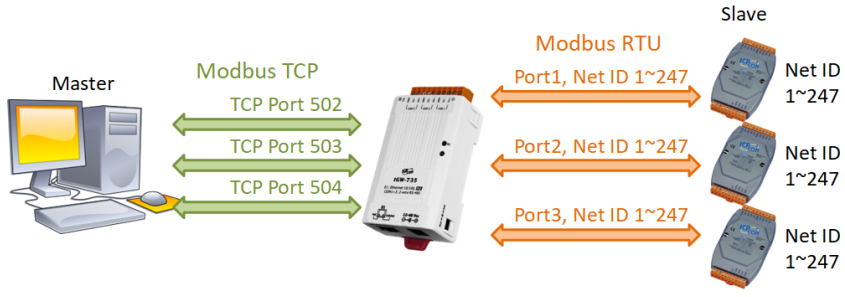
Classification	☐ tDS ☑ tGW ☐ PETL/tET/tPET ☐ DS/PDS/PPDS ☐ tM-752N ☐ I/O Card ☐ VXC Card ☐ VxComm ☐ Other				
Author	Jack Lin	**Date**	2020-09-17	**NO.**	FAQ055

Q: How to set TCP port on tGW-700?

A: There are two modes to connect to the TCP port of tGW-700:

Mode A : One TCP port to one COM port

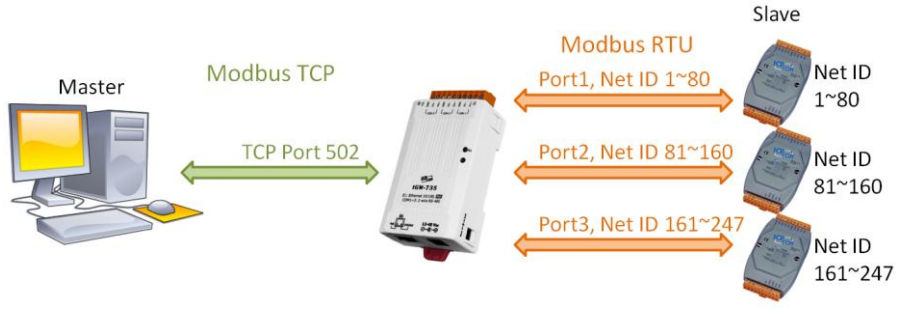
The message is sent to the corresponding COM port according to the Local TCP port of tGW-700.



In the tGW-700 series modules with multiple COM ports, the COM Port for message sending will be selected according to the TCP port connection. In the mode, before establishing a TCP port connection, you must confirm which COM Port the slave device is connected. If you want to use multiple COM ports, then need to establish multiple TCP port connections. The maximum number of slave devices that can be connected will depend on the number of TCP ports. If it is a 3-port module, it can be connected 247 * 3 = 741 slave devices.

Mode B : One TCP port to multiple COM ports

The message is sent to the corresponding COM port according to the Net ID in the Modbus message.



You can set the Local TCP Port of the tGW-700 to be the same. It will automatically select the COM port to send Modbus messages according to the setting of "Virtual ID Range". In this mode, only one TCP port connection is required to communicate with each COM Port. The maximum number of slave devices that can be connected will depend on the number of TCP ports. If all 3 ports are set to the same TCP Port, the number of connectable slave devices will be only 247.

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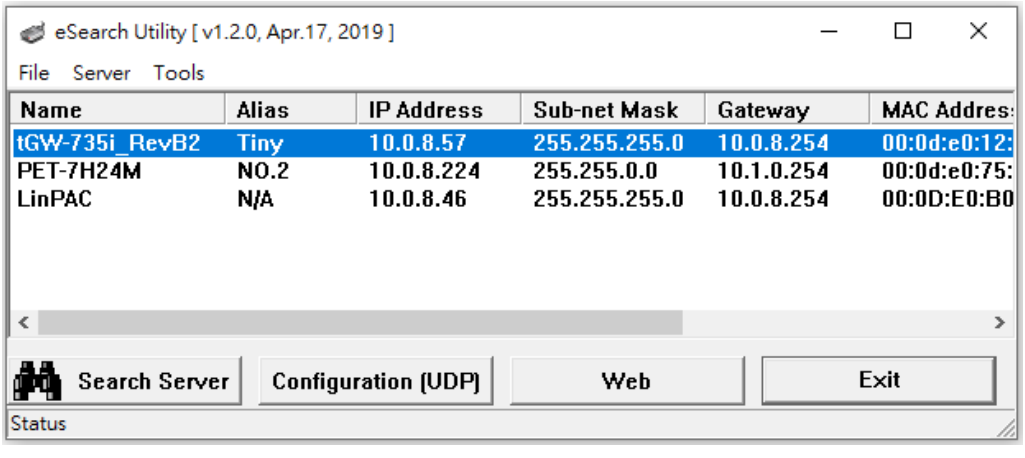
In the A mode, although more TCP port connections are required, it can control more slave devices. Each COM port can operate independently, which is more efficient. In mode B, because Modbus is one request and one response, only one command is processed at a time. Each COM port needs to wait for each other, which is less efficient. However, it requires fewer TCP port connections and does not need to pay attention to the COM port connected to the slave device. This makes the control more flexible. The two modes have their own advantages and disadvantages. Users can choose the mode according to their needs.

Mode	TCP connections	Maximum total number of slave devices	Processing efficiency	Send message
A. Independent TCP Port	more	more	faster	need to select TCP port connection according to the COM Port of the slave device first
B. Shared TCP Port	less	less	slower	transmitted directly to the slave device

Mode A One TCP port to one COM port

Step 1: Confirm that both the Ethernet connection and the tGW-700 series module are functioning correctly. For detailed information regarding how to install, configure and operate your tGW-700 series module, refer to the tGW-700 Quick Start Guide:

https://www.icpdas.com/en/download/show.php?num=2376



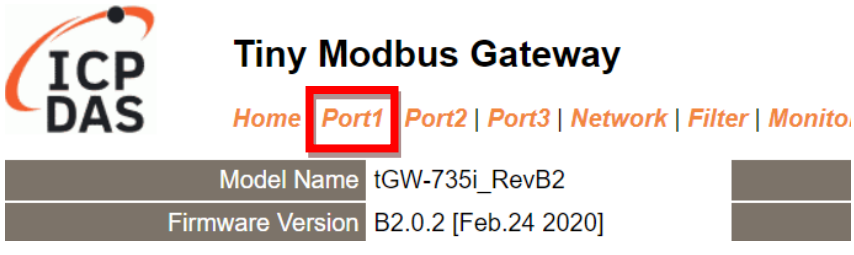
Step 2: Execute the eSearch Utility to search for any tGW-700 modules connected to the network, and then click the name of the tGW-700 module to select it.

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Step 3: Click the "Web" button to log in to the web configuration pages for the tGW-700 module (use the default password "admin"), or enter the URL address of the tGW-700 in the address bar of the browser.

Step 4: Click the "Port1" tab to display the Port1 Settings page.



Step 5: Select the appropriate Local TCP Port settings depending on the Modbus TCP Master device. The following is an example: Local TCP Port "502"

Modbus TCP Settings	Current	Updated
Read Cache	980	980
Local TCP Port	502	502
MTCP Length Swap	0	0
Connection Idle	180	180

Step 6: Click the "Submit" button to complete the configuration.

Step 7: Refer to Step4 to 6 to complete the Port2 and Port3 configuration.
Example: Port 2 Local TCP Port "503", Port3 Local TCP Port "504"

Step 8: Click the "Home" " tab to confirm the settings are correct.

Port Settings	Port 1	Port 2	Port 3
Baud Rate (bps)	115200,8N1	115200,8N1	115200,8N1
Flow Control	None	None	None
Protocol	RTU	RTU	RTU
Slave Timeout (ms)	300	300	300
Char Timeout (bytes)	4	4	4
Silent Time (ms)	0	0	0
Read Cache (ms)	980	980	980
Connection Idle (Seconds)	180	180	180
Local TCP Port	502	503	504
Virtual ID Range	1-247	1-247	1-247
Virtual ID Offset	0	0	0



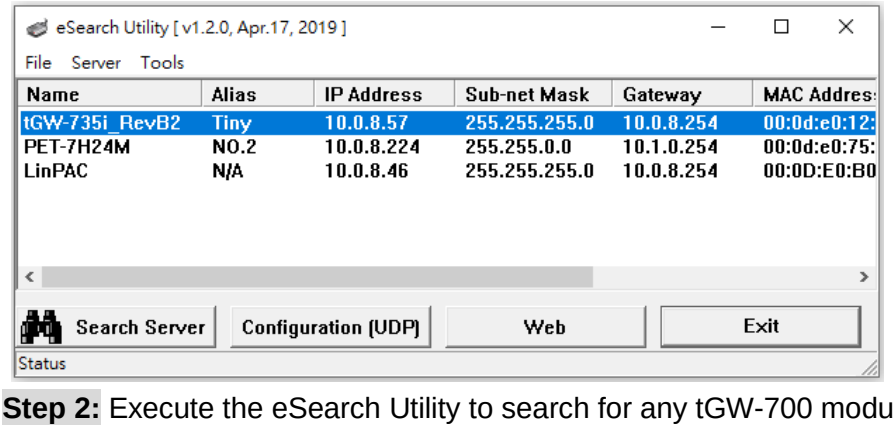
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Mode B One TCP port to multiple COM ports

Step 1: Confirm that both the Ethernet connection and the tGW-700 series module are functioning correctly. For detailed information regarding how to install, configure and operate your tGW-700 series module, refer to the tGW-700 Quick Start Guide:

https://www.icpdas.com/en/download/show.php?num=2376

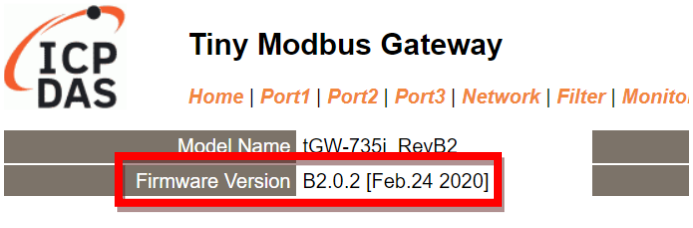


Step 2: Execute the eSearch Utility to search for any tGW-700 modules connected to the network, and then click the name of the tGW-700 module to select it.

Step 3: Click the "Web" button to log in to the web configuration pages for the tGW-700 module (use the default password "admin"), or enter the URL address of the tGW-700 in the address bar of the browser.

Step 4: Check that the firmware version for the module is v2.0.2 [Feb. 24, 2020] or later.

Note that if your firmware version is earlier than v2.0.2[Feb. 24, 2020], the firmware must first be updated to the latest version. For detailed information regarding the firmware update process, refer to the tGW-700 firmware update documentation, which can be downloaded from:

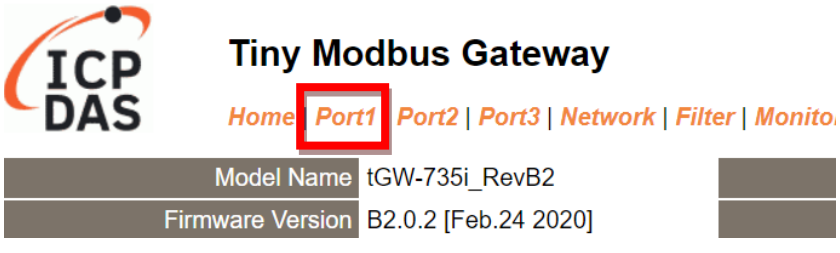


https://www.icpdas.com/en/download/show.php?num=2417

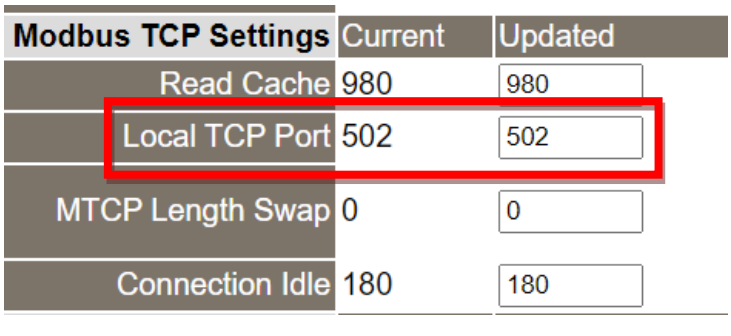
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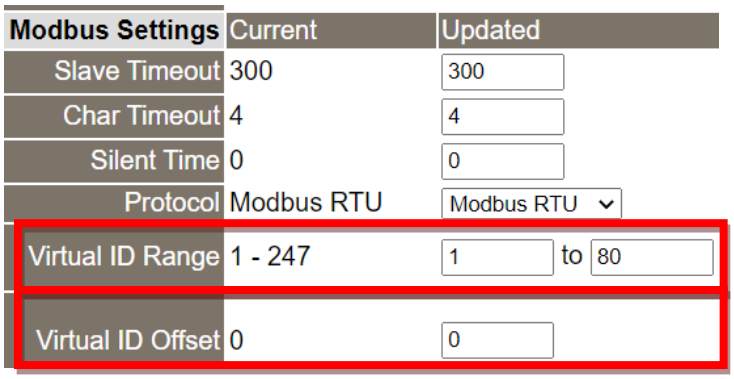
Step 5: Click the "Port1" tab to display the Port1 Settings page.



Step 6: Select the appropriate Local TCP Port settings depending on the Modbus TCP Master device.
The following is an example: Local TCP Port "502"



Step 7: Select the appropriate Virtual ID Range settings depending on the Modbus RTU Slave device. This setting represents the Net ID range to be processed by the port.
The following is an example: Virtual ID Range 1 to 80



Step 8: If the Net ID of the slave device cannot be changed arbitrarily, you can use the Virtual ID Offset. The tGW-700 will automatically shift the Net ID of the message sent by this COM port before sending it.
Example: Virtual ID Offset 0 (The Net ID will not be adjusted)

Step 9: Click the "Submit" button to complete the configuration.

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Step 10: Refer to Step5 to 9 to complete the Port2 and Port3 configuration. The Local TCP Port of each COM port must be the same

Example: Port 2 Local TCP Port “502”, Virtual ID Range 81 to 160, Virtual ID Offset -80

Port 3 Local TCP Port “502”, Virtual ID Range 161 to 247, Virtual ID Offset -160

Step 11: Click the “Home” ” tab to confirm the settings are correct.

Port Settings	Port 1	Port 2	Port 3
Baud Rate (bps)	115200,8N1	115200,8N1	115200,8N1
Flow Control	None	None	None
Protocol	RTU	RTU	RTU
Slave Timeout (ms)	300	300	300
Char Timeout (bytes)	4	4	4
Silent Time (ms)	0	0	0
Read Cache (ms)	980	980	980
Connection Idle (Seconds)	180	180	180
Local TCP Port	502	502	502
Virtual ID Range	1-80	81-160	161-247
Virtual ID Offset	0	-80	-160

In this setting, users only need to send Modbus TCP commands to TCP port 502. The tGW-700 will determine automatically which COM port to use according to the received Net ID is 1-80, 81-160, or 161-247.

For example, the Net ID of the Modbus TCP message is 81, it will be sent from Port2 to the slave device and the Net ID will be shifted by -80. The Net ID of the Modbus message received by the slave device will be 1.



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