RI-A5ETNT Module

(Ethernet)

User Manual

Rayleigh Instruments

It is recommended to use this module as a reference to the following content.

RI-F550 User Manual

RI-F550 Modbus-RTU Communication User Manual

Modbus Protocol Implementation Guide over TCP/IP

1. Safety instruction

Please read this user manual carefully before using this module. This module must be installed and serviced only by professional personnel. Manufacturer shall not be held responsible for failure to comply with the instructions in this manual.

2. General

RI-A5ETNT Ethernet module can extend the communication function of RI-F550.

. One 10M RJ45 network interface；

. Support 802.3 standard Ethernet frame format；

. Working mode: TCP server；

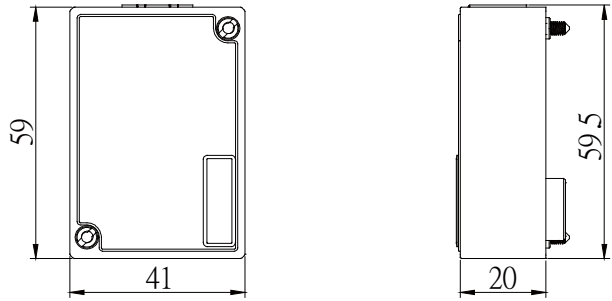
. Support DHCP automatically obtain IP；

. Pre-programmed Globally Unique, Node MAC Address；

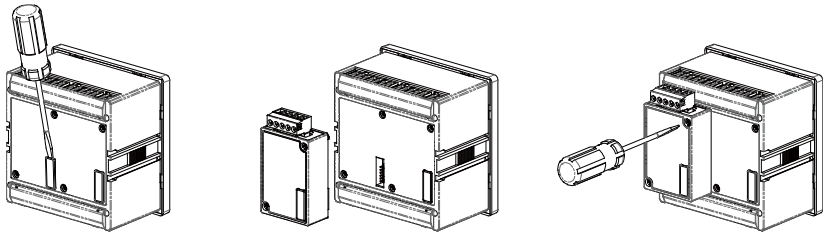
. Support standard Modbus-TCP protocol；

. Automatically disconnect if network anomalies occur so as to ensure reliable TCP connection.

3. Dimensions



4. Installation

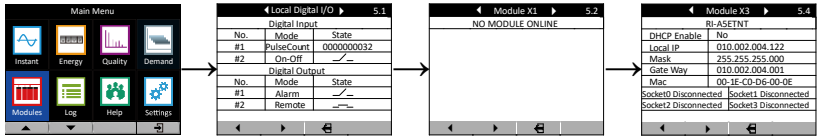


5. Operation

5.1 Connect to RI-F550

Disconnect the power supply of RI-F550, and then connect RI-A5ETNT module to slot X3 (take slot X3 as example).

Connect RI-F550 to power supply, and then enter module interface of RI-F550 to check the information of X3. If the connection between meter and module is correct, parameters of RI-A5ETNT will be shown. Detailed operation process is shown in the following pictures.



Following parameters are used in this manual for ease of presentation.

Port = “502”

Local IP = “10.2.4.239”

Mask = “255.255.255.0”

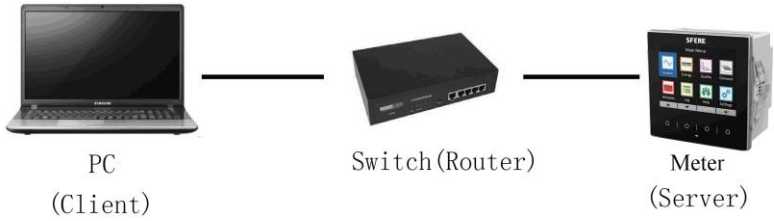
Gateway = “10.2.4.1”

5.2 Parameters configuration

5.2.1 Communication model

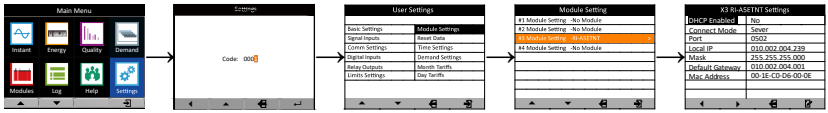
RI-F550 equipped with RI-A5ETNT module is used as server in a LAN built on switch or router. PC or other equipment with Ethernet is used as client to access server to realize data exchanging and relative control output. The model is shown in

the following picture.



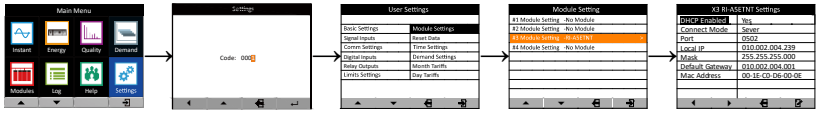
5.2.2 Module configuration through the panel of RI-F550

Communication parameters of RI-A5ETNT such as DHCP, Port, Local IP, Subnet mask and Gateway are configured through the panel of RI-F550. The operation process is shown in the following picture.



RI-A5ETNT will re-start after the configuration is finished. It is suggested to wait for three seconds and return to module display interface and check whether the configuration is correct, see 5.1 operation.

If switch or router is equipped with DHCP function, the DHCP of RI-A5ETNT can be set as Enable to realize automatic address assignment. The operation process is shown in the following picture.

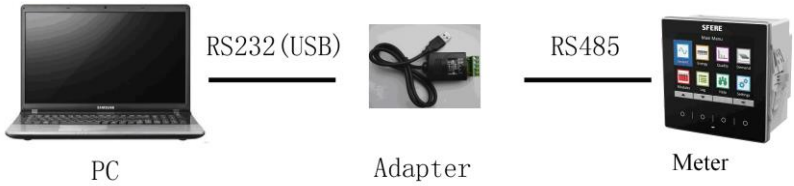


If IP address is automatically assigned through DHCP, the parameters of Local IP, Subnet mask and Gateway can not be set by manual.

After the configuration is finished, return to module display interface to check dynamic assignment address. See operation process 5.1

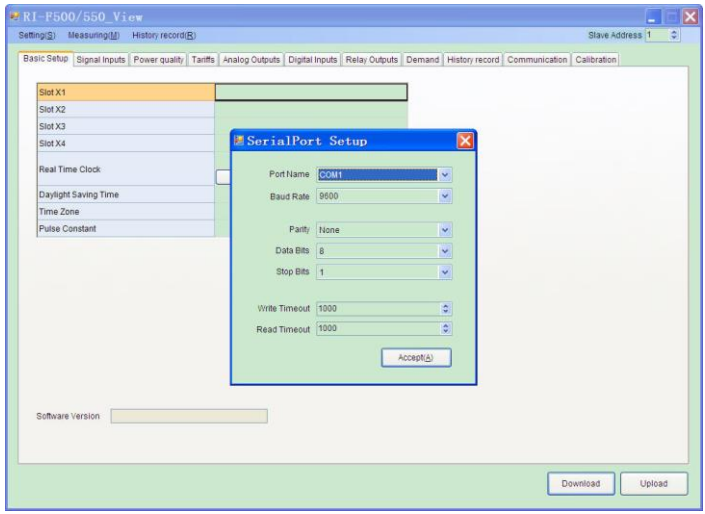
5.2.3 Configure parameters of RI-A5ETNT module through special software

Configure the parameters of RI-A5ETNT module through special software for RI-F550. RI-F550 is equipped with a RS485 interface. It is connected to PC through RS232 (or USB)/RS485 conversion device. See the following picture.



Step 1: Set serial communication

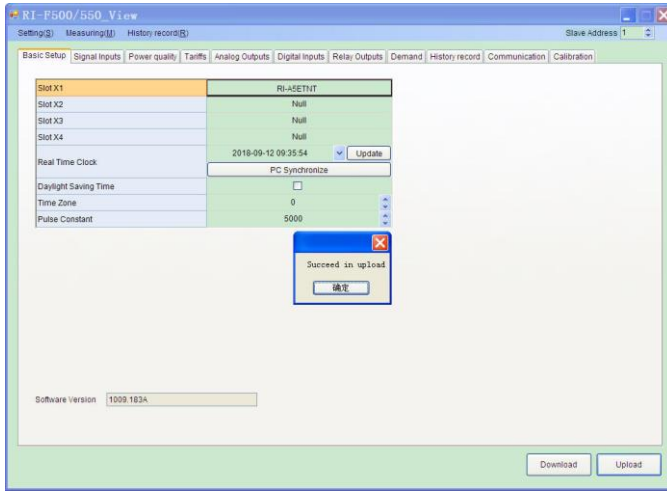
Click Setting menu and select Serial Port Setup



Step 2: Connection test

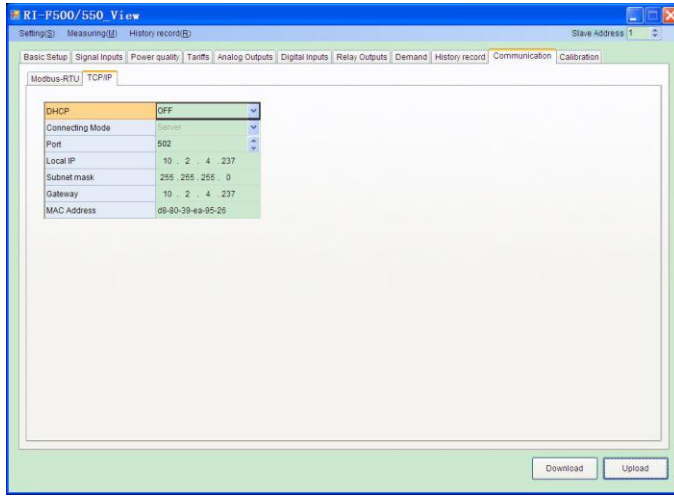
Set communication address of RI-F550 in Address item at the upper right part of PC window.

Select Basic Setup item, and then click Upload button at the lower right part of PC window. If Succeed in upload appears, that means serial communication is normal. In this condition, RI-A5ETNT module appears in X1 slot.



Step3: Change parameters

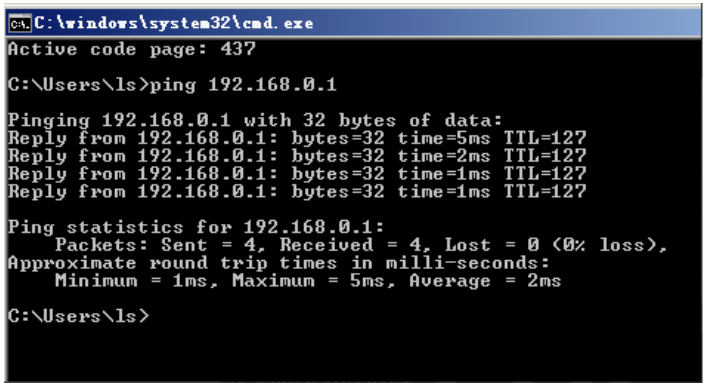
Click Communication item, and then select TCP/IP item to change relevent parameters. At last, click Download button on the lower right part of PC window.



5.2.4 Test

. Ping

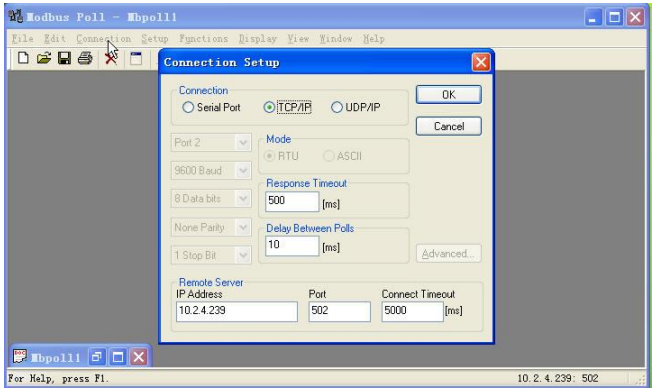
In communication model, PC executes ping command to check whether RI-F550 is connected to LAN correctly and verify the configuration parameters. The operation process is shown in the following picture.



. Modbus/TCP

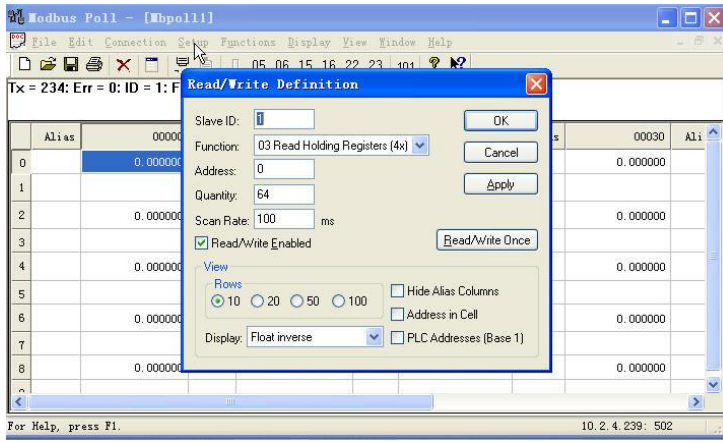
In communication model, the correctness and reliability of communication are checked by PC through Modbus/TCP test software such as Modbus-Poll.

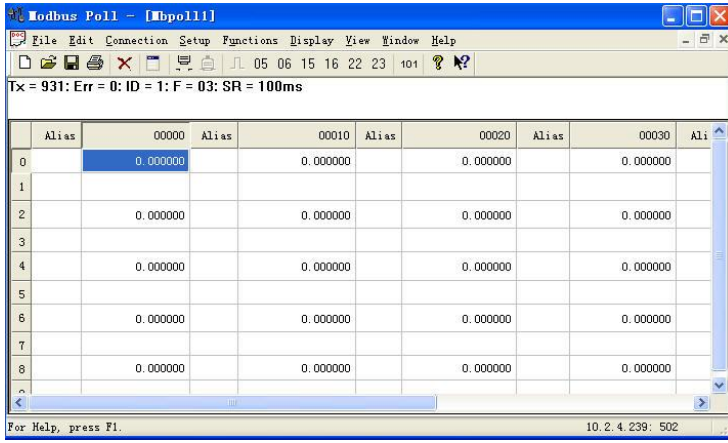
Open Modbus-Poll, click Connection, and then set relative parameters of RI-F550.



Click Setup, and set Modbus/TCP command, address and number of register.

Please refer to RI-F550 User Manual for communication register address list.





6. Technical specifications

Interface	RJ45 (10M)
Frame format	IEEE 802.3
Working mode	Server
MAC	IEEE certification, Globally Unique
IP	Static set or DHCP
Protocol	Modbus-TCP
Isolation transformer	1.5 kV
Working temperature	-40 ～ 85℃
Storage temperature	-40 ～ 85℃ / 0 ～ 95%RH

The information in this document is subject to change without notice.