

User Manual and Test Guide

Eport Modbus TCP Connection with Measure Module

Rev: 1.0

Content

1. DEVELOPMENT KIT INTRODUCTION.....	4
2. HARDWARE REQUIREMENTS.....	4
3. SOFTWARE REQUIREMENTS.....	4
4. HARDWARE CONNECTION.....	5
4.1. Device Connection.....	5
4.2. JSY-MK-211D-5 Interface.....	5
4.3. Modbus Poll Test Device.....	7
5. Modbus TCP TO Modbus RTU.....	10
5.1. Test Introduction.....	10
6. VIRTUAL SERIAL PORT USING Modbus.....	13
6.1. Test Introduction.....	13
Appendix: Contact Information.....	15

Version List:

V1.0 20160901: First Edition

1. DEVELOPMENT KIT INTRODUCTION

Eport-E10 development kit is provided to help customer rapidly get used to how to develop the product. The following figure is to show its appearance. Customers are able to use RS232 UART interface or USB-invert-TTL interface for parameter configure, product management and function Test .etc.

Development Kit List:

- Eport-E10 Product: 1 Pcs
- Eport EVB : 1 Pcs
- Cable : 1 Pcs
- USB: 1 Pcs

			
1pcs Eport EVB	1~5pcs Eport-E10	1pcs USB线	1pcs 网线

2. HARDWARE REQUIREMENTS

- Eport series super Ethernet 1 Pcs
- DC measure module, 5V supply
- RS232 to RS485(optional)

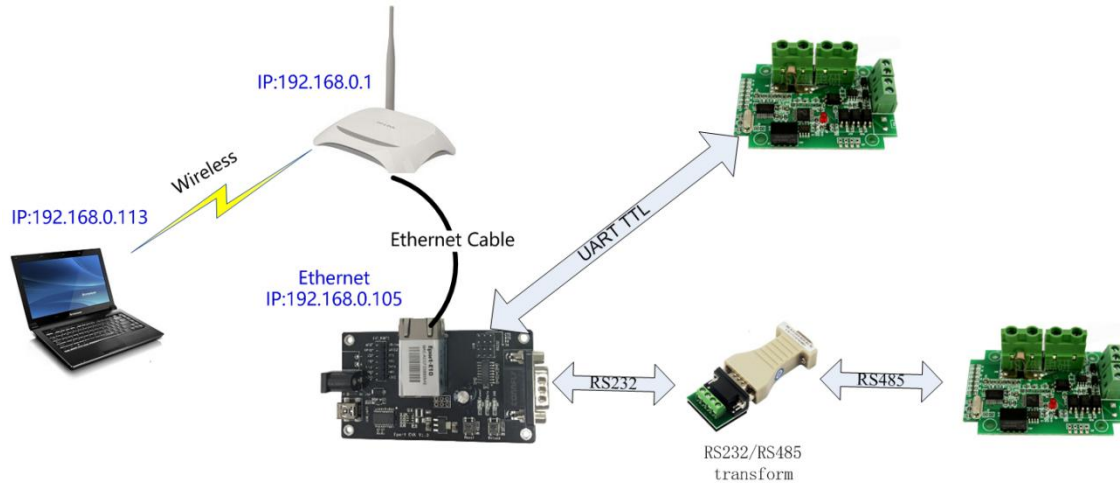
3. SOFTWARE REQUIREMENTS

- Modbus Poll
- Serial Tool

4. HARDWARE CONNECTION

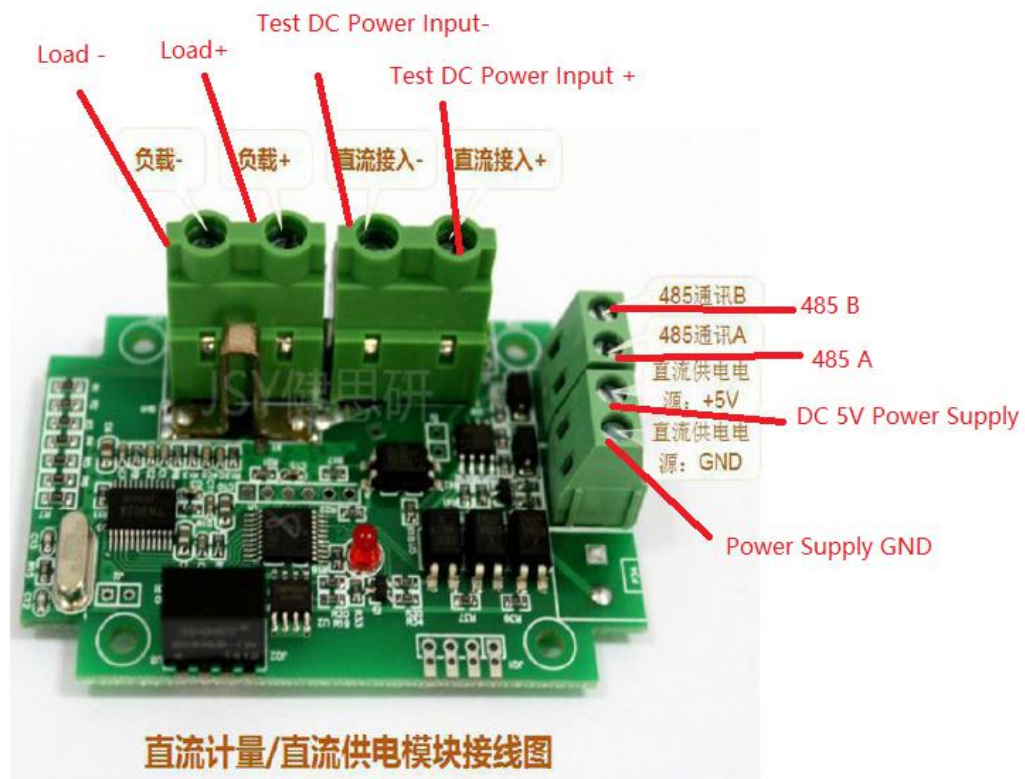
4.1. Device Connection

Connect devices as following figure. UART TTL or RS485.



4.2. JSY-MK-211D-5 Interface

- Measure module interface diagram



■ Modbus register introduction

System parameter read-only register address and communication table (Function code 03H , read-only)				
Seq.	Definition	Register Address	Read/ Write	Detailed Introduction
1	Type 1	0000H	Read	Value : 0211H
2	Type 2	0001H	Read	High byte 01H is AC module, 02H is DC module. Low byte is version of firmware.
3	Voltage Range	0002H	Read	Default 250V, value FAH
4	Current Range	0003H	Read	Default 16A, value A0H(10 times)

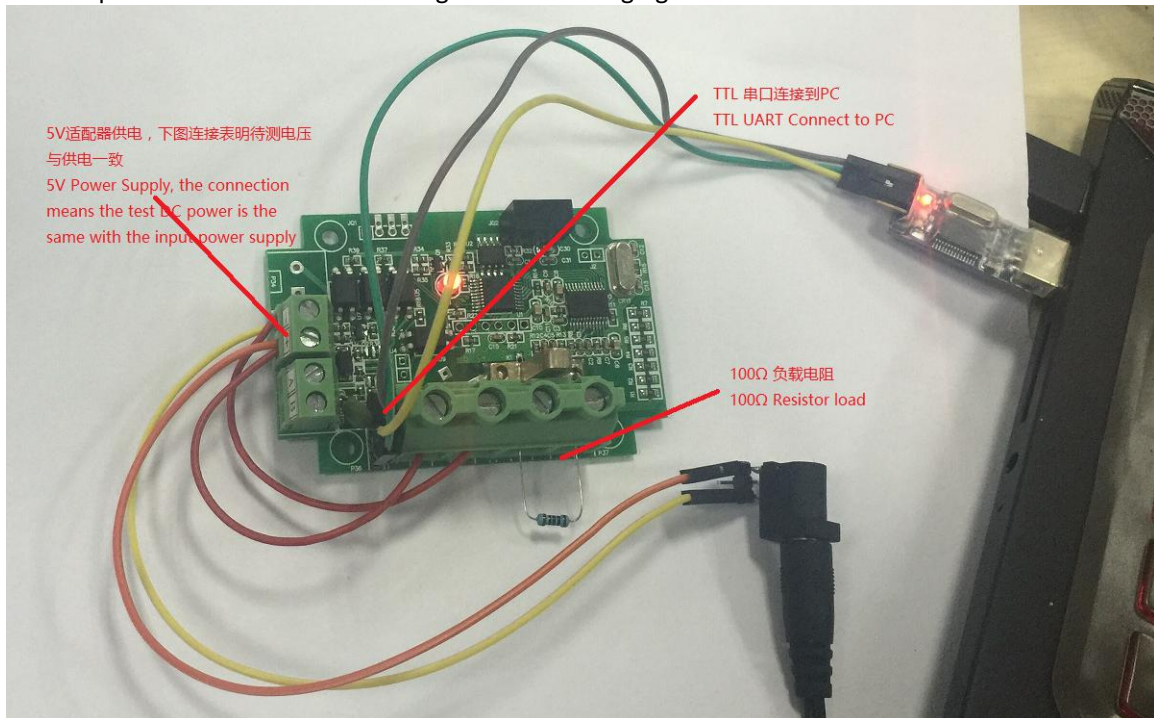
System config read parameter register address and communication table(function code 03H read, 10H write)				
Seq.	Definition	Register Address	Read/ Write	Detailed Introduction
5	Address/ Baud rate	0004H	Read/ Write	<p>Default value 0105H, Default address 01H</p> <p>Default communication format 8, N, 1, 4800bps:</p> <p>High byte is 8-bits address, 1~255; 0 is broadcast address.</p> <p>High 2-bits of low byte is data format bit</p> <p>“00”stands for 10 bit, no parity, “8 , N , 1”</p> <p>“01”stands for 11 bit, even parity check, “8 , E , 1”</p> <p>“10”stands for 11 bit, odd parity check, “8 , O , 1”</p> <p>“11”stands for 11 bit, no parity and 2 stop bits, “8 , N , 2”</p> <p>Low 4-bits of low byte is baud rate, 3—1200bps , 4—2400bps , 5—4800bps , 6—9600bps</p>

Register of measuring DC current and communication table(function code 03H, read-only)				
Seq.	Definition	Register Address	Read/ Write	Detailed Introduction
1	Voltage	0048H	Read	No character number, Value=DATA/100, unit V
2	Current	0049H	Read	No character number, Value=DATA/1000, unit A
3	instantaneous power	004AH	Read	No character number, Value=DATA/10, unit W

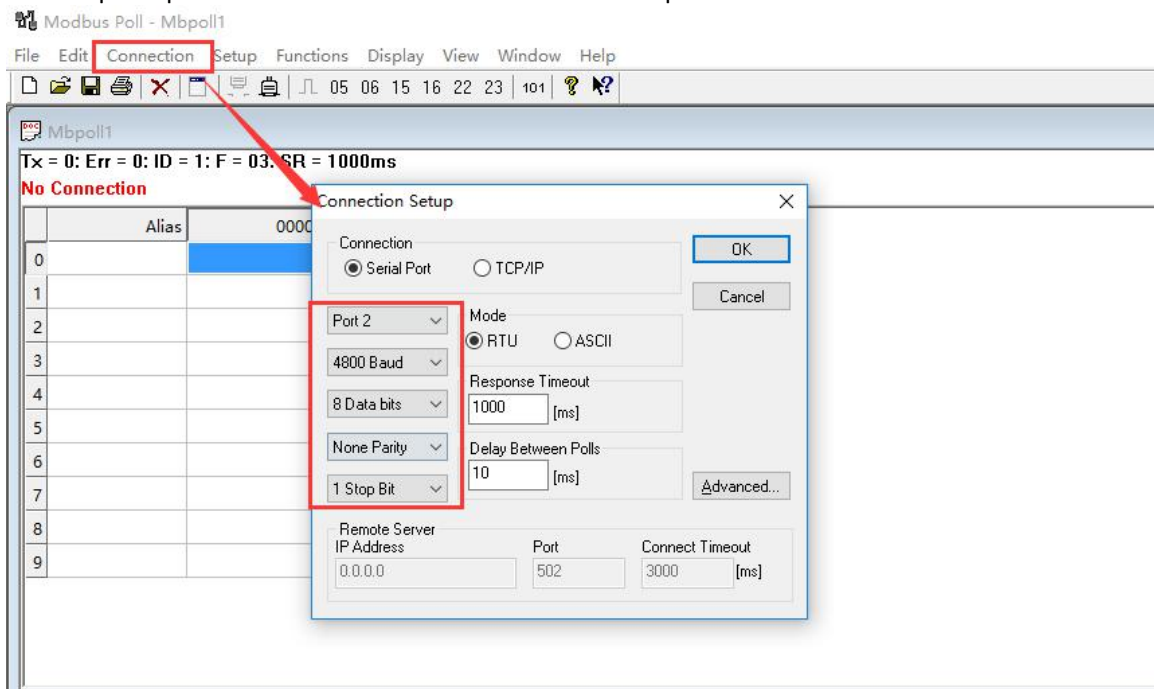
Notes: more register info, please refer to module manual.

4.3. Modbus Poll Test Device

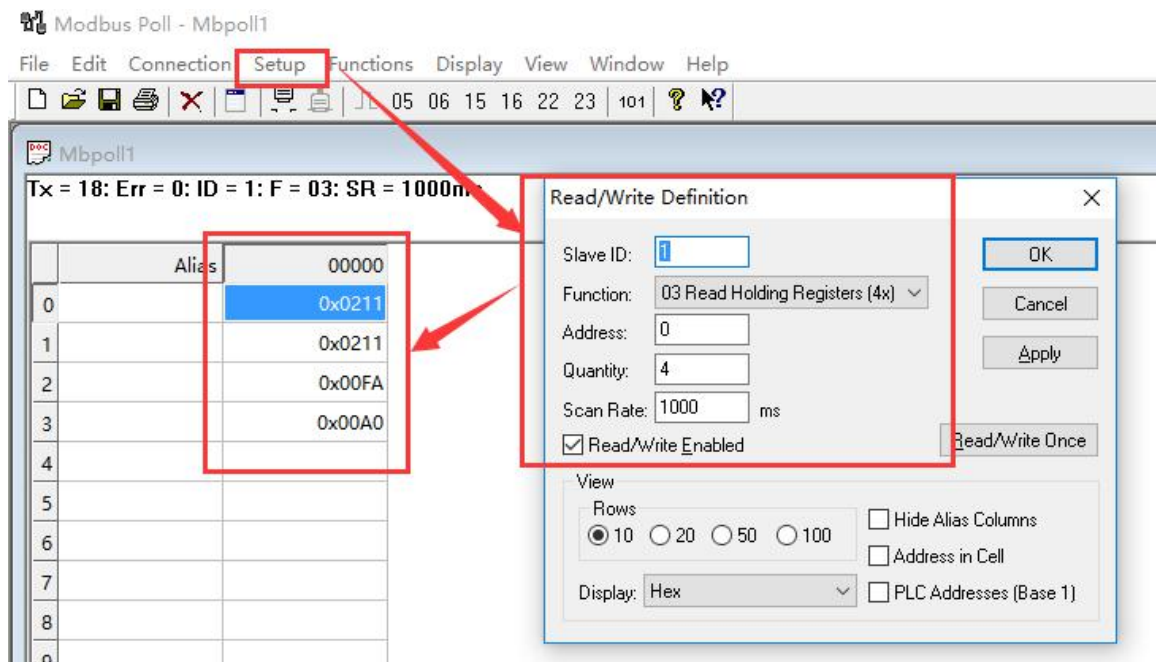
Step 1: Connect devices according to the following figure.



Step 2: Open Modbus Pull software and create serial port.



Step 3: Click Setup to set Modbus address and register. The address 0~3 from the following figure.

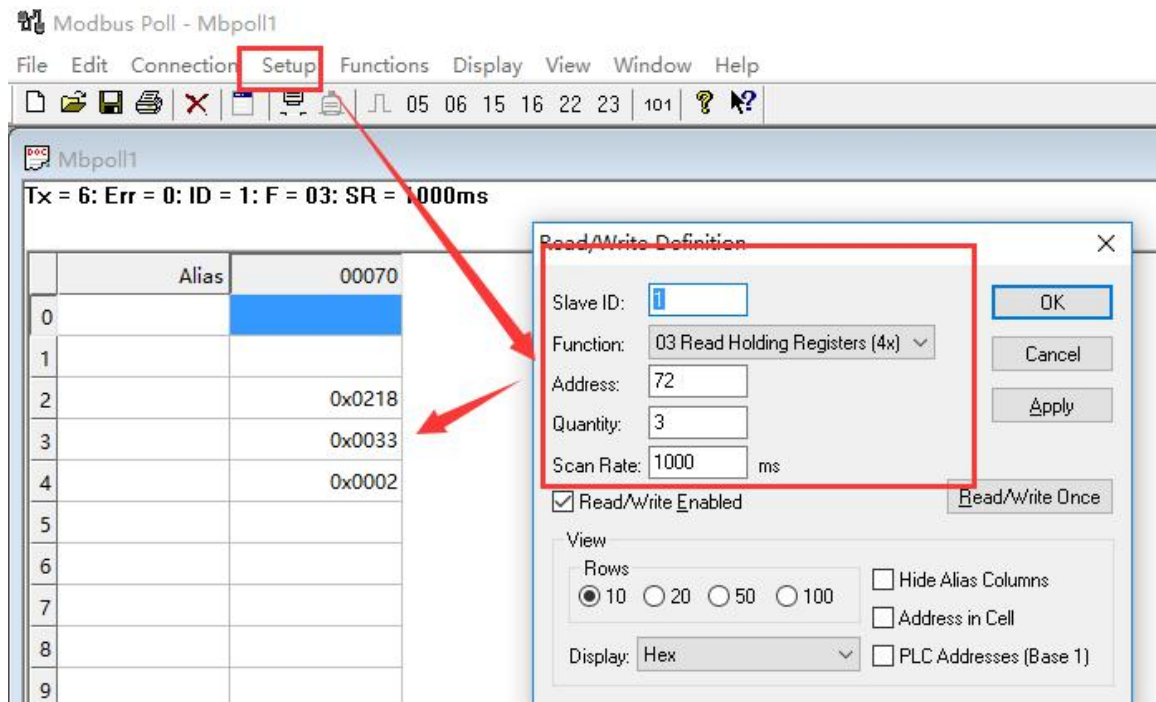


Step 4: Modify the read address as 0x48(72). And the read the value from three register, the piratical value is shown in the following figure (Load is 100Ω resistor and the practical measure result meets expectations).

Voltage (0x218) = $536/100=5.36V$

Current (0x033) = $51/1000=51mA$

Power (0x2) = $2/10=0.2W$.



Notes :

Modbus RTU Communication Protocol :

Example: the address host read is 01, two slave register data with beginning address 0048H									
Seq.	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7	Byte 8	Byte 9
Host Send	01H	03H	0048H		0002H		CRC		
	Address code	Function code	Start address		Read length of register		CRC check		
Slave response	01H	03H	04H	12H	45H	56H	68H	CRC	
	Address code	Function code	Return Length	Date 1 in register	Date 2 in register	Date 3 in register	Date 4 in register	CRCcheck	

Example :

Serial port send Modbus data: -Tx:01 03 00 48 00 03 85 DD

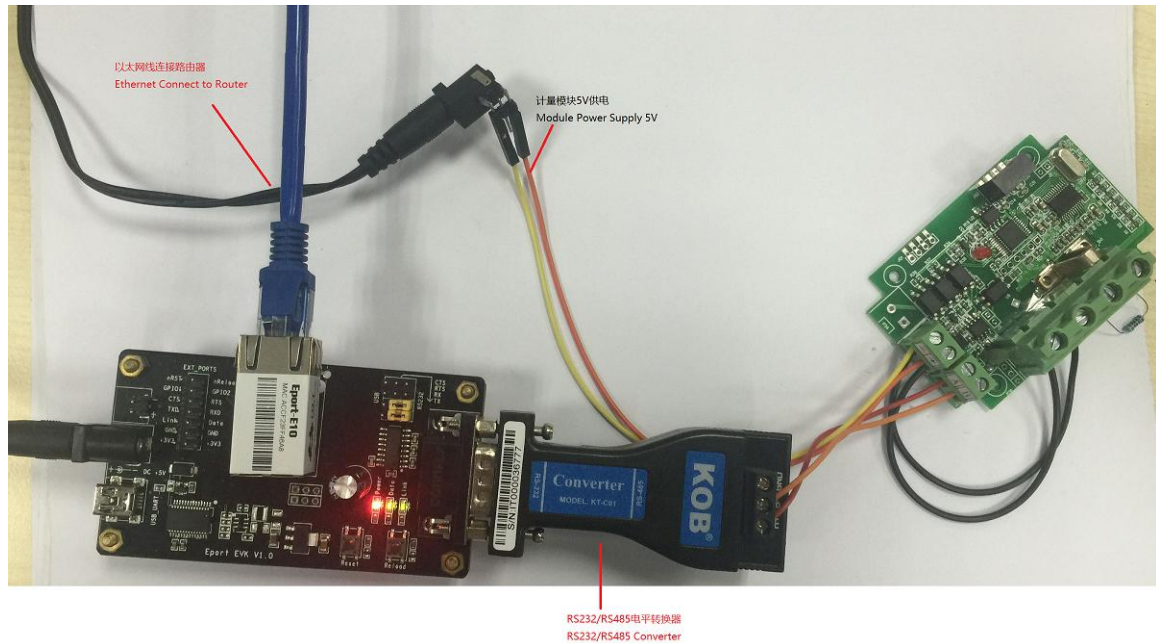
Serial port receive Modbus data: -Rx:01 03 06 02 17 00 33 00 02 25 5A

5. MODBUS TCP TO MODBUS RTU

5.1. Test Introduction

Connect devices with 485 adapter as chapter

Step 1 : Connect devices

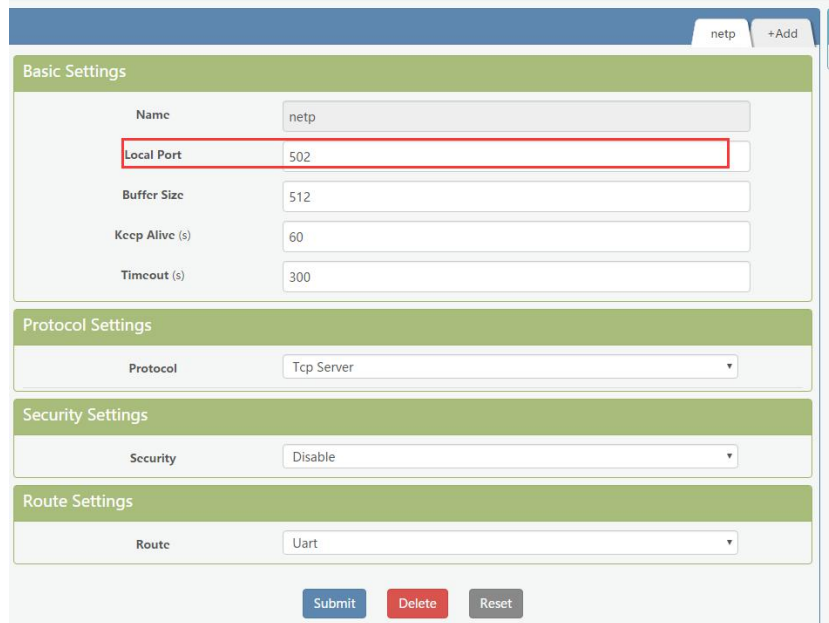


Step 2 : Enable Modbus function by IOTManager or webpage.

Serial Port Settings
change the device serial port settings

Basic Settings	
Baud Rate	4800
Data Bit	8
Stop Bit	1
Parity	None
Buffer Settings	
Buffer Size	512
Gap Time	50
Follow Control Settings	
Follow Control	<input type="checkbox"/> OFF
Cli Settings	
Cli	Serial String
Serial String	+++
Waiting Time	300
Protocol Settings	
Protocol	Modbus

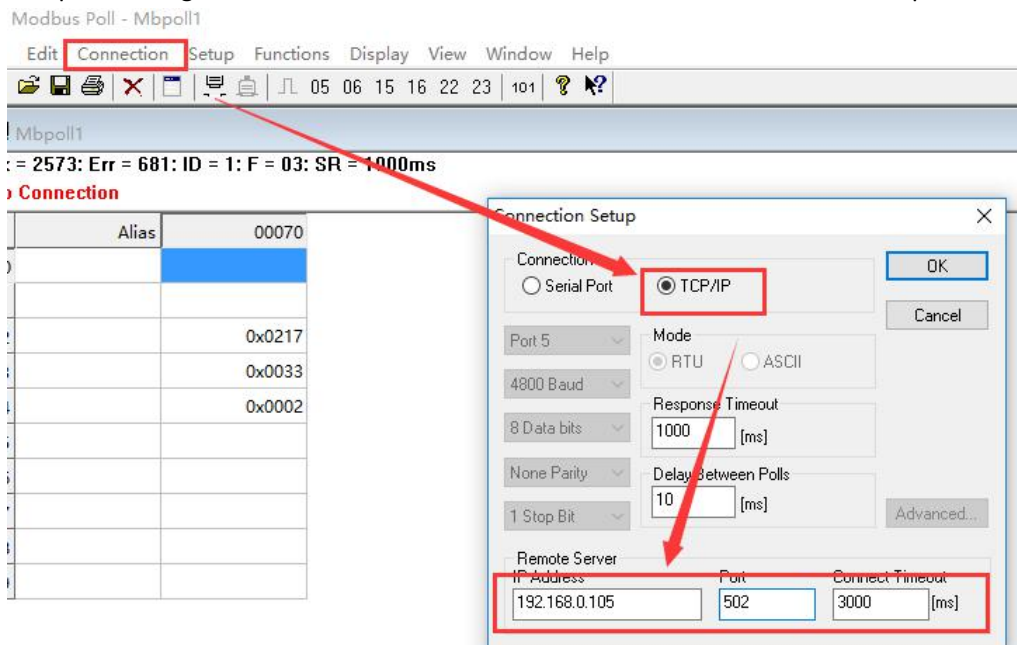
Step 3 : Modify local port of TCP Server Socket to 502(of course you can use other port, but the default Modbus TCP port is 502)



The screenshot shows the configuration window for a device named 'netp'. The settings are as follows:

Section	Parameter	Value
Basic Settings	Name	netp
	Local Port	502
	Buffer Size	512
	Keep Alive (s)	60
	Timeout (s)	300
Protocol Settings	Protocol	Tcp Server
Security Settings	Security	Disable
Route Settings	Route	Uart

Step 4 : Configure Modbus Poll tool as TCP connection and set IP address and port number.



The screenshot shows the Modbus Poll application window with the 'Connection' menu item highlighted. A 'Connection Setup' dialog box is open, showing the following configuration:

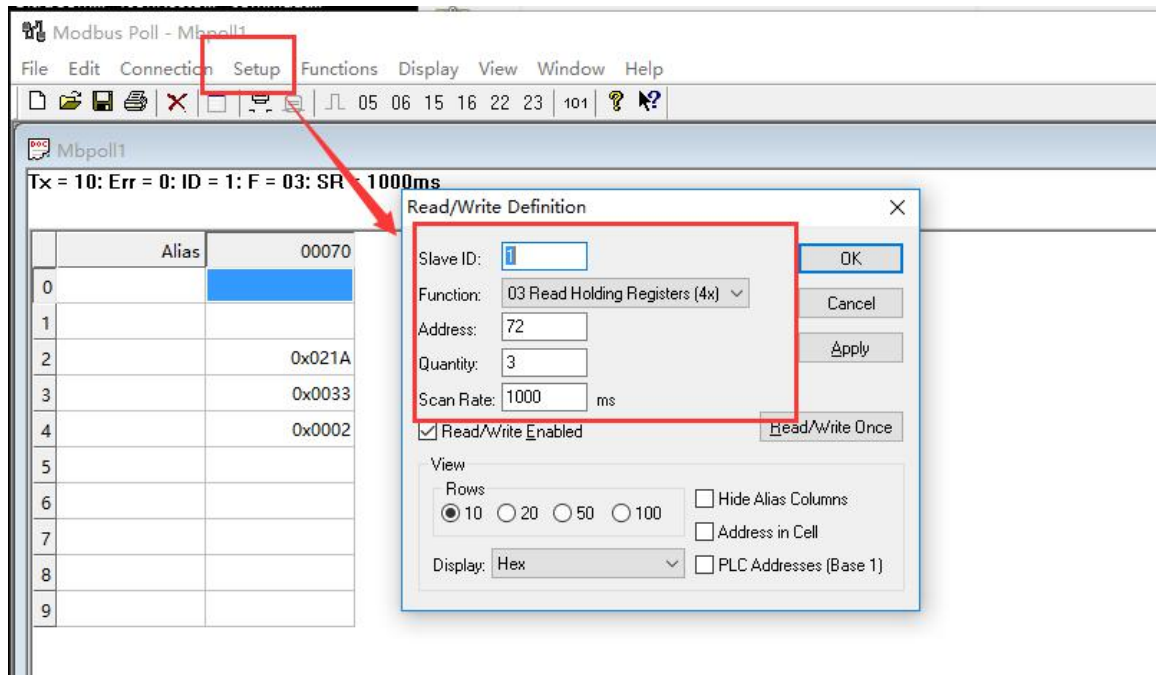
- Connection: TCP/IP
- Mode: RTU, ASCII
- Response Timeout: 1000 [ms]
- Delay Between Polls: 10 [ms]
- Remote Server:

IP Address	Port	Connect Timeout
192.168.0.105	502	3000 [ms]

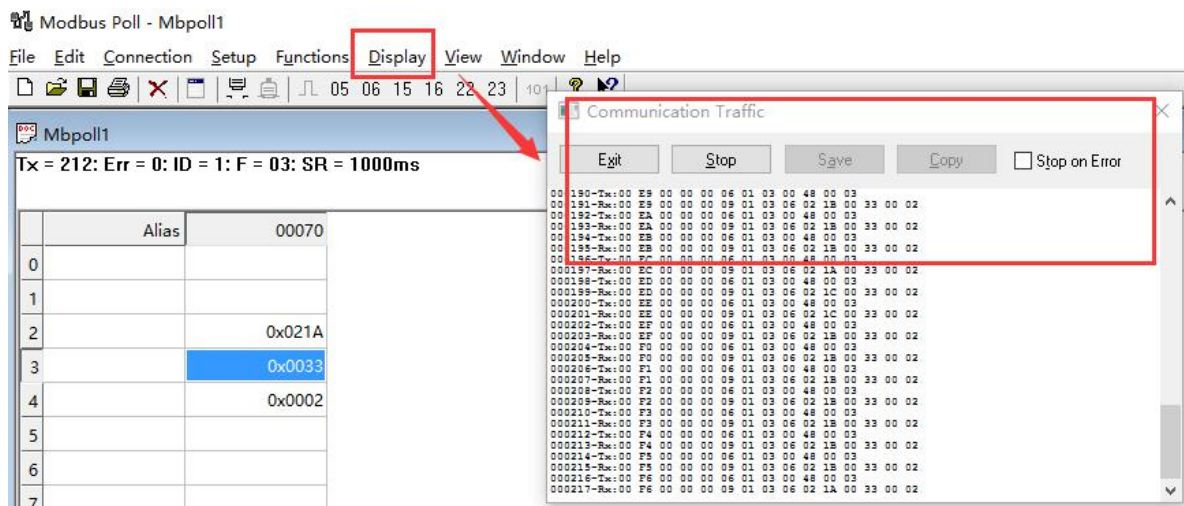
The main window displays a table of data points:

Alias	Value
00070	
0x0217	
0x0033	
0x0002	

Step 5: Configure read data and set address of register. The final acquiring result is shown as follow. The result method is the same as previous chapter.



Notes: Click Display->Communication , and you can see the TCP packets between sending and receiving.

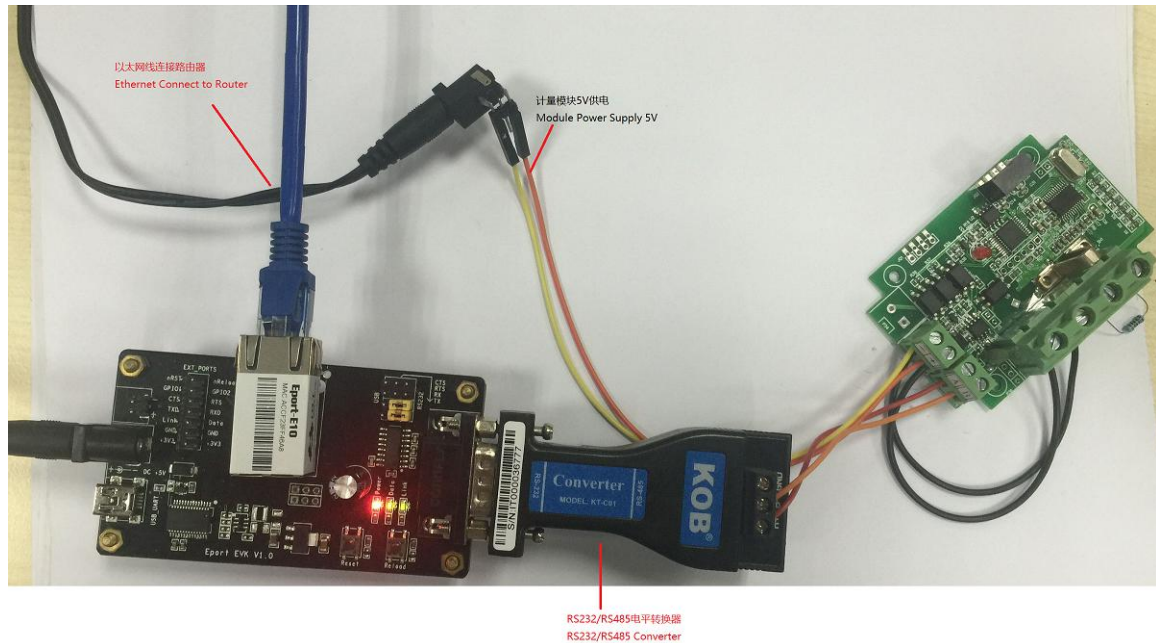


6. VIRTUAL SERIAL PORT USING MODBUS

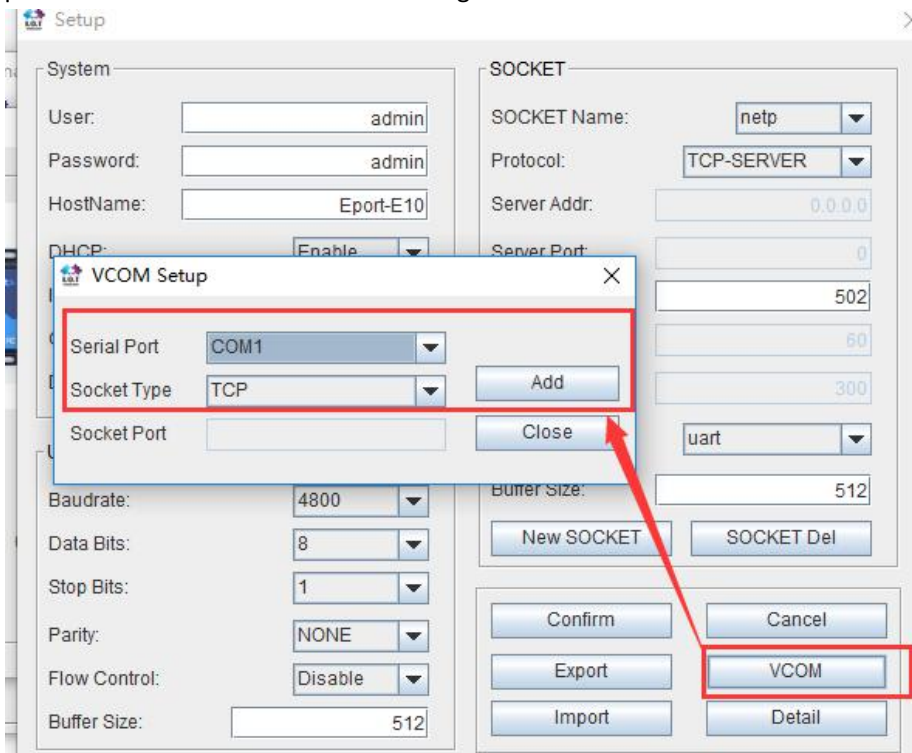
6.1. Test Introduction

Connect with devices by 485 adapter as chapter 4.

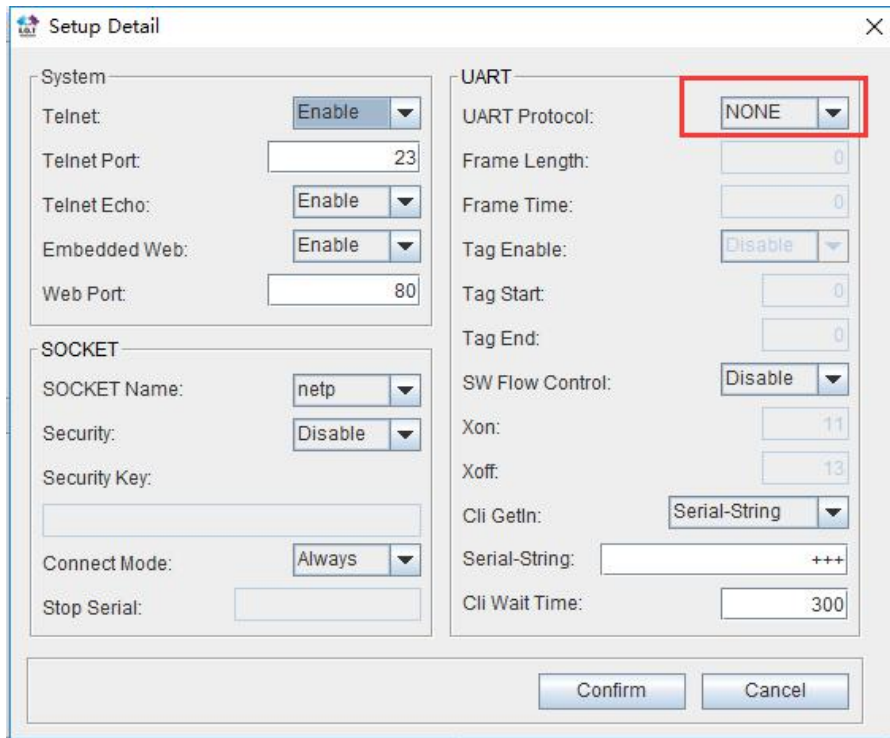
Step 1 : Connect as following figure



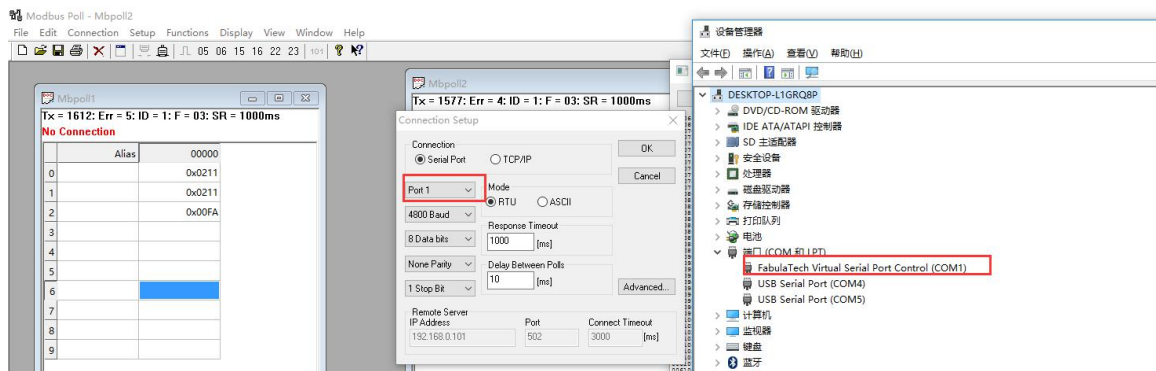
Step 2 : Add virtual com 1 in tool IOTManager.



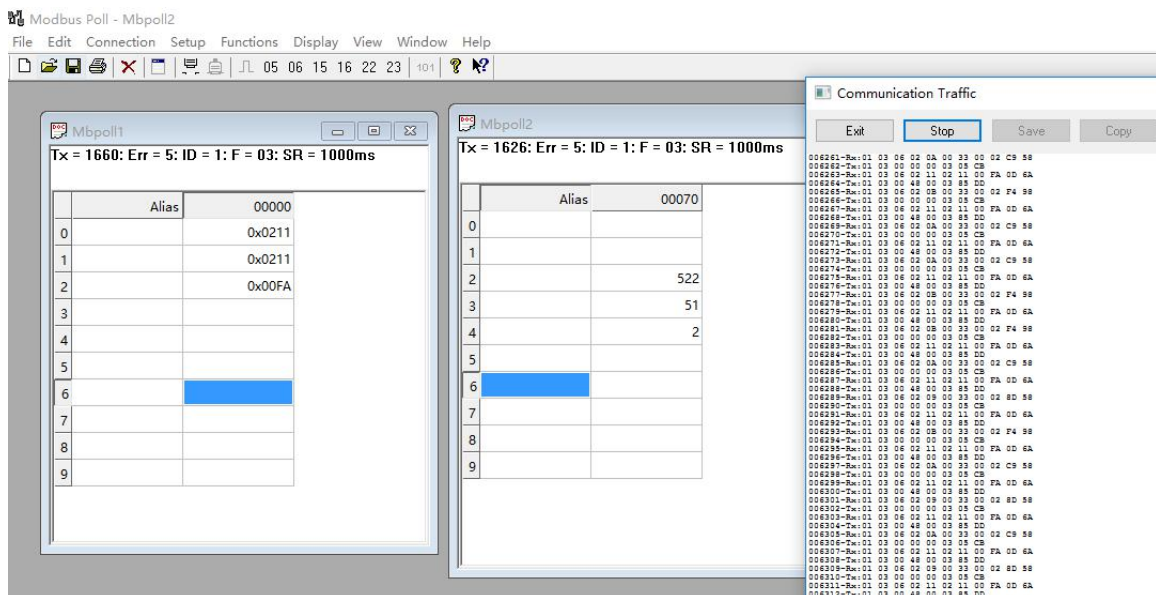
Step 3 : Modify UART protocol to transparent mode(NONE, communicate Modbus devices by virtual serial method and the communication protocol have to set as transparent mode)



Step 4 : Open Modbus Poll tool and use virtual com 1 to build connection.



Step 5 : Results



APPENDIX: CONTACT INFORMATION

Address: Room 1002, Building 1, No.3000, Longdong Avenue, Pudong New Area, Shanghai, China

Postcode: 201203

Web Site: <http://www.iotworkshop.com/> or www.hi-flying.com

Business Contact: business@iotworkshop.com

Technical Contact: support@iotworkshop.com

After Sale Contact: service@iotworkshop.com

More information about product, please visit the webpage: www.iotworkshop.com