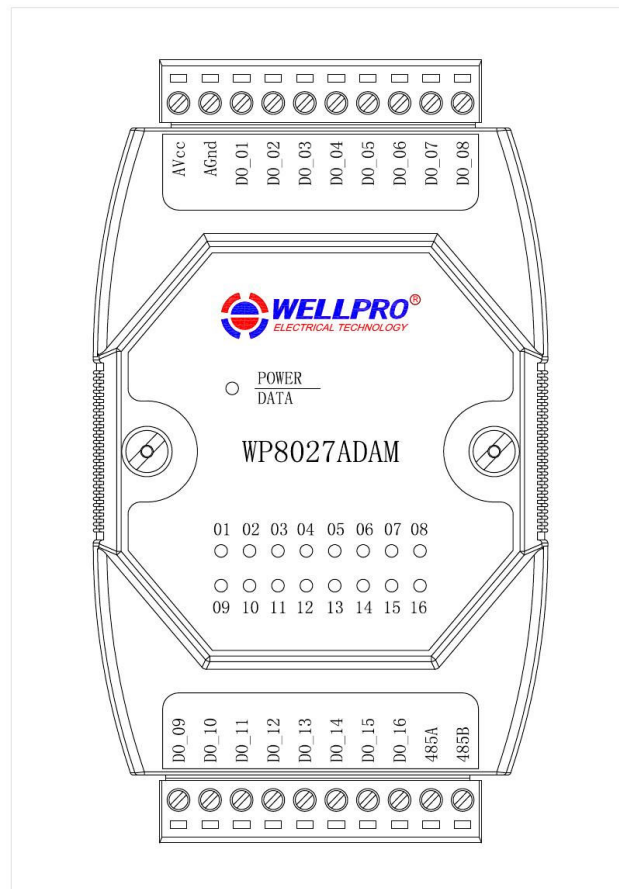


WP8027ADAM

User's Manual

Version 1.42



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1、Product description

- 16ch optoelectronic isolation digital 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 lightning protection and interference immunity
- Could be used for signal collection and control of Industrial field apparatus
- 3 Year's quality assurance for normal use

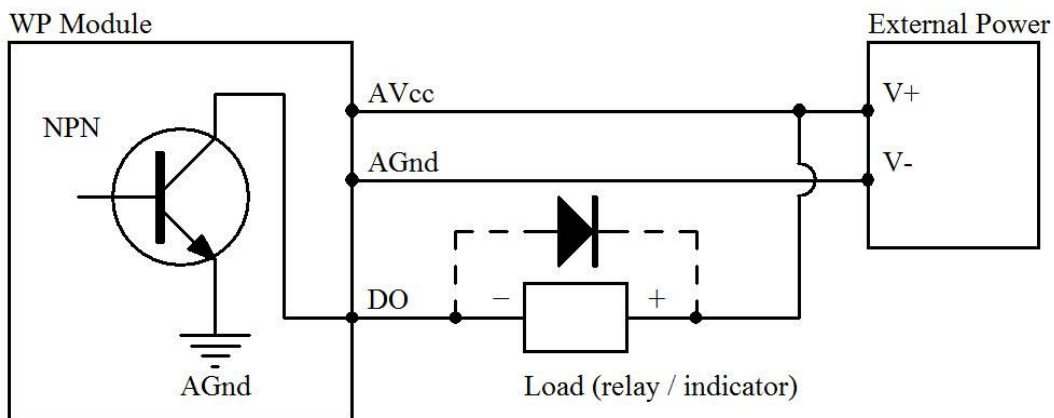
2、Specification

- digital output channel 16ch (NPN output,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

AVcc	External PSU positive terminal input
AGnd	External PSU negative terminal input
DO_01	Digital output in 1 st ch
DO_02	Digital output in 2 nd ch
DO_03	Digital output in 3 rd ch
DO_04	Digital output in 4 th ch
DO_05	Digital output in 5 th ch
DO_06	Digital output in 6 th ch
DO_07	Digital output in 7 th ch
DO_08	Digital output in 8 th ch
DO_09	Digital output in 9 st ch
DO_10	Digital output in 10 nd ch
DO_11	Digital output in 11 rd ch
DO_12	Digital output in 12 th ch
DO_13	Digital output in 13 th ch
DO_14	Digital output in 14 th ch
DO_15	Digital output in 15 th ch
DO_16	Digital output in 16 th ch
485A	RS485 signal A+
485B	RS485 signal B-

4、Digital output application diagram



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 output (several controls):

Send: 01 0F 00 00 00 10 02 21 86 7B D2 (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
0010	2	write coil length	0010-write 16 coils
02	1	write data byte	02-write 2 byte data
2186	2	write data	2186-write 16 coil's output status
7BD2	2	check code	CRC check code for all data

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

Converting input data "21" to 2 hexadecimal results "0010 0001". From left to right, it represent the 8 relay output status DO_08-DO_01. Converting input data "86" to 2 hexadecimal results "1000 0110". From left to right, it represent the 8 relay output status DO_16-DO_09. Here it means DO_16、DO_11、DO_10、DO_06、DO_01 has output but others no. Module will take corresponding action after receiving correct command and send the response back to master. It means successful communication.

5.3、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(DO_01) coil address 0001-digital output(DO_02) coil address 0002-digital output(DO_03) coil address 0003-digital output(DO_04) coil address 0004-digital output(DO_05) coil address 0005-digital output(DO_06) coil address 0006-digital output(DO_07) coil address 0007-digital output(DO_08) coil address 0008-digital output(DO_09) coil address 0009-digital output(DO_10) coil address 000A-digital output(DO_11) coil address 000B-digital output(DO_12) coil address 000C-digital output(DO_13) coil address 000D-digital output(DO_14) coil address 000E-digital output(DO_15) coil address 000F-digital output(DO_16) 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.

5.4、Command for state collection of digital output:

Send: 01 01 00 00 00 10 3D C6 (example/hexadecimal)

data	byte	data description	remark
01	1	module address	address range 01-FE
01	1	function code	01-read coil status
0000	2	oil address(0x mode)	0000-initial address of coil
0010	2	read coil length	0010-read 16 coil status

3DC6	2	check code	CRC check code for all data
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Receive: 01 01 02 21 86 20 0E (example/hexadecimal)

data	byte	data description	remark
01	1	module address	address range 01-FE
01	1	function code	01-read coil status
02	1	byte number	02-read 2 byte length
2186	2	read data	2186-read coil status
200E	2	check code	CRC check code for all data

Converting input data “21” to 2 hexadecimal results “0010 0001” . From left to right, it represent the 8 digital output status DO_08-DO_01. Converting input data “86” to 2 hexadecimal results “1000 0110” . From left to right, it represent the 8 digital output status DO_16-DO_09. Here it means DO_16、 DO_11、 DO_10、 DO_06、 DO_01 has output but others no.

5.5、 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. Attention 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.

5.6、 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 4800,N(no check) ,8,1 0002-set communication parameter 9600,N(no check) ,8,1 0003-set communication parameter 19200,N(no check) ,8,1 0004-set communication parameter 38400,N(no check) ,8,1 0005-set communication parameter 4800,E(even check) ,8,1 0006-set communication parameter 9600,E(even check) ,8,1 0007-set communication parameter 19200,E(even check) ,8,1 0008-set communication parameter 38400,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.

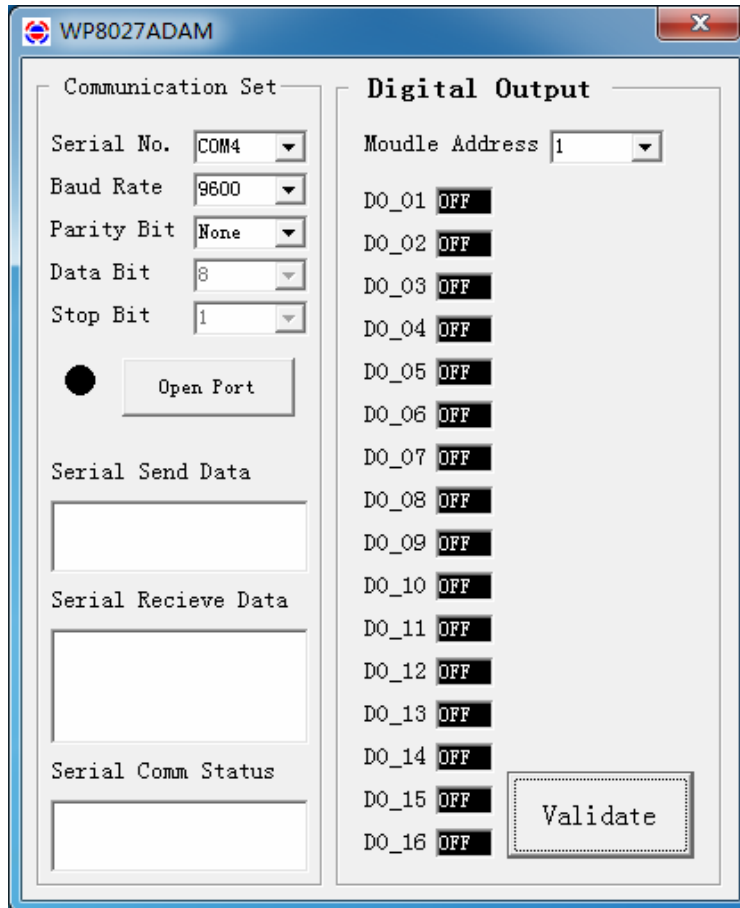
6、Indicator LED description

- 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.



8、RS485 network diagram

