

1. 安全注意事项 (Safety precautions)

本说明书涉及产品均为开放型外壳设计。要求用户使用产品时，务必将产品安装于具有防尘、防潮以及免于电击 / 冲击等意外的控制柜内，并且需要设置保护措施以防止非维护人员不当操作或意外导致设备故障或损坏，造成不可避免的人员危险和财产损失。

The products involved are all open-type housing designs. Therefore they should be installed in a control cabinet that is free of airborne dust, humidity, electric shock, and vibration. The cabinet should prevent non-maintenance staff from operating the products or accidents from happening in case danger and damage may occur on the products.

更详细的信息请参考 QX 系列硬件手册。
Please refer to the QX series hardware manual for more detailed information.

2. 通用电气及环境规格 (General electrical and environmental specifications)

2.1 通用电气规格 (General electrical specifications)						
型号 (Model)	额定功率: W	Rated power: W	消耗功率: W	Consumed power: W	额定电压	Rated voltage
HCQX-ES06-D4	2.544	2.544	2.4	2.4	DC24V, 电压范围: DC20.4~28.8V	DC24V, voltage range: DC20.4~28.8V

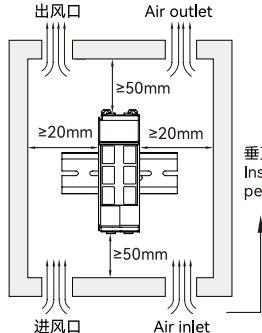
* 注: 所有型号均为安全特低电压输入产品。
*Note: All models are featured by the SELV input type.

2.2 环境规格 (Environmental requirements)			
项目	Item	规格	Specifications
海拔高度	Altitude	≤2000m	≤2000m
使用环境	Operating environment	控制柜内安装, 开放式及室内使用	Installation within a control cabinet, open-type and indoor use
工作温度	Operating temperature	-10~55℃	-10~55℃
储存温度	Storage temperature	-40~75℃	-40~75℃
环境湿度	Ambient humidity	10~95%RH (无结露)	10~95%RH (non-condensation)
振动耐受	Vibration resistance	5~150Hz (X/Y/Z方向, 1g/3.5mm位移)	5~150Hz (X/Y/Z direction, 1g /3.5mm displacement)
污染等级	Pollution degree	污染度II	Level 2
冷却方式	Cooling method	自然冷却	Natural air cooling
防护等级	IP rating	IP20	IP20
外壳材质	Enclosure material	阻燃材料	Self-extinguishable

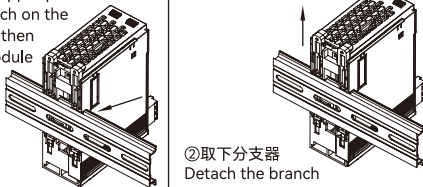
* 注: 如果以制造商未规定的方式使用设备, 可能会损坏设备。
*Note: The equipment may be damaged if used in a manner not specified by the manufacturer.

3. 安装说明 (Installation instructions)

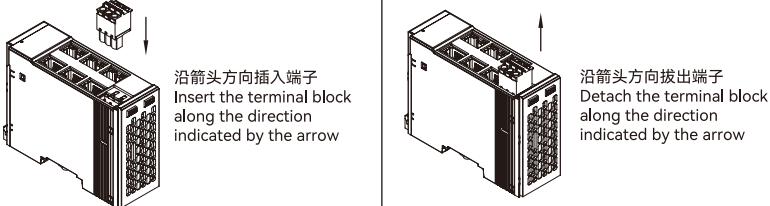
3.1 控制柜安装 (Installation within a control cabinet)

CN	设备冷却方式为自然冷却或通过加装风扇进行冷却, 请保证安装方向与柜壁垂直; 请参考右侧示意图, 在设备的周围留有足够的空间, 并排安装时, 建议横向两侧预留 20mm 以上间距。	 <p>垂直柜壁安装 Install the product perpendicular to the wall</p>
EN	Please install the product perpendicular to the wall and ensure a sufficient cooling effect via natural air or a cooling fan. Please leave enough clearance around the product as shown in the right figure. During a side-by-side installation, please leave a horizontal clearance of more than 20 mm on both sides.	

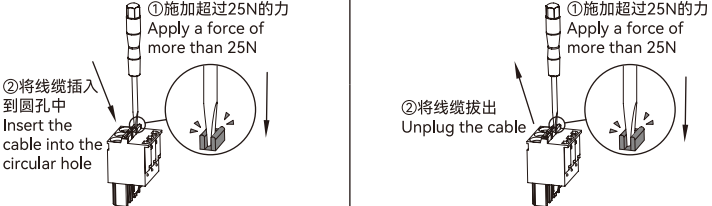
3.2 导轨拆装 (DIN rail mounting and dismounting)

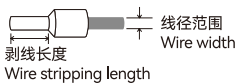
CN	安装分支器时, 将双向联动卡扣上部紧扣在 DIN 导轨上, 并向导轨侧按压模块, 听到“咔哒”声, 分支器即成功安装于 DIN 导轨上 (安装前应保证双向联动卡扣处于紧锁状态, 否则可能导致安装故障); 拆卸分支器时, 将双向联动卡扣向上拉动一定距离, 听到“咔哒”声后, 取下分支器即可。	 <p>①向上拉动双向联动卡扣 Pull up to unlock the DIN rail mounting latch</p> <p>②取下分支器 Detach the branch</p>	紧锁状态 (Locked)	释放状态 (Unlocked)
EN	Before installation, check that the DIN rail mounting latch is in a locked state. During mounting, position the upper part of the mounting latch of the branch on the DIN rail, and then press module towards the DIN rail until a clear click is heard (which indicates the latch is momentarily opened and locked onto the rail). During dismounting, pull the latch upwards until a clear click is heard (which indicates the latch is unlocked), and then directly detach the branch.			

3.3 可拆卸端子拆装 (Removable terminal block mounting and dismounting)

CN	可拆卸端子拆装如右图所示。	
EN	The mounting and dismounting of the removable terminal block are shown in the figures on the right side.	

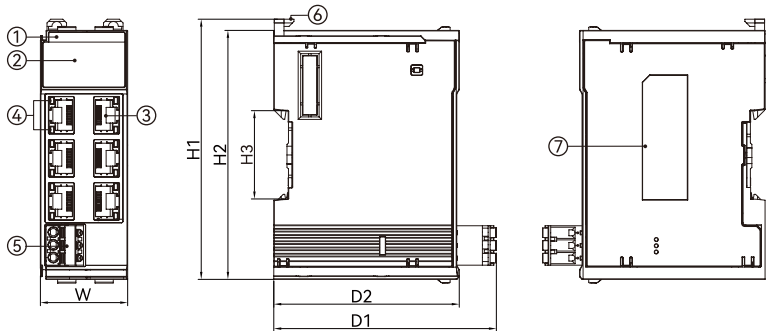
3.4 线缆拆装 (Cable connecting and disconnecting)

CN	安装线缆时, 将赠送的一字螺丝刀垂直插入可拆卸端子压块内, 施加超过 25N 的力, 将准备好的线缆插入到圆孔中, 拔出 一字螺丝刀, 轻拽线缆, 线缆不松动即成功完成配线; 反之即可取出线缆。端子规格及配线示意图如右图所示。	
EN	During connecting, insert the flat-blade screwdriver into the unlocking tab with a force of more than 25 N. Then insert a cable into the circular hole. Gently tug the cable after pulling out the screwdriver. If the cable is secured firmly, then the connection is finished. The reverse is the procedure for unplugging the cable. The terminal specifications and wiring diagram are shown in the right figure.	

模块端子 (Terminal)	线径范围: AWG (Wire width)	剥线长度: mm (Wire stripping length)	按压力: N (Pressure)	拔线力: N (Wire pulling force)	
DC24V 电源端子 (DC24V power supply terminal)	24~12	8~9	25	40	
<div>警告: 仅使用铜导线。</div> <div>Warning: Use copper conductors only.</div> <div>Attention: Utilisez uniquement des conducteurs en cuivre.</div>					











4. 接口和尺寸说明 (Interface and dimension description)

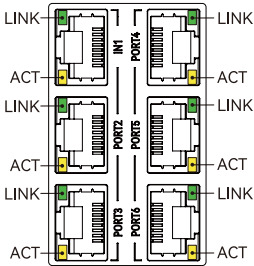
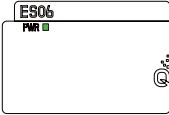
序号(No.)	项目	Item
1	产品型号	Product model
2	模块状态指示灯	Module status indicator
3	EtherCAT通讯接口	EtherCAT communication interface
4	通讯指示灯	Communication indicator
5	DC24V电源端子	DC24V power supply termina
6	双向联动卡扣	DIN rail mounting latch
7	标签	Label




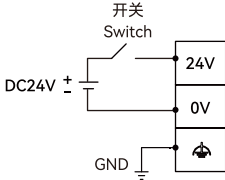
型号 (Model)	外形尺寸 (Dimension) : mm						重量 (Weight) : g
	W	H1	H2	H3	D1	D2	
HCQX-ES06-D4	35.00	104.50	100.00	35.40	89.40	74.50	130 approx.

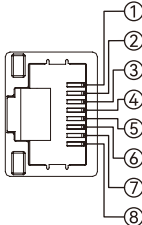
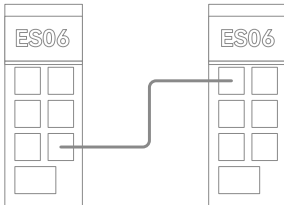
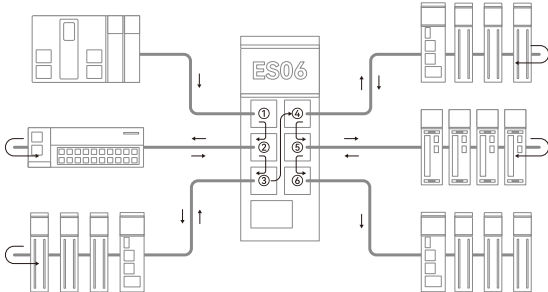
5. 指示灯说明 (Indicator description)

丝印 (Screen printing)	指示灯含义 (Indicator meaning)	颜色 (Color)	状态	Status	说明	Description
PWR	电源 (Power supply)	绿色 (Green)		熄灭 Not lit	供电电压不足或未供电	Insufficient power supply voltage or no power supply
				常亮 Lit	供电正常	Normal power supply
IN1						
LINK	EtherCAT IN 连接 (EtherCAT IN connection)	绿色 (Green)		熄灭 Not lit	控制器与 EtherCAT 从站无物理连接	No physical connection between the controller and the EtherCAT slave
				常亮 Lit	控制器与 EtherCAT 从站存在物理连接	There is a physical connection between the controller and the EtherCAT slave
ACT	EtherCAT IN 通讯 (EtherCAT IN communication)	黄色 (Yellow)		熄灭 Not lit	控制器与 EtherCAT 从站无数据交互	NO data exchange between the controller and the EtherCAT slave
				闪烁 Blinking	控制器与 EtherCAT 从站存在数据交互	There is a data exchange between the controller and the EtherCAT slave
PORT2~PORT6						
LINK	EtherCAT OUT 连接 (EtherCAT OUT connection)	绿色 (Green)		熄灭 Not lit	分支器与 EtherCAT 从站无物理连接	No physical connection between the branch and the EtherCAT slave
				常亮 Lit	分支器与 EtherCAT 从站存在物理连接	There is a physical connection between the branch and the EtherCAT slave
ACT	EtherCAT OUT 通讯 (EtherCAT OUT communication)	黄色 (Yellow)		熄灭 Not lit	分支器与 EtherCAT 从站无数据交互	NO data exchange between the branch and the EtherCAT slave
				闪烁 Blinking	分支器与 EtherCAT 从站存在数据交互	There is a data exchange between the branch and the EtherCAT slave



6. 端子及配线说明 (Terminal and wiring description)

DC24V电源端子说明 (DC24V power supply terminal description)		接线 (Wiring)
24V		
0V		

IN/PORT接口引脚定义 (IN/PORT interface pin definition)		ES06 级联接线指示图*1 (ES06 cascade wiring diagram*1)	ES06 数据流向指示图*2 (ES06 data flow diagram*2)																		
<div></div> <table><tr><th>引脚 (Pin)</th><th>信号 (Signal)</th></tr><tr><td>1</td><td>Transmit+</td></tr><tr><td>2</td><td>Transmit-</td></tr><tr><td>3</td><td>Receive+</td></tr><tr><td>4</td><td>保留</td></tr><tr><td>5</td><td>Reserved</td></tr><tr><td>6</td><td>Receive-</td></tr><tr><td>7</td><td>保留</td></tr><tr><td>8</td><td>Reserved</td></tr></table>		引脚 (Pin)	信号 (Signal)	1	Transmit+	2	Transmit-	3	Receive+	4	保留	5	Reserved	6	Receive-	7	保留	8	Reserved		
引脚 (Pin)	信号 (Signal)																				
1	Transmit+																				
2	Transmit-																				
3	Receive+																				
4	保留																				
5	Reserved																				
6	Receive-																				
7	保留																				
8	Reserved																				

* 注 1: 仅 PORT6 端口可使用级联功能, 最多只能连续挂载 2 个 ES06 模块, 第 2 个 ES06 模块的 PORT6 口不可再级联, 但可以连接 EtherCAT 从站设备。

*Note 1: Only the PORT6 interface can be used for the cascade function. Up to 2 ES06 modules can be mounted consecutively, and the PORT6 interface of the second ES06 module can no longer be cascaded, but it can be connected to an EtherCAT slave device.

* 注 2: 各端口数据优先级: PORT2> PORT3> PORT4> PORT5> PORT6, 即 PORT2 支路上的任何一个从站的数据都优先于 PORT3 之路上的所有从站。

*Note 2: Data priority of each interface: PORT2> PORT3> PORT4> PORT5> PORT6. This means that data from any slave on the PORT2 tributary has priority over all slaves on the PORT3 tributary.