

## lotzone's TCP modbus to RTU modbus user manual

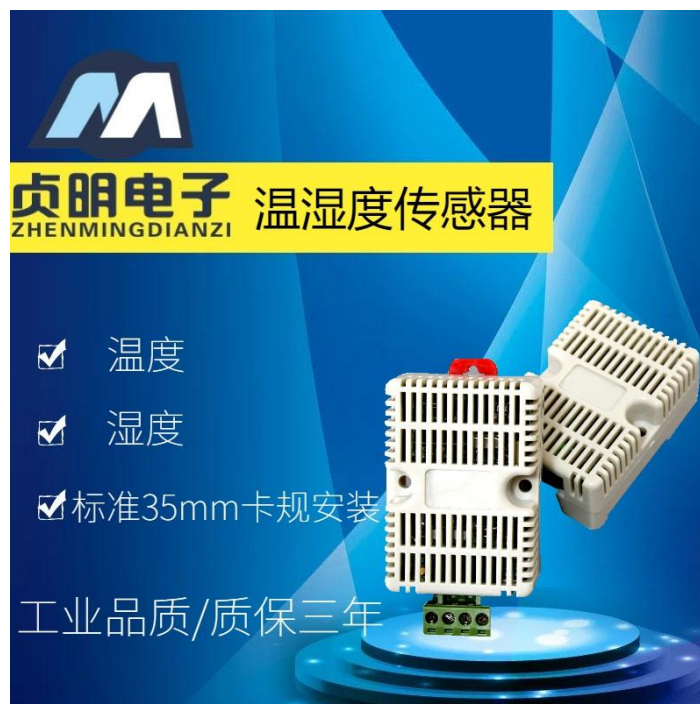
### 1. Overview

If you want to connect some sensors or controls that support MODBUS RTU, you can use this function to save the cost of a DTU and reduce the cost of wiring and software.

TCP modbus default port is 502, This document uses "MODBUS poll" tool to test and introduce. If connect to PLC or other configuration software, you can refer to the following settings。

### 2. Example for sensor read

lotzone's sensor for example which support modbus rtu,default address is 1, register 0 is humidity data,register 1 is temperature data.



Steps:

- (1) Connect A and B of sensor to A and B of device.
- (2) Plug in cable,make sure the device and PC are in the local

network.

(3) Power on the device and sensor, either support 9-24VDC.

(4) Enable the RTU to TCP modbus in 192.168.1.166/rs485.cgi

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### RS485 Interface

Configure RS485 interface parameters here

Item	Status
Baud rate(4800,9600,38400,115200)	9600
Check bit	0
lotzone's Sensor	<input type="button" value="disable"/>
Modbus RTU to TCP MODBUS enable	<input type="button" value="enable"/>
RS485 to mqtt enable	<input type="button" value="disable"/>
I/O Control by RS485	<input type="button" value="disable"/>
RS485 Address(Serial relay mode is valid)	1

(5) Select “Modbus TCP/IP” in MODBUS poll Connection,IP is 192.168.1.155(the device IP),Server Port is 502 as figure.

Connection Setup

Connection: Modbus TCP/IP

Serial Settings

ELTIMA Virtual Serial Port (COM1->COM2)

9600 Baud

8 Data bits

Even Parity

1 Stop Bit

Advanced...

Mode

☒ RTU ☐ ASCII

Response Timeout

1000 [ms]

Delay Between Polls

20 [ms]

Remote Modbus Server

IP Address or Node Name

192.168.1.155

Server Port

502

Connect Timeout

3000 [ms]

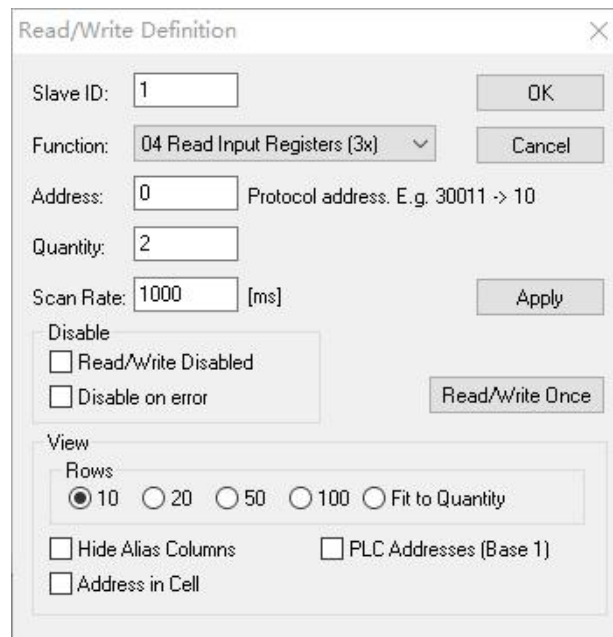
☒ IPv4 ☐ IPv6

OK

Cancel

(6) Set the Read/Write Definition in “Setup”,Slave ID is 1(the sensor’s address), Function select 04(Read Input Register),Address is 0, Qunatity

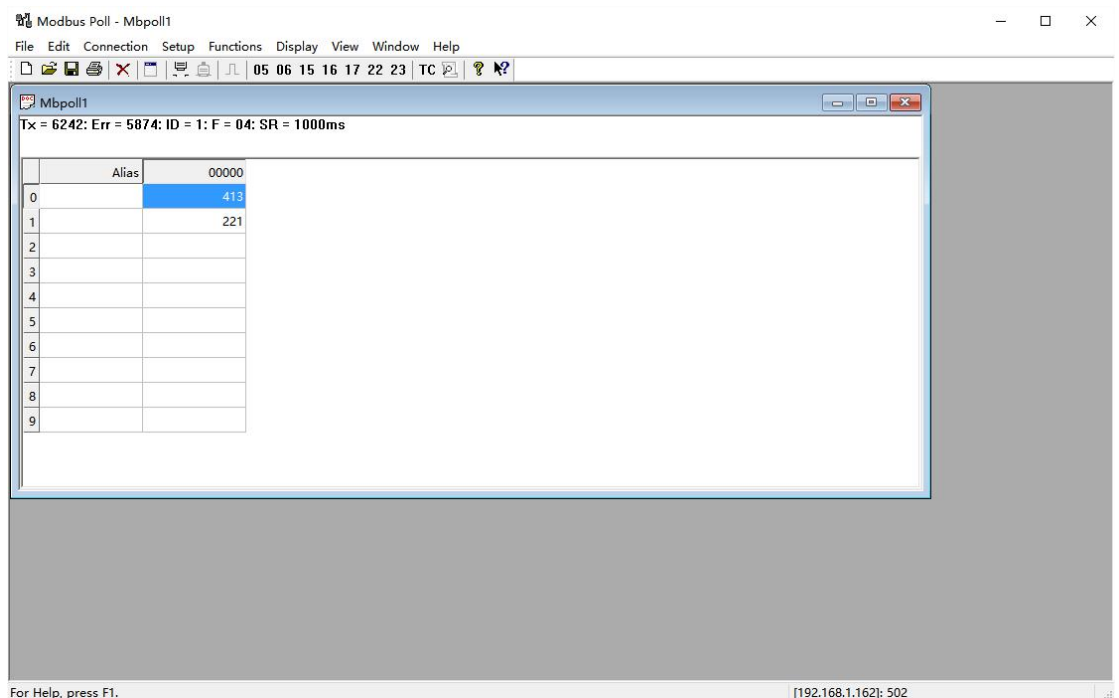
is 2, other is default, as figure.



The 'Read/Write Definition' dialog box is shown. It contains the following fields and options:

- Slave ID: 1
- Function: 04 Read Input Registers (3x)
- Address: 0 (Protocol address. E.g. 30011 -> 10)
- Quantity: 2
- Scan Rate: 1000 [ms]
- Buttons: OK, Cancel, Apply, Read/Write Once
- Disable section:
  - ☐ Read/Write Disabled
  - ☐ Disable on error
- View section:
  - Rows: ☒ 10, ☐ 20, ☐ 50, ☐ 100, ☐ Fit to Quantity
  - ☐ Hide Alias Columns
  - ☐ PLC Addresses (Base 1)
  - ☐ Address in Cell

The data can be read, as shown in the figure below. If the value of register 0 (humidity) is 413 and the value of register 1 (temperature) is 221, then the humidity value is  $413 / 10 = 41.3\%$ , and the temperature value is  $221 / 10 = 22.1\text{ }^{\circ}\text{C}$



The 'Modbus Poll - Mbpoll1' window shows the following status bar: Tx = 6242; Err = 5874; ID = 1; F = 04; SR = 1000ms. The main display area contains a table with the following data:

	Alias	00000
0		413
1		221
2		
3		
4		
5		
6		
7		
8		
9		

For Help, press F1. [192.168.1.162]: 502

3. Example for RS485 relays module

lotzone’s RS485 relay module supports Modbus RTU which address is 2.



- Steps:
- (1) Connect A and B of RS485 relay module to A and B of device.
  - (2) Plug in cable,make sure the device and PC are in the local network.
  - (3) Power on the devices, either support 9-24VDC.
  - (4) Enable the RTU to TCP modbus in 192.168.1.166/rs485.cgi .

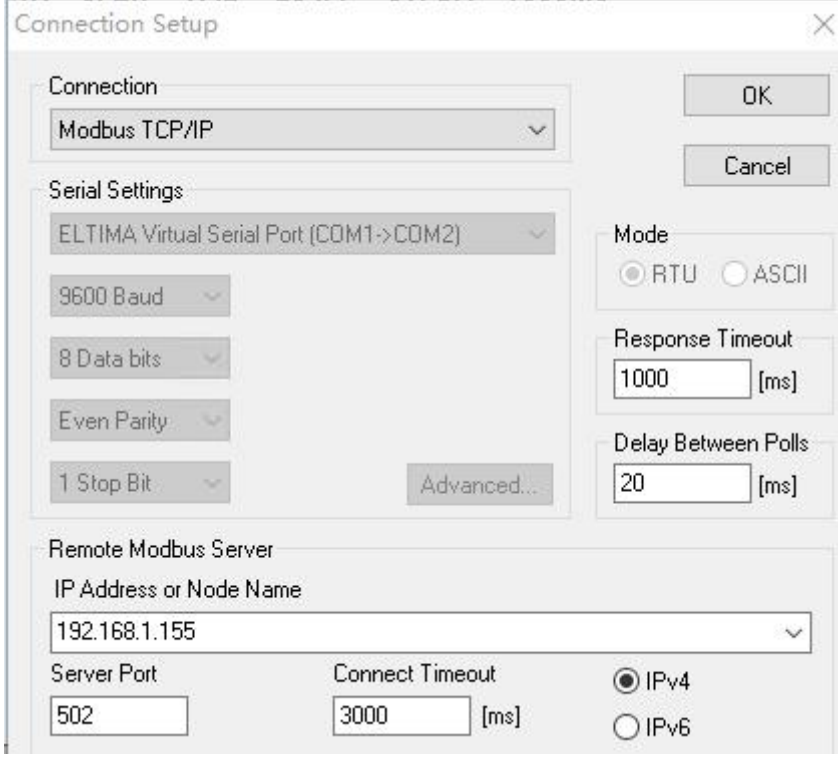
[I/O Control](#)| [I/O Settings](#)| [Input Status](#)| [System Settings](#)| [Trigger Event](#)| [RS485 Interface](#)

RS485 Interface

Configure RS485 interface parameters here

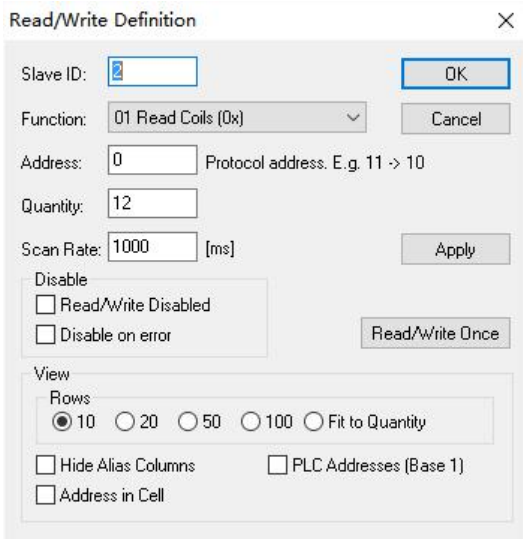
Item	Status
Baud rate(4800,9600,38400,115200)	<input type="text" value="9600"/>
Check bit	<input type="text" value="0"/>
lotzone's Sensor	<input type="button" value="disable"/>
Modbus RTU to TCP MODBUS enable	<input type="button" value="enable"/>
RS485 to mqtt enable	<input type="button" value="disable"/>
I/O Control by RS485	<input type="button" value="disable"/>
RS485 Address(Serial relay mode is valid)	<input type="text" value="1"/>
<input type="button" value="OK"/> <input type="button" value="Undo"/>	

(5) Select “Modbus TCP/IP” in MODBUS poll Connection,IP is 192.168.1.155(the device IP),Server Port is 502 as figure.



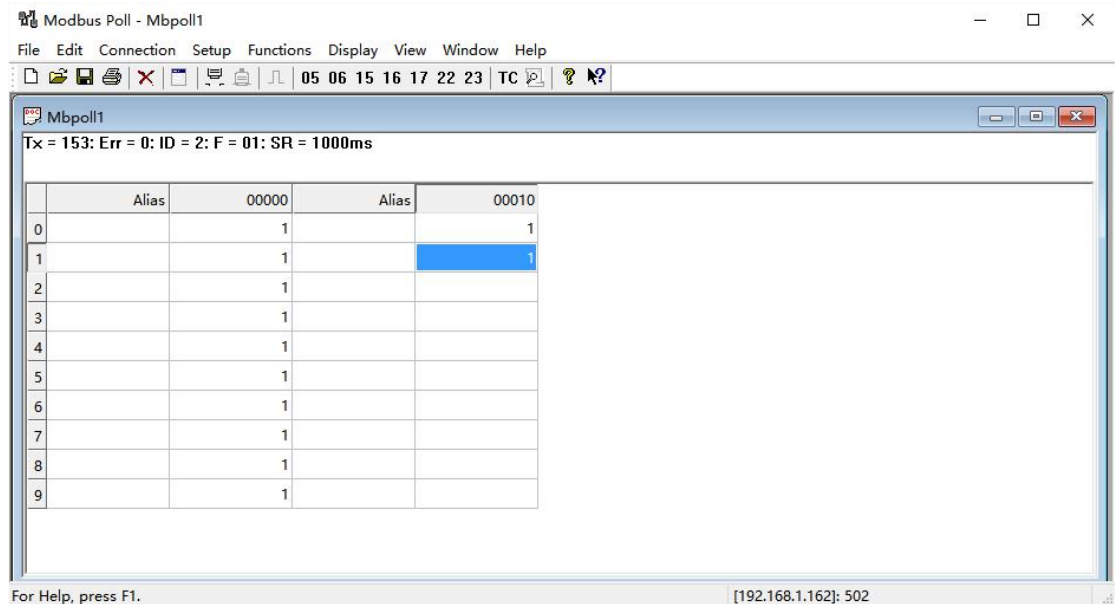
The "Connection Setup" dialog box is shown. The "Connection" dropdown is set to "Modbus TCP/IP". The "Serial Settings" section is expanded, showing "ELTIMA Virtual Serial Port (COM1->COM2)", "9600 Baud", "8 Data bits", "Even Parity", and "1 Stop Bit". The "Mode" section has "RTU" selected. The "Response Timeout" is set to "1000 [ms]" and the "Delay Between Polls" is set to "20 [ms]". The "Remote Modbus Server" section shows the "IP Address or Node Name" as "192.168.1.155", the "Server Port" as "502", and the "Connect Timeout" as "3000 [ms]". The "IPv4" radio button is selected.

(6) Set Read/Write Definition in "Setup",Write 2 in Slave ID2 (the address of RS485 relay module),Function select 01(Read Coils),Address is 0,Qunatity is 12(the number of relay module),other is default, as figure.



The "Read/Write Definition" dialog box is shown. The "Slave ID" is set to "2". The "Function" is set to "01 Read Coils (0x)". The "Address" is set to "0" and the "Quantity" is set to "12". The "Scan Rate" is set to "1000 [ms]". The "Disable" section has "Read/Write Disabled" and "Disable on error" checked. The "View" section has "Rows" set to "10", "Hide Alias Columns" checked, and "PLC Addresses (Base 1)" checked. The "Address in Cell" checkbox is unchecked.

(7) The state of RS485 relay module can be read as below figure. The '05' function command can control single relay out. The '15' function command can control multiple relays out.



The screenshot shows the Modbus Poll software window titled 'Modbus Poll - Mbpoll1'. The status bar at the top indicates 'Tx = 153: Err = 0: ID = 2: F = 01: SR = 1000ms'. The main display area contains a table with 10 rows, indexed 0 to 9. Each row has four columns: 'Alias', '00000', 'Alias', and '00010'. The '00000' column contains the value '1' for all rows. The '00010' column contains the value '1' for row 1, which is highlighted in blue, and is empty for all other rows. The status bar at the bottom left says 'For Help, press F1.' and the bottom right shows the IP address '[192.168.1.162]: 502'.

	Alias	00000	Alias	00010
0		1		1
1		1		1
2		1		
3		1		
4		1		
5		1		
6		1		
7		1		
8		1		
9		1		