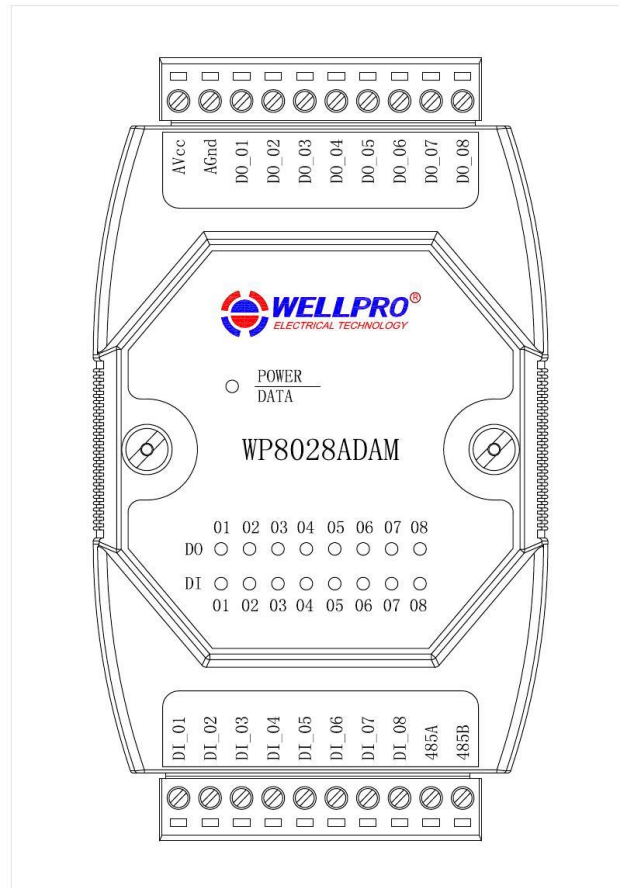


# WP8028ADAM

## User's Manual

### Version 1.42A



Shanghai Wellpro Electrical Technology Co., Ltd.  
[www.shwellpro.com](http://www.shwellpro.com)

### 1、 Product description

- Eight optoelectronic isolation digital input channel (Low level input)
- Eight 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

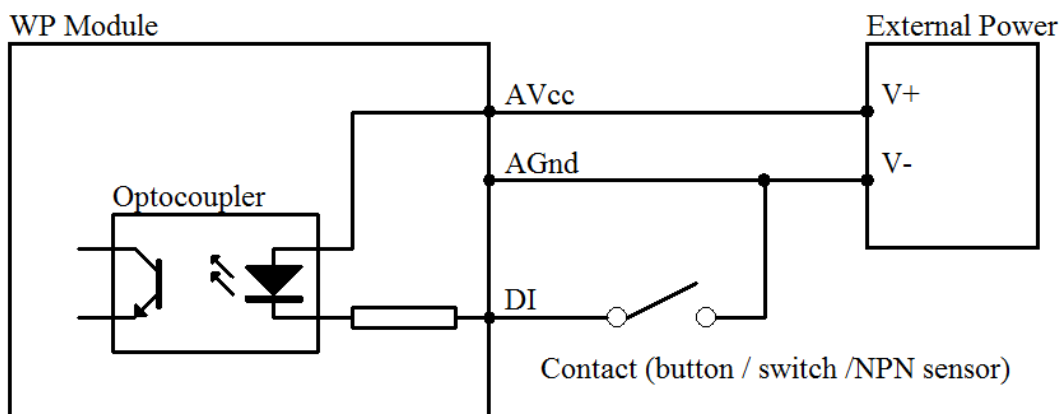
- Digital input channel 8ch (Low level input)
- Digital output channel 8ch (NPN collector output, 500mA)
- Working temperature -20~70°C
- External power supply DC9V~30V/2W
- Isolation protection DC1500V
- Installation method Standard DIN slide rail or screw
- Dimension 125×73×35mm

### 3、 Interface description

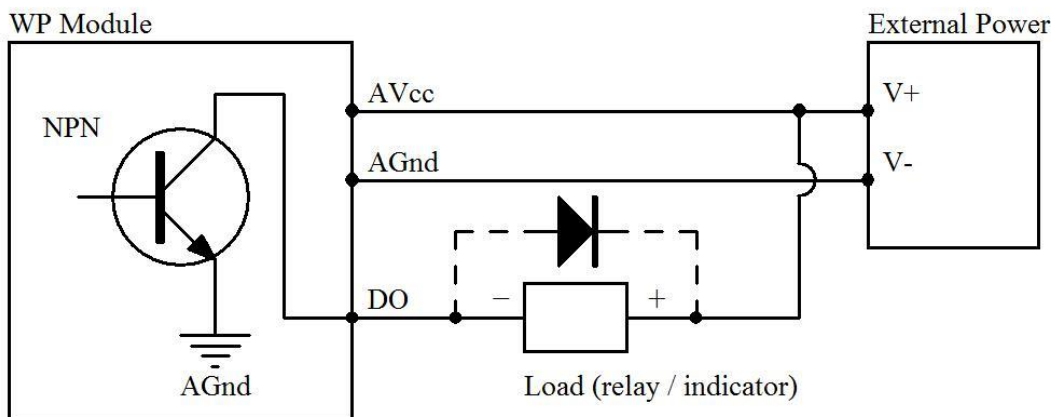
AVcc	External power supply input positive
AGnd	External power supply input negative / Power ground
DO_01	Digital output channel 1
DO_02	Digital output channel 2
DO_03	Digital output channel 3
DO_04	Digital output channel 4
DO_05	Digital output channel 5
DO_06	Digital output channel 6
DO_07	Digital output channel 7
DO_08	Digital output channel 8
DI_01	Digital input channel 1
DI_02	Digital input channel 2
DI_03	Digital input channel 3
DI_04	Digital input channel 4
DI_05	Digital input channel 5
DI_06	Digital input channel 6
DI_07	Digital input channel 7
DI_08	Digital input channel 8
485B	RS485 signal B-
485A	RS485 signal A+

### 4、 Digital application diagram

#### 4.1、 Digital input application diagram



4.2. 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 input data reading

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

data	byte	data description	remark
01	1	module address	address range:01-FE
02	1	function code	02-read digital input register
0000	2	register address (1X type)	0000-starting register address
0008	2	register number	0008-read 8 registers
79CC	2	CRC check code	CRC check code for all data

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

data	byte	data description	remark
01	1	module address	address range:01-FE
02	1	function code	02-read digital input register
01	1	byte of data	01-read 1 byte
C2	1	read data	C2-digital input data
2019	2	CRC check code	CRC check code for all data

This command reads module's digital input data.

The data of the digital input is "C2", it will be "11000010" after converting to binary data. The eight bits of data correspond to DI\_08~DI\_01. It means DI\_08, DI\_07 and DI\_02 are ON.

## 5.3. Command for digital output data setting (Control of multiple channels)

Send: 01 0F 00 00 00 08 01 A4 FF 2E (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
0008	2	register number	0008-write 8 registers
01	1	byte of data	01-write 1 byte
A4	1	write data	A4-digital output data
FF2E	2	CRC check code	CRC check code for all data

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

This command sets module to output multiple channels.

The data of the digital output is "A4", it will be "10100100" after converting to binary data. The eight bits of data correspond to DO\_08~DO\_01. It means DO\_08, DO\_06 and DO\_03 are ON.

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

## 5.4. 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
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.

## 5.5. Command for digital output data reading

Send: 01 01 00 00 00 08 3D CC (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
0008	2	register number	0008-read 8 registers
3DCC	2	CRC check code	CRC check code for all data

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

data	byte	data description	remark
01	1	module address	address range:01-FE
01	1	function code	01-read digital output register
01	1	byte of data	01-read 1 byte
A4	1	read data	A4-digital output data
5033	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 "A4", it will be "10100100" after converting to binary data. The eight bits of data correspond to DO\_08~DO\_01. It means DO\_08, DO\_06 and DO\_03 are ON.

## 5.6. Command for module address setting

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

date	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.

## 5.7. 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.

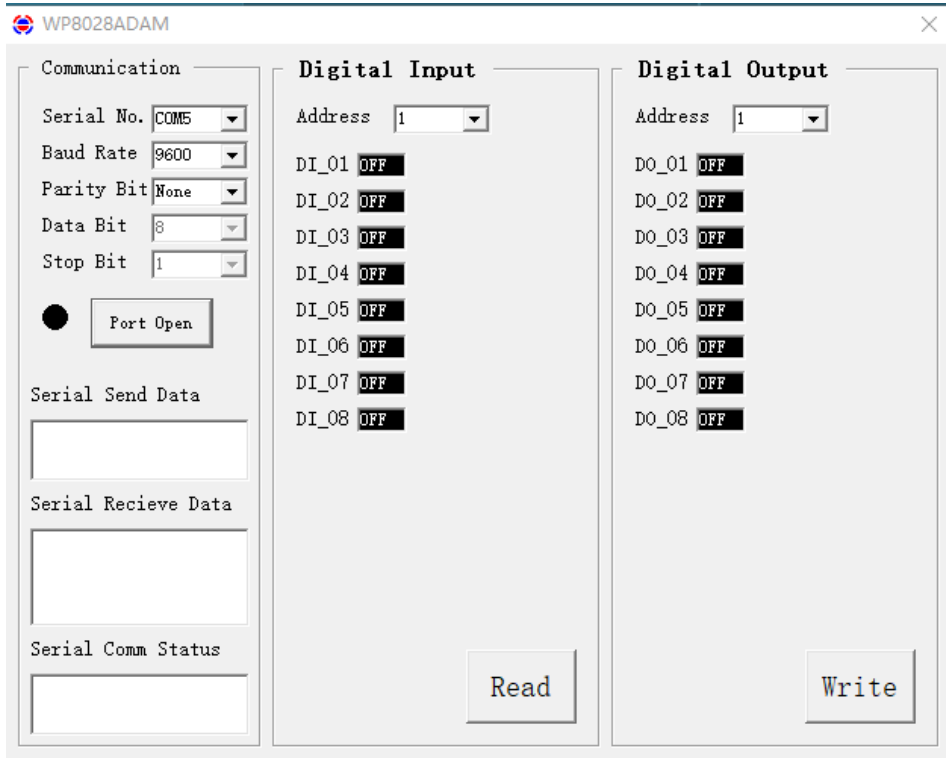
## 6. POWER/DATA LED description

- 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

