



SmartAX MA5628 Multi-service Access V800R309  
**Quick Installation Guide**

SmartAX MA5628 多业务接入设备 V800R309  
**快速安装指南**

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### Electrostatic Discharge 静电放电

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）。



### 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
 power cable crimping tool 电源线压线钳	 Paper knife 裁纸刀	 Wrench 扳手	 ESD gloves 防静电手套
 Level 水平尺	 Claw hammer 羊角锤	 Percussion drill 冲击钻	 Hexagon ring spanner 六角扳手
 Multimeter 万用表	 Optical power meter 光功率计	 Network cable crimping pliers 网线钳	 Network cable tester 网线测试仪

# Outline and Structure 机箱外观结构

Outline of the MA5628 (front view)  
MA5628外观（前视图）

Unit: mm  
单位: mm



- ① Conveying handle  
搬运把手
- ② Cable hole for PGND and AC power cable  
保护地线和交流电源线进线孔
- ③ Cable hole for electric signal cables (network cable etc.)  
电信号线进线孔（如：网线）
- ④ Cable hole for optical cable  
光缆进线孔

Internal structure of the MA5628 (front view)  
MA5628内部结构（前视图）



- ① Grounding point  
接地点
- ② AC power port  
交流电源接口
- ③ GE electrical port  
GE电接口
- ④ E1 electrical port  
E1电接口
- ⑤ Clock/Time output/input port  
时钟/时间输出输入接口
- ⑥ Environment monitoring port  
环境监测接口
- ⑦ Console port  
串口
- ⑧ PON Uplink optical port  
PON上行光接口

# 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 MA5628 for the software commissioning engineer to configure and manage the MA5628 remotely.  
现场施工时，硬件安装工程师需采集MA5628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MA5628进行远程配置管理。
- The “MAC Address” is used for MA5628 (with the EPON optical module ).  
“MAC地址”用于配置有EPON光模块的MA5628。
- The “Serial Number” is used for MA5628 (with the GPON optical module ).  
“序列号”用于配置有GPON光模块的MA5628。
- 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 MA5628.  
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MA5628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。



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	MA5628	 00259EF56A1D-1E (2)	** Building ** Floor ONU-1 **大厦**楼ONU-1
		GPON	
1	MA5628	EPON	
		GPON	

# Installing the Chassis 安装机箱

## 5.1 Installation on the Pipe 抱杆安装

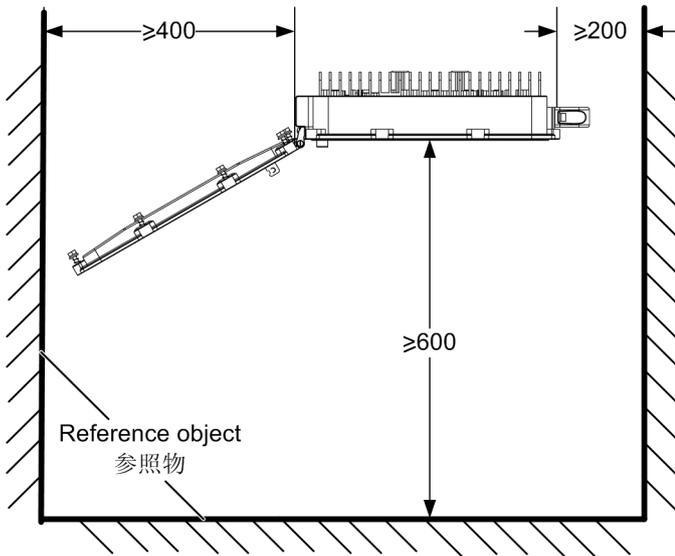
### NOTE

- The diameter of the pipe should range from 60 mm to 114 mm.  
抱杆的直径范围应该满足以下要求：60mm~114mm。
- Face the door of the chassis towards south or north if possible. This ensures that the chassis receives the minimum solar radiation.  
为了使机箱受太阳的辐射量最小，建议机箱门朝南或北方向。

### 1 Planning the installation position. 规划安装位置。

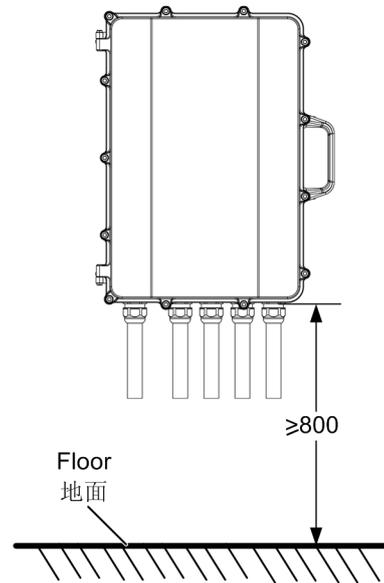
Unit: mm  
单位: mm

Top view  
俯视图



Unit: mm  
单位: mm

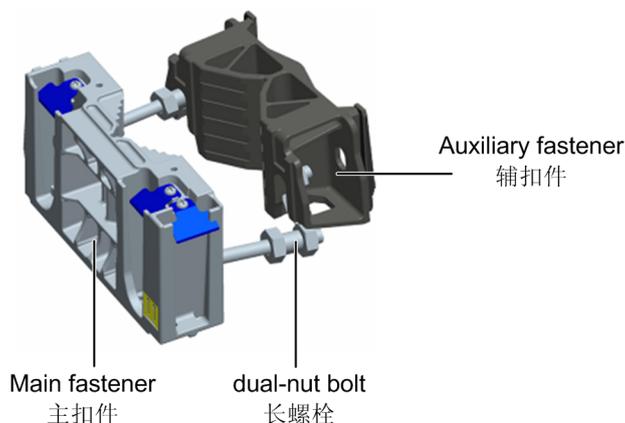
Front view  
前视图



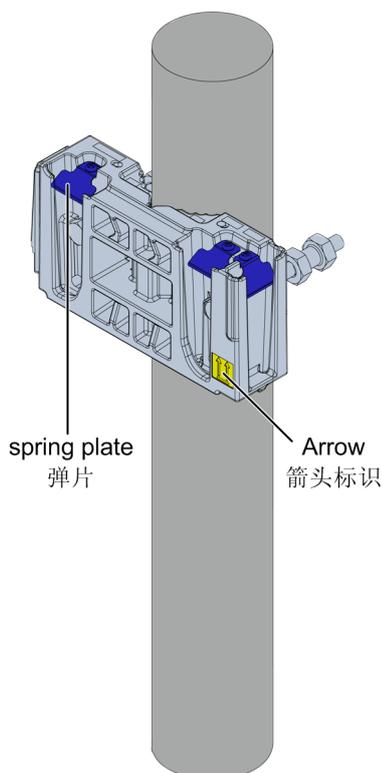
## Installing the Chassis 安装机箱

### 5.2 Installation on the Pipe 抱杆安装

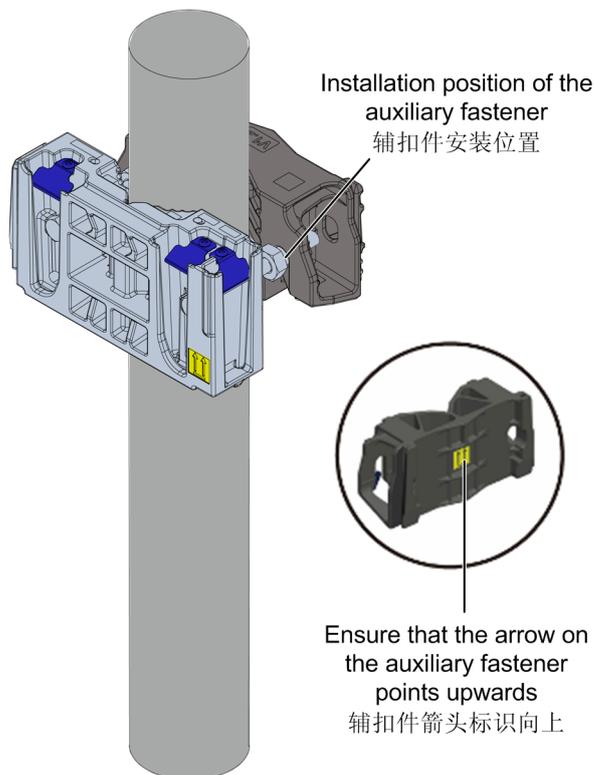
- 2 Take out the materials for fasten the fastener.  
取出安装扣件组。



- 3 Install the main fastener.  
安装主扣件。



- 4 Clamp the auxiliary fastener between two nuts (on the dual-nut bolt) of the main fastener.  
将辅扣件卡在主扣件的双头螺母之间。



#### NOTE

- When installing the main fastener, first check whether the spring plate of the main fastener is fastened properly.  
安装主扣件时，请先检查主扣件的弹片是否紧固好。
- When installing the main fastener, ensure that the arrow on the main fastener points upwards.  
安装主扣件时，要使主扣件的箭头标识的指向上方向。
- It is recommended that you install the main fastener 1600–2000 mm above the ground to facilitate the subsequent maintenance.  
为了便于后期维护，建议主扣件距离地面1600mm~2000mm。

#### NOTE

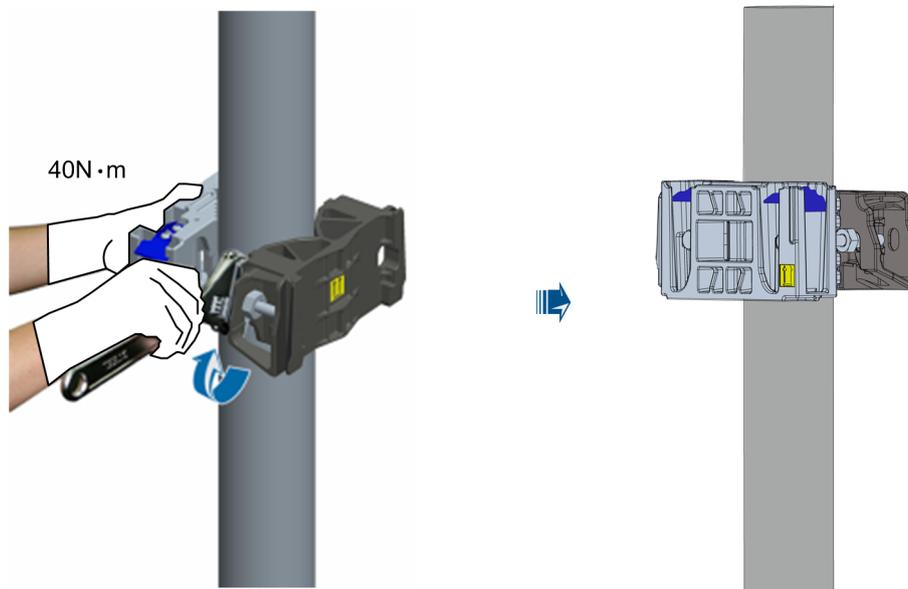
You can clamp one end of the auxiliary fastener onto the dual-nut bolt before installation. In this case, when you install the auxiliary fastener, you only need to clamp the other end of the auxiliary fastener onto the dual-nut bolt.

可以在安装开始之前将辅扣件的一端卡在双头螺母上，这样安装辅扣件时，只要将其另一端也卡在双头螺母上即可。

## Installing the Chassis 安装机箱

### 5.3 Installation on the Pipe 抱杆安装

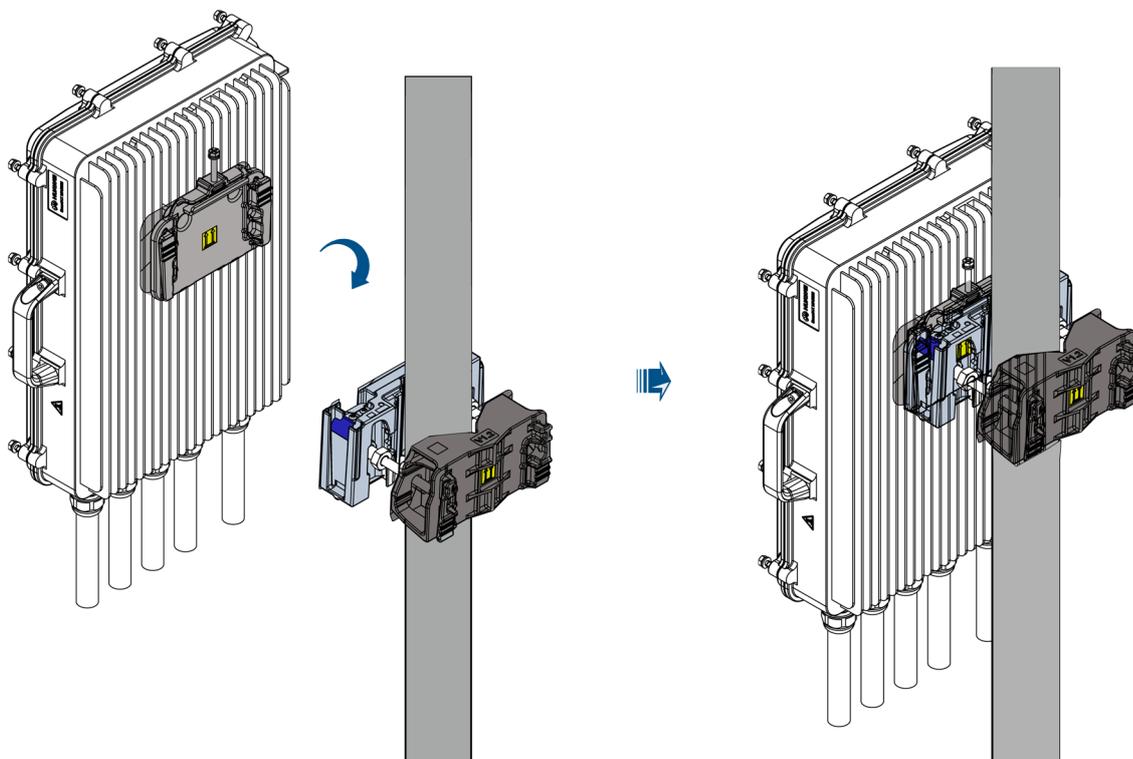
- 5 Use an adjustable wrench to fasten the nut and clamp the main and auxiliary fasteners firmly on the post.  
(Torque: 40 N·m)  
用活动扳手拧紧螺母，紧固力距为40N·m，使主辅扣件牢牢的卡在杆体上。



#### NOTE

When fastening the nuts, keep the nuts on two bolts in same pace.  
拧紧过程中，请保持两个双头螺母同步。

- 6 Install the MA5628 onto the main fastener.  
将MA5628安装在主扣件上。



## Installing the Chassis 安装机箱

### 5.4 Installation on the Wall 挂墙安装

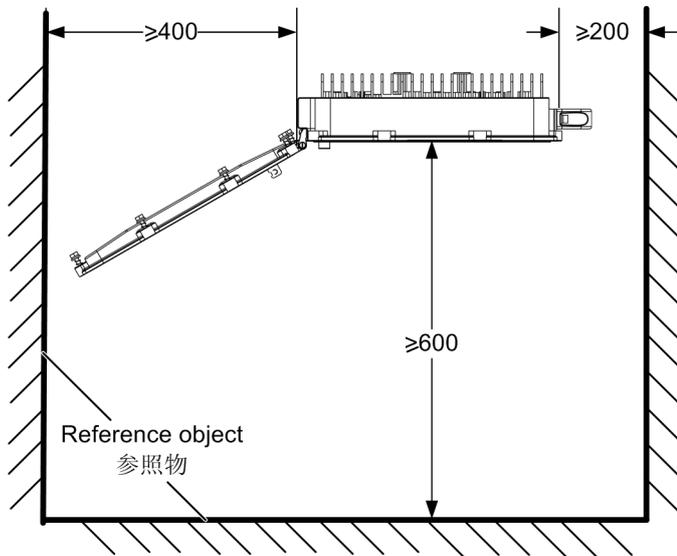
#### NOTE

- Before installation, make sure that the wall can support the chassis. The maximum weight of the fully loaded MA5628 is 15 kg.  
在墙上安装 MA5628，必须确保墙壁的承重能力能满足要求。MA5628 满配置时的最大重量是 15kg。
- Face the door of the chassis towards south or north if possible. This ensures that the chassis receives the minimum solar radiation.  
为了使机箱受太阳的辐射量最小，建议机箱门朝南或北方向。

#### 1 Planning the installation position. 规划安装位置。

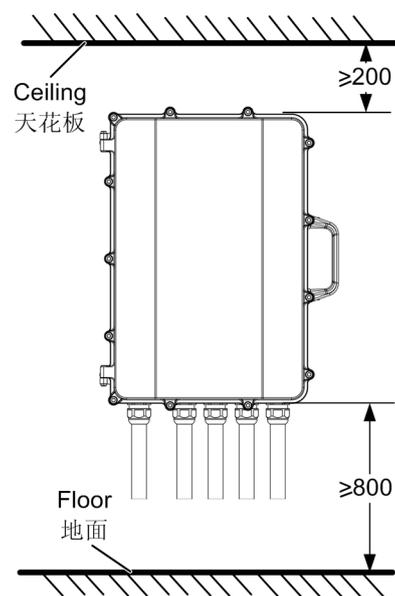
Unit: mm  
单位: mm

Top view  
俯视图



Unit: mm  
单位: mm

Front view  
前视图



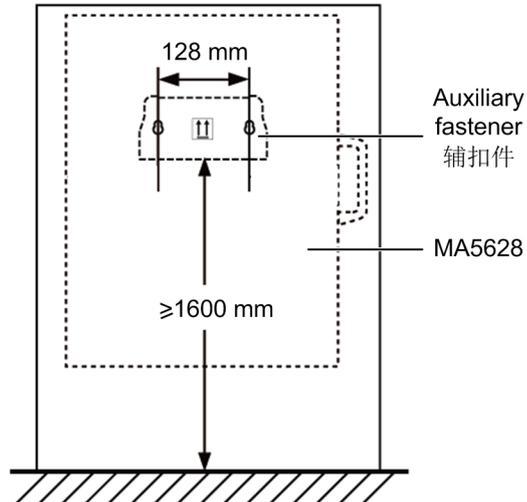
## Installing the Chassis 安装机箱

### 5.5 Installation on the Wall 挂墙安装

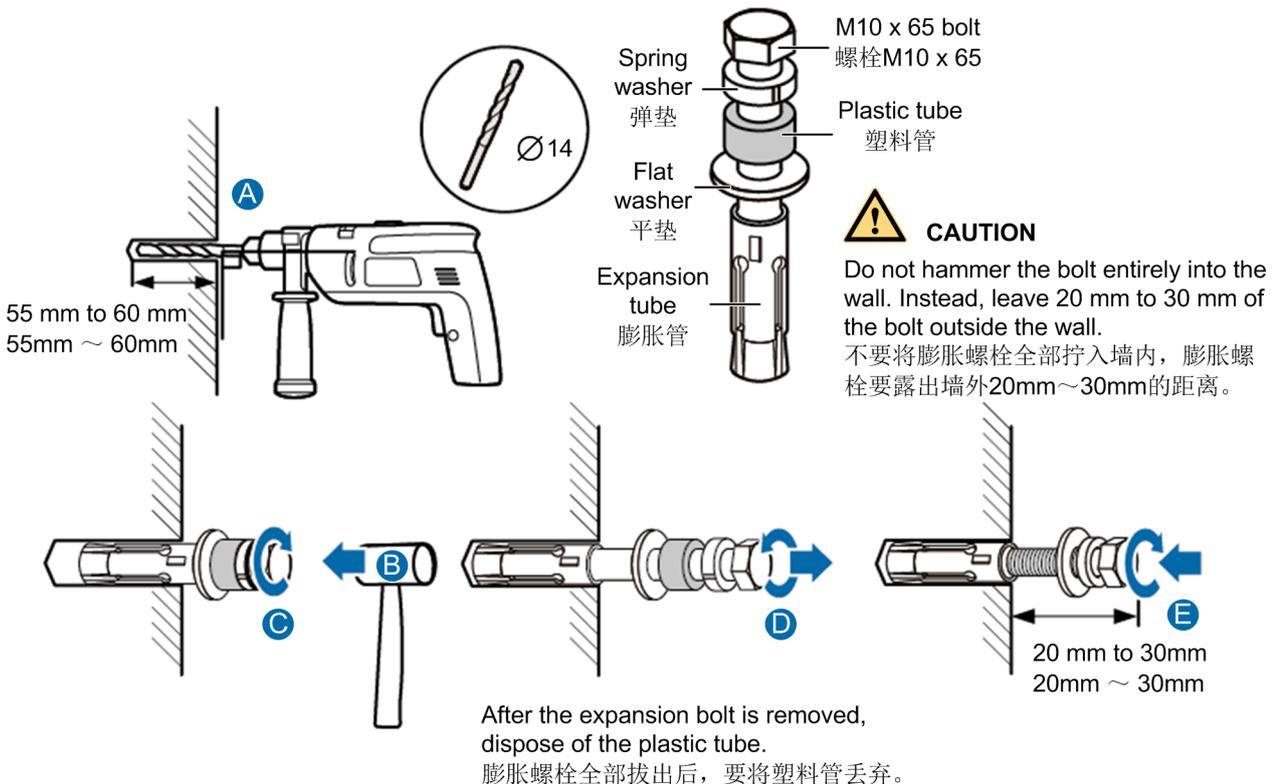
- 2 Place the auxiliary fastener at the installation position. Use a level to check that the auxiliary fastener is placed horizontally. Then, mark the anchor points by using a marking pen.  
将辅扣件紧贴墙面，用水平尺调平安装位置，用记号笔标记定位点。

#### NOTE

It is recommended that the auxiliary fastener be 1600 mm to 2000 mm above the floor.  
建议辅扣件距离地面的高度为1600mm~2000mm。



- 3 Drill holes at the anchor points and then install the expansion bolt assemblies.  
在定位点打孔并安装膨胀螺栓。



#### NOTE

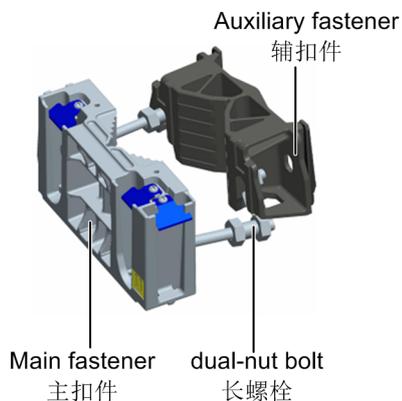
The fastening torque of the expansion bolt reaches 30 N·m, the expansion bolt works properly, and no damages such as cracks are on the wall.

挂墙安装时，膨胀螺栓紧固力距应达到30N·m，膨胀螺栓不会出现打转等失效，且墙面不会出现裂纹等损坏。

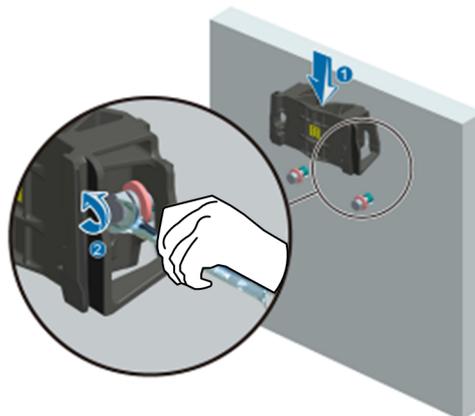
## Installing the Chassis 安装机箱

### 5.6 Installation on the Wall 挂墙安装

- 4 Take out the materials for fasten the fastener.  
取出安装扣件组。



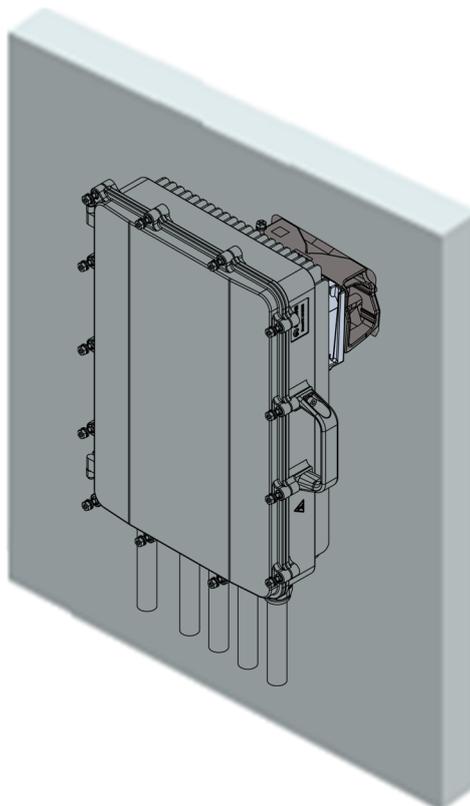
- 5 Fit the auxiliary bracket on the expansion bolts downward, and then tighten the bolts by using a combination wrench (17 mm).  
将辅扣件卡在膨胀螺栓上，用两用扳手（17mm）拧紧膨胀螺栓。



- 6 Install the main fastener.  
安装主扣件。



- 7 Install the MA5628 onto the main fastener.  
将MA5628安装在主扣件上。



# Routing Cables 布放线缆

## 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

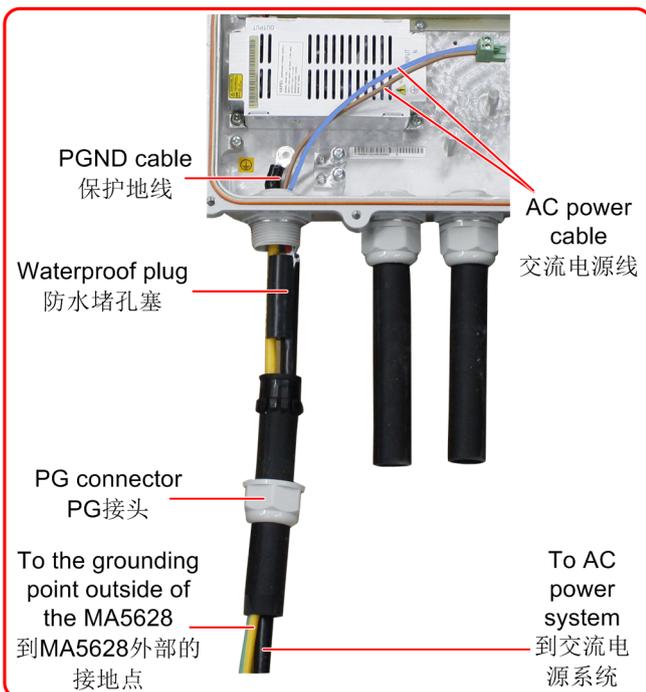
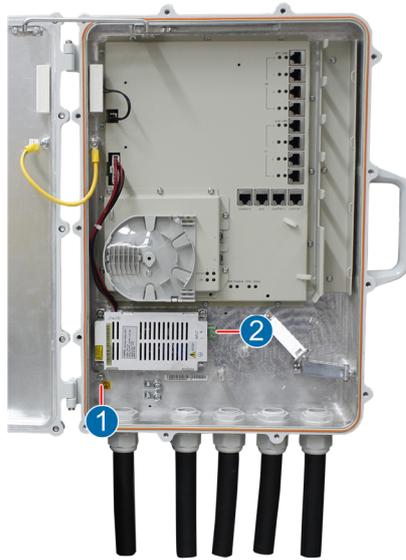


#### CAUTION

- Connect the PGND cable properly to ensure that the chassis is protected from the lightning and other interferences. The cross-sectional area of the conductor of the PGND cable should be 10 mm<sup>2</sup>.

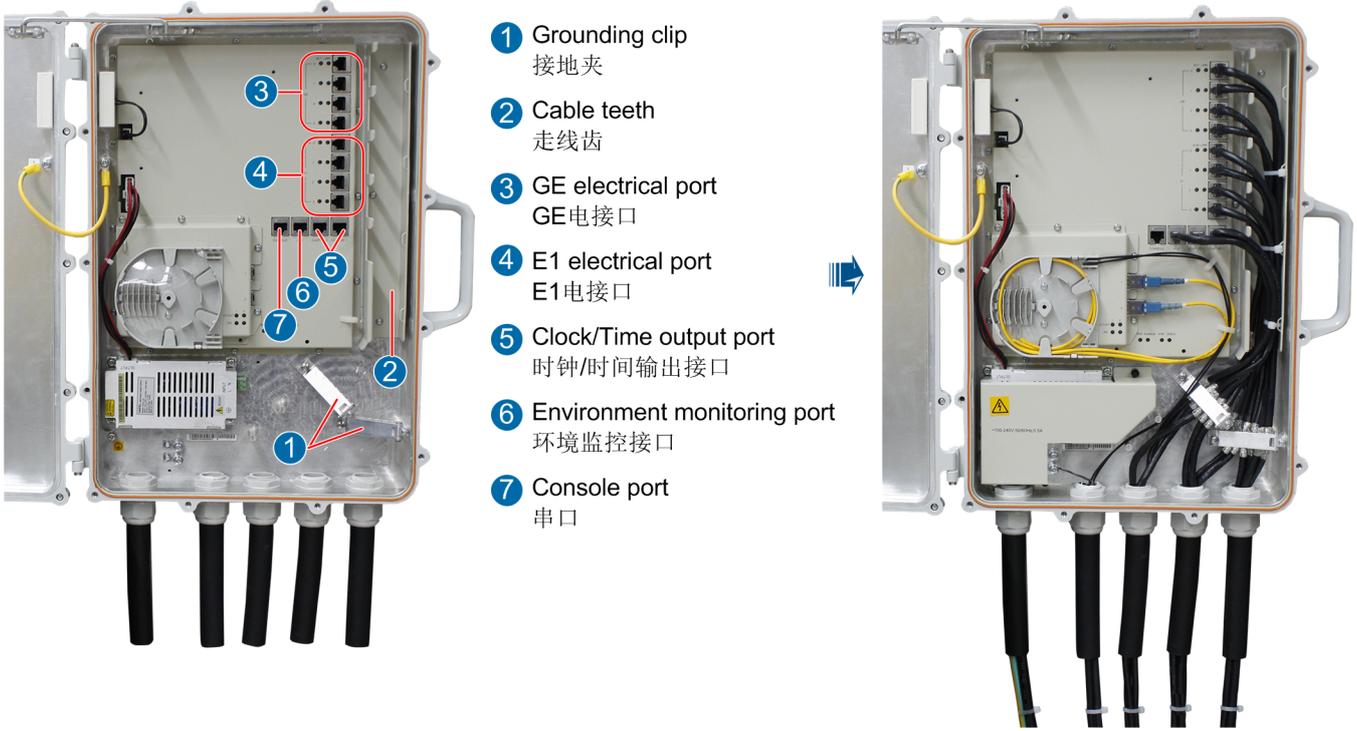
护地线的正确连接是机箱防雷、防干扰的重要保障，所以必须正确地接好保护地线。保护地线的导体截面积要求是10mm<sup>2</sup>。

- Before routing the AC power cable, turn off the output switch of the AC power system that supplies power to the MA5628.  
布放交流电源线前，请断开为MA5628供电的交流电源系统输出开关。
- If the AC power cable is 3-core cable (with the PE wire), connect the PE wire and PGND cable to the same grounding point, maintain a 60 degree angle between the two OT terminals.  
如果交流电源线是带PE线的3芯电源线，那么在将PE线和保护地线连接在同一个接地点时，需注意两个OT端子应采取交叉安装方式，将OT端子作60°交叉放置处理。

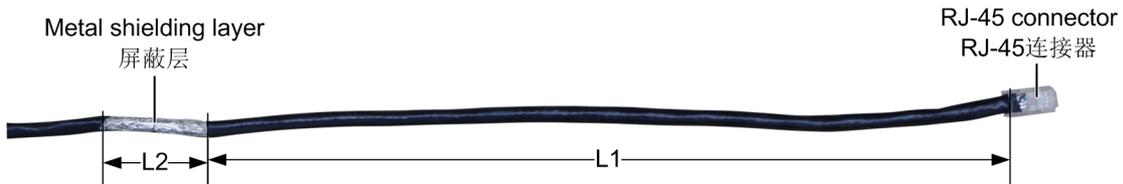


## 6.2 Routing Cables 布放线缆

### b Routing Electric Signal Cables(Use the E1 trunk cable) 布放电信号线缆（使用E1中继线缆）



**Before route electric signal cables, strip the cable. (bare the metal shielding layer of the cable for grounding)**  
布放电信号线缆前，先开剥线缆。（露出线缆屏蔽层，用于接地）

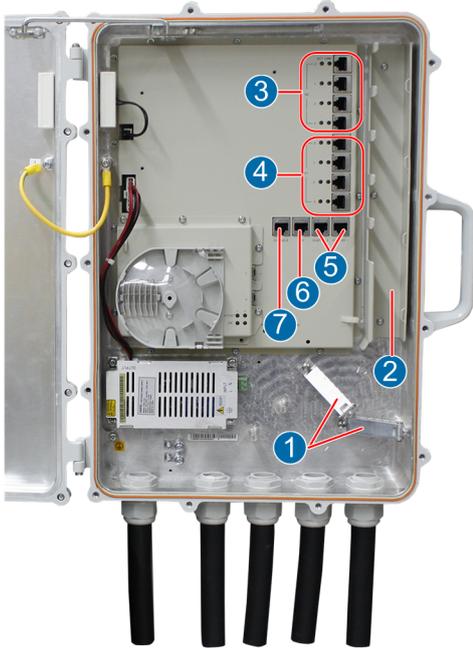


The corresponding port for the cable 线缆对应的端口	L1	L2
GE 0	380 mm	30 mm
GE 1	360 mm	30 mm
GE 2	340 mm	30 mm
GE 3	320 mm	30 mm
E1 0	290 mm	30 mm
E1 1	270 mm	30 mm
E1 2	250 mm	30 mm
E1 3	230 mm	30 mm
ALARM	250 mm	30 mm
CLK/TOD 0	250 mm	30 mm
CLK/TOD 1	250 mm	30 mm

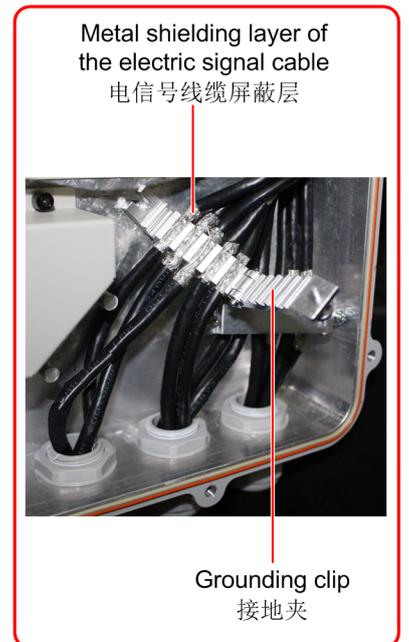
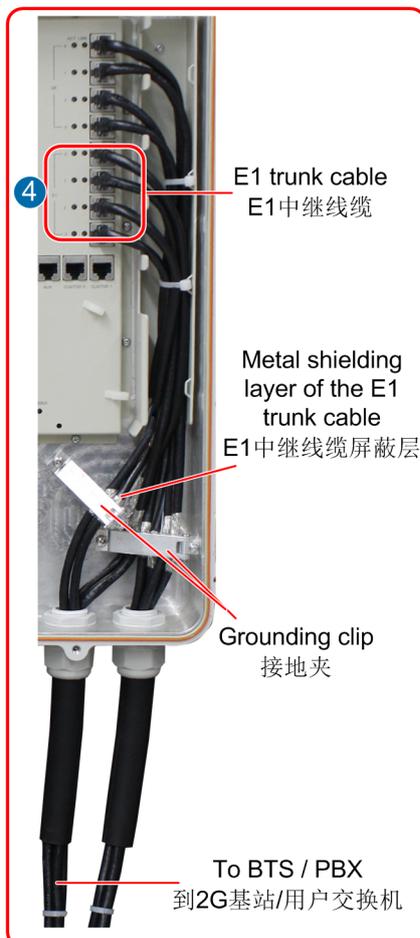
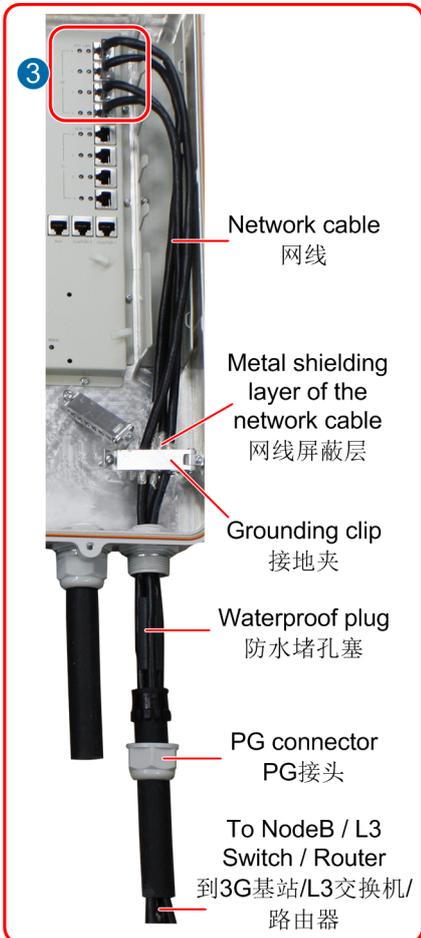
# Routing Cables 布放线缆

## 6.3 Routing Cables 布放线缆

### b Routing Electric Signal Cables(Use the E1 trunk cable) 布放电信号线缆（使用E1中继线缆）



- ① Grounding clip  
接地夹
- ② Cable teeth  
走线齿
- ③ GE electrical port  
GE电接口
- ④ E1 electrical port  
E1电接口
- ⑤ Clock/Time output/input port  
时钟/时间输出输入接口
- ⑥ Environment monitoring port  
环境监测接口
- ⑦ Console port  
串口



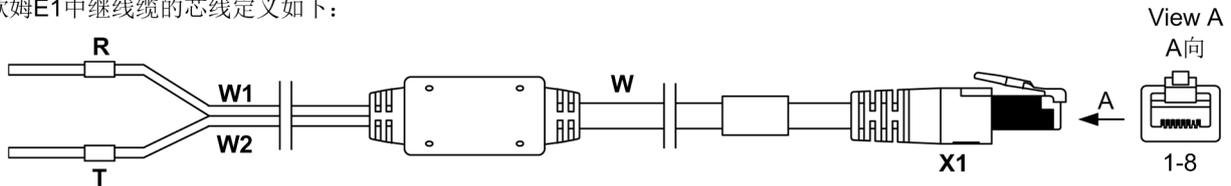
## 6.4 Routing Cables 布放线缆

### C Specifications of the E1 Trunk Cable E1中继线缆规格

The MA5628 provide 4-channel E1 electrical ports, you should route the E1 trunk cable.  
MA5628提供4路E1电接口，需布放E1中继线缆。

#### NOTE

- The 75-ohm E1 trunk cable has an RJ-45 connector at one end and bare wires at the other end. During on-site installation, make the corresponding connector (such as SMB or BNC) at the bare wire end of the E1 trunk cable according to the E1 port type of the peer device.  
75欧姆E1中继线缆一端为RJ45连接器，另一端为裸线。现场安装时，请根据对端设备的E1接口类型，在E1中继线缆的裸线端制作相应的连接器（如SMB、BNC）。
- Before connecting the 75-ohm E1 trunk cable to the E1 port of the peer device, check labels T and R on the cable and ensure that the transmit end and the receive end are connected correctly.  
把75欧姆E1中继线缆连接到对端设备的E1接口前，请查看线缆上的标签“T”和“R”，需注意不要弄错了线缆的收发方向。
- The tip definition of the 75-ohm E1 trunk cable is as follows:  
75欧姆E1中继线缆的芯线定义如下：

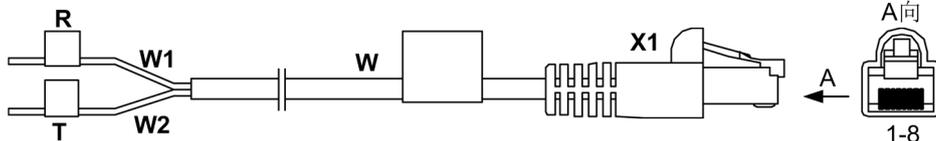


Wire 线缆	RJ-45 connector end RJ-45连接器端	Bare wire end 裸线端	Relation 关系	Remark 备注	Label 标签
W	X1.1	Core of coaxial cable 同轴线缆芯线	Pair 线对	W1	R
	X1.2	Shielded layer of coaxial cable 同轴线缆屏蔽层			
	X1.4	Shielded layer of coaxial cable 同轴线缆屏蔽层	Pair 线对	W2	T
	X1.5	Core of coaxial cable 同轴线缆芯线			



#### NOTE

- The 120-ohm E1 trunk cable has an RJ-45 connector at one end and bare wires at the other end. During on-site installation, connect the tips of the cable on the DDF according to the tip definition of the cable. Ensure that the sequence for connecting the tips is correct.  
120欧姆E1中继线缆一端为RJ45连接器，另一端为裸线。现场安装时，请根据线缆的芯线定义在DDF上进行打线操作，需注意不要弄错了芯线的打线线序。
- The tip definition of the 120-ohm E1 trunk cable is as follows:  
120欧姆E1中继线缆的芯线定义如下：

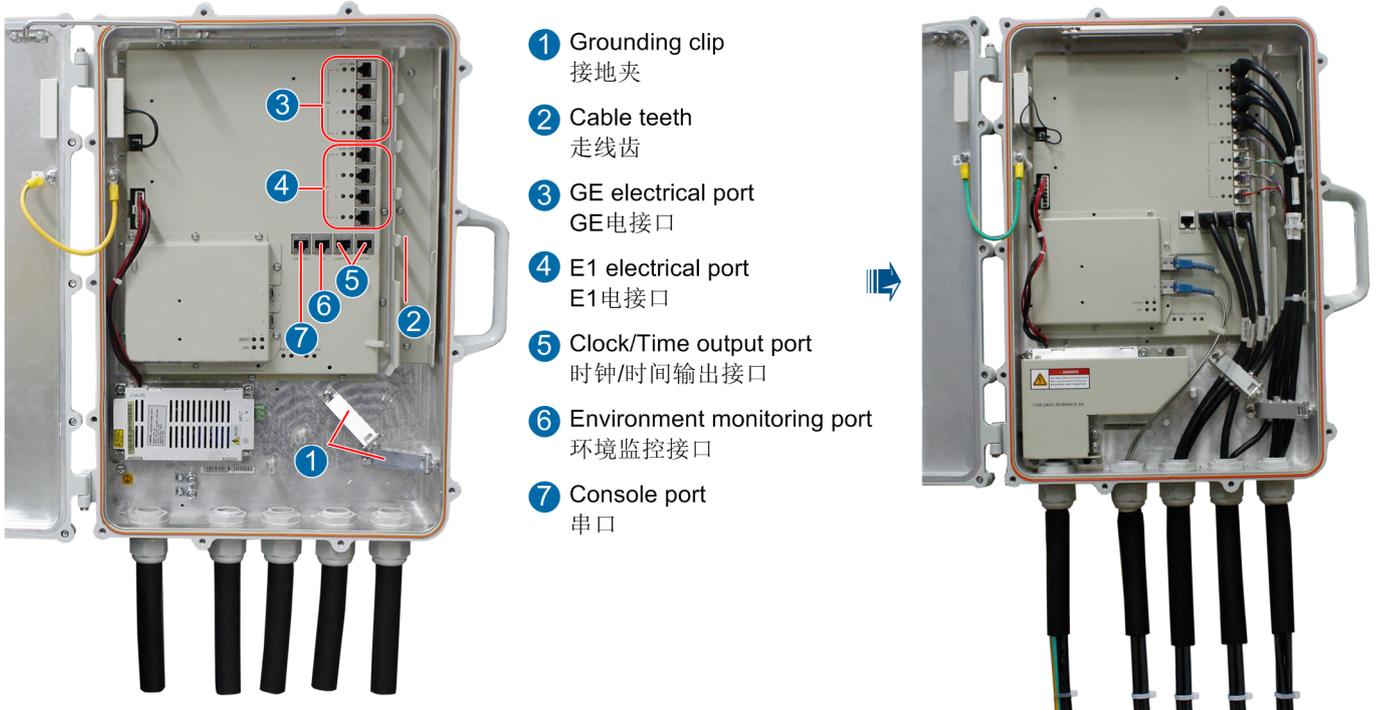


Wire 线缆	RJ-45 connector end RJ-45连接器端	Bare wire end 裸线端	Relation 关系	Remark 备注	Label 标签
W	X1.1	Blue 蓝	Pair 线对	W1	R
	X1.2	White/blue 白蓝			
	X1.4	Orange 橙	Pair 线对	W2	T
	X1.5	White/orange 白橙			



## 6.5 Routing Cables 布放线缆

### d Routing Electric Signal Cables(Use the 4E1 trunk cable) 布放电信号线缆 (使用4E1中继线缆)



Before route electric signal cables, strip the cable. (bare the metal shielding layer of the cable for grounding)  
布放电信号线缆前，先开剥线缆。(露出线缆屏蔽层，用于接地)

Metal shielding layer  
屏蔽层



The corresponding port for the cable 线缆对应的端口	L1	L2
GE 0	380 mm	30 mm
GE 1	360 mm	30 mm
GE 2	340 mm	30 mm
GE 3	320 mm	30 mm
ALARM	250 mm	30 mm
CLK/TOD 0	250 mm	30 mm
CLK/TOD 1	250 mm	30 mm

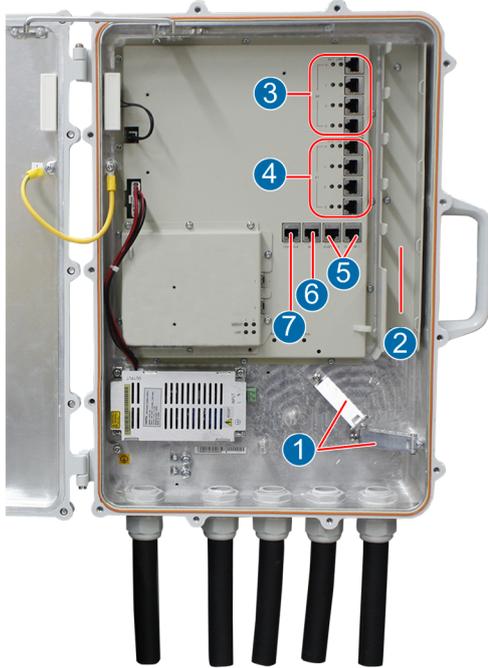
The 4E1 trunk cable must be peeled off to expose bare wires for connecting to four E1 electrical ports.  
4E1中继线缆需开剥线缆露出裸线，用于连接4个E1电接口。



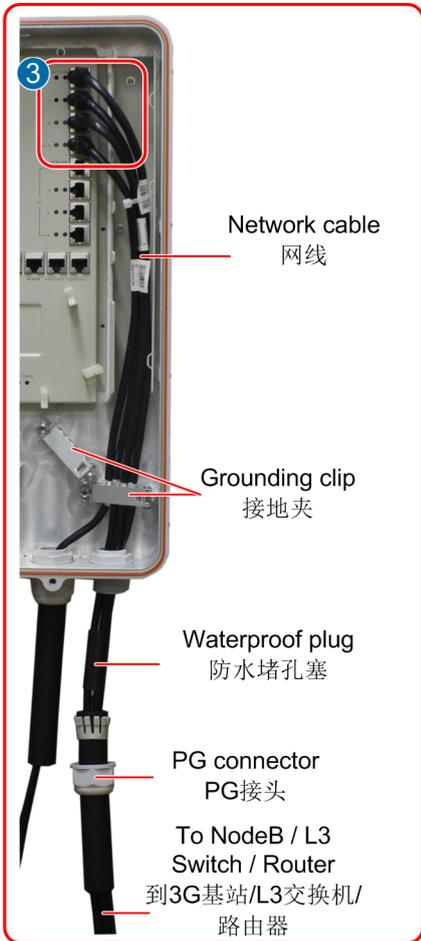
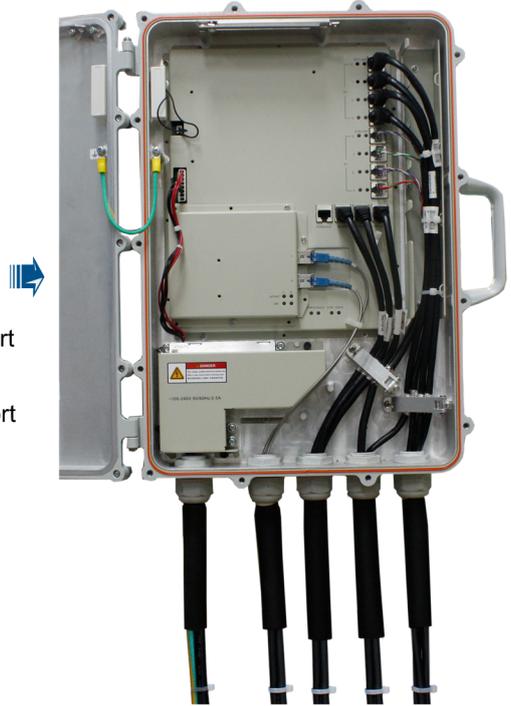
# Routing Cables 布放线缆

## 6.6 Routing Cables 布放线缆

### d Routing Electric Signal Cables(Use the 4E1 trunk cable) 布放电信号线缆 (使用4E1中继线缆)



- ① Grounding clip  
接地夹
- ② Cable teeth  
走线齿
- ③ GE electrical port  
GE电接口
- ④ E1 electrical port  
E1电接口
- ⑤ Clock/Time output/input port  
时钟/时间输出输入接口
- ⑥ Environment monitoring port  
环境监测接口
- ⑦ Console port  
串口



## 6.7 Routing Cables 布放线缆

### e Instructions of 4E1 trunk cable 4E1中继线缆说明

When installing the 4E1 trunk cable in the field, clamp four RJ45 connectors (X1, X2, X3, and X4) to the bare wires of one cable end. Make the corresponding connector on the bare wires of the other cable end based on the E1 port type of the peer device.

4E1中继线缆在现场安装时，需要在一端的裸线端压接4个RJ45连接器（X1、X2、X3、X4），并根据对端设备的E1接口类型，在另一端的裸线端制作相应的连接器。

The tip definition of the 4E1 trunk cable is as follows:

4E1中继线缆的线芯定义如下：

The corresponding port for the cable 线缆对应的设备端口	RJ-45 connector end RJ-45连接器端	Bare wire end 裸线端	Relation 关系	Remark 备注
E1 0	X1.1	White白	Pair 线对	R
	X1.2	Blue蓝		
	X1.4	White白	Pair 线对	T
	X1.5	Orange橙		
E1 1	X2.1	White白	Pair 线对	R
	X2.2	Green绿		
	X2.4	White白	Pair 线对	T
	X2.5	Brown棕		
E1 2	X3.1	White白	Pair 线对	R
	X3.2	Grey灰		
	X3.4	Red红	Pair 线对	T
	X3.5	Blue蓝		
E1 3	X4.1	Red红	Pair 线对	R
	X4.2	Orange橙		
	X4.4	Red红	Pair 线对	T
	X4.5	Green绿		

# Routing Cables 布放线缆

## 6.8 Routing Cables 布放线缆



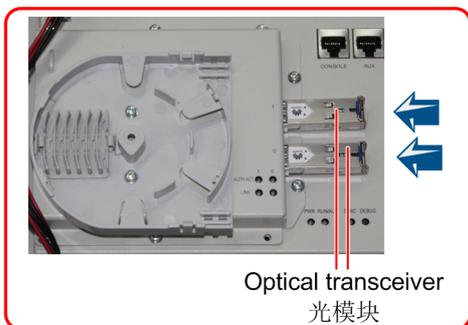
### Routing Optical Cables

布放光缆

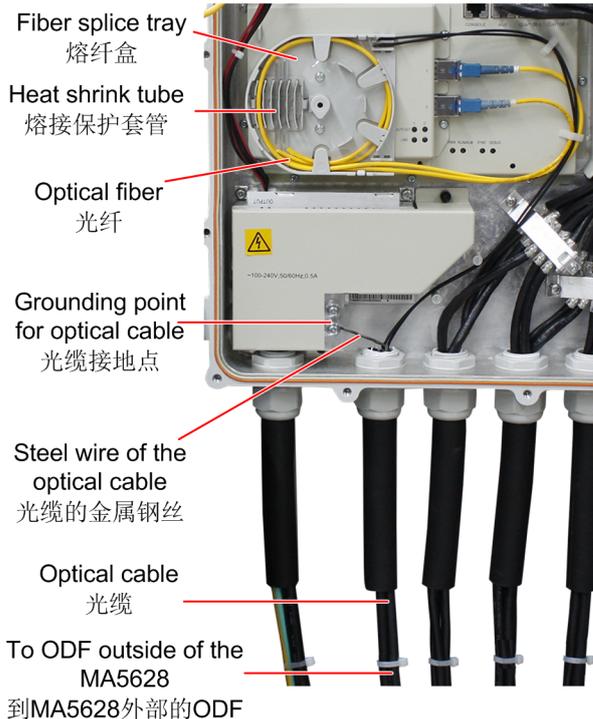


#### CAUTION

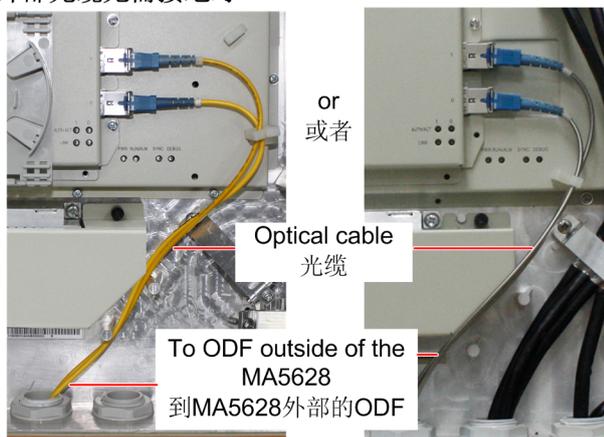
- When handling optical fibers, do not stand close to, or look into the optical fiber outlet with unprotected eyes.  
进行光纤的安装、维护等各种操作时，严禁肉眼靠近或直视光纤接口。
- The bending radius of the optical fiber should be more than 20 times the cable diameter. In general, the bending radius of the optical fiber is greater 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。
- After routed the optical fiber, install the cover to protect the fiber splice tray.  
光纤布放完成后，安装熔纤盒上的保护盖。



#### When the optical cable need to be grounded 外部光缆需要接地时



#### When the optical cable need not to be grounded 外部光缆无需接地时



## 6.9 Routing Cables 布放线缆

g

### CONSOLE-ETH Port Cable

#### CONSOLE与ETH合一接口线缆

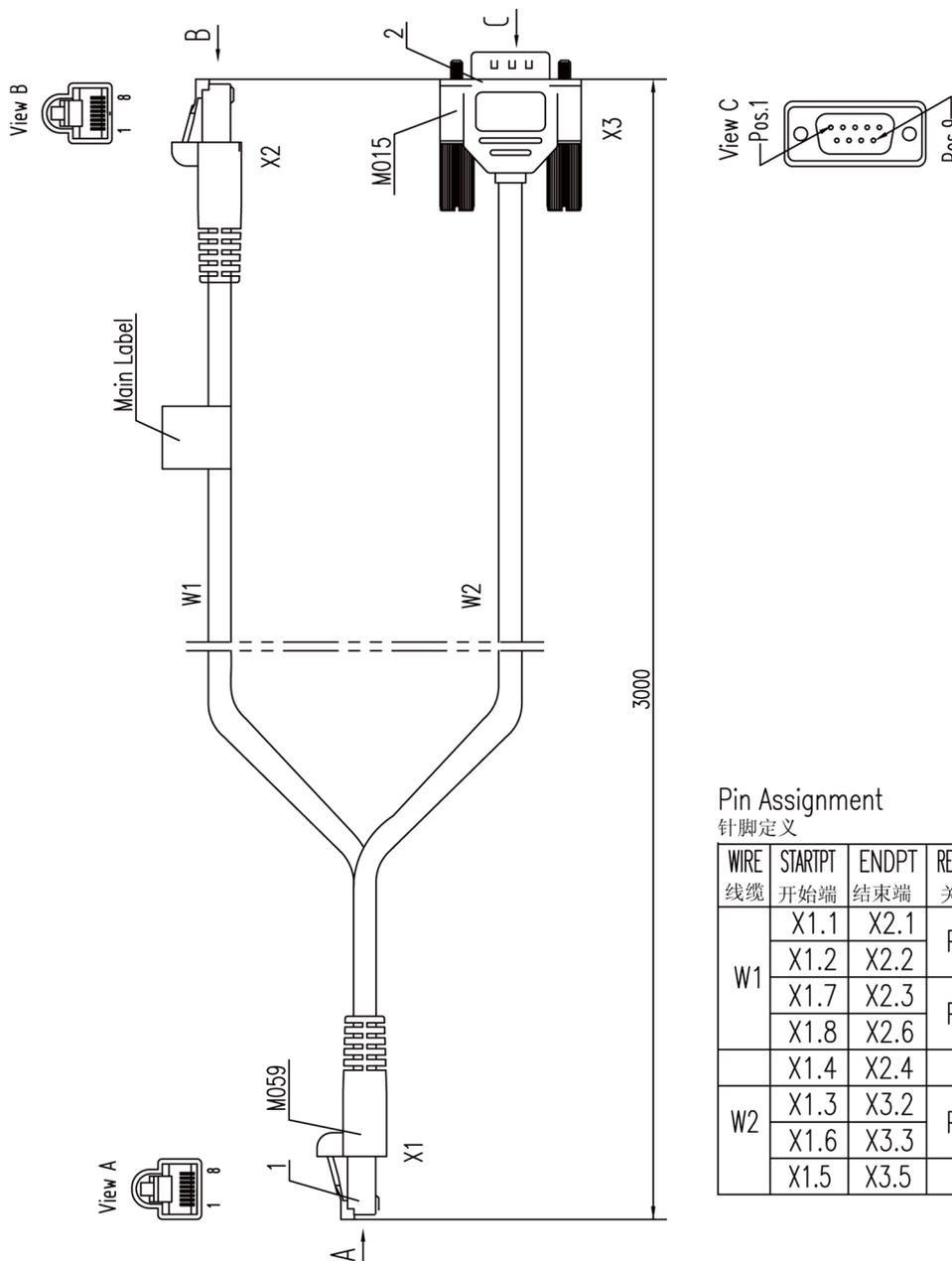
The function of the console port is as follows:

串口的说明如下:

- During BIOS loading, this port is used as a maintenance serial port, And the first service port can be used as a maintenance network port.  
在BIOS加载阶段, 该口只作为维护串口使用。此时, 设备的第一个业务端口作为维护网口使用。
- During normal running of the device:
  - This port can be directly used as a maintenance serial port. In such a case, any service port can be used as an outband network management port.
  - This port can be connected to the CONSOLE-ETH port cable. In such a case, this port can be used as a maintenance serial port and maintenance network port.

在设备正常运行阶段,

- 该口可直接作为维护串口使用, 此时支持指定任一业务口作为带外管理接口;
- 该口支持外接CONSOLE与ETH合一接口线缆, 同时作为维护串口和维护网口使用。



#### Pin Assignment

引脚定义

WIRE 线缆	STARTPT 开始端	ENDPT 结束端	RELATION 关系
W1	X1.1	X2.1	Pair
	X1.2	X2.2	
	X1.7	X2.3	Pair
	X1.8	X2.6	
W2	X1.4	X2.4	
	X1.3	X3.2	Pair
	X1.6	X3.3	
	X1.5	X3.5	

## 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

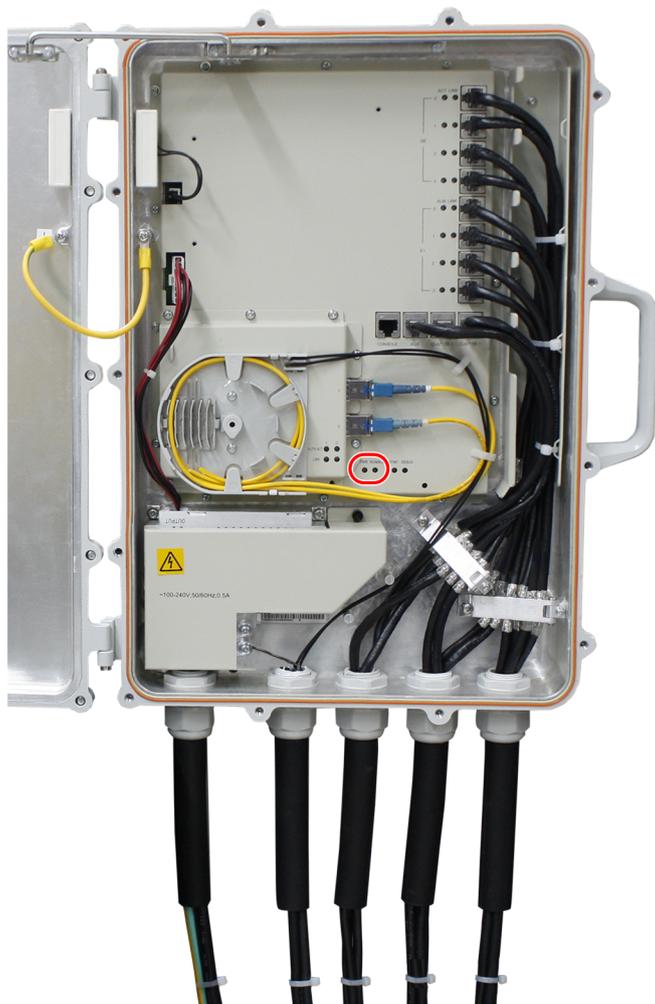
### NOTE

Power on the device only when the input voltage is in the normal range.

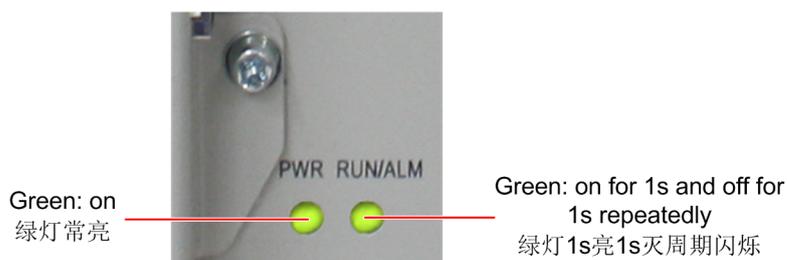
输入电压在正常电压范围内，才可以进行设备的上电。

Use the multimeter to test the AC input voltage for the AC-powered MA5628. The voltage should range from 100 V to 240 V.

用万用表测量为 MA5628 供电的交流输入电压值，电压正常范围为：100V ~ 240V。

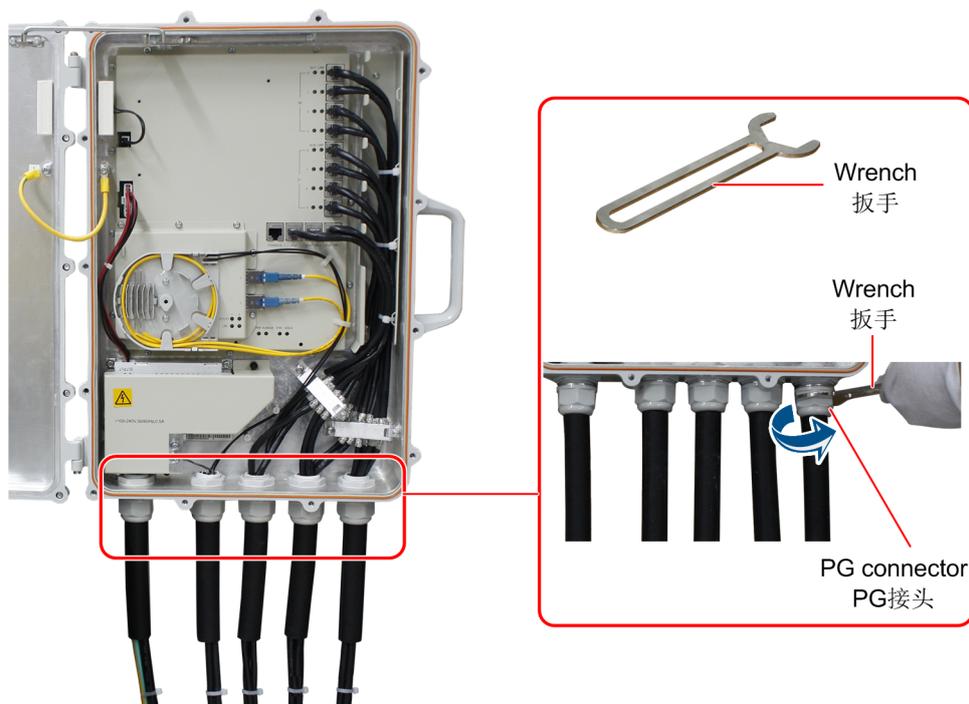


- 1 Turn on the output switch of the AC power system that supplies power to the MA5628.  
闭合为MA5628 供电的交流电源系统输出开关。
- 2 After the MA5628 registration is successful, the LED status is shown in the following figure.  
在MA5628成功注册后，指示灯状态如下图所示。



## Check and Sealing the Chassis 检查密封机箱

- 1 Use the wrench to fasten PG connectors of the cable apertures properly. (torque: 35 kgf·cm)  
用扳手紧固各进线孔处的PG接头。(力矩: 35kgf·cm)



- 2 Use the hexagon ring spanner to fasten the screws of the front door. (torque: 48 kgf·cm)  
用六角扳手紧固前门的所有螺钉。(力矩: 48kgf·cm)



**Cables to be installed on site**

**需要现场安装的线缆**

Cable 线缆名称	Specification 线缆规格
PGND cable 保护地线	Cross-sectional area of the conductor: 10 mm <sup>2</sup> Outer diameter: 6.8+/-0.3mm Color: yellow green Length: determined by the site survey 导体截面积：10mm <sup>2</sup> 外径：6.8+/-0.3mm 颜色：黄绿 长度：工勘确定
AC power cable 交流电源线	Electronic and Electrical Cable, 300 V, 60227IEC53 (RVV), 1.5 mm <sup>2</sup> , Black (Brown, Blue, Yellow/green), 15 A, Round 3 Cores, Only for OEM Specification requirements: Withstand voltage: 300.0 V Type: 60227IEC53 (RVV) Cross-sectional area of the conductor: 1.5 mm <sup>2</sup> Outer diameter: 8.9+/-0.3mm Wire size: default Color: black (the core wire is brown, blue, and yellow green) Maximum current: 15.0 A Remarks: round 3 cores, only for OEM DC resistance of the inner conductor: 13.3 ohms Flame retardant requirement: IEC60332-1, IEC 60332-3-22 电子电力线缆-300V-60227IEC53(RVV)-1.5mm <sup>2</sup> -黑(芯线为棕,蓝,黄绿)-15A-圆3芯,OEM专用 规格要求: 耐压水平：300.0V 类型：60227IEC53(RVV) 导体截面积：1.5 mm <sup>2</sup> ; 外径：8.9+/-0.3mm 线规：Default 颜色：黑(芯线为棕,蓝,黄绿) 最大电流：15.0 A ; 附加说明：圆3芯,OEM专用 内导体直流电阻：13.3 ohms; 阻燃要求：IEC60332-1, IEC 60332-3-22
Optical cable 光缆	Requirement on the single-mode optical fiber: Comply with ITU G.652 Specifications of the single-mode optical fiber: G.652D Requirement on the sheath of the optical cable: Outer diameter of the sheath: 7.0 <sup>0</sup> <sub>-0.2</sub> Flame retardant: Comply with IEC60332-3C Ultraviolet resistant: UL1581 (part 1200) Pressure: 2200 N/10 cm for short term and 1100 N/10 cm for long term. Refer to IEC 60794-1-2 E3. Humidity: ≤ 95% Operating temperature: -40°C to +80°C Minimum installation temperature: -20°C 单模光纤要求：满足ITU G.652标准； 单模光纤规格：G.652D 光缆外护套要求： 护套外径：7.0 <sup>0</sup> <sub>-0.2</sub> ； 阻燃：满足IEC60332-3C标准； 防紫外线：UL1581（1200部分） 压力：短期2200N/10cm，长期1100N/10cm，参照IEC 60794-1-2 E3标准； 湿度：≤95% 工作温度：-40°C~80°C 最低安装温度：-20°C

## Cables to be installed on site

### 需要现场安装的线缆

Cable 线缆名称	Specification 线缆规格
Electirc signal cable 电信号线缆	<p>Symmetry Twist Cable, 100-ohm, SFTP CAT5E, 0.53 mm, 24 AWG, 4 Pairs, Black, Outdoor Cable</p> <p>Specification requirements:                      Characteristic impedence: 100.0 ohms                      Type: SFTP CAT5E; outdoor                      Core diameter of the inner conductor: 0.53 mm                      Number of wires: four pairs                      Crosstalk: 50.3 dB at 10 MHz, 35.3 dB at 100 MHz                      Capacitance: ≤ 330 pF/100 m                      Breakdown voltage: 1500.0 V                      DC resistance of the inner conductor: 93.8 ohms                      Frequency: 0-100 MHz                      Frequency attenuation: 6.5 dB at 10 MHz, 22 dB at 100 MHz                      Outer diameter: 6.8±0.3 mm                      Sheath materials: PVC</p> <p>对称双绞线缆-100ohm-SFTP CAT5E-0.53mm-24AWG-4对-黑-户外电缆                      规格要求：                      特征阻抗： 100.0ohm；                      类型说明： SFTP CAT5E； 户外                      内导体线径： 0.53mm；                      芯数： 4对；                      串音： 50.3dB at10MHz, 35.3dB at100MHz；                      电容： &lt;=330pF/100m；                      击穿电压： 1500.0V；                      内导体直流电阻： 93.8ohm；                      频率： 0~100MHz；                      频率衰减： 6.5dB at10MHz,22dB at100MHz                      外径： 6.8+/- 0.3mm                      护套材料： PVC</p>
4E1 Trunk cable 4E1中继线缆	<p>Twist Pair Cable, 120ohm,SEYYP-120 8*2*0.4,0.4mm,26AWG,16 Core,Black,Outdoor</p> <p>Specification requirements:                      Characteristic impedence: 120.0 ohms                      Type: SEYYP-120 8*2*0.4; outdoor;                      Core diameter of the inner conductor: 0.40 mm                      Outer diameter: 7.8±0.3 mm                      Number of wires: eight pairs                      Crosstalk: PSNEXT&gt;=56dB/100m@1MHz;                      Breakdown voltage: 1000.0 V                      DC resistance of the inner conductor: 145.0 ohms                      Frequency attenuation: 4.7dB/100m@3.156MHz</p> <p>对称双绞线缆-120ohm-SEYYP-120 8*2*0.4-0.4mm-26AWG-16芯-黑色-户外电缆                      规格要求：                      特征阻抗： 120.0 ohm；                      类型说明： SEYYP-120 8*2*0.4； 户外                      内导体线径： 0.40 mm ；                      外径： 7.8+/- 0.3mm                      芯数： 8对；                      串音： PSNEXT&gt;=56dB/100m@1MHz；                      击穿电压： 1000.0V；                      内导体直流电阻： 145.0 ohm；                      频率衰减： 4.7dB/100m@3.156MHz</p>

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