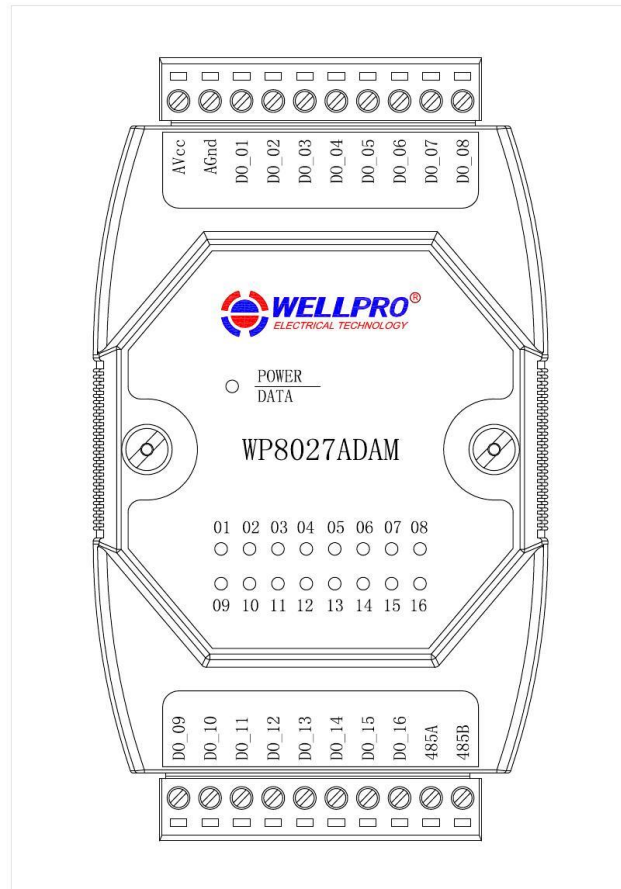


# WP8027ADAM

## User's Manual

### Version 1.42A



### 1、 Product description

- Sixteen optoelectronic isolation digital output channel (NPN collector output)
- RS485 MODBUS RTU standard communication protocol
- Netted with configuration software, PLC or industry touch panel
- Communication, digital input and digital output status LED
- Communication circuit designed for thunder protection and interference immunity
- Used for signal collection and control in industrial field

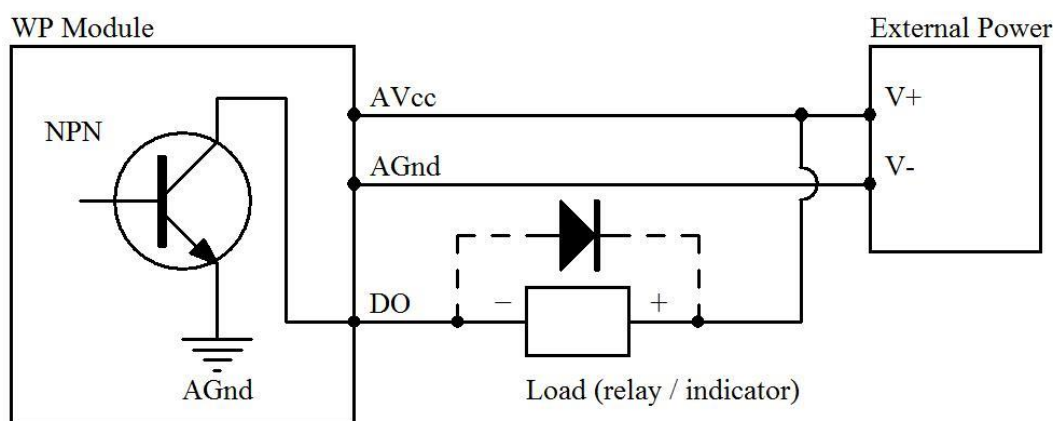
### 2、 Specification

- Digital output channel 16ch (NPN collector output, 500mA)
- Working temperature -20~70°C
- External power supply DC9V~30V/2W
- Isolation protection DC1500V
- Installation method Standard DIN slide rail or screw
- Dimension 125×73×35mm

### 3、 Interface description

AVcc	External power supply input positive
AGnd	External power supply input negative / Power ground
DO_01	Digital output channel 1
DO_02	Digital output channel 2
DO_03	Digital output channel 3
DO_04	Digital output channel 4
DO_05	Digital output channel 5
DO_06	Digital output channel 6
DO_07	Digital output channel 7
DO_08	Digital output channel 8
DO_09	Digital output channel 9
DO_10	Digital output channel 10
DO_11	Digital output channel 11
DO_12	Digital output channel 12
DO_13	Digital output channel 13
DO_14	Digital output channel 14
DO_15	Digital output channel 15
DO_16	Digital output channel 16
485B	RS485 signal B-
485A	RS485 signal A+

### 4、 Digital output application diagram



## 5、Communication description

### 5.1、Communication parameter: 9600, None, 8, 1 (default setting)

Parameter	Description
9600	baud rate
None	check bit
8	data bit
1	stop bit

### 5.2、Command for digital output data setting (Control of multiple channels)

Send: 01 0F 00 00 00 10 02 21 86 7B D2 (example/hex)

data	byte	data description	remark
01	1	module address	address range:01-FE
0F	1	function code	0F-write multiple digital output register
0000	2	register address (0X type)	0000-starting register address
0010	2	register number	0010-write 16 registers
02	1	byte of data	02-write 2 bytes
2186	2	write data	2186-digital output data
7BD2	2	CRC check code	CRC check code for all data

Receive: 01 0F 00 00 00 10 54 07 (example/hex)

This command sets module to output multiple channels.

The data of the digital output is "21", it will be "00100001" after converting to binary data. The eight bits of data correspond to DO\_08~DO\_01. It means DO\_06 and DO\_01 are ON.

The data of the digital output is "86", it will be "10000110" after converting to binary data. The eight bits of data correspond to DO\_16~DO\_09. It means DO\_16, DO\_11 and DO\_10 are ON.

When module receives correct command, it will send response back to the master.

### 5.3、Command for digital output data setting (Control of single channel)

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

data	byte	data description	remark
01	1	module address	address range:01-FE
05	1	function code	05-write single digital output register
0000	2	register address (0X type)	0000-digital output channel 1 register 0001-digital output channel 2 register 0002-digital output channel 3 register 0003-digital output channel 4 register 0004-digital output channel 5 register 0005-digital output channel 6 register 0006-digital output channel 7 register 0007-digital output channel 8 register 0008-digital output channel 9 register 0009-digital output channel 10 register 000A-digital output channel 11 register 000B-digital output channel 12 register 000C-digital output channel 13 register 000D-digital output channel 14 register 000E-digital output channel 15 register 000F-digital output channel 16 register
FF00	2	write data	FF00-ON, 0000-OFF
8C3A	2	CRC check code	CRC check code for all data

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

This command sets module to output single channel.

When module receives correct command, it will send response back to the master.

## 5.4. Command for digital output data reading

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

data	byte	data description	remark
01	1	module address	address range:01-FE
01	1	function code	01-read digital output register
0000	2	register address (0X type)	0000-starting register address
0010	2	register number	0010-read 16 registers
3DC6	2	CRC check code	CRC check code for all data

Receive: 01 01 02 21 86 20 0E (example/hex)

data	byte	data description	remark
01	1	module address	address range:01-FE
01	1	function code	01-read digital output register
02	1	byte of data	02-read 2 bytes
2186	2	read data	2186-digital output data
200E	2	CRC check code	CRC check code for all data

This command reads module's digital output data.

The data of the digital output is "21", it will be "00100001" after converting to binary data. The eight bits of data correspond to DO\_08~DO\_01. It means DO\_06 and DO\_01 are ON.

The data of the digital output is "86", it will be "10000110" after converting to binary data. The eight bits of data correspond to DO\_16~DO\_09. It means DO\_16, DO\_11 and DO\_10 are ON.

## 5.5. Command for module address setting

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

data	byte	data description	remark
00	1	module address	00-broadcast address
06	1	function code	06-write single holding register
0064	2	register address (4X type)	0064-module address register
0001	2	write data	0001- module address, range:0001-00FE
0804	2	CRC check code	CRC check code for all data

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

This command sets module address (slave address) as "01" (default setting). This setting could be saved when power off.

This is a broadcast command. It needs to ensure that only one module is connected to the master.

When module receives correct command, it will send response back to the master.

## 5.6. Command for communication parameter setting

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

data	byte	data description	remark
01	1	module address	address range:01-FE
06	1	function code	06-write single holding register
0065	2	register address (4X type)	0065-communication parameter register
0002	2	write data	0001- 4800, None, 8, 1 0002- 9600, None, 8, 1 0003- 19200, None, 8, 1 0004- 38400, None, 8, 1 0005- 4800, Even, 8, 1 0006- 9600, Even, 8, 1 0007- 19200, Even, 8, 1 0008- 38400, Even, 8, 1
1814	2	CRC check code	CRC check code for all data

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

This command sets communication parameter as "9600, None, 8, 1" (default setting). This setting could be saved when power off.

When module receives correct command, it will send response back to the master.

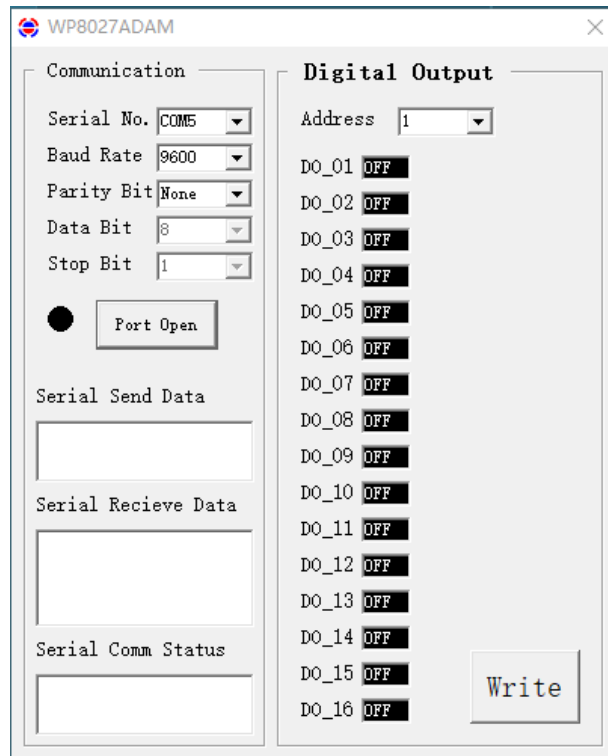
## 6、POWER/DATA LED description

- When module powered on, LED is green.
- When module is under communication, LED is twinkling.
- When module receives correct command, LED is green.
- When module receives incorrect command or other module's command, LED is red.

## 7、PC debugging description

We provide a debugging software for function testing and parameter setting. Please follow the steps below:

- Connect computer to module with RS485 converter.
- Connect DC12V or DC24V power to module and power on. To avoid any unnecessary damage, please make sure the power positive and negative terminals are correctly connected before power on.
- Open the software and select the model of module, you will see the window of function testing or parameter setting.
- Set communication parameter and open the serial port.
- Select corresponding setting and click "Read" or "Write" button.



## 8、RS485 network diagram

