



Chengdu Ebyte Electronic Technology Co.,Ltd.

## E831-RTU(8080T-485) Usermanual v1.0

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This manual may change as the product continues to improve, please refer to the latest version of the manual

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## Functional features

- Support 8 digital isolated inputs,default dry contact;
- 8 digital outputs (NPN transistor electrode open collector output)adopts Modbus RTU protocol data processing;
- Support command reset. After sending AT + RESTORE \r\n instruction to 485 serial port within 3s after power-on, Modbus device address, RS485 serial port baud rate and parity bit are restored to factory settings;
- Support pulse counting, can be configured as rising edge counting, falling edge counting, level counting method;
- Hardware watchdog with high reliability;
- Multiple indicators show operating status;
- Power supply has good functions such as over-current, over-voltage, and anti-reverse connection;
- Wide voltage input 8V-28V, 12V or 24V is recommended;
- Users can customize functions, such as condition control(determining how to output based on input status)

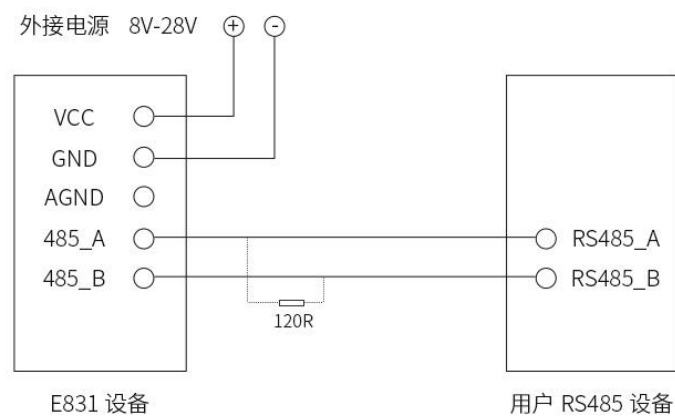
## 1. Quick start

This chapter is a quick start introduction to E831-RTU (8080T-485) series products. It is recommended that users read this chapter and follow the instructions once and they will have a systematic understanding of the module. Users can also choose chapters they are interested in to read as needed. For specific details and instructions, please refer to the subsequent sections.

## 1.1. Port connection

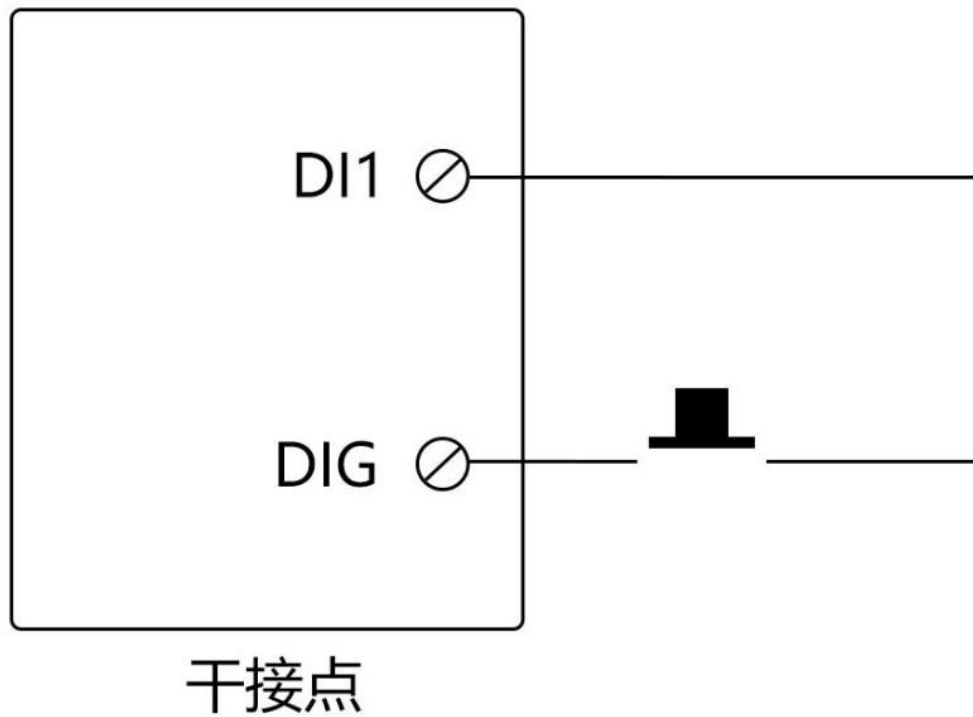
### 1.1.1. RS485 Connection

#### RS485接线图

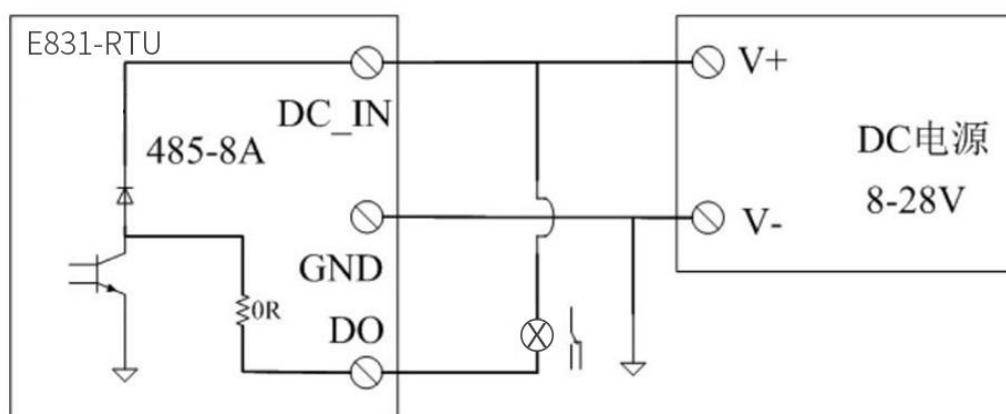


Note: When transmitting high-frequency signals on the 485 bus, the signal wavelength is shorter than the transmission line. The signal will form reflected waves at the end of the transmission line and interfere with the original signal. Therefore, a terminating resistor must be added at the end of the transmission line so that the signal does not reflect after reaching the end of the transmission line. The termination resistance should be the same as the impedance of the communication cable, with a typical value of 120 ohms. Its role is to match the impedance of the bus to improve the anti-interference and reliable performance of data communication.

### 1.1.2. Digital input connection



### 1.1.3. Digital output(NPN transistor collector open circuit output) connection



## 1.2. Simple use

Wiring: The computer is connected to E831-RTU (8080T-485) via USB to RS485.

Power supply: E831-RTU (8080T-485) working voltage is DC 8 ~ 28V, 12V or 24V is recommended.

### 1.2.1. RS485 bus control

Select the corresponding model and port, and click Search to search for the device.



When the device is searched, click "Stop"

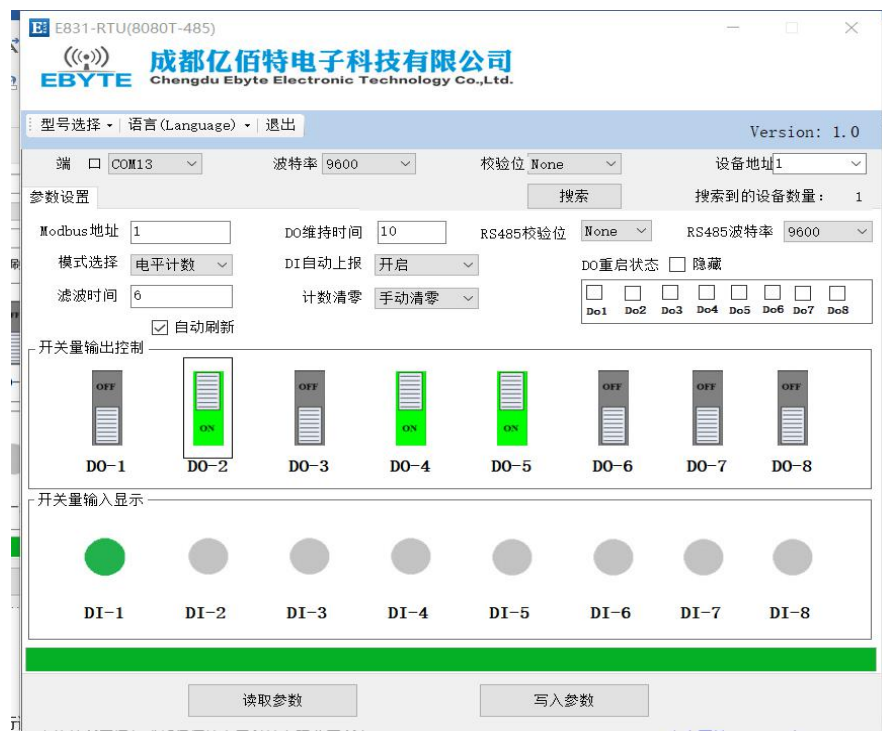


At this time, you can see the device address of the current device. Click on read parameters or write parameters to read parameters and configure parameters.



Note that when configuring or reading parameters, do not tick the Auto Refresh.

Tick Auto Refresh to read and configure the input and output ports.



Note: Do not select automatic refresh when reading or writing parameters. Select automatic refresh after configuration or reading is completed, otherwise the parameter writing or reading may not be successful.



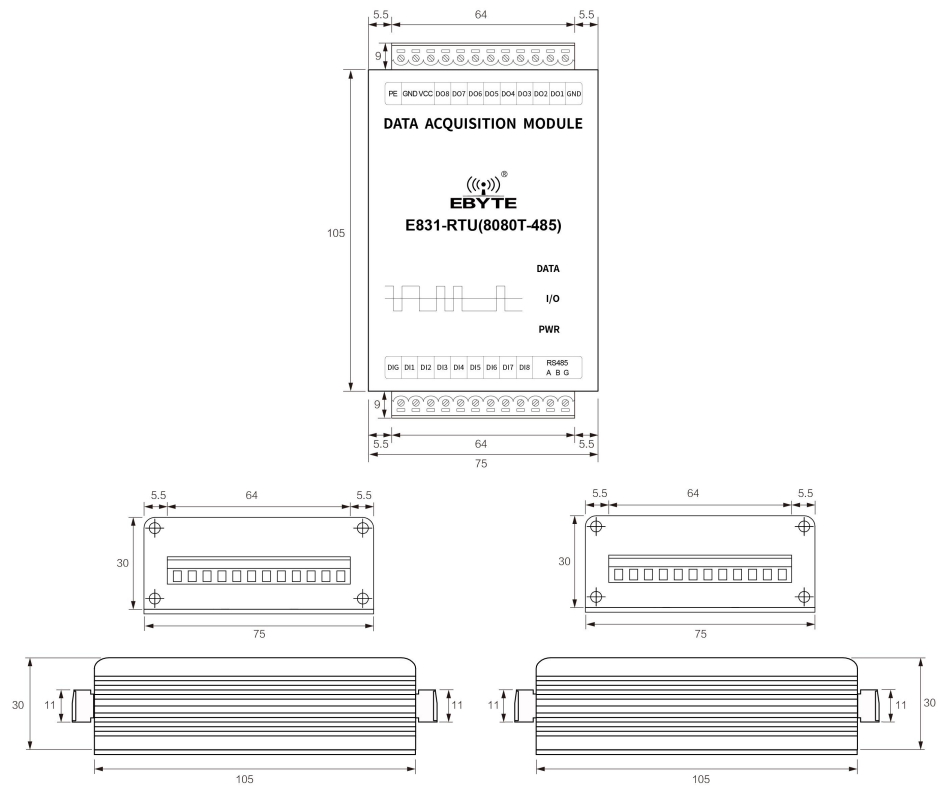
## 2. Product introduction

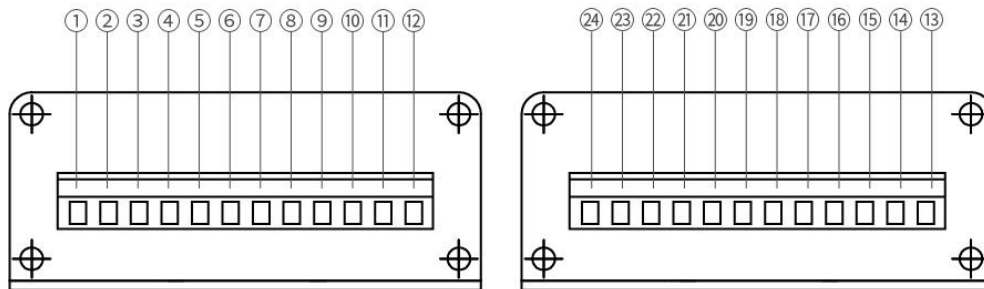
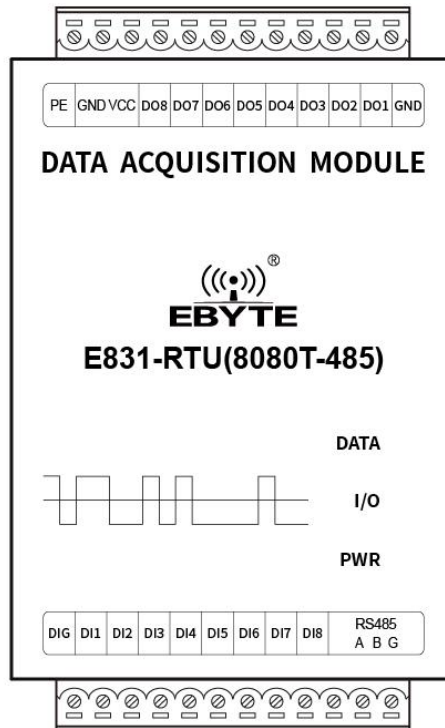
E831-RTU (8080T-485) is an IO product that supports 8 digital inputs (default dry contact) and 8 digital outputs (NPN transistor open collector output). It supports Modbus RTU protocol. The product is easy to use, allowing users to quickly and easily integrate into their systems

### 2.1. Basic parameters

|                    | Project                 | Index                                                               |
|--------------------|-------------------------|---------------------------------------------------------------------|
| Hardware parameter | Size(H*W*D)             | 105*75*30mm                                                         |
|                    | Weight                  | 256g                                                                |
|                    | Interface method        | Crimping method, 1*12*5.08mm                                        |
|                    | Operating Voltage       | DC8V~28V, 12V or 24V is recommended, over 28V may damage the device |
|                    | Operating current       | 12V@ 56mA stand-by current<br>12V@ 86mA operating current           |
|                    | Communication Interface | RS485: 1200~115200bps                                               |
|                    | 8 digital inputs        | Dry contact, DI acquisition frequency1KHz                           |
|                    | 8 digital outputs       | Open collector, DO contact capacity: 40V/1A                         |
|                    | Baud rate               | Baud rate range 1200~115200bps, factory default 9600                |
|                    | Operating temperature   | -20°C~+70°C                                                         |
|                    | storage temperature     | -40°C~+85°C                                                         |
|                    | Operating humidity      | 5%~95%                                                              |
|                    | Storage humidity        | 1%~95%                                                              |

## 2.2. Size, Interface description





| No. | Ports and other definitions | Function                     | Description                                    |
|-----|-----------------------------|------------------------------|------------------------------------------------|
| 1   | PE                          | Connect with the earth       | Connect with the earth                         |
| 2   | GND                         | Crimped power input negative | Power supply reference ground                  |
| 3   | VCC                         | Crimped power input positive | Power input, DC 8V~28V, 12V/24V recommended    |
| 4   | DO8                         | Digital output channel 8     | NPN transistor open collector output channel 8 |
| 5   | DO7                         | Digital output channel 7     | NPN transistor open collector output channel 7 |
| 6   | DO6                         | Digital output channel 6     | NPN transistor open collector output channel 6 |
| 7   | DO5                         | Digital output channel 5     | NPN transistor open collector output channel 5 |

|           |                        |                                                                                                                                                                                                                     |                                                              |
|-----------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 8         | DO4                    | Digital output channel 4                                                                                                                                                                                            | NPN transistor open collector output channel 4               |
| 9         | DO3                    | Digital output channel 3                                                                                                                                                                                            | NPN transistor open collector output channel 3               |
| 10        | DO2                    | Digital output channel 2                                                                                                                                                                                            | NPN transistor open collector output channel 2               |
| 11        | DO1                    | Digital output channel 1                                                                                                                                                                                            | NPN transistor open collector output channel 1               |
| 12        | GND                    | Signal reference ground                                                                                                                                                                                             | Signal reference ground                                      |
| 13        | RS485-G                | RS485 Signal reference ground                                                                                                                                                                                       | RS485 Signal reference ground,can left unconnected           |
| 14        | RS485-B                | RS485 Interface B                                                                                                                                                                                                   | RS485 interface B is connected to device B interface         |
| 15        | RS485-A                | RS485 Interface A                                                                                                                                                                                                   | RS485 interface A is connected to device A interface         |
| 16        | DI8                    | Digital input channel 8                                                                                                                                                                                             | Form dry contact with DIG                                    |
| 17        | DI7                    | Digital input channel 7                                                                                                                                                                                             | Form dry contact with DIG                                    |
| 18        | DI6                    | Digital input channel 6                                                                                                                                                                                             | Form dry contact with DIG                                    |
| 19        | DI5                    | Digital input channel 5                                                                                                                                                                                             | Form dry contact with DIG                                    |
| 20        | DI4                    | Digital input channel 4                                                                                                                                                                                             | Form dry contact with DIG                                    |
| 21        | DI3                    | Digital input channel 3                                                                                                                                                                                             | Form dry contact with DIG                                    |
| 22        | DI2                    | Digital input channel 2                                                                                                                                                                                             | Form dry contact with DIG                                    |
| 23        | DI1                    | Digital input channel 1                                                                                                                                                                                             | Form dry contact with DIG                                    |
| 24        | DIG                    | Digital input signal reference ground                                                                                                                                                                               | Digital input signal reference ground, used with DI terminal |
| LED light |                        |                                                                                                                                                                                                                     |                                                              |
| DATA      | Serial data indication | Two-color light, green indicates data reception, blue indicates data transmission                                                                                                                                   |                                                              |
| I/O       | I / O status indicator | Two-color light, any one input has a signal, green indicator is on, any one output has a signal, blue indicator is on, when there is both output and input, both lights on at the same time, the indicator is cyan. |                                                              |
| PWR       | Power indicator        | Red LED, Always on                                                                                                                                                                                                  |                                                              |

Note:

Grounding: It is recommended to connect the case to the earth

## 2.3. Command reset description

Within 3 seconds after power-on, send a command to 485 serial port: AT + RESTORE \ r \ n can reset the local MODBU address, serial port baud rate, and parity parameters are the default parameters (1,9600, no parity).

## 3. Modbus

### 3.1. Modbus Address table

| Register address table (function code: 0x01H、0x05H、0x0FH、0x03H、0x06H、0x10H) |        |                       |            |                                                                                    |                       |
|-----------------------------------------------------------------------------|--------|-----------------------|------------|------------------------------------------------------------------------------------|-----------------------|
| Address                                                                     | Number | Attribute             | Type       | Value range                                                                        | Support function code |
| 00017<br>(0x0010)                                                           | 1      | DO1 Digital output    | Read/write | 0x0000 or<br>0xFF00 (0x05<br>function code)<br>0-1 (0x01、<br>0x0Ffunction<br>code) | 0x01<br>0x05<br>0x0F  |
| 00018<br>(0x0011)                                                           | 1      | DO2 Digital output    | Read/write |                                                                                    |                       |
| 00019<br>(0x0012)                                                           | 1      | DO3 Digital output    | Read/write |                                                                                    |                       |
| 00020<br>(0x0013)                                                           | 1      | DO4 Digital output    | Read/write |                                                                                    |                       |
| 00021(0x0014)                                                               | 1      | DO5 Digital output    | Read/write |                                                                                    |                       |
| 00022(0x0015)                                                               | 1      | DO6 Digital output    | Read/write |                                                                                    |                       |
| 00023<br>(0x0016)                                                           | 1      | DO7 Digital output    | Read/write |                                                                                    |                       |
| 00024<br>(0x0017)                                                           | 1      | DO8 Digital output    | Read/write |                                                                                    |                       |
| Reserve                                                                     |        |                       |            |                                                                                    |                       |
| 10017<br>(0x0010)                                                           | 1      | DI1 Digital input     | Read only  | 0-1                                                                                | 0x02                  |
| 10018<br>(0x0011)                                                           | 1      | DI2 Digital input     | Read only  |                                                                                    |                       |
| 10019<br>(0x0012)                                                           | 1      | DI3 Digital input     | Read only  |                                                                                    |                       |
| 10020<br>(0x0013)                                                           | 1      | DI4 Digital input     | Read only  |                                                                                    |                       |
| 10021<br>(0x0014)                                                           | 1      | DI5 Digital input     | Read only  |                                                                                    |                       |
| 10022<br>(0x0015)                                                           | 1      | DI6 Digital input     | Read only  |                                                                                    |                       |
| 10023<br>(0x0016)                                                           | 1      | DI7 Digital input     | Read only  |                                                                                    |                       |
| 10024<br>(0x0017)                                                           | 1      | DI8 Digital input     | Read only  |                                                                                    |                       |
| Reserve                                                                     |        |                       |            |                                                                                    |                       |
| 40049<br>(0x0030)                                                           | 1      | DI1 Pulse count value | Read only  | 0-65535                                                                            | 0x03                  |
| 40050<br>(0x0031)                                                           | 1      | DI2 Pulse count value | Read only  | 0-65535                                                                            |                       |

|                    |   |                                            |            |              |                      |
|--------------------|---|--------------------------------------------|------------|--------------|----------------------|
| 40051<br>(0x0032)  | 1 | DI3 Pulse count value                      | Read only  | 0-65535      |                      |
| 40052<br>(0x0033)  | 1 | DI4 Pulse count value                      | Read only  | 0-65535      |                      |
| 40053<br>(0x0034)  | 1 | DI5 Pulse count value                      | Read only  | 0-65535      |                      |
| 40054<br>(0x0035)  | 1 | DI6 Pulse count value                      | Read only  | 0-65535      |                      |
| 40055<br>(0x0036)  | 1 | DI7 Pulse count value                      | Read only  | 0-65535      |                      |
| 40056<br>(0x0037)  | 1 | DI8 Pulse count value                      | Read only  | 0-65535      |                      |
| Reserve            |   |                                            |            |              |                      |
| 40065<br>(0x0040)  | 1 | DI1-DI8 Pulse counting cleared             | Write only | 0x00 - 0xFF  | 0x06                 |
| Reserve            |   |                                            |            |              |                      |
| 40078<br>(0x004D)  | 1 | Device address                             | Read/write | 1 - 247      | 0x03<br>0x06<br>0x10 |
| 40079<br>(0x004E)  | 1 | Baud rate                                  | Read/write | 0 - 7        |                      |
| 40080<br>(0x004F)  | 1 | Parity digit                               | Read/write | 0 - 2        |                      |
| 40082<br>(0x0051)  | 1 | Automatic report of switch value           | Read/write | 0 - 1        |                      |
| 40083<br>(0x0052)  | 1 | Digital output time setting (ms)           | Read/write | 100-65535    |                      |
| 40085<br>(0x0054)  | 1 | Switch value restart output status setting | Read/write | 0x00 - 0x100 |                      |
| Reserve            |   |                                            |            |              |                      |
| 40300<br>( 0x012B) | 1 | Version No.                                | Read only  | --           | 0x03                 |

### 3.2. Modbus Address table

| Modbus Address table |     |
|----------------------|-----|
| 1 (Default)          | 1   |
| 2                    | 2   |
| 3                    | 3   |
| ...                  | ... |
| 245                  | 245 |
| 246                  | 246 |
| 247                  | 247 |

### 3.3. RS485 Serial port baud rate code value table

| Baud rate code value table |      |
|----------------------------|------|
| 0                          | 1200 |
| 1                          | 2400 |

|             |        |
|-------------|--------|
| 2           | 4800   |
| 3 (Default) | 9600   |
| 4           | 19200  |
| 5           | 38400  |
| 6           | 57600  |
| 7           | 115200 |

### 3.4. RS485 Serial port parity digit code value table

| Parity digit code value table |             |
|-------------------------------|-------------|
| 0 (Default)                   | No parity   |
| 1                             | Even parity |
| 2                             | Odd parity  |

### 3.5. Configure parameters through host

Select the “Parameter Setting” column to read and write parameters. For specific functions, refer to product function introduction below.

**Note:** To set the parameters, please clear the “Auto Refresh” in the acquisition control page in order to avoid sometimes the parameter writing is not successful.



## 4. Product features

### 4.1. Mode selection

The device supports 3 types of pulse counting methods, rising edge counting, falling edge counting and level counting methods, see the pulse counting and clearing section below.

### 4.2. IO Basic function

#### 4.2.1. Switch value DO output

##### 4.2.1.1. Reading switch value DO output



Function code: 01, Read coil status

Address range : 00017(0x0010)~00023(0x0017)

Example:

Read 8 digital output status. Assuming the return value is 03, the corresponding binary bit is 0000 0011, which means that DO1 and DO2 are on. The 8 bits represent digital output status, which are DO8, DO7, DO6, DO5, DO4, DO3, DO2, DO1 in order.

Modbus RTU protocol read digital output:

|              |                       |               |                              |                           |                 |
|--------------|-----------------------|---------------|------------------------------|---------------------------|-----------------|
| Transmission | 01                    | 01            | 00 10                        | 00 08                     | 3C 09           |
|              | Device ModBus Address | Function code | Switch value initial address | Read switch value numbers | CRC parity code |

|           |                       |               |                      |                      |                 |
|-----------|-----------------------|---------------|----------------------|----------------------|-----------------|
| Receiving | 01                    | 01            | 01                   | 03                   | 11 89           |
|           | Device ModBus Address | Function code | Return bytes numbers | Digital output value | CRC parity code |

#### 4.2.1.2. Control switch value DO output

Function code: 05, Write single coil status; 0F, write multiple coil status

Address range: 00017(0x0010)~00023(0x0017)

Example:

Function code 0x05 writes DO2 digital output, the write value is FF 00; close D02 port, write the value 00 00.

Modbus RTU protocol write digital output:

|              |                       |               |                      |             |                 |
|--------------|-----------------------|---------------|----------------------|-------------|-----------------|
| Transmission | 01                    | 05            | 00 11                | FF 00       | DC 3F           |
|              | Device ModBus Address | Function code | Switch value address | Write value | CRC parity code |

|           |                       |               |                      |             |                 |
|-----------|-----------------------|---------------|----------------------|-------------|-----------------|
| Receiving | 01                    | 05            | 00 11                | FF 00       | DC 3F           |
|           | Device ModBus Address | Function code | Switch value address | Write value | CRC parity code |

Function code 0x0F writes DO2 and DO3 digital output. The write value should be 0x03, corresponding to the binary bit 0000 0011. (Note that the initial address here starts from DO2.)

Modbus RTU protocol write digital output:

|              |                       |               |                      |                            |               |             |                 |
|--------------|-----------------------|---------------|----------------------|----------------------------|---------------|-------------|-----------------|
| Transmission | 01                    | 0F            | 00 11                | 00 02                      | 01            | 03          | 62 95           |
|              | Device ModBus Address | Function code | Switch value address | Write switch value numbers | Bytes numbers | Write value | CRC parity code |

|           |                       |               |                      |             |                 |
|-----------|-----------------------|---------------|----------------------|-------------|-----------------|
| Receiving | 01                    | 0F            | 00 11                | 00 02       | 84 0F           |
|           | Device ModBus Address | Function code | Switch value address | Write value | CRC parity code |

#### 4.2.2. Read switch value DI input

Function code: 02, Read (switch value) input status

Address range: 10017(0x0010)~10023(0x0017)

Description: The device defaults to dry contact input. When DI and DIG are short-circuited, the read value should be 1. When DI and DIG are not short-circuited, the read value should be 0.

Example:

Read 8 digital input values. DI input terminal DI1 and DIG are short-circuited, DI2 and DIG are not short-circuited, DI3 and DIG are short-circuited, DI4 and DIG are not short-circuited, The read digital input value is 0x05, corresponding to the binary bit 0000 0101. The 8 bits represent the digital input value, which are DI8, DI7, DI6, DI5, DI4, DI3, DI2, DI1 in order.

Modbus RTU protocol read digital input:

|              |                       |               |                              |                           |                 |
|--------------|-----------------------|---------------|------------------------------|---------------------------|-----------------|
| Transmission | 01                    | 02            | 00 10                        | 00 08                     | 78 09           |
|              | Device ModBus Address | Function code | Switch value initial address | Read switch value numbers | CRC parity code |

|           |                       |               |                      |                     |                 |
|-----------|-----------------------|---------------|----------------------|---------------------|-----------------|
| Receiving | 01                    | 02            | 01                   | 05                  | 61 8B           |
|           | Device ModBus Address | Function code | Return bytes numbers | Digital input value | CRC parity code |

## 4.3. IO Features

### 4.3.1. Pulse counting and counting clear

The device supports 3 kinds of pulse counting methods, rising edge counting, falling edge counting, and level counting. This value can be set by writing the corresponding value to the (0x0053) register. Writing 0 represents rising edge counting, writing 1 represents falling edge counting, writing 2 represents level counting. If users choose rising edge counting, it will only count when DI detects that level is on the rising edge. Other functions are similar.

In addition, the device also supports the input count filtering function, and the signal must be held for several cycles can be confirmed. The default value is 15, 15 sampling cycles can be confirmed. The range is 1-20. This value can be set by writing the corresponding value to the (0x0054) register and the sampling cycle is 1ms. Note that this function only supports the level counting mode. The pulse count will not be saved after power off.

Counting clear also supports manual clear and automatic clear functions: input count is automatically cleared or manually cleared after reading, which can be set. If it is automatically cleared, the register value will be cleared after each reading. If it is manually cleared, then either the maximum count of 65536 is cleared or the register is written to clear. Writing 0 to the (0x0055) register means manual clearing, and writing 1 means automatic clearing. Note that when automatic clearing is set, manual clearing has no effect.

#### 4.3.1.1. Reading pulse counting value

Function code: 03, Read holding register

Address range: 40049 (0x0030)~40056 (0x0037)

Description: Maximum pulse count is 65535

Example:

DI1 has detected 16 pulses currently, DI2 has detected 3 pulses currently. Read the digital input count value of DI1 and DI2.

Modbus RTU protocol read pulse count value:

|              |                       |               |                 |              |                 |
|--------------|-----------------------|---------------|-----------------|--------------|-----------------|
| Transmission | 01                    | 03            | 00 30           | 00 02        | C4 04           |
|              | Device ModBus Address | Function code | Initial address | Read numbers | CRC parity code |

|           |                       |               |                      |                 |                 |                 |
|-----------|-----------------------|---------------|----------------------|-----------------|-----------------|-----------------|
| Receiving | 01                    | 03            | 04                   | 00 10           | 00 03           | BB F7           |
|           | Device ModBus Address | Function code | Return bytes numbers | DI1 count value | DI2 count value | CRC parity code |

#### 4.3.1.2.Manual clear pulse count value

Function code: 06, Write holding register

Address range: 40065 (0x0040)

Description: The lower four bits of the register value represent the counts of DI6, DI5, DI4, DI3, DI2 and DI1 respectively. Writing "1" means clearing the count and restarting the pulse count.

Example:

Clear the pulse count value of DI2 and DI4, and keep the pulse count value of DI1 and DI3. The write value should be 0x0a, and the corresponding binary value is 0000 1010.

Modbus RTU protocol clear pulse count value:

|              |                       |               |         |             |                 |
|--------------|-----------------------|---------------|---------|-------------|-----------------|
| Transmission | 01                    | 06            | 00 40   | 00 0a       | 08 19           |
|              | Device ModBus Address | Function code | Address | Write value | CRC parity code |

|           |                       |               |         |             |                 |
|-----------|-----------------------|---------------|---------|-------------|-----------------|
| Receiving | 01                    | 06            | 00 40   | 00 0a       | 08 19           |
|           | Device ModBus Address | Function code | Address | Write value | CRC parity code |

#### 4.3.2. Automatic report of digital input DI

The digital input automatic report function is to transmit the changed value when the switch value changes. Users can choose to transmit via RS485 or GPRS, or turn off the automatic report function.

The switch value automatically reports and sets the corresponding Modbus register to 40081 (0x0050). The value corresponds to the function:

0, Turn off switch value automatic report function

1, Switch value automatic report function transmit via RS485

The uploading protocol of switch value change is entered in the following table, where the frame headers 0xAA and 0xBB are fixed. When the counting mode is set to level counting, the value range of DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8 is 0x00, 0x01, 0xFF, of which

0x00 represents digital input is disconnected,

0x01 represents digital input is closed,

0xFF represents digital input has not changed.

The values of DI1 to DI8 in the table represent that the status of DI1, DI2, DI5, DI6, DI7, DI8 is updated to open, the status of DI3 is updated to closed, and the status of DI4 has not changed. The last two bytes are calculation value of modbus CRC16.

Note: When set to rising edge counting mode, trigger once, the value of DI is 00, when set to falling edge counting mode, trigger once, the value of DI is 01. Also 0xff means no change.

| Frame header | DI1  | DI2  | DI3  | DI4  | DI5  | DI6  | DI7  | DI8  | Modbus CRC |
|--------------|------|------|------|------|------|------|------|------|------------|
| 0xAA 0xBB    | 0x00 | 0x00 | 0x01 | 0xff | 0x00 | 0x00 | 0x00 | 0x00 | 0x05 0x97  |

### 4.3.3. Digital output DO time setting

The setting of digital pulse output time is to set the digital output time, the corresponding Modbus register is 40083 (0x0052), and its value range is 100-65535ms. If the value is less than 100ms, the default digital output is closed to hold status, that is, the digital value remains on after the output is closed. If it is set to 100ms and above, such as 500ms, after the digital output close command is sent, the switch value close will be maintained for 500ms, and then automatically open 500ms later.

### 4.3.4. Switch value DO restart output status setting

Whether the device is powered off and restarted to maintain the status before power off or restart to maintain a specific output status setting. This function is only valid when the device digital output time setting register value is less than 100ms.

The corresponding Modbus register of the switch value restart output status setting is 40085 (0x0054), and its value range is 0x00-0x100. When the value of this register is 0x100, the last digital output status is maintained after power-off and restart. When the value of this register is 0x00-0xFF, the lower 8 bits determine the status of the digital output of the device restart, bit6 corresponds to DO6, bit5 corresponds to DO5, bit4 corresponds to DO4, bit1 corresponds to DO1. For example, when power is on, DO4 and DO2 are in closed status, DO3 and DO1 and other ports are in open status. The corresponding register value is 0000 1010, that is, 0xa0, "1" is the closed state, and "0" is open status.

## Important statement

- Ebyte reserves the right of final interpretation and modification of all contents in this manual.
- As the hardware and software of the product are continuously improved, this manual may be changed without further notice. The latest version of the manual shall prevail.
- It's everyone's responsibility to protect the environment: In order to reduce the use of paper, this manual is printed in Chinese only, and the English manual only available in electronic documents. If necessary, please download it from our official website. In addition, if users does not specifically request it, when users order in bulk, we only provide product specifications according

to a certain percentage of the ordered quantity, not every data transceiver is equipped one by one, please forgive us.

## Revision history

| Version | Data      | Description       | Issued by |
|---------|-----------|-------------------|-----------|
| 1.0     | -         | Initial version   | -         |
| 1.1     | 2019/8/19 | Format adjustment | Linson    |

## About us

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