⚠ 1. 安全注意事项（Safety precautions）

本说明书涉及产品为工业产品，并且均为开放型外壳设计。要求用户使用产品时，务必将产品安装在具有防尘、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 in this manual are industrial products and are all open-type housing designs. It is essential to install these products within a control cabinet that is safeguarded against dust, moisture, and accidents such as electric shocks or physical impacts. Additionally, protective measures must be taken to prevent malfunctions or damage caused by improper operation or accidents involving non-maintenance personnel. Failure to do so may lead to serious risks to personnel safety and potential loss of property.

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

2. 命名规则（Model identification）

$$\text{HC} \quad \text{QXB} - \text{2RS232} - \text{BD}$$
$$\quad 1 \qquad 2 \qquad\quad 3 \qquad\qquad 4$$

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

2	选配卡系列 （Expansion card series）
QXB	Q系列选配扩展 （Q-Series optional expansion）

3	产品系列 （Product series）
2RS232	两路232串口 （Dual-channel RS-232 serial interface）
2RS485	两路485串口 （Dual-channel RS-485 serial interface）

4	后缀 （Suffix）
BD	BD选配卡 （Optional BD card）

3. 适用型号（Applicable model）

名称 （Name）	型号 （Model）	适配的主机型号 * （Applicable controller model）	简要说明 （Brief description）
扩展卡 Expansion card	HCQXB-2RS232-BD	HCQ0P-1200-D4 HCQ1P-1300-D4	2路RS232串口，可单独做主站或者从站，支持Modbus RTU 和自由协议 Dual-channel RS-232 serial interface, it is independently configurable as a master or slave station. It supports both Modbus and free protocols.
	HCQXB-2RS485-BD		2路RS485串口，可单独做主站或者从站，支持Modbus RTU 和自由协议 Dual-channel RS-485 serial interface, it is independently configurable as a master or slave station. It supports both Modbus and free protocols.

* 注：串口通信扩展卡仅支持安装在主机扩展卡槽 A 的位置。
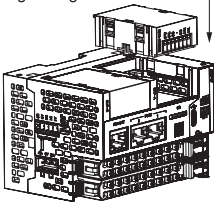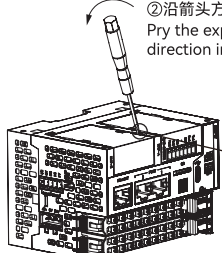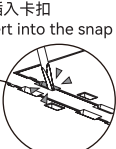*Note: The serial port communication expansion card can only be installed in expansion slot A of the host controller.

4. 环境规格（Environmental specifications）

4.1 环境规格（Environmental requirements）

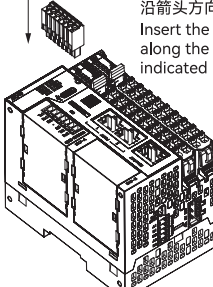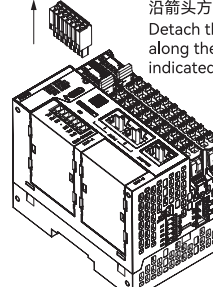| 项目	Item	规格	Specifications
海拔高度	Altitude	≤2000m	≤2000m
使用环境	Operating environment	控制柜内安装，开放式及室内使用	Installation within a control cabinet, open-type and indoor use
工作温度	Operating temperature	0~55℃	0~55℃
储存温度	Storage temperature	-25~70℃	-25~70℃
环境湿度	Ambient humidity	10~90%RH （无结露）	10~90%RH (non-condensing)
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2	Level 2
冷却方式	Cooling method	自然冷却	Natural cooling
防护等级	IP rating	IP20	IP20
外壳材质	Enclosure material	阻燃材料	Self-extinguishable

* 注：若设备未依照制造商指定方式使用，设备所提供的保护可能会被减弱。
*Note: If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

5. 安装说明（Installation instructions）
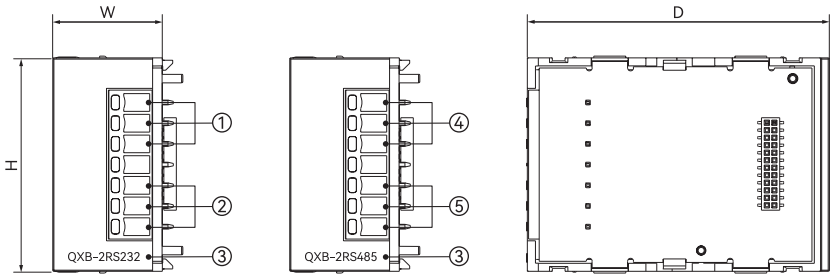
5.1 扩展卡拆装（Expansion card mounting and dismounting）

CN 将扩展卡沿卡槽放入水平放置控制器卡槽中，并向下按压扩展卡，听到"咔哒"声后确认表面平齐即完成安装；将一字螺丝刀插入卡扣处，按箭头方向撬动扩展卡使其控制器脱离，将扩展卡垂直取出即可完成拆卸。

EN During mounting, place the controller horizontally, then align the groove of the expansion card with that of the controller and press the expansion card downwards. After hearing the "click" sound, check whether the junction surface is flush, if it is then the installation is completed. During dismounting, insert a screwdriver into the card snap, pry the expansion card along the direction indicated by the arrow to disengage it from the controller, and then remove the expansion card vertically to complete the dismounting process.

①对准卡槽
Align the groove

②向下按压
Press downwards

②沿箭头方向撬动扩展卡
Pry the expansion card along the direction indicated by the arrow

①插入卡扣
Insert into the snap

5.2 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.

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

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

CN	安装线缆时，将一字螺丝刀垂直插入可拆卸端子压块内，施加一定的力，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 of the terminal with a certain amount of force. 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.

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

①施加一定的力
Apply a certain amount of force

②将线缆拔出
Unplug the cable

①施加一定的力
Apply a certain amount of force

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

QXB-2RS232
QXB-2RS485

序号 (No.)	名称	Name	功能	Function
1	RS232通道1	RS232 channel 1	RS232通讯接口，支持Modbus RTU 和自由协议	RS232 communication interface.It supports both Modbus and free protocols.
2	RS232通道2	RS232 channel 2		
3	产品型号	Product model	显示扩展卡型号	Displays expansion card model
4	RS485通道1	RS485 channel 1	RS485通讯接口，支持Modbus RTU 和自由协议	RS485 communication interface.It supports both Modbus and free protocols.
5	RS485通道2	RS485 channel 2		

型号（Model）	外形尺寸（Dimension）：mm			重量（Weight）：g
	W	H	D	
HCQXB-2RS232-BD	18.6	36.1	51.1	15 approx.
HCQXB-2RS485-BD				

7. 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
QXB-2RS232						
Tx1/Tx2/Rx1/SG/■ / SG/Rx2	-	-	预留	Reserved	预留	Reserved
QXB-2RS485						
D1+/D2+/D1-/SG1/■ / SG2/D2-	-	-	预留	Reserved	预留	Reserved

Tx1
Rx1
SG
·
SG
Tx2
Rx2

D1+
D1-
SG1
·
SG2
D2+
D2-

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

通讯端子说明(Communication terminal description)			
RS232通讯端子（RS232 communication terminal）		RS232 通道1接线（RS232 Channel 1 Wiring）	RS232 通道2接线（RS232 Channel 2 Wiring）
RS232 通道 1 数据发送 RS232 Channel 1 data sending	Tx1		
RS232 通道 1 数据接收 RS232 Channel 1 data receiving	Rx1		
RS232 通道 1 信号参考地 RS232 Channel 1 signal reference ground	SG		
-	■	扩展卡 Expansion card	扩展卡 Expansion card
RS232 通道 2 信号参考地 RS232 Channel 2 signal reference ground	SG	串口通讯设备 Serial communication device	串口通讯设备 Serial communication device
RS232 通道 2 数据发送 RS232 Channel 2 data sending	Tx2		
RS232 通道 2 数据接收 RS232 Channel 2 data receiving	Rx2		

Tx1
Rx1
SG
·
SG
Tx2
Rx2

RS232 通道1接线：
扩展卡 Tx1 — Rx 串口通讯设备
Rx1 — Tx
SG — 屏蔽层Shield — SG
⏚ GND

RS232 通道2接线：
扩展卡 Tx2 — Rx 串口通讯设备
Rx2 — Tx
SG — 屏蔽层Shield — SG
⏚ GND

RS485通讯端子（RS485 communication terminal）			RS485接线（RS485 Wiring）
RS485 通道 1 通讯信号+ RS485 Channel 1 communication signal+	D1+		
RS485 通道 1 通讯信号– RS485 Channel 1 communication signal –	D1–		
RS485 通道 1 信号参考地 RS485 Channel 1 signal reference ground	SG1		
–	■		
RS485 通道 2 信号参考地 RS485 Channel 2 signal reference ground	SG2		
RS485 通道 2 通讯信号+ RS485 Channel 2 communication signal+	D2+		
RS485 通道 2 通讯信号– RS485 Channel 2 communication signal –	D2–		

* 注： 信号参考地 SG 内部导通。
* Note: Signal reference ground SG are all internally conductive.