支持的设备型号
Supported Models

HC-IQ815-5037-D

⚠ 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 IQ800 系列硬件手册。
Please refer to the IQ800 series hardware operation manual for more detailed information.

⚠ Battery	IQ800 系列 CPU 内置 CR2032 电池，电池型号为 CR2032（3V），可自行选购符合 UL 认证且规格参数合适的电池进行更换。 For the built-in CR2032 battery of the IQ800 series CPU, its model is CR2032 (3V), and it can be replaced by purchasing UL-certified batteries with appropriate specifications. Pour la batterie CR2032 intégrée dans l'unité centrale (CPU) de la série IQ800, dont le modèle est CR2032 (3V), vous pouvez vous procurer vous - même des batteries certifiées UL avec les spécifications appropriées pour effectuer le remplacement.

2. 命名规则（Model identification）

$$\underset{1}{HC} - \underset{2}{IQ}\,\underset{3}{815} - \underset{4}{5}\,\underset{5}{0}\,\underset{6}{3}\,\underset{7}{7} - \underset{8}{D} - \underset{9}{XXXX}$$

1	产品名称（Product name）
HC	禾川（Hechuan Technology）

2	产品系列（Product series）
IQ	IQ系列（IQ Series）

3	系列型号（Series model）
815	Core i5 11th

4	操作系统（Operating system）
1	Linux (Ubuntu)
2	Windows10
5	Windows10+Linux

5	控制软件模块（Control software module）
0	CODESYS
5	无（N/A）

6	运存RAM（Random Access Memory (RAM) for operation）
0	2G
1	4G
2	8G
3	16G
4	32G

7	硬盘（Hard disk）
2	8GB
3	16GB
4	32GB
5	64GB
6	128GB
7	256GB
8	512GB
9	1TB

8	电源类型（Power supply type）
D	直流电源（DC power supply）

9	软件/固件定制代码（Customized software/firmware Code）
X	0~9/A~Z/空(N/A)

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

3.1 电气规范（Electrical specification）

型号（Model）	额定功率：W	Rated power: W	额定电压	Rated voltage
HC-IQ815-5037-D	72	72	DC 24V，电压范围：DC 20.4~28.8V	DC 24V, 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.

3.2 环境要求（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	0~55℃	0~55℃
储存温度	Storage temperature	-25~70℃	-25~70℃
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	风冷	Cooling fan
防护等级	IP rating	IP20	IP20
外壳材质	Enclosure material	阻燃材料	Self-extinguishable

* 注：如果制造商未规定的方式使用设备，可能会损坏设备。
*Note: If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

4. 安装说明(Installation instructions)

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

CN 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 50mm 以上间距。

EN 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 50 mm on both sides.

≥50mm ≥50mm ≥50mm ≥50mm ≥50mm

垂直柜壁安装
Install the product perpendicular to the wall
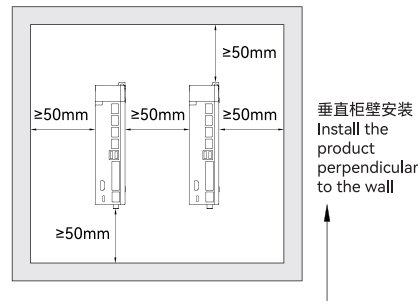
4.2 机柜背板安装 (Cabinet backplane mounting)

CN 在机柜背板上开 2 个 Φ4.0 的孔，具体尺寸如右图所示。在控制器左下角及右上角位置使用 M4*20 的螺钉将其固定在机柜背板上，并保证牢固可靠。

EN Drill 2 Φ4.0 holes on the backplane of the cabinet with the specific dimensions as shown in the right figure.
Use M4*20 screws to fix the lower left corner and upper right corner of the controller firmly to the cabinet backplane.
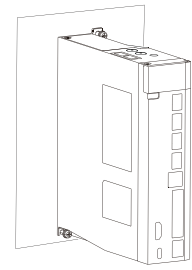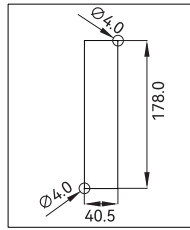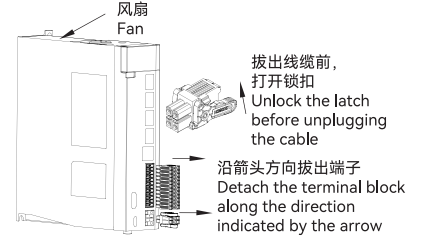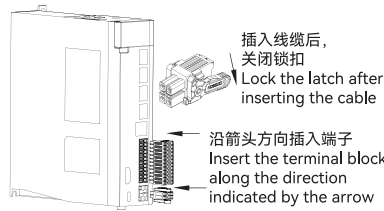
建议采用M4*20的内六角圆头螺钉+弹垫+平垫组合+M5六角螺母固定控制器，锁紧扭矩：0.5N.m
Recommended combination for securing the controller: M4 * 20 hexagon socket head cap screws, spring washers, flat washers, M5 hexagon nuts, Locking torque: 0.5N.m

4.3 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.

插入线缆后，关闭锁扣
Lock the latch after inserting the cable

沿箭头方向插入端子
Insert the terminal block along the direction indicated by the arrow

风扇 Fan

拔出线缆前，打开锁扣
Unlock the latch before unplugging the cable

沿箭头方向拔出端子
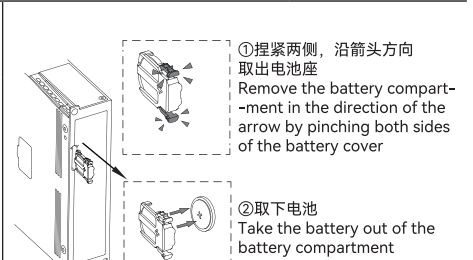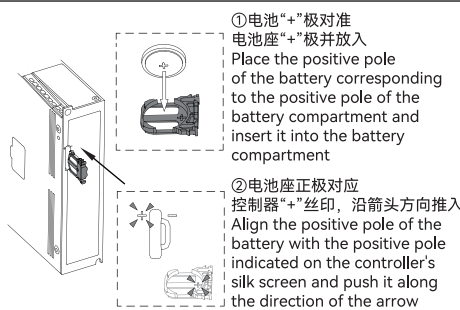Detach the terminal block along the direction indicated by the arrow

⚠️ 警告：控制器内置风扇，用户不可自行拆卸，遇到风扇故障请联系禾川售后进行更换。
Warning: The controller is equipped with a built-in fan, which cannot be detached by users. If a fan failure is encountered, please contact HCFA after-sales service for replacement.

4.4 电池拆装（Battery mounting and dismounting）

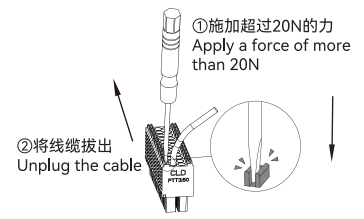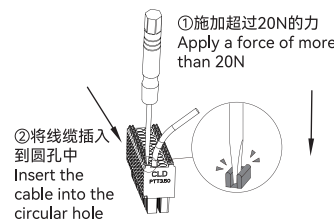**CN** 将电池正极对应电池座正极后放入电池，电池座正极对应控制器丝印的正极后沿箭头方向推入，即可完成安装；电池盖两侧捏紧后沿箭头方向拔出，移除电池座中的电池即可完成拆卸。

EN During mounting, first place the positive pole of the battery corresponding to the positive pole of the battery compartment and insert it into the battery compartment. Then, align the positive pole of the battery with the positive pole indicated on the controller's silk screen and push it in the direction of the arrow to complete the installation. During dismounting, remove the battery compartment in the direction of the arrow by pinching both sides of the battery cover and then take the battery out of the battery compartment.

①电池"+"极对准电池座"+"极并放入
Place the positive pole of the battery corresponding to the positive pole of the battery compartment and insert it into the battery compartment

②电池座正极对应控制器"+"丝印，沿箭头方向推入
Align the positive pole of the battery with the positive pole indicated on the controller's silk screen and push it along the direction of the arrow

①捏紧两侧，沿箭头方向取出电池座
Remove the battery compartment in the direction of the arrow by pinching both sides of the battery cover

②取下电池
Take the battery out of the battery compartment

⚠️ 4.5 线缆拆装 (Cable connecting and disconnecting)

CN 安装线缆时，将一字螺丝刀垂直插入可拆卸端子压块内，施加超过20N的力，此时圆孔打开，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 20N. 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.

①施加超过20N的力
Apply a force of more than 20N

②将线缆插入到圆孔中
Insert the cable into the circular hole

①施加超过20N的力
Apply a force of more than 20N

②将线缆拔出
Unplug the cable

控制器端子（Terminal)	线径范围：AWG（Wire width）	剥线长度：mm（Wire stripping length）
24Pin IO 端子（24Pin IO terminal）	24~16	9~10
DC24V电源端子（DC24V power terminal）	24~16	9~10
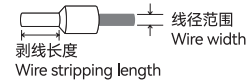
⚠️ 警告：仅使用铜导线。
Warning: Use copper cables only.
Attention: Utilisez uniquement des câbles en cuivre.

线径范围 Wire width
剥线长度 Wire stripping length

5. 接口和尺寸说明（Interface and dimension description）
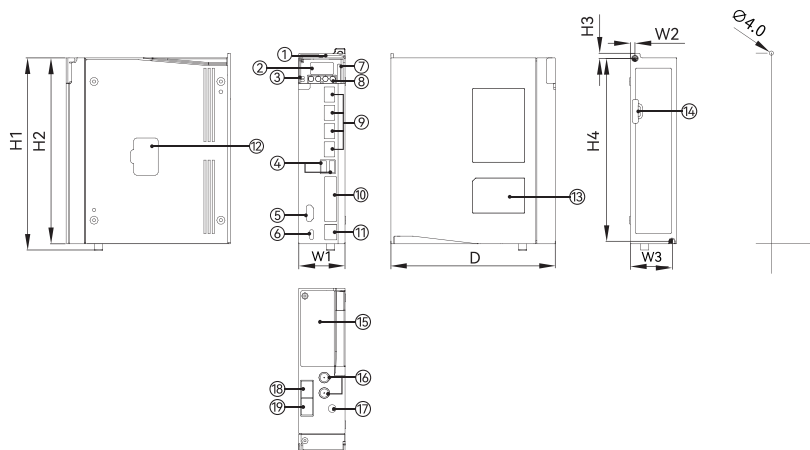
序号(No.)	名称		Name		功能	Function
1	产品型号		Product model		显示产品型号	Displays the product model
2	液晶显示屏		LCD		LCD显示，显示报错信息	Displays error messages
3	系统状态指示灯	PWR	System status indicator	PWR	电源指示灯	Power supply indicator
		SYS		SYS	系统运行指示灯	System operation indicator

序号(No.)	名称	Name	功能	Function
4	USB接口	USB-A interface	USB-A 3.0接口	USB-A 3.0 interface
5	HDMI接口	HDMI interface	高清显示接口，外接显示器	High-definition display interface for connecting to an external monitor
6	Type-C接口	Type-C interface	USB-C 2.0接口	USB-C 2.0 interface
7	SD卡	SD card slot	暂不支持	Not supported for now
8	功能按键	Function key	仅开机按键 其余按键未定义	Only the power on/off key is available, and the other keys are undefined
9	LAN1~LAN4: RJ45接口	LAN1~LAN4: RJ45 interface	EtherNet通讯接口	Ethernet communication interface
10	CN1：24Pin IO 端子	CN1：24Pin IO terminal	数字量输入输出接口和485通讯接口	Digital input/output interface and 485 communication interface
11	CN2：DC24V 电源端子	CN2：DC24V power terminal	DC24V供电接口	DC24V power supply interface
12	扩展模块通讯接口	Expansion terminal communication interface	暂不支持	Not supported for now
13	标签	Lable	显示产品型号，规格参数、内部序列号等基本信息	Displays basic information such as the product model, specification parameters, and internal serial number
14	RTC 电池	RTC battery	维持部分系统参数	Maintains partial system parameters
15	风扇	Fan	散热	Heat dissipation
16	WIFI / 4G 接口	WIFI / 4G interface	暂不支持	Not supported for now
17	音频输入输出	Audio input and output	暂不支持	Not supported for now
18	LAN6/Ecat: EtherCAT 通讯接口	LAN6/Ecat: EtherCAT communication interface	EtherCAT通讯接口	EtherCAT communication interface
19	LAN5: EtherNet 通讯接口	LAN5: EtherNet communication interface	EtherNet通讯接口	Ethernet communication interface

型号(Model)	尺寸(Dimension) : mm								孔径 Φ (Hole diameter Φ):mm	重量 (Weight): g
	W1	W2	W3	H1	H2	H3	H4	D		
HC-IQ815-5037-D	45.0	4.5	40.5	187.0	181.0	5.0	178.0	160.0	4.0	1460 approx.

丝印 (Screen printing)	指示灯含义 (Indicator meaning)	颜色 (Color)	状态		Status	说明	Description
PWR	电源 (Power)	绿色 (Green)		熄灭	Not lit	电源未接通	Power off
				常亮	Lit	电源接通	Power on
SYS	系统状态 (System)	红色 (Red)		熄灭	Not lit	Linux 系统运行异常	The Linux system is running abnormally
				闪烁	Blinking	Linux 系统正在运行	The Linux system is running
				常亮	Lit	Linux 系统运行异常	The Linux system is running abnormally
LAN N (1~5)	EtherNet 通讯 (EtherNet communication)	绿色 (Green)		熄灭	Not lit	未建立物理连接 或电源未接通	Physical connection is not established or power supply is not connected
				常亮	Lit	建立物理连接	Physical connection is established
		橙色 (Orange)		熄灭	Not lit	未收发数据	Communication data is not being sent or received
				闪烁	Blinking	正在收发数据	Data is being sent or received
LAN6/Ecat	EtherCAT 通讯 (EtherCAT communication)	绿色 (Green)		熄灭	Not lit	未建立物理连接 或电源未接通	Physical connection is not established or power supply is not connected
				常亮	Lit	建立物理连接	Physical connection is established
		橙色 (Orange)		熄灭	Not lit	未收发数据	Communication data is not being sent or received
				闪烁	Blinking	正在收发数据	Data is being sent or received

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

CN1：24Pin IO 端子说明 (24Pin IO terminal descirption)		类型(Type)	通用IO接线(General IO wiring)	高速IO接线(High-speed channel wiring)
S/S	COM	漏型输入 (NPN Input)		
X0	Y0			
X1	Y1			
X2	Y2	源型输入 (PNP Input)		
X3	Y3			
X4	Y4			
X5	Y5	漏型输出 (NPN Output)		
X6	Y6			
X7	Y7			
SG	SG	RS485接线 (RS485 wiring)		
B1	B2			
A1	A2			

CN2：DC24V 电源端子说明* (DC24V Power Terminal description*)		接线 (Wiring)
24V+	SW	
GND	P.OK	

* 注：当 24V 电源供电正常的情况下：
　　若控制器原处于关机状态，SW 状态为 OFF → ON 时控制器将开机；
　　若控制器原处于开机状态，SW 状态为 OFF → ON 时控制器将关机（保持 ON 状态 4 秒后控制器将强制关机）；
　　P.OK 状态为 ON → OFF 时，执行掉电保存且控制器将关机。

*Note:In the case of normal 24V power supply:
　　If the controller was previously in the OFF state, and the SW state changes from OFF to ON, the controller will be powered on;
　　If the controller was previously in the ON state and the SW state changes from OFF to ON, the controller will be powered off (the controller will be forced to power off after keeping ON state for 4 seconds);
　　If the P.OK status changes from ON to OFF, the controller performs power- off retention and will turn off the power.