



RMV-762D-MTCP User Manual

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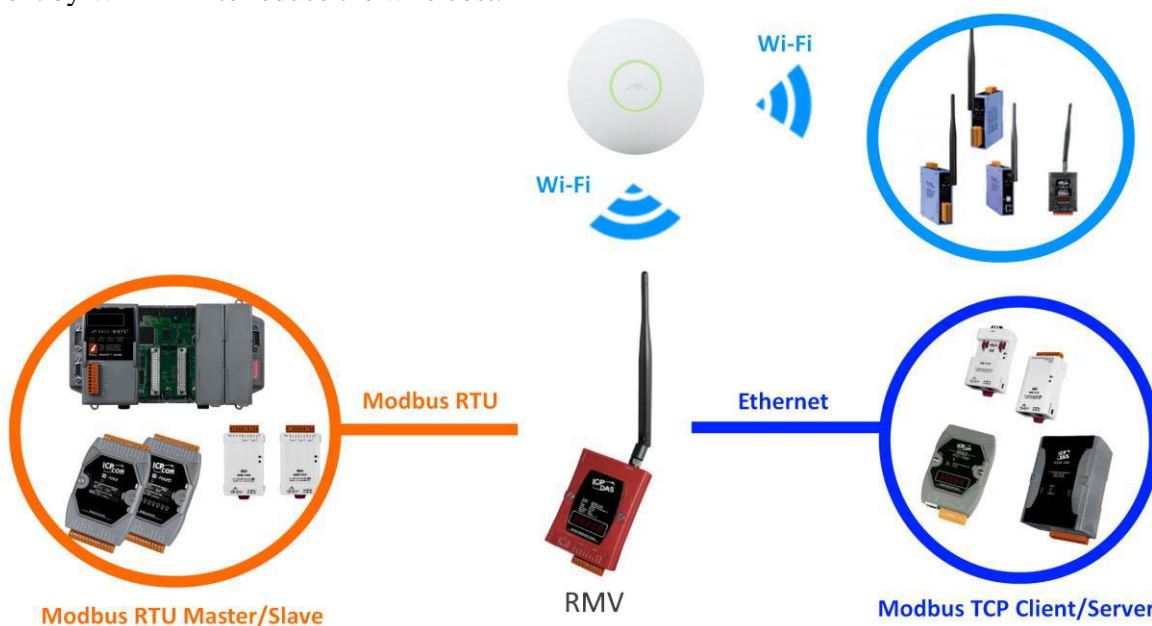
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1. Introduction

RMV-762D-TCP is a Modbus TCP/RTU gateway. It exchanges Modbus command from Modbus TCP/RTU master to Modbus RTU/TCP slave. Modbus TCP command can be transceived not only Ethernet port but also Wi-Fi interface. It supports Vxcomm and Point-to-Point connection. Users can choose Ethernet mode or Wi-Fi mode to do the Point-to-Point connection, which provides TCP data tunneling between two serial devices.

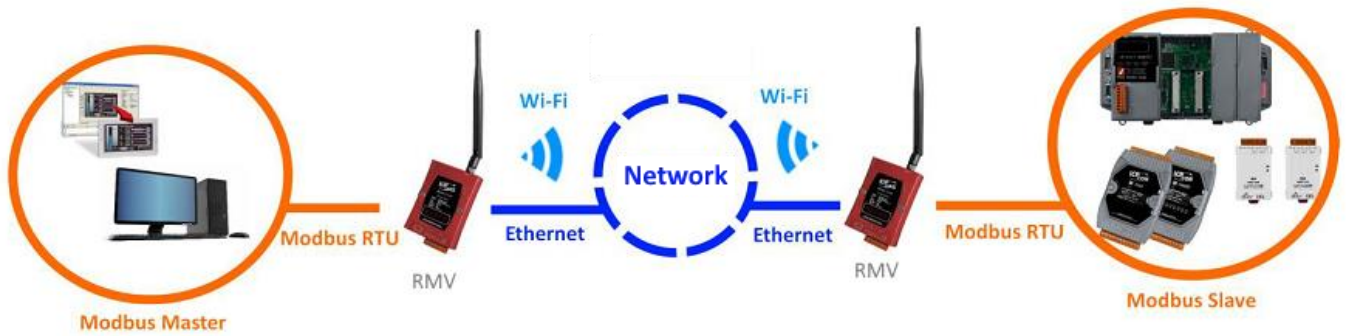
The RMV-762D-TCP built-in Wi-Fi(802.11a/b/g) function can be applied to the already Wi-Fi system. It can connect to the remote equipment by Wi-Fi AP to reduce the wire cost. The RMV-762D-TCP built-in Wi-Fi(802.11a/b/g) function can be applied to the already Wi-Fi system. It can connect to the remote Modbus equipment by Wi-Fi AP to reduce the wire cost.



Another feature, the RMV-762D-TCP provides the Limit-AP mode. That can provide the Wi-Fi AP to the Wi-Fi client device..



In addition, the RMV-762D-TCP has a Powerful Function, Point-to-Point connection, to upgrade the original serial application to network application.



1.1 Features

General Features:

- Supports Point-to-Point connection applications
- Application Modes: Vxcomm, MB TCP/MB RTU gateway
- Supports static IP/DHCP
- Support IEEE 802.11 a/b/g for Wi-Fi mode and Limit-AP mode
- Support WPA and WPA2 encryption
- Auto control channel
- Easy firmware update via Ethernet
- Removable terminal block connector

Statement of connection mode

■ Communication Mode:

■ Modbus TCP Server/Modbus RTU Master

User can make the Modbus TCP connection with their Modbus TCP client and exchange the Modbus command to the Modbus RTU slave from the Modbus RTU master side.

■ Modbus RTU Slave/Modbus TCP Client

User can make the Modbus RTU connection with their Modbus RTU slave and exchange the Modbus command to the Modbus TCP server from the Modbus TCP client side.

■ Vxcomm

Build a Vxcomm in the Wi-Fi of LAN interface, and exchange the Modbus command to the Modbus RTU slave from the Modbus RTU master side.

■ Transmission Type:

■ Ethernet:

RMV-762D-MTCP provides the Ethernet LAN port with RJ-45.

■ Limit-AP:

RMV-762D-MTCP provides a simple Wi-Fi AP.

■ Infrastructure:

Make the Wi-Fi connection between the RMV-762D-MTCP and a Wi-Fi AP.

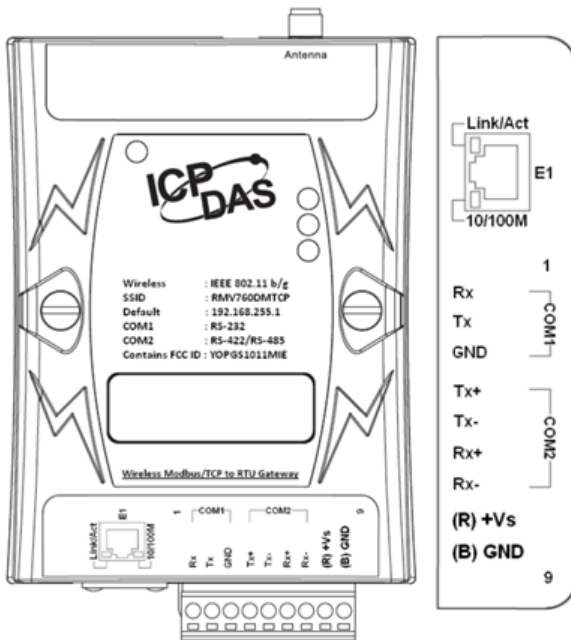
2. Hardware Information

2.1 System Specifications

| | |
|---------------------------|--------------------------------------------------------|
| CPU Module | |
| CPU | 32-bit MCU |
| Wi-Fi | |
| Antenna | Omni-Directional 3 dBi @ 2.4 GHz 5.5 dBi @ 5 GHz |
| Channels | 2.4 GHz: CH1~11 5 GHz: CH36、40、44、48 |
| Encryption | Open/WPA/WPA2 |
| Operation Mode | Limit-AP & Infrastructure |
| Standards | IEEE 802.11 a/b/g |
| Transmission Range | 50 m (LOS) |
| COM Ports | |
| Ports | 1 x RS-232 1 x RS-485 1 x RS-422 |
| Baud Rate | 115200 bps Max. |
| Parity | None, Odd, Even |
| Data Bit | 7, 8 |
| Stop Bit | 1, 2 |
| Ethernet | |
| Ports | 1 x RJ-45, 10/100 Base-TX, 8-pin |
| Power | |
| Input Range | +10 ~ 30 VDC |
| Consumption | 0.05 A @ 24 VDC |
| Mechanical | |
| Dimensions (mm) | 33 x 106 x 120 (W x L x H) |
| Installation | DIN-Rail |
| Environmental | |

| | |
|------------------------------|--------------|
| Operating Temperature | -25 ~ +75 °C |
| Storage Temperature | -30 ~ +80 °C |

2.2 Hardware Specification



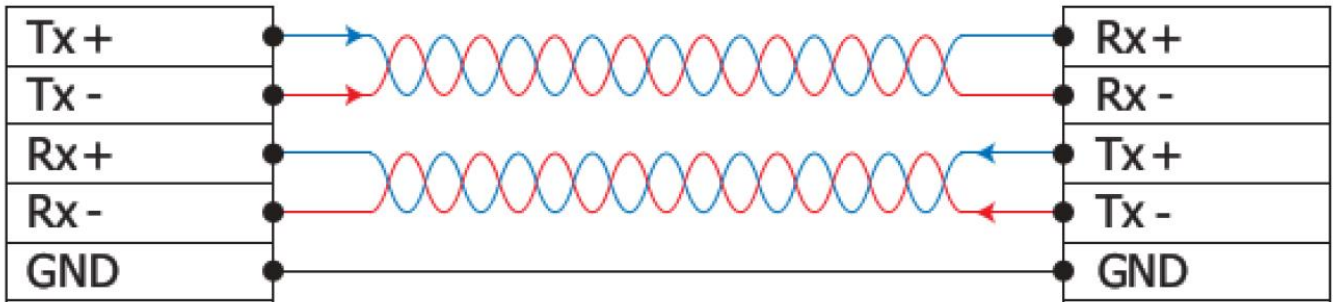
| Pin | Name | Description |
|-----|--------|----------------------------------|
| 1 | Rx | Rx of RS-232 |
| 2 | Tx | Tx of RS-232 |
| 3 | GND | GND of RS-232 |
| 4 | Tx+ | Tx+ of RS-422 / D+ of RS-485 |
| 5 | Tx- | Tx- of RS-422 / D- of RS-485 |
| 6 | Rx+ | Rx- of RS-422 |
| 7 | Rx- | Rx- of RS-422 |
| 8 | (R)+Vs | V+ of Power Supply (+10~+30 VDC) |
| 9 | (B)GND | GND of Power Supply |

2.3 Wiring Connection

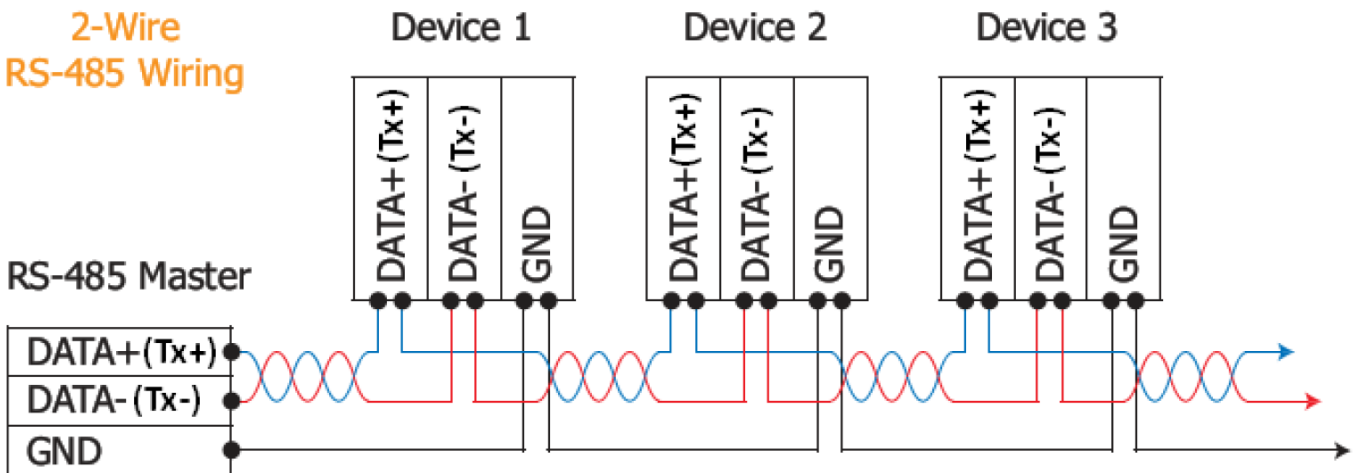
4-Wire RS-422 Wiring

RS-422 Master

RS-422 Device

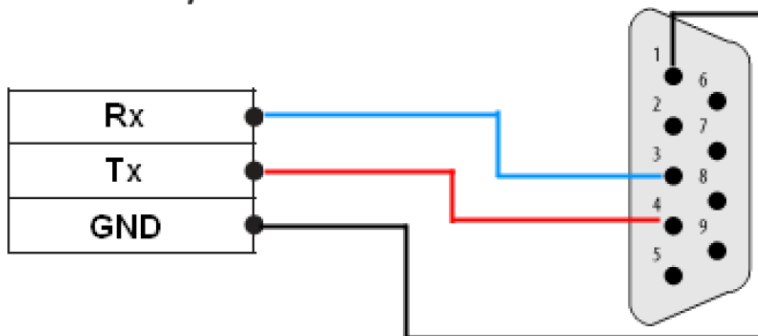


2-Wire RS-485 Wiring

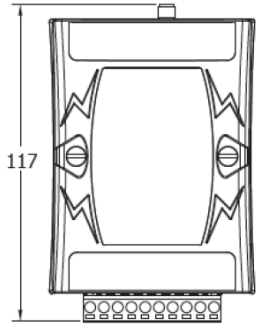


2-Wire Only Device

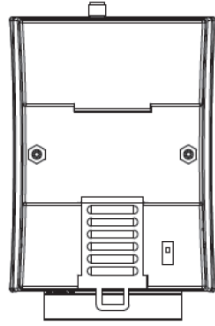
Twisted Pair Wiring plus Ground



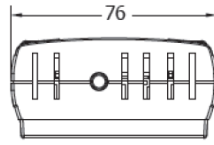
2.4 Dimension(Units:mm)



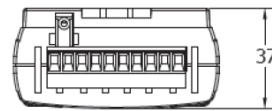
Front View



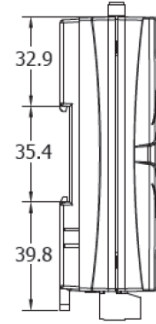
Rear View



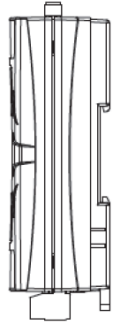
Top View



Bottom View



Left Side View

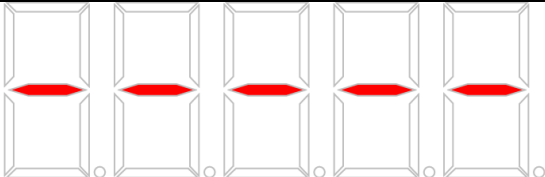
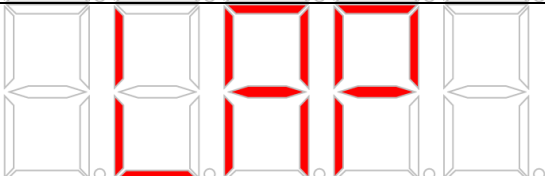
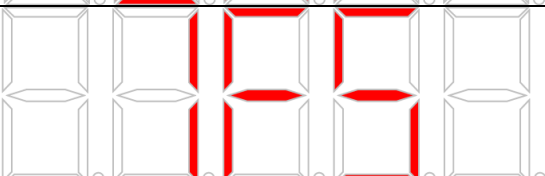
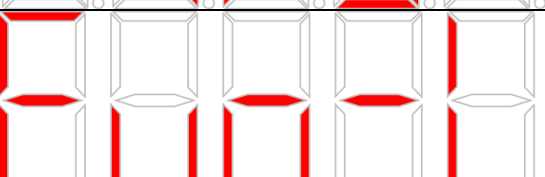
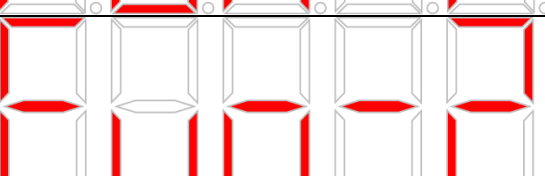
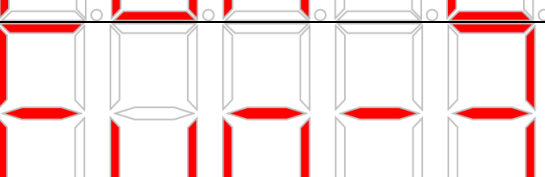
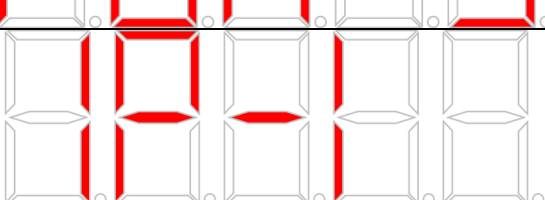


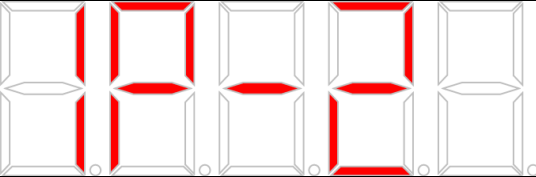
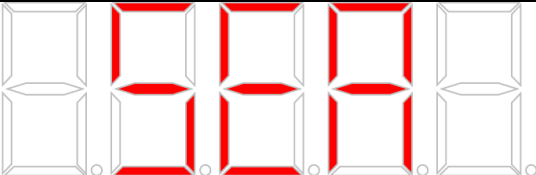
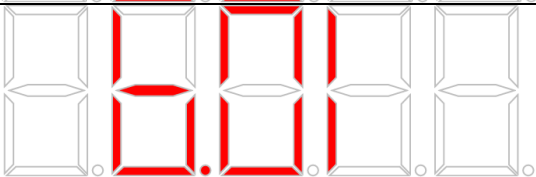
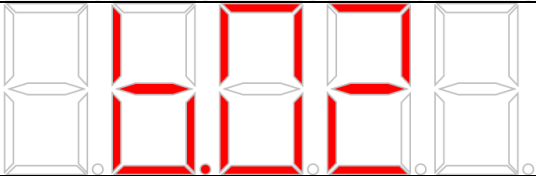
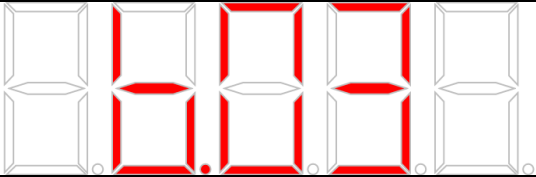
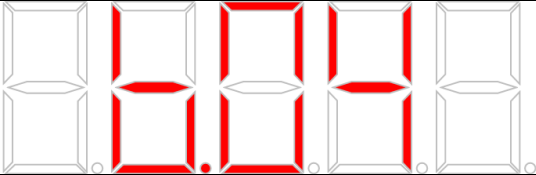
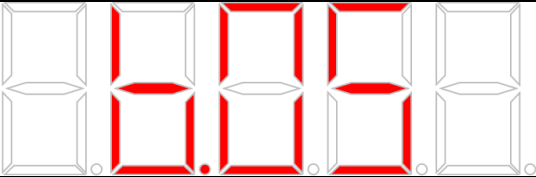
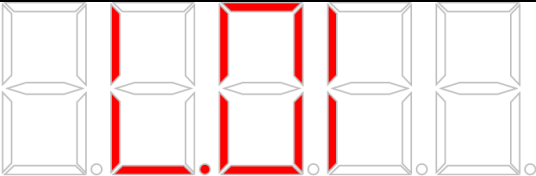
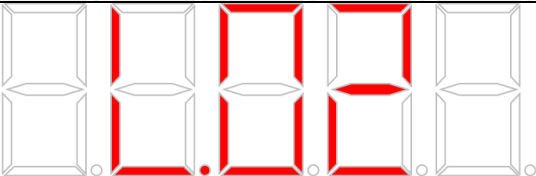
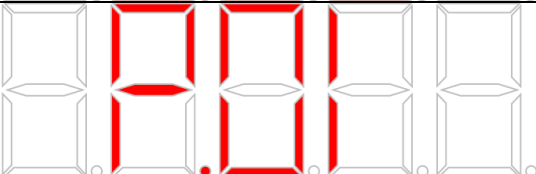
Right Side View

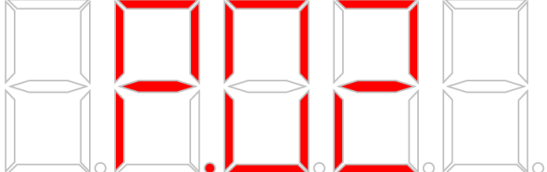

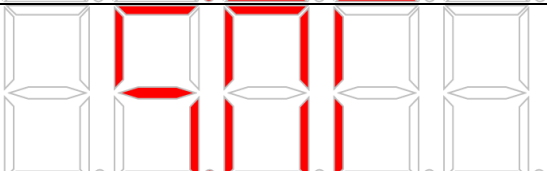
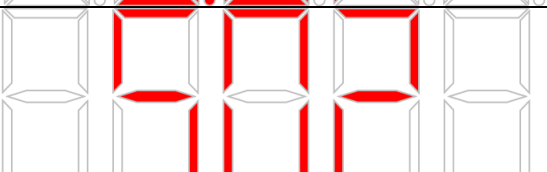
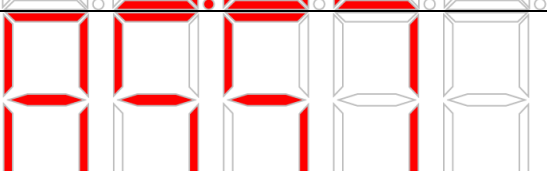
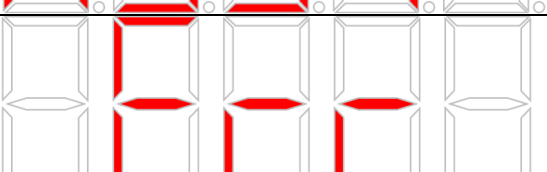
2.5 5-Digital 7 Segment LED Display

The RMV-762D-MTCP is built-in 5-Digit 7 segment LED Display. User can get the system information from the starting process. The messages are shown as VxServer, Pair-Connection Server and Pair-Connection Client types. Each type is shown as Ethernet, Limit-AP and the infrastructure modes.

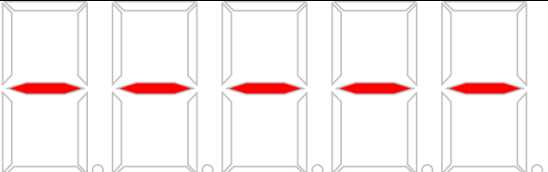
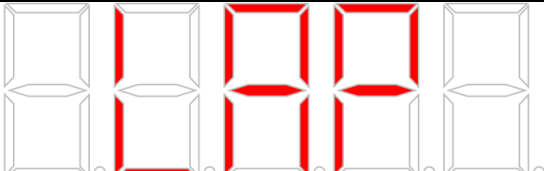

Main Function Display

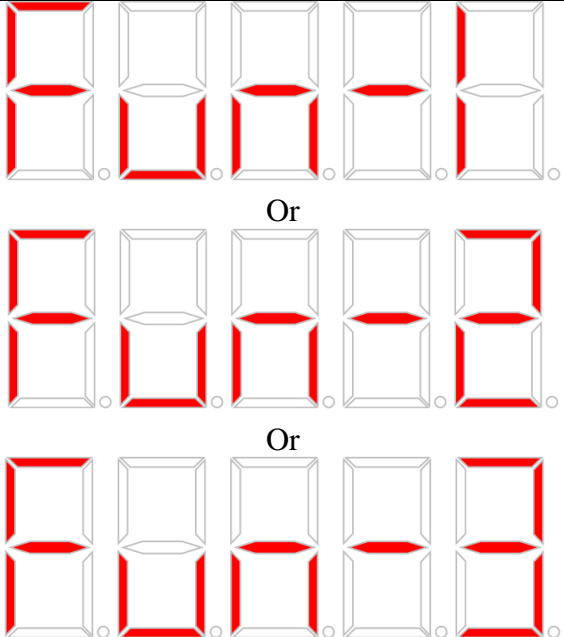
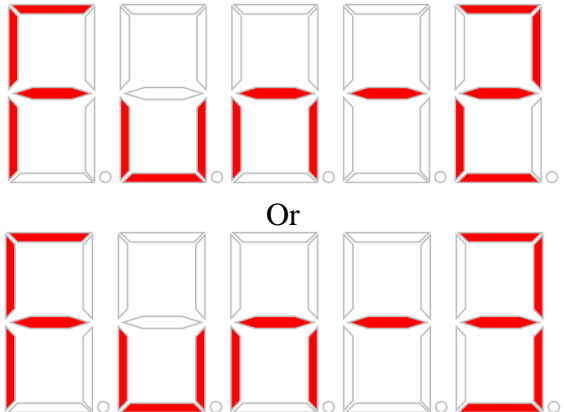
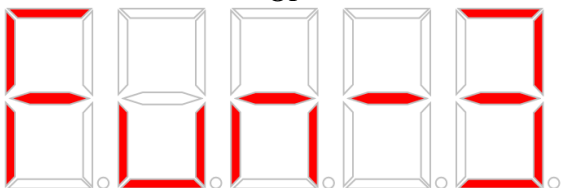
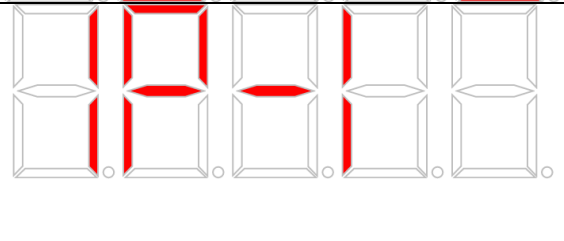
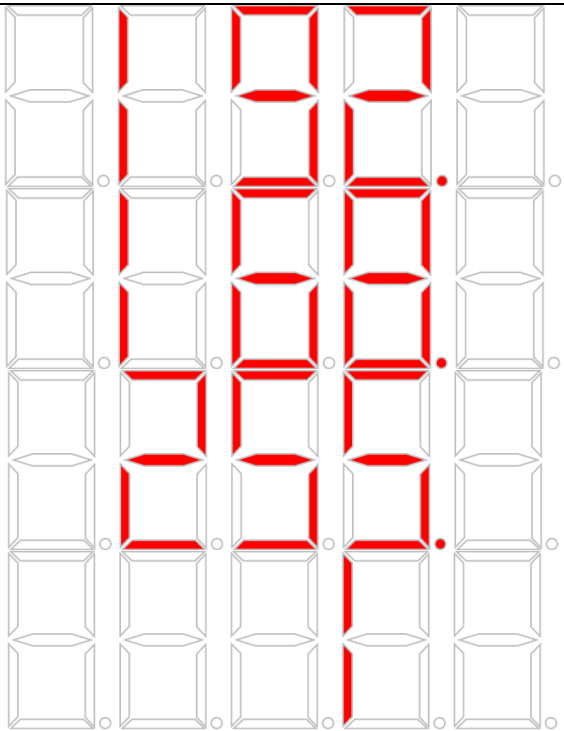
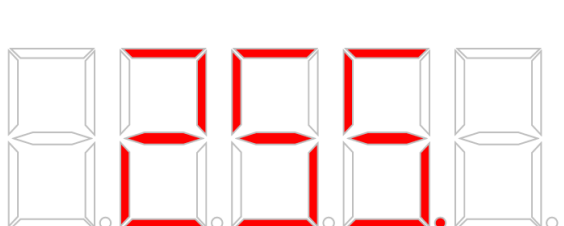
| 7 segment LED Display | Description |
|-------------------------------------------------------------------------------------|---------------------------------------------------------|
|  | Initial Settings |
|  | Limit-AP Mode |
|  | Infrastructure Mode |
|  | Gateway Function 1: Modbus TCP Server/Modbus RTU Master |
|  | Gateway Function 2: Modbus RTU Slave/Modbus TCP Client |
|  | Gateway Function 3: Vxcomm Server |
|  | IP-1: LAN IP Address Configuration |

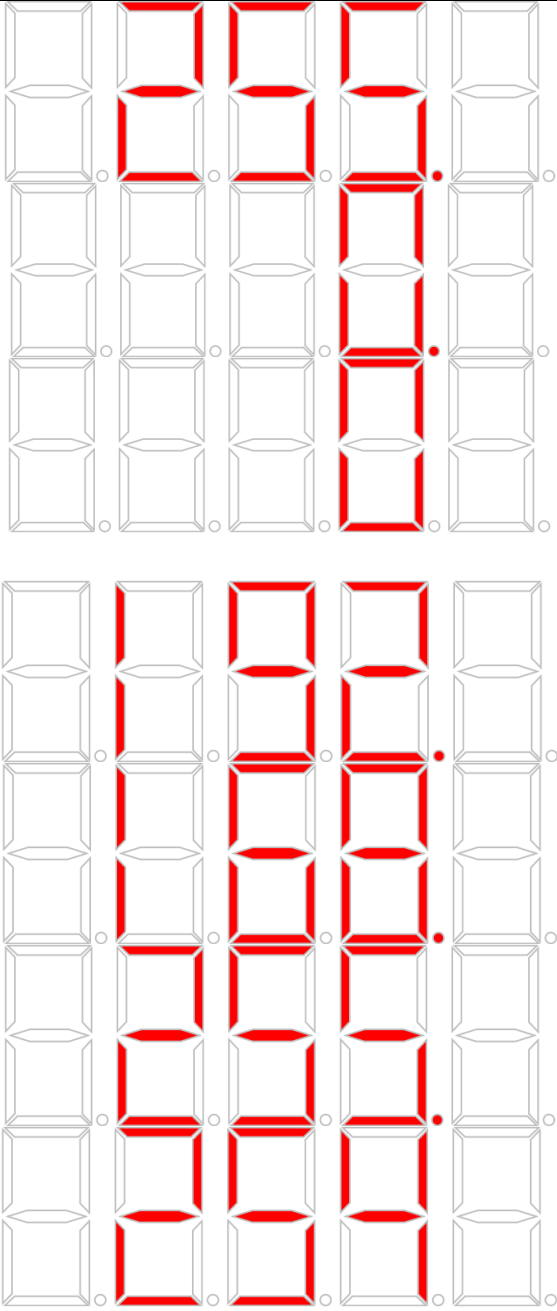
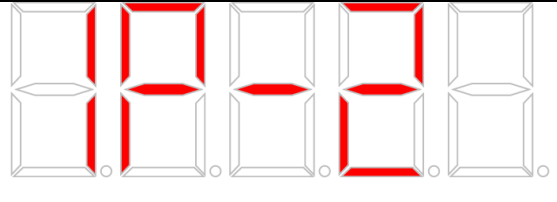
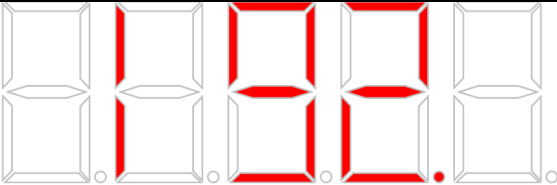
| | |
|-------------------------------------------------------------------------------------|--------------------------------------|
|  | IP-2: Wi-Fi IP Address Configuration |
|  | Serial Port Settings |
|  | “b.01” is the baudrate 115200 bps |
|  | “b.02” is the baudrate 57600 bps |
|  | “b.03” is the baudrate 38400 bps |
|  | “b.04” is the baudrate 19200 bps |
|  | “b.04” is the baudrate 9600 bps |
|  | “L.01” is the data bits 7 |
|  | “L.02” is the data bits 8 |
|  | “P.01” is the data parity “NONE” |

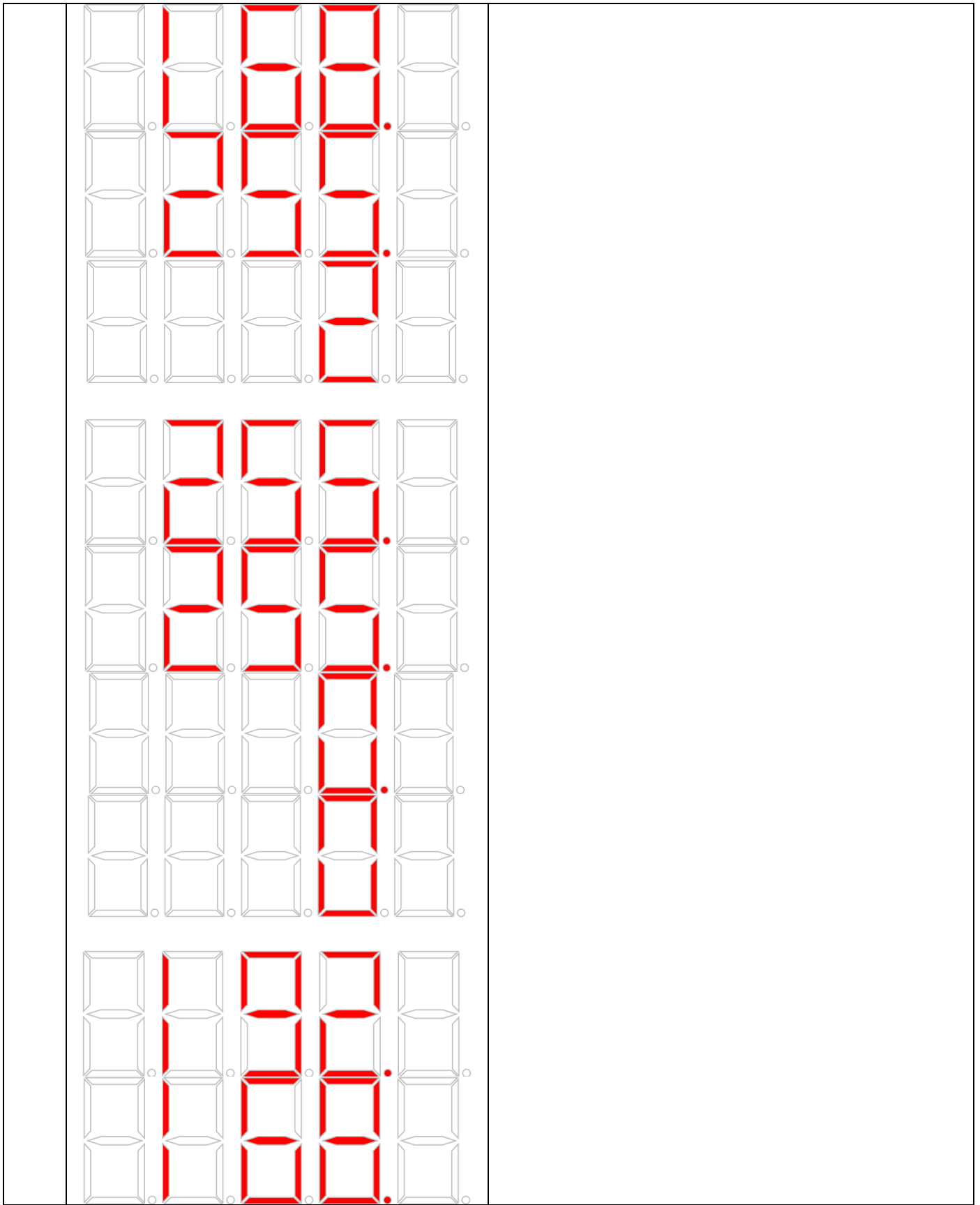
| | |
|-------------------------------------------------------------------------------------|----------------------------------------------|
|  | “P.02” is the data parity “ODD” |
|  | “P.03” is the data parity “EVEN” |
|  | “S.01” is the stop bit 1 |
|  | “S.02” is the stop bit 2 |
|  | RSSI Value |
|  | Error Code. Please refer to the appendix. |

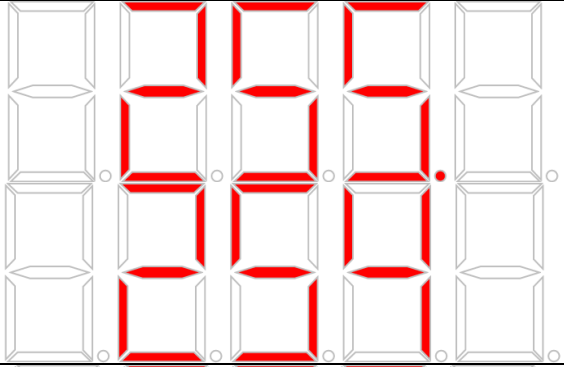
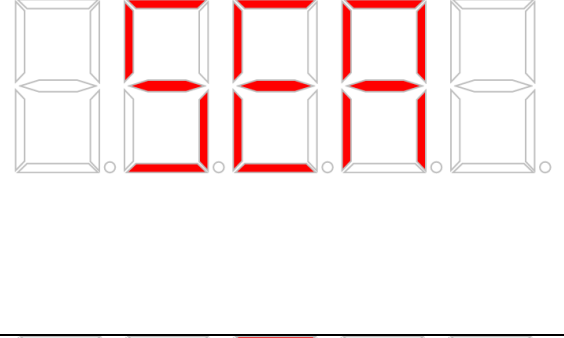
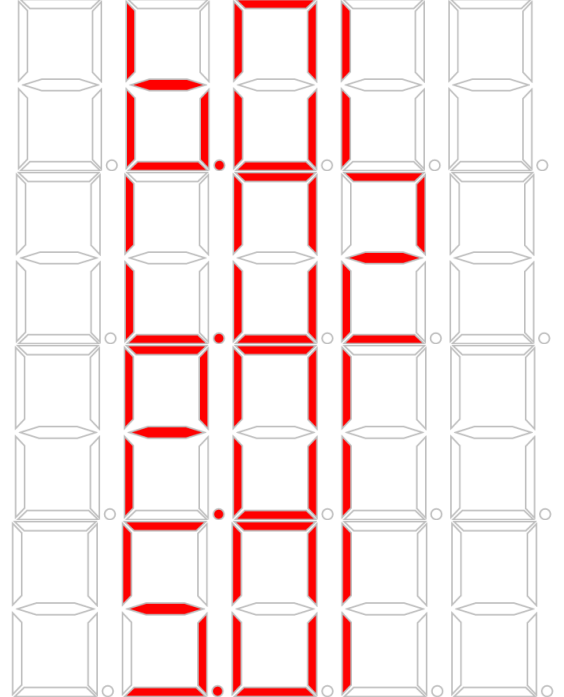
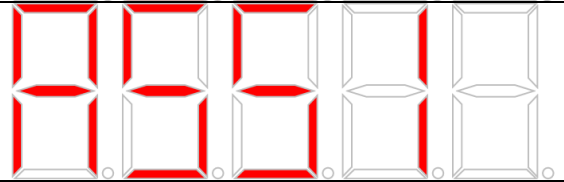
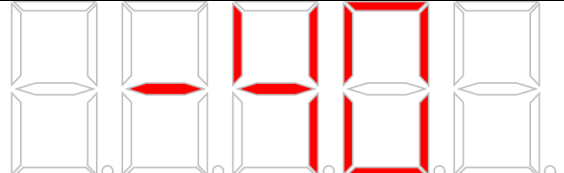
When the module is boot-up, the LED is displayed the following steps.

| Step | 7 segment LED Display | Description |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| 1 |  | Initial Settings |
| 2 |  Or  | It shows the Wi-Fi mode of the RMV-762D-MTCP. |

| | | |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>3</p> |  <p style="text-align: center;">Or</p>  <p style="text-align: center;">Or</p>  | <p>It shows the module function 1, 2 or 3.</p> <p>(1) Modbus TCP Server/Modbus RTU Master (2) Modbus RTU Slave/Modbus TCP Client (3) Vxcomm Server</p> |
| <p>4</p> |    | <p>It shows the IP address of Ethernet LAN port. For example, the IP configurations are: IP address: 192.168.255.1 Subnet Mask: 255.255.0.0 Gateway: 192.168.255.254</p> <p>IP-1 (LAN IP Settings) example: IP address: 192.168.255.1 Subnet Mask: 255.255.0.0 Gateway: 192.168.255.254</p> |

| | | |
|---|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| |  | |
| 5 |  | <p>It shows the IP address of Wi-Fi interface. For example, the IP configurations are: IP address: 192.168.255.2 Subnet Mask: 255.255.0.0 Gateway: 192.168.255.254</p> |
| |  | <p>IP-2 (Wi-Fi IP Settings) example: IP address: 192.168.255.2 Subnet Mask: 255.255.0.0 Gateway: 192.168.255.254</p> |



| | | |
|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| |  | |
| 6 |  | <p>It shows the serial port settings. For example, the serial configurations are Baudrate: 115200 bps Data bit: 8 Stop bit: 1 Parity: None</p> |
| |  | <p>The serial configurations are Baudrate: 115200 bps Data bit: 8 Parity: None Stop bit: 1</p> |
| 7 |  | <p>Return the Wi-Fi RSSI value. For Example, the RSSI value is -40dbm</p> |
| |  | <p>The RSSI value is -40dbm</p> |

2.6 Utility

The RMV-762D-MTCP Utility provides an user interface for configuration. Users can configure the Wi-Fi, Ethernet, serial port and the gateway function with this convenient tool.

(1) Module Connection

Type the Ethernet IP address of the RMV-762D-MTCP and connect it for settings.

(2) Ethernet Settings

If the DHCP is disable, user can type the static IP of the LAN port to the RMV-762D-MTCP.

(3) Wi-Fi Settings

■ AP Reconnect

When the module is set in the “Infrastructure” mode, the Wi-Fi can be selected for the reconnection.

■ Mode

- Limit-AP

Consturct an AP and provide one Wi-Fi connection for the Wi-Fi client.

- Infrastructure

Let the module connect to a Wi-Fi AP.

- SSID

Set the Wi-Fi SSID of the Limit-AP mode or the Infrastructure mode.

- Security

- Auto

Encrypt the Wi-Fi connection with WPA,WPA2 or Open.

- None

Made the Wi-Fi connection without any encryption.

- Password

The password of the encryption.

- Channel

The wireless channel of 2.4GHz or 5GHz.

- IP Address/Subnet Mask/Gateway/DHCP

If the DHCP is disable, user can type the static IP of the Wi-Fi interface to the RMV-762D-MTCP.

(4) FW ver.

Get the firmware version with this button.

(5) Serial Port Settings

- Net ID

The Net ID of the Modbus command.

- Baudrate

The baudrate of the serial port connection. (115200/57600/38400/19200/9600 bps)

- Data Bits

The data bits of the serial port connection. (8/7)

- Parity

The parity of the serial port connection. (None/Odd/Even)

- Stop Bits

The stop bits of the serial port connection. (1/2)

(6) Operation Mode

- Modbus TCP Server/Modbus RTU Master

User can make the Modbus TCP connection with their Modbus TCP client and exchange the Modbus command to the Modbus RTU slave from the Modbus RTU master side.

- Modbus RTU Slave/Modbus TCP Client

User can make the Modbus RTU connection with their Modbus RTU slave and exchange the Modbus command to the Modbus TCP server from the Modbus TCP client side.

- Vxcomm

Build a Vxcomm in the Wi-Fi of LAN interface, and exchange the Modbus command to the Modbus RTU slave from the Modbus RTU master side.

(7) Remote Device IP Address

This IP address is available when the module is set in the “Modbus RTU Slave/Modbus TCP Client” mode.

(8) Buttons

■ Submit

Click this button when the settings are complete.

■ FW Update

Users can upgrade the firmware with this button. Please refer to the following step for upgrade,

Step 1)

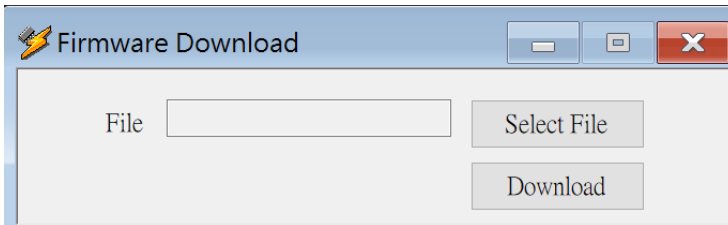
Switch to the Init mode and reboot.

Step 2)

Click the “FW Update” button.

Step 3)

Select the firmware file and click the “Download” button.



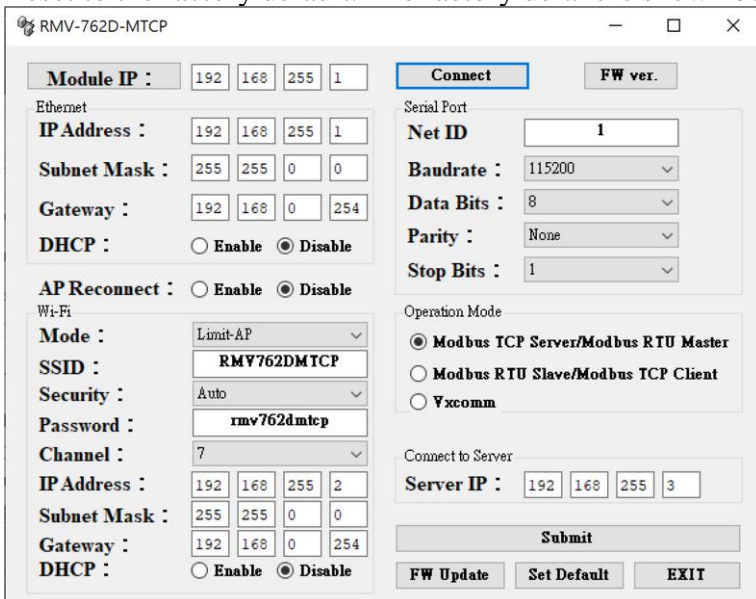
(Do not save the firmware file with the illegal characters, for example, “/_.)&-+!...”, space, Chinese, etc.)

Step 4)

When the download percentage is 100%, please switch to the Init mode and reboot.

■ Set Default

Reset to the factory default. The factory default is shown below.



■ EXIT

Close the RMV-762D-MTCP Utility.

Appendix

| Error Code | Description |
|------------|---------------------------------------------------|
| 00000 | No Error |
| 00001 | Wi-Fi connection error in the infrastructure mode |
| 00002 | Modbus RTU communication error |
| 00003 | Modbus TCP connection loss |
| 00004 | Low RSSI |

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