Instruction manual for water immersion sensor V3.2

1. Safety Guidelines

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●After receiving the product, please check if the packaging and appearance are intact, and verify if the model matches the purchased product;

●Product operating environment: -20~+60 ℃ (temperature), 0~93% (humidity);

●Network environment: CSQ ≥ 12, and can communicate normally;

●Please ensure that the installation is securely fixed during installation;

●Please keep all raw packaging materials properly so that in case of any problems, the product can be packaged with packaging materials and sent to the manufacturer for processing. We do not assume any responsibility for accidental damage during transportation caused by non original packaging materials.

●This device can only be installed, connected, debugged, and maintained by trained and qualified professionals (such as electricians), and must fully comply with the guidelines in the User Manual, relevant application specifications, legal and regulatory requirements, and have corresponding qualification certificates (related to application conditions).

●Before installing this device, the installation personnel must read the User Manual, understand and comply with its provisions.

●Unless permitted by the User Manual, the device cannot be modified or repaired.

●When repairing this equipment, it must be done with explicit permission and the use of original spare parts.

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●Please do not use the product for other purposes or modify it, otherwise our company will not be responsible for any accidents caused by it.

●Non professionals, please do not open the front or back cover of the product at will to avoid equipment failure caused by misoperation;

●If there are any abnormal phenomena with the product, please contact the company's after-sales technical personnel for repair and handling in a timely manner (the technical support contact information is at the end of the page, and our company does not assume any responsibility for problems caused by unauthorized modifications or repairs).

●For the safe use of this device, please read the operation manual carefully before use. After reading and understanding it, keep it in a designated place for easy access at any time.

2. Overview

The leakage controller can monitor dual core leakage sensing cables up to 1500 meters in length. It can be installed and used with detection cables or paired with its detection probe. Once liquid is detected, the water leakage controller will generate an audible and visual alarm and activate the relay, resulting in the closure of the local voltage free contacts. Multiple independent sensor cable segments can be used to construct a sturdy system, making it economically feasible. This product can be used as a standalone leak detection alarm unit or connected to other integrated collection hosts for networking.

Suitable for real-time leak detection in important places such as computer room base stations, warehouses, libraries, museums, and industrial sites. It can also be used for monitoring leaks in equipment such as air treatment units, refrigeration units, liquid containers, pump tanks, etc.

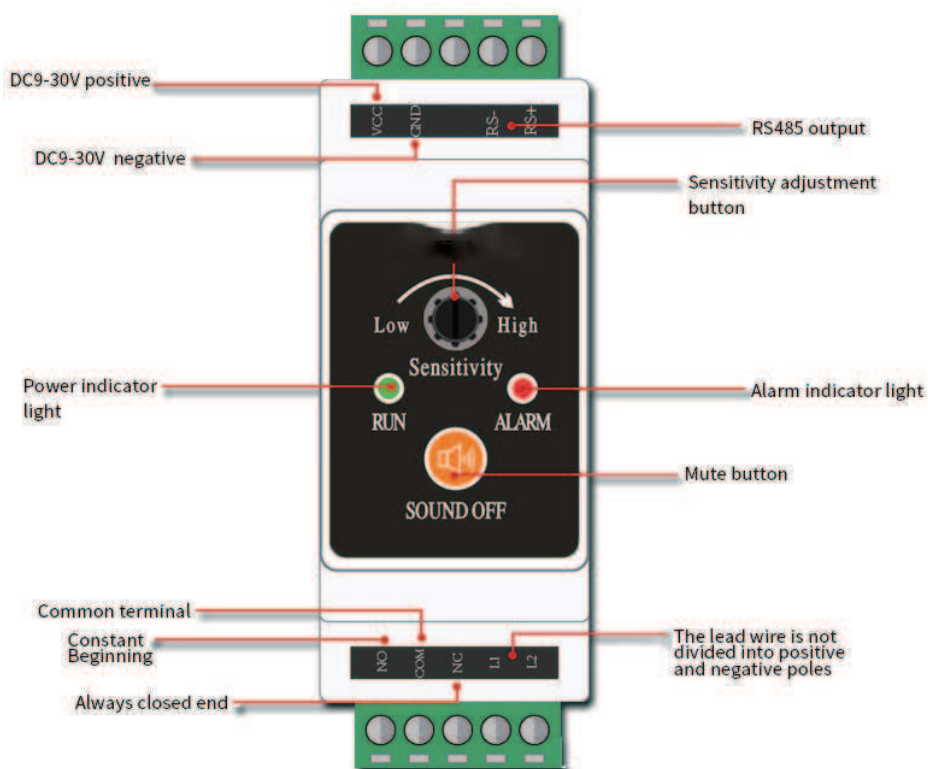| Computer room | Refrigeration | Pipeline | Home | Workshop | Outdoor | Warehouse |

2.1 Product Features

1. RS485 output (Modbus RTU standard protocol)
2. Equipped with switch output (normally open and normally closed integrated)
3. Intelligent one click mute
4. Adjustable sensitivity
5. Using industrial grade components
6. DC9-30V wide voltage input
7. Rail mounted installation
8. Can connect various detection probes (leakage detection line)
9. Equipped with power supply and alarm indicator light
10. Dual isolation of power signal ensures stable and long-lasting operation of equipment

2.2 Technical Parameters

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Output signal	RS485 communication/relay normally open normally closed
Display mode	Power (blue) and alarm (red) indicator lights
Communication protocol	RS485 output (Modbus RTU standard protocol)
Network configuration (optional)	RS485 dual line network, baud rate optional, factory default is 9600, optional addresses are 001 to 254,Factory default address 5
Measurement accuracy	100%
Working voltage	9-30VDC
Sensor compatibility	HSM-SC leakage sensing cable or similar leakage sensing cable or electrode probe
Support sensing cable length	Non positioning detection cable 1500 meters
Product power	Maximum power 0.5W
Sensitivity	Controller infinite adjustment/remote adjustment
Operating temperature of transmitter circuit	-10℃~+70℃
Working humidity of transmitter circuit	5% RH~95% RH (non condensing)
Installation method	Standard 35DIN rail installation
Relay contact function	Dry contact signal normally open/normally closed optional
Measurement medium	Liquid with conductivity
Rated value of relay contacts	DC30V 3A，AC contactors must be added to control 220V/380V, otherwise burning out the equipment is not covered by the warranty
Protection grade	Dustproof and waterproof IP65; Probe part IP68

2.3 Button Identification Description

DC9-30V positive
DC9-30V negative
RS485 output
Sensitivity adjustment button
Power indicator light
Alarm indicator light
Mute button
Common terminal
Constant Beginning
Always closed end
The lead wire is not divided into positive and negative poles

VCC GND RS- RS+

Low High
Sensitivity
RUN ALARM
SOUND OFF

NO COM NC L1 L2

3. Installation precautions and external dimensions

⚠ Warning: Unauthorized disassembly of the product is strictly prohibited!

• Handle with care and avoid mechanical impact and collision. Keep it dry. Before taking out the module, touch grounded equipment or water pipes to avoid static electricity. Avoid contact with metal filings, grease, pipeline coatings, and other contaminants.

External dimensions:

26
10
108
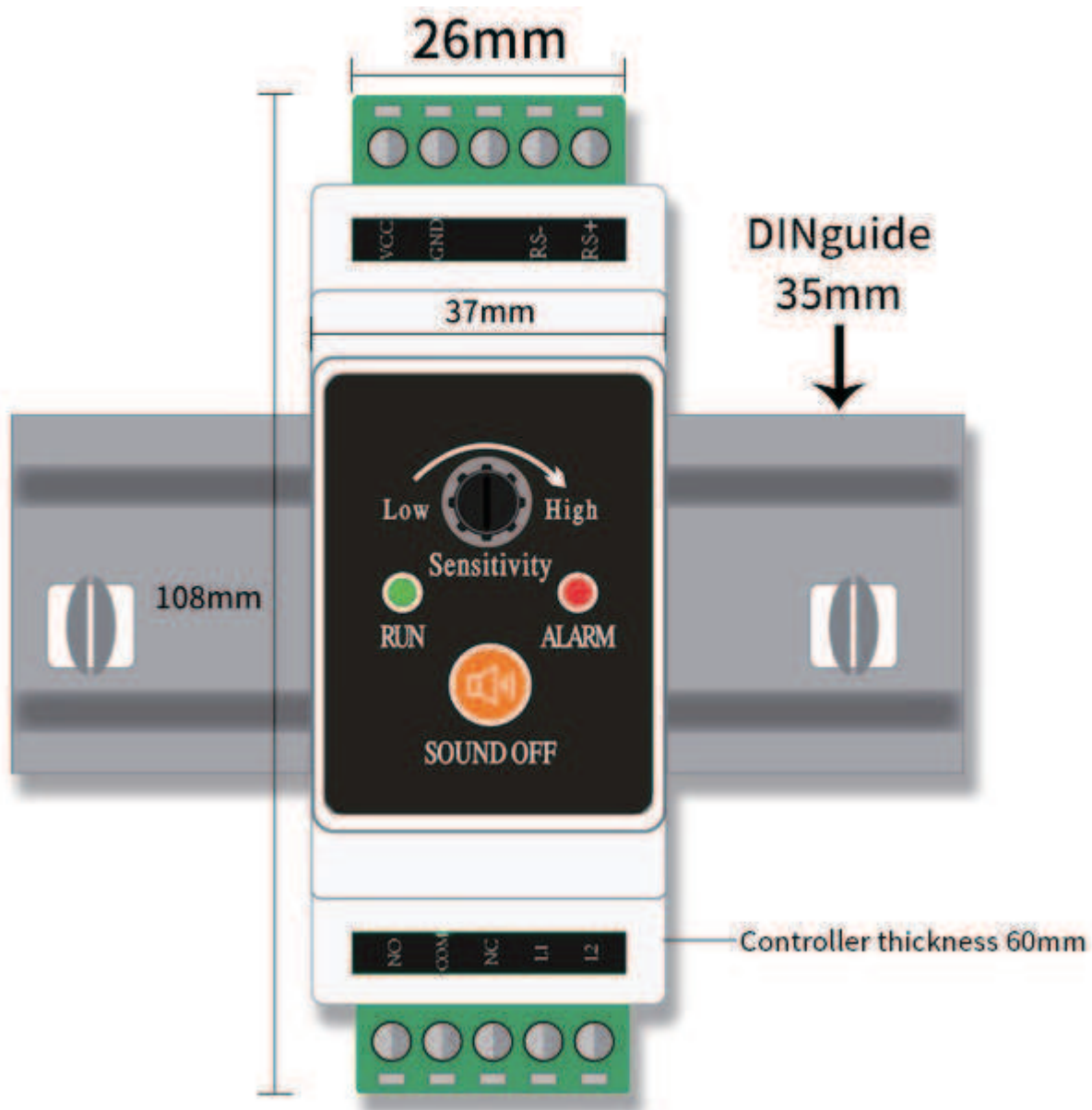88
36,5
59
59
35,7

proportion 1:2
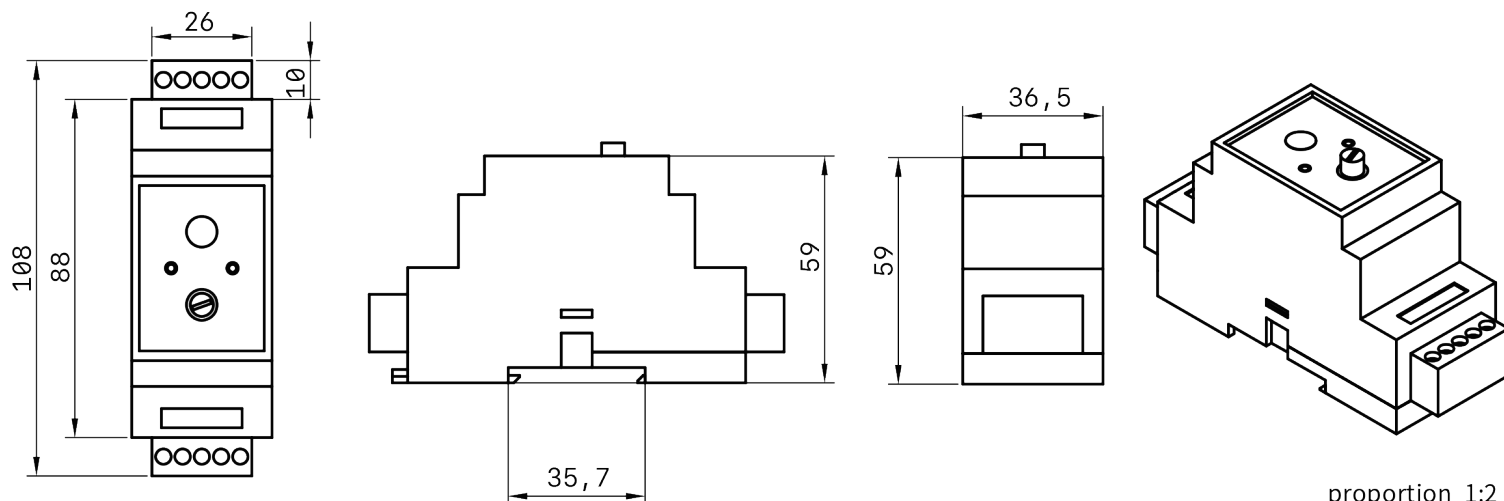
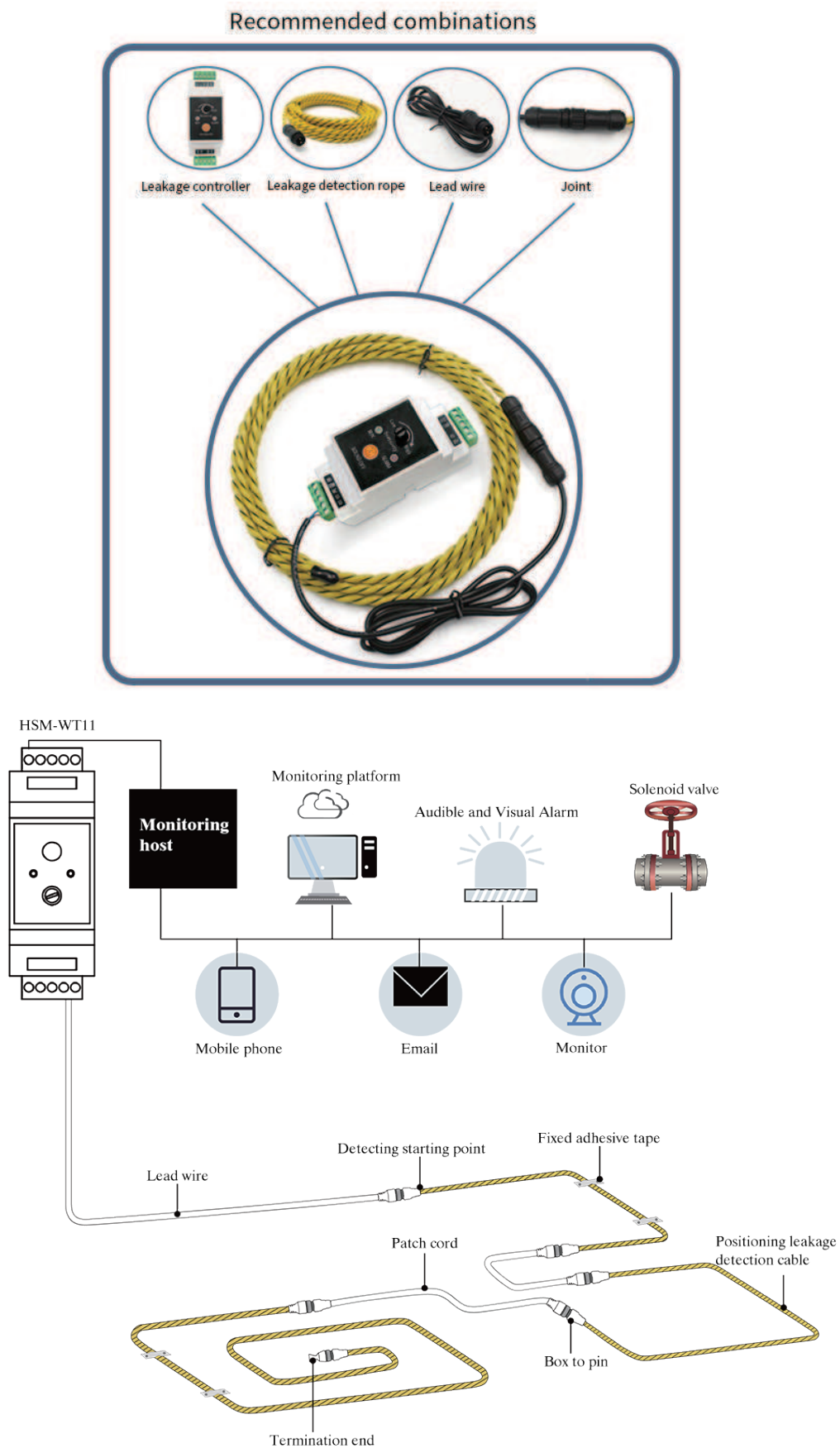# 4. Installation method: 35DIN rail installation

Choose Install Location

The selected installation location should ensure that the module is not affected by natural environment, temperature limits, or severe vibrations. This product can be fastened onto a standard 35mm DIN rail. If there are empty spaces on the existing electrical or instrument box rails, they can also be used to install modules. It is also possible to install a small section of DIN rail directly on any position of the wall or box surface, and then fix the module, but it should be ensured that there is no risk of tripping during walking. The module should be installed within a range of 1500 meters of the wiring length of the control system host. If it exceeds 1500 meters, please consult the manufacturer for methods to increase the connection distance.

35DIN rail installation

5. Product accessories

Recommended combinations

Leakage controller　　Leakage detection rope　　Lead wire　　Joint

HSM-WT11

Monitoring host

Monitoring platform

Audible and Visual Alarm

Solenoid valve

Mobile phone

Email

Monitor

Lead wire

Detecting starting point

Fixed adhesive tape

Patch cord

Positioning leakage detection cable

Box to pin

Termination end

6. Communication Protocol

When powered on, 3 address values will be sent (default returns 3 05)
Default baud rate is 9600, no checksum, 1 stop bit
When the broadcast address is 0xFE and there is only one device on the bus, the broadcast address can be used to query and set
The initial address of the device is 0x05
The device frame reply time is greater than 3.5 characters

一、Register address

Register address	PLC or configuration address	content	operate	function code	Definition Description
00 00H	40001 (decimal)	Query alarm status	read	03H	0 represents normal, 1 represents alarm
00 01H	40002 (decimal)	Query analog quantity	read	03H	Normally, the value is around 700,When the alarm is triggered, the value is less than the sensitivity
00 02H	40003 (decimal)	Query sensitivity	read	03H	200-500
00 03H	40004 (decimal)	Query device address	read	03H	Device address query, 1-253
00 04H	40005 (decimal)	Query Baud Rate	read	03H	Details of scope 1-6 can be found below
00 05H	40006 (decimal)	Query the delay alarm time	read	03H	0-65535 seconds (default value 0)
00 02H	40003 (decimal)	Set sensitivity	write	06H	200-500 (the larger the value, the more sensitive it is)
00 03H	40004 (decimal)	Device Address Setting	write	06H	Device address setting, 1-253
00 04H	40005 (decimal)	set baud rate	write	06H	Set the baud rate, 1-6 are represented as follows 1：2400 2：4800 3：9600 4：19200 5：38400 6：115200
00 05H	40006 (decimal)	Set the delay alarm time	write	06H	0-65535 seconds

二、Use command to query

1. Query the alarm status of device address 0x05 (all codes below are in hexadecimal)

Inquiry frame

Address code	function code	Register address	Read quantity	Low bit of verification code	High bit of verification code
05	03	00 00	00 01	85	8E

Normal response frame of the device

Address code	function code	data quantity	data	Low bit of verification code	High bit of verification code
05	03	02	00 00	49	84

Response frame for equipment alarm

Address Code	Function Code	Data Quantity	Data	Low bit of verification code	High bit of verification code
05	03	02	00 01	88	44

2. Query the analog value of device address 0x05 (all codes below are in hexadecimal)

Inquiry frame

Address code	function code	Register address	Read quantity	Low bit of verification code	High bit of verification code
05	03	00 01	00 01	D4	4E

Response frame: Analog value is 02D3 (hexadecimal) 723 (decimal)

Address Code	Function Code	Data Quantity	Data	Low bit of verification code	High bit of verification code
05	03	02	02D3	09	79

3. Query the sensitivity value of device address 0x05 (all codes below are in hexadecimal)

Inquiry frame

Address code	function code	Register address	Read quantity	Low bit of verification code	High bit of verification code
05	03	00 02	00 01	24	4E

Response frame: Sensitivity value is 0199 (hexadecimal) 409 (decimal)

Address Code	Function Code	Data Quantity	Data	Low bit of verification code	High bit of verification code
05	03	02	0199	88	7E

4. Query the device address value with the address 0x05 (all codes below are in hexadecimal)

Inquiry frame

Address code	function code	Register address	Read quantity	Low bit of verification code	High bit of verification code
05	03	00 03	00 01	75	8E

Response frame: The device address value is 5

Address Code	Function Code	Data Quantity	Data	Low bit of verification code	High bit of verification code
05	03	02	00 05	89	87

5. Query the baud rate value for device address 0x05 (all codes below are in hexadecimal)

Inquiry frame

Address code	function code	Register address	Read quantity	Low bit of verification code	High bit of verification code
05	03	00 04	00 01	C4	4F

Response frame: The baud rate value is 3, which is 9600

Address code	function code	data quantity	data	Low bit of verification code	High bit of verification code
05	03	02	00 03	09	85

6. Query the delayed alarm time for device address 0x05 (all codes below are in hexadecimal)

Inquiry frame

Address code	function code	Register address	Read quantity	Low bit of verification code	High bit of verification code
05	03	00 05	00 01	95	8F

Response frame: Delay alarm time is 0 (default value)

Address Code	Function Code	Data Quantity	Data	Low bit of verification code	High bit of verification code
05	03	02	00 00	49	84

7. Set the sensitivity value for device address 0x05 to 300 (hexadecimal 012C) (all codes below are in hexadecimal)

Inquiry frame

Address code	function code	Register address	Write data	Low bit of verification code	High bit of verification code
05	06	00 02	01 2C	29	C3

Response frame: Setting successful

Address code	function code	Register address	Write data	Low bit of verification code	High bit of verification code
05	06	00 02	01 2C	29	C3

8. Set the device address to 0x05 and set the device address value to 1 (all codes below are in hexadecimal)

Inquiry frame

Address code	function code	Register address	Write data	Low bit of verification code	High bit of verification code
05	06	00 03	00 01	B9	8E

Response frame: Setting successful

Address code	function code	Register address	Write data	Low bit of verification code	High bit of verification code
01	06	00 03	00 01	B8	0A

9. Set the baud rate for device address 0x05 to 19200 (all codes below are in hexadecimal)

Inquiry frame

Address code	function code	Register address	Write data	Low bit of verification code	High bit of verification code
05	06	00 04	00 04	C8	4C

Response frame: Setting successful

Address code	function code	Register address	Write data	Low bit of verification code	High bit of verification code
05	06	00 04	00 04	C8	4C

10. Set the delay alarm time for device address 0x05 to 3 (all codes below are in hexadecimal)

Inquiry frame

Address code	function code	Register address	Write data	Low bit of verification code	High bit of verification code
05	06	00 05	00 03	D8	4E

Response frame: Setting successful

Address code	function code	Register address	Write data	Low bit of verification code	High bit of verification code
05	06	00 05	00 03	D8	4E

三、 Using Modbus Polo software for communication

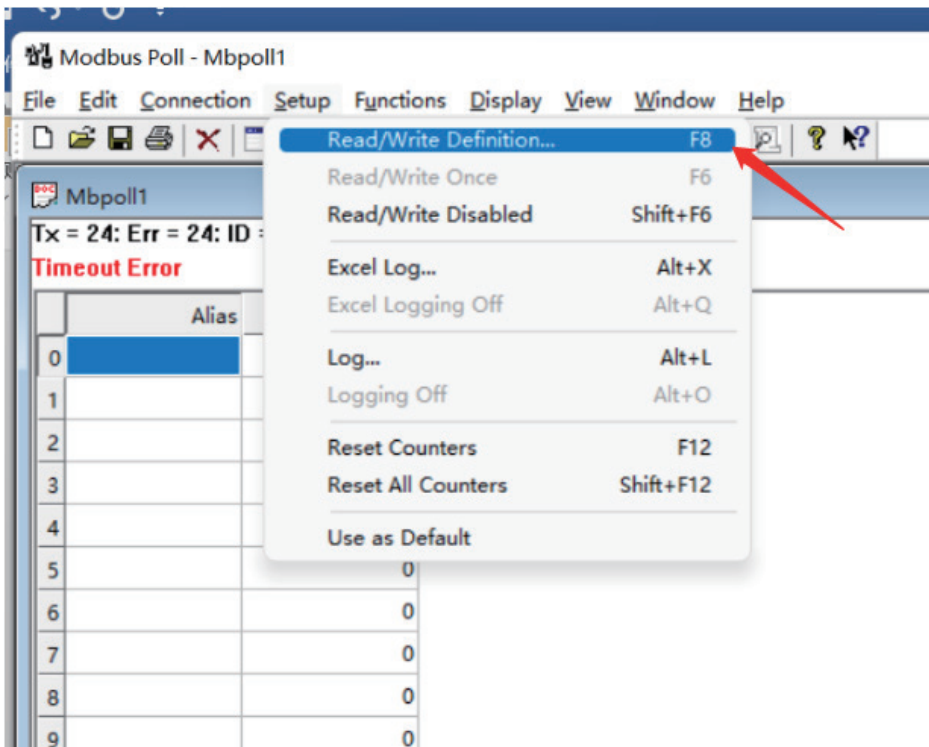1. Open the software and select Connection ->Connection Setup
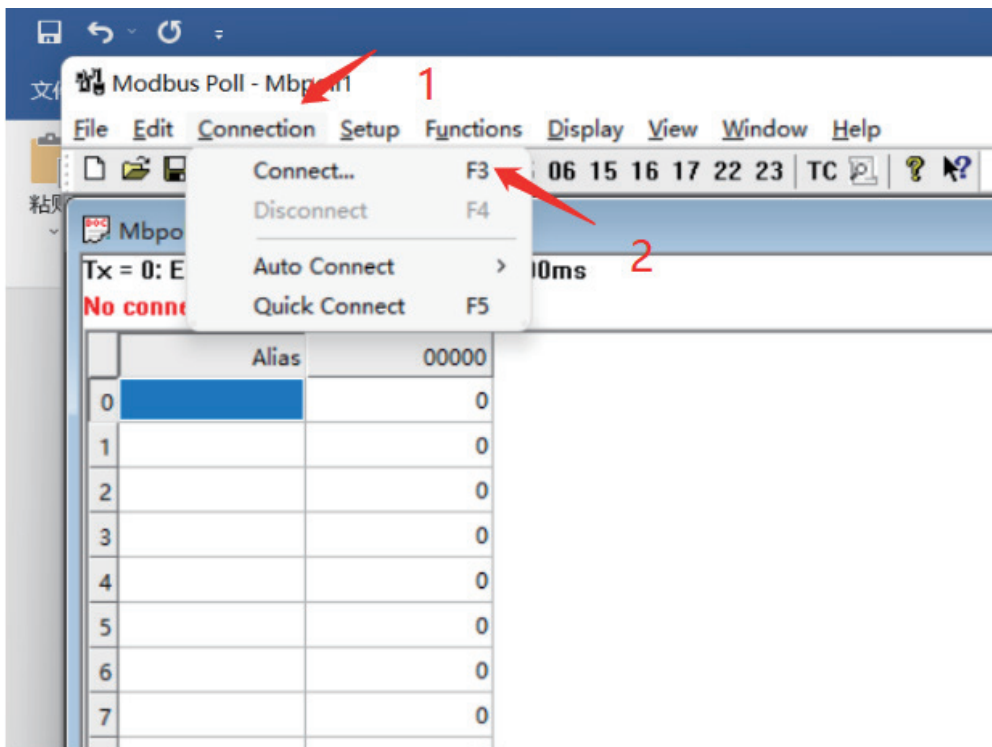
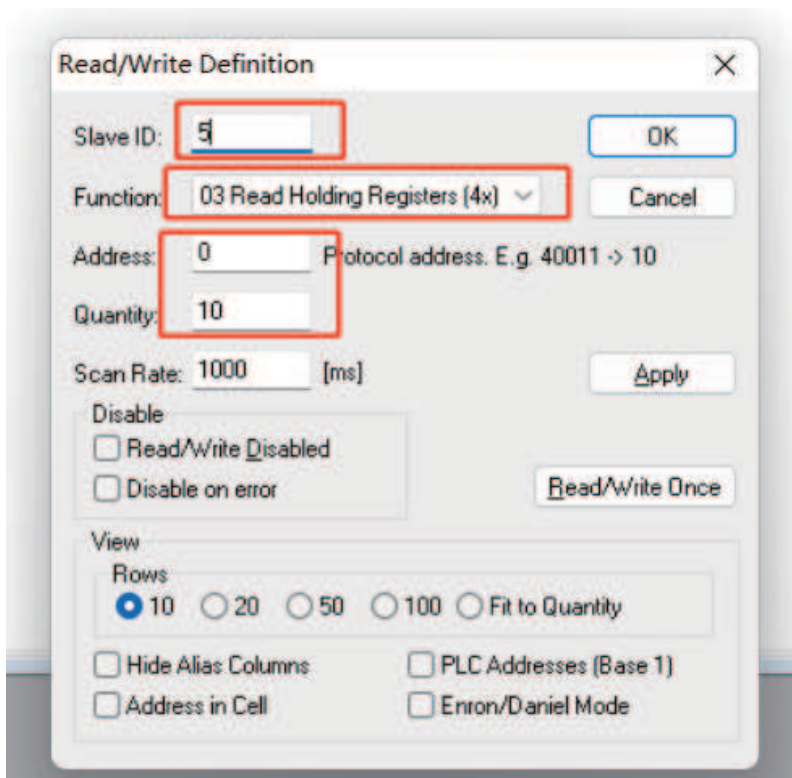2. Set the baud rate to 9600, 8-bit data bits, 1 stop bit, no checksum, click OK in the upper right corner
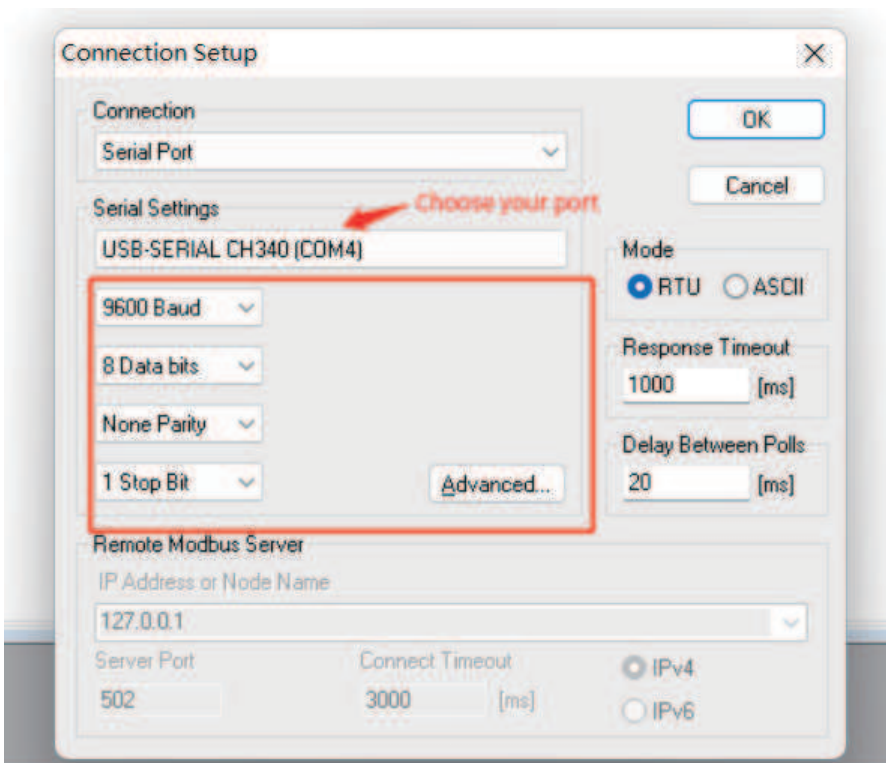
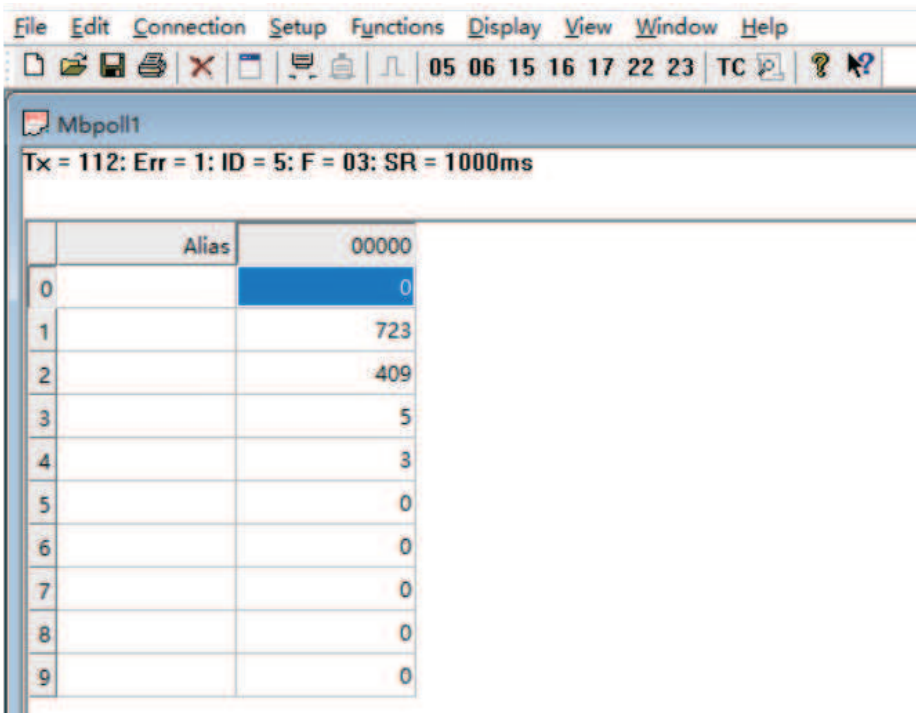三、 Using Modbus Polo software for communication

3. Click Setup->Read/Write Definition

4. Change Slave ID to 5 and select Function as 03, Address 0， Quantity 10， Click OK in the upper right corner
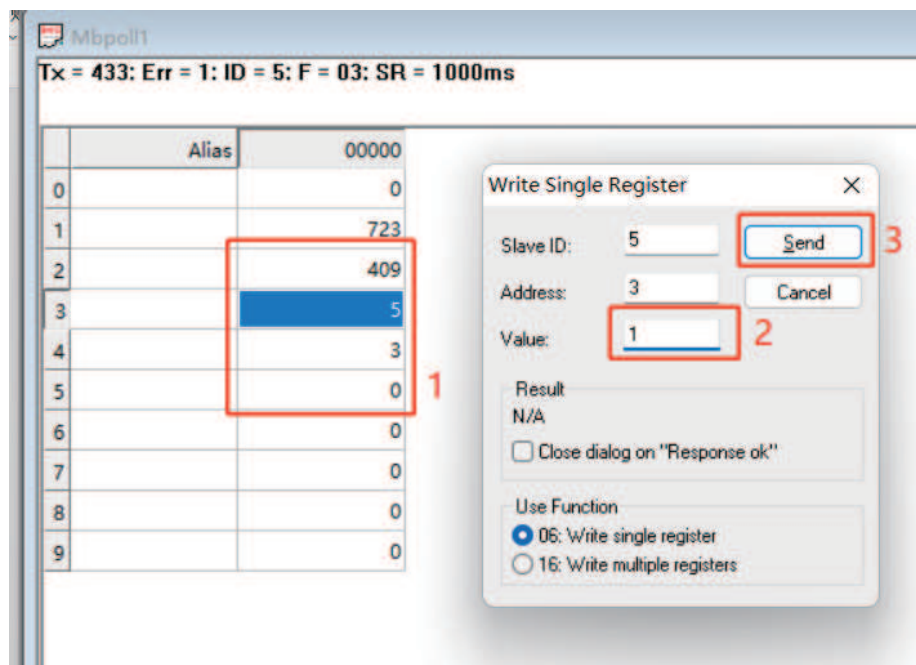
5. If the steps and communication are normal, the following will be displayed

6. As shown in the figure, the last four parameters can be modified. Double click to open Write Single Register. After modifying step 2 parameters, click Send in the upper right corner to successfully modify them. Example: Changing the device address from 5 to 1

7. After sending, a timeout will be displayed because the device address has been successfully modified and needs to be reconfigured. Change 5 to 1 and click OK in the upper right corner
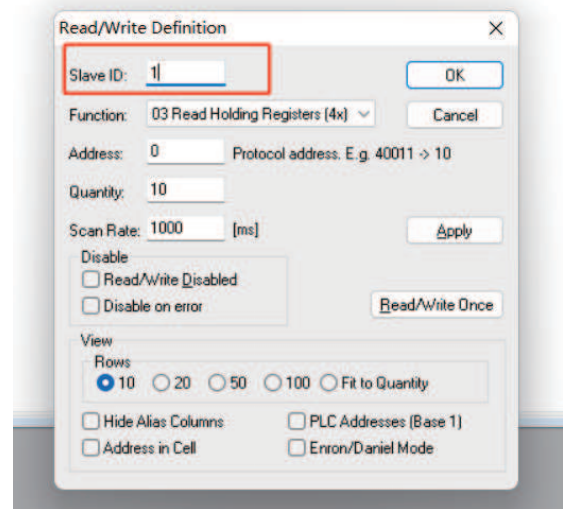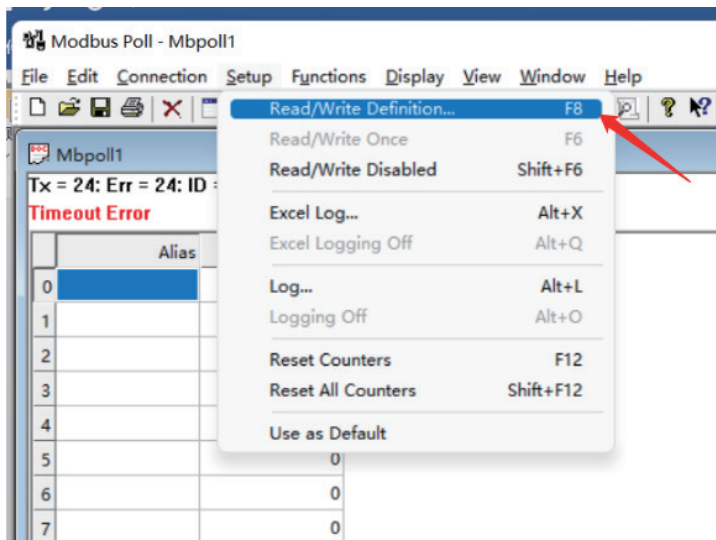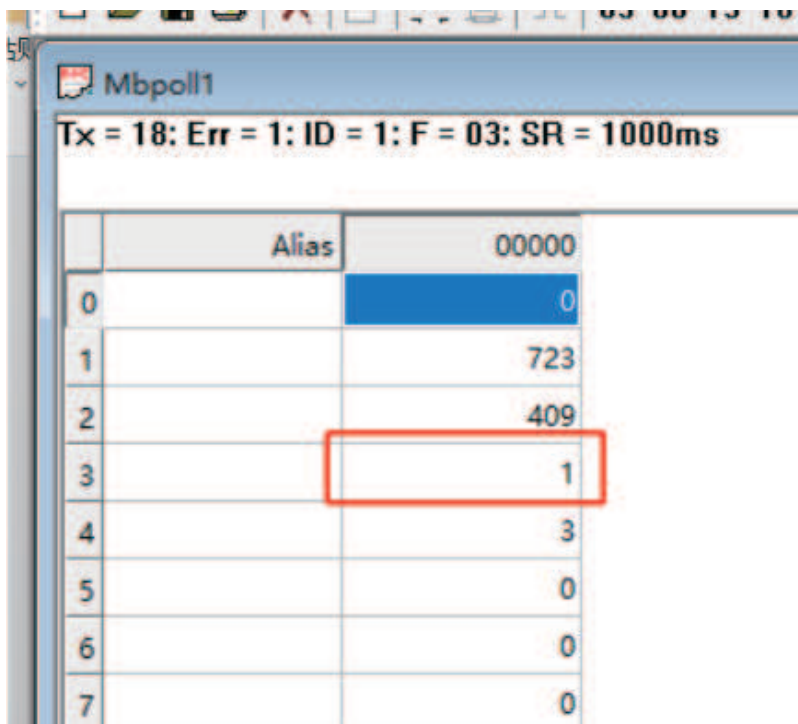
8. The modification was successful, and you can see that the address value has changed from 5 to 1

7. After sales service

Customers who order our products can enjoy a one-year warranty period;
If the product malfunctions during the warranty period and our company detects it as a quality issue, we will bear all the repair costs;
Damage to components or pressure diaphragms caused by failure to follow the instructions in this manual or unauthorized disassembly of the product
is not covered by the product warranty.

Thank you for using our company's products