

## **Industrial M4 Serial-Ethernet product Modbus gateway manual**

File Version: V1.0.0

## Overview

This manual introduces M4 series Serial-Ethernet products(Include USR-N510, USR-N520, USR-N540, USR-TCP232-410s and USR-TCP232-ED2, USR-TCP232-E2, USR-K3) Modbus gateway function.

Modbus gateway includes: Modbus RTU transparent transmission, Modbus ASCII transparent transmission, Modbus RTU<=>Modbus TCP protocol conversion, Modbus polling and serial port querying. In this manual, we take USR-TCP232-410S as a example to introduce Modbus gateway and configure.

## 1.Configuration method

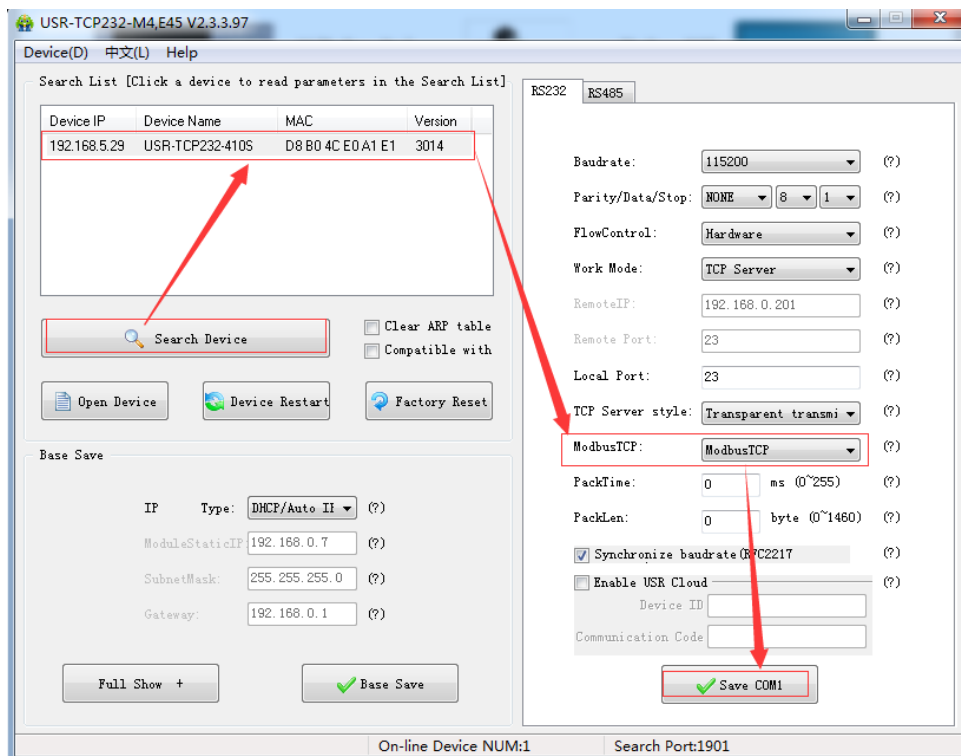
User can configure module by setup software or Web Server. User can download setup software for M4 series Serial-Ethernet products from <http://www.usriot.com/usr-tcp232-m4k3-setup-software/> and log in Web Server by entering module's IP and username/password.(When user runs setup software to configure module or logs in Web Server on PC, user must ensure that module connects directly to PC by Ethernet interface or connects to router which in same network as PC by Ethernet interface.)

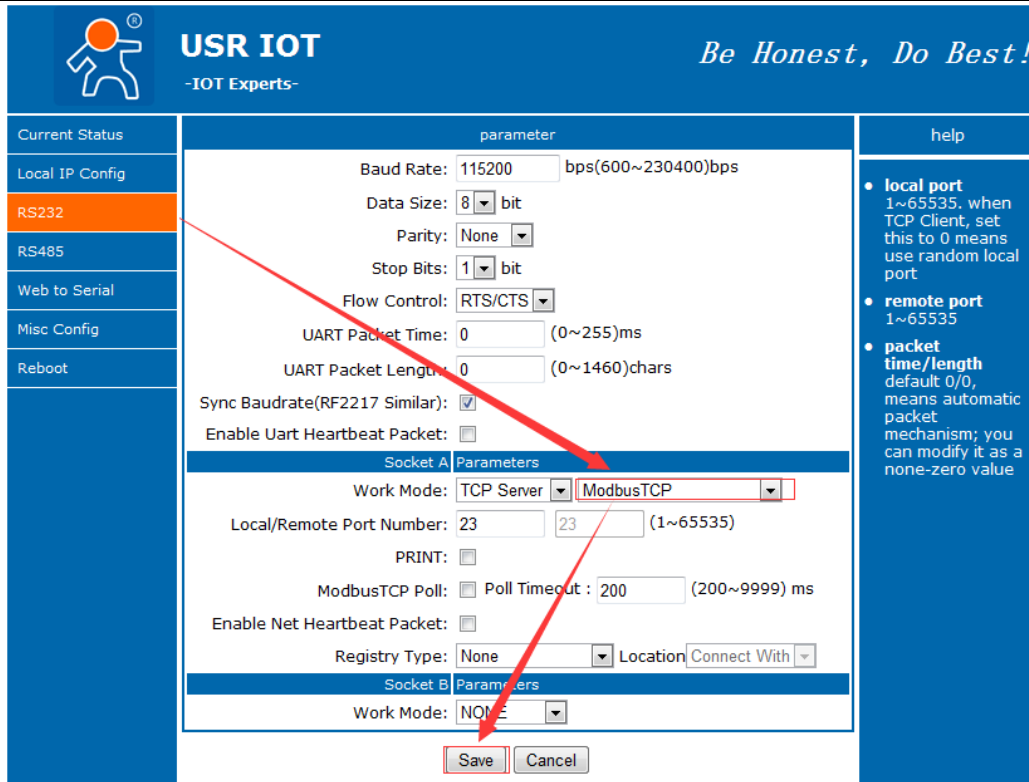
## 2.Modbus RTU<=>Modbus TCP

Set module in TCP Server or TCP Client mode, then user can set module with Modbus RTU<=>Modbus TCP function. Data transmission diagram as follow:



User can enable Modbus RTU<=>Modbus TCP function by setup software or Web Server as follows:





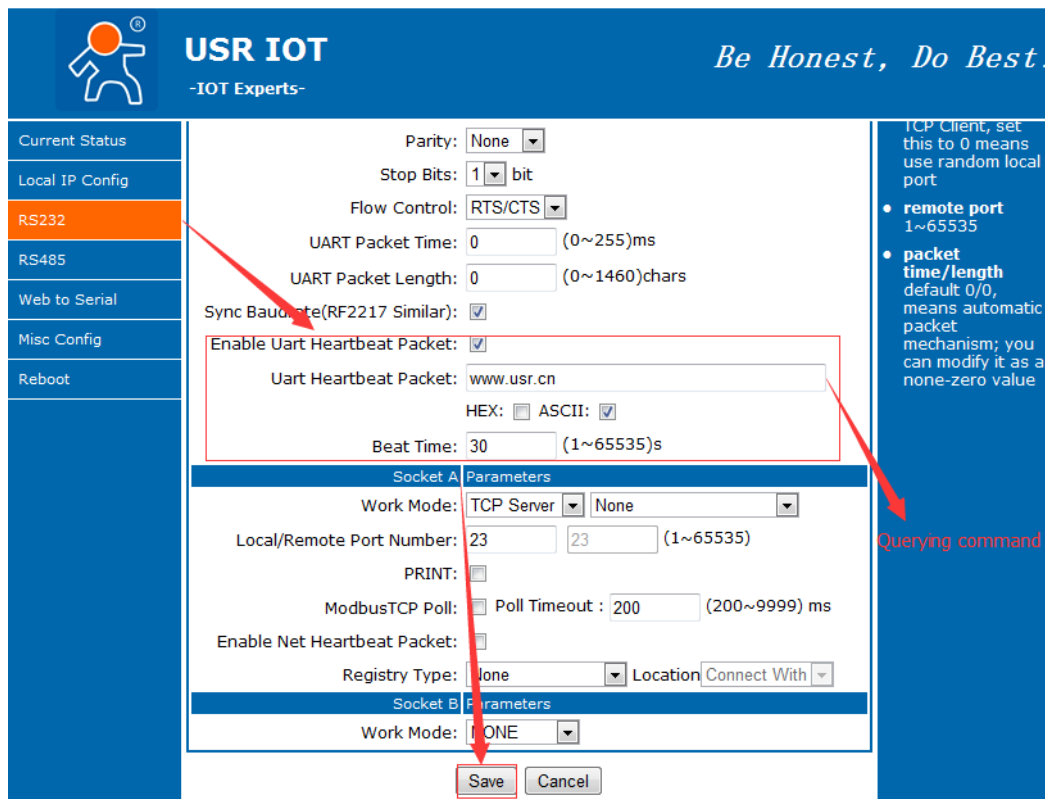
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parameter	help
Baud Rate: 115200 bps(600~230400)bps Data Size: 8 bit Parity: None Stop Bits: 1 bit Flow Control: RTS/CTS UART Packet Time: 0 (0~255)ms UART Packet Length: 0 (0~1460)chars Sync Baudrate(RF2217 Similar): <input checked="" type="checkbox"/> Enable Uart Heartbeat Packet: <input type="checkbox"/>	<ul style="list-style-type: none"> <li><b>local port</b> 1~65535, when TCP Client, set this to 0 means use random local port</li> <li><b>remote port</b> 1~65535</li> <li><b>packet time/length</b> default 0/0, means automatic packet mechanism; you can modify it as a none-zero value</li> </ul>
<b>Socket A Parameters</b> Work Mode: TCP Server <b>ModbusTCP</b> Local/Remote Port Number: 23 23 (1~65535) PRINT: <input type="checkbox"/> ModbusTCP Poll: <input type="checkbox"/> Poll Timeout: 200 (200~9999) ms Enable Net Heartbeat Packet: <input type="checkbox"/> Registry Type: None Location Connect With	
<b>Socket B Parameters</b> Work Mode: NONE	

Save Cancel

### 3.Serial port querying

User can realize Modbus serial port querying function by serial heartbeat packet function. User should enable serial heartbeat packet function and modify heartbeat packet data to Modbus querying commands by Web Server as follow:



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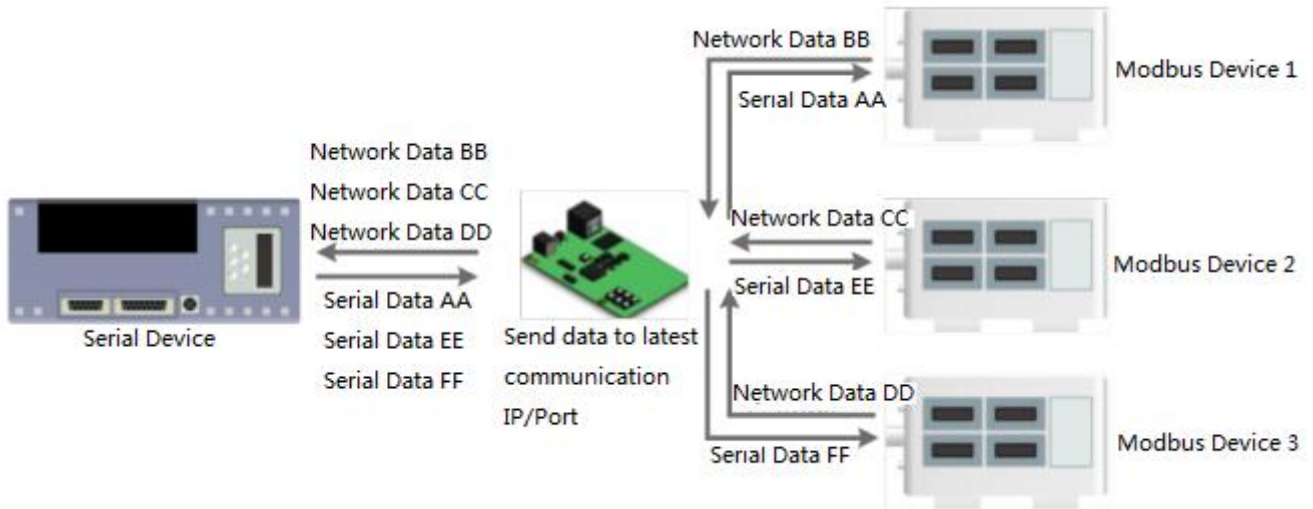
parameter	help
Parity: None Stop Bits: 1 bit Flow Control: RTS/CTS UART Packet Time: 0 (0~255)ms UART Packet Length: 0 (0~1460)chars Sync Baudrate(RF2217 Similar): <input checked="" type="checkbox"/> Enable Uart Heartbeat Packet: <input checked="" type="checkbox"/> Uart Heartbeat Packet: www.usr.cn HEX: <input type="checkbox"/> ASCII: <input checked="" type="checkbox"/> Beat Time: 30 (1~65535)s	<ul style="list-style-type: none"> <li><b>remote port</b> 1~65535</li> <li><b>packet time/length</b> default 0/0, means automatic packet mechanism; you can modify it as a none-zero value</li> </ul>
<b>Socket A Parameters</b> Work Mode: TCP Server None Local/Remote Port Number: 23 23 (1~65535) PRINT: <input type="checkbox"/> ModbusTCP Poll: <input type="checkbox"/> Poll Timeout: 200 (200~9999) ms Enable Net Heartbeat Packet: <input type="checkbox"/> Registry Type: None Location Connect With	
<b>Socket B Parameters</b> Work Mode: NONE	

Save Cancel

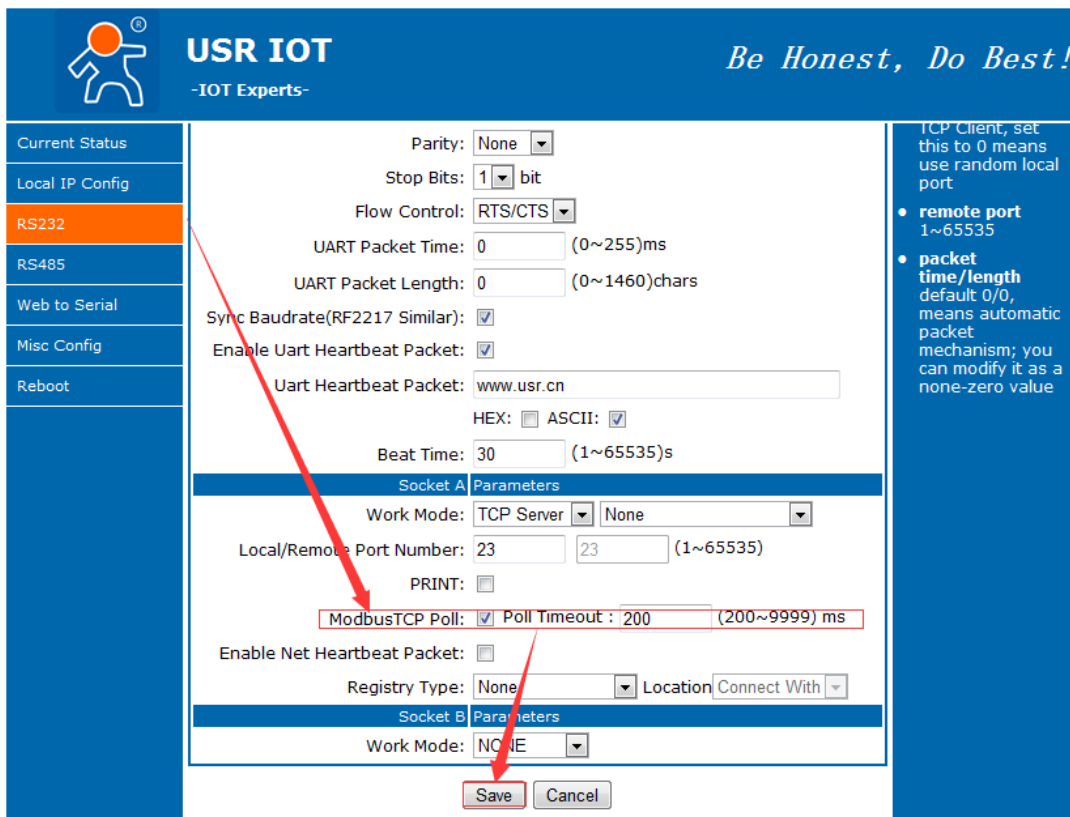
Querying command

## 4.Modbus polling

Modbus polling function diagram as follow:



User can enable Modbus polling function and configure timeout time by Web Server as follow:



Modbus polling function support at most 8 way hosts to query and user must configure Modbus polling time to a reasonable value. Polling interval is too short and baud rate is too low maybe lead to abnormal polling.

## 5.Contact Us

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## 7.Update History

2018-01-15    V1.0.0 established.