


F-R100 IO Instruction on F-R100

This instruction is about DI query and DO control through Modbus TCP protocol.

1.IO Ports Definition and Wire Connection

DI	Input ON	5 to 30 VDC
	Input OFF	0 to 3 VDC
DO	Output	< 50mA @ 30VDC
RELAY	Load capability	1A 250VAC/30VDC



Make "GND" connected to "-" interface of the power.

DI: If you give external input, connect the "+" of input to DI port, and connect "-" of input to GND port.

When there is nothing connected to DI, it's same as high level.

When DI is connected to GND, it's same as low level.

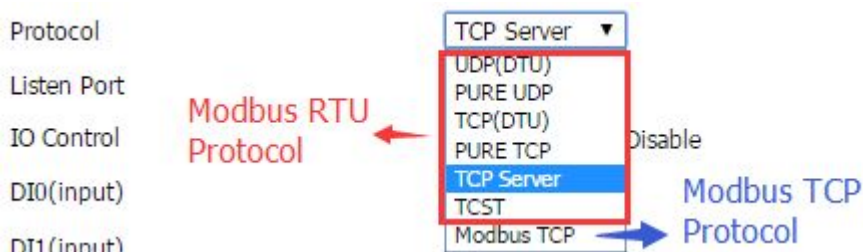
DO & Relay: Set high level to DO/relay, it's open. Set low level, it's closed. Default status is high level.

2.Serial Application Configuration

(1)Enable IO Control and Configure Modbus Address(range from 1-255).

IO Control	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
DI0(input)	<input checked="" type="checkbox"/>
DI1(input)	<input checked="" type="checkbox"/>
DO(output)	<input checked="" type="checkbox"/>
relay(output)	<input checked="" type="checkbox"/>
Modbus Address(1-255)	<input type="text" value="1"/>

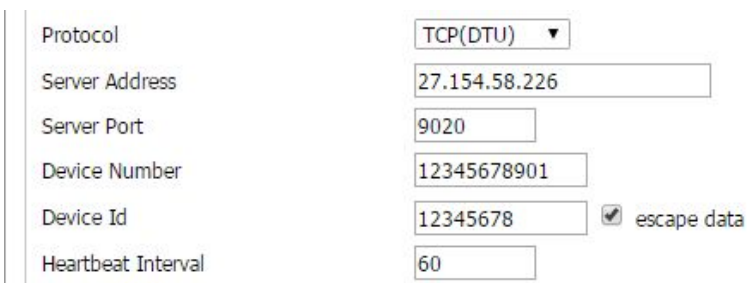
(2) Choose the protocol according to your application.



If your software works as TCP client, choose “TCP Server” protocol in the router to accept TCP connection from your software. If your software works as TCP server, choose “Pure TCP”, “TCP(DTU)” or “TCST”.

Pure TCP: no register string, no heartbeat string

TCP(DTU): with fourfaith register string and heartbeat string



TCST: you can custom register string and heartbeat string.

If you use “Modbus TCP” protocol at your software, choose “Modbus TCP”.

3. Request & Response

(1) Digital input



Request

	Modbus addr.	Function code	Register addr.		Register number		CRC checksum	
DI0	01	02	00	00	00	01	B9	CA
DI1	01	02	00	01	00	01	E8	0A

Response

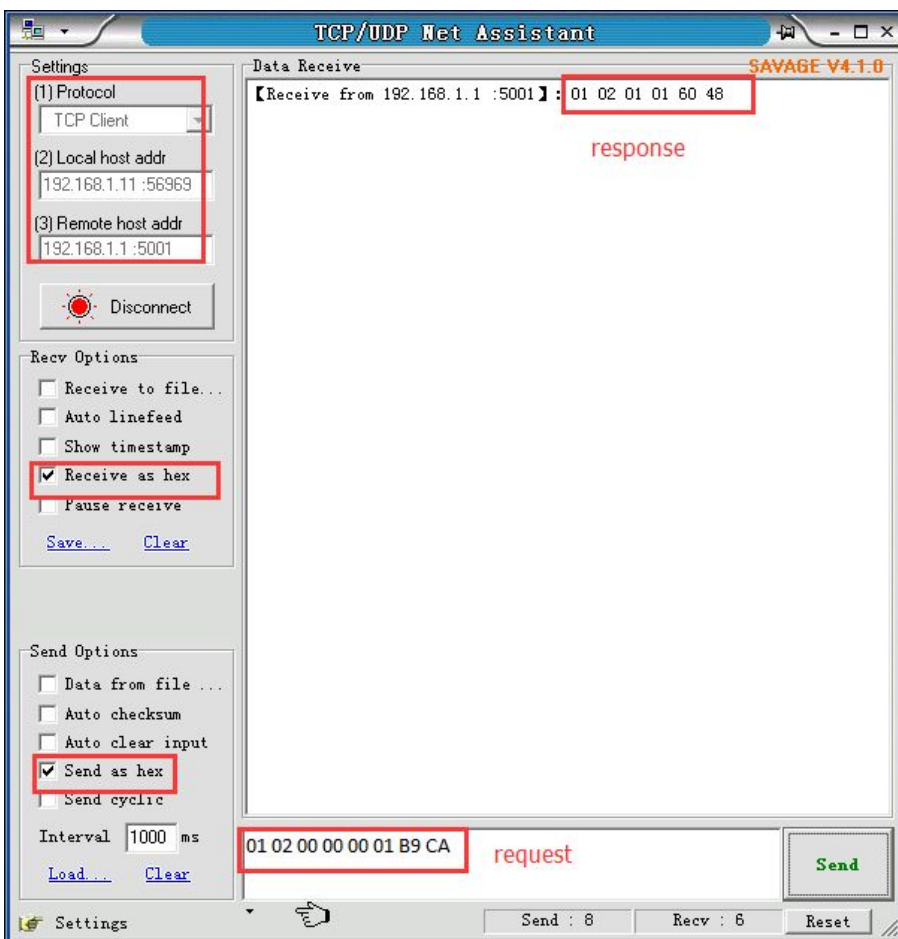
Modbus addr.	Function code	byte	Register status	CRC checksum	
01	02	01	01(high level)	60	48
01	02	01	00 (low level)	A1	88

Send "01 02 00 00 00 01 B9 CA" to query DI0.

Send "01 02 00 01 00 01 E8 0A" to query DI1.

For example (TCP Server protocol)

Use netassit software as TCP client to connect to the router, and send request to query DI0.



(2) Digital output

DO(output) ☒

relay(output) ☒

Request

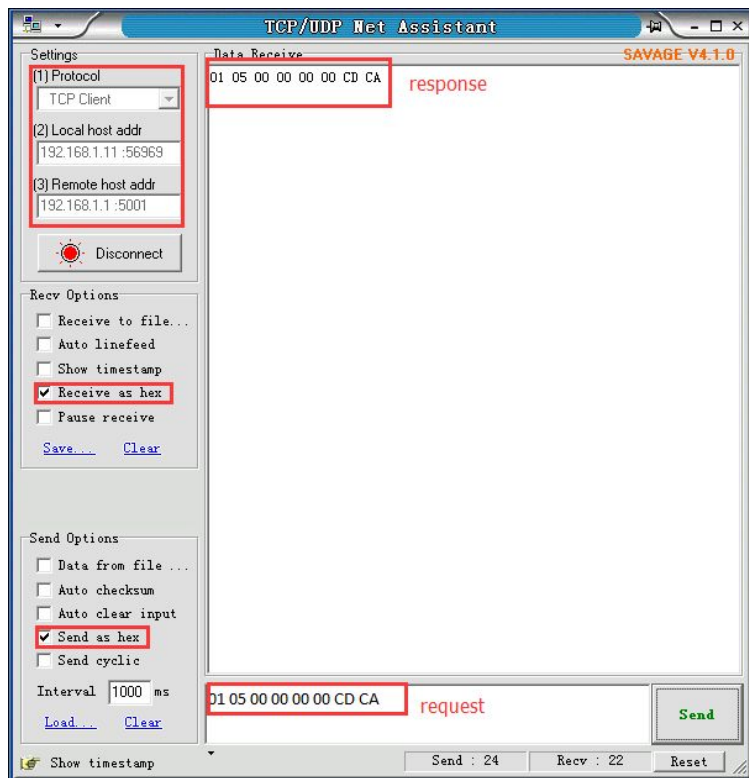
	Modbus addr.	Function code	Register addr.		Set high/low level		CRC checksum	
DO	01	05	00	00	FF	00	8C	3A
					00	00	CD	CA
Relay	01	05	00	01	FF	00	DD	FA
					00	00	9C	0A

Response: same as the request

Send "01 05 00 00 FF 00 8C 3A" to set DO high level, "01 05 00 00 00 00 CD CA" to set DO low level.

Send "01 05 00 01 FF 00 DD FA" to set relay high level, "01 05 00 01 00 00 9C 0A" to set relay low level.

For example





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Notes:

1. Both serial communication and IO over modbus protocol are available together. Remember to set different modbus address for your modbus device and F-R100.
2. When F-R100 receives modbus command with different modbus address, it will transfer the command to serial port.

Macy

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