

	□ tDS	⊠ tGW	□ PETL/tET/t	PET 🗖 DS/PDS/PF	PDS □tM-	🗆 tM-752N	
方領/Classification	□ I/O Card		□ VXC Card	□ VxComm	🗹 Oth	er (LabVIEW)	
作者/Author	Tammy		日期/Date	2015-05-14	編號/NO.	FAQ-041	

Q: How to use LabVIEW for working with tGW-700 Modbus TCP/RTU

Gateway?

A: Refer to the following for a detailed description of the configuration process:

Step 1: Run the eSearch Utility to search for tGW-700 series module connected to the network.

Step 2: Configure the correct network settings for the required tGW-700 series module.





Step 3: Click the "Web" button to log in to the web configuration pages for the tGW-700 series module.Once the login screen is displayed, enter the password in the login password field (use the default password is "admin") to enter the configuration web page.

Tiny Modbus Gateway (tGW-71x)
The system is logged out. To enter the web configuration, please type password in the following field.
Login password Submit
Note: This web configuration requires JavaScript enabled in your browser (Firefox, IE). If the web configuration does not work, please check the JavaScript settings first.
When using IE, please disable its cache as follows. Menu items: Tools / Internet Options / General / Temporary Internet Files / Settings / Every visit to the page



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

Step 5: Select the appropriate **Baud Rate, Data Format and Modbus Protocol** settings (e.g. 9600, 8N1, Modbus RTU) from the relevant drop down options depend on the Modbus device (e.g., M-7022).

Tiny Modbus G	iateway (tGW-71x)	
Hone Port1 Network	Setting Filter Monitor Password Logout	
Settings:		
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 •
Slave Timeout (ms	300	300 (Default: 300)
Char Timeout (bytes	4	4 (4 ~ 15, Default: 4)
Silent Time (ms	0	0 (0, 10, 20 65530, Default: 0)
Read Cache (ms	980	980 (10, 20 65530, Disable: 0)
Local TCP Por	502	502 (Default: 502)
TCP Timeout (seconds	180	180
Modbus Protoco	Modbus RTU	Modbus RTU 🔹
Pair-Connection Settings (Master/Slave Mode)	Current	Updateu
Server Mode	Server	Server ▼ (Server=Slave, Client=Master)
Modbus Protoco	TCP	TCP V
Remote Server IF	Disabled	10 . 0 . 8 . 244
Remote TCP Por	Disabled	502
RTU Slave ID (1~247	0	0 (0: Bypass, No check)
TCP Slave ID (1~247	٥	0: Same as RTU)

Step 6: Download the **NI MODBUS Library** and decompress it to a temp folder. The **NI MODBUS Library** can be downloaded from the National Instruments (NI) web site:

http://www.ni.com/example/29756/en/





- Step 7: Launch the LabVIEW.
- Step 8: Right click on the Block Diagram to open the Functions Palette.
- (Or select the **"<u>F</u>unction Palette"** item from the **"<u>V</u>iew"** menu.)
- Step 9: In the Functions Palette, select the "Select a VI..." item



Step 10: Select a "**NI Modbus.Ilb**" file which is in self-extracting folder in the **"Select the VI to Open"** dialog box.





Step 11: Highlight the "MB Ethernet Master Query.vi" and click on the "OK" button.

E Select the VI to Open	
NI Modbus.llb	E: 💌
MB Ethernet Is Address Valid.vi MB Ethernet Master Query (poly).vi MB Ethernet Master Query Read Coils (poly).vi MB Ethernet Master Query Read Discrete Inputs (poly).vi MB Ethernet Master Query Read Exception Status (poly).vi MB Ethernet Master Query Read Holding Registers (poly).vi MB Ethernet Master Query Read Input Registers (poly).vi MB Ethernet Master Query Write Multiple Coils (poly).vi MB Ethernet Master Query Write Single Coil (poly).vi MB Ethernet Master Query Write Single Coil (poly).vi MB Ethernet Master Query Write Single Coil (poly).vi MB Ethernet Master Query wite MB Ethernet Reference vi MB Ethernet Reference vi MB Ethernet Slave Communication.vi MB Ethernet Slave Demon - Single Port - Multiple Connections 2 vi MB Ethernet Master Query.vi All LabVIEW Files	OK Cancel Help

Step 12: Put the icon of the sub-vi to where desired. The simple arguments of a sub-vi are showed in help window.

File Untitled 1 Block Diagram * File Edit Yiew Project Operate Tools Window He Image: Context Help MB Ethernet Master Query.vi Modbus Data Unit In Modbus Data Unit Out TCP Connection Refnum in Modbus Commandia Modbus Data Unit In Modbus Data Unit In Modbus Data Unit In Modbus Data Unit In Modbus Commandia Modbus Data Unit In Modbus Commention Refnum in Modbus Commention Refnum in (aup) Modbus Commention Refnum in (no error) Modbus Commention (no error) MBAP Header	🖪 Uni	Turtitled 1 Front Panel *					
File Edit View Project Operate Iools Window He	File	🛃 Untitled 1 Block Diagram *	Context Help	×			
		File Edit View Project Operate Tools Window He C 20 12pt App	MB Ethernet Master Query.vi Modbus Data Unit In TCP Connection Refnum in Modbus Command Use MODBUS Data Unit? How or mori (no error) MBAP Header Timeout				



Step 13: Edit the LabVIEW program as below:

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	IP Address Modbus Command Port BARP Header MBAP Header	III
<		> ::



Step 14: Performing the Modbus TCP to RTU sample program as follows:

- 1. Enter IP Address and TCP Port of remote Modbus slave (e.g. tGW-700).
- 2. 3. Enter Net ID and Modbus Command depend on the remote Modbus slave (e.g., M-7022).
- 4. Click the "Run" button to start test.
- 5. Confirm that the "error out" dialog box is show status information is normal.
- 6. Confirm that the Response Data is correct.

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Port 10.0.8.35 02		<u> </u>	
MBAP Header	Modbus Command Function Code Read Holding Registers Starting Address Quantity 2 Data Discrete Discrete		
Response Data		· · · · · · · · · · · · · · · · · · ·	