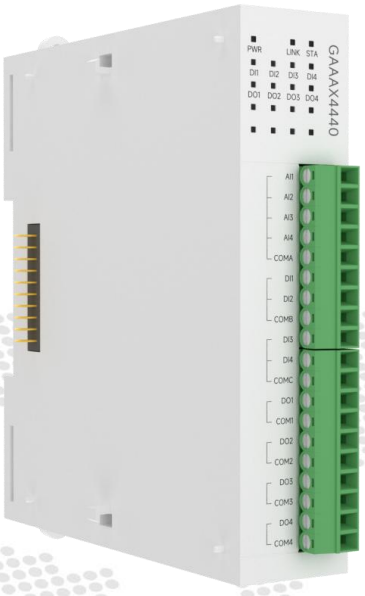
Chengdu Ebyte Electronic Technology Co.,Ltd

Wireless Modem

User Manual



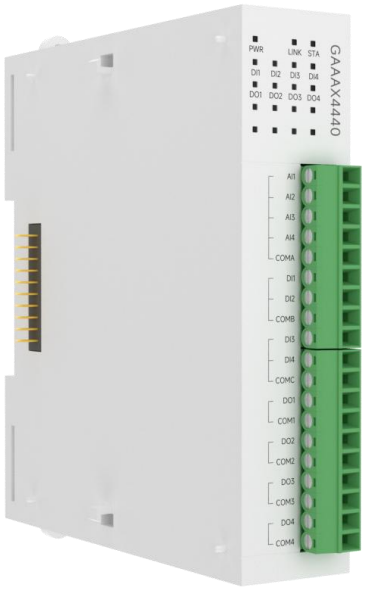
Distributed IO Expansion Module User Manual

Contents

1. Product overview

1.1. Product introduction

The distributed IO expansion module adopts an scalable design in structure and needs to be used with our M31 series distributed IO host .

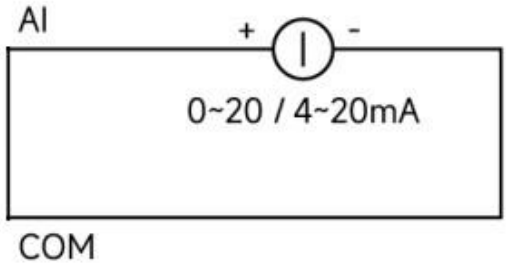


1.2. Product model list

Product number	product specifications
GAAAX4440	4DI+4AI+4DO
GAXXX8000	8DI
GXXAX0080	8DO
GAXAX4040	4DI+4DO
GAXXXA000	16DI
GXXAX00A0	16DO
GAXAX8080	8DI+8DO
GXAXX0800	8AI

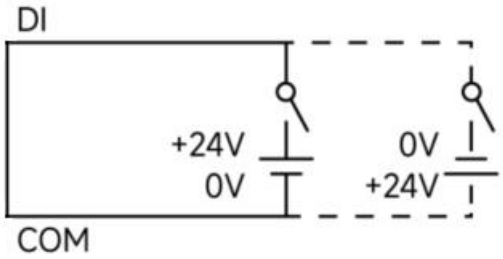
2. Wiring diagram

2.1. AI connection _



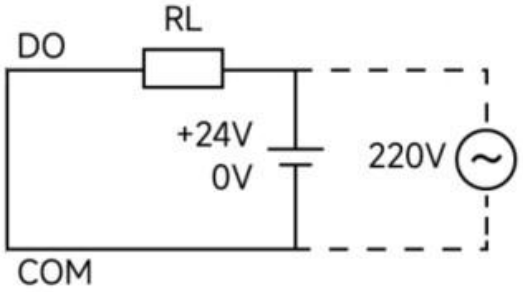
Note: AI is used with the COM side of adjacent wireframe selection.

2.2. D I connection



Note: DI only supports 12V ~ 24V input.

2.3. DO connection



Note: 1. A single relay supports a maximum of 5A.

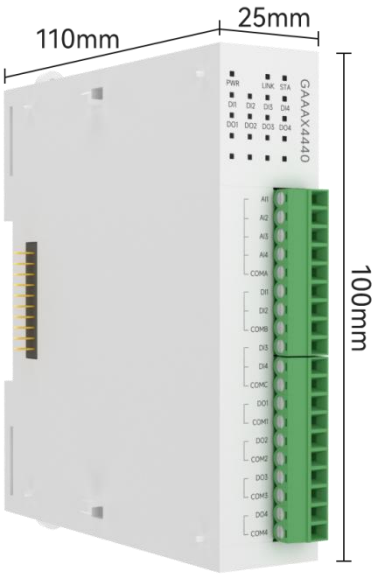
2. The total current of each group (same COM common terminal) supports a maximum of 8A.

3. Technical indicators

3.1. Specifications

category	name	parameter
DI input	input type	NPN, PNP
	Input voltage	12~24V
	Input instructions	DI green LED indicator light
AI input	Collection characteristics	Single-ended input
	input type	0-20mA , 4-20mA
	AI resolution _	3‰
	Input instructions	none
DO output	DO output type	Type A relay(Normally open)
	DO output mode	Level output
	Relay contact capacity	5A 30VDC, 5A 250VAC (the maximum supported total current of the same COM common terminal is 8A)
	Output instructions	DO green LED indicator light
other	Product Size	110 mm * 25 mm * 100 mm (length*width*height)
	Working temperature and humidity	-40 ~ +85℃, 5% ~ 95%RH (no condensation)
	Storage temperature and humidity	-40 ~ +105℃, 5% ~ 95%RH (no condensation)
	Installation method	Installation of positioning holes and guide rails

3.2. Dimensions



3.3. LED indicator light description

GAAAX4440:

Symbol	name	Function/ Description
PWR	Power Indicator	Red LED light; on: the system power supply is normal; off: the system power supply is abnormal
LINK	Link indicator	Yellow LED light; on: there is a link; off: no link; flashing quickly when there is data interaction
STA	Status Indicator	Blue LED light; flashes alternately to indicate normal operation; always on or off indicates abnormal device status.
DI1	DI1 input indicator light	Green LED light; on: DI1 valid input; off: DI1 invalid input
DI2	DI2 input indicator light	Green LED light; on: DI2 valid input; off: DI2 invalid input
DI3	DI3 input indicator light	Green LED light; on: DI3 valid input; off: DI3 invalid input
DI4	DI4 input indicator light	Green LED light; on: DI4 valid input; off: DI4 invalid input
DO1	DO1 output indicator light	Green LED light; on: DO1 relay is closed; off: DO1 relay is open
DO2	DO2 output indicator light	Green LED light; on: DO2 relay is closed; off: DO2 relay is open
DO3	DO3 output indicator light	Green LED light; on: DO3 relay is closed; off: DO3 relay is open
DO4	DO4 output indicator light	Green LED light; on: DO4 relay is closed; off: DO4 relay is off

GAXXX8000 :

Symbol	name	Function/ Description
PWR	Power Indicator	Red LED light; on: the system power supply is normal; off: the system power supply is abnormal
LINK	Link indicator	Yellow LED light; on: there is a link; off: no link; flashing quickly when there is data interaction
STA	Status Indicator	Blue LED light; flashes alternately to indicate normal operation; always on or off indicates abnormal device status.
DI1	DI1 input indicator light	Green LED light; on: DI1 valid input; off: DI1 invalid input
DI2	DI2 input indicator light	Green LED light; on: DI2 valid input; off: DI2 invalid input
DI3	DI3 input indicator light	Green LED light; on: DI3 valid input; off: DI3 invalid input
DI4	DI4 input indicator light	Green LED light; on: DI4 valid input; off: DI4 invalid input
DI5	DI5 input indicator light	Green LED light; on: DI5 valid input; off: DI5 invalid input
DI6	DI6 input indicator light	Green LED light; on: DI6 valid input; off: DI6 invalid input
DI7	DI7 input indicator light	Green LED light; on: DI7 valid input; off: DI7 invalid input
DI8	DI8 input indicator light	Green LED light; on: DI8 valid input; off: DI8 invalid input

GXXAX0080 :

Symbol	name	Function/ Description
PWR	Power Indicator	Red LED light; on: the system power supply is normal; off: the system power supply is abnormal
LINK	Link indicator	Yellow LED light; on: there is a link; off: no link; flashing quickly when there is data interaction
STA	Status Indicator	Blue LED light; flashes alternately to indicate normal operation; always on or off indicates abnormal device status.
DO1	DO1 output indicator light	Green LED light; on: DO1 relay is closed; off: DO1 relay is open
DO2	DO2 output indicator light	Green LED light; on: DO2 relay is closed; off: DO2 relay is open
DO3	DO3 output indicator light	Green LED light; on: DO3 relay is closed; off: DO3 relay is open
DO4	DO4 output indicator light	Green LED light; on: DO4 relay is closed; off: DO4 relay is off
DO5	DO5 output indicator light	Green LED light; on: DO5 relay is closed; off: DO5 relay is open
DO6	DO6 output indicator light	Green LED light; on: DO6 relay is closed; off: DO6 relay is open
DO7	DO7 output indicator light	Green LED light; on: DO7 relay is closed; off: DO7 relay is off
DO8	DO8 output indicator light	Green LED light; on: DO8 relay is closed; off: DO8 relay is open

GAXAX4040 :

Symbol	name	Function/ Description
PWR	Power Indicator	Red LED light; on: the system power supply is normal; off: the system power supply is abnormal
LINK	Link indicator	Yellow LED light; on: there is a link; off: no link; flashing quickly when there is data interaction
STA	Status Indicator	Blue LED light; flashes alternately to indicate normal operation; always on or off indicates abnormal device status.
DI1	DI1 input indicator light	Green LED light; on: DI1 valid input; off: DI1 invalid input
DI2	DI2 input indicator light	Green LED light; on: DI2 valid input; off: DI2 invalid input
DI3	DI3 input indicator light	Green LED light; on: DI3 valid input; off: DI3 invalid input
DI4	DI4 input indicator light	Green LED light; on: DI4 valid input; off: DI4 invalid input
DO1	DO1 output indicator light	Green LED light; on: DO1 relay is closed; off: DO1 relay is open
DO2	DO2 output indicator light	Green LED light; on: DO2 relay is closed; off: DO2 relay is open
DO3	DO3 output indicator light	Green LED light; on: DO3 relay is closed; off: DO3 relay is open
DO4	DO4 output indicator light	Green LED light; on: DO4 relay is closed; off: DO4 relay is off

GAXXXA000 :

Symbol	name	Function/ Description
PWR	Power Indicator	Red LED light; on: the system power supply is normal; off: the system power supply is abnormal
LINK	Link indicator	Yellow LED light; on: there is a link; off: no link; flashing quickly when there is data interaction
STA	Status Indicator	Blue LED light; flashes alternately to indicate normal operation; always on or off indicates abnormal device status.
DI1	DI1 input indicator light	Green LED light; on: DI1 valid input; off: DI1 invalid input
DI2	DI2 input indicator light	Green LED light; on: DI2 valid input; off: DI2 invalid input
DI3	DI3 input indicator light	Green LED light; on: DI3 valid input; off: DI3 invalid input
DI4	DI4 input indicator light	Green LED light; on: DI4 valid input; off: DI4 invalid input
DI5	DI5 input indicator light	Green LED light; on: DI5 valid input; off: DI5 invalid input
DI6	DI6 input indicator light	Green LED light; on: DI6 valid input; off: DI6 invalid input
DI7	DI7 input indicator light	Green LED light; on: DI7 valid input; off: DI7 invalid input
DI8	DI8 input indicator light	Green LED light; on: DI8 valid input; off: DI8 invalid input
DI9	DI9 input indicator light	Green LED light; on: DI9 valid input; off: DI9 invalid input
DI10	DI10 input indicator light	Green LED light; on: DI10 valid input; off: DI10 invalid input
DI11	DI11 input indicator light	Green LED light; on: DI11 valid input; off: DI11 invalid input
DI12	DI12 input indicator light	Green LED light; on: DI12 valid input; off: DI12 invalid input
DI13	DI13 input indicator light	Green LED light; on: DI13 valid input; off: DI13 invalid input
DI14	DI14 input indicator light	Green LED light; on: DI14 valid input; off: DI14 invalid input
DI15	DI15 input indicator light	Green LED light; on: DI15 valid input; off: DI15 invalid input
DI16	DI16 input indicator light	Green LED light; on: DI16 valid input; off: DI16 invalid input

GXXAX00A0 :

Symbol	name	Function/ Description
PWR	Power Indicator	Red LED light; on: the system power supply is normal; off: the system power supply is abnormal
LINK	Link indicator	Yellow LED light; on: there is a link; off: no link; flashing quickly when there is data interaction
STA	Status Indicator	Blue LED light; flashes alternately to indicate normal operation; always on or off indicates abnormal device status.
DO1	DO1 output indicator light	Green LED light; on: DO1 relay is closed; off: DO1 relay is open
DO2	DO2 output indicator light	Green LED light; on: DO2 relay is closed; off: DO2 relay is open
DO3	DO3 output indicator light	Green LED light; on: DO3 relay is closed; off: DO3 relay is open
DO4	DO4 output indicator light	Green LED light; on: DO4 relay is closed; off: DO4 relay is off
DO5	DO5 output indicator light	Green LED light; on: DO5 relay is closed; off: DO5 relay is open
DO6	DO6 output indicator light	Green LED light; on: DO6 relay is closed; off: DO6 relay is open
DO7	DO7 output indicator light	Green LED light; on: DO7 relay is closed; off: DO7 relay is off
DO8	DO8 output indicator light	Green LED light; on: DO8 relay is closed; off: DO8 relay is open
DO9	DO9 output indicator light	Green LED light; on: DO9 relay is closed; off: DO9 relay is off
DO10	DO10 output indicator light	Green LED light; on: DO10 relay is closed; off: DO10 relay is off
DO11	DO11 output indicator light	Green LED light; on: DO11 relay is closed; off: DO11 relay is open
DO12	DO12 output indicator light	Green LED light; on: DO12 relay is closed; off: DO12 relay is off
DO13	DO13 output indicator light	Green LED light; on: DO13 relay is closed; off: DO13 relay is off
DO14	DO14 output indicator light	Green LED light; on: DO14 relay is closed; off: DO14 relay is off
DO15	DO15 output indicator light	Green LED light; on: DO15 relay is closed; off: DO15 relay is off
DO16	DO16 output indicator light	Green LED light; on: DO16 relay is closed; off: DO16 relay is off

GAXAX8080 :

Symbol	name	Function/ Description
PWR	Power Indicator	Red LED light; on: the system power supply is normal; off: the system power supply is abnormal
LINK	Link indicator	Yellow LED light; on: there is a link; off: no link; flashing quickly when there is data interaction
STA	Status Indicator	Blue LED light; flashes alternately to indicate normal operation; always on or off indicates abnormal device status.
DI1	DI1 input indicator light	Green LED light; on: DI1 valid input; off: DI1 invalid input
DI2	DI2 input indicator light	Green LED light; on: DI2 valid input; off: DI2 invalid input
DI3	DI3 input indicator light	Green LED light; on: DI3 valid input; off: DI3 invalid input
DI4	DI4 input indicator light	Green LED light; on: DI4 valid input; off: DI4 invalid input
DI5	DI5 input indicator light	Green LED light; on: DI5 valid input; off: DI5 invalid input
DI6	DI6 input indicator light	Green LED light; on: DI6 valid input; off: DI6 invalid input
DI7	DI7 input indicator light	Green LED light; on: DI7 valid input; off: DI7 invalid input
DI8	DI8 input indicator light	Green LED light; on: DI8 valid input; off: DI8 invalid input
DO1	DO1 output indicator light	Green LED light; on: DO1 relay is closed; off: DO1 relay is open
DO2	DO2 output indicator light	Green LED light; on: DO2 relay is closed; off: DO2 relay is open
DO3	DO3 output indicator light	Green LED light; on: DO3 relay is closed; off: DO3 relay is open
DO4	DO4 output indicator light	Green LED light; on: DO4 relay is closed; off: DO4 relay is off
DO5	DO5 output indicator light	Green LED light; on: DO5 relay is closed; off: DO5 relay is open
DO6	DO6 output indicator light	Green LED light; on: DO6 relay is closed; off: DO6 relay is open
DO7	DO7 output indicator light	Green LED light; on: DO7 relay is closed; off: DO7 relay is off
DO8	DO8 output indicator light	Green LED light; on: DO8 relay is closed; off: DO8 relay is open

GXAXX0800:

Symbol	name	Function/ Description
PWR	Power Indicator	Red LED light; on: the system power supply is normal; off: the system power supply is abnormal
LINK	Link indicator	Yellow LED light; on: there is a link; off: no link; flashing quickly when there is data interaction
STA	Status Indicator	Blue LED light; flashes alternately to indicate normal operation; always on or off indicates abnormal device status.

3.4. Port description

GAAAX4440:

Symbol	name	Function/ Description
AI1	AI1 analog input	AI1 analog input interface, used in conjunction with COMA
AI2	AI2 analog input	AI2 analog input interface, used in conjunction with COMA
AI3	AI3 analog input	AI3 analog input interface, used in conjunction with COMA
AI4	AI4 analog input	AI4 analog input interface, used in conjunction with COMA
COMA	AI analog input common terminal	AI1-AI4 share the COMA public terminal
DI1	DI1 switch input	DI1 switch input interface, used in conjunction with COMB
DI2	DI2 switch input	DI2 switch input interface, used in conjunction with COMB
COMB	DI switch input common terminal	DI1-DI2 share the COMB common terminal
DI3	DI3 switch input	DI3 switch input interface, used in conjunction with COMC
DI4	DI4 switch input	DI4 switching input interface, used in conjunction with COMC
COMC	DI switch input common terminal	DI3-DI4 share the COMC common port
DO1	DO1 switch output	DO1 switching output interface, used in conjunction with COM1
COM1	COM terminal of DO1	COM terminal of DO1
DO2	DO2 switch output	DO2 switch output interface, used in conjunction with COM2
COM	COM terminal of DO2	COM terminal of DO2
DO3	DO3 switch output	DO3 switching output interface, used in conjunction with COM3
COM3	COM terminal of DO3	COM terminal of DO3
DO4	DO4 switch output	DO4 switching output interface, used in conjunction with COM4
COM4	COM terminal of DO4	COM terminal of DO4

GAXXX8000:

Symbol	name	Function/ Description
DI1	DI1 switch input	DI1 switch input interface, used in conjunction with COM1
COM1	COM terminal of DI1	COM terminal of DI1
DI2	DI2 switch input	DI2 switch input interface, used in conjunction with COM2
COM2	COM side of DI2	COM2 end of DI2
DI3	DI3 switch input	DI3 switch input interface, used in conjunction with COM3
COM3	COM side of DI3	COM side of DI3
DI4	DI4 switch input	DI4 switch input interface, used in conjunction with COM4
COM4	COM side of DI4	COM side of DI4
DI5	DI5 switch input	DI1 switch input interface, used in conjunction with COM5
COM5	COM side of DI5	COM side of DI5

DI6	DI6 switch input	DI6 switch input interface, used in conjunction with COM6
COM6	COM side of DI6	COM side of DI6
DI7	DI7 switch input	DI7 switch input interface, used in conjunction with COM7
COM7	COM side of DI7	COM side of DI7
DI8	DI8 switch input	DI8 switch input interface, used in conjunction with COM8
COM8	COM side of DI8	COM side of DI8
VO+	Power output positive pole	The positive pole of the power supply output is the same as the power supply voltage of the device.
VO+	Power output positive pole	The positive pole of the power supply output is the same as the power supply voltage of the device.
VO-	Power output negative pole	The negative pole of the power supply output is the same as the power supply voltage of the device.

GXXAX0080：

Symbol	name	Function/ Description
DO1	DO1 switch output	DO1 switching output interface, used in conjunction with COM1
COM1	COM terminal of DO1	COM terminal of DO1
DO2	DO2 switch output	DO2 switch output interface, used in conjunction with COM2
COM2	COM terminal of DO2	COM terminal of DO2
DO3	DO3 switch output	DO3 switching output interface, used in conjunction with COM3
COM3	COM terminal of DO3	COM terminal of DO3
DO4	DO4 switch output	DO4 switching output interface, used in conjunction with COM4
COM4	COM terminal of DO4	COM terminal of DO4
DO5	DO5 switch output	DO5 switching output interface, used in conjunction with COM5
COM5	COM terminal of DO5	COM terminal of DO5
DO6	DO6 switch output	DO6 switching output interface, used in conjunction with COM6
COM6	COM terminal of DO6	COM terminal of DO6
DO7	DO7 switch output	DO7 switching output interface, used in conjunction with COM7
COM7	COM terminal of DO7	COM terminal of DO7
DO8	DO8 switch output	DO8 switching output interface, used in conjunction with COM8
COM8	COM terminal of DO8	COM terminal of DO8
VO+	Power output positive pole	The positive pole of the power supply output is the same as the power supply voltage of the device.
VO+	Power output positive pole	The positive pole of the power supply output is the same as the power supply voltage of the device.
VO-	Power output negative pole	The negative pole of the power supply output is the same as the power supply voltage of the device.

GAXAX4040:

Symbol	name	Function/ Description
DI1	DI1 switch input	DI1 switch input interface, used in conjunction with COM1
COM1	COM terminal of DI1	COM terminal of DI1
DI2	DI2 switch input	DI2 switch input interface, used in conjunction with COM2
COM2	COM side of DI2	COM2 end of DI2
DI3	DI3 switch input	DI3 switch input interface, used in conjunction with COM3
COM3	COM side of DI3	COM side of DI3
DI4	DI4 switch input	DI4 switch input interface, used in conjunction with COM4
COM4	COM side of DI4	COM side of DI4
DO1	DO1 switch output	DO1 switching output interface, used in conjunction with COM1
COM1	COM terminal of DO1	COM terminal of DO1
DO2	DO2 switch output	DO2 switch output interface, used in conjunction with COM2
COM2	COM terminal of DO2	COM terminal of DO2
DO3	DO3 switch output	DO3 switching output interface, used in conjunction with COM3
COM3	COM terminal of DO3	COM terminal of DO3
DO4	DO4 switch output	DO4 switching output interface, used in conjunction with COM4
COM4	COM terminal of DO4	COM terminal of DO4
VO+	Power output positive pole	The positive pole of the power supply output is the same as the power supply voltage of the device.
VO+	Power output positive pole	The positive pole of the power supply output is the same as the power supply voltage of the device.
VO-	Power output negative pole	The negative pole of the power supply output is the same as the power supply voltage of the device.

GAXXXA000 :

Symbol	name	Function/ Description
DO1	DI1 switch input	DI1 switch input interface, used in conjunction with COMA
DI2	DI2 switch input	DI2 switch input interface, used in conjunction with COMA
DI3	DI3 switch input	DI3 switch input interface, used in conjunction with COMA
DI4	DI4 switch input	DI4 switch input interface, used in conjunction with COMA
COMA	DI switch input common terminal	DI1-DI4 share the COMA common port
DI5	DI5 switch input	DI5 switch input interface, used in conjunction with COMB
DI6	DI6 switch input	DI6 switch input interface, used in conjunction with COMB
DI7	DI7 switch input	DI7 switch input interface, used in conjunction with COMB
DI8	DI8 switch input	DI8 switch input interface, used in conjunction with COMB
COMB	DI switch input common terminal	DI5-DI8 share the COMB common terminal
DI9	DI9 switch input	DI9 switch input interface, used in conjunction with COMC
DI10	DI10 switch input	DI10 switch input interface, used in conjunction with COMC
DI11	DI11 switch input	DI11 switching input interface, used in conjunction with COMC
DI12	DI12 switch input	DI12 switch input interface, used in conjunction with COMC

DI13	DI13 switch input	DI13 switch input interface, used in conjunction with COMC
DI14	DI14 switch input	DI14 switch input interface, used in conjunction with COMC
DI15	DI15 switch input	DI15 switch input interface, used in conjunction with COMC
DI16	DI16 switch input	DI16 switch input interface, used in conjunction with COMC
COMB	DI switch input common terminal	DI9-DI16 share the COMC common terminal

GXXAX00A0 ：

Symbol	name	Function/ Description
DO1	DO1 switch output	DO1 switching output interface, used in conjunction with COMA
DO2	DO2 switch output	DO2 switching output interface, used in conjunction with COMA
DO3	DO3 switch output	DO3 switching output interface, used in conjunction with COMA
DO4	DO4 switch output	DO4 switching output interface, used in conjunction with COMA
COMA	COM side of DO	DO1-DO4 share COMA for use together
DO5	DO5 switch output	DO5 switching output interface, used in conjunction with COMB
DO6	DO6 switch output	DO6 switching output interface, used in conjunction with COMB
DO7	DO7 switch output	DO7 switching output interface, used in conjunction with COMB
DO8	DO8 switch output	DO8 switching output interface, used in conjunction with COMB
COMB	COM side of DO	DO5-DO8 share COMB for use together
DO9	DO9 switch output	DO9 switching output interface, used in conjunction with COMC
DO10	DO10 switch output	DO10 switching output interface, used in conjunction with COMC
DO11	DO11 switch output	DO11 switching output interface, used in conjunction with COMC
DO12	DO12 switch output	DO12 switching output interface, used in conjunction with COMC
DO13	DO13 switch output	DO13 switching output interface, used in conjunction with COMC
DO14	DO14 switch output	DO14 switching output interface, used in conjunction with COMC
DO15	DO15 switch output	DO15 switching output interface, used in conjunction with COMC
DO16	DO16 switch output	DO16 switching output interface, used in conjunction with COMC
COMC	COM side of DO	DO9-DO16 share COMC for use together

GAXAX8080:

Symbol	name	Function/ Description
DO1	DI1 switch input	DI1 switch input interface, used in conjunction with COMA
DI2	DI2 switch input	DI2 switch input interface, used in conjunction with COMA
DI3	DI3 switch input	DI3 switch input interface, used in conjunction with COMA
DI4	DI4 switch input	DI4 switch input interface, used in conjunction with COMA
COMA	DI switch input common terminal	DI1-DI4 share the COMA common port
DI5	DI5 switch input	DI5 switch input interface, used in conjunction with COMB
DI6	DI6 switch input	DI6 switch input interface, used in conjunction with COMB
DI7	DI7 switch input	DI7 switch input interface, used in conjunction with COMB
DI8	DI8 switch input	DI8 switch input interface, used in conjunction with COMB
COMB	DI switch input common	DI5-DI8 share the COMB common terminal

	terminal	
DO1	DO1 switch output	DO1 switching output interface, used in conjunction with COMC
DO2	DO2 switch output	DO2 switching output interface, used in conjunction with COMC
DO3	DO3 switch output	DO3 switching output interface, used in conjunction with COMC
DO4	DO4 switch output	DO4 switching output interface, used in conjunction with COMC
DO5	DO5 switch output	DO5 switching output interface, used in conjunction with COMC
DO6	DO6 switch output	DO6 switching output interface, used in conjunction with COMC
DO7	DO7 switch output	DO7 switching output interface, used in conjunction with COMC
DO8	DO8 switch output	DO8 switching output interface, used in conjunction with COMC
COMC	COM side of DO	DO1-DO8 share COMC and use together

GXAXX0800:

Symbol	name	Function/ Description
AI1	AI1 analog input	AI1 analog input interface, used in conjunction with COM1
COM1	COM terminal of AI1	COM terminal of AI1
AI2	AI2 analog input	AI2 analog input interface, used in conjunction with COM2
COM2	COM terminal of AI2	COM terminal of AI2
AI3	AI3 analog input	AI3 analog input interface, used in conjunction with COM3
COM3	COM terminal of AI3	COM terminal of AI3
AI4	AI4 analog input	AI4 analog input interface, used in conjunction with COM4
COM4	COM terminal of AI4	COM terminal of AI4
AI5	AI5 analog input	AI5 analog input interface, used in conjunction with COM5
COM5	AI5 COM terminal	AI5 COM terminal
AI6	AI6 analog input	AI6 analog input interface, used in conjunction with COM6
COM6	COM terminal of AI6	COM terminal of AI6
AI7	AI7 analog input	AI7 analog input interface, used in conjunction with COM7
COM7	COM terminal of AI7	COM terminal of AI7
AI8	AI8 analog input	AI8 analog input interface, used in conjunction with COM8
COM8	AI8 COM terminal	AI8 COM terminal
VO+	Power output positive pole	The positive pole of the power supply output is the same as the power supply voltage of the device.
VO+	Power output positive pole	The positive pole of the power supply output is the same as the power supply voltage of the device.
VO-	Power output negative pole	The negative pole of the power supply output is the same as the power supply voltage of the device.

4. Product function introduction

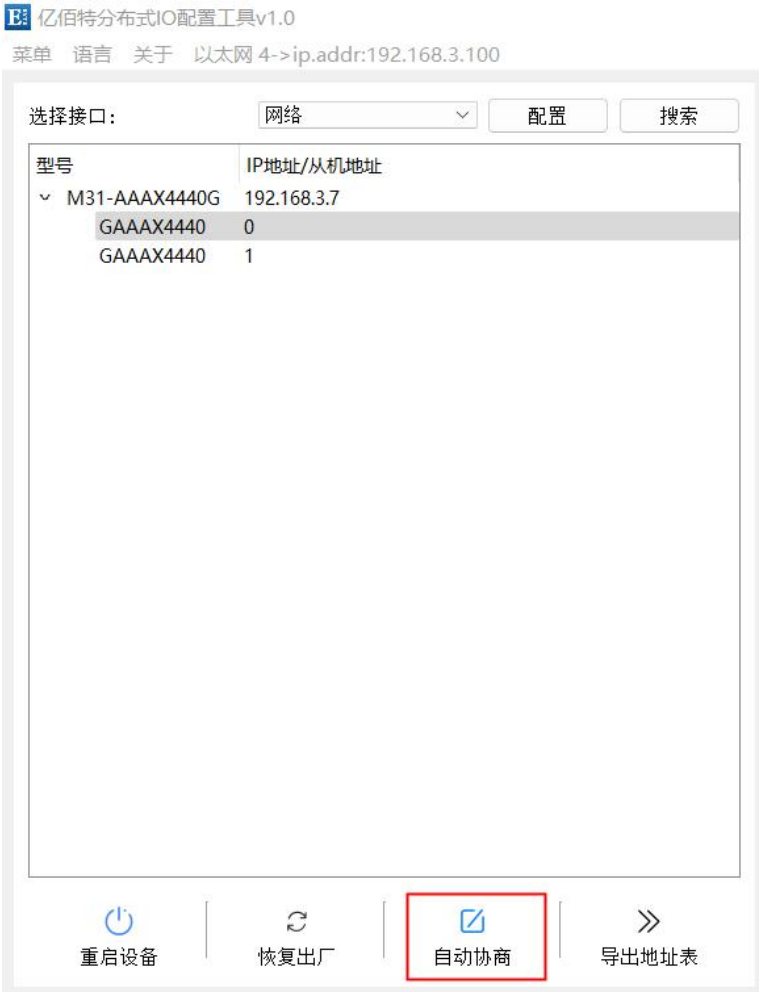
4.1. IO expansion

The IO expansion module adopts an expandable structure design. The IO expansion module can already be expanded with the M31 series host . You only need to connect the IO expansion module to the host slot , and then slide the lock down. The host and IO expansion module can be firmly connected together .

The specific operations are as follows:

- First, ensure that the host is not powered on, and then connect the IO expansion module to the host, as shown in the following figure:

- the IO expansion module is connected, power on the host, then plug in the network cable, and use the auto-negotiation function through the host computer (or double-click the Reload button on the device within two seconds to auto-negotiate) . After the negotiation is successful, the IO expansion The module can be operated through the serial port or network port on the host computer .



4.2. D I input

4.2.1. Input filtering

When the switch input DI collects signals, it needs to be maintained for multiple sampling periods before confirmation. The filter parameters can be set in the range of 1 to 16 (default is 6 sampling periods, 6 * 1 k H z).

4.3. DO output

The output mode of the relay .

4.4. AI input

4.4.1. AI scope

Analog input AI measurement current signal, acquisition range 0~20mA or 4~20mA, accuracy 3 ‰, resolution 12 bits. Use single-ended input, sampling frequency 10Hz, input impedance 100Ω .
Set the sampling range of all AI channels, valid values are 1 and 0 (default 0).
Configured as 0: means 0~20mA
Configured as 1: indicates 4~20mA
[Note] AI configuration instructions
(1) The AI sampling range of each channel can be set . When the AI channel sampling range is configured as 4~20mA sampling, if the current signal is lower than 3.5 mA is displayed as 0, above 3.5 mA and below 4mA is displayed as 4 . There are no conversion restrictions for signals greater than 20mA, but they cannot exceed 25mA (exceeding 25mA will risk equipment damage).
(2) The starting address of the AI channel sampling range parameter is 0x0DA C , the register type is a holding register, and the function codes are 0x06 and 0x10. When writing the AI channel sampling range parameter, if the written parameter value is not within the range of 0 to 1, the closest value will be automatically written . If the writing sampling range parameter is 2, the device will use 1 as the sampling range parameter. And Modbus does not return error instructions.

4.4.2. AI input engineering quantity integer value and engineering quantity floating point value

There are two ways to read the current signal size collected by the device:
(1) Read the AI engineering quantity shaping value and directly convert it to the input current. The starting address of the AI engineering quantity integer value register is 0x00 00 , the register type is input register, and the read function code is 0x04. The value returned by this method is one register representing one channel, and the value read is 0~ 20000 . The method for calculating the current size is 0~20000 corresponding to 0~ 20mA . That is :

Current = engineering value / 1000 (m A)

(2) Read the floating point value of the AI engineering quantity , and use the I EE754 conversion tool to convert the hexadecimal data into a floating point number to obtain the input current. The starting address of the AI engineering quantity integer value register is 0x0 3E8 , the register type is input register, and the read function code is 0x04. This method returns two registers representing 1 channel.

4.4.3. AI filter parameters

AI channel can be set , the valid value is 1-16 , and the default value is 6.
Filter parameter description:
(1) All AI channels share a filter parameter. The higher the parameter value, the more stable the output value and the slower the response.

(2) The AI channel filter parameter address is 0x0DA 2 , and the register type is a holding register. Function codes 0x06, 0x10.

(3) When writing AI filter parameters, if the written parameter value is not within the range of 1 to 16, the closest value will be automatically written . If the written filter parameter is 0, the device will use 1 as the filter parameter, and Modbus does not return error instructions .

4.5. MODBUS parameter configuration

4.5.1. DI register list

DI status register:

name	access location	Register address	register area	Related function codes	Default state
DI 1	Host	0x0000	zone 1	R : 0x02	0
DI 2	Host	0x000 1	zone 1	R : 0x02	0
DI 3	Host	0x000 2	zone 1	R : 0x02	0
DI 4	Host	0x000 3	zone 1	R : 0x02	0
DI 5	IO expansion module	0x000 4	zone 1	R : 0x02	0
...	IO expansion module	...	zone 1	R : 0x02	0

DI filter register:

name	Register address	Register type	Data range/description	Related function codes	Default state
DI channel filter parameters	0x0DA3	holding register	All DI channel filter parameters, Valid values 1-16	R : 0x03 W: 0x06,0x10	6

4.5.2. DO register list

DI status register:

name	access location	Register address	register area	Related function codes	Default state
D O1	Host	0x0000	Zone 0	R:0x01 W: 0x05,0x0F	0
D O2	Host	0x000 1	Zone 0	R:0x01 W: 0x05,0x0F	0
D O3	Host	0x000 2	Zone 0	R:0x01 W: 0x05,0x0F	0
D O4	Host	0x000 3	Zone 0	R:0x01 W: 0x05,0x0F	0
D O5	IO expansion module	0x000 4	Zone 0	R:0x01 W: 0x05,0x0F	0
...	IO expansion module	...	Zone 0	R:0x01 W: 0x05,0x0F	0

4.5.3. AI register list

AI engineering quantity shaping value register:

name	access location	Register address	register area	Data range/description	Related function codes	Default state
A I 1	Host	0x0000	Zone 3	Project quantity 0-20000 represents 0-20ma 2-byte integer, unit (uA)	R : 0x0 4	0
A I 2	Host	0x000 1	Zone 3	Project quantity 0-20000 represents 0-20ma 2-byte integer, unit (uA)	R : 0x0 4	0
A I 3	Host	0x000 2	Zone 3	Project quantity 0-20000 represents 0-20ma 2-byte integer, unit (uA)	R : 0x0 4	0
A I 4	Host	0x000 3	Zone 3	Project quantity 0-20000 represents 0-20ma 2-byte integer, unit (uA)	R : 0x0 4	0
A I 5	IO expansion module	0x000 4	Zone 3	Project quantity 0-20000 represents 0-20ma 2-byte integer, unit (uA)	R : 0x0 4	0
...	IO expansion	...	Zone 3	Project quantity 0-20000 represents 0-20ma	R : 0x0 4	0

	module			2-byte integer, unit (uA)		

AI floating point value register:

name	access location	Register address	register area	Data range/description	Related function codes	Default state
A I 1	Host	0x0 3E8	Zone 3	Analog signal floating point value, 4-byte floating point number, unit (mA)	R : 0x0 4	0
A I 2	Host	0x0 3EA	Zone 3	Analog signal floating point value, 4-byte floating point number, unit (mA))	R : 0x0 4	0
A I 3	Host	0x0 3EC	Zone 3	Analog signal floating point value, 4-byte floating point number, unit (mA)	R : 0x0 4	0
A I 4	Host	0x0 3EE	Zone 3	Analog signal floating point value, 4-byte floating point number, unit (mA)	R : 0x0 4	0
A I 5	IO expansion module	0x0 3F0	Zone 3	Analog signal floating point value, 4-byte floating point number, unit (mA)	R : 0x0 4	0
...	IO expansion module	...	Zone 3	Analog signal floating point value, 4-byte floating point number, unit (mA)	R : 0x0 4	0

AI filter register:

name	Register address	register area	Data range/description	Related function codes	Default state
A I channel filter parameters	0x0DA 2	Zone 4	All AI channel filter parameters, Valid values 1-16	R : 0x03 W: 0x06,0x10	6

AI sampling range register:

name	access location	Register address	register area	Data range/description	Related function codes	Default state
AI1 sampling range	Host	0x0DA C	Zone 4	Valid values are 0 and 1, 0 means 0-20mA, 1 means 4-20mA	R : 0x03 W: 0x06,0x10	0
AI2 sampling range	Host	0x0DA D	Zone 4	Valid values are 0 and 1, 0 means 0-20mA, 1 means 4-20mA	R : 0x03 W: 0x06,0x10	0
AI3 sampling range	Host	0x0DAE _	Zone 4	Valid values are 0 and 1, 0 means 0-20mA, 1 means 4-20mA	R : 0x03 W: 0x06,0x10	0
AI4 sampling range	Host	0x0DA F	Zone 4	Valid values are 0 and 1, 0 means 0-20mA, 1 means 4-20mA	R : 0x03 W: 0x06,0x10	0
AI5 sampling range	IO expansion module	0x0D B0	Zone 4	Valid values are 0 and 1, 0 means 0-20mA, 1 means 4-20mA	R : 0x03 W: 0x06,0x10	0
...	IO expansion module	...	Zone 4	Valid values are 0 and 1, 0 means 0-20mA, 1 means 4-20mA	R : 0x03 W: 0x06,0x10	0

Note: According to the usage requirements, some software (such as KingView) requires the register address +1 to operate the register.

Revision History

Version	Revision date	Revision Notes	Maintenance man
1.0	2 02 3-10-17	initial version	LT

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