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Date 2026-05-25

CN 安装说明

EN Instruction Sheet

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风险和财产损失。

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 QX 系列硬件手册。

Please refer to the QX series hardware manual for more detailed information.

2. 命名规则 (Model identification)

HC **QX** - **MD 32 C** - **D 4** - **XXXX**

1 2 3 4 5 6 7 8

1	产品名称 (Product name)
HC	禾川 (Hechuan Technology)
2	产品系列 (Product series)
QX	Q系列通用扩展 (Q-series general-purpose expansion)

3	功能模块 (Function module)
ID	数字量输入 (Digital input (DI))
OD	数字量输出 (Digital output (DO))
MD	数字量混合 (Mixed DI/DO)
4	通道数量 (Number of channels)
32	32通道 (32 channels)

5	端子类型 (Terminal type)
空(N/A)	标准端子 (Standard)
C	牛角端子 (Card-edge)
6	电源类型 (Power supply type)
D	直流电源 (DC power supply)

7	迭代版本 (Iteration version)
4	第4代 (The 4th generation)
8	软件/固件定制代码 (Customized software/firmware Code)
X	0~9/A~Z/空(N/A)

3. 适用型号 (Applicable model)

名称 (Name)	型号 (Model)	模块简要说明	Brief description
数字量输入模块 (牛角端子) Digital input module (Card-edge)	HCQX-ID32C-D4	32通道数字量输入 (牛角端子)，支持NPN和PNP	32-channel digital input(Card-edge), supports NPN and PNP
数字量输出模块 (牛角端子) Digital output modul (Card-edge)	HCQX-OD32C-D4	32通道数字量输出 (牛角端子)，芯片输出，支持NPN	32-channel digital output, supports NPN
	HCQX-OD32C-D4-PNP	32通道数字量输出 (牛角端子)，芯片输出，支持PNP	32-channel digital output, supports PNP
数字量混合模块 (牛角端子) Mixed digital input/digital output module (Card-edge)	HCQX-MD32C-D4	16通道数字量输入16通道数字量输出 (牛角端子)，芯片输出，支持NPN和PNP型输入方式和 NPN型输出方式	16-channel digital input & 16-channel digital output (Card-edge), supports NPN and PNP input and NPN output
	HCQX-MD32C-D4-PNP	16通道数字量输入16通道数字量输出 (牛角端子)，芯片输出，支持NPN和PNP型输入方式和 PNP型输出方式	16-channel digital input & 16-channel digital output (Card-edge), supports NPN and PNP input and PNP output

注：仅能在由有限功率电源 (LPS) 提供的安全特低电压 (SELV) 下运行。

*Note: Only operate under the safety extra low voltage (SELV) provided by a limited power source (LPS).

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

4.1 通用电气规格 (General electrical specifications)

型号 (Model) ¹	额定电压 / 功率 ²	Rated voltage/power ²	数字量输入 / 输出类型	Digital input/output type
HCQX-ID32C-D4	DC12V, 0.7W	DC12V, 0.7W	数字量输入: DC24V(DC20.4~28.8V), 4.1mA/Ch	Digital input: DC24V(DC20.4~28.8V), 4.1mA/Ch
HCQX-OD32C-D4	DC12V, 1.3W	DC12V, 1.3W	数字量输出: DC24V, 500mA/CH, 6A/32Ch ³	Digital output: DC24V, 500mA/Ch, 6A/32Ch ³
HCQX-OD32C-D4-PNP			负载类型: 阻性/电磁负载	Load type: Resistive/Pilot duty
HCQX-MD32C-D4	DC12V, 1.2W	DC12V, 1.2W	数字量输入: DC24V(DC20.4~28.8V), 4.1mA/Ch	Digital input: DC24V(DC20.4~28.8V), 4.1mA/Ch
HCQX-MD32C-D4-PNP			数字量输出: DC24V, 500mA/Ch, 3A/16Ch ³	Digital output: DC24V, 500mA/Ch, 3A/16Ch ³
			负载类型: 阻性/电磁负载	Load type: Resistive/Pilot duty
			数字量输入: DC24V(DC20.4~28.8V), 4.1mA/Ch	Digital input: DC24V(DC20.4~28.8V), 4.1mA/Ch
			数字量输出: DC24V, 500mA/Ch, 4A/16Ch ³	Digital output: DC24V, 500mA/Ch, 4A/16Ch ³
			负载类型: 阻性/电磁负载	Load type: Resistive/Pilot duty

*注：1. 所有型号仅能在由有限功率电源 (LPS) 提供的安全特低电压 (SELV) 下运行。

2. 此处标识的额定功率为满负载运行时的功率。

3. 考虑温升影响，降额使用。

*Note: 1. All models can only operate under the safety extra low voltage (SELV) provided by a limited power source (LPS).

2. The power rating indicated here is the power under full-load operation.

3. Consider the effect of temperature rise and derate during using.

4.2 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°C	-10~55°C
储存温度	Storage temperature	-40~75°C	-40~75°C
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2	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：若设备未依制造商指定方式使用，设备所提供的保护可能会被减弱。

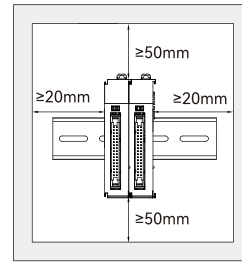
*Note: If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

5. 安装说明 (Installation instructions)

5.1 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。

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.

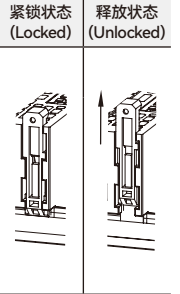
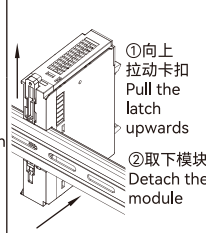
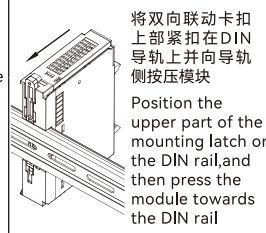
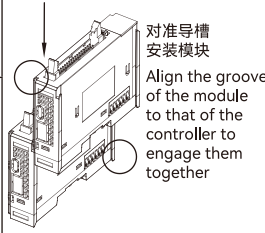


垂直柜壁安装
Install the product perpendicular to the wall

5.2 导轨拆装 (DIN rail mounting and dismantling)

CN 安装模块时，将模块侧面导槽对准控制器或模块导槽后，向内按压模块，听到“咔哒”声，模块成功安装于 DIN 导轨上（安装前保证双向联动卡扣处于紧锁状态，否则可能导致安装故障）；拆卸模块时，将卡扣向上拉动一定距离，听到“咔哒”声后，取下模块即可。

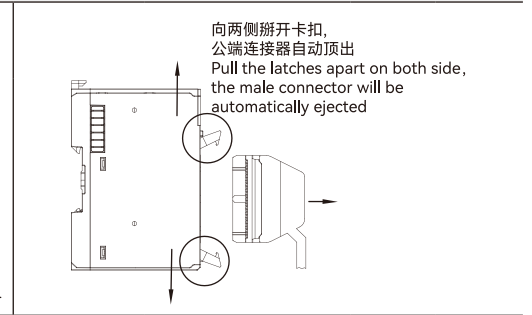
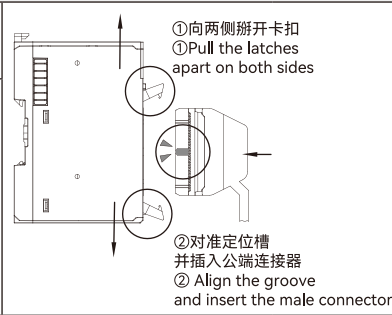
EN Before installation, check that the DIN rail mounting latch is in a locked state. During mounting, align the groove of the module to that of the controller or adjacent module to engage them together, and then press the module towards the DIN rail until a clear click is heard (which indicates the latch is momentarily opened and locked onto the rail). During dismantling, pull the latch upwards until a clear click is heard (which indicates the latch is unlocked), and then directly remove the module.



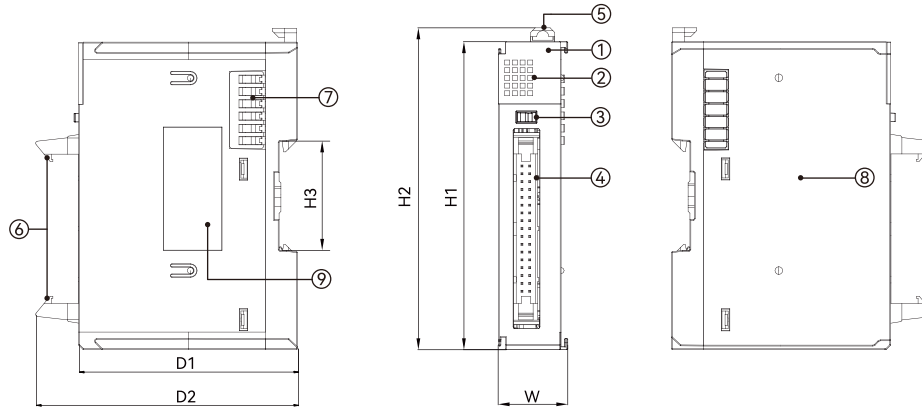
5.3 线缆拆装 (Cable connecting and disconnecting)

CN 将模块牛角端子卡扣两侧按箭头方向掰开，公端连接器定位槽对准模块后插入，卡扣会在安装到位后扣紧公端连接器；拆卸时，向两侧掰开卡扣，公端连接器会自动顶出。

EN During connecting, pull the latches on both sides of the module's card-edge connector apart in the direction of the arrows. Align the groove of the male connector with the module and insert it. The latches will snap onto the male connector once it is fully seated. To disconnect the cable, pull the latches apart on both sides, and the male connector will be automatically ejected.



6. 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	模块型号	Module model numbers
2	模块状态指示灯	Module status indicator	显示模块与通道状态	Display module and channel status
3	拨码开关	DIP switch	L/R拨码开关，切换灯板显示内容	L/R DIP switch for toggling display content on the indicator board
4	34pin牛角端子	34Pin card-edge	IO输入输出信号接口	IO Input/Output signal interface
5	双向联动卡扣	DIN rail mounting latch	固定模块在DIN导轨上	Mount the module onto a DIN rail
6	牛角端子卡扣	Card-edge connector latch	牛角端子连接卡扣	Card-edge connector latch for connection
7	扩展模块通讯接口	Expansion module communication interface	主机和IO模块或IO模块间通讯及供电接口，不支持热插拔	The interface for the communication and power supply between the host and the IO module or between IO modules, does not support hot-swapping
8	侧边丝印	Side silk screen printing	模块配线图	Channel wiring diagram
9	标签	Label	显示模块型号、规格参数、内部序列号等基本信息	Display the basic information including module model, specification parameters, and internal serial number

型号 (Model)	外形尺寸 (Dimension) : mm						重量 (Weight) : g
	W	H1	H2	H3	D1	D2	
HCQX-ID32C-D4	22.60	100.00	104.50	35.40	71.20	85.20	70 approx.
HCQX-OD32C-D4							
HCQX-OD32C-D4-PNP							
HCQX-MD32C-D4							
HCQX-MD32C-D4-PNP							

7. 指示灯说明 (Indicator description)

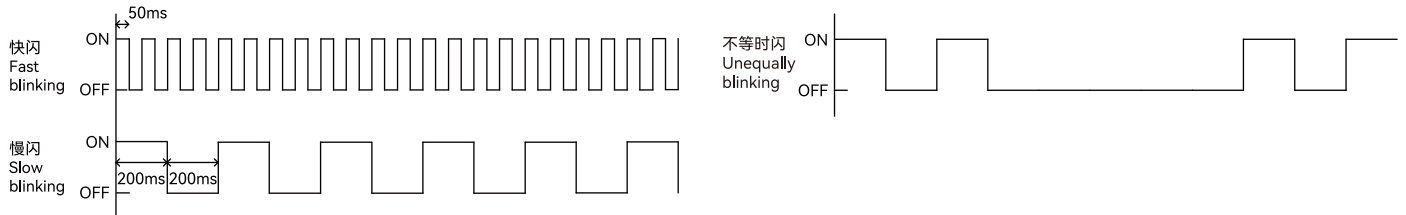
		拨码开关 (DIP switch)		指示灯 (Indicator)		
		L		显示左侧16个IO的状态 (Displays the status of the left 16 I/Os)		
		R		显示右侧16个IO的状态 (Displays the status of the right 16 I/Os)		

丝印 (Screen printing)	指示灯含义 (Indicator meaning)	颜色 (Color)	状态	Status	说明	Description	
P	模块供电状态 (Module power status)	绿色 (Green)		熄灭	Not lit	模块供电异常	The module power supply is in an abnormal state
				常亮	Lit	模块正常供电	The module power supply is in a normal state
R	模块运行状态 (Module status)z	黄色 (Yellow)		熄灭	Not lit	Init (初始化状态)	Initialization
				快闪	Fast blinking	Preop (预操作状态)	Pre Operational
				慢闪	Slow blinking	Safeop (安全操作状态)	Safe Operational
				常亮	Lit	OP (可操作状态)	Operational
				不等时闪	unequally blinking	Boot (引导程序状态)	Bootstrap
				熄灭	Not lit	模块运行状态异常	The module is in an abnormal state
A1	Qbus 信号输入状态 (Qbus signal input status)	黄色 (Yellow)		熄灭	Not lit	模块无 Qbus 信号输入	No Qbus input signal is detected
				常亮	Lit	模块有 Qbus 信号输入	The Qbus input signal is detected
A2	Qbus 信号输出状态 (Qbus signal output status)	黄色 (Yellow)		熄灭	Not lit	模块无 Qbus 信号输出	No Qbus output signal is detected
				常亮	Lit	模块有 Qbus 信号输出	The Qbus output signal is detected

丝印 (Screen printing)	指示灯含义 (Indicator meaning)	颜色 (Color)	状态	Status	说明	Description	
ID32C/OD32C/OD32C-PNP							
IN (0~7,10~17)	输入 (Input)	绿色 (Green)		熄灭	Not lit	输入通道 N 未检测到输入信号	The input channel N has not detected input signals
				常亮	Lit	输入通道 N 检测到输入信号	The input channel N has detected input signals
QN (0~7,10~17)	输出 (Output)	绿色 (Green)		熄灭	Not lit	输出通道 N 无信号输出	There is no output signal for this channel
				常亮	Lit	输出通道 N 有信号输出	There are output signals for this channel
MD32C/MD32C-PNP							
IN (0~7,10~17)	输入 (Input)	绿色 (Green)		熄灭	Not lit	输入通道 N 未检测到输入信号	The input channel N has not detected input signals
				常亮	Lit	输入通道 N 检测到输入信号	The input channel N has detected input signals
QN (0~7,10~17)	输出 (Output)	绿色 (Green)		熄灭	Not lit	输出通道 N 无信号输出	There is no output signal for this channel
				常亮	Lit	输出通道 N 有信号输出	There are output signals for this channel

指示灯闪烁频率如下图所示:

The indicator blinking frequency is shown below.



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

类型 (Type)	型号 (Model)	ID32	OD32	OD32-PNP	MD32	MD32-PNP
输入 (Input)	NPN	○	-	-	○	○
	PNP	○	-	-	○	○
输出 (Output)	NPN	-	○	-	○	-
	PNP	-	-	○	-	○

*注: ○: 代表支持该类型; -: 代表不支持该类型。

*Note: The symbol "○" indicates that the type is supported. The symbol "-" indicates that the type is not supported.

端子说明 (Terminal description)	ID32C	接线 (Wiring)
	I0	I20
	I1	I21
	I2	I22
	I3	I23
	I4	I24
	I5	I25
	I6	I26
	I7	I27
	I10	I30
	I11	I31
	I12	I32
	I13	I33
	I14	I34
	I15	I35
	I16	I36
	I17	I37
	S/S	S/S

端子说明 (Terminal description)	OD32C/OD32C-PNP	接线 (Wiring)
	Q0	Q20
	Q1	Q21
	Q2	Q22
	Q3	Q23
	Q4	Q24
	Q5	Q25
	Q6	Q26
	Q7	Q27
	Q10	Q30
	Q11	Q31
	Q12	Q32
	Q13	Q33
	Q14	Q34
	Q15	Q35
	Q16	Q36
	Q17	Q37
	COM0	COM1

端子说明 (Terminal description)	MD32C/MD32C-PNP	接线 (Wiring)
	I0	Q0
	I1	Q1
	I2	Q2
	I3	Q3
	I4	Q4
	I5	Q5
	I6	Q6
	I7	Q7
	I10	Q10
	I11	Q11
	I12	Q12
	I13	Q13
	I14	Q14
	I15	Q15
	I16	Q16
	I17	Q17
	S/S	COM0