

HCA8P Extension Modules Hardware Instruction

HCA8P

Manual No	HPPP1330000EN
Version	1.0
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1 Introduction

Thank you for purchasing and using the HCA8P, HCRX series extension modules independently developed and produced by HCFA Technology. This manual will provide a brief description of the modules in the table.

Modules	Module name	Version	Description of modules
Analog Input Module	HCA8P-AD04-D	V1.00	Analog input module, connected to the HCA8P/HCRX series mainframe, to obtain 4-ch of voltage/current data of the analog special function module.
Analog Output Module	HCA8P-DA04-D	V1.00	Analog output module, connected to the HCA8P/HCRX series mainframe, is an analog special module that converts the digital values of 4-ch from the programmable controller into voltage/current data and outputs them.

Applicable readers

For the users of HCA8P, HCRX series extension modules, refer to this manual to perform the wiring, installation, diagnosis and maintenance and requires the users to have the certain knowledge of electrical and automation.

This manual gives the necessary information for the use of HCA8P, HCRX series extension modules, please read this manual carefully before use and make the correct operation with full attention to safety.

1.1 Safety Precaution

1.1.1 Güvenlik sembolleri

When using this product, please follow the following safety precautions and instructions strictly.

In this manual, the following safety guidelines must be followed.

DANGER	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury or significant property damage.
WARNING	Indicates that incorrect handling may cause hazardous conditions, resulting in medium or slight personal injury or physical damage.
CAUTION	Indicates that incorrect handling may cause slight injury or property damage.
NOT.	Indicates that incorrect handling may cause damage to the environment / equipment or data loss.

1.1.2 Safety rules

STARTUP AND MAINTENANCE PRECAUTIONS	DANGER
<ul style="list-style-type: none"> Do not touch any terminal while the PLC's power is on. Doing so may cause electric shock or malfunctions. Before cleaning or retightening terminals externally cut off all phases of the power supply. Failure to do so may cause electric shock. Before modifying or disrupting the program in operation or Forced output, RUN, STOP etc., carefully read through this manual and the associated manuals and ensure the safety of the operation. An operation error may damage the machinery or cause accidents. 	

STARTUP AND MAINTENANCE PRECAUTIONS	CAUTION
<ul style="list-style-type: none"> Do not disassemble or modify the modules. Doing so may cause fire, equipment failures, or malfunctions. For module repair, contact our HCFA distributor. Turn off the power to the module before connecting or disconnecting any extension cable. Failure to do so may cause equipment failures or malfunctions. Turn off the power to the module before attaching or detaching the following devices. Failure to do so may cause equipment failures or malfunctions <ul style="list-style-type: none"> -Display module, peripheral devices, expansion boards -Extension blocks and special adapters -Battery, terminal block and memory cassette 	

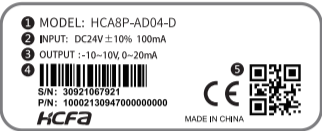
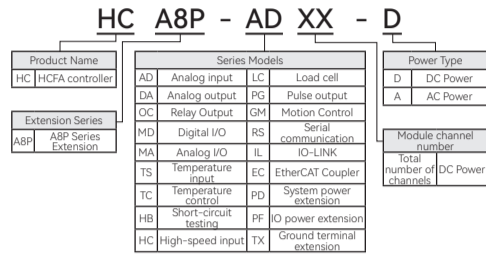
DISPOSAL PRECAUTIONS	CAUTION
<ul style="list-style-type: none"> Please contact a certified electronic waste disposal company for the environmentally safe recycling and disposal of your device. 	

TRANSPORT AND STORAGE PRECAUTIONS	CAUTION
<ul style="list-style-type: none"> The module is a precision instrument. During transportation, avoid impacts larger than those specified in Section 3.1. Failure to do so may cause failures in the module. After transportation, verify the operations of the module. 	

2 Product Overview

2.1 Model description

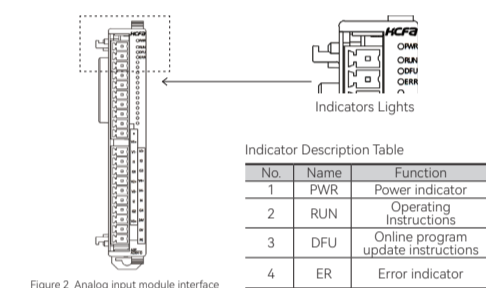
2.1.1 Model description for extension module



- ① Model name
- ② Working voltage and current
- ③ Module input or output voltage and current
- ④ Bar code and S/N
- ⑤ QR code (S/N, model name)

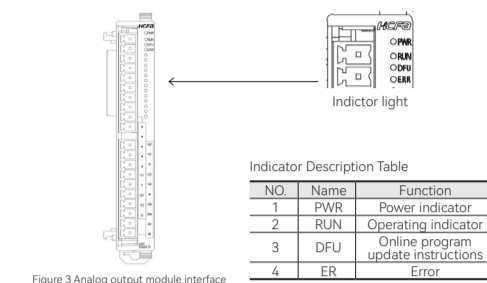
2.2 Part name description

2.2.1 Main view for HCA8P-AD04-D



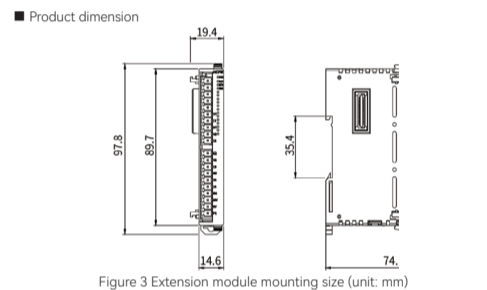
No.	Name	Description
1	—	—
2	V1+	Channel 1 voltage input +
3	V1-	Channel 1 voltage output -
4	I1	Channel 1 current input +
5	G1	Channel 1 current input GND
6	V2+	Channel 2 voltage input +
7	V2-	Channel 2 voltage input -
8	I2	Channel 2 current input +
9	G2	Channel 2 current input GND
10	V3+	Channel 3 voltage input +
11	V3-	Channel 3 voltage input -
12	I3	Channel 3 current input +
13	G3	Channel 3 current input GND
14	V4+	Channel 4 voltage input +
15	V4-	Channel 4 voltage input -
16	I4	Channel 4 current input +
17	G4	Channel 4 current input GND
18	24V	Analog power supply 24V
19	0V	Analog power supply 0V
20	PE	PE

2.2.2 Main view of HCA8P-DA04 analog output module



No.	Symbol	Description
1	—	—
2	—	—
3	—	—
4	—	—
5	—	—
6	V1	Channel 1 voltage output
7	I1	Channel 1 current output
8	G1	Channel 1 common terminal 0V
9	V2	Channel 2 voltage output
10	I2	Channel 2 current output
11	G2	Channel 2 common terminal 0V
12	V3	Channel 3 voltage output
13	I3	Channel 3 current output
14	G3	Channel 3 common terminal 0V
15	V4	Channel 4 voltage output
16	I4	Channel 4 current output
17	G4	Channel 4 common terminal 0V
18	24V	Analog power supply 24V
19	0V	Analog power supply 0V
20	PE	PE
19	0V	Analog power supply 0V
20	PE	PE

2.3 Product Dimension

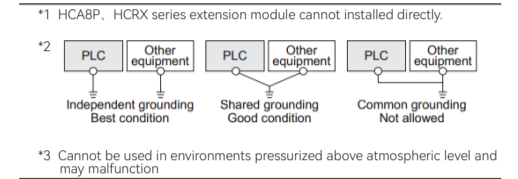


3 Installation Instructions

3.1 Specification

3.1.1 Electrical specifications

Items	Specification
Environment temperature	When working: 0~55°C (32~131°F) When stored: -25°C~75°C (-13~167°F)
Relative Humidity	When working: 5~95%RH (No condensation)
Vibration resistance	Frequency (Hz) Acceleration (m/s²) Single Amplitude (mm)
Vibration resistance	For DIN rail mounting*1: 10~57 — 0.035 10 times each in X, Y and Z directions (80 each in total)
Vibration resistance	For direct installation: 10~57 — 0.075 —
Vibration resistance	57~150 9.8 — —
Shock resistance*4	147 m/s² Acceleration, Action time: 11 ms, 3 times by half-sine pulse in each direction X, Y, and Z
Noise resistance	Using noise simulator of: Noise voltage: 1.000 Vp-p / Noise width: 1 μs / Rise: 1 ns / Cycle: 30 to 100 Hz
Dielectric withstand voltage	500 V AC, for 1 min Between all terminals and ground terminal
Insulation resistance	5 MΩ or more using 500 V DC insulation resistance meter
Grounding	Class D grounding (grounding resistance: 100Ω or less) <Common grounding with a heavy electrical system is not allowed>*2
Working atmosphere	Free from corrosive or flammable gas and excessive conductive dust.
Working altitude	<2000 m*3



3.1.2 Analog Input Module Specifications

Project	Specification
A/D conversion loop drive power supply	DC24V±10% 100mA (Need to supply DC24V from the terminal block)
CPU drive power supply	DC5V 100mA (Internal power supply from the base unit, so no need to prepare a power supply)

Project	HCA8P-AD04 Technical Specification
Analog input range	DC -10V~+10V
Maximum absolute input	+15V
Digital output	Decimal
Resolution	0.32mV (20Vx1/64000) 2.5mV (20Vx1/8000)
Comprehensive accuracy	Environment temperature: 25°C±5°C Full range 20V±0.3% (+60mV) Environment temperature 0°C~55°C Full range 20V±0.3% (+100mV)
AD conversion time	500us*Number of channels used*Average times

3.1.3 Analog input module input characteristics (BFM#0)

The input characteristics of the HCA8P-AD04 are divided into voltage (-10 to +10V) and current (4 to 20mA), with three input modes for each characteristic.

■ Voltage input characteristic [-10~+10V] (input mode0-2)

Input mode setting: 0	Input mode setting: 1	Input mode setting: 3
Input form: voltage input Analog input range: -10V~+10V Digital input range: -32000~+32000	Input form: voltage input Analog input range: -10V~+10V Digital input range: -4000~+4000	Input form: voltage input (Analog value display) Analog input range: -10V~+10V Digital input range: -10000~+10000

■ Current input characteristic [4~20mA] (input mode 3-5)

Input mode setting: 3	Input mode setting: 4	Input mode setting: 5
Input form: current input Analog input range: 4~20mA Digital input range: 0~16000	Input form: current input (Analog value display) Analog input range: 4~20mA Digital input range: 4000~20000	Input form: current input (Analog value display) Analog input range: 4~20mA Digital input range: 4000~20000

■ Current input characteristic [0~20mA] (input mode 6-8)

Input mode setting: 6	Input mode setting: 7	Input mode setting: 8
Input form: current input Analog input range: 0~20mA Digital input range: 0~16000	Input form: current input Analog input range: 0~20mA Digital input range: 0~4000	Input form: current input (Analog value display) Analog input range: 0~20mA Digital input range: 0~20000

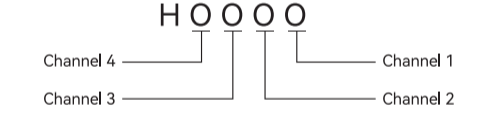
3.1.4 Analog input module buffer storage area

■ HCA8P-AD04 buffer memory

BFM No.	Content	Setting range	Initial Value	Data Processing
#0	Specify the input mode of channels 1~4	*1	H0000	Hexadecimal
#1	Not available	—	—	—
#2	Channel 1 average number of times [Unit: times]	1~4095	K1	Decimal
#3	Channel 2 average number of times [Unit: times]	1~4095	K1	Decimal
#4	Channel 3 average number of times [Unit: times]	1~4095	K1	Decimal
#5	Channel 4 average number of times [Unit: times]	1~4095	K1	Decimal
#6	Error clear indicator bit	0~1	0	Hexadecimal
#7-#9	Not available	—	—	—
#10	Channel 1 data (instantaneous data or average data)	—	—	Decimal
#11	Channel 2 data (instantaneous data or average data)	—	—	Decimal
#12	Channel 3 data (instantaneous data or average data)	—	—	Decimal
#13	Channel 4 data (instantaneous data or average data)	—	—	Decimal
#14-#28	Not available	—	—	—
#29	Error	—	H0000	Hexadecimal
#30	Model code K2011	—	K2011	Decimal
Others	Not available	—	—	—

■ HCA8P-AD04 buffer memory

• [BFM#0] Designation of input mode
Specify the input mode of channel 1~channel 4. The input mode is assigned using a 4-digit HRC code, and each channel number is assigned to each of them. The input mode can be changed by setting the value of 0 to 8 and F in each of the categories.



Setting value	Input mode	Analog range	Digital range
0	Voltage input mode	-10V~+10V	-32000~+32000
1	Voltage input mode	-10V~+10V	-4000~+4000
2	Voltage input mode	-10V~+10V	-10000~+10000
3	Current input mode	4mA~20mA	0~16000
4	Current input mode	4mA~20mA	0~4000
5	Current input mode	4mA~20mA	4000~20000
6	Current input mode	0~20mA	0~16000
7	Current input mode	0~20mA	0~4000
8	Current input mode	0~20mA	0~20000
F	Channel not available	—	—

• [BFM#2~#5] average times
When you want to change the channel data (1~4; BFM#2~#13) from the instantaneous value to the average value, set the averaging times (channel 1~4; BFM#2~5). Regarding the set value and action of the average number of times, the following table shows.

Average times (BFM#2~#5)	Type of channel data (BFM#10~#13)	Error content
0 or less	Instantaneous value data (Update channel data with each A/D conversion process)	The set value becomes K0 and a bad average count setting error (BFM#29 b1) occurs.
1 (Initial value)	Average value data (Calculates average value and updates channel data at each A/D conversion process)	---
2~400	Average value data (Calculates average value and updates channel data at each A/D conversion process)	---
401~4095	Average value data (Update channel data with each A/D conversion process)	The set value becomes 4096 and a bad average count setting error (BFM#29 b1) occurs.

- ✗ When the measurement signal contains relatively slow fluctuating noise like power supply frequency, stable data can be obtained by averaging.
- ✗ A bad average count setting error (BFM#29 b1) occurs when the set average count is outside the setting range.

• [BFM#6] Error bit clear indication (BFM [6])

Bit No.	Item	Content	Data Processing
B0	Power error clear	0: Not clearing the error bit after an error occurs and is normal again 1: Automatically clear the error bit after an error occurs and is normal again	Hexadecimal
B1	AD conversion error clear	—	—

• [BFM#10~#13] Channel data
Save the digital value after A/D conversion. According to the average number of times (channel 1~4; BFM#2~#5) channel data (channel 1~4; BFM#10~#13) and the update timing of the data are shown in the following table.

Average times (BFM#2~#5)	Update Timing of Channel Data (BFM#10~#13)
Under 0	Type of Channel Data: Instantaneous value. Update Timing: The set value becomes 0 and a bad average count setting error (BFM#29 b1) occurs.
1	Instantaneous value. Update Timing: The data is updated each time the A/D conversion is processed, and the time to update the timing is shown below. Update time = 500us*1x number of channels used.
2~400	Average value. Update Timing: The data is updated each time the A/D conversion is processed, and the time to update the timing is shown below. Update time = 500us*1x number of channels used x average times.
401~4095	Average value. Update Timing: The set value becomes 4096 and a bad average count setting error (BFM#29 b1) occurs.

• [BFM#29] Error Status

Bit No.	Item	Content
b0	Errors occur	When any bit of b2~b5 is ON, b0 is set to ON.
b1	Poor average count setting	The value of average times (BFM#2~#5) is not correct, please set it again in the range of 1~4095.
b2	Power supply abnormalities	If 24V power is not supplied properly, please confirm the wiring or supply voltage.
b3	Hardware error	Possible HCA8P-AD04 / HCA8P-DA04 fault.
b4	A/D conversion exception	A/D conversion value abnormal, out of range.
b5	EEPROM error	Data error in EEPROM.
b6~b15	—	—

✗ After solving each error factor, the error bit is powered off clearly.

✗ Please do not write H0000 directly to BFM#29 with the smooth control program.

• [BFM#30] Model Code

Save K2011 (fixed value).

3.1.5 Analog Output Module Specification

Items	Specification
D/A conversion loop drive power supply	DC24V±10% 200mA (Need to supply DC24V from the terminal block)
CPU part drive power supply	DC5V 120mA (Internal power supply from the base unit, so no need to prepare a power supply)

Project	Specification
Average times (BFM#2~#5)	Update Timing of Channel Data (BFM#10~#13)
Analog input range	DC -10V~+10V
Offset value*1	-10V~+9V*2
Gain value*1	-9V~+10V*2
Digital input	Signed 16 bit binary
Resolution	0.32mV (20V/64000) Environment temperature 25°C±5°C Full range 20V±0.3% (+60mV) Environment temperature 0°C~55°C Full range 20V±0.3% (+100mV)
Comprehensive accuracy	Environment temperature 25°C±5°C Full range 20mA±0.3% (+100uA) Environment temperature 0°C~55°C Full range 20mA±0.3% (+200uA)
DA conversion time	1ms (Not related to the number of channels used) • The photocoupler is used to insulate the analog input area from the PLC. • The DC/DC converter is used to insulate the analog input area from the power supply unit. / Channels are not insulated from each other.
Insulation method	8 points (Taken from either the input or output points of the PLC)

✗ The resolution does not change even if the Offset/gain is adjusted. In addition, Offset/gain adjustment is not available when using output modes 6 and 9.

✗ Offset/gain needs to satisfy the following relationship: 1V ≦ (gain-Offset) ≦ 10V

✗ Offset/gain needs to meet the following relationship: 3mA ≦ (gain-Offset) ≦ 30mA

3.1.6 Analog Output Module Output Characteristics (BFM#0)

The output characteristics of the HCA8P-DA04 are divided into voltage (-10~+10V) and current (0~20mA, 4~20mA).

Output mode setting: 0	Output mode setting: 5	Output mode setting: 6
Output form: voltage output Analog output range: -10V~+10V Digital output range: -2000~+2000 Offset gain adjustment: Available	Output form: voltage output Analog output range: -10V~+10V Digital output range: -32000~+32000 Offset gain adjustment: Available	Output form: voltage output (Analog value display) Analog output range: -10V~+10V Digital output range: -10000~+10000 Offset gain adjustment: Not available

3.1.7 Analog output module buffer memory area

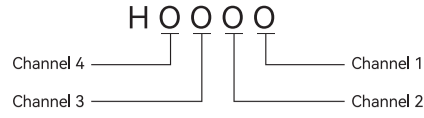
■ HCA8P-DA04 buffer memory area

BFM No.	Content	Setting range	Initial values	Data processing
#0E	Specify the input mode of channels 1~4	*2	H0000	Hexadecimal
#1	Output data of channel 1	Depends on the mode	K0	Decimal
#2	Output data of channel 2		K0	Decimal
#3	Output data of channel 3		K0	Decimal
#4	Output data of channel 4		K0	Decimal
#5E	Output setting at STOP of PLC	*3	H0000	Hexadecimal
#6-#7	Not available	---	---	---
#8	CH1, CH2 offset, gain setting commands	0, 1	H0000	Hexadecimal
#9	CH3, CH4 offset, gain setting commands	0, 1	H0000	Hexadecimal
#10	Offset data for channel 1 (unit: mV or μ A)	Depends on the mode	Depends on the mode	Decimal
#11	Gain data of channel 1 (unit: mV or μ A)			Decimal
#12	Offset data for channel 2 (unit: mV or μ A)			Decimal
#13	Gain data of channel 2 (unit: mV or μ A)			Hexadecimal
#14	Offset data for channel 3 (unit: mV or μ A)	Depends on the mode	Depends on the mode	Decimal
#15	Gain data of channel 3 (unit: mV or μ A)			Hexadecimal
#16	Offset data for channel 4 (unit: mV or μ A)			Decimal
#17	Gain data of channel 4 (unit: mV or μ A)			Decimal
#18-#19	Not available	---	---	---
#20	Function initialization (please initialize with pulse command) Initialize with K1, and automatically change to K0 after initialization is completed	K0 or K1	K0	Decimal
#21E	Prohibit adjustment of I/O characteristics	Change of permission: K1 Change of prohibition: except K1	K1	Decimal
#22E	Output data of channel 1 when the programmable controller STOP (valid only when BFM#5=H0002)	Depends on the mode	K0	Decimal
#23E	Output data of channel 2 when the programmable controller STOP (valid only when BFM#5=H0002)			Decimal
#24E	Output data of channel 3 when the programmable controller STOP (valid only when BFM#5=H0002)			Decimal
#25E	Output data of channel 4 when the programmable controller STOP (valid only when BFM#5=H0002)			Decimal
#26-#27	Not available	---	---	---
#28	Software Identification Code	---	Software Version	Decimal
#29	Error state	---	H0000	Hexadecimal
#30	Model Code K3031	---	K3031	Decimal
#31-#32	Not available	---	---	---

- Power failure hold is performed by EEPROM. Please do not turn off the power immediately after just turning on the power, it will cause data loss.
- The output mode of each channel is specified in hexadecimal numbers, and 0 to 4 and F are specified in each hexadecimal digit.
- The output of each channel at STOP of the programmable controller is set with a hexadecimal number, and is specified with 0 to 2 in each hexadecimal digit.
- Do not use buffers other than those mentioned above.

■ HCA8P-DA04 buffer storage area details

- 【BFM#0】** Specification of output mode
Set the output mode (BFM#0) for each channel (CH) that corresponds to the specifications of the connected analog input device.
To set the output mode with hexadecimal numbers, select the output mode in the table below in the corresponding bit of the channel (CH) to be used, and set



Setting value	Input mode	Analog Range	Digital range
0	Voltage output mode	-10V~+10V	-2000~+2000
1	Current output mode	4mA~20mA	0~1000
2	Current output mode	0~20mA	0~1000
3	invalid	---	---
4	invalid	---	---
5	Voltage output mode	-10V~+10V	-32000~+32000
6	Voltage output analog value mV specified mode	-10V~+10V	-10000~+10000
7	Current output mode	0~20mA	0~32000
8	Current output mode	4mA~20mA	0~32000
9*1	Current output analog value μ A specified mode	0~20mA	0~20000
F	Channel not used	---	---

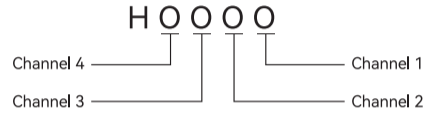
- The offset/gain value cannot be changed.
- Modes 0, 1, and 2 are compatible with TX2N-4DA
- When the output mode is changed, please design to execute the writing of each setting after a time of 1ms or more.
- Precautions for EEPROM writing
 - If setting values are written to BFM#0, #5, #21-#25, write data to the EEPROM inside the HCA8P-DA04 is executed.
 - Do not turn off the power immediately after writing set values to these BFMs.
 - The allowable number of EEPROM writes is less than 10,000, so do not write a program that writes data to these BFMs every operation cycle or at a high frequency.

• 【BFM#1~#4】 Output data
For the analog signal you wish to output, enter digital values into BFM#1~#4.

BFM No.	Content
#1	Output data of channel 1
#2	Output data of channel 2
#3	Output data of channel 3
#4	Output data of channel 4

- The output varies depending on the output mode (BFM#0).
- If there is no FPOM/TO instruction module within 200ms in the PLC program, it is considered to be in STOP state, please pay attention to it when programming.

- 【BFM#5】** Output setting at STOP of programmable controller
The outputs of channels 1 to 4 can be set when the programmable controller



Setting Value [HEX]	Output content
0	Keep the final value at RUN
1	Output Offset value*
2	Output the output data set in BFM#22-#25*
3-F	Invalid (no change in set value)

- The output varies depending on the output mode (BFM#0).
- If there is no FPOM/TO instruction module within 200ms in the PLC program, it is considered to be in STOP state, please pay attention to it when programming.

- 【BFM#8-#9】** Offset/Gain setting commands
Write 1 to the corresponding hexadecimal data bits of BFM#-#9 to change the offset and gain values of channels CH1 to CH4. Only after this command is output, the current value will be valid. Please use gain and offset commands together, do not use gain or offset separately.
For example: BFM#8=H0011, Channel 1 turns on the Offset/gain adjustment command.



- 【BFM#10 and BFM#17】** Offset/gain values setting commands
Write data to BFM#10 to #17 to change the offset and gain values. Write data in mV or μ A. e.g. K5000 for 5000mV, K20000 for 20000 μ A. after data is written BFM#8, #9 do the corresponding settings. Note that if there is no set value for gain and Offset in #10 to #17, the system defaults to Offset bit K0 (0V) and gain bit K5000 (5V) for voltage mode, and Offset bit K0 (0A) and gain K20000 (20mA) for current mode. Output modes 6 and 9 cannot change the gain and Offset.

- 【BFM#20】** Initialization commands
When K1 is written to BFM#20, all values will be initialized to factory settings. Please use the pulse command for the initialization command.

- 【BFM#21】** Prohibit adjustment of I/O characteristics
Setting BFM#2 to 2 will disable user adjustment of I/O characteristics (even if the gain Offset command is on). Once the disable adjustment function is set, the function will remain in effect until the allow command is set (BFM#21=1). The initial value is 1 (allowed). The set value is maintained even if the power is turned off. In the error reporting function if BFM#21 = 1, b12 of BFM#29 = 1.

- 【BFM#22-#25】** Output data at STOP of programmable controller
The value set in the output data (BFM#5) at the time of STOP of the programmable controller. (H0000)0-2 allows setting the output data at STOP of the programmable controller. The setting value range varies depending on the output mode I/O linear adjustment.

BFM No.	Content
#22	Data of channel 1
#23	Data of channel 2
#24	Data of channel 3
#25	Data of channel 4

- 【BFM#29】** Error status
When an error occurs, the FROM command can be used to read out the details of the error from here.

bit	Name	Status when the bit is set to "1" (open)	Status when the bit is set to "0" (off)
b0	error	Any bit from b1 to b3 is ON	-No Measures
b1	O/G error	Offset/gain data in the EEPROM is not normal or a setting error has occurred	Offset/gain data is normal
b2	Power supply error	24V DC power supply failure	Power supply is normal
b3	Hardware error	DA conversion failure or other hardware failure	No hardware defects
b10	Range error	Digital inputs or analog outputs outside the established range	Output or output value within specified range
b12	O/G adjustment prohibition status	VFM#21 is not set to "1"	Adjustable state BFM#21=1

- Other bits are not defined. If there is no FPOM/TO instruction
- The indicator flashes during normal operation, and the power error or other hardware error indicator is always on or not on.

- 【BFM#30】** Identification code of special module
Can be read using the FROM command. HCA8P-DA04 unit identification code is k3031

3.2 Wiring description

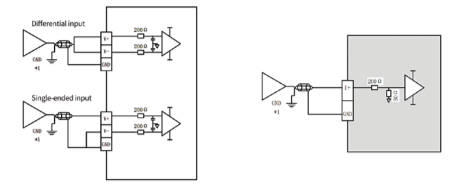
3.2.1 Cable and tightening torque selection

■ Cable selection

	Wire size (stranded/single)	Tightening torque	Ends
Electric wire 1pc	0.3mm2~0.5mm2 (AWG22~20)	0.22~0.25N · m	<ul style="list-style-type: none"> Stranded wire: peel off the skin, twist the core wire, you can connect. Single wire: peel off the skin, ready to connect.
Electric wire 2 pcs	0.3mm2 (AWG22)		<ul style="list-style-type: none"> Cylindrical terminal with insulating sleeve (recommended) AI0.5-8WH: Made by PHOENIX CONTACT Crimping tools CRIMPFOX ZA3: Made by PHOENIX CONTACT (Or made by CRIMPFOX UD6: PHOENIX CONTACT)
Columnar terminals with insulating sleeves	0.3mm2~0.5mm2 (AWG22~20)		

3.2.2 Analog input module instructions

The analog input module can support both current and voltage inputs, and HFCA provides a variety of input ranges for users to choose from, and the operating range can be modified online via software, with the voltage input supporting single-ended and differential inputs.



*1 Equipotential connection

- The analog signal line uses twisted shielded wire
- The signal to be measured needs to be equipotential with 'AGND'.

3.2.3 Analog output module wiring instructions

The analog output module can support both current and voltage output. WoChuan provides a variety of output ranges for users to choose, and the working range can be modified online through the software, and the output signal can be directly used as the control signal of the motor or driver.

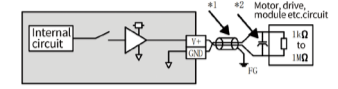


Figure 6 Internal circuit diagram of voltage output

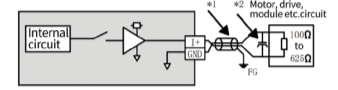


Figure 7 Internal circuit diagram of current output

- The analog signal line uses twisted shielded wire
- The signal to be measured needs to be equipotential with 'AGND'.