Optical transceiver 光模块

Before install the chassis, make sure that the optical transceiver must not install into the optical port, avoid to damage it.

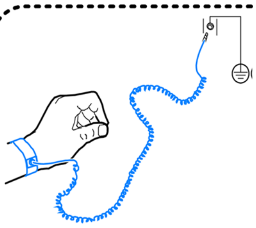
安装机箱前，必须保证光模块不能插在光接口上，以免碰撞损坏光模块。

Electrostatic Protection 静电防护

Before touching the device, or holding the boards or IC chips, wear the ESD gloves or the ESD wrist strap (Ensure that the other end of the ESD wrist strap is well grounded.) to prevent the electrostatic discharge of the human body from damaging the sensitive components.

在接触设备，手拿单板或 IC 芯片等操作之前，为防止人体静电损坏敏感元器件，必须佩戴防静电手套或防静电腕带（应将防静电腕带的另一端良好接地）。

ESD gloves
防静电手套



ESD wrist strap
防静电腕带

Bundling cables 绑扎电缆

The distance between cable ties for all cables outside the cabinet is the same as the distance between two horizontal beams. For the cabling trough without beams, bundle the cables with the distance not exceeding 250 mm between cable ties.

在机柜外部，所有线缆的线扣绑扎距离以两横梁之间的间距为准，没有横梁的走线槽按照不超过 250mm 的间距绑扎。

Affixing labels / tags 粘贴标签/标识牌

- After routing the cable, affix the label or fasten the tag to the cable, and 20 mm away from the connector.
  电缆布放完成后需要粘贴标签/绑扎标识牌，默认粘贴/绑扎在距离连接器 20mm 处。
- After the label for the signal cable is affixed to the signal cable, the rectangular text area of the label should face rightwards or downwards.
  信号线标签在信号线上粘贴后长条形文字区域一律朝向右或向下。
- After the identification plate for the power cable is affixed to the power cable, the text area of the plate should face rightwards or downwards. Ensure that the side affixed with the label faces outwards.
  电源线标识牌在电源线上绑扎后文字区域一律朝向右或向上，并保证粘贴标签的一面朝向外侧。

Check Tools and Meters 检查工具仪表

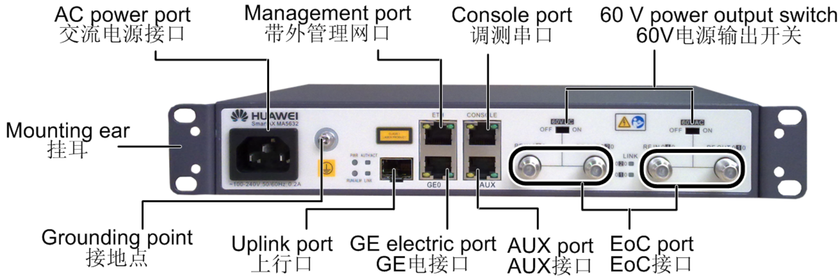
Before you begin, get the following tools ready.

在安装前，请准备下面的工具：

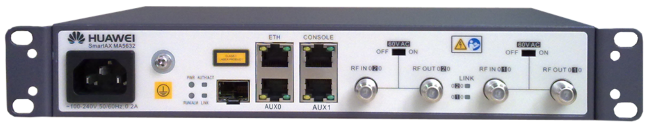
 Marker pen 记号笔	 Flathead screwdriver 一字螺丝刀	 Phillips screwdriver 十字螺丝刀	 Diagonal pliers 斜口钳
 Network cable crimping pliers 网线钳	 Paper knife 裁纸刀	 Hydraulic crimper 液压夹紧器	 Cable cutter 电缆剪
 ESD gloves 防静电手套	 ESD wrist strap 防静电腕带	 Multimeter 万用表	 Optical power meter 光功率计

Outline and Structure 机箱外观结构

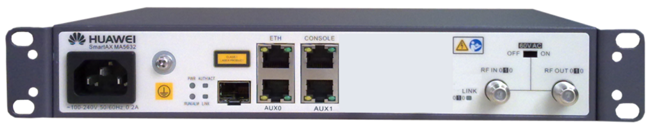
MA5632 (220 V AC; with 2-way EoC port, 1 GE uplink port)　MA5632（220V交流；带2路EoC接口，带GE上行电口）



MA5632 (220 V AC; with 2-way EoC port)　MA5632 （220V交流；带2路EoC接口）



MA5632 (220 V AC; with 1-way EoC port)　MA5632 （220V交流；带1路EoC接口)



MA5632 (60 V AC; with 1-way EoC port)　MA5632 （60V交流；带1路EoC接口)

The 11-inch dimensions of MA5632
11英寸MA5632机箱尺寸

Unit: mm
单位：mm

Collecting the MAC Address and Serial Number 采集 MAC 地址和序列号

NOTE

- On the installation site, the hardware installation engineer should collect the “MAC Address” and “Serial Number” of the MA5632 for the software commissioning engineer to configure and manage the MA5632 remotely.
  现场施工时，硬件安装工程师需采集MA5632的“MAC地址”和“序列号”，提供给软调工程师，以便软调工程师能对MA5632进行远程配置管理。
- The “MAC Address” is used for MA5632 (with the EPON optical port).
  “MAC地址”用于配置有EPON光接口的MA5632。
- The “Serial Number” is used for MA5632 (with the GPON optical port).
  “序列号”用于配置有GPON光接口的MA5632。
- When collecting the “MAC Address” and “Serial Number”, the hardware installation engineer needs to affix the "MAC Address" and “Serial Number” labels to the corresponding place of the following table, and then record the actual installation location of the MA5632.
  硬件工程师采集时，分别把“MAC地址”和“序列号”标签粘贴到下面表格中的对应位置，并记录下MA5632安装的实际位置。
- After the hardware installation, transfer this piece of paper (titled "MAC Address and Serial Number Table") to the software commissioning engineer.
  硬件施工完毕，将该纸张提供给软调工程师。

0018825A7EFC-FD(2)

MAC Address (12bit)
MAC地址(12位)

323031317BE13441

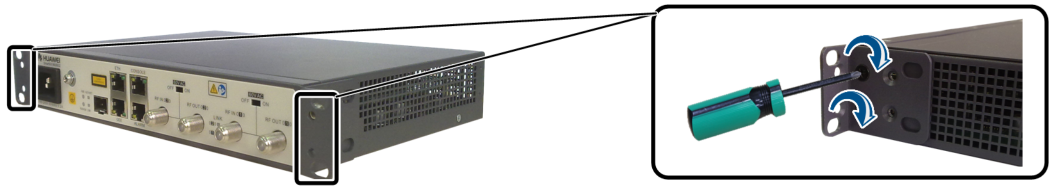
Serial Number (16bit)
序列号（16位）

NO. 序号	Device type 设备类型		MAC Address and Serial Number MAC地址和序列号	Device Installation Location 设备所处位置
Example 样例	MA5632	EPON	00259EDEFA29-2A (2)	** Building ** Floor ONU-1 **大厦**楼ONU-1
		GPON	48575443DEFA2902	
1	MA5632	EPON		
		GPON		

Installing the Chassis 安装机箱

5.1 Installation in the Cabinet 在机柜中安装

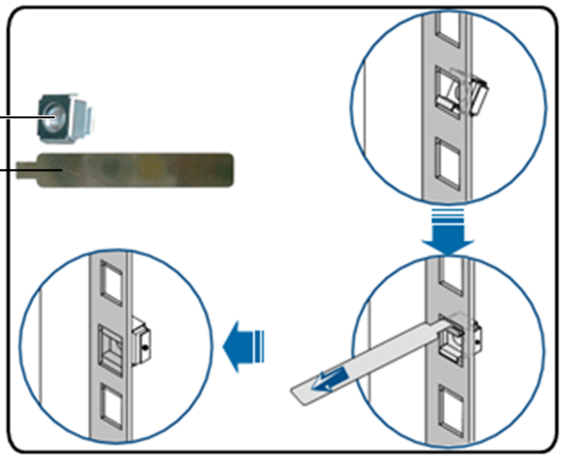
1 Install the mounting ears
安装挂耳



2 Install the captive nut
安装浮动螺母

Captive Nut
浮动螺母

Mount bar(Use a flat-head screwdriver if no mountbar is available)
浮动螺母安装条(如果没有浮动螺母安装条可以用一字螺丝刀代替)



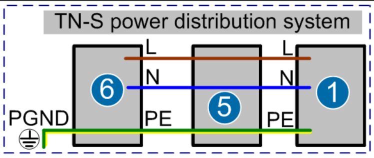
3 Install the chassis
安装机箱

NOTE
If you need long rack-mounting ear for MA5632, please contact Huawei Technologies Co., Ltd..
如果MA5632需要长挂耳，请与华为技术有限公司联系处理。

Flathead screwdriver
一字螺丝刀

Phillips screwdriver
十字螺丝刀

5.2 Installation in the Network Cabinet of the Customer 在客户自备网络箱中安装

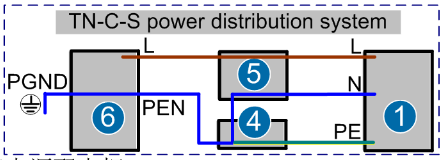


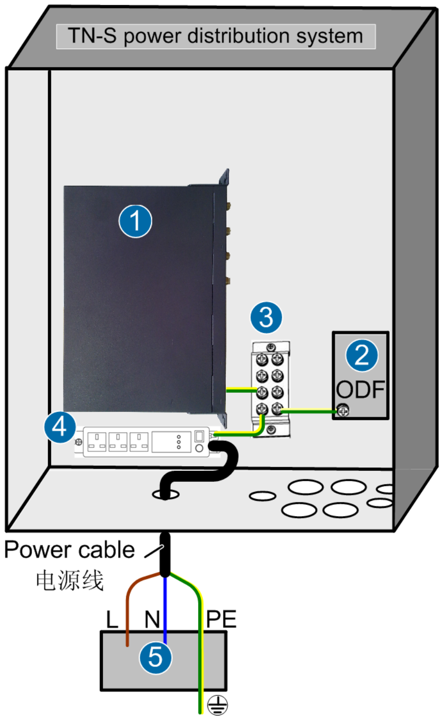
1 MA5632 (AC-powered) 2 ODF

3 Grounding bar 接地排

4 AC lightning protection bar 交流防雷插排

5 AC power distribution cabinet 交流电源配电柜





In the case of the TN-C-S and TN-S AC power distribution systems, it is recommended that you use the PE wire of the AC power cable for the MA5632 grounding connection. The prerequisite is that the PE wire of the AC power cable for the corridor of the building is already grounded properly.

对于TN-C-S和TN-S交流配电系统，推荐采用交流电源线的PE线实现MA5632的接地。前提是楼道建筑物自身交流电源线的PE线已可靠接地。

Use the ground cable (the cross-sectional area of the ground cable should be equal to or greater than 6 mm^2) to connect the grounding bar and all the internal devices, and the grounding bar to the network cabinet in an equipotential manner through a metallic structure.

网络箱内部所有设备连接通过地线（线径应不小于6mm^2）到接地排，接地排通过金属结构与网络箱实现等电位连接。

Connect the grounding point of the reinforcing rib of the optical fiber to the ground bar through a ground cable, or connect this grounding point to the network cabinet in an equipotential manner through a metallic structure.

光纤加强筋接地点，需要通过地线与接地排连接；接地点也可以通过金属结构与网络箱等电位连接。

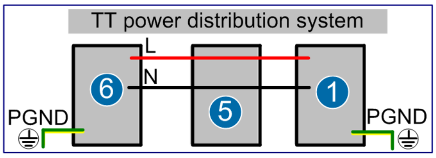
CAUTION

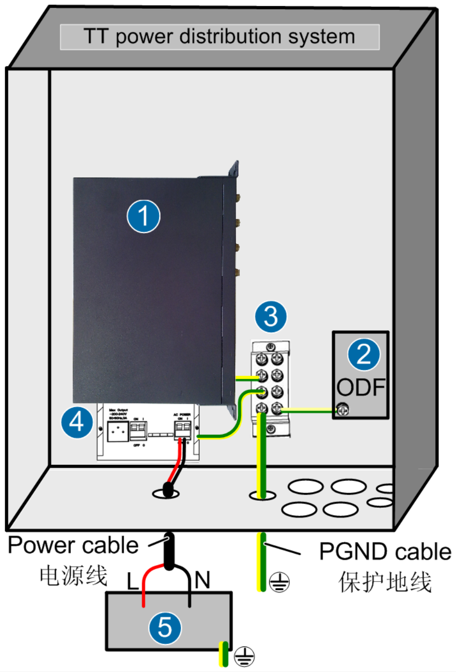
When the PE line of the AC power cable in the building of the corridor does not meet the grounding requirement, the network cabinet must be grounded through an external ground cable (PGND cable), ensure that the reinforcing rib of the optical fiber is disconnected from the device.

当楼道建筑物自身的交流电源线的PE线不具备接地条件时，网络箱必须通过外部地线（保护地线）接地，且要保证光纤加强筋和设备地断开。

A power cable with 3-5 m must be used for decoupling between the surge protector and the ONU power supply.

防雷器到ONU设备电源之间要求采用3m-5m长的电源线做退耦。





1 MA5632 (AC-powered) 2 ODF 3 Grounding bar 接地排

4 AC PDU 交流配电盒 5 AC power distribution cabinet 交流电源配电柜

In the case of the TT power distribution system, it is recommended that an external grounding device be adopted. For example, use the dedicated grounding device of the building (such as the grounding flat steel sheet, grounding stud, and grounding bar) or the base steel bar of the reinforcement concrete of the building, or deploy a new earth screen.

对于TT配电系统，推荐采用外部接地装置进行接地，比如采用建筑物专用接地装置（接地扁钢、地桩、接地排）、建筑物混凝土基础钢筋、新建接地网等。

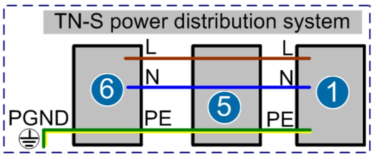
Use the ground cable (the cross-sectional area of the ground cable should be equal to or greater than 6 mm^2) to connect the grounding bar and all the internal devices, and the grounding bar to the network cabinet in an equipotential manner through a metallic structure.

网络箱内部所有设备连接通过地线（线径应不小于6mm^2）到接地排，接地排通过金属结构与网络箱实现等电位连接。

Connect the external ground cable (PGND cable) of the network cabinet to the external grounding device. As specified by the national grounding standard, the cross-sectional area of the external ground cable should be equal to or greater than 16 mm^2.

网络箱外部接地线（保护地线），要连接到外部接地装置，按照国家的接地标准，此线径应不小于16mm^2。

5.3 Guide for Grounding the Network Cabinet of the Customer 客户自备网络箱接地指导



1 MA5632 (AC-powered) 2 ODF

3 Grounding bar 接地排

4 AC lightning protection bar 交流防雷插排

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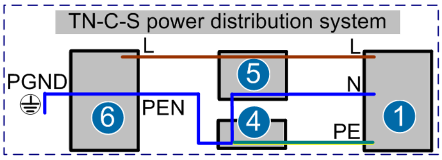

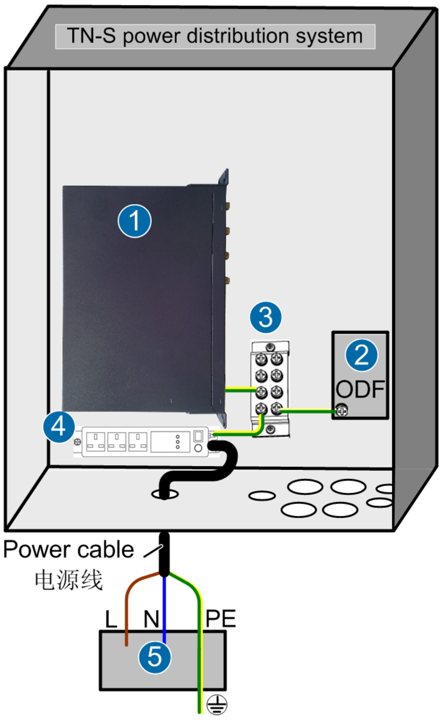

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对于TN-C-S和TN-S交流配电系统，推荐采用交流电源线的PE线实现MA5632的接地。前提是楼道建筑物自身交流电源线的PE线已可靠接地。

Use the ground cable (the cross-sectional area of the ground cable should be equal to or greater than 6 mm^2) to connect the grounding bar and all the internal devices, and the grounding bar to the network cabinet in an equipotential manner through a metallic structure.

网络箱内部所有设备连接通过地线（线径应不小于6mm^2）到接地排，接地排通过金属结构与网络箱实现等电位连接。

Connect the grounding point of the reinforcing rib of the optical fiber to the ground bar through a ground cable, or connect this grounding point to the network cabinet in an equipotential manner through a metallic structure.

光纤加强筋接地点，需要通过地线与接地排连接；接地点也可以通过金属结构与网络箱等电位连接。

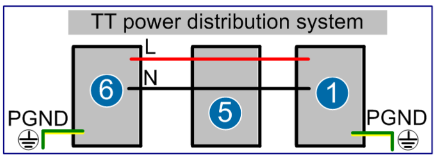
CAUTION

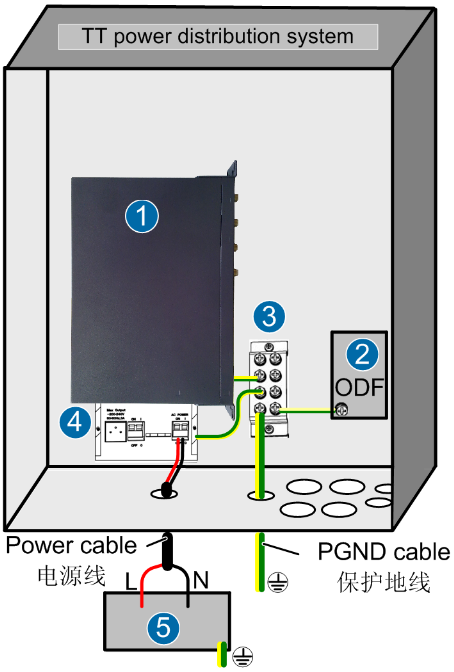
When the PE line of the AC power cable in the building of the corridor does not meet the grounding requirement, the network cabinet must be grounded through an external ground cable (PGND cable), ensure that the reinforcing rib of the optical fiber is disconnected from the device.

当楼道建筑物自身的交流电源线的PE线不具备接地条件时，网络箱必须通过外部地线（保护地线）接地，且要保证光纤加强筋和设备地断开。

A power cable with 3-5 m must be used for decoupling between the surge protector and the ONU power supply.

防雷器到ONU设备电源之间要求采用3m-5m长的电源线做退耦。





1 MA5632 (AC-powered) 2 ODF 3 Grounding bar 接地排

4 AC PDU 交流配电盒 5 AC power distribution cabinet 交流电源配电柜

In the case of the TT power distribution system, it is recommended that an external grounding device be adopted. For example, use the dedicated grounding device of the building (such as the grounding flat steel sheet, grounding stud, and grounding bar) or the base steel bar of the reinforcement concrete of the building, or deploy a new earth screen.

对于TT配电系统，推荐采用外部接地装置进行接地，比如采用建筑物专用接地装置（接地扁钢、地桩、接地排）、建筑物混凝土基础钢筋、新建接地网等。

Use the ground cable (the cross-sectional area of the ground cable should be equal to or greater than 6 mm^2) to connect the grounding bar and all the internal devices, and the grounding bar to the network cabinet in an equipotential manner through a metallic structure.

网络箱内部所有设备连接通过地线（线径应不小于6mm^2）到接地排，接地排通过金属结构与网络箱实现等电位连接。

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网络箱外部接地线（保护地线），要连接到外部接地装置，按照国家的接地标准，此线径应不小于16mm^2。

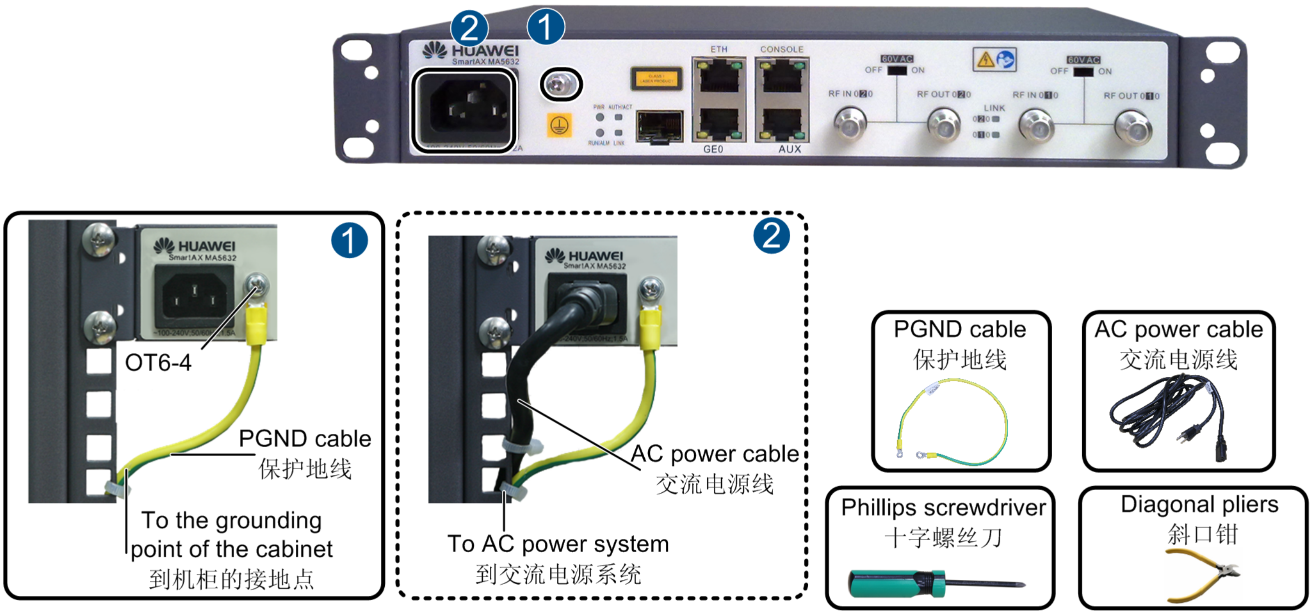
Routing Cables 布放线缆

6.1 Routing the PGND Cable and the Power Cable 布放保护地线和电源线

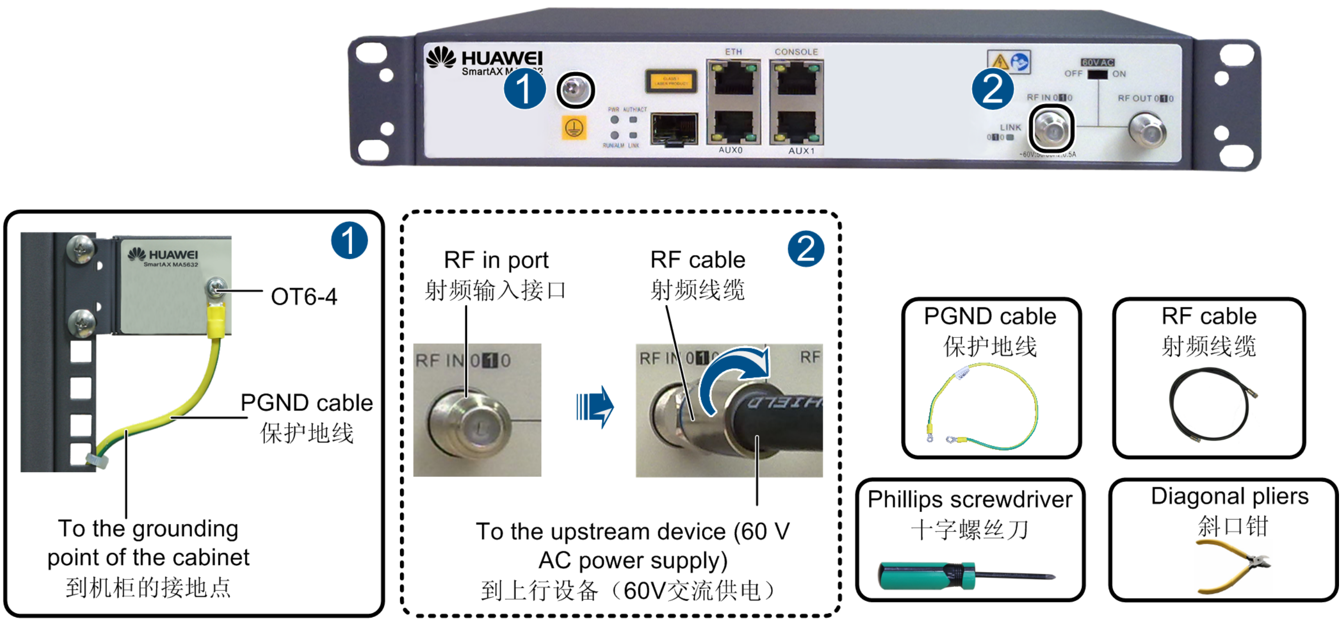
CAUTION

- Connect the PGND cable properly to ensure that the chassis is protected from the lightning and other interferences.
  保护地线的正确连接是机箱防雷、防干扰的重要保障，所以必须正确地接好保护地线。
- Before routing the AC power cable, turn off the output switch of the AC power system that supplies power to the MA5632.
  布放交流电源线前，请断开为MA5632 供电的交流电源系统输出开关。

When the MA5632 is 220 V AC-powered
MA5632 220V交流供电时



When the MA5632 is 60 V AC-powered
MA5632 60V交流供电时

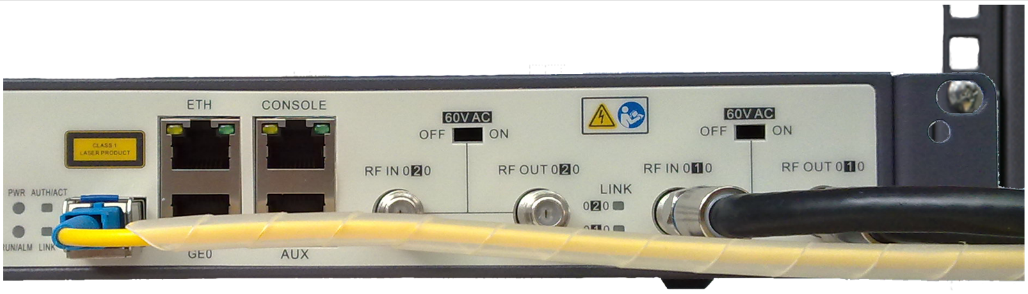


Routing Cables 布放线缆

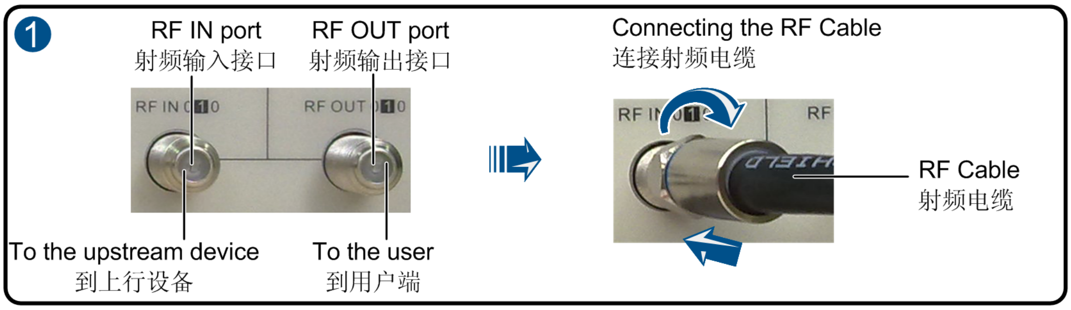
6.2 Routing Signal Cables 布放信号线缆

CAUTION

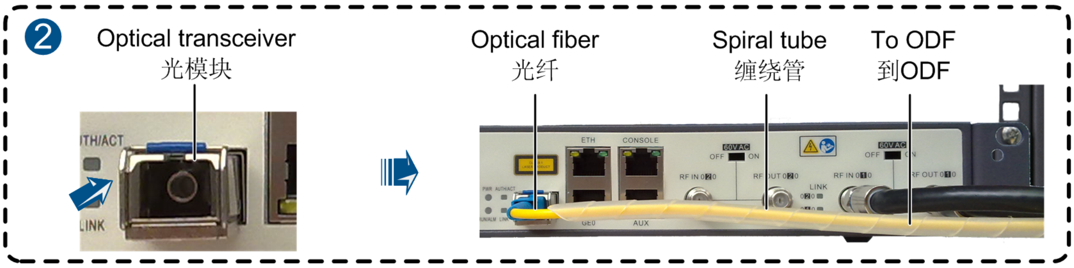
- When handling optical fibers, do not stand close to, or look into the optical fiber outlet with unprotected eyes.
  进行光纤的安装、维护等各种操作时，严禁肉眼靠近或直视光纤接口。
- The bending radius of the optical fiber should be more than 20 times the cable diameter. In general, the bending radius of the optical fiber is greater than or equal to 40 mm.
  光纤的曲率半径应大于光纤直径的20倍，一般情况下曲率半径不小于40 mm。



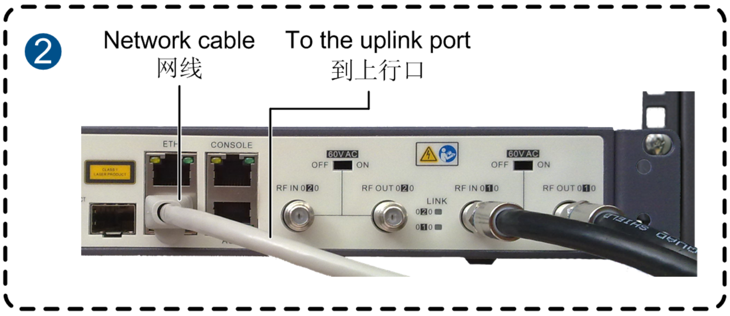
1



2



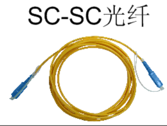
2



Diagonal pliers
斜口钳

Network cable crimping pliers
网线钳

SC-SC optical fiber
SC-SC光纤



RF cable
射频线缆

Network cable
网线

Checking the Installation 安装后检查

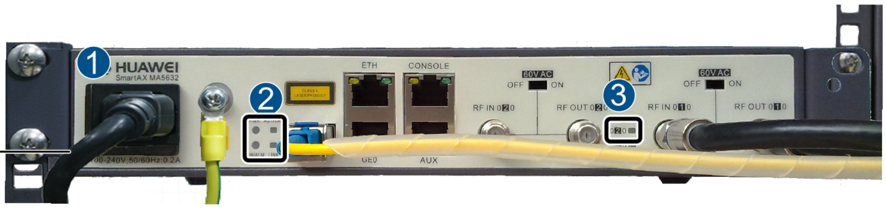
No. 序号	Description 检查内容	Method 检查方法
1	No any material is placed on the chassis. 机箱上没有放置其他物品。	Observe 查看
2	All the cables are bound with proper tightness. The space between the cable ties is even, and the remaining parts of the cable ties are cut off neatly. All cable ties face the same direction resulting in a uniform appearance. 电缆绑扎间距均匀，松紧适度，线扣扎好后应将多余部分齐根剪掉，不留尖刺，扎扣朝同一个方向，保持整体整齐美观。	Observe 查看
3	The cross sectional areas of the power cable and the ground cable comply with the engineering design and meet the requirements of device running. 电源线、地线线径符合工程设计文件，满足设备配电要求。	Observe 查看
4	The power cable and the ground cable use an entire segment of copper core. The cable has no connection in the middle or scratch on the jacket. 电源线、地线应采用整段铜芯材料，中间不能有接头，外皮无损伤。	Observe 查看
5	The power cable and the ground cable must be routed horizontally and vertically without crossover. Proper margins must be reserved at the turning. 电源线、地线走线应平直，绑扎整齐，转弯处留合适余量。	Observe 查看
6	The power cable and ground cable must be connected correctly and reliably. 电源线、地线连接正确可靠，接触良好。	Observe 查看
7	The identifiers on the power cable and ground cable must be correct, legible, and neat. 电源线、地线的标识正确、清晰、整齐。	Observe 查看
8	The power cable, ground cable, and signal cables must be routed separately. 电源线、地线与信号线分开布放。	Observe 查看
9	Signal cables must be of the correct length and must not be damaged or broken. There must not be any joints in the cable. 信号电缆必须有足够长度，不应有破损、断裂、中间接头。	Observe 查看
10	The connectors of the signal cables must be neat and intact. Each connector must be properly and firmly fastened. The tips must be connected securely. 信号电缆插头干净无损坏，插接正确可靠，芯线卡接牢固。	Observe 查看
11	Labels at both ends of the signal cables must be marked correctly, clearly and neatly. 信号电缆两端标识正确、清晰、整齐。	Observe 查看
12	If the optical fibers must be routed outside the cabinet, protection measures must be taken such as using corrugated pipes or guide troughs. 光纤在机柜外布放，须采取保护措施，如加波纹管或槽道等。	Observe 查看
13	Place the optical fiber pairs in order and bind them carefully with optical binders. No sharp edges are allowed. 成对光纤要理顺后用光纤绑扎带绑扎，且绑扎力度适宜，不能有扎痕。	Observe 查看

Powering On the System 上电检查

NOTE

- Power on the device only when the input voltage is in the normal range. Test the AC input voltage for the MA5632. The voltage range for MA5632 (220 V AC) is from 100 V to 240 V, and MA5632 (60 V AC) is from 35 V to 85 V.
  输入电压在正常电压范围内，才可以进行设备的上电。测试MA5632的交流输入电压，MA5632(220 V交流)的电压正常范围为：100 V ～240 V，MA5632(60V交流)的电压正常范围为：35 V ～85 V。
- The default status of 60 V power output switch is OFF. When the MA5632 need supply 60 V AC power output, Please move the switch to ON status.
  60 V AC电源输出开关默认状态为OFF。当MA5632需要提供60V AC电源输出时，请移动开关到ON的状态。
- After the device is powered on, during the registration, the Auth LED of the SFP port blinks quickly and the Link LED of the PON port is on. After the registration is successful, the LED status is as shown in figure 2.
  设备上电后，注册时SFP口上的Auth 灯快速闪烁并且Link 灯亮。注册成功后，LED灯状态如图2所示。
- According to the label information in a product, input correct voltage value. If power plug drop when being used, you must connect to the power again based the information on the product label.
  使用前必须依据产品标签上的信息，输入正确的电压。若在使用中电源插头松脱，必须依据产品标签上的信息重新接上电源。

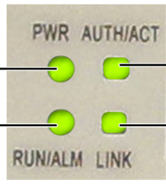
MA5632 (220 V AC-powered)
MA5632（220V交流供电)



To 220 V AC power system
到220V交流电源系统

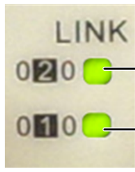
1 Turn on the output switch of the 220 V AC power system that supplies power to the MA5632.
闭合为MA5632 供电的220V交流电源系统输出开关。

2 Green on
绿灯常亮
Green on for 1 s and off for 1 s repeatedly
绿灯1s亮1s灭周期闪烁



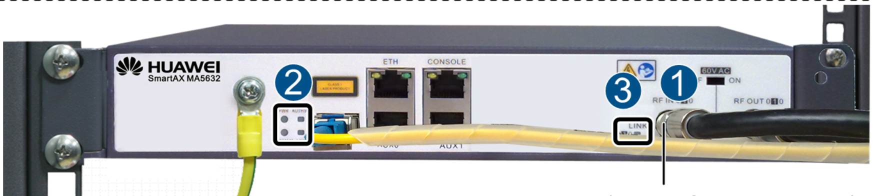
Green on
绿灯常亮

3



Green on
绿灯常亮

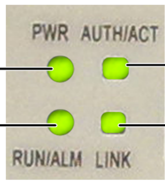
MA5632 (60 V AC-powered)
MA5632（60V交流供电)



To the upstream device (60 V AC power supply)
到上行设备（60V交流供电）

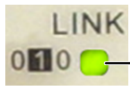
1 Turn on the output switch of the 60 V AC power system that supplies power to the MA5632.
闭合为MA5632 供电的60V交流电源系统输出开关。

2 Green on
绿灯常亮
Green on for 1 s and off for 1 s repeatedly
绿灯1s亮1s灭周期闪烁



Green on
绿灯常亮

3



Green on
绿灯常亮

When the MA5632 need supply 60 V AC power output, Please move the switch to ON status.
当MA5632需要提供60V AC输出时，请移动开关到ON的状态。

CAUTION

No electricity will play to please switch OFF, lest 60 V AC to the output to hurt people.
不通电时请将开关打到OFF,以免60V AC传到输出端伤到人。

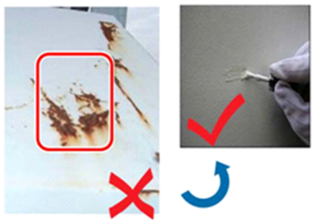
OFF
断开

ON
闭合

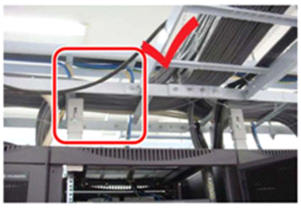
FAQs for Installation 常见安装问题集锦

Keep of electromagnetic interface.
远离电磁干扰。

Use a dedicated lightning protection bar.
使用专业防雷插排。



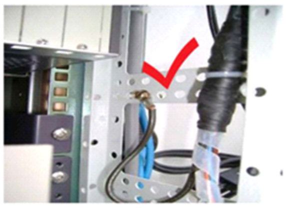
Repaint the place that is collided.
磕碰处及时补漆。



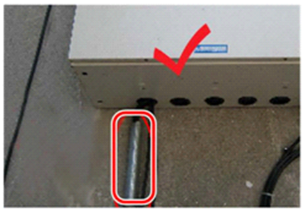
Signal cables should be routed separately from power cables.
信号线与电源线应分开布放。

Do not route ground cables or subscriber cables into the room in the overhead mode.
禁止接地线、用户线架空入室。

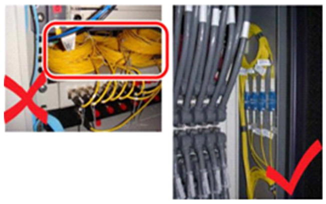
Connect the ground cable to the grounding bar.
接地线应连接到接地排上。



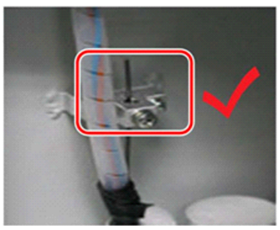
The paint on the grounding point should be removed to ensure proper grounding. After the cable is connected to the grounding point, the grounding point should be repainted.
为保证有效接地，接地点应将油漆擦除。完成接地后应及时补漆。



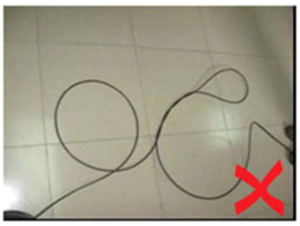
When routing cables out of the network cabinet, ground the outer jacket of the cable to the nearest grounding point on the network cabinet side, or use the metal tube that is grounded to route cables.
网络箱出线，在近网络箱端将线缆外层接地，或使用接地的金属套管走线。



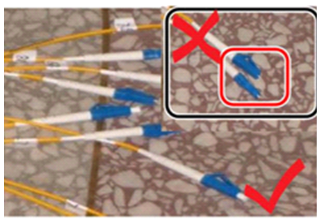
Coil and protect the redundant optical fiber in the fiber management tray, other fiber management parts, or the place convenient for operation.
多余的光纤应放入盘纤盒、可盘纤的器件或方便操作的地方进行保护。



Metal wires of optical cables should be grounded.
光缆金属线应进行接地处理。



Do not distort cables.
避免电缆扭曲。



The ends of the optical fiber that is not used should be protected with dustproof caps.
光纤未使用时应盖上光纤防尘帽。