



SmartAX MA5621 Multi-service Access V800R309
Quick Installation Guide

SmartAX MA5621 多业务接入设备 V800R309
快速安装指南

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Optical transceiver 光模块

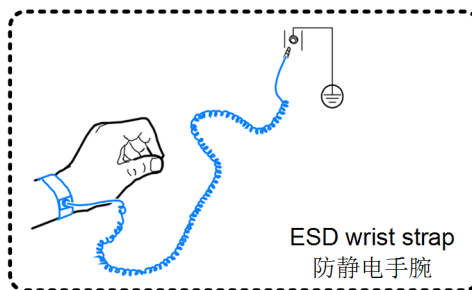
Before install the chassis, make sure that the optical transceiver must not install into the optical port, avoid to damage it.

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手腕（应将防静电手腕的另一端良好接地）。



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 upwards. 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。

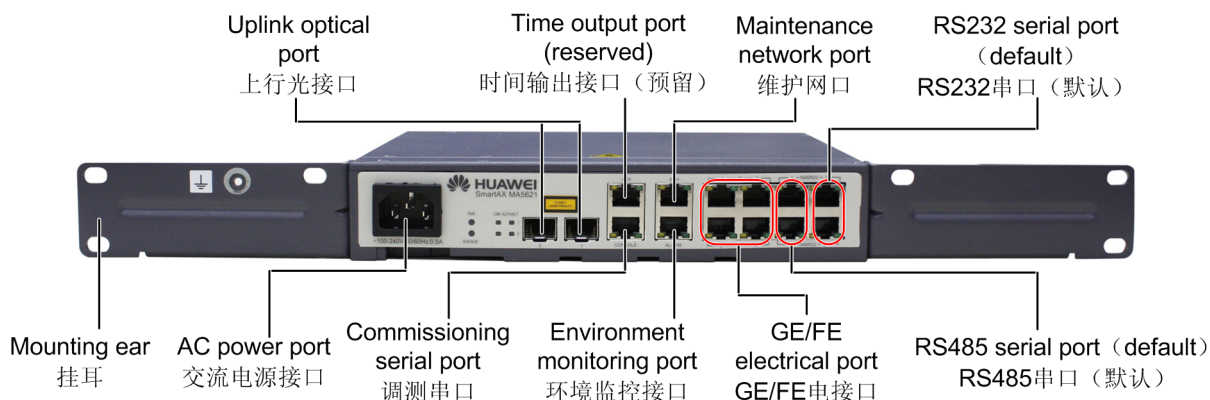
Check Tools and Meters 检查工具仪表

Before you begin, get the following tools ready.

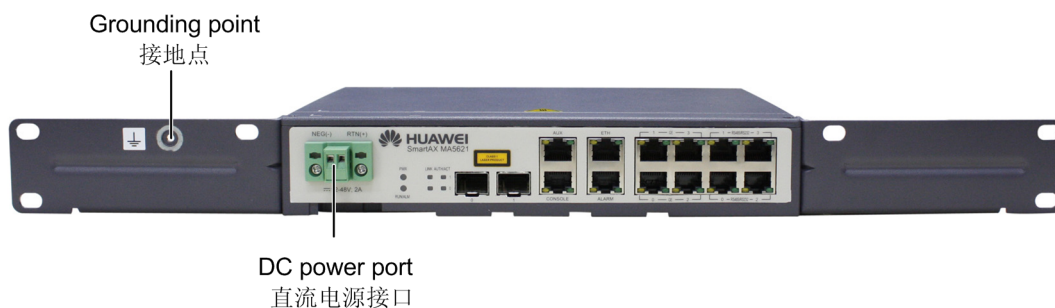
在安装前，请准备下面的工具：

			
Marker pen 记号笔	Flathead screwdriver 一字螺丝刀	Phillips screwdriver 十字螺丝刀	Diagonal pliers 斜口钳
			
Wire cutter 打线刀	Paper knife 裁纸刀	Adjustable wrench 活动扳手	Socket wrench 套筒扳手
			
Tape measure 长卷尺	Claw hammer 羊角锤	Percussion drill 冲击钻	Bit 钻头
			
power cable crimping tool 电源线压线钳	Cable cutter 断线钳	Network cable crimping pliers 网线钳	Network cable tester 网线测试仪
			
Multimeter 万用表	Optical power meter 光功率计	ESD gloves 防静电手套	ESD wrist strap 防静电手腕

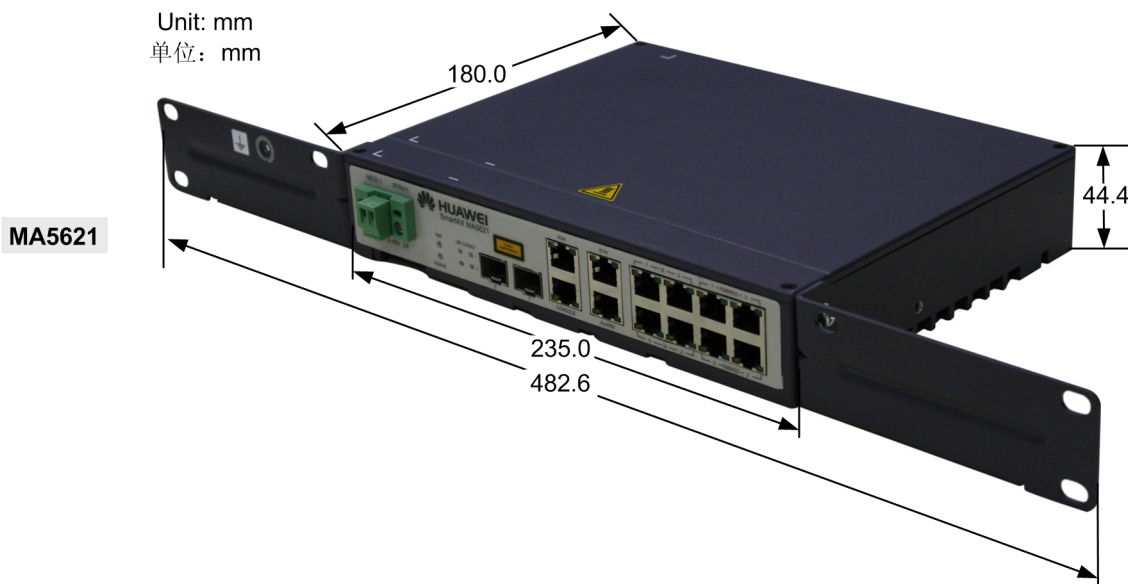
MA5621 (AC-powered) MA5621 (交流配置)



MA5621 (DC-powered) MA5621 (直流配置)



Unit: mm
单位: mm



Collecting the MAC Address or Serial Number 采集 MAC 地址或序列号

NOTE

- On the installation site, the hardware installation engineer should collect the “MAC Address” or “Serial Number” of the MA5621 for the software commissioning engineer to configure and manage the MA5621 remotely.
现场施工时，硬件安装工程师需采集MA5621的“MAC地址”或“序列号”，提供给软调工程师，以便软调工程师能对MA5621进行远程配置管理。
- The “MAC Address” is used for MA5621 (with the EPON optical module).
“MAC地址”用于配置有EPON光模块的MA5621。
- The “Serial Number” is used for MA5621 (with the GPON optical module).
“序列号”用于配置有GPON光模块的MA5621。
- When collecting the “MAC Address” or “Serial Number”, the hardware installation engineer needs to affix the "MAC Address" or “Serial Number” label to the corresponding place of the following table, and then record the actual installation location of the MA5621.
硬件工程师采集时，分别把“MAC地址”或“序列号”标签粘贴到下面表格中的对应位置，并记录下MA5621安装的实际位置。
- After the hardware installation, transfer this piece of paper to the software commissioning engineer.
硬件施工完毕，将该纸张提供给软调工程师。


00259EF56A1D-1E (2)

MAC Address (12bit)
MAC地址(12位)


48575443F56A1D02

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	MA5621	EPON	 00259EF56A1D-1E (2)	** Building ** Floor ONU-1 **大厦**楼ONU-1
		GPON	 48575443F56A1D02	
1	MA5621	EPON		
		GPON		

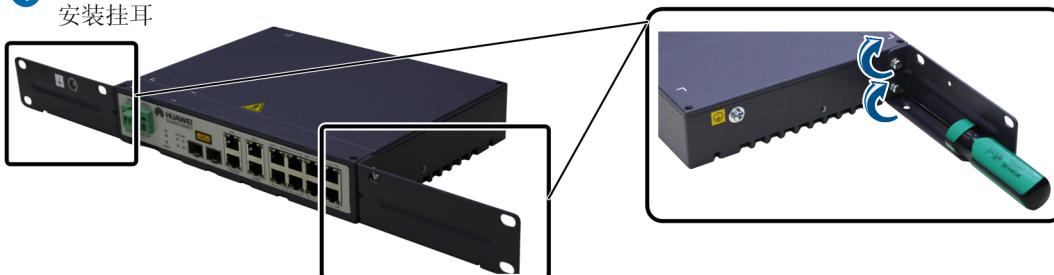
Installing the Chassis 安装机箱

5.1 Installation in the 19-inch Cabinet 在 19 英寸机柜中安装

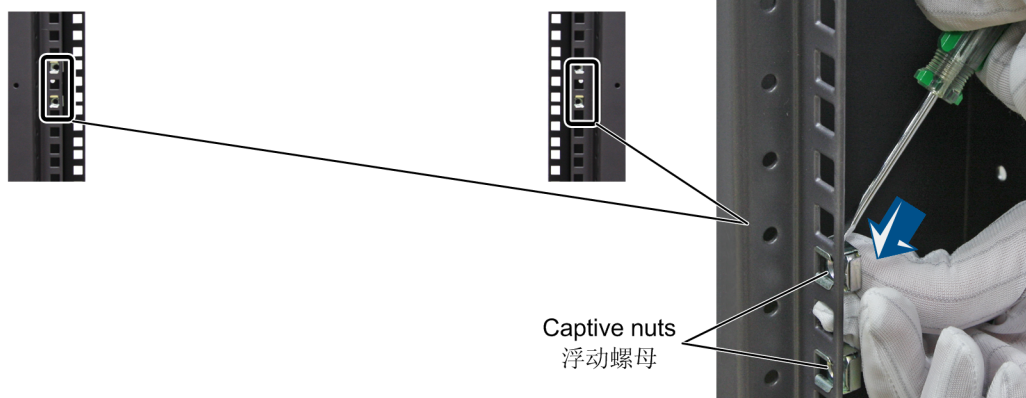
NOTE

The space of 2 U (1 U = 44.45 mm) high should be reserved for heat dissipation both on the top and at the bottom of the chassis.
机箱顶部和底部应留出 2U (1U=44.45mm) 高度的空间以便散热。

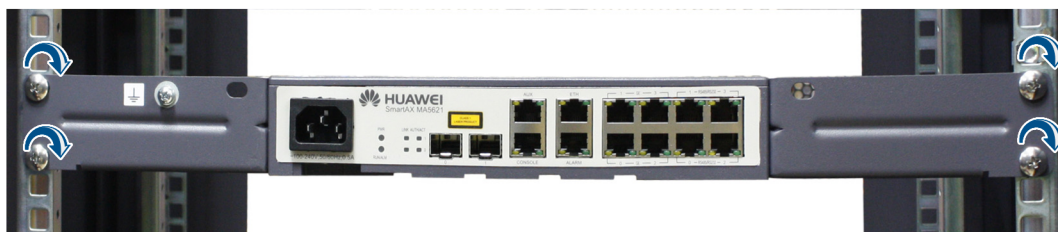
1 Install mounting ears 安装挂耳



2 Install the captive nuts 安装浮动螺母



3 Install the chassis 安装机箱



Flathead screwdriver
一字螺丝刀



Phillips screwdriver
十字螺丝刀

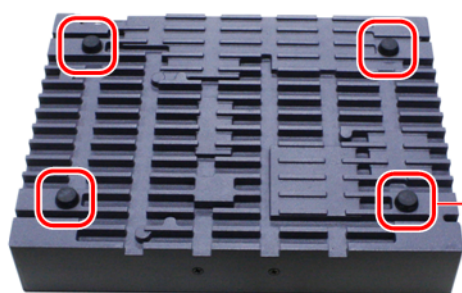
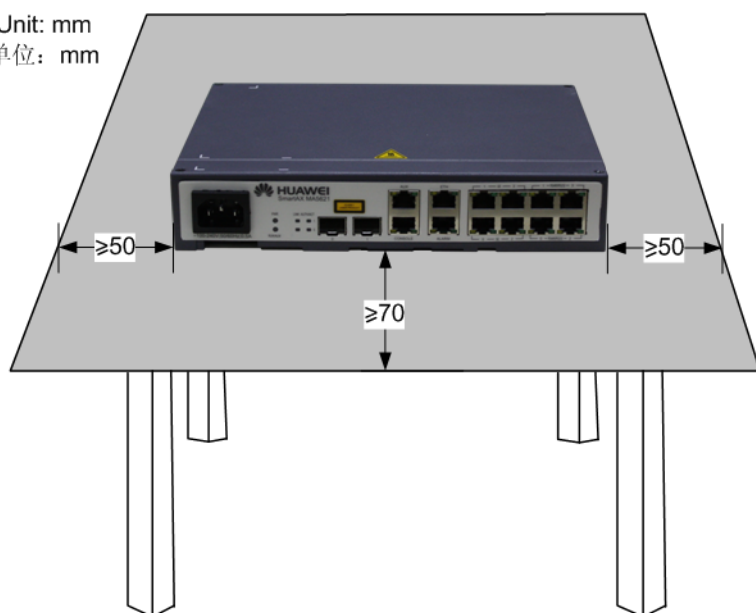


5.2 Installation on the Workbench 在工作台上安装

NOTE

- Ensure that the workbench is properly grounded before installing the chassis.
安装机箱前，请确保工作台已良好接地。
- Wear the ESD wrist strap or ESD gloves before installing the chassis.
安装过程必须佩戴防静电手腕或防静电手套。
- Take the plastic foots from the gum paper and then attach the plastic foots to the pits at the bottom of the chassis before placing the chassis on the workbench.
在工作台放置机箱前，需先从粘贴纸上剥下脚垫，并将脚垫粘贴到机箱底部的凹坑内。
- Do not place any materials on the chassis.
不能在机箱顶部放置其他物品。
- The installation of the MA5621 (AC-powered) is the same as that of the MA5621 (DC-powered).
MA5621（交流配置）和 MA5621（直流配置）的安装过程一样。
- 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 40mm。

Unit: mm
单位: mm



Plastic foos

脚垫



6.1 Routing Cables 布放线缆

a

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

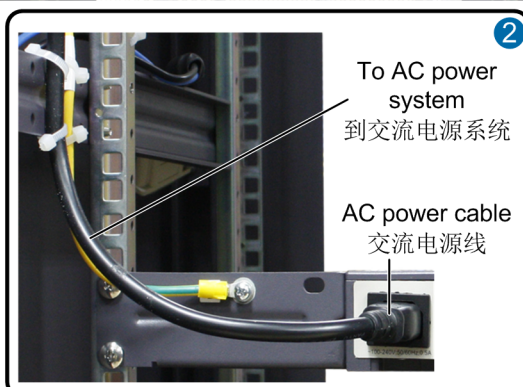
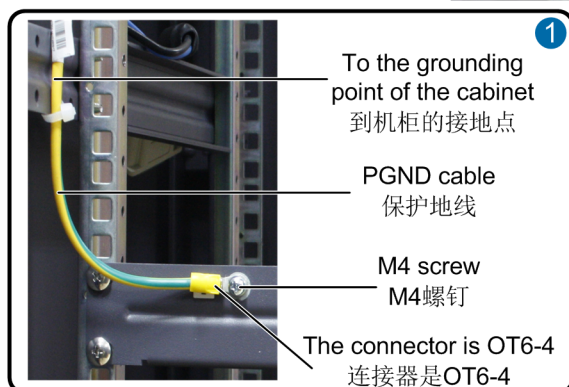


CAUTION

- 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 MA5621.
布放交流电源线前，请断开为MA5621 供电的交流电源系统输出开关。
- Before routing the DC power cable, turn off the output switch of the DC power system that supplies power to the MA5621.
布放直流电源线前，请断开为MA5621 供电的直流电源系统输出开关。

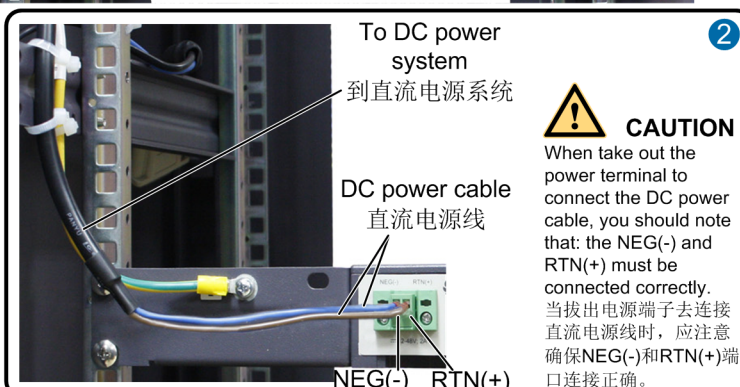
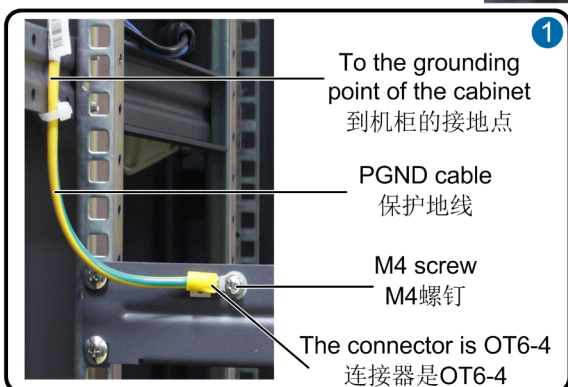
When the MA5621 is AC-powered MA5621交流配置时

19-inch cabinet
19英寸机柜



When the MA5621 is DC-powered MA5621直流配置时

19-inch cabinet
19英寸机柜



CAUTION
When take out the power terminal to connect the DC power cable, you should note that: the NEG(-) and RTN(+) must be connected correctly.
当拔出电源端子去连接直流电源线时，应注意确保NEG(-)和RTN(+)端口连接正确。

6.2 Routing Cables 布放线缆

b

Routing Signal Cables

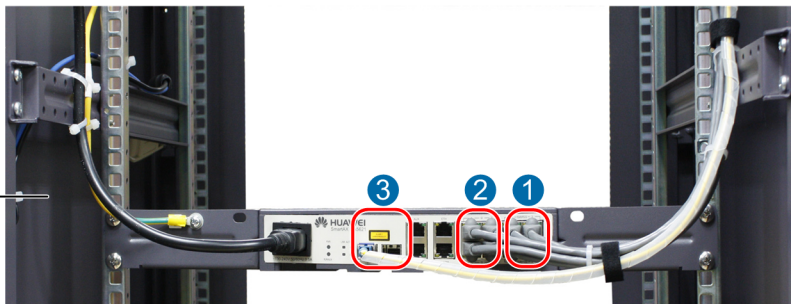
布放信号线缆



CAUTION

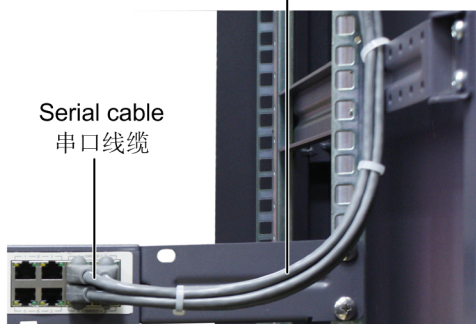
- When handling optical fibers, do not stand close to, or look into the optical fiber outlet with unprotected eyes. 进行光纤的安装、维护等各种操作时，严禁肉眼靠近或直视光纤接口。
- The bending radius of the optical fiber should be more than 20 times the cable diameter. In general, the bending radius of the optical fiber is greater 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40mm。

19-inch cabinet
19英寸机柜



- 1 To RTU (Remote Terminal Unit)、FTU (Feeder Terminal Unit)、TTU (Transform Terminal Unit)
到RTU (Remote Terminal Unit)、FTU (Feeder Terminal Unit)、TTU (Transform Terminal Unit)

Serial cable
串口线缆

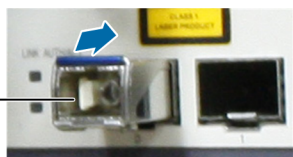


- 2 To RTU / FTU / TTU / Concentrator/Video encoder
到RTU / FTU / TTU / 集中器/视频编码器

Network cable
网线



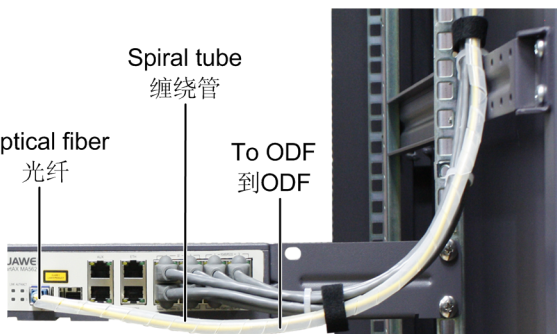
- 3 PON optical transceiver
PON光模块



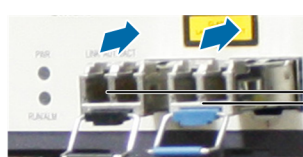
Optical fiber
光纤

Spiral tube
缠绕管

To ODF
到ODF



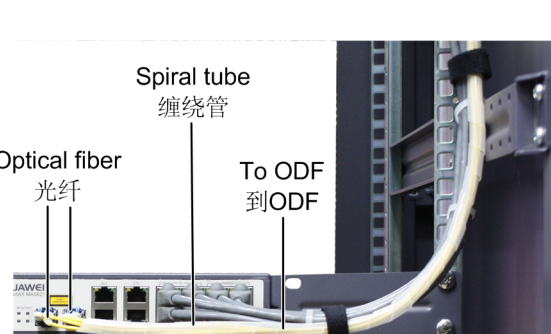
GE optical transceiver
GE光模块



Optical fiber
光纤

Spiral tube
缠绕管

To ODF
到ODF



6.3 Routing Cables 布放线缆

C Serial Port Cable (RS232/RS485)
串口线 (RS232/RS485)

The serial port cable can be RS232 cable or RS485 cable, which is used for transferring the serial port service.
串口线有RS232和RS485两种，主要用于串口业务的接入。

Connection
连接关系

One end of the serial port cable is an 8-pin RJ45 connector and the other end is an RJ45 connector or a connector of other types. The connections are as follows:

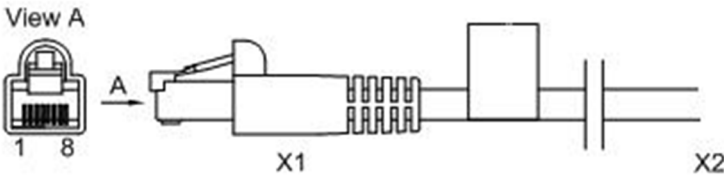
串口线一端为8PIN的RJ-45连接器（俗称水晶头），另一端可为RJ-45连接器或其他类型连接器，连接关系如下：

- The 8-pin RJ45 connector is connected to the serial port on the device.
固定为8PIN的RJ-45连接器的一端连接到设备的串口。
- The other connector is connected to the terminal housing a serial port.
另一端连接串口终端设备。

Appearance and Structure
外观与结构组成

One end of the serial port cable is an 8-pin RJ45 connector and the other end is an RJ45 connector or a connector of other types. The connections are as follows:

串口线一端为8PIN的RJ-45连接器（俗称水晶头），另一端可为RJ-45连接器或其他类型连接器，连接关系如下：



Pin Assignments
针脚定义

The X1 end of the serial port cable is an RJ45 connector and the other end is a connector of other types. Connect the serial port cable based on the pin assignments of the serial port cable, as shown in the following table.

串口线X1端为RJ-45连接器，另一端为其他类型连接器，请遵照X1的针脚定义连接，如下表所示。

X1	Signal Name 信号命名
1	GND
2	GND
3	RS232_TXD (connected to the peer RXD)
4	GND
5	GND
6	RS232_RXD (connected to the peer TXD)
7	RS485_D+
8	RS485_D-

6.4 Routing Cables 布放线缆

d

Guide for routing the RS485 cable

RS485线缆工程布线指导

- ① Ground the device properly, the resistance against ground cannot exceed 10 ohms.
设备必须良好接地，对地阻抗不得大于10Ω。
- ② Wires A and B of the RS485 bus must be the shielded twisted pair; the maximum routing length must not exceed 1200 m.
RS485总线A/B走线必须是屏蔽双绞线，最长走线不得大于1200m。
- ③ Within the rate range (0.3kbit/s-115.2kbits) of the serial port specifications, you can use the T node routing mode or Daisy-chain cabling mode (ensure that the characteristic impedance is the same on the entire link cable); connect the farthest node to the matching resistor. Generally, select the 120-ohm resistor (the characteristic impedance is preferred). When using the T node routing mode, comply with the mapping table between the baud rate and the tributary cable length (total length).
在串口规格的速率范围（0.3kbit/s-115.2kbits）可以采用T节点布线或者菊花链布线（请保持整个链路线缆特征阻抗的一致性），最远端节点接匹配电阻，通常选择120Ω（优选线缆的特征阻抗），在采用T节点布线的时候必须满足波率与分支电缆长度（总长度）对照表。

Baud Rate 波特率 (kbit/s)	0.3	0.6	1.2	2.4	9.6	97.75	115.2
Tributary Cable Length 分支电缆长度 (m)	500	500	500	500	500	100	33

Remarks: Some RS485 terminals have specified requirements on the tributary cable. Therefore, read the related documents carefully before routing cables.

备注：一些RS485终端对分支电缆有明确的要求，务必仔细阅读相关资料后布线。

- ④ Each RS485 port supports a maximum of 32 node devices; ensure that the wire on each connection point is not exposed.
每个RS485端口最多支持32个节点设备，各个连接点请勿将金属丝裸露在外。
- ⑤ Ensure that the routed cables are not parallel to the power cable in a long distance; RS485 cable close to large metal plates if possible; when routing cables, avoid forming a loop.
RS485线缆避免与动力线长距离平行走线，并尽量在走线过程中贴近大面积的金属板，在走线过程中，尽可能避免走环。

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

NOTE

Power on the device only when the input voltage is in the normal range.
输入电压在正常电压范围内，才可以进行设备的上电。

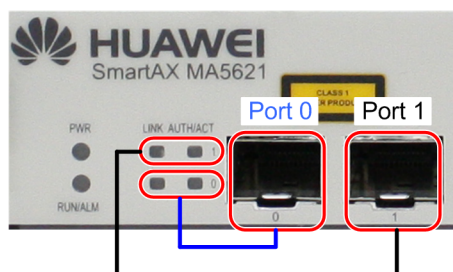
- Use the multimeter to test the AC input voltage for the AC-powered MA5621. The voltage should range from 90 V to 264 V AC.

MA5621交流配电时，用万用表测量为MA5621供电的交流输入电压值，电压正常范围为：90V~264V AC。

- Use the multimeter to test the voltage between NEG(-) and RTN(+) on the DC PDU for the DC-powered MA5621. The voltage should range from 9 V to 60 V DC.

MA5621 直流配电时，用万用表测量为MA5621供电的直流配电单元上的NEG(-)和RTN(+)之间的电压值，电压正常范围为：9V~60V DC。

The relations for the uplink optical port and the LED 上行光接口和指示灯的对应关系

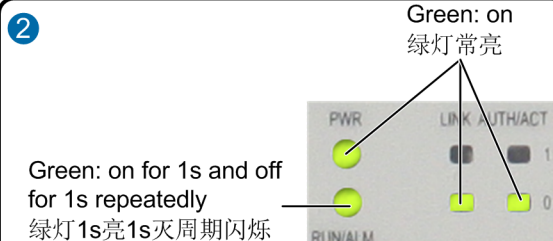


MA5621 (AC-powered) MA5621 (交流配置)



To AC power system
到交流电源系统

- 1 Turn on the output switch of the AC power system that supplies power to the MA5621.
闭合为MA5621 供电的交流电源系统输出开关。

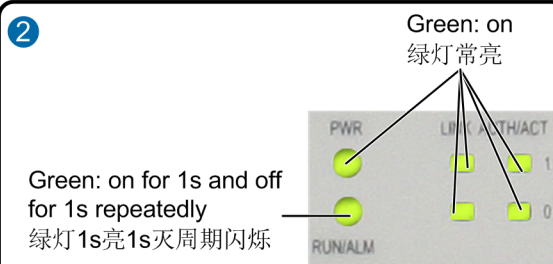


MA5621 (DC-powered) MA5621 (直流配置)



To DC power system
到直流电源系统

- 1 Turn on the output switch of the DC power system that supplies power to the MA5621.
闭合为MA5621 供电的直流电源系统输出开关。



a

Uneven optical splitter 不等比光分路器

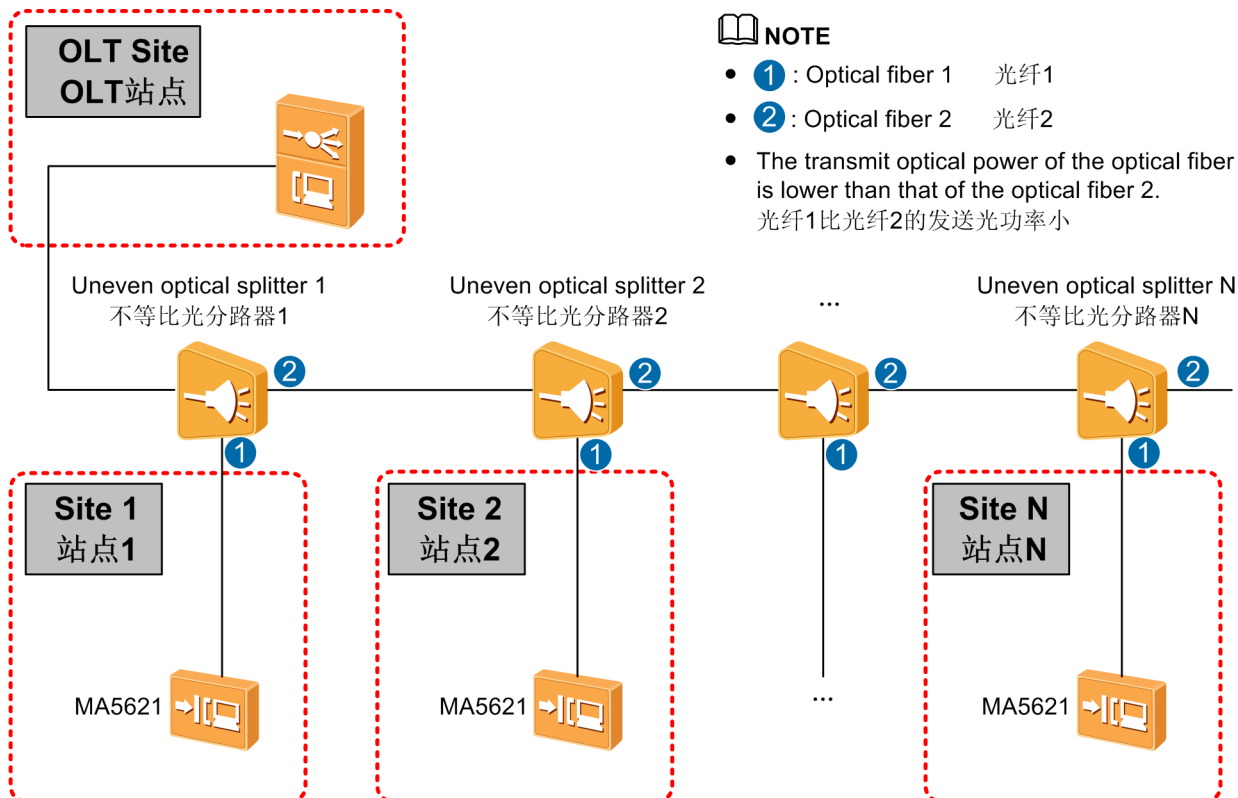


CAUTION

- 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40mm。
- For the chain line, multiple MA5621s are cascaded using uneven optical splitters. Optical power overload may occur on the MA5621 under the first-level optical splitter. Therefore, a fixed optical attenuator should be added to this MA5621..
对于链型线路，多个MA5621通过不等比光分路器级联。第一级的MA5621可能会出现光功率过载的情况，所以可以考虑第一级的MA5621处增加固定光衰。

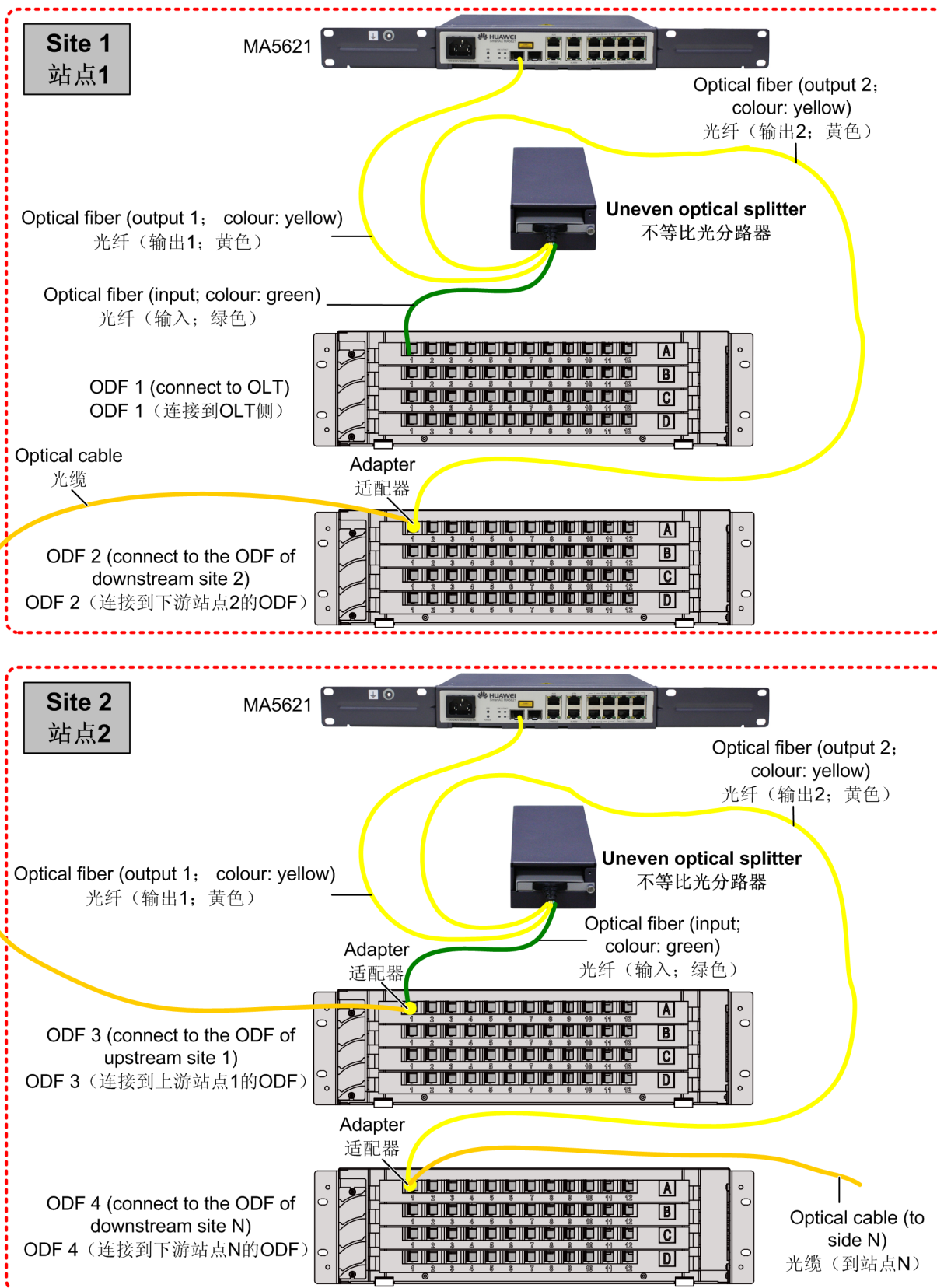


The connection for the optical fiber of the uneven optical splitter 不等比光分路器的光纤连接关系



a

Uneven optical splitter 不等比光分路器



b

Even optical splitter 等比光分路器



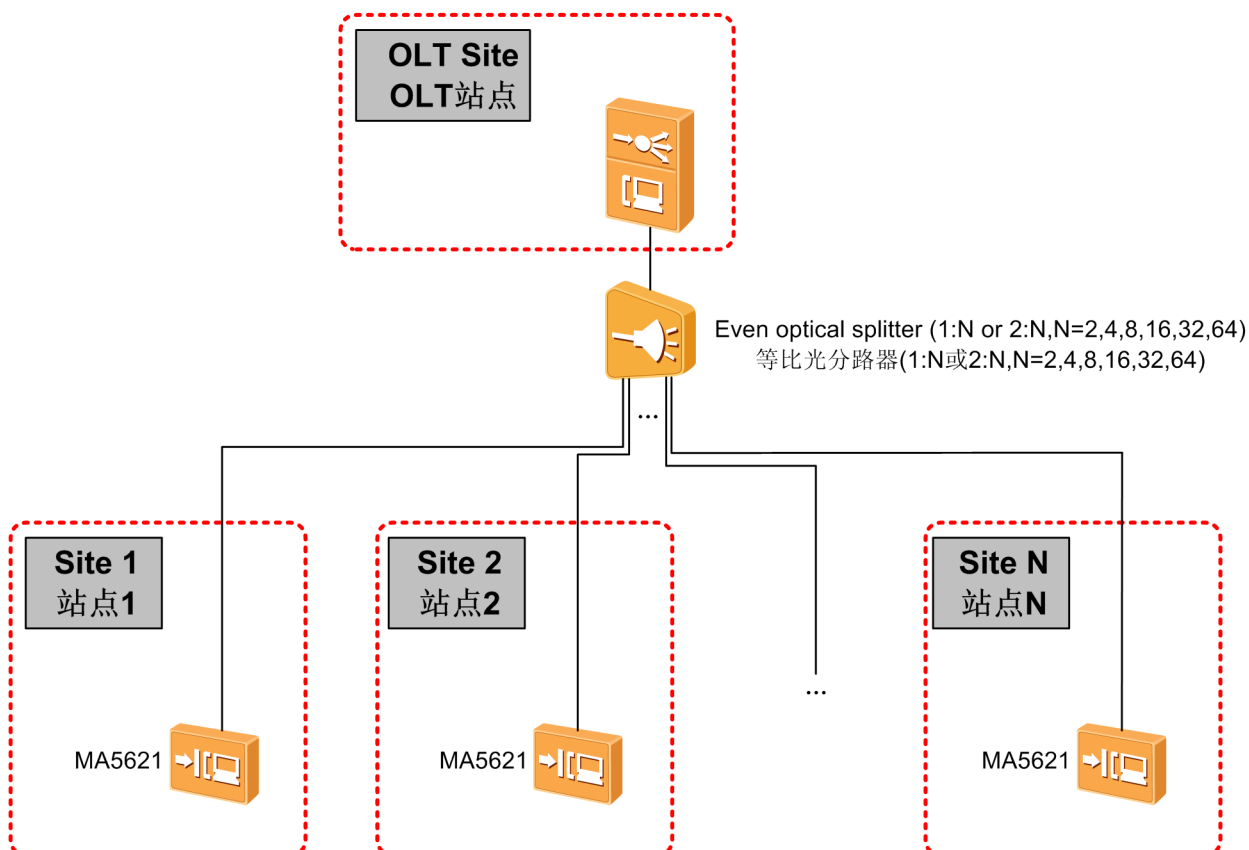
CAUTION

- 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40mm。

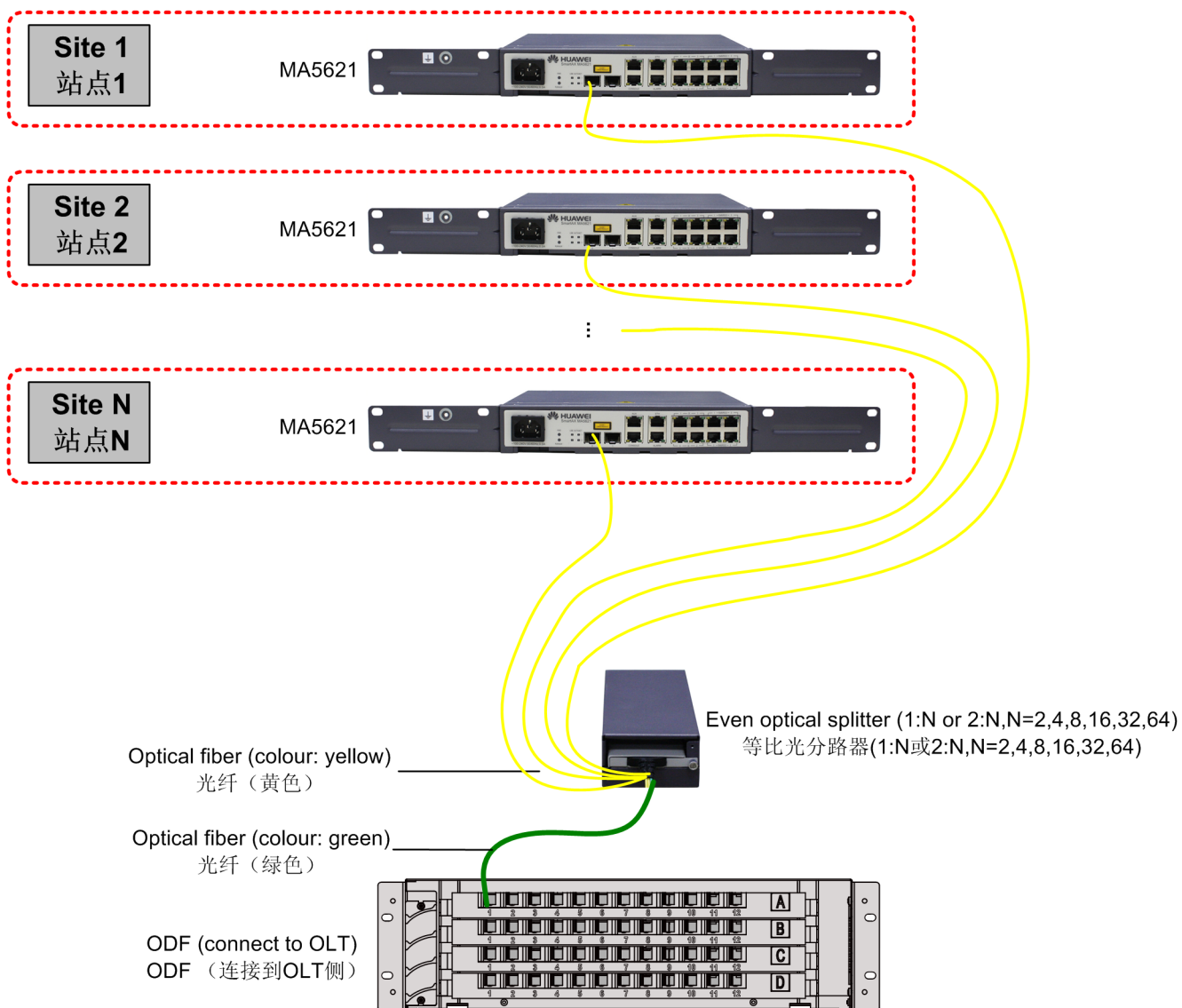


The connection for the optical fiber of the even optical splitter

等比光分路器的光纤连接关系



b Even optical splitter 等比光分路器



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