



Hillstone SG-6000 E-Series Hardware Reference Guide

www.hillstonenet.com
TWNO: TW-HW-ES-EN-V5.4-Y20M05

Name and Concentration of Toxic or Hazardous Substances and Elements in Products

Component	Toxic or hazardous substances and elements					
	Lead	Mercury	Cadmium	Cr6+	PBB	PDBE
Metal parts (including fasteners)	X	O	O	O	O	O
Printed circuit board assemblies and components	X	O	O	O	O	O
Cables and cable assemblies	X	O	O	O	O	O
Plastics and Polymers	X	O	O	O	X	X
Electric components other than circuit boards	X	O	O	O	O	O

O: Indicates that this toxic or hazardous substance in the material is below the limit requirement defined in *Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products (SJ/T11363-2006)* issued by Ministry of Information Industry of PRC.

X: Indicates that this toxic or hazardous substance in the material exceeds the limit requirement specified in *Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products (SJ/T11363-2006)* issued by Ministry of Information Industry of PRC.

Note: Not all components in the table are included in one product.



This symbol indicates the environment friendly use period of all products and components. The period applies only to the normal operation conditions specified in this guide.

Preface

About This Guide

Thanks for choosing the network security products from Hillstone Networks.

This document is an installation guide for Hillstone devices to help you install the Hillstone device properly.

This guide includes the following chapters:

- ◆ Chapter 1. Introduction
- ◆ Chapter 2. Installation Preparations
- ◆ Chapter 3. Installation
- ◆ Chapter 4. Boot and Configuration
- ◆ Chapter 5. Hardware Maintenance and Replacement
- ◆ Chapter 6. Troubleshooting
- ◆ Appendix: Supported Versions of Devices
- ◆ Addendum FCC Statement

Document Conventions

This guide uses the following conventions for your convenience to read and understand:

- ◆ **Warning:** Indicates improper operation that may cause serious damage to equipment or injury to operators. Thus, operators must strictly follow the operation rules.
- ◆ **Caution:** Indicates incorrect operation that may affect the normal use of the equipment. Operators should be careful.
- ◆ **Note:** Indicates information that may help readers understand the content.

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Chapter 1 Introduction

Overview

Hillstone SG-6000 series product models include SG-6000-E6368,SG-6000-E6360, SG-6000-E6168,SG-6000-E6160, SG-6000-E5960, SG-6000-E5760, SG-6000-E5568, SG-6000-E5660, SG-6000-E5268,SG-6000-E5260, SG-6000-E5168,SG-6000-E3965, SG-6000-E3968, SG-6000-E3960, SG-6000-E3668, SG-6000-E3662, SG-6000-E3660, SG-6000-E2868, SG-6000-E2860, SG-6000-E2800, SG-6000-E2300, SG-6000-E1700, SG-6000-E1606, SG-6000-E1600, SG-6000-E1100 (WLAN version), SG-6000-E1100 (4G version), and SG-6000-E1100 (WLAN+4G version).

SG-6000-E6368, SG-6000-E6360, SG-6000-E6168,SG-6000-E6160, SG-6000-E5960, SG-6000-E5760, SG-6000-E5568, SG-6000-E5660, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168, SG-6000-E3965, SG-6000-E3968,SG-6000-E3960, SG-6000-E3668, SG-6000-E3662, SG-6000-E3660, SG-6000-E2868 and SG-6000-E2860 adopt modular design of hot-swappable circuit boards. For more information about extensible modules, please see *Hillstone SG-6000 M_G_E Series Expansion Modules Reference Guide*.

For the supported versions of the devices, refer to [Supported Versions of Devices](#)

Hardware Overview

Hillstone devices are designed to fit in standard 19-inch cabinets/racks. A device can be installed in a cabinet/rack or placed on a workbench.

Front Panel

The front panel of SG-6000-E6368 and SG-6000-E6360 consists of 2 Gigabit Ethernet ports, 8 SFP+ ports, 2 QSFP+ports, 1 USB port, 1 HA port, 1 Management port, 1 Console port, 1 Auxiliary port, 1 CLR button, 1 Bypass expansion slot and several LED indicators.

Figure 1-1: SG-6000-E6360 Front Panel

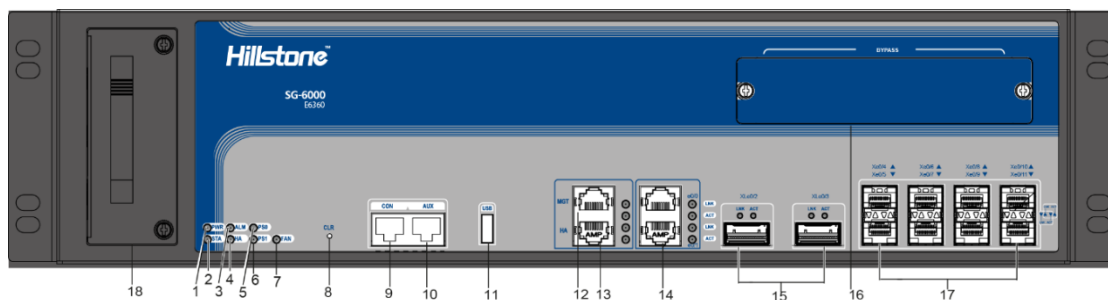


Table 1-1: SG-6000-E6360 Front Panel Description

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	7	FAN: Fan LED	13	HA: HA port
2	STA: Status LED	8	CLR: CLR button	14	e0/0 - e0/1: Gigabit Ethernet ports
3	ALM: Alarm LED	9	CON: Console port	15	XLe0/2-XLe0/3: QSFP+ ports
4	HA: HA status LED	10	AUX: Auxiliary port	16	Bypass expansion slot
5	PS0: Power supply PS0 LED	11	USB: USB port	17	Xe0/4-Xe0/11: SFP+ ports
6	PS1: Power supply PS1 LED	12	MGT: Management port	18	Fan tray

The front panel of SG-6000-E6168 and SG-6000-E6160 consists of 2 Gigabit Ethernet ports, 8 SFP+ ports, 1 USB port, 1 HA port, 1 Management port, 1 Console port, 1 Auxiliary port, 1 CLR button, 1 Bypass expansion slot and several LED indicators.

Figure 1-2: SG-6000-E6160 Front Panel

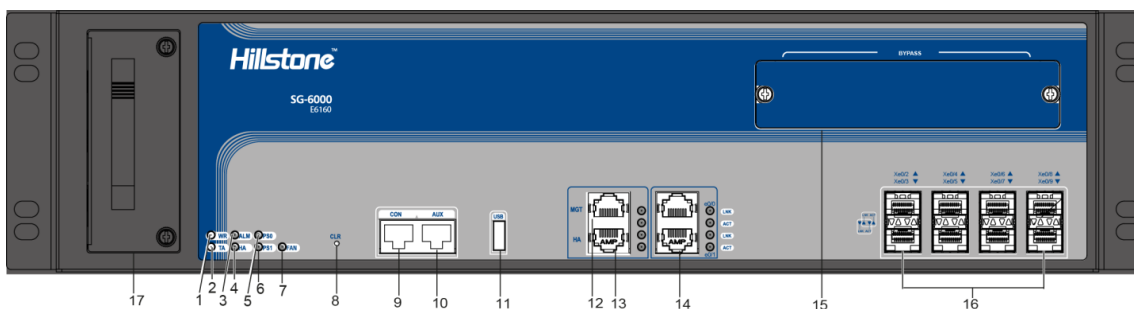


Table 1-2: SG-6000-E6160 Front Panel Description

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	7	FAN: Fan LED	13	HA: HA port
2	STA: Status LED	8	CLR: CLR button	14	e0/0 - e0/1: Gigabit Ethernet ports
3	ALM: Alarm LED	9	CON: Console port	15	Bypass expansion slot
4	HA: HA status LED	10	AUX: Auxiliary port	16	Xe0/2-Xe0/9: SFP+ ports
5	PS0: Power supply PS0 LED	11	USB: USB port	17	Fan tray
6	PS1: Power supply PS1 LED	12	MGT: Management port	18	

SG-6000-E5960, SG-6000-E5760 and SG-600-E5660 have the same front panel. The front panel consist of 4 Gigabit Ethernet ports, 4 SFP ports, 1 USB port, 1 HA port, 1 Management port, 1 Console port, 1 Auxiliary port, 1 CLR button, 4 general expansion slots and several LED indicators. The standard power supply for SG-6000-E5960/E5760 is dual power supplies, and the product with single power supply is also available.

Figure 1-3: SG-6000-E5960 Front Panel

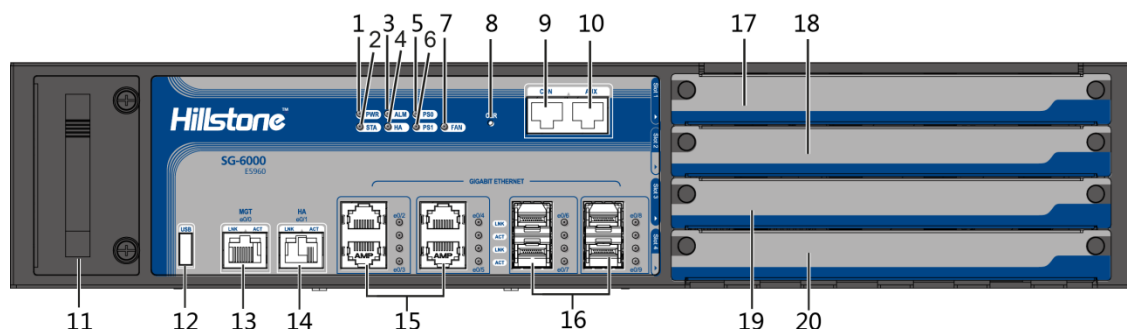


Table 1-3: SG-6000-E5960 Front Panel Description

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	8	CLR: CLR button	15	e0/2 - e0/5: Gigabit Ethernet ports
2	STA: Status LED	9	CON: Console port	16	e0/6 - e0/9: SFP ports
3	ALM: Alarm LED	10	AUX: Auxiliary port	17	Slot 1: General expansion slot
4	HA: HA status LED	11	Fan tray	18	Slot 2: General expansion slot (not for storage expansion module)
5	PS0: Power supply PS0 LED	12	USB: USB port	19	Slot 3: General expansion slot (not for storage expansion module)
6	PS1: Power supply PS1 LED	13	MGT (e0/0): Management port	20	Slot 4: General expansion slot (not for storage expansion module)
7	FAN: Fan LED	14	HA (e0/1): HA port	-	-

SG-6000-E5568, SG-6000-E5560, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168 and SG-6000-E3965 have the same front panel. The front panel consists of 4 Gigabit Ethernet ports, 4 SFP ports, 2 SFP+ ports, 1 USB port, 1 Console port, 1 Auxiliary port, 1 Management port, 1 HA port, 1 CLR button, 4 general expansion slots, 1 fan tray, and some LED indicators.

Figure 1-4: SG-6000-E5560 Front Panel

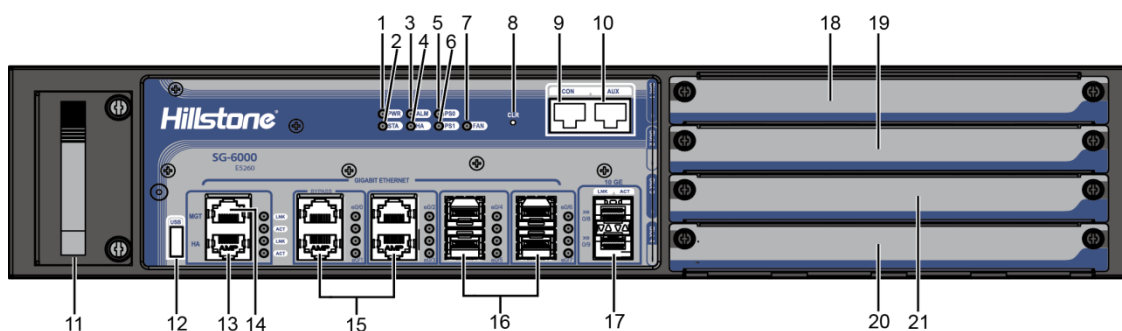


Table 1-4: SG-6000-E5560 Front Panel Description

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	8	CLR: CLR button	15	e0/ - e0/3: Gigabit Ethernet ports (e0/2 and e0/3 support the Bypass function)
2	STA: Status LED	9	CON: Console port	16	e0/4 - e0/7: SFP ports
3	ALM: Alarm LED	10	AUX: Auxiliary port	17	xe08 - xe09: SFP+ ports
4	HA: HA status LED	11	Fan tray	18	Slot 1: General expansion slot
5	PS0: Power supply PS0 LED	12	USB: USB port	19	Slot 2: General expansion slot (not for storage expansion module)
6	PS1: Power supply PS1 LED	13	HA: HA port	20	Slot 3: General expansion slot (not for storage expansion module)
7	FAN: Fan LED	14	MGT: Management port	21	Slot 4: General expansion slot (not for storage expansion module)

The front panel of SG-6000-E3968 and SG-6000-E3960 consists of 6 Gigabit Ethernet ports, 4 SFP ports, 2 SFP+ ports, 1 USB port, 1 Console port, 1 Auxiliary port, 1 Management port, 1 HA port, 1 CLR button, 2 general expansion slots and several LED indicators.

Figure 1-5: Front Panel of SG-6000-E3960

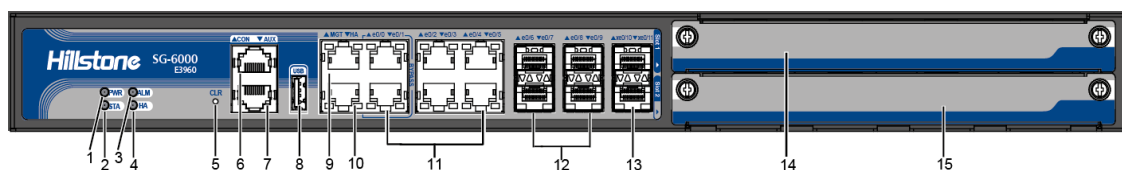


Table 1-5: SG-6000-E3960 Front Panel Description

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	6	CON: Console port	11	e0/0 - e0/5: Gigabit Ethernet ports (e0/0 and e0/1 supports the Bypass function)
2	STA: Status LED	7	AUX: Auxiliary port	12	e0/6 - e0/9: SFP ports
3	ALM: Alarm LED	8	USB: USB port	13	xe0/10 - xe0/11: SFP+ ports
4	HA:HA status LED	9	MGT: Management port	14	Slot 1: General expansion slot
5	CLR: CLR button	10	HA: HA port	15	Slot 2: General expansion slot (not for storage expansion module)

SG-6000-E3668, SG-6000-E3662, SG-6000-E3660, SG-6000-E2868 and SG-6000-E2860 have the same front panel. The front panel consists of 6 Gigabit Ethernet ports, 4 SFP ports, 1 USB port, 1 Console port, 1 Auxiliary port, 1 Management port, 1 HA port, 1 CLR button, 2 general expansion slots and several LED indicators.

Figure 1-6: Front Panel of SG-6000-E3662

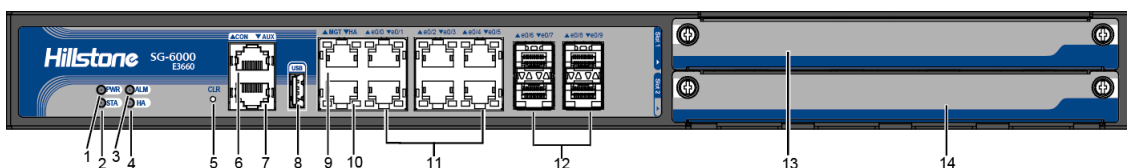


Table 1-6: SG-6000-E3662 Front Panel Description

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	6	CON: Console port	11	e0/0 - e0/5: Gigabit Ethernet ports
2	STA: Status LED	7	AUX: Auxiliary port	12	e0/6 - e0/9: SFP ports
3	ALM: Alarm LED	8	USB: USB port	13	Slot 1: General expansion slot
4	HA: HA status LED	9	MGT: Management port	14	Slot 2: General expansion slot (not for storage expansion module)
5	CLR: CLR button	10	HA: HA port	-	-

SG-6000-E2800 and SG-6000-E2300 have the same front panel. The front panel consists of 5 Gigabit Ethernet ports, 4 Combo ports (Ethernet port + SFP port), 1 USB port, 1 Console port, 1 CLR button and some LED indicators.

Figure 1-7: Front Panel of SG-6000-E2800

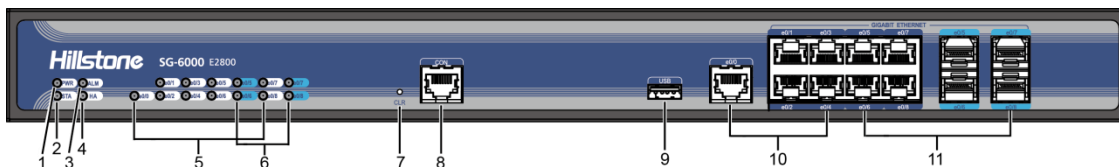


Table 1-7: Front Panel Description of SG-6000-E2800 and SG-6000-E2300

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	5	e0/0 - e0/8: Gigabit Ethernet port status LED	9	USB: USB port
2	STA: Status LED	6	e0/5 - e0/8: SFP interface LED	10	e0/0 - e0/4: Gigabit Ethernet ports
3	ALM: Alarm LED	7	CLR: CLR button	11	e0/0 - e0/4: Combo ports (Ethernet port + SFP port)
4	HA: HA status LED	8	CON: Console port	-	-

SG-6000-E1700 and SG-6000-E1606 have the same front panel. The front panel consists of 9 Gigabit Ethernet ports, 1 USB port, 1 Console port, 1 CLR button and some LED indicators.

Figure 1-8: SG-6000-E1700 Front Panel

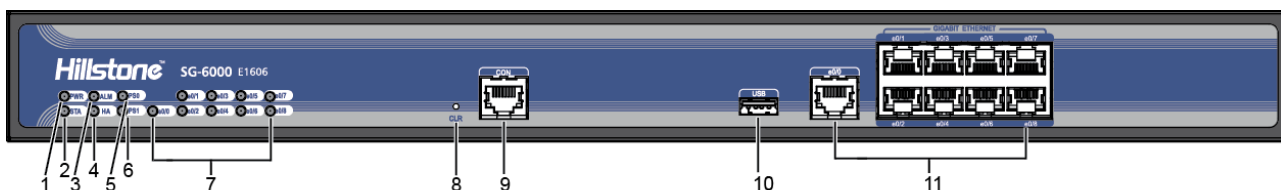


Table 1-8: SG-6000-E1700 Front Panel Description

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	5	PS0: Power supply PS0 LED	9	CON: Console port
2	STA: Status LED	6	PS1: Power supply PS1 LED	10	USB: USB port
3	ALM: Alarm LED	7	e0/0 - e0/8: Gigabit Ethernet port status LED	11	e0/0 - e0/8: Gigabit Ethernet ports
4	HA: HA status LED	8	CLR: CLR button		

The front panel of SG-6000-E1600 consists of some LED indicators.

Figure 1-9: SG-6000-E1600 Front Panel

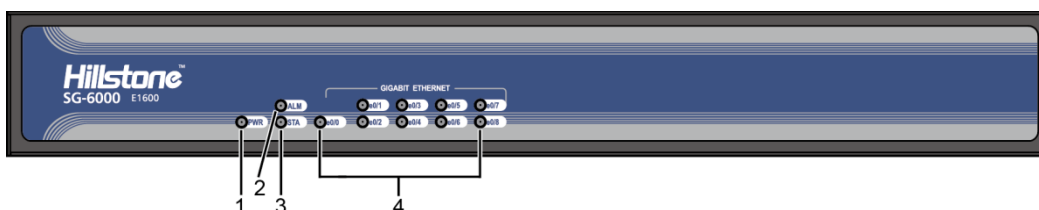


Table 1-9: SG-6000-E1600 Front Panel Description

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	3	STA: Status LED	-	-
2	ALM: Alarm LED	4	e0/0 - e0/8: Gigabit Ethernet port status LED	-	-

The front panel of SG-6000-E1100 (WLAN version) consists of some LED indicators.

Figure 1-10: Front Panel of SG-6000-E1100 (WLAN version)

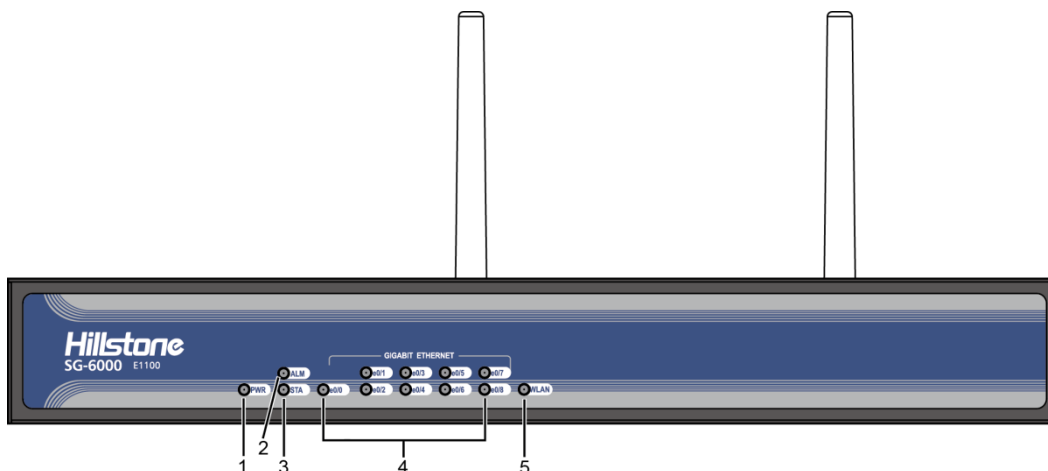


Table 1-10: Front Panel Description of SG-6000-E1100 (WLAN version)

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	3	STA: Status LED	5	WLAN: WLAN LED
2	ALM: Alarm LED	4	e0/0 - e0/8: Gigabit Ethernet port status LED	-	-

The front panel of SG-6000-E1100 (4G version) consists of some LED indicators.

Figure 1-12: Front Panel of SG-6000-E1100 (4G version)

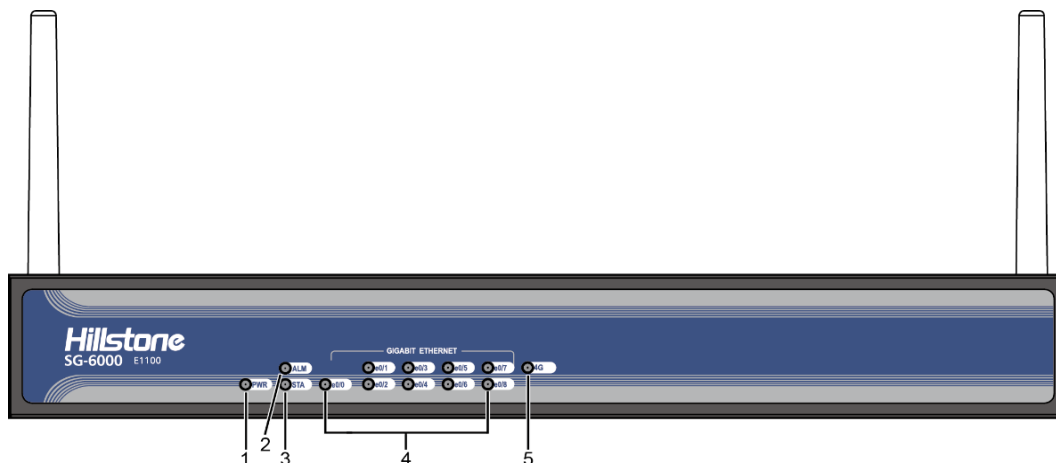


Table 1-12: Front Panel Description of SG-6000-E1100 (4G version)

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	3	STA: Status LED	5	4G: 4G LED
2	ALM: Alarm LED	4	e0/0 - e0/8: Gigabit Ethernet port status LED	-	-

The front panel of SG-6000-E1100 (WLAN+4G version) consists of some LED indicators.

Figure 1-13: Front Panel of SG-6000-E1100 (WLAN+4G version)

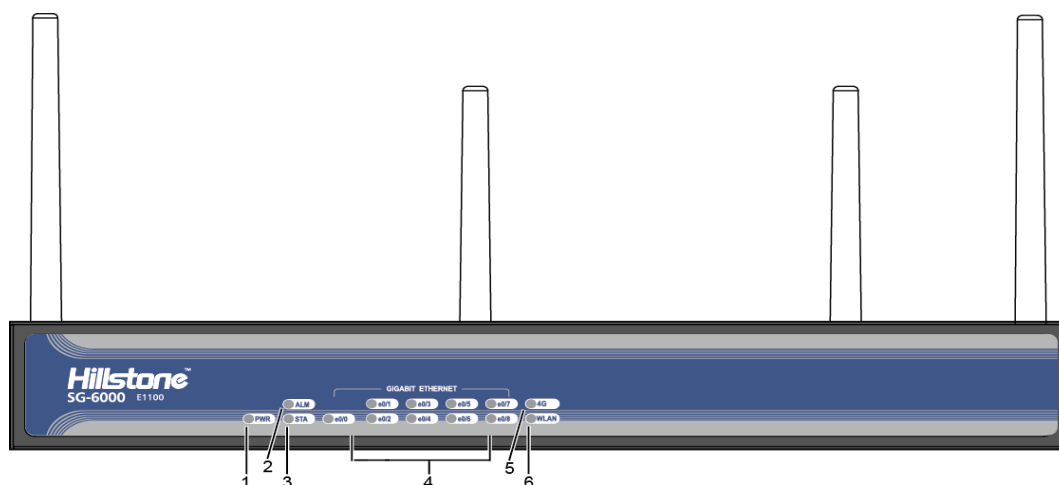


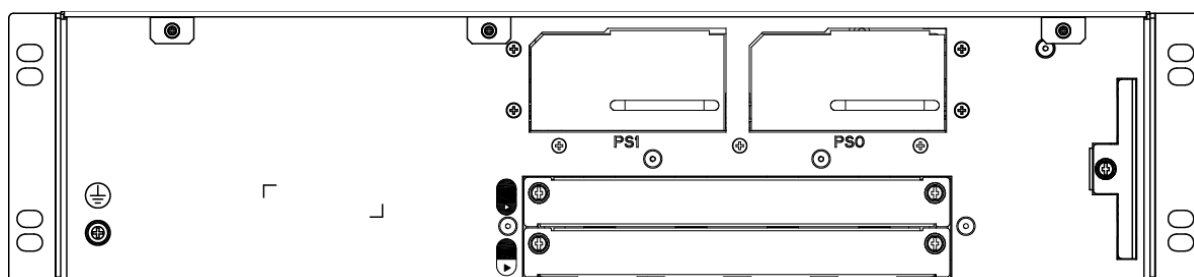
Table 1-13: Front Panel Description of SG-6000-E1100 (WLAN+4G version)

No.	Label	No.	Label	No.	Label
1	PWR: Power LED	3	STA: Status LED	5	4G: 4G LED
2	ALM: Alarm LED	4	e0/0 - e0/8: Gigabit Ethernet port status LED	6	WLAN: WLAN LED

Back Panel

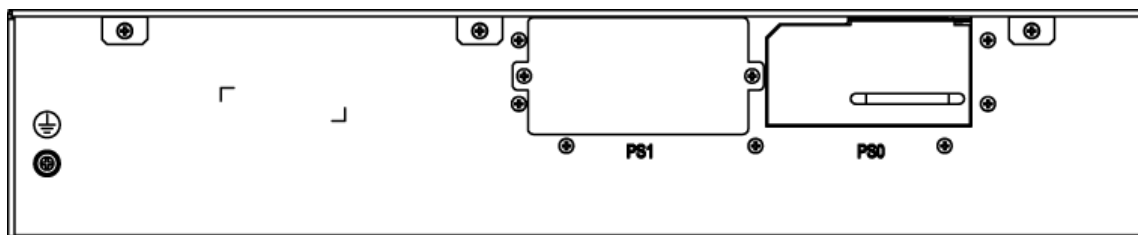
SG-6000-E6368, SG-6000-E6360, SG-6000-E6168 and SG-6000-E6160 have the same back panel layout. The back panel layout of SG-6000-E6368, SG-6000-E6360, SG-6000-E6168 and SG-6000-E6160 consists of 2 power supply sockets, 2 expansion slots, 1 grounding screw and 1 anti-dust mesh.

Figure 1-14: SG-6000-E6360 Back Panel



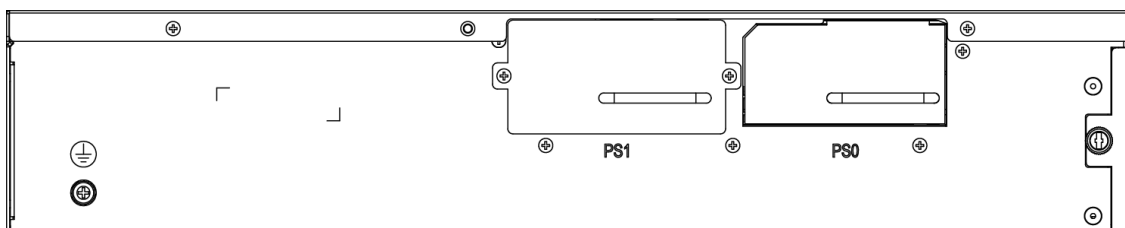
SG-6000-E5960, SG-6000-E5760 and SG-6000-E5660 have the same back panel layout. The back panel layout of SG-6000-E5960/E5760/E5660 consists of 2 power supply sockets, 1 grounding screw. The standard product of SG-6000-E5960/E5760/E5660 adopts dual power supplies and it is also available in single power supply.

Figure 1-15: SG-6000-E5960 Back Panel



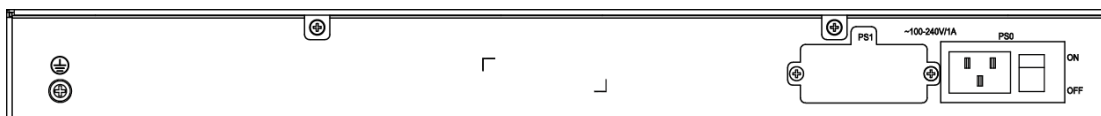
SG-6000-E5568, SG-6000-E5560, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168 and SG-6000-E3965 have the same back panel. The back panel consists of 2 power supply sockets, 1 grounding screw and 1 anti-dust mesh. The standard product of SG-6000- E5568/E5560/E5268/E5260/E5158/E3965 adopts dual power supplies and it is also available in single power supply.

Figure 1-16: SG-6000-E5560 Back Panel



SG-6000-E3968, SG-6000-E3960, SG-6000-E3668, SG-6000-E3662, SG-6000-E3660, SG-6000-E2868, SG-6000-E2860, SG-6000-E2800, SG-6000-E2300, SG-6000-E1700 and SG-6000-E1606 have the same back panel layout. The standard products SG-6000-E2800, SG-6000-E2300, SG-6000-E1700 and SG-6000-E1606 adopt single power supply and they are also available in dual power supplies. The back panel of single power supply product has 1 power supply socket, 1 power supply switch and 1 grounding screw. Figure 1-15 illustrates the back panel of these models.

Figure 1-17: Back Panel of SG-6000-E3960



SG-6000-E1600 uses the power adapter. The back panel of SG-6000-E1600 has 1 power supply socket, 1 Console port, 1 CLR button, 9 Gigabyte Ethernet ports, 1 USB port, 1 grounding screw, and 1 security keyhole.

Figure 1-18: SG-6000-E1600 Back Panel

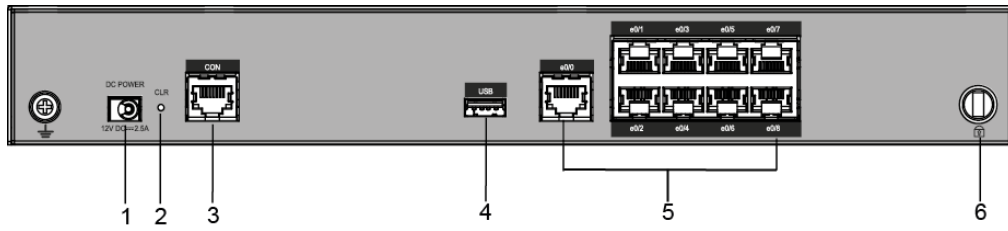


Table 1-14: Back Panel Description of SG-6000-E1600

No.	Label	No.	Label	No.	Label
1	DC POWER: DC power interface	3	CON: Console port	5	e0/0 - e0/8: Gigabit Ethernet port
2	CLR: CLR button	4	USB: USB port	6	Security keyhole

SG-6000-E1100 (WLAN version) uses the power adapter. The back panel of SG-6000-E1100 (WLAN version) has 1 power supply socket, 1 Console port, 1 CLR button, 9 Gigabyte Ethernet ports, 1 USB port, 1 grounding screw, 1 security keyhole, and 2 SMA connectors for WLAN antennas. Figure 1-15 illustrates the back panel of this model.

Figure 1-19: SG-6000-E1100 (WLAN version) Back Panel

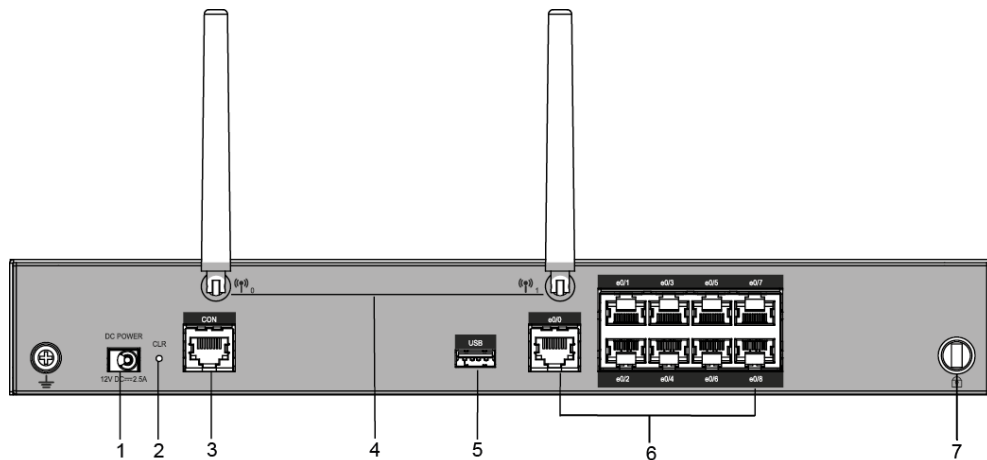


Table 1-15: Back Panel Description of SG-6000-E1100 (WLAN version)

No.	Label	No.	Label	No.	Label
1	DC POWER: DC power interface	4	SMA connectors for WLAN antennas	7	Security keyhole
2	CLR: CLR button	5	USB: USB port	-	-
3	CON: Console port	6	e0/0 - e0/8: Gigabit Ethernet port	-	-

SG-6000-E1100 (4G version) uses the power adapter. The back panel of SG-6000-E1100 (4G version) has 1 power supply socket, 1 Console port, 1 CLR button, 9 Gigabyte Ethernet ports, 1 USB port, 1 grounding screw, 1 security keyhole, and 2 SMA connectors for 4G antennas.

Figure 1-21: SG-6000-E1100 (4G version) Back Panel

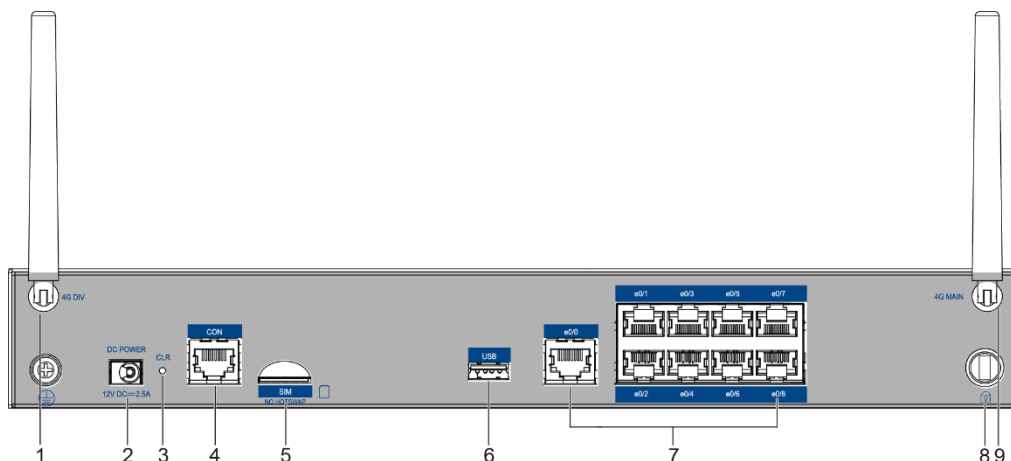


Table 1-17: Back Panel Description of SG-6000-E1100 (4G version)

No.	Label	No.	Label	No.	Label
1	SMA connector for 4G antenna	4	CON: Console port	7	e0/0 - e0/8: Gigabit Ethernet port
2	DC POWER: DC power interface	5	SIM: SIM card slot	8	Security keyhole
3	CLR: CLR button	6	USB: USB port	9	SMA connector for 4G antenna

SG-6000-E1100 (WLAN+4G version) uses the power adapter. The back panel of SG-6000-E1100 (WLAN+4G version) has 1 power supply socket, 1 Console port, 1 CLR button, 9 Gigabyte Ethernet ports, 1 USB port, 1 grounding screw, 1 security keyhole, 2 SMA connectors for 4G antennas, and 2 SMA connectors for WLAN antennas.

Figure 1-22: SG-6000-E1100 (WLAN+4G version) Back Panel

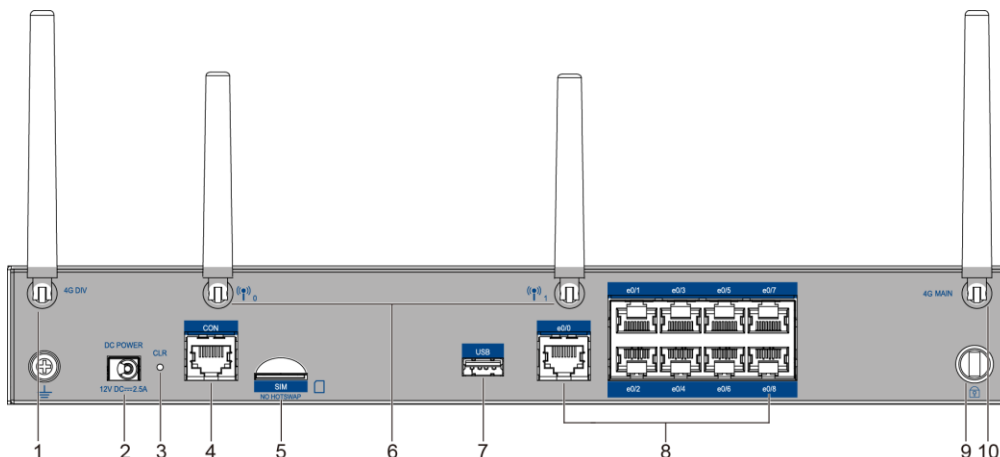


Table 1-18: Back Panel Description of SG-6000-E1100 (WLAN+4G version)

No.	Label	No.	Label	No.	Label
1	SMA connector for 4G antenna	5	SIM: SIM card slot	9	Security keyhole
2	DC POWER: DC power interface	6	SMA connectors for WLAN antennas	10	SMA connector for 4G antenna
3	CLR: CLR button	7	USB: USB port	-	-
4	CON: Console port	8	e0/0 - e0/8: Gigabit Ethernet port	-	-

LED Indicators

The following table describes the meanings of LED indicators on the front panels of Hillstone devices.

Table 1-19: Front Panel LED Descriptions

LED	Color/Status	Description
PWR	Green/Always on	The device power is running normally.
	Orange/Always on	The device power is running abnormally.
	Red/Always on	Power failure so the system is down.
	Off	The device is powered off.
STA	Green/Always on	The system is booting.
	Green/Blinking	The system is running normally.
	Red/Always on	The system has failed to boot or has an error.
ALM	Red/Always on	The system is sending alarm(s).
	Green/Blinking	The system is waiting.
	Orange/Blinking	The system is using a trial license.

	Orange/Always on	The trial license has expired and there is no legitimate license installed in the system.
	Off	The system is running normally.
PS0	Green/Always on	Power Supply PS0 is running normally.
	Orange/Always on	Power Supply PS0 is running normally, but its fan has failed. Change the power supply immediately.
	Off	Power Supply PS0 is powered off or has failed.
PS1	Green/Always on	Power Supply PS1 is running normally.
	Orange/Always on	Power Supply PS1 is running normally, but its fan has failed. Change the power supply immediately.
	Off	Power Supply PS1 is powered off or has failed.
HA	Green/Always on	Not using HA, this device is the master device.
	Green/Blinking	Two devices are in an HA cluster. This device is working as the master.
	Orange/Blinking	Two devices are in an HA cluster. This device is working as the slave.
	Red/Blinking	HA function has failed.
	Off	High Availability is disabled.
FAN	Green/Always on	The cooling system is running normally.
	Orange/Always on	One of the fans has failed, but the cooling system can still fully function. Change the fan tray as soon as possible.
	Red/Always on	The cooling system has a serious error or the fan tray is not fully inserted. The system will automatically shut down in 15 seconds.
LNK	Green/Always on	The link between this port and its peer device is in normal status.
	Off	The link between this port and its peer device has failed.
ACT	Orange/Blinking	The port is sending or receiving data.
	Off	No data is transmitted on this port.
e0/0-e0/8	Green/Always on	The link between this port and its peer device is in normal status.
	Green/Blinking	The port is sending or receiving data.
	Off	There is no connection between this port and its peer device, or the link between this port and its peer device fails.
WLAN	Green/Always on	The device discovers the built-in WLAN module.
	Green/Blinking	The WLAN module is sending or receiving data.
4G	Green/Always on	The device discovers the built-in 4G Express module.
	Green/Blinking	The 4G module is sending or receiving data.

Notes:

- ◆ The STA and ALM LEDs will both turn red when there is a boot failure caused by OS software damage. Contact your sales representative if this occurs.
- ◆ As the number and type of LED indicators may vary from different product models, please refer to the actual product.

System Parameters

The following table lists the system parameters of Hillstone devices of all models.

Table 1-20: System Parameters

Item		Description
Fixed Ports	SG-6000-E6368 SG-6000-E6360	2 Gigabit Ethernet ports 8 SFP+ ports 2 QSFP+ ports 1 USB 2.0 Host port 1 MGT port 1 HA port 1 Console port 1 Auxiliary port
	SG-6000-E6168 SG-6000-E6160	2 Gigabit Ethernet ports 8 SFP+ ports 1 USB 2.0 Host port 1 MGT port 1 HA port 1 Console port 1 Auxiliary port

	<p>SG-6000-E5960 SG-6000-E5760 SG-6000-E5660</p>	<p>4 Gigabit Ethernet ports 4 SFP ports 1 USB 2.0 Host port 1 MGT port 1 HA port 1 Console port 1 Auxiliary port</p>
	<p>SG-6000-E5568 SG-6000-E5560 SG-6000-E5268 SG-6000-E5260 SG-6000-E5168 SG-6000-E3965</p>	<p>4 Gigabit Ethernet ports 4 SFP ports 2 SFP+ ports 1 USB 2.0 Host port 1 Console port 1 Auxiliary port 1 MGT port 1 HA port</p>
	<p>SG-6000-E3968 SG-6000-E3960</p>	<p>6 Gigabit Ethernet ports 4 SFP ports 2 SFP+ ports 1 USB 2.0 Host port 1 Console port 1 Auxiliary port 1 MGT port 1 HA port</p>
	<p>SG-6000-E3668 SG-6000-E3662 SG-6000-E3660 SG-6000-E2868 SG-6000-E2860</p>	<p>6 Gigabit Ethernet ports 4 SFP ports 1 USB 2.0 Host port 1 Console port 1 Auxiliary port 1 MGT port 1 HA port</p>
	<p>SG-6000-E2800 SG-6000-E2300</p>	<p>5 Gigabit Ethernet ports 4 Gigabit Combo ports (Ethernet port + SFP port) 1 USB 2.0 Host port 1 Console port</p>
	<p>SG-6000-E1700 SG-6000-E1606 SG-6000-E1600 SG-6000-E1100 (WLAN version) SG-6000-E1100 (4G version) SG-6000-E1100 (WLAN+4G version)</p>	<p>9 Gigabit Ethernet ports 1 USB 2.0 Host port 1 Console port</p>
CPU		Dedicated 64-bit multi-core processor

DDR SDRAM	SG-6000-E6368 SG-6000-E6360 SG-6000-E6168 SG-6000-E6160	32GB
	SG-6000-E5960 SG-6000-E5760 SG-6000-E5660 SG-6000-E5568 SG-6000-E5560	16 GB
	SG-6000-E5268 SG-6000-E5260 SG-6000-E5168 SG-6000-E3965	8 GB
	SG-6000-E3968 SG-6000-E3960 SG-6000-E3668 SG-6000-E3662 SG-6000-E2868 SG-6000-E2860	4 GB
	SG-6000-E3660 SG-6000-E2800 SG-6000-E2300 SG-6000-E1700 SG-6000-E1606	2 GB
	SG-6000-E1600 SG-6000-E1100 (WLAN version) SG-6000-E1100 (4G version) SG-6000-E1100 (WLAN+4G version)	1 GB
	Flash Memory	SG-6000-E6368 SG-6000-E6360 SG-6000-E6168 SG-6000-E6160
SG-6000-E5960 SG-6000-E5760 SG-6000-E5660 SG-6000-E5568 SG-6000-E5560 SG-6000-E5268 SG-6000-E5260 SG-6000-E5168 SG-6000-E3965 SG-6000-E3968 SG-6000-E3960 SG-6000-E3668 SG-6000-E3662 SG-6000-E3660 SG-6000-E2868 SG-6000-E2860 SG-6000-E2800 SG-6000-E2300 SG-6000-E1700 SG-6000-E1606 SG-6000-E1600		512 MB

	SG-6000-E1100 (WLAN version) SG-6000-E1100 (4G version) SG-6000-E1100 (WLAN+4G version)	
Dimensions (W×D×H)	SG-6000-E6368 SG-6000-E6360 SG-6000-E6168 SG-6000-E6160	440.0mm x 455.0mm x 110.0mm
	SG-6000-E5960 SG-6000-E5760 SG-6000-E5660	440.0 mm x 520.0 mm x 88.0 mm
	SG-6000-E5568 SG-6000-E5560 SG-6000-E5268 SG-6000-E5260 SG-6000-E5168 SG-6000-E3965	440.0mm x 530.0mm x 88.0mm
	SG-6000-E3968 SG-6000-E3960 SG-6000-E3668 SG-6000-E3662 SG-6000-E3660 SG-6000-E2868 SG-6000-E2860	436.0 mm x 365.5 mm x 44.0 mm
	SG-6000-E2800 SG-6000-E2300 SG-6000-E1700 SG-6000-E1606	442.0 mm x 240.7 mm x 44.0 mm
	SG-6000-E1600 SG-6000-E1100 (WLAN version) SG-6000-E1100 (4G version) SG-6000-E1100 (WLAN+4G version)	320.0mm x 150.0mm x 44.0mm
	Weight	SG-6000-E6368 SG-6000-E6360 SG-6000-E6168 SG-6000-E6160
SG-6000-E3968 SG-6000-E3960 SG-6000-E3668 SG-6000-E3662 SG-6000-E3660 SG-6000-E2868 SG-6000-E2860		Net weight: 5.6 kg Gross weight: 9.1 kg (accessories and packages included)
SG-6000-E5960 SG-6000-E5760 SG-6000-E5660		Net weight: 12.3 kg

		Gross weight: 16.8 kg (accessories and packages included)
	SG-6000-E5568 SG-6000-E5560 SG-6000-E5268 SG-6000-E5260 SG-6000-E5168 SG-6000-E3965	Net weight: 11.8 kg Gross weight: 16.3 kg (accessories and packages included)
	SG-6000-E2800 SG-6000-E2300 SG-6000-E1700 SG-6000-E1606	Net weight: 2.5 kg Gross weight: 5.3 kg (accessories and packages included)
	SG-6000-E1600 SG-6000-E1100 (WLAN version) SG-6000-E1100 (4G version) SG-6000-E1100 (WLAN+4G version)	Net weight: 1.5 kg Gross weight: 2.0 kg (accessories and packages included)
Power Rating	SG-6000-E6368 SG-6000-E6360 SG-6000-E6168 SG-6000-E6160 SG-6000-E5960 SG-6000-E5760 SG-6000-E5660 SG-6000-E5568 SG-6000-E5560 SG-6000-E5268 SG-6000-E5260 SG-6000-E5168 SG-6000-E3965	450 W
	SG-6000-E3968 SG-6000-E3960 SG-6000-E3668 SG-6000-E3662 SG-6000-E3660 SG-6000-E2868 SG-6000-E2860	150 W
	SG-6000-E2800 SG-6000-E2300 SG-6000-E1700 SG-6000-E1606	45 W
	SG-6000-E1600 SG-6000-E1100 (WLAN version) SG-6000-E1100 (4G version) SG-6000-E1100 (WLAN+4G version)	30 W
Input Voltage	AC	100-240V AC, 50/60Hz
	DC	-40 - -60V DC (except for SG-6000-E1600/SG-6000-E1100)
Ambient Temperature		0°C-40°C

Relative Humidity	10%-95% (non-condensing)
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Note: DDR SDRAM is the random access memory to store the communication data for the CPU. Flash Memory is used for storing the operating system firmware, configuration and application files.

Ports

This section introduces attributes of interfaces (ports) on the Hillstone devices, including console port, auxiliary port, USB port, gigabit copper port, SFP port, QSFP+ ports and XFP port.

Console Port

Hillstone device provides an RS-232C asynchronous serial console port for you to configure the device. Attributes for the console (CON) port are shown in the following table.

Table 1-21: Console Port Attributes

Attribute	Description
Connector	RJ-45
Port Standard	RS-232C
Baud Rate	9600/19200/38400/57600/115200 bit/s
Services	Connect the CON port to the serial port of a PC and run a terminal emulation program on the PC to configure the device.
Transmission Medium	console cable

Auxiliary Port

Hillstone device provides an RS-232C asynchronous serial auxiliary (AUX) port. Attributes for the auxiliary port are shown in the following table.

Table 1-22: Auxiliary Port Attributes

Attribute	Description
Connector	RJ-45
Port Standard	RS-232C
Baud Rate	9600/19200/38400/57600/115200 bit/s
Services	Aux port is used for debugging.
Transmission Medium	console cable

USB Port

Hillstone device provides up to two USB host ports. Attributes for the USB port are shown in the following table.

Table 1-23: USB Port Attributes

Attribute	Description
Connector	USB Type-A interface
Port Standard	USB 2.0 host interface
Negotiation Mode	1.1/2.0 autosensing

Gigabit Copper Port

Hillstone device provides several fixed gigabit copper ports; the gigabit Combo port also supports the copper cable connection. Attributes for the gigabit copper port are shown in the following table.

Table 1-24: Gigabit Copper Port Attributes

Attribute	Description
Connector	RJ-45
Port Standard	Auto-MDIX
Frame Format	Ethernet_II Ethernet_SNAP
Negotiation Mode	10/100/1000Mbps autosensing Full/half-duplex

SFP Port

Hillstone device supports SFP ports. The following table describes the attributes of SFP port.

Table 1-25: SFP Port Attributes

Attribute	Description	
Connector	SFP	
Frame Format	Ethernet_II Ethernet_SNAP	
Negotiation Mode	SFP optical module	1000Mbps
	SFP copper module	10/100/1000Mbps autosensing (some only supports 1000Mbps) Full / half-duplex

Caution: To avoid dust falling into the SFP socket, you should place a rubber dust cap (originally in the accessory box) over the SFP port.

The SFP port has two types of interface transceiver module for you to choose:

- ◆ SFP optical module/transceiver
- ◆ Copper SFP transceiver

If you choose to use SFP optical module in SFP port, you should use LC-Type optical connector. Hillstone device supports five types of 1000Base-FX SFP optical modules. All optical modules are hot-swappable.

Table 1-26: SFP Optical Module Attributes

Attribute	Description				
	Short-haul Multimode Optical Module (850nm)	Medium-haul Single-mode Optical Module (1310nm)	Long-haul Single-mode Optical Module (1310nm)	Long-haul Single-mode Optical Module (1550nm)	Ultra-long Haul Single-mode Optical Module (1550nm)
Connector	LC				
Fiber Type	62.5/125 μm multi-mode fiber	9/125μm single-mode fiber	9/125μm single-mode fiber	9/125μm single-mode fiber	9/125μm single-mode fiber
Maximum Transmission Distance	0.55km	10km	40km	40km	70km
Central Wavelength	850nm	1310nm	1310nm	1550nm	1550nm
Optional Factory Module	TRAN-SX	TRAN-LX10	TRAN-LX40	---	TRAN-LX80

Caution: When using the optical module of Hillstone Network factory, it is recommended not to mix with other manufacturers' optical modules, otherwise some abnormal problems may arise

If you choose to use copper SFP transceiver in SFP port, you should use crossover or straight-through cable (i.e. standard Ethernet cable). The following table describes the attributes of copper SFP transceiver.

Table 1-27: SFP Copper Module Attributes

Attribute	Description
Connector	RJ-45
Port Standard	Auto-MDI/MDIX (crossover cable and straight-through cable autosensing)
Maximum Transmission Distance	100m
Negotiation Mode	10/100/1000Mbps autosensing (some only supports 1000Mbps) Full / half-duplex

Cautions:

- ◆ The SFP electric modules of all platforms only support 1000Mbps.
- ◆ Before switching between the optical and copper cable connection on Combo ports, you need to first clear the rate and duplex mode configurations in the current operating mode (copper or optical), and re-configure the port after the switching.

SFP+ Port

Table 1-28: SFP+ Port Attributes

Attribute	Description	
Connector	SFP+	
Frame Format	Ethernet_II Ethernet_SNAP	
Negotiation Mode	SFP+ optical module	10Gbps

If you choose to use SFP+ optical module in SFP+ port, you should use LC-Type optical connector. Hillstone device supports four types of 10G Base-FX SFP+ optical modules. All optical modules are hot-swappable.

Caution:

- To avoid dust falling into the SFP+ socket, you should place a rubber dust cap (provided in the accessory box) over the SFP+ port.

Table 1-29: SFP+ Optical Module Attributes

Attribute	Description			
	Short-haul Multimode Optical Module (850nm)	Medium-haul single-mode Optical Module (1310nm)	Long-haul Single-mode Optical Module (1550nm)	Ultra-long Haul Single-mode Optical Module (1550nm)
Connector	LC			
Fiber Type	62.5/125µm multi-mode fiber	9/125µm single-mode fiber	9/125µm single-mode fiber	9/125µm single-mode fiber
Maximum Transmission Distance	0.033km	10km	40km	80km
Central Wavelength	850nm	1310nm	1550nm	1550nm
Optional Factory Module	TRAN-SR-SFP+	TRAN-LR-SFP+	TRAN-SFP+-LX40	TRAN-SFP+-LX80

Caution: When using the optical module of Hillstone Network factory, it is recommended not to mix with other manufacturers' optical modules, otherwise some abnormal problems may arise

QSFP+ Port

Table 1-30: QSFP+ Port Attributes

Attribute	Description	
Connector	QSFP+	
Frame Format	Ethernet_II Ethernet_SNAP	
Negotiation Mode	40GE	1*40Gbps
	4*10GE	4*10Gbps

Caution: When the negotiation mode of QSFP+ port changed, you need to reboot the device to make it effective.

Two types of QSFP+ optical module are supported. The optical modules are available with LC-type connectors and MPO-type connectors and are all hot-swappable.

Caution: To avoid dust falling into the QSFP+ socket, you should place a rubber dust cap (originally in the accessory box) over the QSFP+ port.

Table 1-31: QSFP+ Optical Module Attributes

Attribute	Description	
	Short-haul Multimode Optical Module (850nm)	Ultra-long Haul Single-mode Optical Module (1550nm)
Connector	MPO	LC
Fiber Type	50/125µm multi-mode fiber	9/125µm single-mode fiber
Maximum Transmission Distance	0.3km	10km
Central Wavelength	850nm	1310nm
Optional Factory Module	TRAN-SR-QSFP+	TRAN-LR-QSFP+

Caution: When using the optical module of Hillstone Network factory, it is recommended not to mix with other manufacturers' optical modules, otherwise some abnormal problems may arise

XFP Port

Hillstone devices support XFP ports which use XFP optical modules.

Table 1-32: XFP Port Attributes

Attribute	Description	
Connector	XFP	
Frame Format	Ethernet_II Ethernet_SNAP	
Negotiation Mode	XFP optical module	10Gbps

Hillstone device supports four types of 10GBase-FX XFP optical module. All optical modules are hot-swappable.

Caution: To avoid dust falling into the XFP socket, you should place a rubber dust cap (originally in the accessory box) over the XFP port.

Table 1-33: XFP Optical Module Attributes

Attribute	Description			
	Short-haul Multimode Optical Module (850nm)	Medium-haul Single-mode Optical Module (1310nm)	Long-haul Single-mode Optical Module (1550nm)	Ultra-long Haul Single-mode Optical Module (1550nm)
Connector	LC			
Fiber Type	50/125µm multimode fiber	9/125µm single-mode fiber	9/125µm single-mode fiber	9/125µm single-mode fiber
Maximum Transmission Distance	0.3km (984.3ft)	10km	40km	80km
Central Wavelength	850nm	1310nm	1550nm	1550nm
Optional Factory Module	TRAN-XFP-SR	TRAN-XFP-LR	TRAN-XFP-LR40	TRAN-XFP-LR80

Caution: When using the optical module of Hillstone Network factory, it is recommended not to mix with other manufacturers' optical modules, otherwise some abnormal problems may arise

CLR Button

The CLR button is the pinhole of the front panel and is used to reset the device back to the factory default settings. You can restore access to the device with this button if the login password is lost.

Warning: Use this button with caution. Resetting the device will clear all existing configurations.

To restore the factory default settings, take the following steps:

1. Turn off the power of the device.
2. Press the CLR button in the pinhole and switch on the power supply simultaneously.
3. Keep pressing till the STA and ALM LEDs turn to constantly red, then stop pressing. The device begins to restore to the original factory settings.
4. The system reboots after the default settings restored.

When you reset SG-6000-E6368, SG-6000-E6360, SG-6000-E6168, SG-6000-E6160, SG-6000-E5268, SG-6000-E5260, SG-6000-E5568, SG-6000-E5560, SG-6000-E5168, SG-6000-E3965, SG-6000-E3968, SG-6000-E3960, SG-6000-E3960-GM, SG-6000-E3668, SG-6000-E3662, SG-6000-E3662-GM, SG-6000-E3660, SG-6000-E2868 and SG-6000-E2860, take the following steps:

1. When the device is working, press the CLR button in the pinhole and the device will restart.
2. After the device restarted, the CON port outputs the information of CLR button pressed and the STA and ALM LEDs turn to constantly red. After the LEDs turn off, the device will restart again.

Expansion Slot

The chassis height of SG-6000-E6368, SG-6000-E6360, SG-6000-E6168 and SG-6000-E6160 is 2.5U with two half-U expansion slots (Slot 1-2) and one half-U Bypass expansion slot.

The chassis height of SG-6000-E5960, SG-6000-E5760, SG-6000-E5660, SG-6000-E5568, SG-6000-E5560, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168 and SG-6000-E3965 is 2U with four half-U expansion slots (Slot 1-4). The chassis height of SG-6000-E3968, SG-6000-E3960, SG-6000-E3960-GM, SG-6000-E3668, SG-6000-E3662, SG-6000-E3662-GM, SG-6000-E3660, SG-6000-E2868 and SG-6000-E2860 is 1U with two half-U expansion slots (Slot 1-2).

- ◆ Half-U expansion slot fits in any slot.
- ◆ 1U height expansion modules can only be installed in Slot2 and Slot4.
- ◆ More than one expansion modules of the same type can be inserted in the device. Only one IOC-4SFP+ or IOC-8SFP+ interface expansion module can be inserted in Slot4 of SG-6000-E5568, SG-6000-E5560, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168 or SG-6000-E3965.

Cautions:

- ◆ Cover the expansion slot with blank panel if the slot has no expansion module installed.
 - ◆ For detailed information of expansion modules, see *Hillstone SG-6000 M_G_E Series Expansion Modules Reference Guide*.
-

Power Supply

Single/Dual power supply: Some product modules adopt single power supply, while others adopt dual power supplies, i.e. there are two power inputs installed in one device. Dual power supplies ensure uninterrupted power by instantly enabling the standby power supply when the active power supply fails to work.

AC/DC power supply: For some product modules (as listed below), you can choose either AC or DC power supply.

Hot-swappable: According to whether the power supply is hot-swappable or not, the power supply is classified into three types:

- ◆ Hot-swappable power supplies are removable modules which can be replaced at any time;
- ◆ Fixed power supplies are irreplaceable and cannot be removed.

- ◆ External power adapter connects to the external AC power supply.

For instructions on how to replace power supply modules, refer to [Installing and Removing the Power Supply Module](#).

Table 1-34: Power Supplies of All Product Models

Model	Description	AC/DC	Power Supply Type
SG-6000-E6368 SG-6000-E6360 SG-6000-E6168 SG-6000-E6160	Single/Dual	AC/DC	Hot-swappable
SG-6000-E5960	Single/Dual	AC/DC	Hot-swappable
SG-6000-E5760	Single/Dual	AC/DC	Hot-swappable
SG-6000-E5660	Single/Dual	AC/DC	Hot-swappable
SG-6000-E5568 SG-6000-E5560	Dual	AC/DC	Hot-swappable
SG-6000-E5268 SG-6000-E5260	Dual	AC/DC	Hot-swappable
SG-6000-E5168 SG-6000-E3965	Dual	AC/DC	Hot-swappable
SG-6000-E3968 SG-6000-E3960	Single/Dual	AC/DC	Fixed
SG-6000-E3668 SG-6000-E3662	Single/Dual	AC/DC	Fixed
SG-6000-E3660	Single/Dual	AC/DC	Fixed
SG-6000-E2868 SG-6000-E2860	Single/Dual	AC/DC	Fixed
SG-6000-E2800	Single/Dual	AC/DC	Fixed
SG-6000-E2300	Single/Dual	AC/DC	Fixed
SG-6000-E1700	Single/Dual	AC/DC	Fixed
SG-6000-E1606	Single/Dual	AC/DC	Fixed
SG-6000-E1600	Single	AC	External
SG-6000-E1100 (WLAN version)	Single	AC	External
SG-6000-E1100 (4G version)	Single	AC	External
SG-6000-E1100 (WLAN+4G version)	Single	AC	External

Power Module

Hillstone designs a model of pluggable module for SG-6000-E6368, SG-6000-E6360, SG-6000-E6168, SG-6000-E6160, SG-6000-E5960, SG-6000-E5760, SG-6000-E5660, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168 and SG-6000-E3965. Both AC and DC power modules are available. You can choose the power type at your own choice.

Figure 1-23: AC Power Module

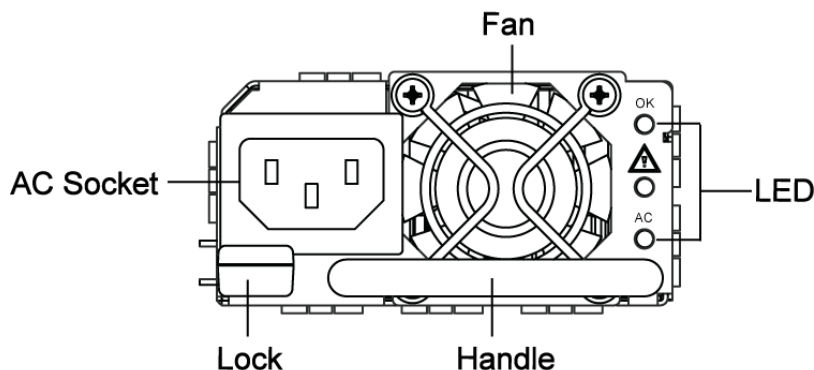
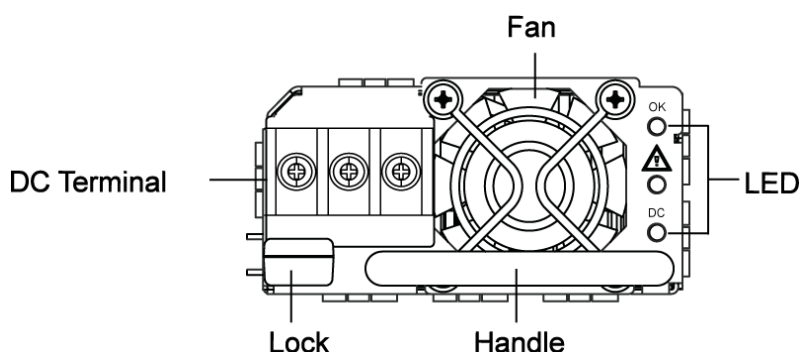



Figure 1-24: DC Power Module



The power LED description for is listed in the following table.

Table 1-35: Power Supply Module LED Descriptions

LED	Color/Status	Description
OK	Green/Always on	Power module is functioning normally.
	Off	No power input.
	Yellow/Always on	Power module has error.
	Off	Power module is functioning normally.
AC	Green/Always on	AC power module is functioning normally.
	Off	AC power module is powered off or has failed.
DC	Green/Always on	DC power module is functioning normally.
	Off	DC power module is powered off or has failed.

For information on power module installation and replacement, see [Installing and Removing the Power Supply Module](#).

Hard Disk Modules

There is a hard disk module at the bottom of SG-6000-E6368, SG-6000-E6168, SG-6000-E5568, SG-6000-E5268, SG-6000-E5168, SG-6000-E3968, SG-6000-E3668

and SG-6000-E2868. The hard disk module mainly saves logs to the local and achieves the goals of device monitoring, behavior auditing, etc.

All the platforms above support three type of storage capacity: 128G, 256G and 512G. The default storage capacity is different on different platforms.

Table 1-36: Platforms and Default Storage Capacity

Platform	Default Storage Capacity
SG-6000-E2868 SG-6000-E3668 SG-6000-E3968	128G
SG-6000-E5268 SG-6000-E5168 SG-6000-E5568	256G
SG-6000-E6168 SG-6000-E6368	512G

Caution: If you want to install or remove the hard disk module, see *Installing and Removing the Hard Disk Module*.

Expansion Modules

SG-6000-E6368, SG-6000-E6360, SG-6000-E6168, SG-6000-E6160, SG-6000-E5960, SG-6000-E5760, SG-6000-E5660, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168 and SG-6000-E3965 are designed with general expansion slots for expansion modules. The supported expansion module types may vary from platforms, specifically including interface module and storage module. The main functions of these expansion modules are:

- ◆ Interface module: Expands the number of ports.
- ◆ Storage module: Enlarges the hardware space for storing logs.
- ◆ Bypass module: Bypass module connects two networks. Data between them are transferred by the device in the normal condition. When a specific incident occurs (like sudden power failure or system reboot), the two networks are connected directly by the bypass module, therefore, the device is bypassed.

For detailed information about expansion modules, see *Hillstone SG-6000 M_G_E Expansion Modules Reference Guide*.

Cooling System

The cooling system includes 1 fan tray and 1 anti-dust mesh that keep the internal temperature below a maximum acceptable level and ensure each component works in the appropriate temperature environment.

The fan tray is vertically installed on the left side of the back panel and it is made of 4 small fans. The anti-dust mesh is vertically installed on the right side of the back panel and it is the air intake vent. Hillstone suggest purchasing an auxiliary anti-dust mesh for the situation that the original anti-dust mesh is sent to Hillstone for

clearing. Besides, it is recommended that you should replace the anti-dust mesh every 3 or 6 months according to the clearness status of your equipment room. To purchase a new anti-dust mesh, contact Hillstone.

SG-6000-E3968/E3960/E3960-GM/E3668/E3662/E3662-GM/SG-6000-E3660/E2868/E2860/E2300/2800 has a built-in cooling system.

Figure 1-25: Air Circulation



The ambient temperature of the working environment should keep between 0 and 40 degree Celsius. If a small fan works abnormally, the system will alert you using the FAN LED. You must replace the fan tray with a new one. If two small fans work abnormally, the system will power off without saving the current configurations.

Chapter 2 Installation Preparations

Introduction

To prevent personnel injury and equipment damage, please carefully read all the safety warnings and cautions in this chapter before the installation.

Hillstone products are designed for indoor use. To ensure the normal operation and to prolong the service lifetime, the installation site must meet the following requirements:

Cleanness Requirements

Table 2-1: Dust Concentration Requirements in the Equipment Room

Mechanical Active Material	Unit	Content
Dust particle	particle/m ³	≤3×10 ⁴ (No visible dust on the table in 3 days)
Note: Diameter of dust particle ≥5 μm		

ESD Prevention

To prevent electrostatic discharge (ESD) damage, ensure that:

- ◆ The device is well grounded. The grounding screw is properly grounded.
- ◆ Take dustproof measures for the equipment room.
- ◆ Maintain proper humidity and temperature levels.
- ◆ Do not disassemble the equipment without permission from the vendor, or you may cause danger and void your warranty.

EMI Prevention

All possible electromagnetic interference (EMI) sources, external or internal, can affect the device by capacitance coupling, inductance coupling, electromagnetic radiation, and common impedance coupling (including the grounding system).

To prevent or reduce EMI:

- ◆ Take measures to protect the power system from power interference.
- ◆ It's better to separate the floor where the device is installed from the grounding device and lighting-proof device of the power source.
- ◆ Keep the device away from radio stations, radar, and other high-frequency and high-current devices.

- ◆ Use electromagnetic shielding when necessary.

Grounding Requirements

To use the device more safely:

- ◆ Ensure that the grounding screw of the chassis is well grounded via the grounding wire.
- ◆ Ensure that the grounding pin of the power plug is well grounded.

Workbench Requirements

Before the installation, ensure your workbench is properly prepared as follows:

- ◆ Make sure that you provide adequate space near the intake and exhaust vents of the device for heat dissipation.
- ◆ Make sure the rack is equipped with a good ventilation system.
- ◆ Make sure the rack is strong enough to support the weight of a fully equipped device.
- ◆ Make sure the rack is well grounded.

Other Safety Recommendations

The directions below are also recommended for you to follow:

- ◆ Keep the device far away from moist areas and heat sources.
- ◆ Wear an ESD wrist strap correctly when handling the device.
- ◆ Be careful with laser emission. Do not directly stare into apertures of fiber-optic connectors that emit laser radiation.
- ◆ Use uninterruptible power supply (UPS).
- ◆ Keep the device in locations where children are not likely to be present.
- ◆ There may be risk of fire or explosion if the button cell is replaced by an incorrect type

Unpacking

Verify the parts received according to your purchasing contract and packing list to ensure that you have received all the items necessary. If you have any problem, please contact your sales representative.

Installation Devices/Tools/Cables

A Hillstone device is shipped with a power cable and a console cable, and you should have the following items before the installation:

- ◆ Terminal: Configuration terminal (e.g. an ordinary PC).
- ◆ Tools: Philips screwdrivers and ESD wrist strap.
- ◆ Cables: Power cable, console cable and Ethernet cable.

Chapter 3 Installation

Before Installation

A yellow seal with dark ink characters is stuck on a mounting screw of the chassis. Keep the seal intact. The sales representative will check this seal before maintenance operation. Please get the permission of your sales representative before opening the chassis yourself. Warranty will be void if you disassemble the chassis without authorization.

Before installation, make sure that:

- ◆ You have read [Chapter 2 Installation Preparations](#) carefully.
- ◆ The requirements in [Chapter 2 Installation Preparations](#) are satisfied.

Hillstone products can be installed:

- ◆ On a workbench
- ◆ On a standard 19-inch rack

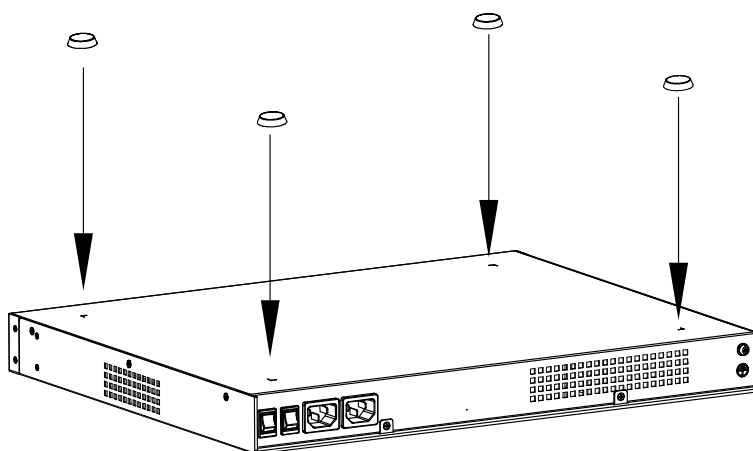
Installing the Device on a Workbench

Hillstone product can be placed on a stable and clean workbench. For skid prevention, take the following steps to fit anti-skid pads on the device before installing:

Step 1: Tear off the sticker from the rubber pad.

Step 2: Press the sticky side of the pad to the right-angle die-pressed mark on the bottom panel of the chassis. See Figure 3-1.

Figure 3-1: Installing the Rubber Pads



Check the following specifications when installing the device on a workbench:

- ◆ Make sure the workbench is stable and well grounded.
- ◆ Make sure the intake and the exhaust vents are unblocked, and keep the device well ventilated.
- ◆ Do not place any heavy object on the top of the chassis.

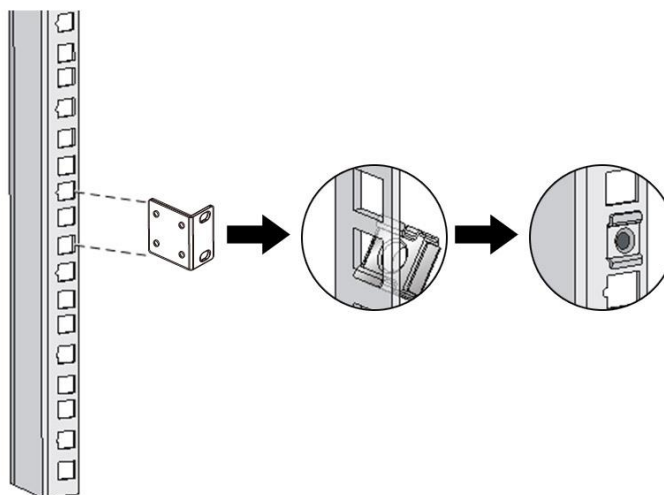
Installing the Device on a Rack

Before mounting the device on a rack, ensure that the power is off, and the rack is stable enough and well grounded. Hillstone devices are designed for a 19-inch standard rack.

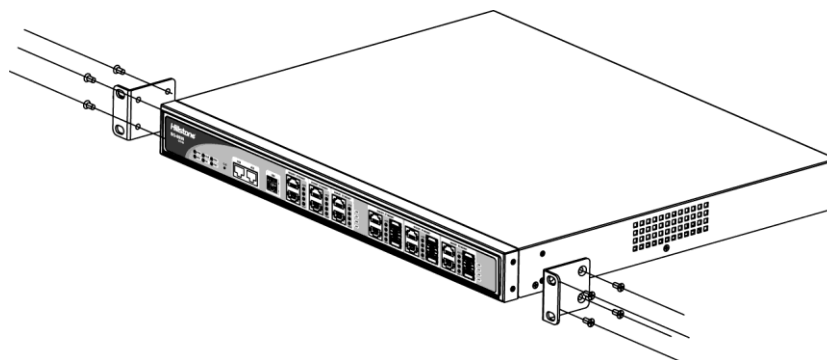
To mount the chassis on a rack:

Step 1: Use rack-mounting ear to mark the positions of floating nuts on the front rack posts, as shown in Figure 3-2.

Figure 3-2: Installing the Floating Nuts

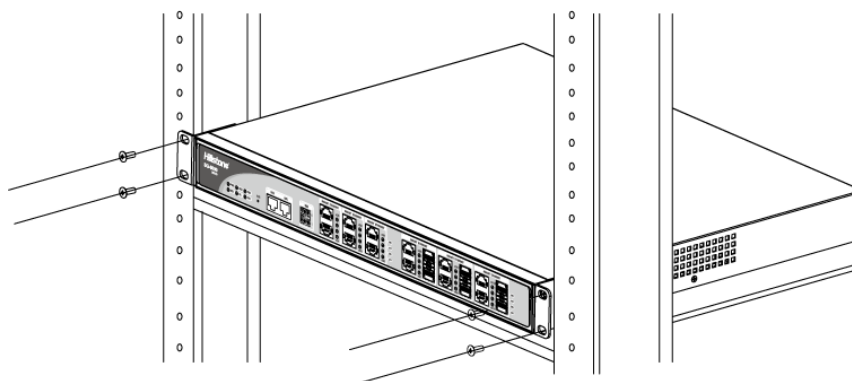


Step 2: Attach rack-mounting ears to the left and right side panels of the chassis respectively, and then fasten the rack-mounting ears with suitable screws, as shown in Figure 3-3.

Figure 3-3: Installing the Rack-mounting Ears (1U Chassis as example)

Step 3: Two person are needed to cooperate to raise the device and place it to the tray of the rack (or two person place the device to the tray of lift first, then use the lift to achieve it).

Step 4: Keep the center of the rack-mounting ear and the center of the rack hole horizontally even and tighten the screws, as shown in Figure 3-4.

Figure 3-4: Installing the Device in a Rack (1U Chassis as example)

Cautions:

- ◆ The rack-mounting ears cannot bear weight. Make sure the chassis is supported by the platform under it when mounted into a rack.
 - ◆ For better ventilation, there should be a clearance space between two equipments.
 - ◆ If the rack accommodates only one device, put the device on the bottom.
 - ◆ The floating nuts in the accessory box can only fit in the 9mm x 9 mm squared holes of standard racks and they can be used when no original rack nuts are available.
-

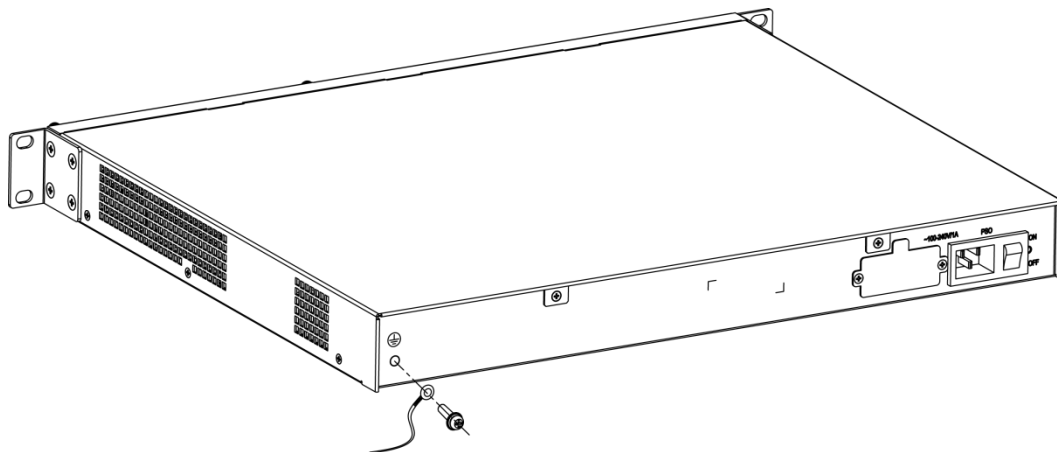
Connecting Cables

This section describes how to connect cables to the device, including connecting the ground wire, the console cable, the Ethernet cable and the power cable.

Connecting the Ground Wire

To meet safety requirements, you must correctly connect the grounding screw on the chassis to the earth ground by a grounding wire. The grounding resistance should be less than 5Ω .

Figure 3-5: Connecting the Ground Wire (1U Chassis as example)



Warning: The correct connection of the ground wire on the chassis is an essential safeguard against lightning shocks and interference. You must properly connect the ground wire when installing and using the device.

Connecting the Console Cable

Hillstone device provides an RS-232C asynchronous serial console (CON) port, through which you can configure the device. The console cable is an 8-core shielded cable, which has an RJ-45 connector that can be connected to the Console port of the device and a DB-9 (female) connector that can be connected to the serial port of a console terminal.

Perform the following steps to connect the device and the console terminal:

1. Select a console terminal. You may choose an ordinary PC or a standard ASCII terminal with an RS-232C serial port.
2. Connect the console cable. Connect the RJ-45 end of the cable to the Console port of the device, and then connect the DB-9 connector of the cable to the console terminal.

Connecting the Ethernet Cable

Hillstone products provide 1000Mbps electrical Ethernet ports, SFP ports, XFP ports and Ethernet Combo ports (Electrical port + Optical port). The electrical Ethernet port can be connected by a straight-through cable (also called standard cable) or a crossover cable. The SFP port should use a SFP optical module, which can be connected with crossover cable or straight-through cable, or use a SFP electric

module connected by a single-mode or multi-mode cable. The XFP port uses single-mode or multi-mode cables to access Ethernet.

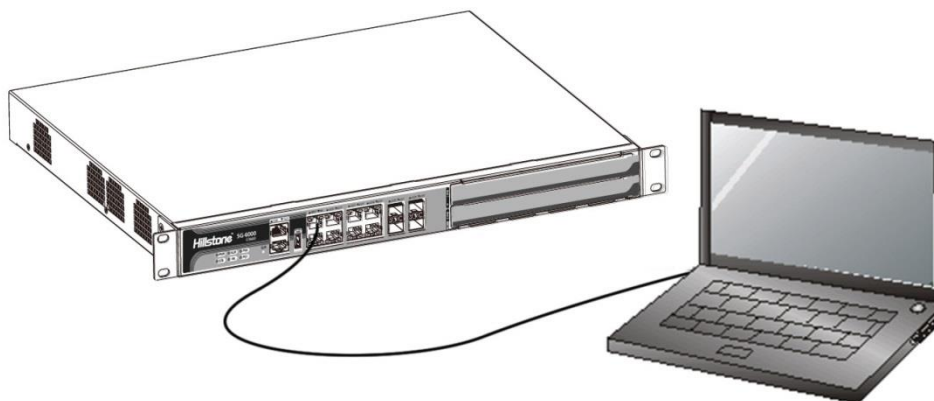
All SFP Port and XFP Port optical modules of Hillstone products use LC-type optical connector; therefore, you should connect the optical modules using optical fiber ended with LC-type connector.

Connecting the Ethernet Copper Cable

Follow the guidelines below when connecting cables to the ports:

- ◆ Be careful not to connect the Ethernet port to the wrong ports. Read the label above the port carefully.
- ◆ For electrical Ethernet connection, use crossover cable or straight-through cable.

Figure 3-6: Connecting the Ethernet Copper Cable



Connecting the Ethernet Fiber Cable

Follow the guidelines below when connecting cables to the ports:

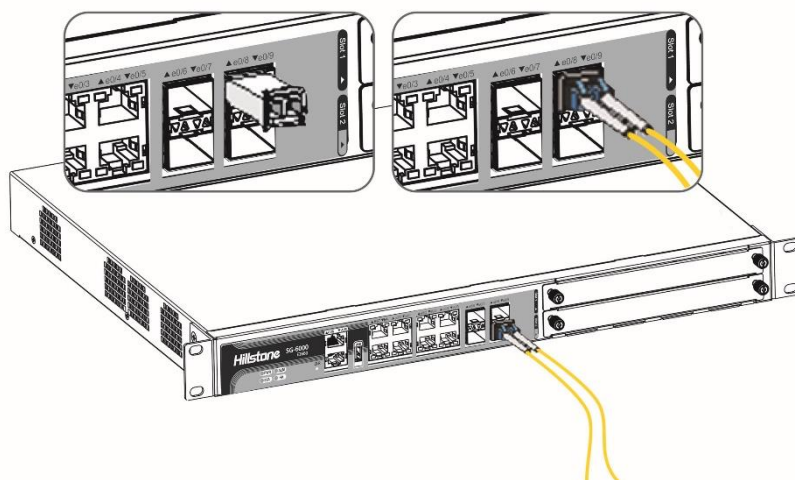
- ◆ Be careful not to connect the Ethernet port to the wrong ports. Read the label above the port carefully.
- ◆ For SFP port connection, the optical module should be inserted into SFP port before installing the LC-type connector to the optical module; the copper SFP module should be connected by crossover cable or straight-through cable.
- ◆ For XFP ports, insert the XFP optical module into the XFP port before connecting the LC-type connector to the module.

Keep the followings in mind when connecting fiber cables:

- ◆ The curvature radius should be greater than 10cm. Avoid excessive bending of the cable.
- ◆ Ensure the Tx and Rx ends are connected correctly.

- ◆ Keep the connector of the optical cable clean.

Figure 3-7: Connecting the Ethernet Fiber Cable



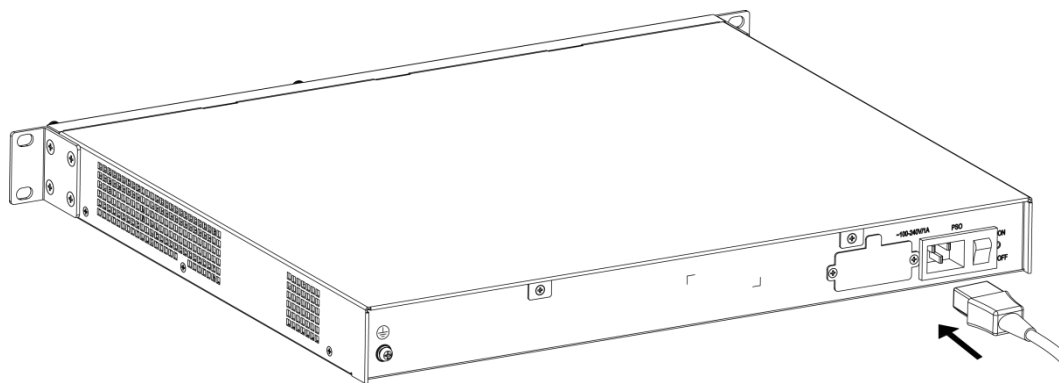
Warning: Laser danger! To protect your eyes from radiation harm, do not stare into a cable connector connected to a laser generator.

Connecting an AC Power Cable

The AC power cable is shipped with the chassis. Prepare a single-phase three-terminal power socket with a ground contact in advance. Normally, the ground contact of the power supply system in a building was buried during construction and cabling. Before connecting the AC input power cable, you must make sure that the power socket is well grounded.

To connect the AC power cable, take the following steps:

1. Make sure the ground wire is reliably connected to the earth ground.
2. Make sure the power switch of the device is in the OFF position.
3. Connect the AC power socket of the power source using the AC power cable. To connect more cables, repeat this step.
4. Power on the switch of the device.
5. Check PWR LED on the front panel. A shining LED indicates correct connection.

Figure 3-8: Connecting an AC Power Cable

Note: If a product does not have a power switch, you can skip Step2 and Step4.

Connecting a DC Power Cable

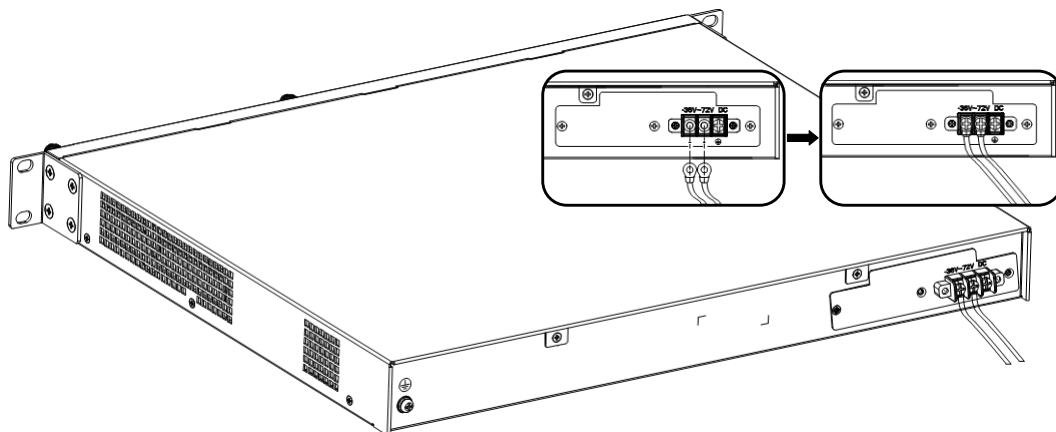
To power the device with DC power source, use DC power cables to connect the device and the external DC power source.

Warning: Before performing the procedure, ensure that the cable is not connected with any power source and make sure the cables will not be powered on during the process.

To connect the DC power cable to the device, take the following steps:

1. Ensure that the power source voltage is in accordance with required voltage specified in System Parameters.
2. Switch off the power source.
3. If the terminal on the power supply module has a plastic cover, remove the cover and keep it.
4. Connect the grounding screw (labeled with "⊖") to the ground contact point using a grounding wire.
5. Use DC cables to connect the "+" terminal of the device to the "+" terminal of the power source, and "-" terminal to the "-" terminal of the source.
6. Verify the connection is correct and fasten the cables using a screwdriver.
7. Recover the plastic cover(s) to the original terminal(s).
8. To connect more DC power cables, repeat Step3 to Step7.
9. Switch on the power supply module.
10. Switch on the power source and check if the PWR LED is on. A shining LED indicates correct connection.

Figure 3-9: Connecting a DC Power Cable



Connecting a Power Adapter

To provide the power supply, connect the power adapter of the devices with the external AC power supply as follows:

1. Insert the DC output plug of the power adapter into the AC power interface at the back panel of the device.
2. Connect the power adapter to the external AC power supply.

Installing an Antenna

To use the WLAN, 4G function of the device, you must install the WLAN, 4G antenna. You can adjust the angle of the WLAN or 4G antenna by rotating it. The antennas are shown as below:

Figure 3-10: 3 WLAN and 4G Antennas



To install antennas for SG-6000-E1100 (WLAN version), SG-6000-E1100 (4G version) or SG-6000-E1100 (WLAN+4G version), take the following steps:

1. According to the function you use, select the corresponding antenna.
2. Install the antenna to the SMA connector at the back panel of the device by rotating the antenna clockwise.

Installing the SIM Card

To install the SIM card for SG-6000-E1100 (4G version) or SG-6000-E1100 (WLAN+4G version), take the following steps:

1. Purchase the SIM card from the ISP and activate the data connection service.
2. Insert the SIM card into the SIM card slot at the back panel of the device.

Note: 4G data card and SIM card must match the network type.

Verifying Installation

After you complete the installation with all the above steps, you still need to verify the following items.

- ◆ All the cables are properly connected.
- ◆ The grounding wire of the device is correctly connected.
- ◆ The air vents on both side panel of the device are unblocked, and there is enough space around for heat dissipation.
- ◆ The expansion modules, power supply modules and fan tray are correctly installed (for some products).
- ◆ The power source meets the requirements of the device.
- ◆ If the device is rack-mounted, make sure the rack is stable enough. If the device is placed on a workbench, make sure the workbench is stable and clean.

Chapter 4 Boot and Configuration

Introduction

This chapter describes the initial system boot and basic configuration of Hillstone SG-6000 series, using a PC as the console terminal.

Establishing a Configuration Environment

Hillstone devices support both local and remote configuration. Administrators can use the following configuration methods.

- ◆ Console (CON) connection
- ◆ WebUI
- ◆ Telnet or SSH

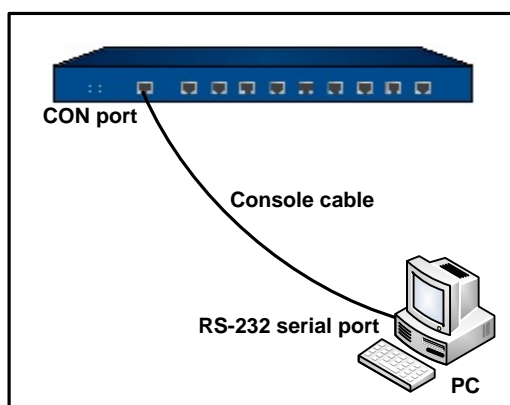
Console (CON) Connection

For initial system configuration, you have to establish a Console connection environment (connect the device to a configuration terminal through its Console port).

To connect the PC to the CON port of the device, take following steps:

1. Set up a local configuration environment. Connect the Console port to the serial port of a PC through a console cable, as shown in Figure 4-1:

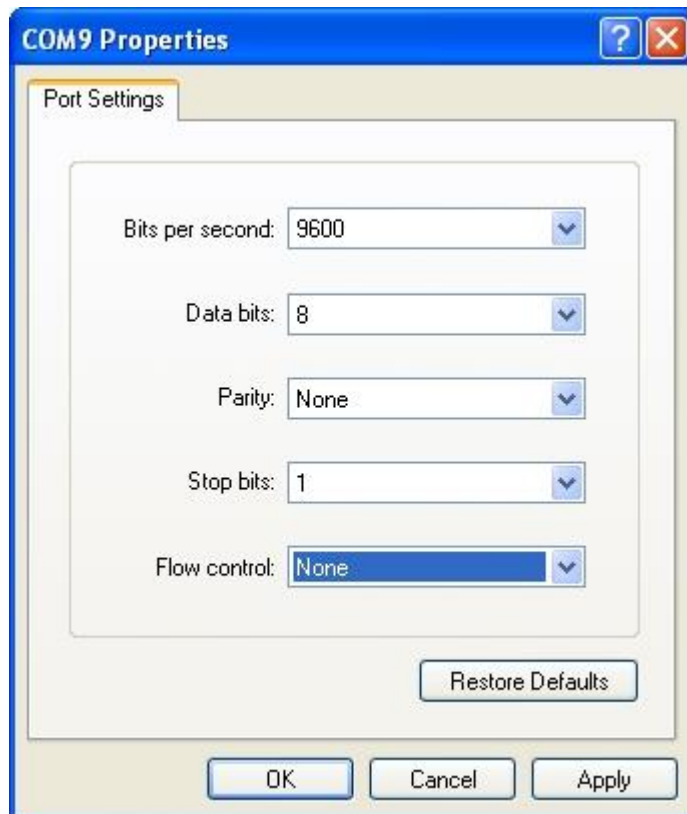
Figure 4-1: Console Port Configuration



2. Run the terminal emulation program on the PC (e.g. hyper terminal of Windows XP/Windows 2000) to set up a connection. Set the parameters of the

terminal session to 9600bps, 8 data bits, 1 stop bit, none parity, and none flow control, as shown in Figure 4-2:

Figure 4-2: Setting Parameters for the Terminal Session



3. Switch on the power supply, and the device performs self-test and initializes the configuration automatically. If the booting succeeds, the system will display the command line prompt "login". Enter the default administrator name and password "hillstone" at the "login" and "password" prompts, press "Enter". And now you are successfully logged in and accessing the CLI.
4. Enter commands to configure or view running status. Enter a question mark "?" to get help on commands whenever you want.

WebUI

The ethernet0/0 (e0/0) port has a default IP address of 192.168.1.1/24, and all the management functions of this port are enabled by default. Administrators can access the WebUI through e0/0.

To log in the device's WebUI, take the following steps:

1. Set up the IP address of the management PC on the same subnet as **192.168.1.1/24**. Connect the management PC to the e0/0 port through an Ethernet cable.
2. Launch a Web browser of the management PC, enter the URL **http://192.168.1.1** in the address bar, and then press Enter.

3. Enter the default administrator name and password "hillstone" in both the **Login** and **Password** text boxes.
4. Click the **Login** button to enter WebUI main page. Then you can set other configurations to the device.

Tenet and SSH

You can also establish Telnet and SSH configuration environments. For more information, please see *StoneOS User Manual*.

Basic Configuration

Before you begin to use the device, you should be familiar with its features and your network deployment. Different device position in the network requires different topology design, working mode and policy configuration.

The basic configurations may include:

1. Create security zones, including the link layer (L2) and network layer (L3). Bind different interfaces to correct security zones respectively.
2. Assign IP addresses to interfaces.
3. Configure the management functions of the interfaces and create the security policy rules.
4. Assign proper network addresses and configure the NAT rules as needed.
5. Keep network connectivity by configuring routes.
6. Configure security policy rules between security zones.
7. Configure network parameters, such as DHCP and DNS agent, etc.

For more information, see *StoneOS User Manual*.

Chapter 5 Hardware Maintenance and Replacement

Introduction

This chapter explains how to install and remove the power supply module, the expansion module and the fan tray.

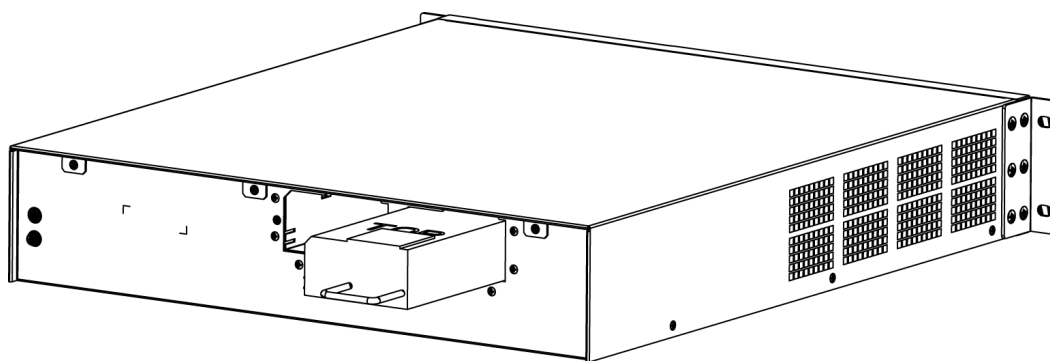
Installing and Removing the Power Supply Module

This section describes how to install and remove the power supply module of SG-6000-E6368, SG-6000-E6360, SG-6000-E6168, SG-6000-E6160, SG-6000-E5960, SG-6000-E5760, SG-6000-E5660, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168 and SG-6000-E3965. Take the following steps to install or remove the power supply module:

To install a power supply module, take the following steps:

1. Ensure that the power supply module to be used is not connected to any power source.
2. Face the back panel of the device.
3. If the power supply slot is covered by blank plate, remove the plate first (unscrew the screws on the blank plate and take it down). Skip this step if the slot is not covered.
4. Slide the power supply module all the way into the slot cage until you feel resistant.

Figure 5-1: Installing Power Supply Module



To remove the power supply module:

1. Make sure the power supply module to be used is not connected to any supply source.
2. Face the back panel of the device.
3. Pull the power supply straight out of the chassis using the provided handle.

Installing and Removing the Expansion Module

SG-6000-E6368, SG-6000-E6360, SG-6000-E6168, SG-6000-E6160, SG-6000-E5960, SG-6000-E5760, SG-6000-E5660, SG-6000-E5568, SG-6000-E5560, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168, SG-6000-E3965, SG-6000-E3968, SG-6000-E3960, SG-6000-E3668, SG-6000-E3662, SG-6000-E3660, SG-6000-E2868 and SG-6000-E2860 can accommodate expansion modules. This section describes how to install and remove the expansion module.

To install an expansion module:

1. Make sure the power is switched off and you should wear the ESD strap properly.
2. Face the front panel of the device.
3. Remove the blank plate on the expansion slot if necessary.
4. Slide the expansion module to be used into the slot until you feel resistant.
5. Tighten the screws on the expansion module.

To remove an expansion module:

1. Make sure the power is switched off and you should wear the ESD strap properly.
2. Face the front panel of the device.
3. Loosen the screws on the expansion module.
4. Pull the expansion module straight out of the chassis by holding the screws.

Note: Apply a blank plate to cover the slot where no expansion module is installed.

Installing and Removing the Fan Tray

SG-6000-E6368, SG-6000-E6360, SG-6000-E6168, SG-6000-E6160, SG-6000-E5960, SG-6000-E5760, SG-6000-E5660, SG-6000-E5568, SG-6000-E5560, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168 and SG-6000-E3965 are designed with hot-swappable fan trays.

To install a fan tray:

1. Hold the fan tray and insert it straight into the chassis until you feel resistant.
2. Tighten the screws on the fan tray.

Note: Check the FAN LED indicator when the device is powered on. A constant green shining light indicates that the fan is functioning normally.

To remove a fan tray:

1. Loosen the screws on the fan tray.

2. Pull the fan tray out of the chassis by holding the provided handle.

Note: To avoid over-heating, insert a replacement fan tray immediately after removing the existing one.

Installing and Removing the Anti-dust Mesh

SG-6000-E6368, SG-6000-E6360, SG-6000-E6168, SG-6000-E6160, SG-6000-E5568, SG-6000-E5560, SG-6000-E5268, SG-6000-E5260, SG-6000-E5168 and SG-6000-E3965 are designed with anti-dust mesh. This section describes the installation and remove of anti-dust mesh. The anti-dust mesh is hot-swappable.

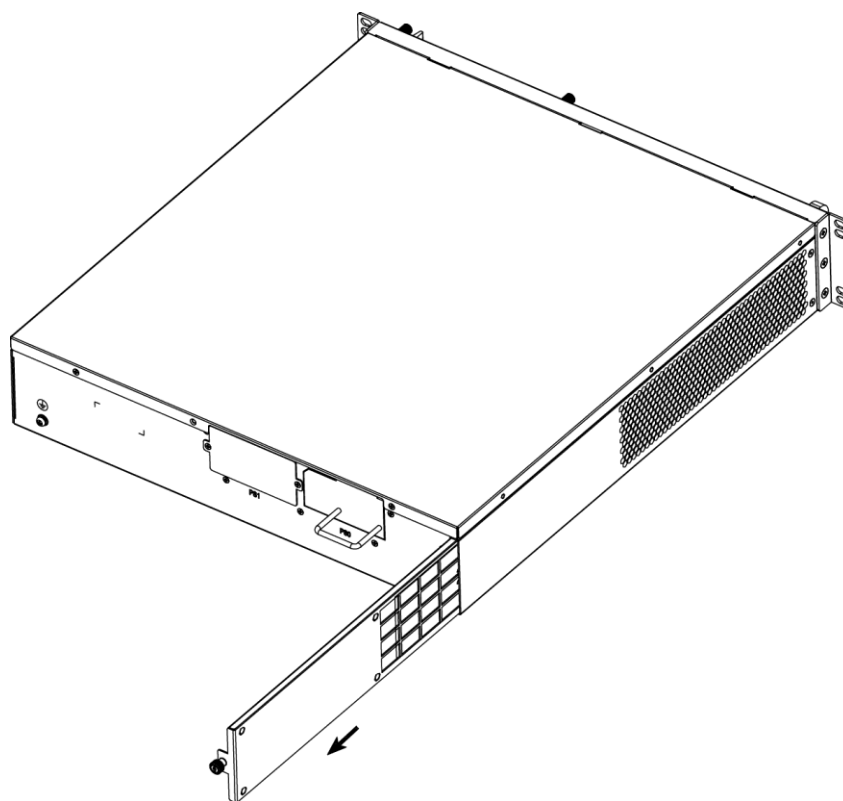
Take the following steps to install the anti-dust mesh:

1. Hold the screws of the anti-dust mesh and slide the anti-dust mesh into the slot cage until you feel resistant.
2. Tighten the screws on the anti-dust mesh.

Take the following steps to remove the anti-dust mesh:

1. Loosen the screws.
2. Hold the screws and pull the anti-dust mesh straight out of the chassis.

Figure 5-2: Pulling Anti-dust Mesh Out



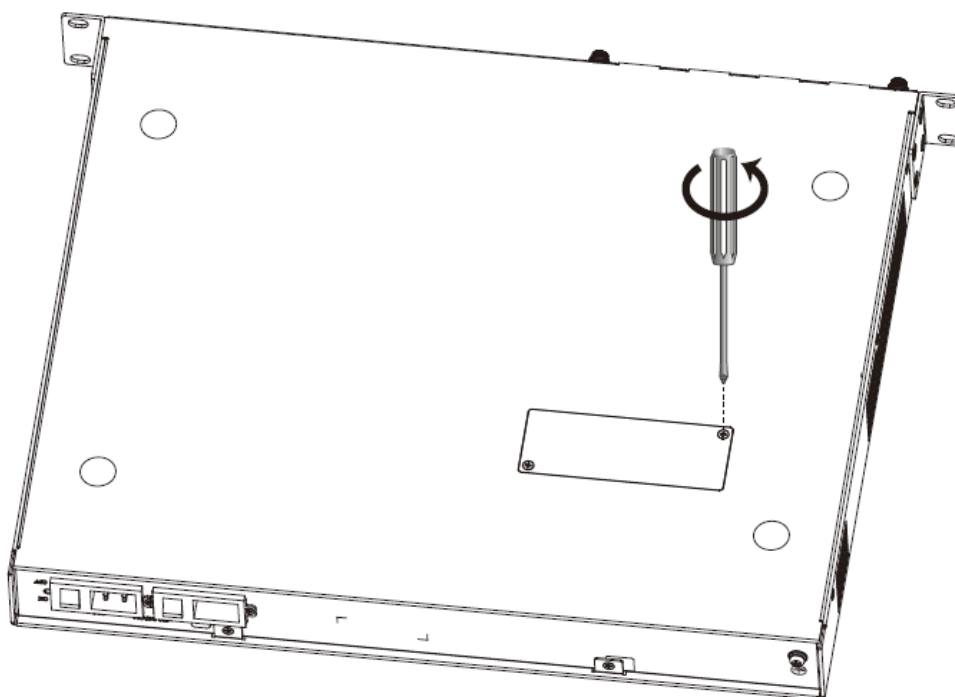
Installing and Removing the Hard Disk Module

SG-6000-E6368, SG-6000-E6168, SG-6000-E5568, SG-6000-E5268, SG-6000-E5168, SG-6000-E3968, SG-6000-E3668, and SG-6000-E2868 are designed with the hard disk module.

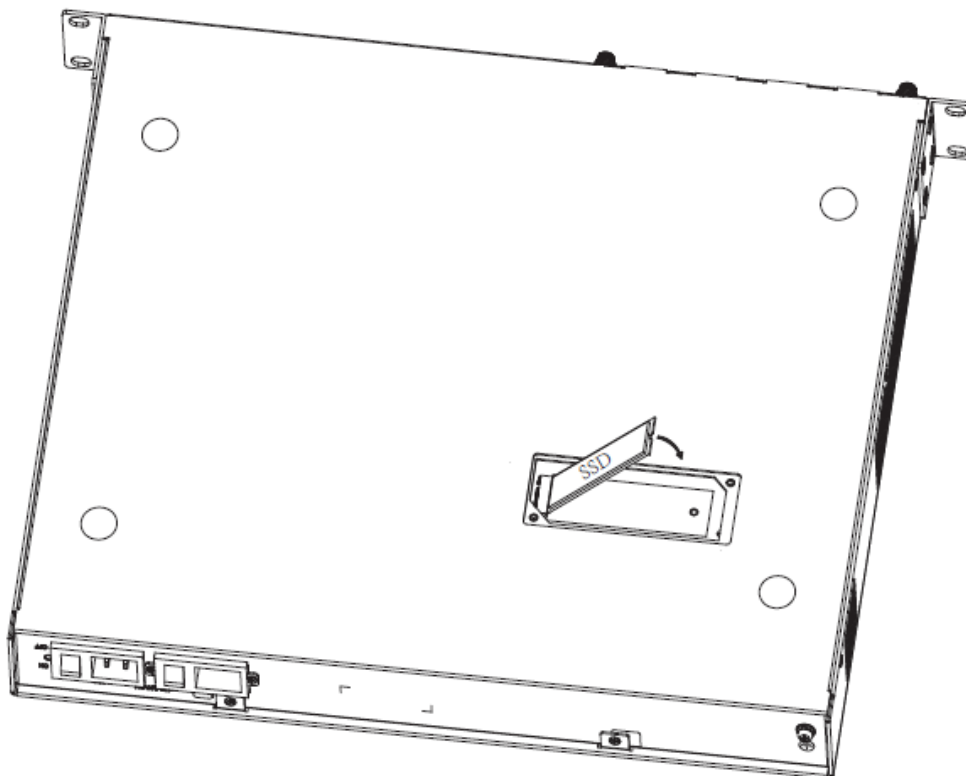
Take the following steps to install the hard disk module:

1. Make sure the device is not powered and you have worn antistatic gloves.
2. The hard disk module is at the bottom of the device, so you should turn over the device to make sure the hard disk module is visible. In order to avoid the top of the device being scratched, make sure the workbench is stable and clean.
3. Use a screwdriver to remove the blank panel from the hard disk slot you want to insert.

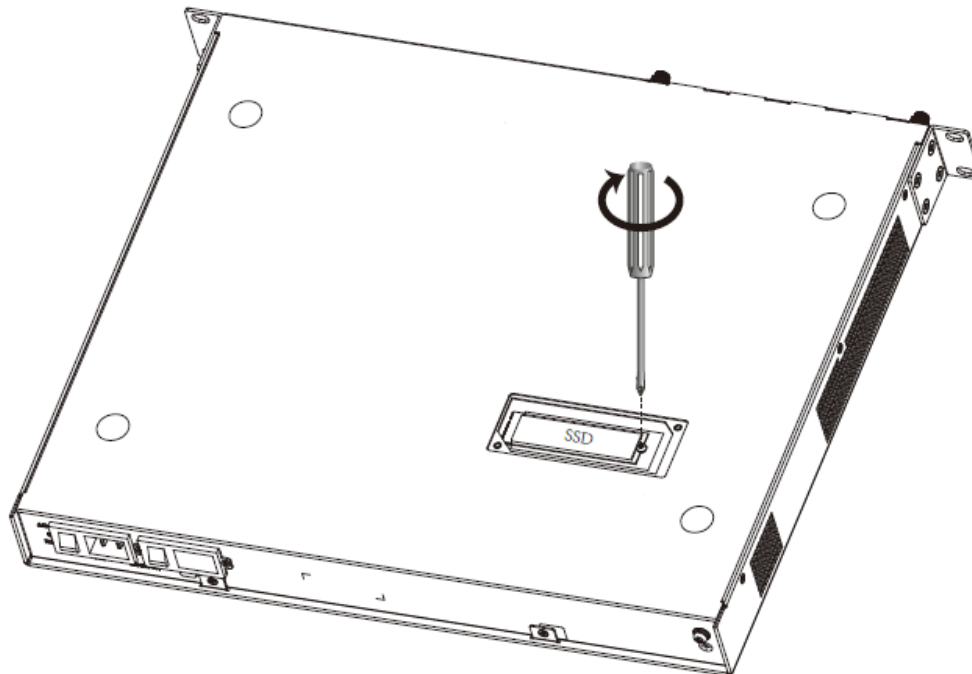
Figure 5-3: Removing the Blank Panel



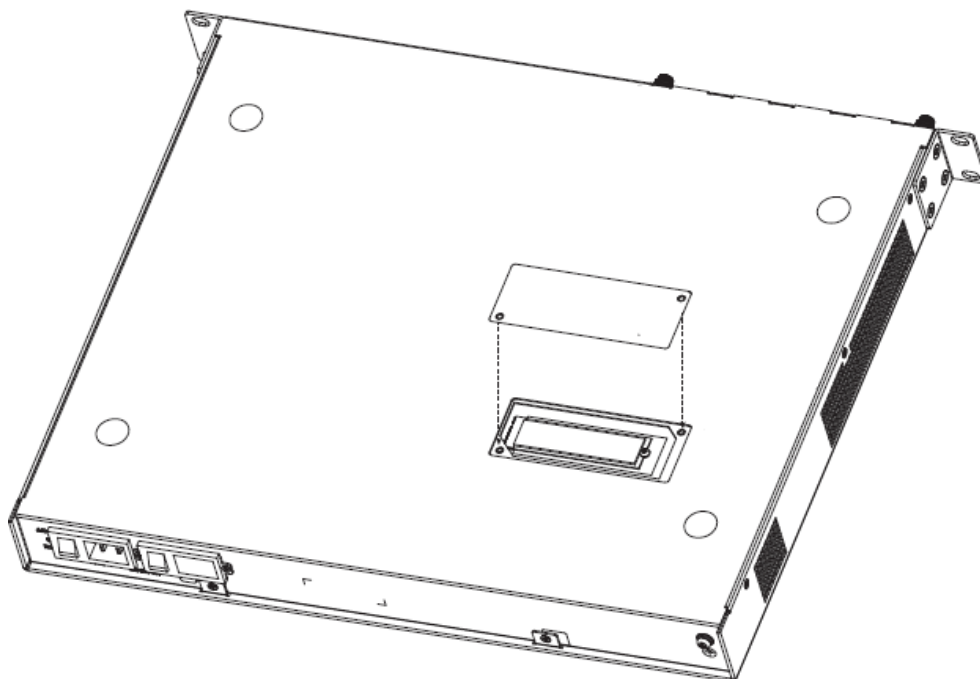
4. Place the hard disk module into the slot.

Figure 5-4: Placing the Hard Disk Module

5. Use the screw in the hard disk module package to fix the hard disk module.

Figure 5-5: Fixing the Hard Disk Module

6. Use a screwdriver to re-install the blank panel into the hard disk slot.

Figure 5-6: Installing the Blank Panel

Take the following steps to remove the hard disk module:

1. Make sure the device is not powered and you have worn antistatic gloves.
2. The hard disk module is at the bottom of the device, you should turn over the device to make sure the hard disk module is visible. In order to avoid the top of the device being scratched, make sure the workbench is stable and clean.
3. Use a screwdriver to remove the blank panel from the hard disk slot.
4. Use a screwdriver to remove the hard disk module from the hard disk slot, and put the removed module and screw into an antistatic bag or on a flat antistatic table.

Note: If you do not want to install a new module, apply a blank plate over the slot to avoid dust falling into the chassis.

Chapter 6 Troubleshooting

Introduction

This chapter provides solutions to some common problems of Hillstone devices.

Losing the Administrator Password

If you lose the administrator password, please contact your local sales representative.

Troubleshooting Power System

Check the PWR LED on the front panel of the device. If the power supply is functioning normally, the PWR LED lights steadily in green color. If the LED is off, perform the following steps:

- ◆ Make sure the power supply cable is connected correctly.
- ◆ Ensure that the voltage of the power source conforms to the required voltage.

For the PWR LED information, see [LED Indicators](#).

Troubleshooting the Configuration System

The Console configuration terminal shows system booting message when the device is powered on. If the configuration system has failed, it displays error information or nothing at all.

If the configuration terminal shows no information, perform the following steps:

- ◆ Make sure the power supply is correctly connected and powered on.
- ◆ Verify the Console cable is connected properly.
- ◆ Ensure the terminal configuration settings are correct.

If above steps reveal no error, the Console cable may be broken.

Appendix: Supported Versions of Devices

During the production process, components of part SG-6000 E series devices have been updated, which may cause the incompatibility among software versions. The tables below display the devices of which the components have updated. Check whether your device is in the following tables. If it is, it's strongly recommended you update the device to the suggested versions in reference of the device production date and usage of the module (only IOC-2SFP+-lite).

The usage of module will affect the supported versions of devices. For example, the devices in the Table 1 should be upgraded as the supported version of devices within the specified period, while for the devices in the Table 2 which support the IOC-2SFP+-lite, you need to check whether the device use the module before updating. If the IOC-2SFP+-lite module is used, the devices should be upgraded as the supported versions of the module, and if it's not used, devices should be updated as the supported versions of the devices. The details of supported version are showed as follows. You can also call 1-800-889-9860 for more help about updating.

Note:

- The devices which are not listed in the following table can update normally.
- The devices in the Table 1 which are produced before the specified period can update normally.
- The devices in the Table 2 which are produced before the specified period and do not use the IOC-2SFP+-lite module can update normally.
- You can find the production date of the device according to the SN. There is 16-digit SN on the Hillstone devices. Among it, the 6th and 7th number mean the production week and the 8th and 9th number mean the production year. Taking the SN of xxxxx4018xxxxxxx for example, the device is produced in the 40th week of 2018 year.

Table 1: Supported Versions of Devices

Device Model (Part of devices are delisted)	Device SN Range(Update devices to the supported versions if SN is within the range)	Device Supported Versions
SG-6000-E3960, SG-6000-E3968, SG-6000-E3965G		5.0R4P18 and later P versions
SG-6000-C5250, SG-6000-C5450, SG-6000-C5650, SG-6000-C6050	xxxxx0717xxxxxxx - Now	5.0R4P5.42 and later P versions
SG-6000-G5150E, SG-6000-G5150-E	(The 7th week of 2017 - Now)	5.5R1P15 and later P versions
SG-6000-P1236, SG-6000-P1236_I, SG-6000-P1242, SG-6000-P1242-I, SG-6000-P1246		5.5R2P5 and later P versions
SG-6000-Z3965, SG-6000-Z5560		5.5R3P2 and later P versions 5.5R4 and later versions (e.g. 5.5R5, 5.5R6, 5.5R7)

Device Model (Part of devices are delisted)	Device SN Range (Update devices to the supported versions if SN is within the range)	Device Supported Versions
SG-6000-E3660, SG-6000-E3660S, SG-6000-E2860, SG-6000-E3662, SG-6000-E2868, SG-6000-E3668, SG-6000-E1100, SG-6000-E1600, SG-6000-E1700, SG-6000-E1606, SG-6000-E2300, SG-6000-E2300S, SG-6000-E2800		
SG-6000-ABG1000, SG-6000-ABG2000		
SG-6000-C4100, SG-6000-C4550, SG-6000-C5050, SG-6000-C1200W, SG-6000-C600, SG-6000-C1000, SG-6000-C1500, SG-6000-C2000, SG-6000-C3000, SG-6000-C1300, SG-6000-C2100, SG-6000-C3100, SG-6000-C4000	xxxxxx1018xxxxxxx-Now	5.0R4P14 and later P versions 5.0R4P5.42 and later P versions 5.5R1P13 and later P versions
SG-6000-NAV20L, SG-6000-NAV55	(The 10th week of 2018-Now)	5.5R2P2 and later P versions
SG-6000-P935, SG-6000-P936, SG-6000-P912, SG-6000-P912_I, SG-6000-P915, SG-6000-P916, SG-6000-P926, SG-6000-P932, SG-6000-P932_I, SG-6000-P1246E, SG-6000-P1246E-I, SG-6000-P1256, SG-6000-P1252, SG-6000-P1252-I		5.5R3 and later versions (e.g. 5.5R4, 5.5R5, 5.5R6, 5.5R7)
SG-6000-Z2300, SG-6000-Z5960		
SG-6000-E6160, SG-6000-E6168, SG-6000-E6360, SG-6000-E6368		5.5R2P8 and later P versions 5.5R3P9 and later P versions
SG-6000-ABG4000	xxxxxx1518xxxxxxx-Now	5.5R4P7 and later P versions
SG-6000-P1266, SG-6000-P1266-I	(The 15th week of 2018-Now)	5.5R5P4 and later P versions
SG-6000-Z6160		5.5R6P3 and later P versions 5.5R7 and later versions

Table 2: Supported Versions of Devices

Device Model	Device SN Range(Update devices to the supported versions if SN is within the range)	Whether IOC-2SFP+ lite is Used	Device Supported Versions
SG-6000-E5260, SG-6000-E5268, SG-6000-E5168, SG-6000-E5560, SG-6000-E5568, SG-6000-E3965	Before xxxxx0717xxxxxxx (Before the 7th week of 2017)	Yes	5.5R2P14 and later P versions 5.5R4P9 and later P versions 5.5R5P7 and later P versions 5.5R6P2 and later P versions 5.5R7 and later versions
	xxxxx0717xxxxxxx-Now (The 7th week of 2017-Now)	Yes	5.5R2P14 and later P versions 5.5R4P9 and later P versions 5.5R5P7 and later P versions 5.5R6P2 and later P versions 5.5R7 and later versions
		No	5.0R4P18 and later P versions 5.0R4P5.42 and later P versions 5.5R1P15 and later P versions 5.5R2P5 and later P versions 5.5R3P2 and later P versions 5.5R4 and later versions (e.g. 5.5R5, 5.5R6, 5.5R7)
SG-6000-E5660, SG-6000-E5760, SG-6000-E5960	Before xxxxx1018xxxxxxx (Before the 10th week of 2018)	Yes	5.5R2P14 and later P versions 5.5R4P9 and later P versions 5.5R5P7 and later P versions 5.5R6P2 and later P versions 5.5R7 and later versions
	xxxxx1018xxxxxxx-Now (The 10th week of 2018-Now)	Yes	5.5R2P14 and later P versions 5.5R4P9 and later P versions 5.5R5P7 and later P versions

Device Model	Device SN Range(Update devices to the supported versions if SN is within the range)	Whether IOC-2SFP+ lite is Used	Device Supported Versions
			5.5R6P2 and later P versions 5.5R7 and later versions
		No	5.0R4P14 and later P versions 5.0R4P5.42 and later P versions 5.5R1P13 and later P versions 5.5R2P2 and later P versions 5.5R3 and later versions (e.g. 5.5R4, 5.5R5, 5.5R6, 5.5R7)

Addendum FCC Statement

Warning: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not, however, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

RF Exposure: A distance of 20 cm shall be maintained between the antenna and users, and the transmitter may not be co-located with any other transmitter or antenna.

2.4GHz Band List:

DTS (2400-2483.5 MHz)

5GHz Band List:

UNII-1 (5150-5250 MHz) and (5745-5828MHz)

Industry Canada Statement:

This device complies with RSS-247 of the Industry Canada Rules. Operation is subject to the following two conditions: 1) this device may not cause interference and 2) this device must accept any interference, including interference that may cause undesired operation of the device.

This class B digital apparatus complies with Canadian ICES-003

IC Radiation Exposure Statement: This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment.

Avis d'Industrie Canada:

Cet appareil est conforme à la norme CNR-210 des règlements d'Industrie Canada. Son fonctionnement est sujet aux deux conditions suivantes: 1) Cet appareil ne doit pas provoquer d'interférences et 2) Cet appareil doit accepter toutes les interférences, y compris celles pouvant entraîner son dysfonctionnement. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada
Avis d'Industrie Canada sur l'exposition aux Rayonnements: Cet appareil est conforme aux limites d'exposition aux rayonnements d'Industrie Canada pour un environnement non contrôlé.

European notice

The equipment named above is confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States

relating to Electromagnetic Compatibility (2004/108/EC), Low-voltage Directive (2006/95/EC) and R&TTE (1999/5/EC).

The equipment passed the test which was performed according to the following European standards:

- ETSI EN 300 328 V1.8.1 (2012-06)
- EN 301 893 V1.7.1 (2012-06)
- EN 62311: 2008
- EN 301 908-1 V5.2.1 EN 301 908-2 V5.2.1 EN 301 511 V9.0.2
- EN 300 440-1 V1.6.1 EN 300 440-2 V1.4.1
- EN 301 489-1 V1.9.2 EN 301 489-7 V1.3.1 EN 301 489-17 V2.2.1 EN 301 489-24 V1.5.1
- EN 50383:2010
- EN 50385:2002
- EN 62311:2008
- EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011

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