GX_8DI8DO

User's Manual

1、 Product description

- ➢ 8ch optoelectronic isolation digital input and output(NPN)
- ➢ Using RS485 MODBUS RTU communication standard. It can be netted with configuration software, PLC and industry touch pad
- ➢ Communication, input and output status LED
- ➢ Communication circuit designed for lightening protection and interference immunity
- ➢ Could be used for signal collection and control of Industrial field apparatus

2、 Specification

- ➢ Digital input   8ch
- ➢ Digital output   8ch(NPN,500mA)
- ➢ Working Temperature   -20～70℃
- ➢ External power supply   DC 9V～30V/2W
- ➢ Isolation protect   1500VDC
- ➢ Installation method   Standard DIN slide rail or screw
- ➢ Dimension   125×73×35mm

3、 Interface definition

|	
Vcc	External PSU positive terminal input
Gnd	External PSU negative terminal input
DO01	Digital output in 1st ch
DO02	Digital output in 2ndch
DO03	Digital output in 3rd ch
DO04	Digital output in 4th ch
DO05	Digital output in 5th ch
DO06	Digital output in 6th ch
DO07	Digital output in 7th ch
DO08	Digital output in 8th ch
DI01	Digital input in 1st ch
DI02	Digital input in 2ndch
DI03	Digital input in 3rd ch
DI04	Digital input in 4th ch
DI05	Digital input in 5th ch
DI06	Digital input in 6th ch
DI07	Digital input in 7th ch
DI08	Digital input in 8th ch
485A	RS485 signal A+
485B	RS485 signal B-

4、 Digital application diagram

4.1 、 Digital input
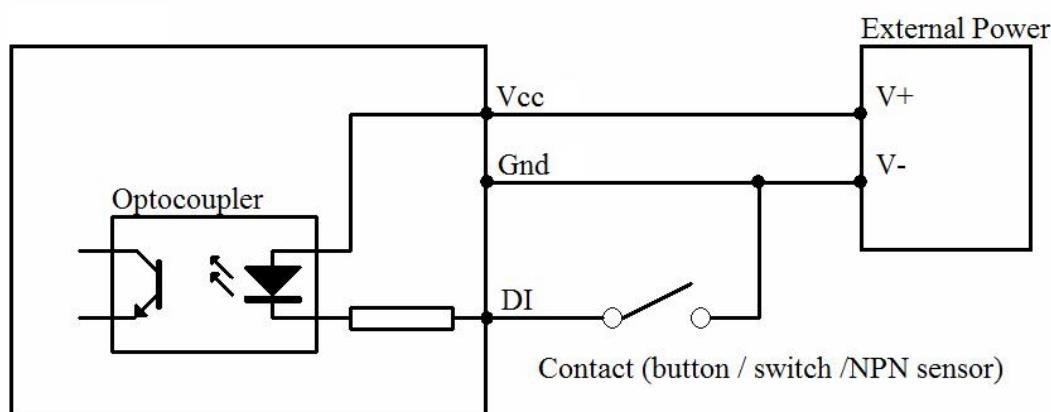
4.2、Digital output
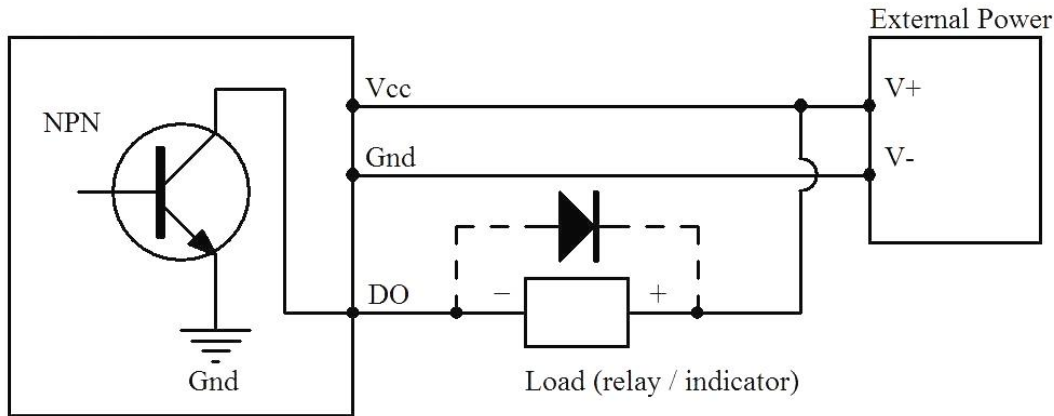
5﹑Communication Instruction

5.1、Communication parameter (default setting)： 9600，N，8，1

Parameter	Description
9600	baud rate
N(no check)	check bit
8	data bit
1	stop bit

5.2、Command for digital input collection：

Send: 01 02 00 00 00 08 79 CC （example/hexadecimal）

data	byte	data description	remark
01	1	module address	Address range 01-FE
02	1	function code	02-read input bit
0000	2	input address(1x mode)	0000-initial address of input bit
0008	2	read length of input bit	0008-read 8 input bits
79CC	2	CRC check code	CRC check code for all data

Receive: 01 02 01 C2 20 19 （example/hexadecimal）

data	byte	data description	remark
01	1	module address	Address range 01-FE
02	1	function code	02-read input bit
01	1	byte numbers	01-read one byte length
C2	1	read data	C2-read input bit status
2019	2	CRC check code	CRC check code for all data

Converting reading data "C2" to 2 hexadecimal results "11000010". From left to right, it represents the 8 digital input channel status DI08 ~ DI01. Here it means DI08、DI07、DI02 have input but others no.

5.3、Command for digital output (several controls)：

Send: 01 0F 00 00 00 08 01 A4 FF 2E （example/hexadecimal）

data	byte	data description	remark
01	1	module address	Address range 01-FE
0F	1	function code	0F-write multiple coil
0000	2	coil address(0x mode)	0000-initial address of coil
0008	2	write coil length	0008-write 8 coils
01	1	write data byte	01-write one byte data
A4	2	data writing	A4-write output state of 8 coil
FF2E	2	CRC check code	CRC check code for all data

Receive: 01 0F 00 00 00 08 54 0D （example/hexadecimal）

Converting reading data "A4" to 2 hexadecimal results "10100100". From left to right, it represents the 8 digital output channel status DI08 ~ DI01. Here it means DO08 、 DO06 、 DO03, have output but others no. When module receives correct command, it will make corresponding actions and send response back to the master. This is successful communication.

5.4、Command for digital output (single control)：

Send: 01 05 00 00 FF 00 8C 3A （example/hexadecimal）

data	byte	data description	remark
01	1	module address	Address range 01-FE
05	1	function code	05-write single coil
0000	2	coil address(0x mode)	0000-digital output(DO01)coil address 0001-digital output(DO02)coil address 0002-digital output(DO03)coil address 0003-digital output(DO04)coil address 0004-digital output(DO05)coil address 0005-digital output(DO06)coil address 0006-digital output(DO07)coil address 0007-digital output(DO08)coil address
FF00	2	data writing	FF00-coil open，0000-coil close
8C3A	2	CRC check code	CRC check code for all data

Receive: 01 05 00 00 FF 00 8C 3A （example/hexadecimal）

When module receives correct command, it will make corresponding actions and send response back to the master. This is successful communication.

5.5、Command for state collection of digital output：

Send: 01 01 00 00 00 08 3D CC （example/hexadecimal）

data	byte	data description	remark
01	1	module address	Address range 01-FE
01	1	function code	01-read coil state
0000	2	coil address(0x mode)	0000-initial address of coil
0008	2	read coil length	0008-read 8 coils state
3DCC	2	CRC check code	CRC check code for all data

Receive: 01 01 01 A4 50 33 （example/hexadecimal）

data	byte	data description	remark
01	1	module address	Address range 01-FE
01	1	function code	01-read coil state
01	1	byte numbers	01-read one byte data
A4	1	read data	A4-read coil state
5033	2	CRC check code	RC check code for all data

Converting reading data "A4" to 2 hexadecimal results "10100100". From left to right, it represents the 8 digital output channel status DI08 ~ DI01. Here it means DO08、DO06、DO03, have output but others no.

5.6、command for module address setting：

Send：00 06 00 64 00 01 08 04 （example/hexadecimal）

date	byte	data description	remark
00	1	module address	00-group sending
06	1	function code	06-write single register
0064	2	register address (4x mode)	0064-modify module address
0001	2	data writing	set new address for module, range 0001-00FE
0804	2	CRC check code	CRC check code for all data

Receive：00 06 00 64 00 01 08 04 （example/hexadecimal）

This command means to send a code to a module, set the module address as 01, this setting could be saved when power off; default address of module is 01,each module address could be assigned separately when using multiple modules for network.Attentions is required that only one module could be used in 485 network when using multiple address sending, otherwise all the modules will share the same address in 485 network. When module receives correct command, it will make corresponding actions and send response back to the master. This is successful communication.

5.7、Command for communication parameter setting：

Send：01 06 00 65 00 02 18 14 （example/hexadecimal）

data	byte	data description	remark
01	1	module address	address range:01-FE
06	1	function code	06-write single register

0065	2	register address (4x mode)	0065-modify communication parameter
0002	2	data writing	0001-set communication parameter 2400,N(no check) ,8,1
			0002-set communication parameter 4800,N(no check) ,8,1
			0003-set communication parameter 9600,N(no check) ,8,1
			0004-set communication parameter 19200,N(no check) ,8,1
			0005-set communication parameter 34800,N(no check) ,8,1
			0006-set communication parameter 43000,N(no check) ,8,1
			0007-set communication parameter 56000,N(no check) ,8,1
			0008-set communication parameter 57600,N(no check) ,8,1
			0009-set communication parameter 115200,N(no check) ,8,1
			0010-set communication parameter 2400,O(odd check) ,8,1
			0011-set communication parameter 4800,O(odd check) ,8,1
			0012-set communication parameter 9600,O(odd check) ,8,1
			0013-set communication parameter 19200,O(odd check) ,8,1
			0014-set communication parameter 34800,O(odd check) ,8,1
			0015-set communication parameter 43000,O(odd check) ,8,1
			0016-set communication parameter 56000,O(odd check) ,8,1
			0017-set communication parameter 57600,O(odd check) ,8,1
			0018-set communication parameter 115200,O(odd check) ,8,1
			0019-set communication parameter 2400,E(even check) ,8,1
			0020-set communication parameter 4800,E(even check) ,8,1
			0021-set communication parameter 9600,E(even check) ,8,1
			0022-set communication parameter 19200,E(even check) ,8,1
			0023-set communication parameter 34800,E(even check) ,8,1
			0024-set communication parameter 43000,E(even check) ,8,1
			0025-set communication parameter 56000,E(even check) ,8,1
			0026-set communication parameter 57600,E(even check) ,8,1
			0027-set communication parameter 115200,E(even check) ,8,1
1814	2	CRC check code	CRC check code for all data

Receive：01 06 00 65 00 02 18 14 （example/hexadecimal）

This command means to send a code to the module and set the communication parameter as "9600, N (No check), 8, 1".This setting could be saved when power off. The default communication parameter is "9600, N (no check), 8, 1". Attention is required, when electing the correct communication parameter in communication setting and restarting the communication terminal, setting will be done.Normally, the lower of baud rate, the lower of the transaction speed but the higher of transaction stability. The opposite is also true.When module receives correct command, corresponding action will be taken and response will be sent back to the master. This is successful communication.

6、Indicator LED description
- When module powered on, Led is green.
- When module is under communication, LED is twinkling.
- when module receive correct command, LED is green.
- when module receive incorrect command or command for other modules, LED is red.

7、 PC debugging instruction

This module provides software for parameter setting and function test. Please follow the steps below:

- ➢ Connect the module and computer using RS485 converter.
- ➢ Connect 12V or 24V power with module and power on. To avoid any unnecessary damage, please make sure the power positive & negative terminals are correctly connected before power on.
- ➢ Open the software, select the correct module number, you will see the window of function test or parameter setting.
- ➢ Set correct parameter, open communication interface.
- ➢ Select corresponding setting, collection and control items.