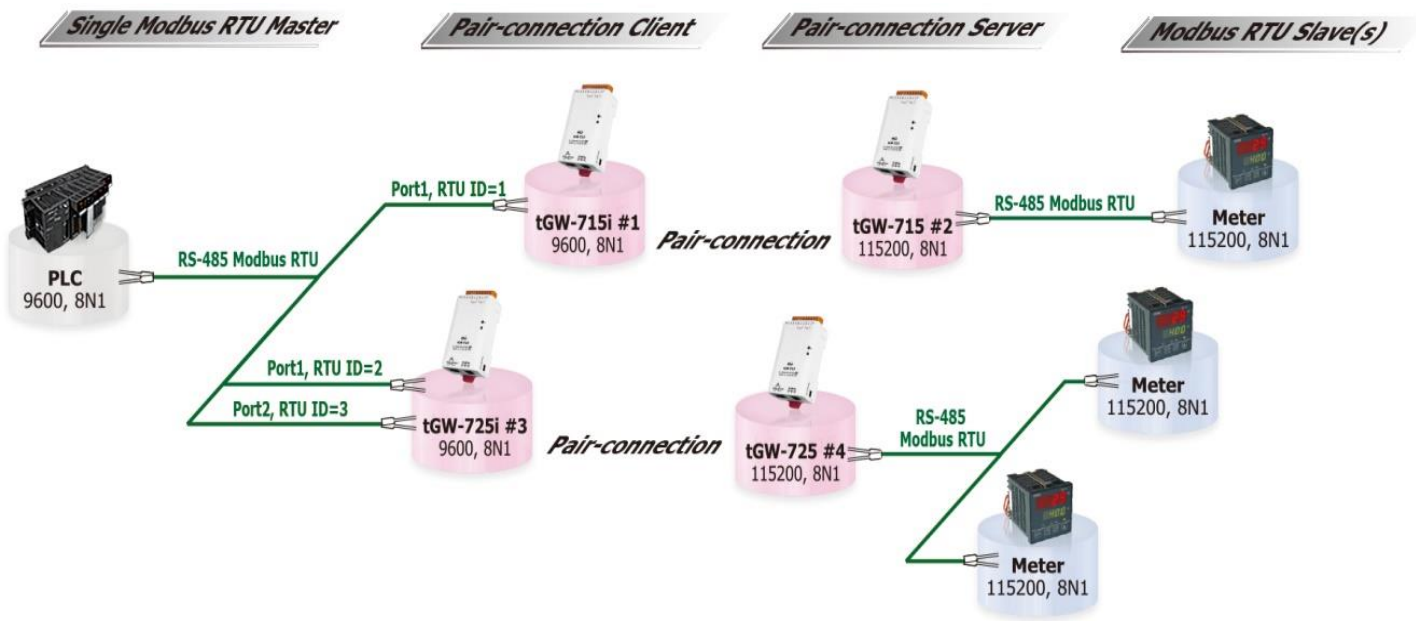


Classification	<input checked="" type="checkbox"/> tDS/tGW/tSH	<input type="checkbox"/> PETL/tET/tPET	<input type="checkbox"/> DS/PDS/PPDS	<input type="checkbox"/> tM-752N	
	<input type="checkbox"/> I/O Card	<input type="checkbox"/> VXC Card	<input type="checkbox"/> TouchPAD/HMIWorks	<input type="checkbox"/> VxComm	
Author	Tammy	Date	2017-11-23	NO.	FAQ048

Q: How do I access multiple Modbus RTU slave devices from a single Modbus RTU Master device via the Ethernet?



A: By using pair-connection mode, the Modbus RTU master is then able to access a remote Modbus RTU slave device via the Ethernet. Currently, the pair-connection function only supports one-to-one connections. Consequently, multiple pair-connections are required in order to access multiple slave devices, and all the tGW-700 modules on the master side must be connected to the same RS-485 network as the master device.

The Modbus RTU ID on the pair-connection settings for the tGW-700 can be used to limit access to a specific Modbus RTU slave device. Any messages that have the wrong ID will be ignored by that tGW-700 module. For example, in the above figure, tGW-715i module #1 processes messages that contain ID 1, while tGW-725i module #3 processes messages that contain ID 2 and 3, and so on. Consequently, the remote slave device will only receive messages that contain its ID. This reduces Ethernet network traffic, and reduces the loading on the slave device.

The following table shows both the Pair-connection settings and the Modbus RTU ID mapping configuration for tGW-700 modules #1 to #4:

Model	COM Port	Port Settings		Pair-connection Settings				
		Baud Rate	Data Format	Application Mode	Network Protocol	Remote Server IP	Remote TCP Port	RTU Slave ID (1~247)
tGW-715i #1	Port1	Baud Rate and Data Format for the Master device e.g., 9600, 8N1		Client	TCP	IP address of tGW-715 #2	502	1
tGW-725i #3	Port1			Client	TCP	IP address of tGW-725 #4	502	2
	Port2						503	3
tGW-715 #2	Port1	Baud Rate and Data Format for the Slave device e.g., 115200, 8N1		Server	-	-	-	-
tGW-725 #4	Port1			Server	-	-	-	-
	Port2							

Note: It is recommended that tGW-700i isolation models are used on the master side in this type of architecture to ensure stable operation of the hardware. If you are using the tGW-700 non-isolated models, please use DC power rather than PoE power.

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:



[Download the Quick Start Guide.](#)

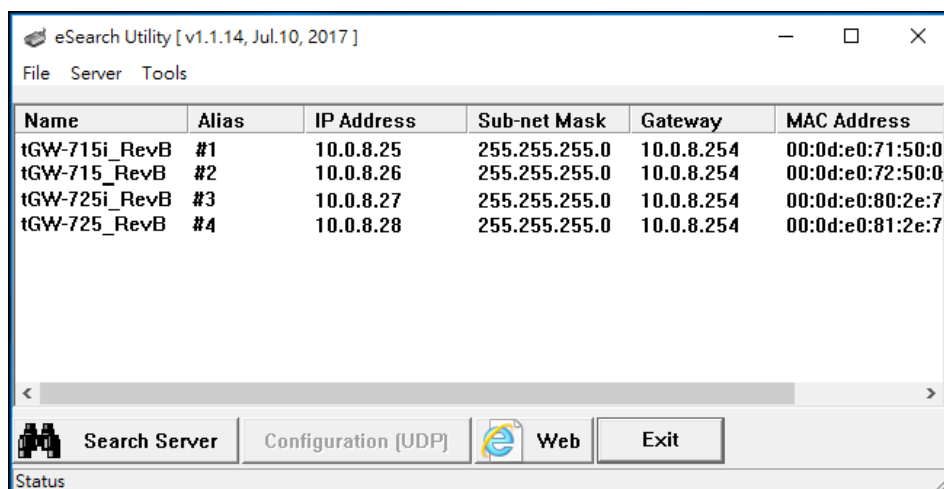


Figure 1-1

The following example provides a detailed description where the tGW-725i module #3 and tGW-725 module #4 that are used.

Step 2: Enter the URL for tGW-725i module #3 in the address bar of the browser to log in to the web configuration pages (use the default password “admin”).

Step 3: Verify that the firmware version for the module is **v1.3.4 [Aug. 19, 2013] or later.**

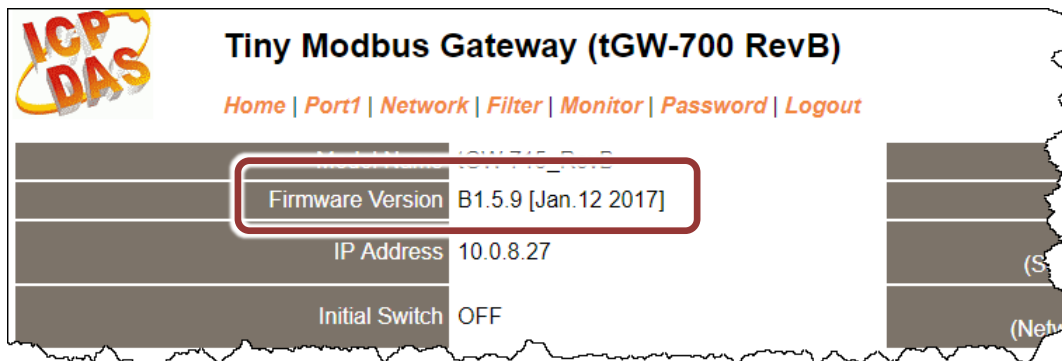



Figure 1-2

Note that if your firmware version is earlier than v1.3.4 [Aug. 19, 2013], 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:

 [Download the firmware update documentation](#)

➤ Configuring tGW-725i module #3 in Client Mode

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

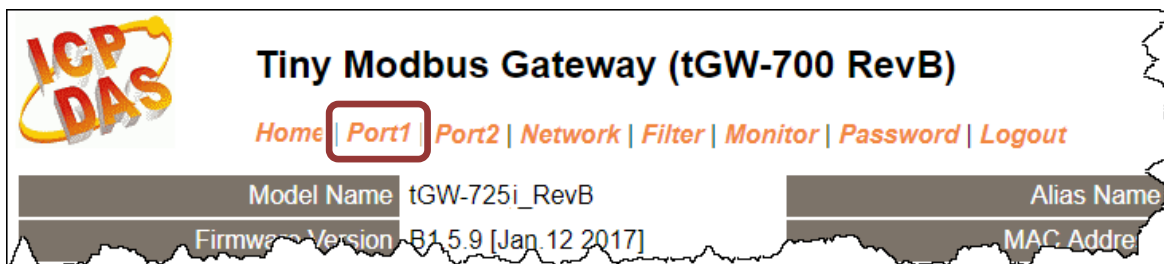


Figure 1-3

Step 5: Select the appropriate **Baud Rate, Data Format and Modbus Protocol** settings from the relevant drop down options depending on the model and type of module being used as the **Modbus RTU Master device**. The following is an example: Baud Rate (bps): **9600**, Data Bits (bits): **8**, Parity: **None**, Stop Bits (bits): **1** and Modbus Protocol: **Modbus RTU**.

Port Settings	Current	Updated
Baud Rate (bps)	9600	9600 bits/S
Data Size (bits)	8	8 bits/character
Parity	None	None
Stop Bits (bits)	1	1
Flow Control	None	None (for t...
Slave Timeout (ms)	300	300 (Default: 300)
Char Timeout (bytes)	4	4 (4 ~ 15, Defau...
Silent Time (ms)	0	0 (0, 10, 20... 655...
Read Cache (ms)	980	980 (10, 20... 6553...
Local TCP Port	502	502 (Default: 502)
Connction Idle (seconds)	180	180 (1 ~ 65535, Defau...
Protocol	Modbus RTU	Modbus RTU

Figure 1-4

Step 6: In the Pair-connection settings area, verify that the configuration details are same as those shown in the table below:

Field	Server Mode	Modbus Protocol	Remote Server IP	Remote TCP Port	RTU Slave ID (1~247)
Pair-connection Settings	Client	TCP	10.0.8.28	502	2
		Modbus Protocol, IP address and TCP port for tGW-725 module #4			

Step 7: Amend any details as required and then click the **“Submit”** button to complete the configuration.

Pair-Connection Settings (Master/Slave Mode)	Current	Updated
Application Mode	Server	Client (Server=Slave, Client=Master)
Network Protocol	TCP	TCP
Remote Server IP	Disabled	10 . 0 . 8 . 28
Remote TCP Port	Disabled	502
RTU Virtual ID (1~247)	1	2 (0: Bypass, No check)
TCP Slave ID (1~247)	0	0 (0: Same as RTU)

Figure 1-5

Step 8: Click the “**Port2**” tab to display the **Port2 Settings** page.

Step 9: Select the appropriate **Baud Rate, Data Format and Modbus Protocol** settings from the relevant drop down options depending on the model and type of module being used as the **Modbus RTU Master device**.

➤ Refer to [Figures 1-3 to 1-4](#) for an illustration of how to perform [Steps 8 to 9](#) of the procedure described above.

Step 10: In the Pair-connection settings area, verify that the configuration details are same as those shown in the table below:

Field	Server Mode	Modbus Protocol	Remote Server IP	Remote TCP Port	RTU Slave ID (1~247)
Pair-connection Settings	Client	TCP	10.0.8.28	503	3
		Modbus Protocol, IP address and TCP port for tGW-725 module #4			

Step 11: Click the “**Submit**” button to complete the configuration.

Pair-Connection Settings (Master/Slave Mode)	Current	Updated
Application Mode	Server	Client (Server=Slave, Client=Master)
Network Protocol	TCP	TCP
Remote Server IP	Disabled	10 . 0 . 8 . 28
Remote TCP Port	Disabled	503
RTU Virtual ID (1~247)	1	3 (0: Bypass, No check)
TCP Slave ID (1~247)	0	0 (0: Same as RTU)
		<input type="button" value="Submit"/>

Figure 1-6

Step 12: Click the “**Home**” tab and confirm that the Pair-connection settings for Port1 and Port2 are correct.

Tiny Mo

Home **Port1**

Model Name

Firmware Version

Current port settings:

Port Settings	Port 1	Port 2
Baud Rate (bps)	9600,8N1	9600,8N1
Flow Control	None	None
Protocol	RTU	RTU
Slave Timeout (ms)	300	300
Char Timeout (bytes)	4	4
Silent Time (ms)	0	0
Read Cache (ms)	980	980
Local TCP Port	502	503
Connction Idle (Seconds)	180	180
Pair-Connection Settings (Master/Slave Mode)	Port 1	Port 2
Application Mode	Client	Client
Remote Server IP	10.0.8.28	10.0.8.28
Remote TCP Port	502	503
RTU Virtual ID	2	3
TCP Slave ID	0	0

Figure 1-7

➤ Configuring tGW-725 module #4 in Server Mode

Step 13: Enter the URL for tGW-725 module #4 in the address bar of the browser to log in to the web configuration pages (use the default password “admin”).

Step 14: Click the “Port1” tab to display the **Port1 Settings** page.

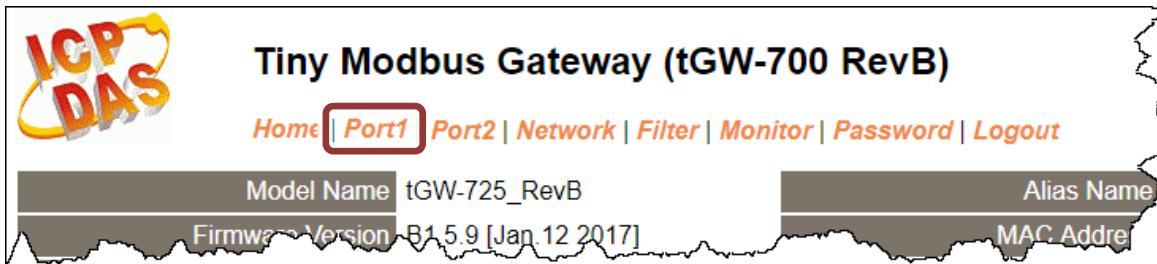


Figure 1-8

Step 15: Select the appropriate **Baud Rate, Data Format and Modbus Protocol** settings from the relevant drop down options depending on the model and type of module being used as the **Modbus RTU Slave device**. The following is an example: Baud Rate (bps): **115200**, Data Bits (bits): **8**, Parity: **None**, Stop Bits (bits): **1** and Modbus Protocol: **Modbus RTU**.

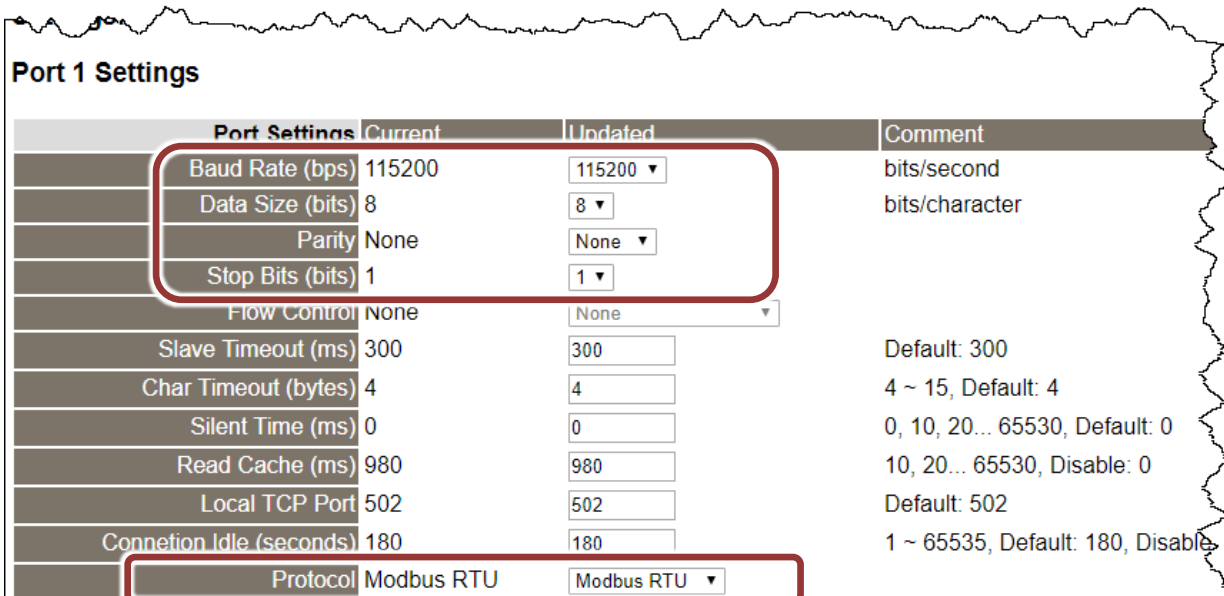


Figure 1-9

Step 16: In the **Pair-connection Settings** area for Port1, select “Server” from the “Application Mode” drop down options, and click the “Submit” button to complete the configuration.

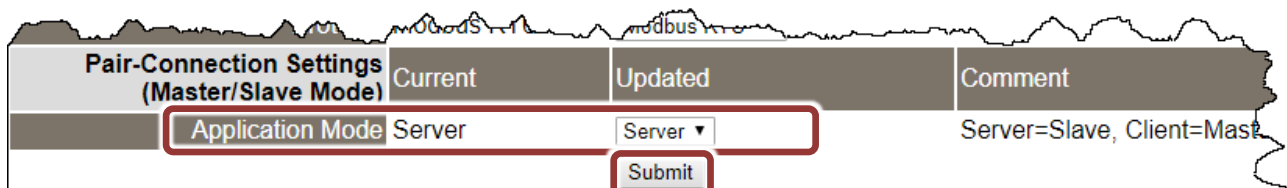


Figure 1-10

Step 17: Click the “Port2” tab to display the **Port2 Settings** page.

Step 18: Select the appropriate **Baud Rate, Data Format and Modbus Protocol** settings from the relevant drop down options depending on the model and type of module being used as the **Modbus RTU Slave device**.

Step 19: In the **Pair-connection Settings** area for Port2, select “Server” from the “Application Mode” drop down options, and click the “Submit” button to complete the configuration.

➦ Refer to [Figures 1-8 to 1-10](#) for an illustration of how to perform [Steps 17 to 19](#) of the procedure described above.

Step 20: Click the “Home” tab to confirm that the pair-connection settings for Port1 and Port2 on tGW-725 module #4 are correct.

Tiny Modbus Gateway (tGW-700 RevB)

Home | Port1 | Port2 | Network | Filter | Monitor | Password | Logout

Model Name: tGW-725_RevB | Alias Name:
 Firmware Version: B1.5.9 [Jan 12 2017] | MAC Address:

Current port settings:

Port Settings	Port 1	Port 2
Baud Rate (bps)	115200,8N1	115200,8N1
Flow Control	None	None
Protocol	RTU	RTU
Slave Timeout (ms)	500	500
Char Timeout (bytes)	4	4
Silent Time (ms)	0	0
Read Cache (ms)	980	980
Local TCP Port	502	503
Connection Idle (Seconds)	180	180
Pair-Connection Settings (Master/Slave Mode)	Port 1	Port 2
Application Mode	Server	Server
Remote Server ID	-	-
Remote TCP Port	-	-
RTU Virtual ID	-	-
TCP Slave ID	-	-

Complete

Figure 1-11