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

2. 命名规则 (Model identification)

HC    MXB    -    MA03    -    100    -    BD    -    XXXX  
1        2        3        4        5        6

|     |  |      |  |      |   |
|-----|--|------|--|------|---|
| 1   | 产品名称 (Product name)                      | 3    | 系列型号 (Series model)                      | 5    | 固定后缀 (Fixed suffix)   |
| HC  | 禾川 (Hechuan Technology)                  | MA03 | 模拟量2AD+1DA<br>(Analog 2AD+1DA)           | BD   | BD选配卡 (Optional BD card)  |
| 2   | 选配卡系列 (Expansion card series)            | 4    | 固定后缀 (Fixed suffix)                      | 6    | 软件/固件定制代码和其他标识 (Software/<br>Firmware customized code and other<br>identifiers) |
| MXB | M系列选配扩展<br>(M-Series optional expansion) | 100  | M100系列选配卡<br>(M100 series optional card) | XXXX | 0~9/A~Z/空 (N/A)   |

3. 适用型号 (Applicable model)

| 名称 (Name)                          | 型号 (Model)        | 适配的主机型号 (Applicable controller model)  | 模块简要说明                | Brief description of expansion card  |
|------------------------------------|-------------------|--|-----------------------|--|
| 模拟量扩展卡<br>Analog<br>expansion card | HCMXB-MA03-100-BD | HCM100-14MR-A<br>HCM100-14MT3-A<br>HCM100-20MR-A<br>HCM100-20MT4-A<br>HCM100-30MR-A<br>HCM100-30MT6-A<br>HCM100-40MR-A<br>HCM100-40MT6-A<br>HCM100-48MR-A<br>HCM100-48MT6-A<br>HCM100-60MR-A<br>HCM100-60MT6-A | 2通道模拟量单端输入，1通道模拟量单端输出 | 2-channel analog single-ended input, 1-channel<br>analog single-ended output |

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 | 模拟量输入 / 输出范围   | Analog input/output range   |
| HCMXB-MA03-100-BD                              | DC5V/0.15W   | DC5V/0.15W            | 模拟量输入: 0~10V, 0~5V, 1~5V, 0~20mA, 4~20mA<br>模拟量输出: 0~10V, 0~5V, 1~5V, 0~20mA, 4~20mA | Analog input: 0~10V, 0~5V, 1~5V, 0~20mA, 4~20mA<br>Analog output: 0~10V, 0~5V, 1~5V, 0~20mA, 4~20mA |

\* 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最大功率。  
\*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 maximum power under full-load operation.

| 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 | 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-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 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 扩展卡拆装 (Expansion card mounting and dismounting)

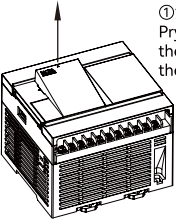
CN

安装扩展卡时，将控制器水平放置，用一字螺丝刀沿箭头方向撬动盖板，当听到明显声音时，盖板与控制器脱离，取下盖板。沿箭头方向向下按压扩展卡 PCB 板，对准控制器连接器的公头与扩展卡连接器的母头，将 PCB 板的孔对准下方螺丝柱，并拧入两颗 M3 自攻螺丝。将扩展卡外壳的开孔对准 PCB 板接线端子，随后按压外壳上部。听到明显声音则表示扩展卡的安装已完成。反之则为扩展卡的拆卸过程。

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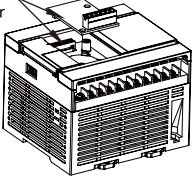
During mounting, first place the controller horizontally, and pry the cover plate along the direction indicated by the arrow with a flat screwdriver. Remove the cover plate from the controller when a distinct sound is heard. Then press downwards on the expansion card PCB plate along the direction indicated by the arrow to align the male connector of the controller connector with the female connector of the expansion card connector, and also align the holes of the PCB with the screw posts underneath and tighten two M3 self-tapping screws into the holes. Finally, align the lower cutout of the expansion card housing to the connection terminal of the PCB plate, and then press the upper part of the expansion card housing. The mounting of the expansion card is completed when a distinct sound is heard. The reverse is the procedure for dismounting the expansion card.

I



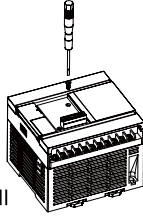
①沿箭头方向撬动盖板  
Pry the cover plate along the direction indicated by the arrow

II



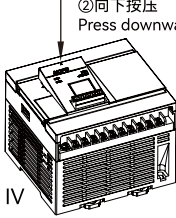
向下按压扩展卡PCB板，连接器公母端需对准  
Align the male connector with the female connector and press downwards on the PCB plate

III



拧入两颗M3自攻螺丝  
Tighten two M3 self-tapping screws

IV



②向下按压  
Press downwards

①将扩展卡外壳的开孔对准 PCB板接线端  
Align the lower cutout of the expansion card housing to the connection terminal of the PCB plate

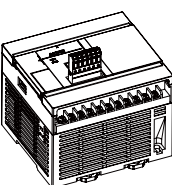
5.2 可拆卸端子拆装 (Removable terminal block mounting and dismounting)

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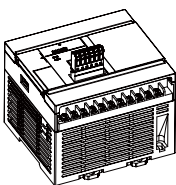
可拆卸端子拆装如右图所示。

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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

5.3 线缆拆装 (Cable connecting and disconnecting)

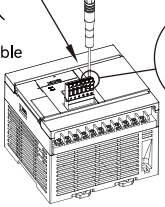
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安装线缆时，将一字螺丝刀垂直插入可拆卸端子压块内，施加一定的力，此时圆孔打开，将准备好的线缆插入到圆孔中，拔出一字螺丝刀，轻拽线缆，线缆不松动即成功完成配线，反之即可取出线缆。端子规格及配线示意图如右图所示。

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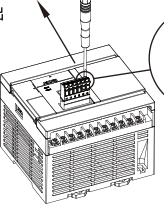
During connecting, insert the flat-blade screwdriver into the unlocking tab of the terminal with a certain amount of force. Then insert a cable into the circular hole. Gently tug the cable after pulling out the screwdriver. If the cable is secured firmly, then the connection is finished. The reverse 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

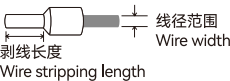


①施加一定的力  
Apply a certain amount of force

②将线缆拔出  
Unplug the cable

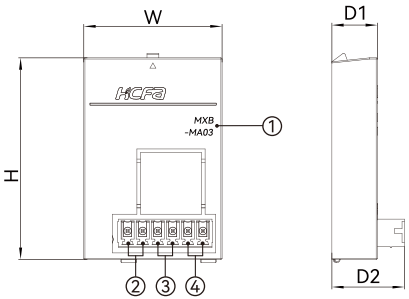


①施加一定的力  
Apply a certain amount of force

| 扩展卡端子<br>(Terminal)                | 线径范围: AWG<br>(Wire width) | 剥线长度: mm<br>(Wire stripping length) | 按压力: N<br>(Pressure) |   |
|------------------------------------|---------------------------|-------------------------------------|----------------------|---|
| 6Pin接线端子<br>(6-pin terminal block) | 24~16                     | 9~10                                | 10                   |  |

警告：仅使用铜导线。  
Warning: Use copper conductors only.  
Attention: Utilisez uniquement des conducteurs en cuivre.

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



| 序号<br>(No.) | 名称       | Name                    | 功能      | Function                     |
|-------------|----------|-------------------------|---------|------------------------------|
| 1           | 产品型号     | Product model           | 显示扩展卡型号 | Display expansion card model |
| 2           | 模拟量输入通道1 | Analog input channel 1  | 电压/电流输入 | Voltage/Current input        |
| 3           | 模拟量输入通道2 | Analog input channel 2  | 电压/电流输入 | Voltage/Current input        |
| 4           | 模拟量输出通道1 | Analog output channel 1 | 电压/电流输出 | Voltage/Current output       |

| 型号 (Model)        | 外形尺寸 (Dimension) : mm |       |       |       | 重量 (Weight) : g |
|-------------------|-----------------------|-------|-------|-------|-----------------|
|                   | W                     | H1    | D1    | D2    |                 |
| HCMXB-MA03-100-BD | 35.00                 | 51.00 | 11.50 | 18.35 | 17.6 approx.    |

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

| 端子说明(Terminal description)              |     |      | 模拟量输入接线 (Analog input wiring)* <sup>1</sup> | 模拟量输出接线 (Analog output wiring)* <sup>1</sup> |
|---|-----|------|---|--|
| 模拟量输入通道1+<br>(Analog input channel 1+)  | IN  | VI1+ |   |  |
| 模拟量输入通道1-<br>(Analog input channel 1-)  |     | VI1- |   |  |
| 模拟量输入通道2+<br>(Analog input channel 2+)  |     | VI2+ |   |  |
| 模拟量输入通道2-<br>(Analog input channel 2-)  |     | VI2- |   |  |
| 模拟量输出通道1+<br>(Analog output channel 1+) | OUT | VI1+ |   |  |
| 模拟量输出通道1-<br>(Analog output channel 1-) |     | VI1- |   |  |

\* 注：1. 模拟量信号线应使用带屏蔽层的双绞线。  
2. 屏蔽层需要接地。  
3. 干扰较大时，电压 输入 / 输出 需要和 0.1~0.47μF 25V 的电容相连接。

\*Notes: 1. Shielded twisted pair should be used for analog signal cables.  
2. The shielding layer needs to be grounded.  
3. When interference is high, voltage input/output needs to be connected to a capacitor of 0.1~0.47μF 25V.