard

LED	Status	Description
PWR	Green	Power LED • Green: the power supply is working properly. • Off: the power supply is working improperly.

LED	Status	Description
SYS	Green	System working LED • Fast blinking green (4 Hz): the system is initializing. • Slow blinking green (0.5 Hz): the system is working properly. • Off: the system is working improperly.
LNK/ACT 1/2/3/4	Green	Ethernet interface working LED • Green: the Ethernet interface is connected properly. • Blinking green: the Ethernet interface is transmitting data. • Off: the Ethernet interface is disconnected or connected improperly.

2.4.5 Technical specifications

Table 2-14 lists technical specifications of the GE4B subcard.

Table 2-14 Technical specifications of the GE4B subcard

Item	Description
Dimensions	129.4 mm (Width) × 243.4 mm (Depth) × 19.8 mm (Height)
Weight	0.3 kg
Power consumption	< 13 W

2.5 WDFA4 subcard

2.5.1 Introduction

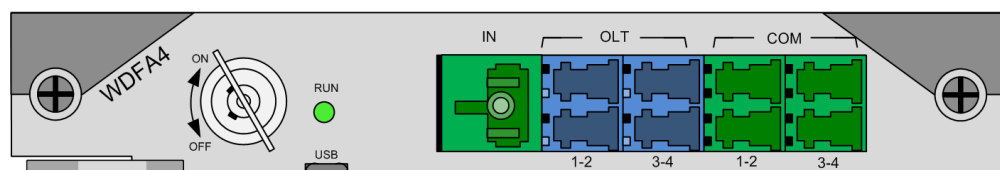
The WDFA4 subcard is an EDFA expansion subcard of the ISCOM5508-GP, providing 1 way of CATV service input, 4 ways of OLT data service inputs, 4 ways of wave multiplexing service outputs, and 1 USB interface.

2.5.2 Panel and slots

The WDFA4 subcard can be inserted into slot 2 or slot 3.

Figure 2-11 shows the panel of the WDFA4 subcard.

Figure 2-11 Panel of the WDFA4 subcard



2.5.3 Interfaces

There are 10 interfaces on the WDFA4 subcard.

Table 2-15 lists interfaces on the WDFA 4 subcard.

Table 2-15 Interfaces on the WDFA4 subcard

Interface	Type	Usage
IN	SC/APC	1550 nm CATV service inputs
OLT	LC/UPC	1310 nm/1490 nm data service inputs
COM	LC/APC	1310 nm/1490 nm/1550 nm wave multiplexing service outputs
USB	–	For device management and maintenance

2.5.4 LEDs

There is 1 LED on the WDFA4 subcard.

Table 2-16 lists the LED on the WDFA subcard.

Table 2-16 LED on the WDFA4 subcard

LED	Status	Description
RUN	Green/Red	Power LED • Green: the power supply is working properly. • Red: the power supply is working improperly.

2.5.5 Technical specifications

Table 2-17 lists physical technical specifications of the WDFA4 subcard.

Table 2-17 Physical technical specifications of the WDFA4 subcard

Item	Description
Dimensions	129.4 mm (Width) × 243.4 mm (Depth) × 19.8 mm (Height)
Weight	0.55 kg
Power consumption	≤ 20 W

Table 2-18 lists optical amplification technical specifications of the WDFA4 subcard.

Table 2-18 Optical amplification technical specifications of the WDF4 subcard.

Specification	Minimum value	Typical value	Maximum value	Unit	Description
1550 Amplifier					
Wavelength	1545	1550	1565	nm	—
Input power	-10	0	10	dBm	—
Output power (every port for 4 ports)	19	19.5	20.5	dBm	—
Output Power Stability	—	—	0.5	dB	—
Output Power Uniformity	—	1	—	dB	—
NF @Pin=0dBm (1550nm)	—	—	5.5	dB	—
Pump leakage @ Input/output port	---	---	-30	dBm	—
PMD(Polarization Mode Dispersion)	—	—	0.5	Ps/nm	—
PDG(Polarization Dependent Gain)	—	—	0.4	dB	—
RL(Optical Return Loss)	50	—	—	dB	—
Directivity(PON↔CATV)	50	—	—	dB	—
Output power adjustable	6 dB				—
1310/1490/1550 WDM					
Pass band Wavelength Range(λ_p)	1545	—	1565	nm	Downstream
Reflection band wavelength range1(λ_{R1})	1260	—	1360	nm	Upstream
Reflection band wavelength range2(λ_{R2})	1480	—	1500	nm	Downstream
Insertion loss P↔C@ λ_p	—	—	0.8	dB	—
Insertion loss R↔C@ $\lambda_{R1,2}$	—	—	0.8	dB	—
Isolation P↔C@ λ_R	40	—	—	dB	—
Isolation R↔C@ $\lambda_{P1,2}$	15	—	—	dB	—
Directivity(P↔R)	50	—	—	dB	—
Temperature Dependent Loss	—	—	0.1	dB	—
Polarization Dependent Loss	—	—	0.1	dB	—
Optical Return Loss	50	—	—	dB	—
PMD	—	—	0.05	Ps	—
Power tolerance	27	—	—	dBm	—
Others					
Working Temperature	-5	—	65	°C	—

Specification	Minimum value	Typical value	Maximum value	Unit	Description
Storage Temperature	-20	–	80	°C	–
Humidity	5	–	95	%RH	–
Power consumption for 20dBm/port	–	–	20	W	–
MTBF @+65 °C	15	–	–	Years	–
Dimension(W x L x H)	129.4×243.4×19.8			mm	–
Number of CATV signal inputs/outputs	Input: 1 / Output: 4				–

2.6 AC power module (RPA1101-SI-220S12)

2.6.1 Introduction

The RPA1101-SI-220S12 (hereinafter referred to as RPA1101) module is an AC power module of the ISCOM5508-GP. It supports the following features:

- Wide voltage input: 100–240 VAC
- Rated output voltage: 12 V; rated output current: 8.3 A
- Output overvoltage and overcurrent protection
- Input surge current and voltage suppression
- Power status LED
- Operating temperature: -10 to +70 °C



Warning

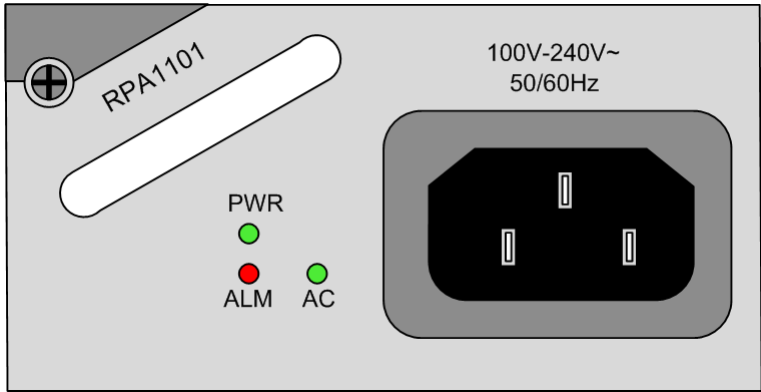
- Turn off the power switch or disconnect the power connection before installing or removing the power cable.
- Ensure that the label on the power cable is correct before connecting the power cable.
- Use the power cable compliant with required specifications.

2.6.2 Panel and slots

The RPA1101 power module can be only inserted into slot 4 or slot 5.

Figure 2-12 shows the panel of the RPA1101 power module.

Figure 2-12 Panel of the RPA1101 power module



2.6.3 Interfaces

There is 1 interface on the RPA1101 power module.

Table 2-19 lists the interface on the RPA1101 power module.

Table 2-19 Interface on the RPA1101 power module

Interface	Usage
100V-240V-50/60Hz	AC power interface/C13 connector socket

2.6.4 LEDs

There are 3 LEDs on the RPA1101 power module.

Table 2-20 lists LEDs on the RPA1101 power module.

Table 2-20 LEDs on the RPA1101 power module

LED	Status	Description
PWR	Green	Power LED • Green: the power supply is working properly. • Off: the power supply is working improperly.
AC	Green	Power input LED • Green: the input power is working properly. • Off: there is no external power input or external power input is abnormal.
ALM	Red	Alarm LED • Red: the device is powered on improperly. • Off: the device is powered off or powered on properly.

2.6.5 Technical specifications

Table 2-21 lists technical specifications of the RPA1101 power module.

Table 2-21 Technical specifications of the RPA1101 power module

Item		Description
Dimensions		65.6 mm (Width) × 240.6 mm (Depth) × 41.2 mm (Height)
Weight		0.61 kg
AC power	Rated voltage	110/220 VAC
	Frequency	50/60 Hz
	Voltage range	100–240 VAC
Output power		100 W
Lightning protection level (AC power)		• Differential mode: 1 kV • Common mode: 2 kV

2.7 DC power module (RPD1101-48S12)

2.7.1 Introduction

The RPD1101-48S12 (hereinafter referred to as RPD1101) module is a DC power module of the ISCOM5508-GP. It supports the following features:

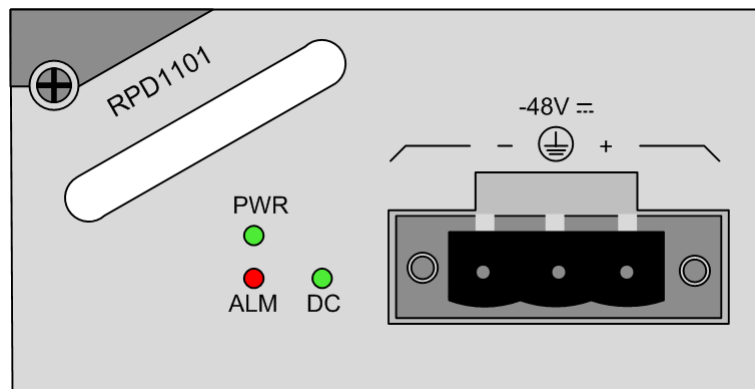
- Wide voltage input: -38 to -72 VDC
- Rated output voltage: 12 V; rated output current: 8.3 A
- Output overvoltage and overcurrent protection and reverse connection protection
- Power status LED
- Operating temperature: -10 to +70 °C

2.7.2 Panel and slots

The RPD1101 power module can be only inserted into slot 4 or slot 5.

Figure 2-13 shows the panel of the RPD1101 power module.

Figure 2-13 Panel of the RPD1101 power module



2.7.3 Interfaces

There is 1 interface on the RPD1101 power module.

Table 2-22 lists the interface on the RPD1101 power module.

Table 2-22 Interface on the RPD1101 power module

Interface	Usage
+	BGND power input
–	-48 V power input
	Grounding

2.7.4 LEDs

There are 3 LEDs on the RPD1101 power module.

Table 2-23 lists LEDs on the RPD1101 power module.

Table 2-23 LEDs on the RPD1101 power module

LED	Status	Description
PWR	Green	Power LED • Green: the power supply is working properly. • Off: the power supply is working improperly.
DC	Green	Power input LED • Green: the input power is working properly. • Off: there is no external power input or external power input is abnormal.
ALM	Red	Alarm LED • Red: the device is powered on improperly. • Off: the device is powered off or powered on properly.

2.7.5 Technical specifications

Table 2-24 lists technical specifications of the RPD1101 power module.

Table 2-24 Technical specifications of the RPD1101 power module

Item		Description
Dimensions		65.6 mm (Width) × 240.6 mm (Depth) × 41.2 mm (Height)
Weight		0.49 kg
DC power	Rated voltage	-48 VDC

Item		Description
	Voltage range	-38 to -72 VDC
Output power		100 W

2.8 Fan module (FANS306)

2.8.1 Introduction

The FANS306 module is the fan module of the ISCOM5508-GP. It supports the following features:

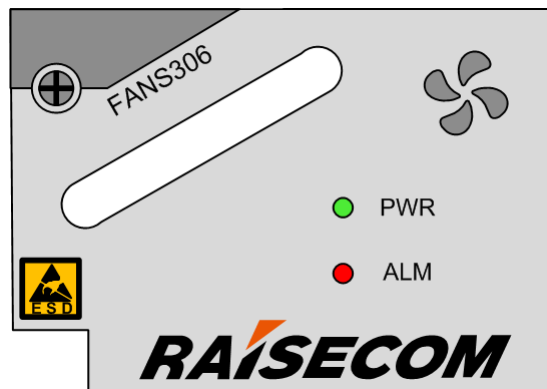
- Support fan monitoring. The system monitors the working status of the fan and an alarm is generated when the fan fails.
- Support adjusting the rotational speed of the fan manually or automatically.
- Support hot swapping.

2.8.2 Panel and slots

The FANS306 module can be inserted into slot 6 of the ISCOM5508-GP.

Figure 2-14 shows the panel of the FANS306 module.

Figure 2-14 Panel of the FANS306 module



2.8.3 LEDs

There are 2 LEDs on the FANS306 module.

Table 2-25 lists LEDs on the FANS306 module.

Table 2-25 LEDs on the FANS306 module

LED	Status	Description
PWR	Green	Power LED • Green: the power supply is working properly. • Off: the power supply is working improperly.
ALM	Red	Alarm LED • Red: the module is working improperly and an alarm is generated. • Off: the module is working properly.

2.8.4 Technical specifications

Table 2-26 lists technical specifications of the FANS306 module.

Table 2-26 Technical specifications of the FANS306 module

Item	Description
Dimensions	41.9 mm (Width) × 230.1 mm (Depth) × 41.1 mm (Height)
Weight	0.3 kg
Power consumption	3 W

3

Fiber and cables

This chapter describes fiber and cables of the ISCOM5508-GP, including the following sections:

- Fiber
- Ethernet cable
- Configuration cable
- DC power cable
- AC power cable
- Ground cable

3.1 Fiber

3.1.1 Introduction

The ISCOM5508-GP supports single-mode fibers and multi-mode fibers, which are different in color. The yellow one is a single-mode fiber and the orange one is a multi-mode fiber.

The ISCOM5508-GP can be connected to the Optical Distribution Frame (ODF) or optical interfaces of other devices through fiber.

Table 3-1 lists the type and usage of the fiber.

Table 3-1 Type and usage of the fiber

Usage	Local connector	Remote connector	Type	Standard
• Connect the ISCOM5508-GP to the ODF through the Ethernet optical interface. • Connect the Ethernet optical interface on the ISCOM5508-GP to optical interfaces on other devices.	LC/PC	LC/PC	2 mm single-mode fiber	ITU-T G.652
			2 mm multi-mode fiber	
	LC/PC	FC/PC	2 mm single-mode fiber	
			2 mm multi-mode fiber	
	LC/PC	SC/PC	2 mm single-mode fiber	
			2 mm multi-mode fiber	

Usage	Local connector	Remote connector	Type	Standard
Connect the ISCOM5508-GP to the ODF through the PON interface.	SC/PC	LC/PC	2 mm single-mode fiber	
	SC/PC	FC/PC	2 mm single-mode fiber	
	SC/PC	SC/PC	2 mm single-mode fiber	



Note

- Choose the connector type and jumper cable length reasonably based on the on-site requirements.
- The supported connector of the optical interface depends on the optical module.
- Choose a connector suitable for the optical interface. Otherwise, it may increase additional loss of fiber links, reduce transmission quality of services, or even damage the connector and optical interface.

3.1.2 Connector

Fiber connectors are different in shape, ferrule end-face, and pigtail sheath color, as shown in Table 3-2.

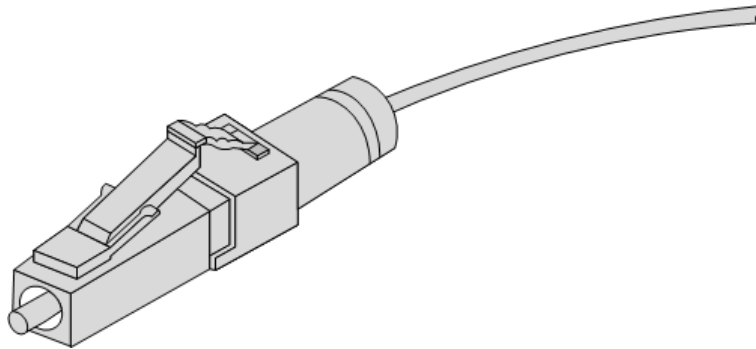
Table 3-2 Fiber connectors

Connector	Description	Pigtail sheath color
LC/PC	Clamping square fiber connector/Micro-convex grinding-and-polishing ferrule end-face	Blue
SC/PC	Square fiber connector/Micro-convex grinding-and-polishing ferrule end-face	Blue
FC/PC	Round screw-thread connector/Micro-convex grinding-and-polishing ferrule end-face	Blue
SC/APC	Square fiber connector/8 degree micro-convex grinding-and-polishing ferrule end-face	Green
LC/UPC	Clamping square fiber connector/Curved grinding-and-polishing ferrule end-face	Blue
LC/APC	Clamping square fiber connector/8 degree micro-convex grinding-and-polishing ferrule end-face	Green

LC/PC fiber connector

Figure 3-1 shows the appearance of the LC/PC fiber connector.

Figure 3-1 LC/PC fiber connector



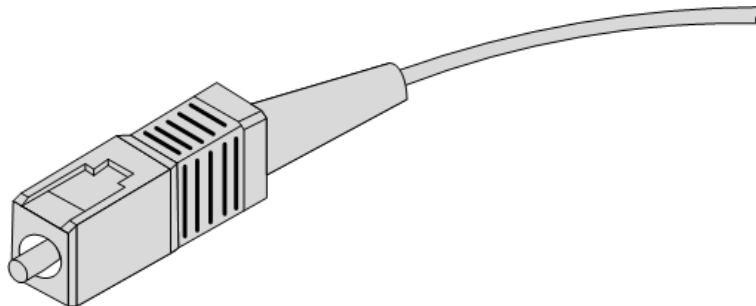
When connecting or removing the LC/PC fiber connector, align the connector with the optical interface, and do not rotate the fiber. Operate as below:

- To connect the fiber, align the head of the fiber with the optical interface and insert the fiber into the interface gently.
- To remove the fiber, press down the clamping connector, and push the fiber head inwards, and then pull the fiber out.

SC/PC fiber connector

Figure 3-2 shows the appearance of the SC/PC fiber connector.

Figure 3-2 SC/PC fiber connector



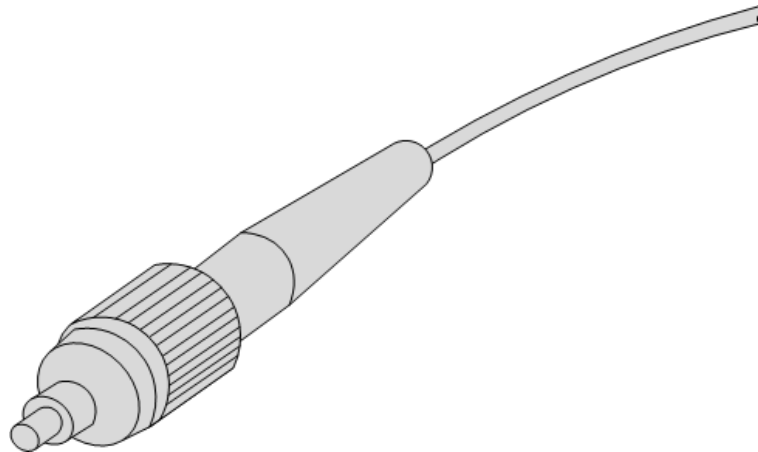
When connecting or removing the SC/PC fiber connector, align the connector with the optical interface, and do not rotate the fiber. Operate as below:

- To connect the fiber, align the head of the fiber with the optical interface and insert the fiber into the interface gently.
- To remove the fiber, push the fiber head inwards, and then pull the fiber out.

FC/PC fiber connector

Figure 3-3 shows the appearance of the FC/PC fiber connector.

Figure 3-3 FC/PC fiber connector



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

- To connect the fiber, align the fiber head with the optical interface. Be careful not to damage the ceramic tube inside the optical interface. After snapping the fiber in place, rotate the screw sleeve clockwise to fasten the optical interface.
- To remove the fiber, rotate the screw sleeve counterclockwise. When the screw sleeve is loosened, pull the fiber out.

3.1.3 Wiring

Table 3-3 lists the wiring of the fiber.

Table 3-3 Wiring of the fiber

Wiring	Local optical interface	Direction of optical signals	Peer optical interface
Single-fiber connection	Optical interface	<->	Optical interface
Dual-fiber connection	Optical interface Tx	->	Optical interface Rx
	Optical interface Rx	<-	Optical interface Tx

3.2 Ethernet cable

3.2.1 Introduction

The Ethernet cable of the ISCOM5508-GP can be used to:

- Connect the Ethernet electrical interface of the ISCOM5508-GP to other devices.
- Connect the SNMP of the ISCOM5508-GP to the NView NMS system.

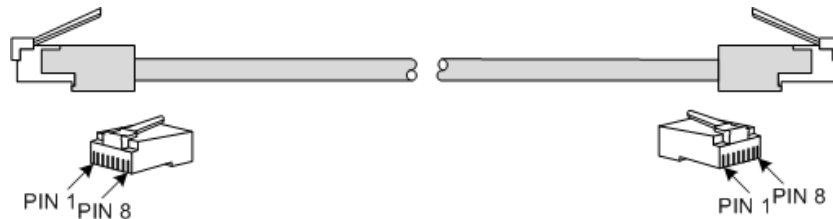
The Ethernet interface on the ISCOM5508-GP is self-adaptive to straight-through cable mode and crossover cable mode. So both kinds of Ethernet cables can be used.

The Ethernet cable needs to be made on site.

3.2.2 Appearance

Figure 3-4 shows the appearance of the Ethernet cable.

Figure 3-4 Ethernet cable



3.2.3 Technical specifications

The Ethernet cable can be divided into two types:

- Straight-through cable: both two RJ45 connectors of the straight-through cable follow EIA/TIA568B wiring.
- Crossover cable: one RJ45 connector of the crossover cable follows EIA/TIA568A wiring; the other RJ45 connector follows EIA/TIA568B wiring.

Straight-through cable

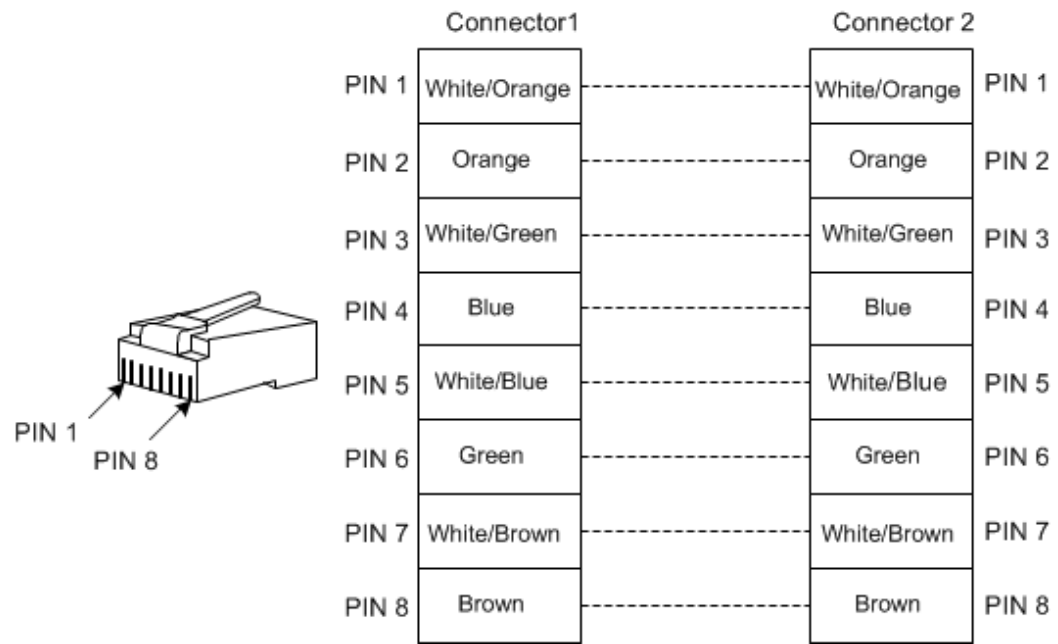
Table 3-4 lists PIN definitions of the straight-through cable.

Table 3-4 PIN definitions of the straight-through cable

Connector 1 (RJ45)	EIA/TIA568B	Connector 2 (RJ45)	EIA/TIA568B
PIN 1	White/Orange	PIN 1	White/Orange
PIN 2	Orange	PIN 2	Orange
PIN 3	White/Green	PIN 3	White/Green
PIN 4	Blue	PIN 4	Blue
PIN 5	White/Blue	PIN 5	White/Blue
PIN 6	Green	PIN 6	Green
PIN 7	White/Brown	PIN 7	White/Brown
PIN 8	Brown	PIN 8	Brown

Figure 3-5 shows the straight-through cable wiring.

Figure 3-5 Straight-through cable wiring



Crossover cable

Table 3-5 lists the PIN definitions of the crossover cable.

Table 3-5 PIN definitions of the crossover cable

Connector 1 (RJ45)	EIA/TIA568A	Connector 2 (RJ45)	EIA/TIA568B
PIN 1	White/Green	PIN 1	White/Orange
PIN 2	Green	PIN 2	Orange
PIN 3	White/Orange	PIN 3	White/Green
PIN 4	Blue	PIN 4	Blue
PIN 5	White/Blue	PIN 5	White/Blue
PIN 6	Orange	PIN 6	Green
PIN 7	White/Brown	PIN 7	White/Brown
PIN 8	Brown	PIN 8	Brown

Figure 3-6 shows the crossover cable wiring.

Figure 3-6 Crossover cable wiring

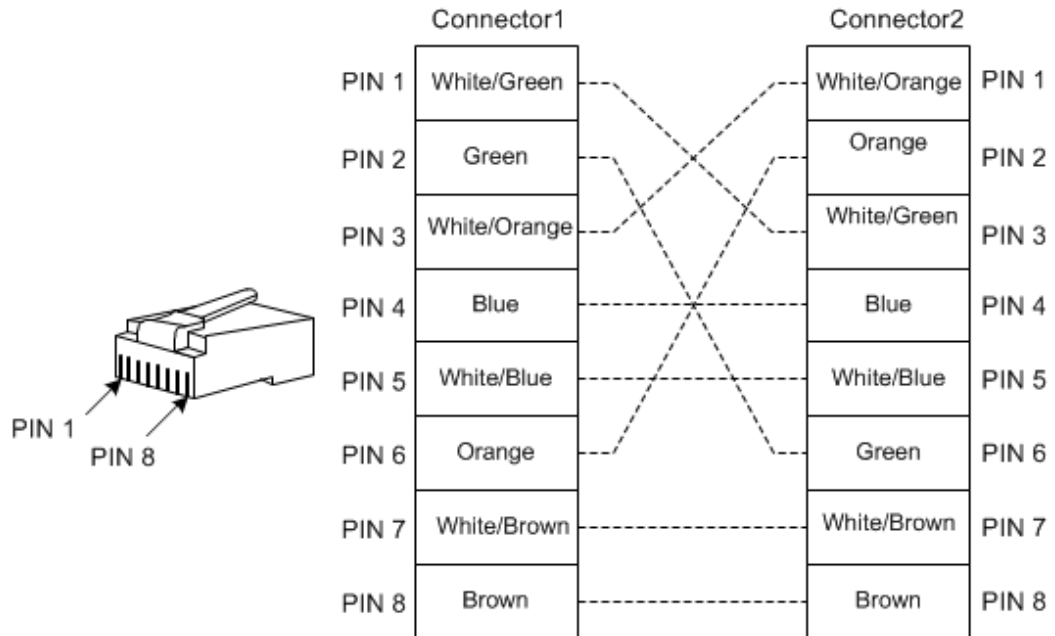


Table 3-6 lists technical specifications of the Ethernet cable.

Table 3-6 Technical specifications of the Ethernet cable

Item	Description
Name	CBL-ETH-RJ45/RJ45-D
Color	Dark gray
Model	UTP-3, UTP-5, or STP
Connector	RJ45
Number of cores	8
Length	The letter D indicates the length, which can be customized. For example, if the customer requires 2-meter cables, they are named CBL-ETH-RJ45/RJ45-2m/RoHS.

3.3 Configuration cable

The configuration cable is used to connect the Console interface of the ISCOM5508-GP and the RS-232 serial interface of the maintenance console, and transmit configuration data signals. The maintenance console troubleshoots and maintains the ISCOM5508-GP through the Console interface.

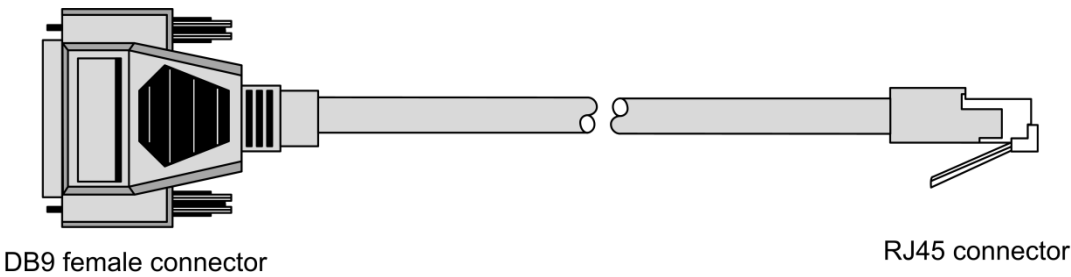
The configuration cable is a 4-core UTP cable. Connectors at the two ends are:

- RJ45 connector: connect the Console interface of the ISCOM5508-GP.
- DB9 female connector: connect the RS-232 serial interface of the maintenance console.

3.3.1 Appearance

Figure 3-7 shows the appearance of the configuration cable.

Figure 3-7 Configuration cable



3.3.2 Wiring

Figure 3-8 shows the PINs and wiring of the RS-232 serial interface and RJ45 Ethernet interface.

Figure 3-8 PINs and wiring

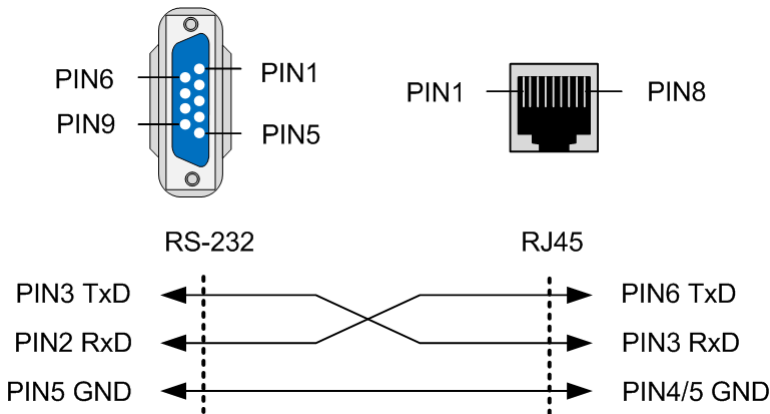


Table 3-7 lists PINs of the RS-232 interface.

Table 3-7 PINs of the RS-232 interface

PIN	Function	PIN	Function
PIN 1	DCD	PIN 6	DSR
PIN 2	RxD	PIN 7	RTS
PIN 3	TxD	PIN 8	CTS
PIN 4	DTR	PIN 9	RI
PIN 5	GND	—	—

Table 3-8 lists PINs of the RJ45 Ethernet interface.

Table 3-8 PINs of the RJ45 Ethernet interface

PIN	Function	PIN	Function
PIN 1	NC	PIN 5	GND
PIN 2	NC	PIN 6	TxD
PIN 3	RxD	PIN 7	NC
PIN 4	GND	PIN 8	NC

3.4 DC power cable

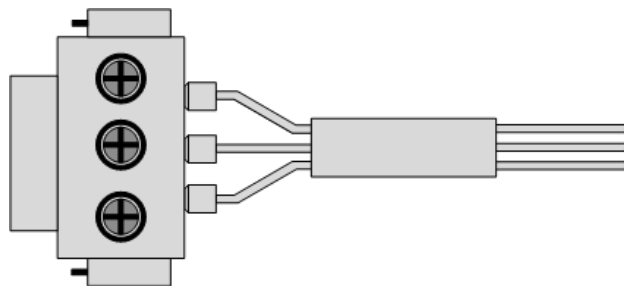
3.4.1 Introduction

The DC power cable supplies -48 VDC power from the power sourcing equipment to the power interface on the RPD0601 module of the ISCOM5508-GP, and then transmits power to the entire device.

3.4.2 Appearance

The DC power cable is composed of the DC power connector and coaxial cable, as shown in Figure 3-9.

Figure 3-9 DC power cable



3.4.3 Technical specifications

Table 3-9 lists technical specifications of the DC power cable.

Table 3-9 Technical specifications of the DC power cable

Item	Description
Name	POL-DC-unstripped/stripped-1.0mm ² -D/RoHS
Connector	DC connector-3Pin-head/UL/RoHS
Model	Copper core multi-strand power cable (1.0 mm ²)

Item	Description
Length	The letter D indicates the length, which is customized. For example, if the customer requires a 3-meter cable, it is named POL-DC-unstripped/stripped-1.0 mm ² -3m/RoHS.

3.5 AC power cable

3.5.1 Introduction

The AC power cable supplies 110/220 VAC power from the power sourcing equipment to the power interface on the RPA0601 module of the ISCOM5508-GP, and then transmits power to the entire device.

Types of the AC power cable of the ISCOM5508-GP depend on different regional standards, as shown in Table 3-10.

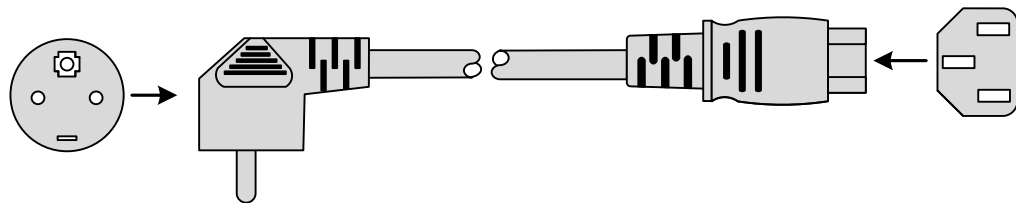
Table 3-10 AC power cable

Regional standard	Name
European standard	POL-AC-European 3-pin/C13-0.75 mm ² -D/RoHS
American standard	POL-AC-American 3-pin/C13-18AWG-D/RoHS

3.5.2 Appearance

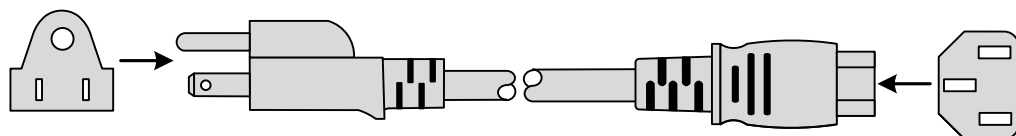
The AC power cable which meets European standard is composed of a European French mode 3-pin plug and a C13 connector, as shown in Figure 3-10.

Figure 3-10 European AC power cable



The AC power cable which meets American standard is composed of an American 3-pin plug and a C13 connector, as shown in Figure 3-11.

Figure 3-11 American AC power cable



3.5.3 Technical specifications

Table 3-11 lists technical specifications of the European AC power cable.

Table 3-11 Technical specifications of the European AC power cable

Item		Description
Name		POL-AC-European 3-pin/C13-0.75 mm ² -D/RoHS
Connector 1		European 3-pin plug
Connector 2		IEC60320-C13
Cable color	Inner	Black (PVC insulating layer)
	Outer	Blue (N), brown (L), and yellow/green strip (E)
Conductor gauge		3 × 0.75 mm ²
Length		The letter D indicates the length, which can be customized. For example, if the customer requires 1.5-meter cables, they are named POL-AC-European 3-pin/C13 connector-0.75 mm ² -1.5 m/RoHS.

Table 3-12 lists technical specifications of the American AC power cable.

Table 3-12 Technical specifications of the American AC power cable

Item		Description
Name		POL-AC-American 3-pin/C13-18AWG-D/RoHS
Connector 1		NMEA5-15 American 3-pin plug
Connector 2		IEC60320-C13
Cable color	Inner	Black (PVC insulating layer)
	Outer	White (N), black (L), and yellow strip (E)
Conductor gauge		18 AWG/3C
Length		The letter D indicates the length, which can be customized. For example, if the customer requires 1.5-meter cables, they are named POL-AC-American 3-pin/C13 connector-18AWG-1.5m/RoHS.

3.6 Ground cable



Connecting the ground cable properly is an important guarantee for lightning protection, anti-electric shock, and anti-interference. The ISCOM5508-GP must be connected to the ground cable correctly during installation, which helps avoid personal injury and equipment damage.

3.6.1 Introduction

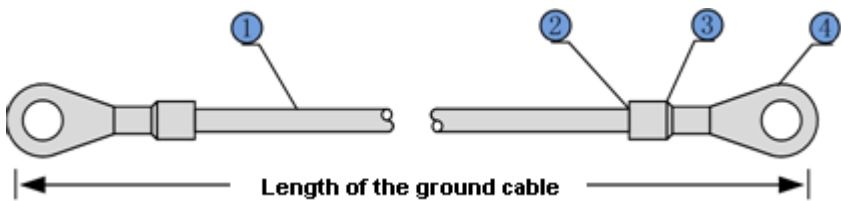
The ground cable is used to ground the ISCOM5508-GP.

3.6.2 Appearance

The ground cable is composed of the ground terminal and conductive wire. In general, ground terminals are OT bare-pressure terminals; and the conductive wire is a yellow/green copper soft flame-retardant conducting wire.

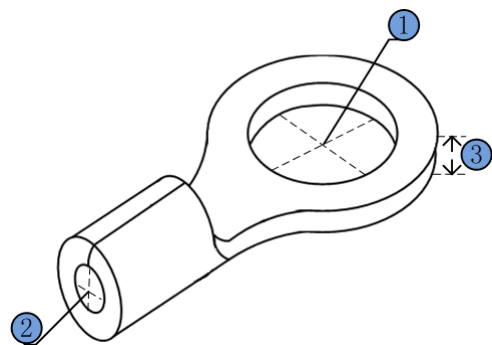
Figure 3-12 and Figure 3-13 shows the ground cable and OT terminal respectively.

Figure 3-12 Ground cable



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

Figure 3-13 OT terminal



1	Inner diameter of soldering lug	2	Inner diameter of sheath	3	Thickness of soldering terminal
---	---------------------------------	---	--------------------------	---	---------------------------------

3.6.3 Technical specifications

Table 3-13 lists technical specifications of the ground cable.

Table 3-13 Technical specifications of the ground cable

Item	Description
Model	PIL-ground cable-Φ4-D/RoHS
Standard	Comply with the UL standard and meet RoHS requirements.
Conducting wire	Yellow/Green multi-strand copper-core conducting wire 16 AWG (1.25 mm ²) Electronic wire UL1007 or UL1015 is used.
Stripped end	10 mm long and plated with tin
Insulating sheath	3.5/1.75 black heat-shrink tubing, which is a 20 mm plastic tube and shrinks when heated
Welding technology	The conducting wire and OT terminals adopt solderless pressed connection.
Error in length of conducting wire	±5 mm



Note

The letter D in the model indicates the length, which is customized. For example, if the customer requires 2-meter cables, they are named PIL-ground cable-Φ4-2m/RoHS.

Table 3-14 lists technical specifications of the OT terminal.

Table 3-14 Technical specifications of the OT terminal

Item	Description
Model	Protective grounding round pressed terminal (M4)
Standard	JB2436-78
Specifications	• 4.3 soldering terminal • Inner diameter of soldering lug: 4 mm • Outer diameter of soldering lug: ≤ 8 mm • Inner diameter of sheath: 2.1 mm • Thickness of soldering lug: ≥ 0.6 mm
Section area of conducting wire	17–15 AWG (1.2–1.5 mm ²)



Note

- The ISCOM5508-GP is delivered without the ground cable. If required, prepare or make ground cables on site.
- The ground cable cannot be longer than 30 m and should be as short as possible; otherwise, a ground bar should be used.

4 Pluggable optical modules

This chapter describes pluggable optical modules (Raisecom SFP modules are recommended) that could be used by the ISCOM5508-GP, including the following sections:

- 1000 Mbit/s SFP optical module
- 10 Gbit/s SFP+ optical module
- PON SFP optical module

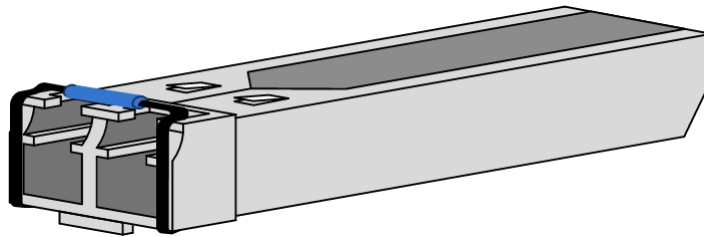
4.1 1000 Mbit/s SFP optical module

4.1.1 Functions and appearance

The 1000 Mbit/s Small Form-factor Pluggables (SFP) optical module is applicable to the 1000 Mbit/s telecommunication or data communication networks. It is integrated with sending and receiving features.

Figure 4-1 shows the appearance of the 1000 Mbit/s SFP optical module.

Figure 4-1 1000 Mbit/s SFP optical module



4.1.2 Label

There is a label on the bottom of the SFP optical module, which describes the model of the SFP optical module, as shown in Figure 4-2.

Figure 4-2 Label of the 1000 Mbit/s SFP optical module

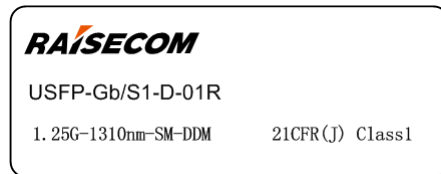


Table 4-1 describes the model of the 1000 Mbit/s SFP optical module.

Table 4-1 Model of the 1000 Mbit/s SFP optical module

Field	Description
USFP	Internal identifier, indicating it is a universal SFP
Gb	Transmission rate: 1.25 Gbit/s
S1	Transmission distance: • M: 0.55 km • S1: 15 km • S2: 40 km • S3:80 km
D	Support DDM.
01	Internal identifier, different values of which indicate the same function
R	Comply with RoHS.
1310nm	Tx wavelength: 1310 nm
SM	Single-mode fiber
DDM	Support link detection.
21CFR (J)	Comply with U.S. DHHS 21CFR (J).
Class1	Comply with class 1 laser safety.

4.1.3 Technical specifications

Table 4-2 lists technical specifications of the 1000BASE-X SFP optical interface.

Table 4-2 Technical specifications of the 1000BASE-X SFP optical interface

Item	Description
Connector	LC/PC
Optical interface properties	Depend on the SFP optical module.
Working mode	Full duplex
Compliant standard	IEEE 802.3
Supported network protocol	IP

Table 4-3 lists technical specifications of the 1000BASE-X SFP optical module.

Table 4-3 Technical specifications of the 1000BASE-X SFP optical module

Model	Tx wavelength (nm) Interface type	Mode	Tx optical power (dBm)	Min. overload point (dBm)	Extinction ratio (dB)	Rx sensitivity (dBm)	Transmission distance (km)
USFP-Gb/M-D-R	850 (LC/PC)	Dual fiber multi-mode	-9.5 to -3	0	9	-17	0.55
USFP-Gb/S1-D-R	1310 (LC/PC)	Dual fiber single-mode	-10 to -3	-3	9	-21	15
USFP-Gb/S2-D-R	1550 (LC/PC)	Dual fiber single-mode	-3 to 2	-3	9	-21	40
USFP-Gb/S3-D-R	1550 (LC/PC)	Dual fiber single-mode	-3 to 2	-9	9	-30	80

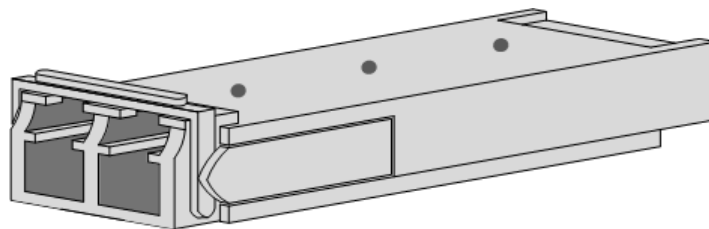
4.2 10 Gbit/s SFP+ optical module

4.2.1 Functions and appearance

The SFP+ optical module can be applied to 10Gbit/s telecommunication or data communication networks. It is integrated with sending and receiving features.

Figure 4-3 shows the appearance of the SFP+ optical module.

Figure 4-3 SFP+ optical module



The 10GE service interface on the ISCOM5508-GP supports the optical module of the following types:

- 10GBASE-SX
- 10GBASE-LX

4.2.2 Technical specifications

Table 4-4 lists technical specifications of the SFP+ optical interface.

Table 4-4 Technical specifications of the SFP+ optical interface

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

Table 4-5 lists technical specifications of the SFP+ optical module.

Table 4-5 Technical specifications of the SFP+ optical module

Model	Tx wavelength (nm) Laser type	Rx laser	Tx optical power (dBm)	Min. overload point (dBm)	Extinction ratio (dB)	Rx sensitivity (dBm)	Transmission distance (km)
USFP+-192/M	850 (VCSEL)	PIN	-8.2 to 1	1	4.5	-11.1	0.3
USFP+-192/S1	1310 (DFB)	PIN	-8.2 to 1	1	4.5	-14.4	10

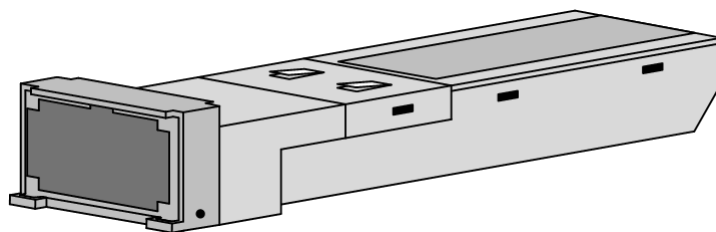
4.3 PON SFP optical module

4.3.1 Functions and appearance

The PON SFP optical module can be applied to the PON system. It is integrated with sending and receiving features.

Figure 4-4 shows the appearance of the PON SFP optical module.

Figure 4-4 PON SFP optical module



4.3.2 Standard

The GPON interface on the ISCOM5508-GP supports the optical module compliant with the Class B+ and Class C+ standard.

4.3.3 Technical specifications

Table 4-6 lists technical specifications of the Class B+ optical module.

Table 4-6 Technical specifications of the Class B+ optical module

Item	Description
Model	GSFP-CLBDM-R
Transmission rate	• Tx: 2.5 Gbit/s • Rx: 1.25 Gbit/s
Interface type	SC/PC
Max. transmission distance	20 km
Fiber mode	Single-mode fiber
Central wavelength (Laser type)	• Tx: 1490 nm (DFB) • Rx: 1310 nm (APD/TIA)
Tx optical power	1.5–5 dBm
Extinction ratio	8.2 dB
Rx sensitivity	-28 dBm
Minimum overload point	-8 dBm

Table 4-7 lists technical specifications of the Class C+ optical module.

Table 4-7 Technical specifications of the Class C+ optical module

Item	Description
Model	GSFP-CLCDM-R
Transmission rate	• Tx: 2.5 Gbit/s • Rx: 1.25 Gbit/s
Interface type	SC/PC
Max. transmission distance	60 km
Fiber mode	Single-mode fiber
Central wavelength (Laser type)	• Tx: 1490 nm (DFB) • Rx: 1310 nm (APD/TIA)
Tx optical power	3–7 dBm
Extinction ratio	8.2 dB
Rx sensitivity	-30 dBm
Minimum overload point	-12 dBm

5

Lookup table of LEDs

Table 5-1 lists LEDs of the ISCOM5508-GP.

Table 5-1 LEDs of the ISCOM5508-GP

LED	Status	Description
PWR	Green	Power LED • Green: the power supply is working properly. • Off: the power supply is working improperly.
SYS	Green	System working LED • Fast blinking green (4 Hz): the system is initializing. • Slow blinking green (0.5 Hz): the system is working properly. • Off: the system is working improperly.
LINK/ACT 1/2/3/4 (SFP optical interface)	Green	Line working LED • Green: the interface is connected properly. • Blinking green: the interface is transmitting data. • Off: the interface is disconnected or connected improperly.
LINK/ACT 1/2 (RJ45 electrical interface integrated LED)	Green	Line working LED • Green: the interface is connected properly. • Blinking green: the interface is transmitting data. • Off: the interface is disconnected or connected improperly.
1000M (RJ45 electrical interface integrated LED)	Yellow	Electrical interface working rate LED • Yellow: the electrical interface is working at 1000 Mbit/s. • Off: the electrical interface is working at 100 Mbit/s.
LNK 1/2/3/4	Green	PON interface working LED • Green: the PON interface is connected properly and there is a registered ONU working on the interface. • Off: the PON interface is disconnected or there is no registered ONU working on the interface.

LED	Status	Description
ALM	Red	Power alarm LED • Red: the power is working improperly and an alarm is generated. • Off: the power is working properly.
AC	Green	AC power working LED • Green: the power module is working properly. • Off: the power module is working improperly.
DC	Green	DC power working LED • Green: the power module is working properly. • Off: the power module is working improperly.
RUN	Red/Green	Power working LED • Red: the subcard is working properly. • Green: the subcard is working improperly.

6

Lookup table of weight and power consumption

Table 6-1 lists weight and power consumption of the ISCOM5508-GP.

Table 6-1 Weight and power consumption of the ISCOM5508-GP

Component		Parameter
Weight	Standard configuration	• DC: 5.0 kg • AC: 5.3 kg
	Full configuration	• DC: 5.6 kg • AC: 5.9 kg
Maximum power consumption	Standard configuration	• DC: 41 W • AC: 44 W
	Full configuration	• DC: 76 W • AC: 80 W
GPSC	Weight	0.64 kg
	Power consumption	< 34.5 W
GP4A	Weight	0.37 kg
	Power consumption	< 14.5 W
GE4B	Weight	0.23 kg
	Power consumption	< 4 W
RPA1101	Weight	0.61 kg
	Power consumption	• Zero-load power consumption: < 5 W • Output power consumption: 100 W
RPD1101	Weight	0.49 kg
	Power consumption	• Zero-load power consumption: < 5 W • Output power consumption: 100 W
FANS306	Weight	0.3 kg
	Power consumption	< 3 W



Note

- Standard configuration: chassis, main control switching card (GPSC), 2 power modules, and 1 fan module.
- Full configuration: chassis, main control switching card (GPSC), 2 extended subcards, 2 power modules, and 1 fan module.

7 Appendix

This chapter lists terms, acronyms, and abbreviations involved in this document.

- Terms
- Acronyms and abbreviations

7.1 Terms

1U	Unit of dimension, short for unit. It takes 44.45 mm as basic unit, namely, 1 U = 44.45 mm
B	
Bracket	Small parts at the side of chassis, being used to install the chassis into the cabinet
E	
ETSI 600 cabinet	Cabinet with width of 600 mm, depth of 600 mm, compliant with the ETSI standard
F	
Full duplex	In a communication link, both parties can receive and send data concurrently.
G	
Ground cable	Cable to connect device to ground, usually a yellow/green coaxial cable
I	

IEEE	American Institution of Electrical and Electronic Engineers
ITU-T	International Telecommunication Union Telecommunication Standardization Sector
L	
Label	Signs for cable, chassis, and warnings
Laser security level	4 security levels for laser products in usual. Level 1 indicates the safest laser, power of which is usually limited at 1mW. It will neither cause fire nor generate harmful radiation under normal conditions.
M	
Multi-mode fiber	In this fiber, multi-mode optical signals are transmitted.
P	
PWE3	Pseudo-Wire Emulation Edge to Edge
R	
RS232	In synchronization transfer mode, no handshaking signals, able to communicate with RS232 or RS422 devices point to point, in transparent transmission, with a maximum rate of 19.2 Kbit/s
S	
Self-adaption	The Ethernet interface chooses the rate and duplex mode according to the result of auto-negotiation.
Single-mode fiber	In this fiber, single-mode optical signals are transmitted.

7.2 Acronyms and abbreviations

A	
AWG	American Wire Gauge
ACL	Access Control List
B	
BPDU	Bridge Protocol Data Unit

C

CFM Connectivity Fault Management

E

ESD Electro Static Discharge

ETSI European Telecommunications Standards Institute

L

LLDP Link Layer Discovery Protocol

M

MPLS Multi-protocol label switching

O

ODF Optical Distribution Frame

OAM Operation Administration and Maintenance

P

PTN Packet Transport Network

PTP Precision Time Protocol

Q

QoS Quality of Service

R

RH Relative Humidity

S

SLA Service-Level Agreement

U

UPS Uninterruptible Power Supply

