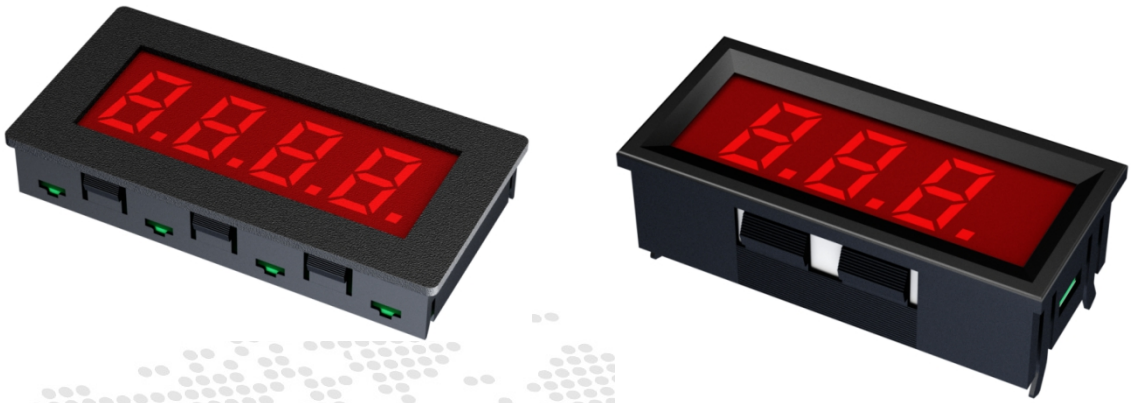
Chengdu Ebyte Electronic Technology Co.,Ltd

Wireless Modem

User Manual



RS485 Modbus LED Digital Tube Display

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1. Product Introduction

EID051-133/EID051-134/EID051-135/EID051-138 /EID051-143/ EID051-144/ EID051-145/ EID051-148 supports MODBUS RTU protocol, can display various ASCII characters, positive and negative numbers, floating point numbers, support brightness adjustment, flashing, boot-up custom display content and other functions. In addition, the product is easy to install, built-in switching power supply circuit, with reverse connection protection and overcurrent protection , using industrial-grade chips, with lightning protection, surge protection, anti-static, overvoltage, overcurrent protection.

Features

- RS485 communication, support MODBUS RTU protocol;
- It can display integers, positive numbers , negative numbers, decimal points, floating point numbers, other characters and other ASCII characters. It is a digital tube display that supports comprehensive characters .
- Support electronic label function, the initial display content can be set after power on. Widely used for storage location number labels. For example, display "A - 01", "B - 02", "C - 03", etc.
- Support stroke brightness adjustment, with 8 levels of brightness;
- Modbus address bits support 1-255 and can be customized according to site needs
- Supports baud rate modification (1200bps -115200bps) , covering commonly used baud rates;
- Support modification of check digit;
- You can choose the initial display content when powering on, display 0 , display 485 address, display specified content , all digital tubes light up , etc.
- It has a parameter reset save button, which can quickly save and restore factory settings.
- Provide supporting host computer software to facilitate testing and parameter modification;
- It has a flashing display function, and you can set one digit, several digits, or all digits to flash.
- With flashing cycle function, the flashing cycle can be customized according to user habits and on-site requirements
- Easy to install. You only need to make a square hole on the device panel to embed it, no need to install screws.
- Built-in switching power supply circuit, wide input voltage range, high conversion efficiency, can work continuously for a long time.
- The power input terminal has reverse connection protection and overcurrent protection.
- Industrial-grade RS485 chip, bus interface has lightning protection, surge protection, anti-static, overvoltage and overcurrent protection
- All chips are original, brand new and authentic, with industrial-grade temperature range.

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2. Quick Start

2.1 Preparation

RS485_LED digital tube display Modbus digital tube (hereinafter referred to as " digital tube "), you need to prepare computers, converters, power supplies, screwdrivers and other related auxiliary materials. The details are as follows:

Table 2-1-1 Preparation Checklist

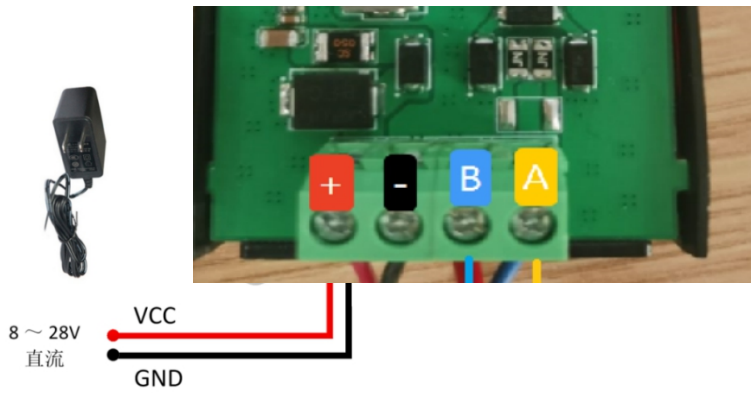
Serial number	Devices	quantity
1	USB to Serial Converter	1
2	Configuration tool software	1
3	computer	1
4	Power adapter (12V/1A)	1
5	Screwdriver (slotted or Phillips SL 2)	1
6	EID051-148 (Take this as an example, the wiring and usage of other devices are the same)	1

2.2 Equipment Wiring

Note: When performing equipment wiring operations, avoid working with power on to avoid causing equipment damage or even safety accidents.

2.2.1 Power supply wiring

The power supply is DC 8~28V, and it can also be powered by DC 12V or 24V.



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2.2.2 Communication wiring

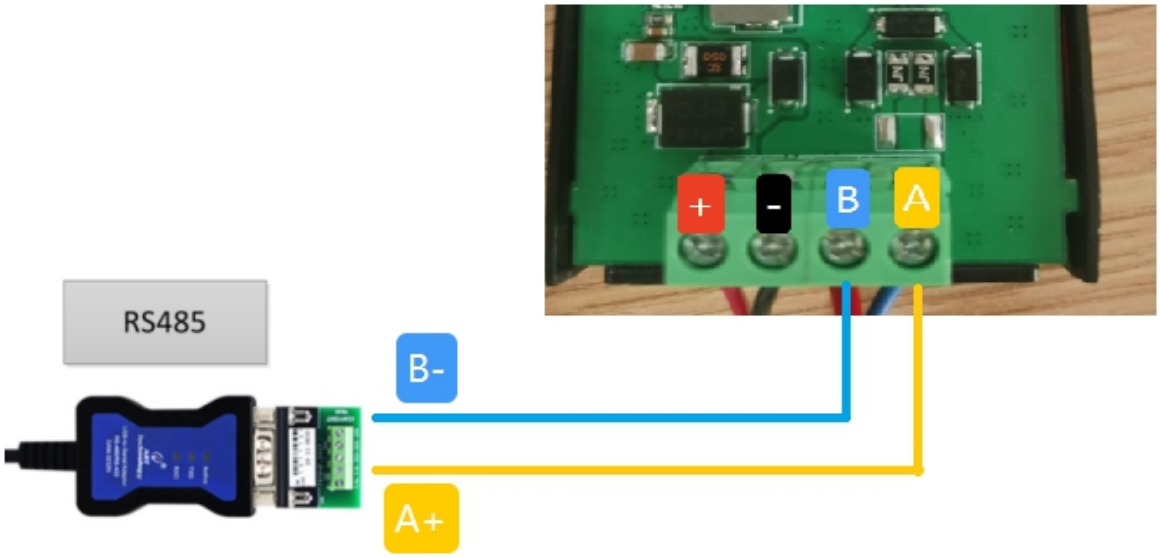


Figure 2-2- 2 RS485 communication wiring diagram

2.2.3 Overall wiring diagram

the device is powered on for the first time , the digital tube displays all lights, indicating that the device is powered normally.



Figure 2-2-3 Overall wiring diagram , taking EID051-148 as an example

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2.3 Software Setup

2.3.1 Device Connection



Figure 2-3-1 Software interface

Steps:

（1）Select the serial port, find the corresponding device port number, click " Configure " , the device default settings are as shown below (if the user has made changes, set them according to the user's changes), click Confirm .



Figure 2-3-2 Select the serial port and open the configuration interface

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（2）In the device window, click "Search Device", and the log output below will start to refresh the search information. After the device column in the device window displays the connected device, click the "Stop Search" menu. Then select the device and click it, and the connection is successful.

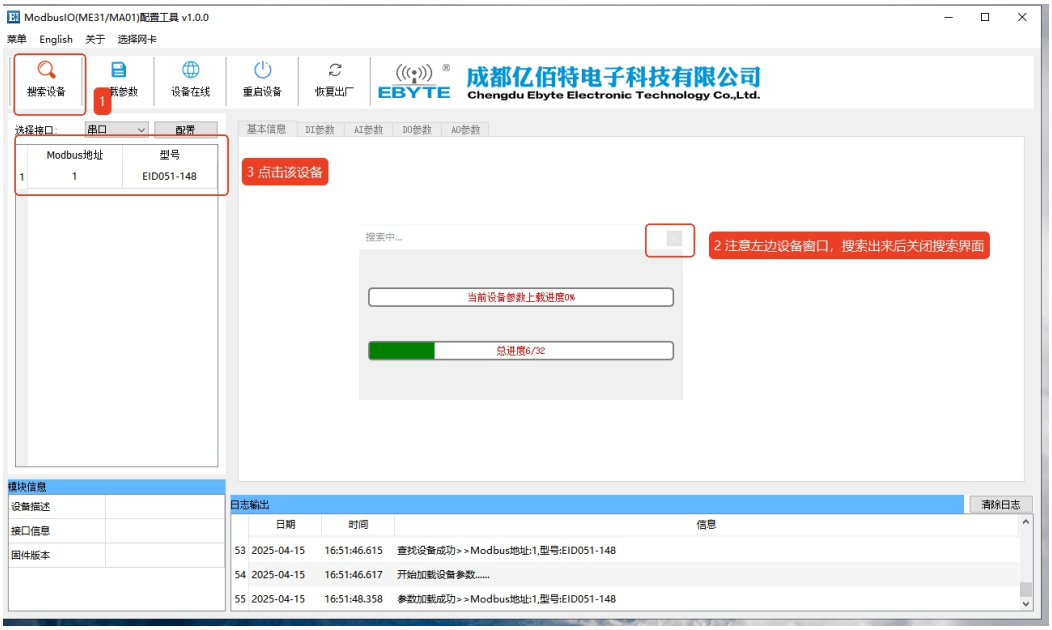


Figure 2-3-3 Connecting devices

2.3.2 Equipment Testing



Figure 2-3-4 Equipment test

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Figure 2-3-5 Actual test results

3. Product Overview

3.1 Product Specifications

Table 3-1-1 Product specifications

Product Model	Number of digital tube digits	Digital tube size	Installation
EID051-133	3-digit	036 inches	Clip-on installation Flush installation
EID051-134		040 inches	
EID051-135		056 inches	
EID051-138		080 inches	
EID051-143	4-digit	036 inches	
EID051-144		040 inches	
EID051-145		056 inches	
EID051-148		080 inches	

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3.2 Technical parameters

Table 3-2-1 Technical Parameters

category	name	parameter
power supply	Operating voltage	DC 8～28V
	Working current	50mA @12V
Serial Port	Communication interface	RS485
	Baud rate	1200 bps to 115200 bps (9600 bps by default)
	Check digit	No parity, odd parity, even parity (default is no parity)
	Communication Protocol	Modbus RTU Protocol
	Device Address	1 to 2 55 (default address 1)
	Power-on display content	Display selection 0, Modbus address, saved data, all bright (default all bright)
Product size	EID051-133	60.3*28.8*15.0 (mm)
	EID051-13 4	
	EID051-13 5	
	EID051-13 8	96.0*48.0*16.0 (mm)
	EID051-1 4 3	60.3*28.8*15 (mm)
	EID051-1 44	
	EID051-1 45	
	EID051-1 48	96.0*48.0*16.0 (mm)
Product Weight	EID051-133	15 ± 5 g
	EID051-13 4	16 ± 5 g
	EID051-13 5	18 ± 5 g
	EID051-13 8	52 ± 5 g
	EID051-1 4 3	16 ± 5 g
	EID051-1 44	17 ± 5 g
	EID051-1 45	20 ± 5 g
	EID051-1 48	54 ± 5 g
Character Display	Digital Display	The displayed number can be set, such as 123.4
	Decimal Point	You can set which digit the decimal point is displayed in
	Positive and negative numbers	You can set the displayed number to be positive or negative
	Floating point numbers	You can set the decimal point to adapt, automatically fill in 0, and unify the format, etc.
	ASCII	Can be written through ASCII table, digital display of units and multiple digits

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	Independent control of rank	Can display customized characters for one or more digits
	Flash	Choose whether to flash
	brightness	0-7 brightness levels, default 7
	Flashing cycle	0-655.35s, default 0.5s
	Abnormal character display	When the set characters cannot be displayed normally, "-" is displayed. The default characters displayed are
other	Save Reset Button	Short press to save parameter settings, long press (5-10s) to restore to factory settings
	Working temperature and humidity	-40 ～ +85℃, 5%～95%RH (no condensation)
	Storage temperature and humidity	-60 ～ +125℃, 5%～95%RH (no condensation)
	Installation	Clip installation, embedded installation

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3.3 Port Description



Figure 3-3-1 Interface diagram

Table 3-3-1 Port Function Table

serial number	Pinout	illustrate	Remark
1	DC8-28V " + "	Power "+"	0.8-inch digital tubes recommend RVV 2*0.75 wire ; 0.36, 0.40, 0.56-inch digital tubes have single-ended electronic wire connections
2	DC8-28V " - "	Power supply "-", ground	
3	B-	RS485 corresponding to B	
4	A+	RS485 corresponds to A	
5	button	It has the function of saving and restoring to factory default	Short press to save, long press to restore to factory settings

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3.4 Product Dimensions

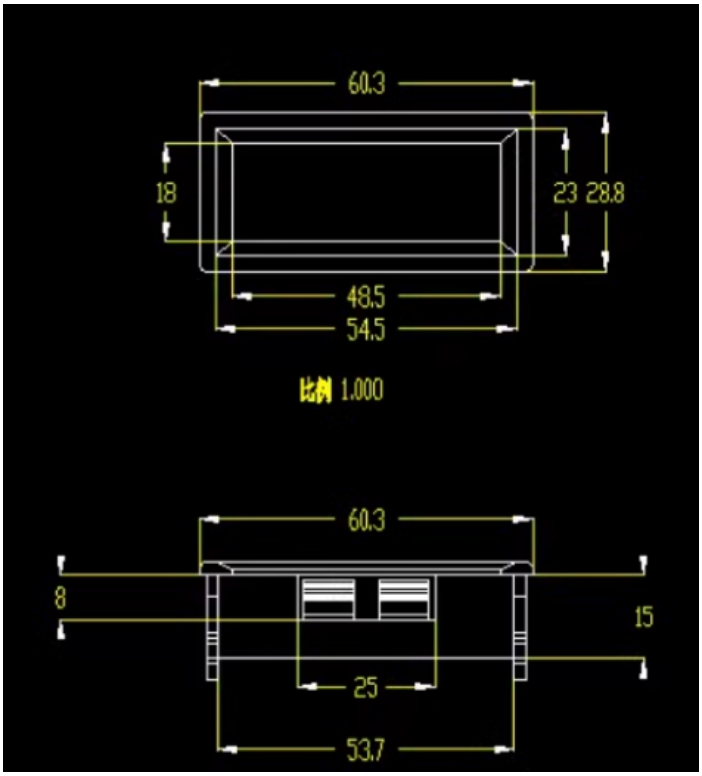


Figure 3-4-1 EID051-133/EID051-134/EID051-135/EID051-138 / EID051-143/EID051-144/EID051-145/EID051-148 Dimensions (opening size: 26.50mm*58.30mm)

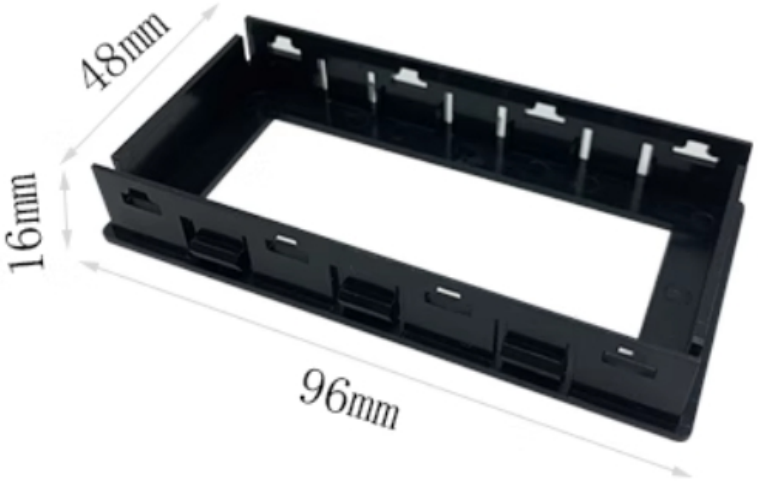


Figure 3-4-2 EID051-138 /EID051-148 Dimensions
(Window size: 75mm*28mm)
(Opening size: 92mm*45mm)

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3.5 Installation

The equipment adopts snap-on installation and embedded installation methods.

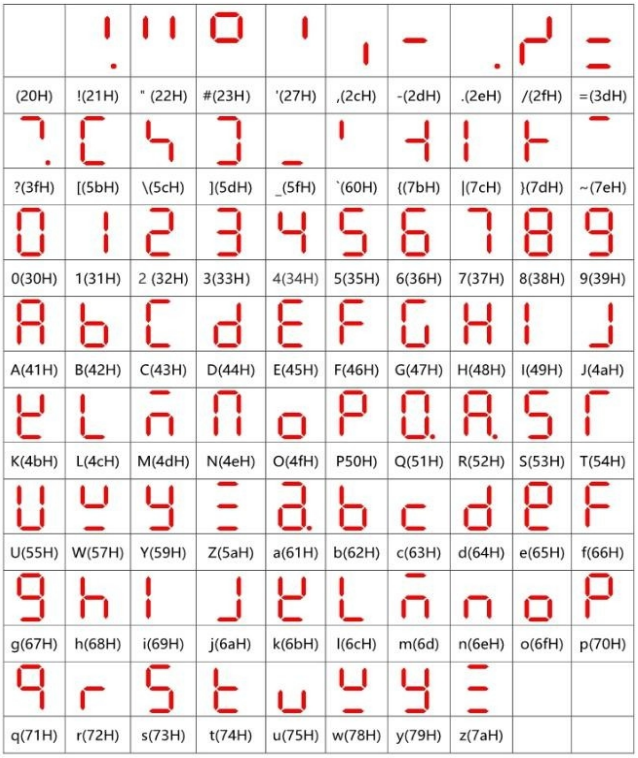
4. Product Features

4.1 Digital tube display settings

4.1.1 ASCII Display

According to the ASCII table, the digital display is performed , and each bit can be written separately . The back of the button side corresponds to the first bit of the digital tube. The specific settings and ASCII table are as follows:

register	Protocol Address	Function	Value range	default value
ASCII Display	0000H (0x0000)	The first digital tube displays the content, ASCII code value.	Write through the ASCII table. For specific display, refer to the table on the right. Note that if you enter a character that cannot be displayed, the '-' symbol will be displayed by default. This default display character can be configured through the modbus command, which will be mentioned later.	0x20 (space symbol)
	0001H(0x0001)	The second digital tube displays the content, ASCII code value.		
	0002H(0x0002)	The third digital tube displays the content, ASCII code value.		
	0003H(0x0003)	The 4th bit is only useful for devices with 4 or more bits.		
	0004H(0x0004)	The 5th bit content is only useful for display devices with more than 5 bits		
	0005H(0x0005)	The sixth bit is only useful for display devices with more than 6 bits.		
	0006H(0x0006)	The 7th bit content is only useful for display devices with more than 7 bits		
	0007H(0x0007)	The 8th bit content is only useful for display devices with 8 bits or more		



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example:

01	0 6	00 0 3	00 3D	XX XX
Device Modbus address	Function code	Register address (representing the fourth digit of the digital tube)	According to the ASCII table output, the hexadecimal "3D" represents "="	CRC checksum

The output is as follows:

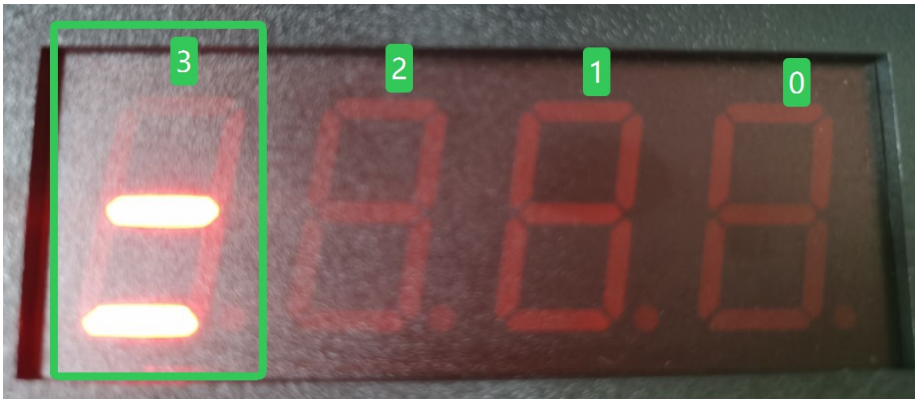


Figure 4-1-1 Digital tube display example

4.1.2 Decimal point display

You can set the decimal point to be displayed on which digit. The back of the button corresponds to the first digit of the digital tube.

Note : For example, if there is only a 4-digit digital tube, setting 5 decimal places will not display the decimal point normally

This register is usually used with **0011H** . First set the digital display, then set the decimal point , as shown in the figure below.

register	Protocol Address	Function	Value range	default value
Decimal point display	00016H(0x0010)	Where is the decimal point displayed?	0-7	0 (no decimal point is displayed by default)

example:

01	0 6	00 10	00 02	XX XX
Device Modbus address	Function code	Register address (represents the decimal point display address)	The decimal point of the third digital tube is lit.	CRC checksum

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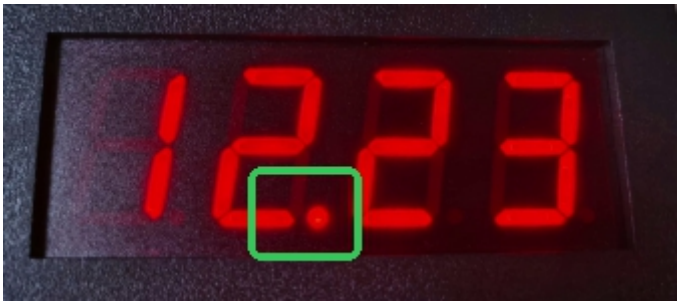


Figure 4-1-2 Digital tube display example

4.1.3 Positive and negative number settings

Set the displayed value to positive or negative, where 0 represents positive and 1 represents negative. This register is usually used with **0011H** . Set the digital display first, then set the positive and negative. The negative sign is displayed on the last digit of the digital tube, and the back of the button corresponds to the first digit of the digital tube (the default starting value is 0). As shown in the figure below

register	Protocol Address	Function	Value range	default value
Positive and negative number settings	0017H(0x0011)	Sets whether the displayed number is positive or negative	ere 0 represents a positive number and 1 represents a negative r	0 (default display positive number)

example:

01	0 6	00 11	00 01	XX XX
Device Modbus address	Function code	Register address (represents the positive and negative number display address)	Indicates the minus sign	CRC checksum



Figure 4-1-3 Digital tube display example

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4.1.4 Digital Display

This register inputs an integer. To realize positive and negative numbers, the display of the decimal point needs to be coordinated with the above two registers (decimal point register and positive and negative number display register). The specific settings are as follows:

register	Protocol Address	Function	Value range	default value
Digital display: Please note that the input is an integer. To realize positive and negative numbers, the display of the decimal point needs to be coordinated with the above two registers.	0018H(0x0012)	The upper 16 bits of the digital displayFor example, if you need to set the display value to 2000000, its hexadecimal value is 0x001E8480, so the register value is 0x001E.Only digital tube devices with more than four digits can display The upper 16 bits are not 0, so if this register is written to a four-digit or less digital tube device, no matter what the written value is, it will be set to zero and the write will not be executed. The display of decimals and floating-point numbers needs to be used in conjunction with the previous two related registers, which is explained in detail in the following digital display lower 16-bit register description		0x0000
	0019H(0x0013)	The lower 16 bits of the digital displayFor example, if you need to set the display value to 2000000, its hexadecimal value is 0x001E8480, so the register value is 0x8480Note: If you set the decimal display For example, if the display is set to 12.13, then the register value is set to 0x04BD (1213 in hexadecimal), and then the decimal point display register value is set to 2 (representing two decimal places, the decimal point is displayed in the second place)Note: If you set positive and negative numbers + decimal display For example, if the display is set to -12.13, then the register setting value is 0x04BD (1213 in hexadecimal), and then the decimal point display register value is set to 2, and the positive and negative number setting register value is set to 1Note: If only digital registers are		

example:

01	0 6	00 13	0 4 D2	XX XX
Device Modbus address	Function code	Register address (represents the lower 4-bit digital tube display number)	Hexadecimal, representing the displayed number is 1234	CRC checksum



Figure 4-1- 4-1 Single register digital tube display example

example:

01	10	00 10	0 0 03	06	00 0C	00 02	00 01	XX XX
Device Modbus address	Function code	Register start address value	Number of registers	Number of bytes	Data 1	Data 2	Data 3	CRC checksum

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Figure 4-1 - 4-2 Multi-register digital tube display example

4.1.5 Floating point display

This register is used in combination with the decimal point position to unify the digital format on site. The register table is as follows:

register	Protocol Address	Function	Value range	default value
loating point display	0020H(0x0014)	32-bit floating point number with sign lower 16 bits		Default decimal point adaptationThat is, if you input 12.54, the digital tube will directly display 12.54. If the decimal point is fixed at the first digit, it will display 12.5.
	0021H(0x0015)	32-bit floating point number with sign high 16 bits		
	0022H(0x0016)	Decimal point position	0: Fixed without decimal point 1: Decimal point is fixed at the first 2: Decimal point is fixed at the second 3: Decimal point is fixed at the third ... 65535: Adaptive	

Note: 1. When the decimal point is fixed, if the input decimal has a surplus in the digital tube display, it will be automatically filled with zeros.

2. When the decimal point is fixed, if the input decimal is not enough to be displayed on the digital tube, the remainder will be automatically removed.

3. When the decimal point position is fixed, if the integer part of the input cannot be displayed in the digital tube, "----" will be displayed.

3. When adaptive, if the input decimal is still larger than the value displayed on the digital tube, it will be automatically filled with zeros.

4. When adaptive, if the decimal number entered is not enough to be displayed on the digital tube, it will be rounded up

Note: For example, for a 4-digit digital tube, the number of decimal places cannot be configured to be greater than 4. If the configuration exceeds the range, it will not take effect.

example:

01	10	00 14	0 0 03	06	41 10	00 0 0	00 0 2	XX XX
Device Modbus address	Function code	Register start address value	Number of registers	Number of bytes	Data 1	Data 2	Data 3 (decimal point position)	CRC checksum

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Figure 4-1-5-1 Multi-register digital tube display example

example:

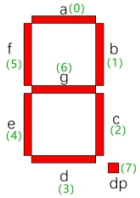
01	10	00 14	0 0 03	06	41 16	66 66	FF FF	XX XX
Device Modbus address	Function code	Register start address value	Number of registers	Number of bytes	Data 1	Data 2	Data 3 (decimal point position, adaptive)	CRC checksum



Figure 4-1-5-2 Multi-register digital tube display example

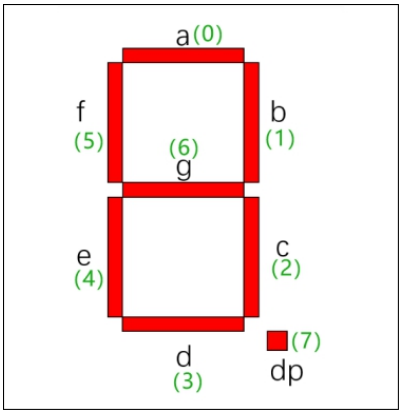
4.1.6 Independent control of rank

Write the display value of a certain digital tube independently. You can design custom characters according to your own special needs. The single-digit digital tube corresponds to a function code. This bit has 8 bytes, corresponding to each bit of the 8-segment digital tube (0 is off, 1 is on). You can display any value of this bit, or you can display the values of multiple digital tubes by writing multiple registers. The register table is as follows:

register	Protocol Address	Function	Value range	default value
Independent control of rank	0030H(0x001E)	The first digital tube displays the content, the segment code position.		Default: All destroyed
	0031H(0x001F)	The second digital tube displays the content, the segment code position.		
	0032H(0x0020)	The third digital tube displays the content, the segment code position.		
	0033H(0x0021)	The 4th digital tube displays the content, the segment code position.		
	0034H(0x0022)	The 5th digital tube displays the content, the segment code position.		
	0035H(0x0023)	The 6th digital tube displays the content, the segment code position.		
	0036H(0x0024)	The 7th digital tube displays the content, the segment code position.		
	0037H(0x0025)	The 8th digital tube displays the content, the segment code position.		

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example:

01	06	00 1E	0 0 4F	XX XX
Device Modbus address	Function code	Register address (represents the lower 4-bit digital tube display number)	Hexadecimal, representing the displayed number is 1234	CRC checksum



Figure 4-1-6-1 Multi-register digital tube display example

example:

01	10	00 1E	0 0 04	08	00 06	00 DB	00 4F	00 66	XX XX
Device Modbus address	Function code	Register start address value	Number of registers	Number of bytes	Data 1	Data 2	Data 3	Data 4	CRC checksum



Figure 4-1-6-2 Multi-register digital tube display example

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4.1.7 Brightness Control

The overall brightness of the digital tube can be adjusted. 0 means the darkest, 7 means the brightest, and the default value is 7, as shown below:

register	Protocol Address	Function	Value range	default value
Brightness Control	0046H(0x002E)	Brightness Control Register	0-7	7

4.1.8 Startup display content

You can set the content displayed on the startup screen
00: Display 0 when booting
01: Display address when booting
02: Power-on display saved value (used with other control registers to save power-on display value)
03: All lights on when powered on (default)

register	Protocol Address	Function	Value range	default value
Boot display	0047H(0x002F)	Startup display content	0-3	03

4.1.9 Flicker control

The flicker control function is divided into a flicker mask register and a flicker cycle register, which can also be used together, see the table below:

register	Protocol Address	Function	Value range	default value
Flicker control	0048H(0x0030)	Blink Mask	0-255	The default value is 0, no flashing at all
	0049H(0x0031)	Flashing cycle	0-65535	The default value of n is 50

4.1.10 Abnormal character display

When the set characters cannot be displayed normally, the default characters are displayed . This setting can be set according to the provided ASCII table.
Note: If the set characters still cannot be displayed normally, the space character will be displayed directly, that is, it will not be displayed.

register	Protocol Address	Function	Value range	default value
Abnormal character display	0050H(0x0032)	Abnormal character display (when the set characters cannot be displayed normally, the default characters are displayed)	Set up according to the provided ASCII table	0x40 (abnormal display '-')

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4.1.11 Save the current value as startup display data

This register is set to 1 to be effective, and the current display data is set to the data displayed when the power is turned on. However, please note that the power-on display mode should be set to: 02: Power-on display save value, the register table is as follows

register	Protocol Address	Function	Value range	default value
Save the current value as startup display data	0051H(0x0033)	Writing 1 is effective, and the current display data will be set as the data displayed at startup. However, please note that the startup display mode should be set to: 02: Startup display save	Setting 1 is effective, modbus reads and replies 0, which means that this item has no reading meaning	0

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5. Software Usage

5.1 Software Installation

The configuration tool software is driver-free to install. Simply double-click the .exe file to open it for immediate use (it is recommended to disable the anti-virus software before using the configuration tool) .

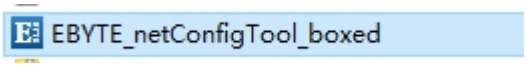


Figure 6-1-1 Software installation file

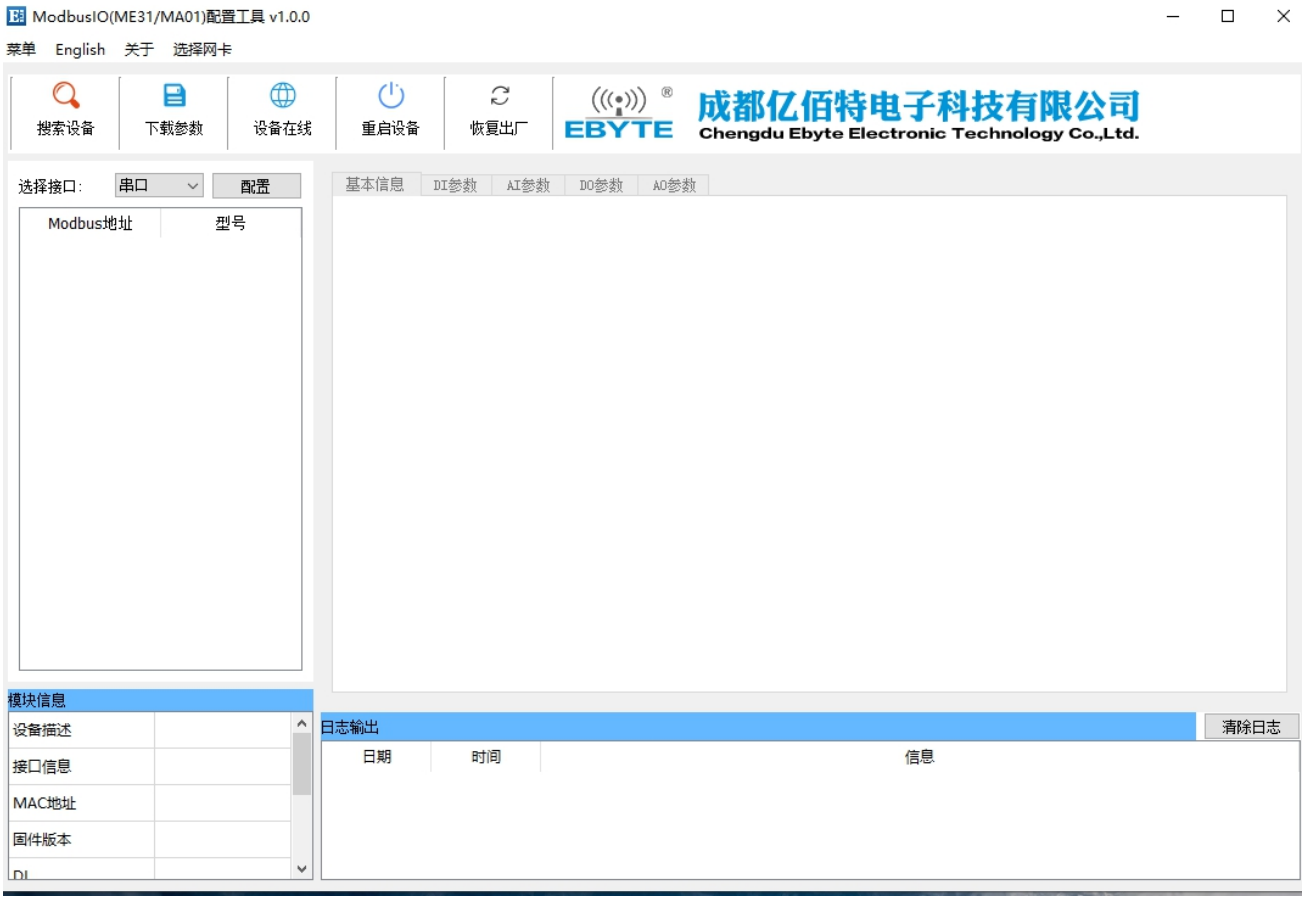


Figure 6-1-2 The software is successfully installed and the interface is opened

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5.2 Software Function Introduction

5.2.1 Demonstration interface



Figure 5 -2-1 -1 Software IO Demonstration Interface

（1）Device Window

Display the currently connected device information (device model, device address).



Figure 5 -2- 1-2 Device window interface

（2）Serial port configuration parameter window

Select the interface as the serial port , configure the parameters (serial port number , baud rate, data bit, check bit, stop bit, etc.), and open the serial port.

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Figure 5-2-1-3 Serial port parameter window interface

（3）Log Window

Displays the operation log information during device configuration and use.

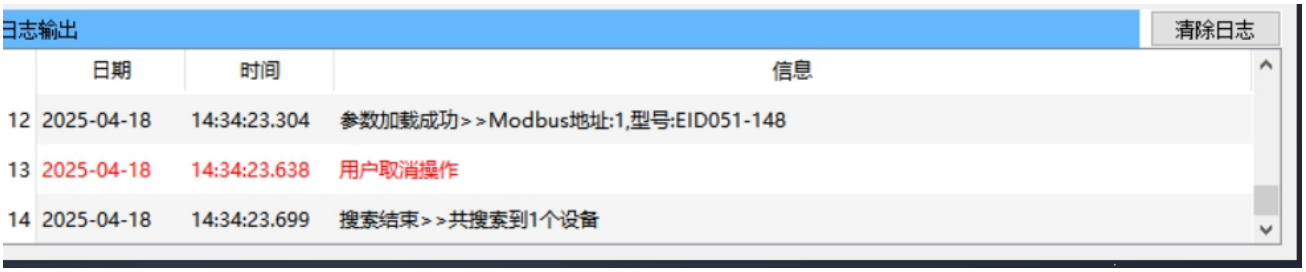


Figure 5-2-1-4 Log window interface

（4）Device parameter interface

Configure the serial port baud rate, check bit, Modbus address, power-on display content, flashing cycle, and brightness setting of the digital tube



Figure 5 -2- 1-5 Device parameter setting interface

（5）Digital tube settings preview

All the settings of the above registers can be performed, and the use is faster, supporting digital display, decimal point display, positive and negative number settings, floating point display, flashing

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settings, single bit display settings, and quick save keys

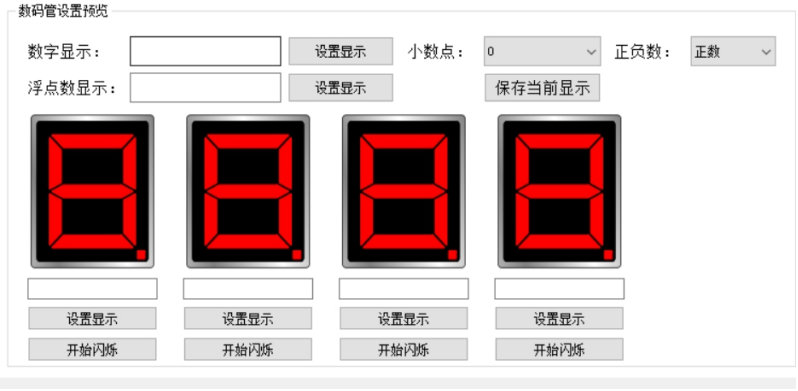


Figure 5 -2- 1-6 Digital tube setting preview interface

5.2.2 Basic information interface

(1) Equipment settings

Basic information setting interface, search device, restart device, restore factory settings



Figure 5 -2- 2-1 Basic device settings interface

(2) Device serial port settings

Supports setting the baud rate. You can set the baud rate (1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200). The default is 9600.



Figure 5-2-2-2 Baud rate setting interface

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（3）Serial port check bit setting

Supports setting the parity bit. You can set the parity bit (none, odd parity, even parity). The default is no parity.



Figure 5 -2- 2-3 Check digit setting interface

(4) Modbus address

You can set the Modbus address range by yourself, 1-255, the default is 1



Figure 5 -2- 2-4 Check digit setting interface

(5) Power-on display content

You can choose the content of the power-on display. You can choose to display 0 at power-on, display the Modbus address at power-on, display the saved data, and display all lights at power-on. The default is to display all lights at power-on.

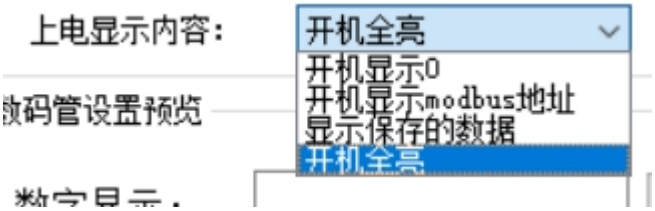


Figure 5 -2- 2-5 Power-on display content setting interface

（6）Flashing cycle

Indicates the flashing frequency of the digital tube. The speed is set in combination with whether the digital tube flashing is turned on. The value is n*0.01s (n is 0-65535), and the default is 50.



Figure 5 -2- 2-6 Flashing cycle setting interface

（7）Brightness settings

You can set the brightness in the range of 0-7, where 0 represents the darkest and 7 represents the brightest. The default value is 7.

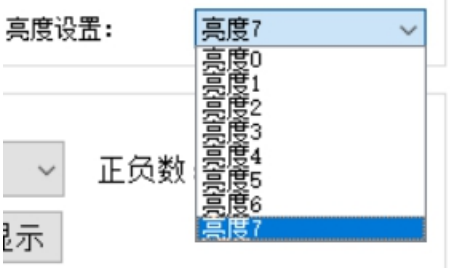


Figure 5 -2- 2-7 Brightness setting interface

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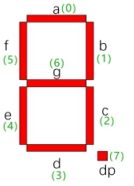
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6. Modbus Usage

Note: Some manufacturers stipulate that the decimal register address needs to be increased by 1.

6.1 Register List

register	Protocol Address	Function	Value range	default value	Power-off save
ASCII Display	0000H (0x0000)	The first digital tube displays the content, ASCII code value.	Write through the ASCII table. For specific display, refer to the table on the right. Note that if you enter a character that cannot be displayed, the '-' symbol will be displayed by default. This default display character can be configured through the modbus command, which will be mentioned later.	0x20 (space symbol)	
	0001H(0x0001)	The second digital tube displays the content, ASCII code value.			
	0002H(0x0002)	The third digital tube displays the content, ASCII code value.			
	0003H(0x0003)	The 4th bit is only useful for devices with 4 or more bits.			
	0004H(0x0004)	The 5th bit content is only useful for display devices with more than 5 bits			
	0005H(0x0005)	The sixth bit is only useful for display devices with more than 6 bits.			
	0006H(0x0006)	The 7th bit content is only useful for display devices with more than 7 bits			
	0007H(0x0007)	The 8th bit content is only useful for display devices with 8 bits or more			
Decimal point display	00016H(0x0010)	Where is the decimal point displayed?	0-7	0 (no decimal point is displayed by default)	
Positive and negative number settings	0017H(0x0011)	Sets whether the displayed number is positive or negative	e 0 represents a positive number and 1 represents a negative	0 (default display positive number)	
Digital display: Please note that the input is an integer. To realize positive and negative numbers, the display of the decimal point needs to be coordinated with the above two registers.	0018H(0x0012)	The upper 16 bits of the digital displayFor example, if you need to set the display value to 2000000, its hexadecimal value is 0x001E8480, so the register value is 0x001E.Only digital tube devices with more than four digits can display The upper 16 bits are not 0, so if this register is written to a four-digit or less digital tube device, no matter what the written value is, it will be set to zero and the write will not be executed. The display of decimals and floating-point numbers needs to be used in conjunction with the previous two related registers, which is explained in detail in the following digital display lower 16-bit register description		0x0000	
	0019H(0x0013)	The lower 16 bits of the digital displayFor example, if you need to set the display value to 2000000, its hexadecimal value is 0x001E8480, so the register value is 0x8480Note: If you set the decimal display For example, if the display is set to 12.13, then the register value is set to 0x04BD (1213 in hexadecimal), and then the decimal point display register value is set to 2 (representing two decimal places, the decimal point is displayed in the second place)Note: If you set positive and negative numbers + decimal display For example, if the display is set to -12.13, then the register setting value is 0x04BD (1213 in hexadecimal), and then the decimal point display register value is set to 2, and the positive and negative number setting register			

register	Protocol Address	Function	Value range	default value	Power-off save
Floating point display	0020H(0x0014)	32-bit floating point number with sign lower 16 bits		Default decimal point adaptationThat is, if you input 12.54, the digital tube will directly display 12.54. If the decimal point is fixed at the first digit, it will display 12.5.	
	0021H(0x0015)	32-bit floating point number with sign high 16 bits			
	0022H(0x0016)	Decimal point position	0: Fixed without decimal point 1: Decimal point is fixed at the first 2: Decimal point is fixed at the second 3: Decimal point is fixed at the third ... 65535: Adaptive		
Independent control of rank	0030H(0x001E)	The first digital tube displays the content, the segment code position.		Default: All destroyed	
	0031H(0x001F)	The second digital tube displays the content, the segment code position.			
	0032H(0x0020)	The third digital tube displays the content, the segment code position.			
	0033H(0x0021)	The 4th digital tube displays the content, the segment code position.			
	0034H(0x0022)	The 5th digital tube displays the content, the segment code position.			
	0035H(0x0023)	The 6th digital tube displays the content, the segment code position.			
	0036H(0x0024)	The 7th digital tube displays the content, the segment code position.			
	0037H(0x0025)	The 8th digital tube displays the content, the segment code position.			

register	Protocol Address	Function	Value range	default value	Power-off save
Brightness Control	0046H(0x002E)	Brightness Control Register	0-7	7	√
Boot display	0047H(0x002F)	Startup display content	0-3	03	√
Flicker control	0048H(0x0030)	Blink Mask	0-255	The default value is 0, no flashing at all	
	0049H(0x0031)	Flashing cycle	0-65535	The default value of n is 50	
Abnormal character display	0050H(0x0032)	Abnormal character display (when the set characters cannot be displayed normally, the default characters are displayed)	Set up according to the provided ASCII table	0x40 (abnormal display '-')	√
Save the current value as startup display data	0051H(0x0033)	Writing 1 is effective, and the current display data will be set as the data displayed at startup. However, please note that the startup display mode should be set to: 02: Startup display save	Setting 1 is effective, modbus reads and replies 0, which means that this item has no reading meaning	0	
Modbus Address	2024(0x07E8)	modbus address bits	1-255	1	√
Baud rate	2100H(0x0834)	Baud rate setting	0: 1200bp/ 1: 2400bps/ 2: 4800bps/ 3: 9600bps/ 4: 19200bps/ 5: 38400bps/ 6: 57600bps/ 7: 115200bps	9600	√
Check digit	2102H(0x0836)	Check digit	0: No parity 1: Odd parity 2: Even parity	No verification	√
Device restart	2026H(0x07EA)	Device restart	Write 0x5BB5 and the device will reboot		
Restore factory settings	2025H(0x07E9)	Reset the device to factory settings	Write 0x5BB5 and the device will be restored to factory settings		
Module Model	2000H-2011H 0x07D0-0x07DB Total 12 registers	Module Model	The length is 12 registers, which contains the device model		
Firmware version number	2012H(0x07DC)	Firmware version number	The high byte is the content before the decimal point of the		

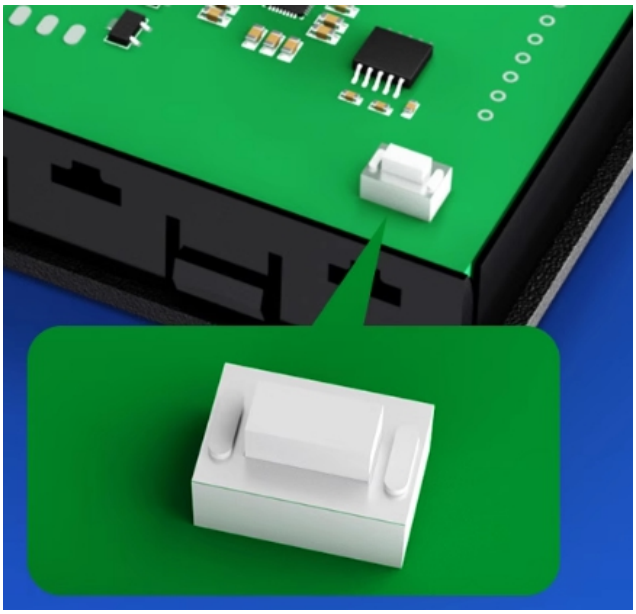
Table 6-1-1 Register List

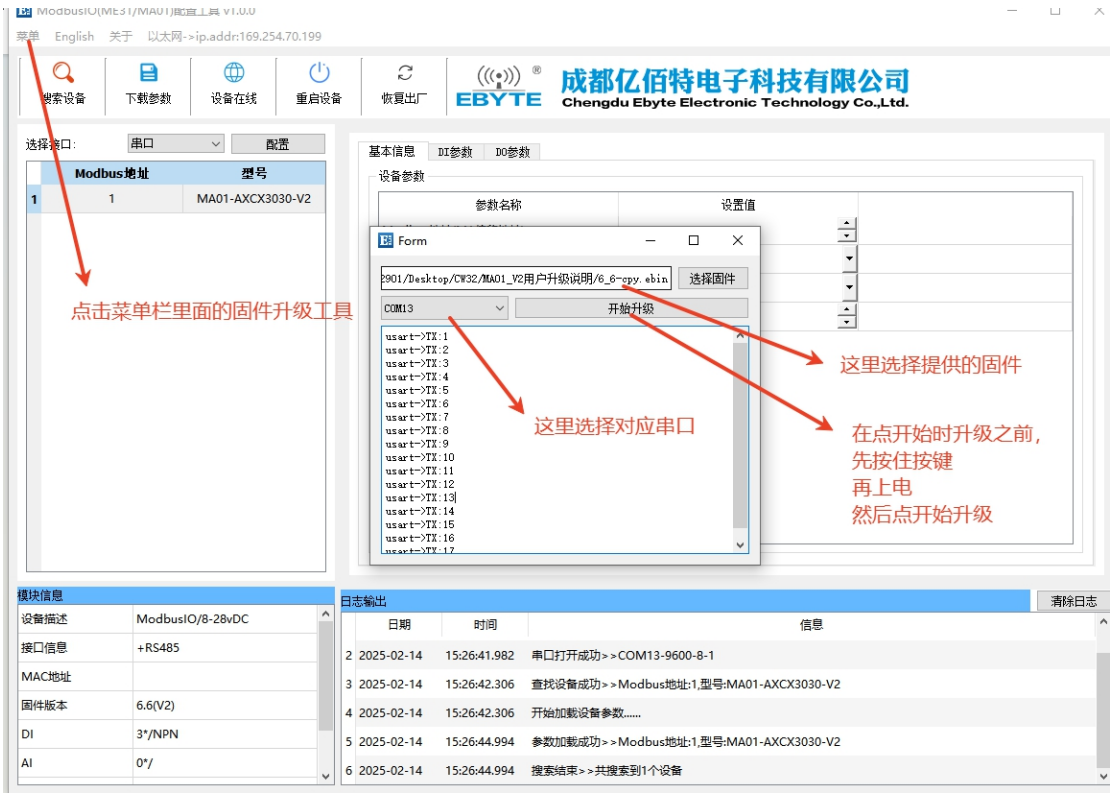
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7. Serial port upgrade

1. Power off the device first (connect RS-485)
2. Open the IAP upgrade function on the host computer, select the following model, import the firmware, and open the serial port:
3. Before starting the upgrade, press and hold the button on the device to power on, then click Start Upgrade.





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Revision History

Version	Revision Date	Revision Notes	Maintainer
1.0	202 5 -0 5 - 26	Initial release	LYJ

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