CALIBRATION TECHNOLOGIES INC.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

GG-6 GATEWAY MODULE MANUAL

Introduction

This manual is for the GG6-GE and GG6-GR Gateway Modules. It includes Installation, Set-up, Configuration and Troubleshooting instructions for all of the different variants.

NOTE

If your Gateway Module is already installed in the GG-6, skip to the **GENERAL SET-UP** section below.

Installation

1. Remove the Unitronix EX-A2X Expansion Adapter, and the upper right backboard screw from the GG-6.

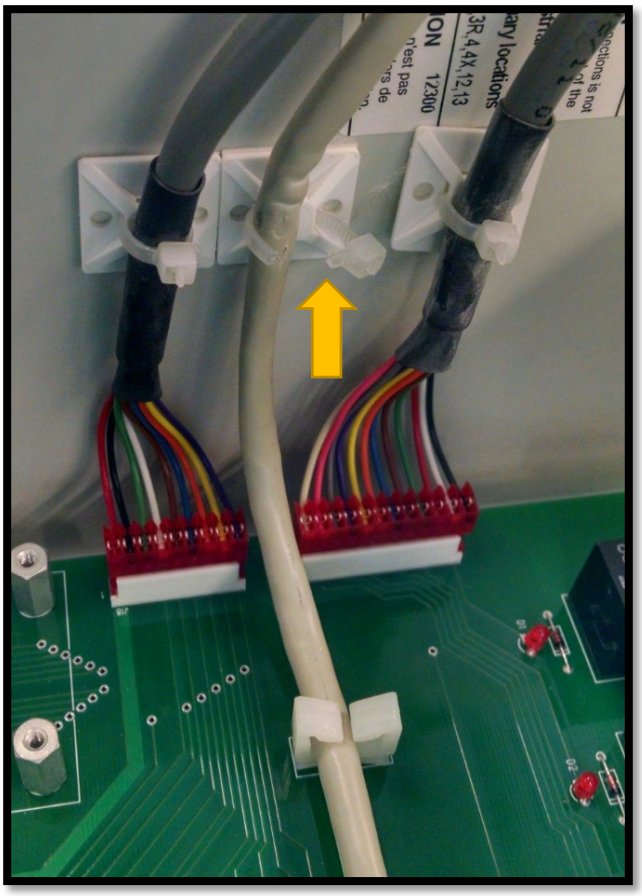
866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

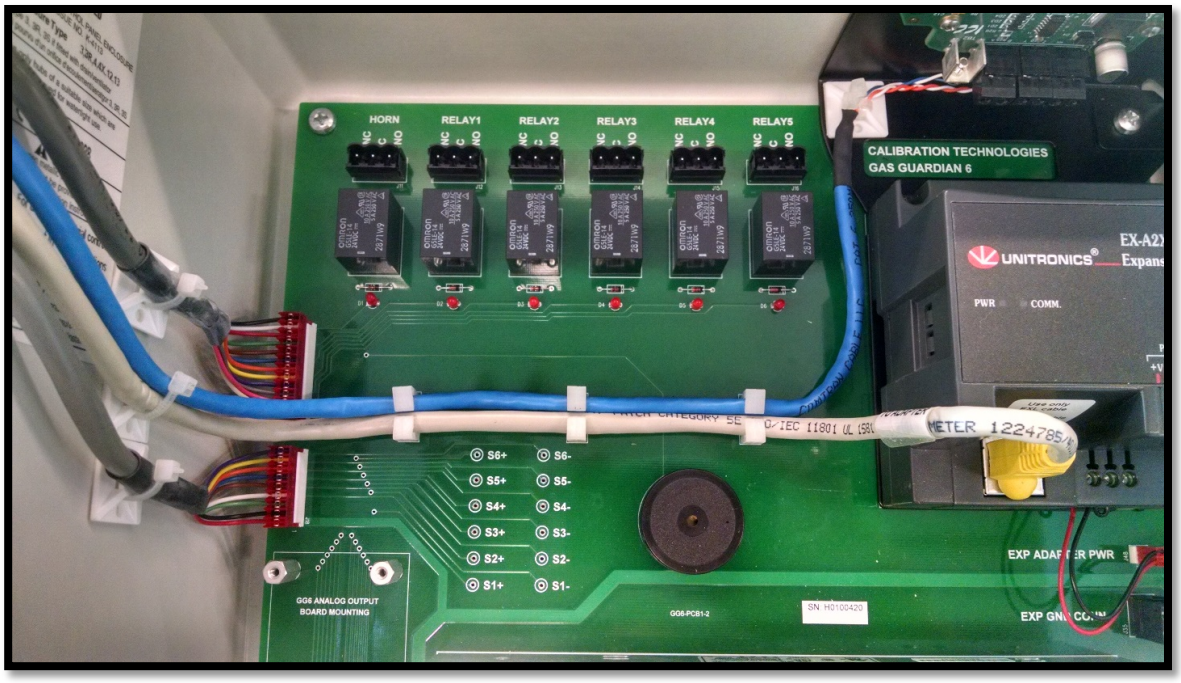
2. Place the GG-6 Gateway where the Expansion Adapter was located and loosely attach the upper right screw.

3. Re-install the Expansion Adapter, tighten all screws, and re-connect the power and communication cables.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

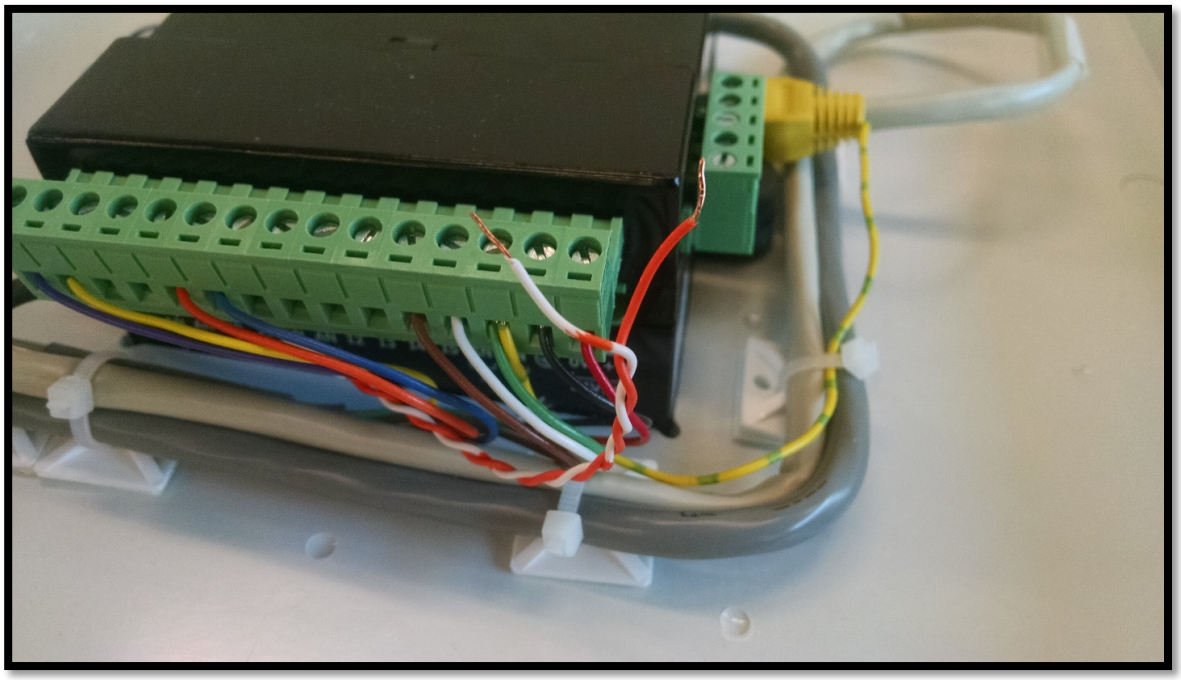
4. Cut the zip ties along the Expansion Adapter communication cable, and install the new communication/power cable alongside the Expansion Adapter cable.



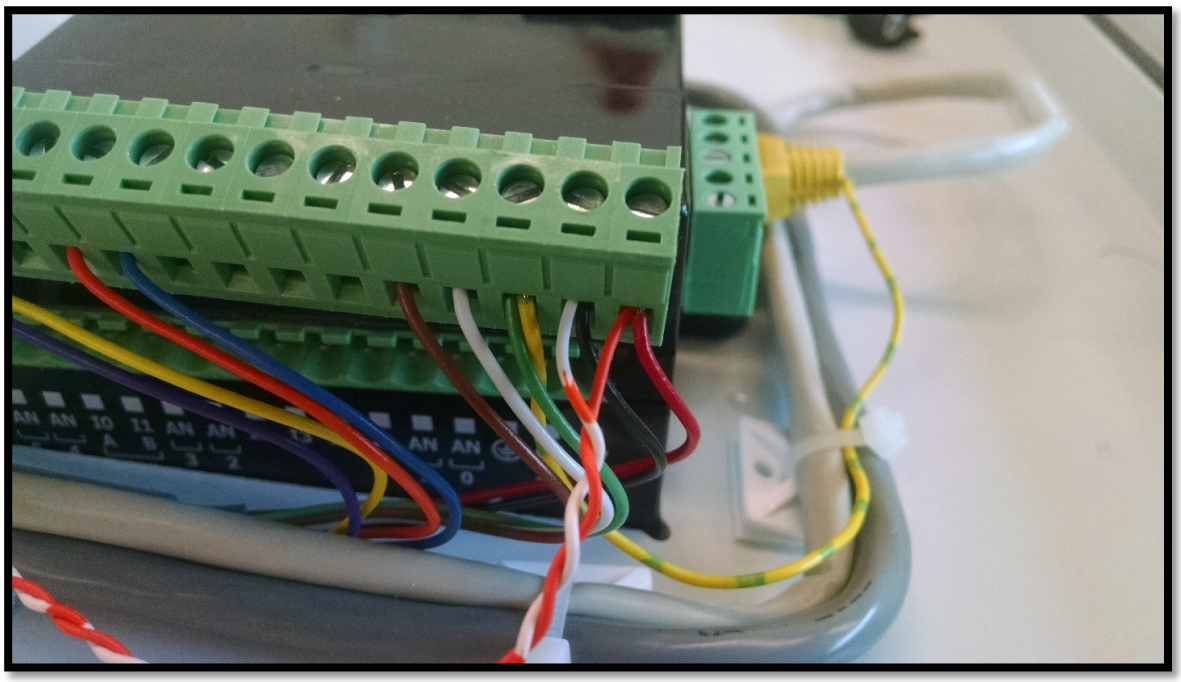


866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

5. Run the power cable (Orange, White/Orange pair) up to the top connector on the GG-6 PLC.

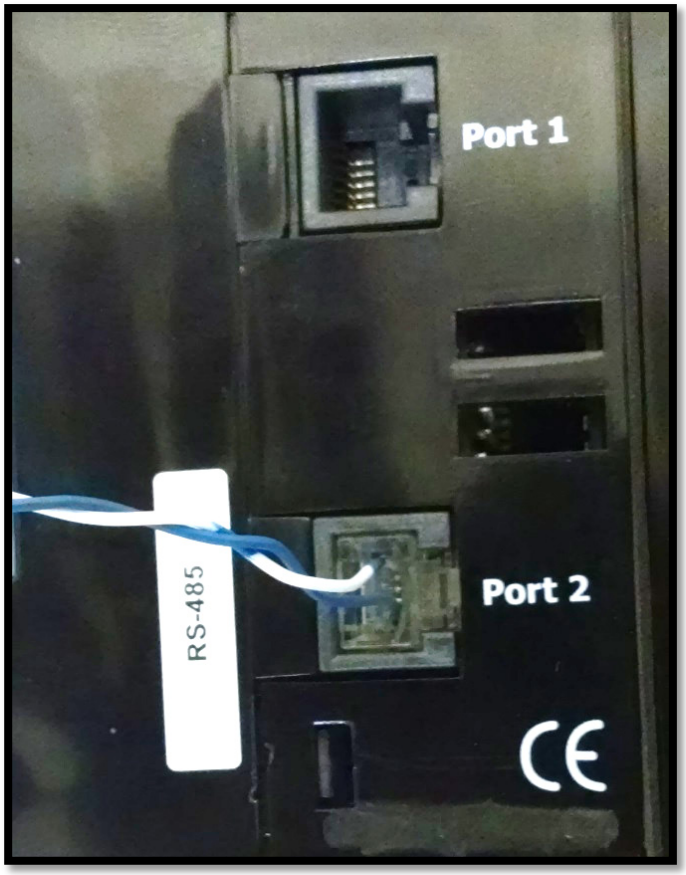


6. Double up the Orange wire with the Red wire in the first terminal position on the PLC. Double up the White/Orange wire with the Black wire in the second terminal position.

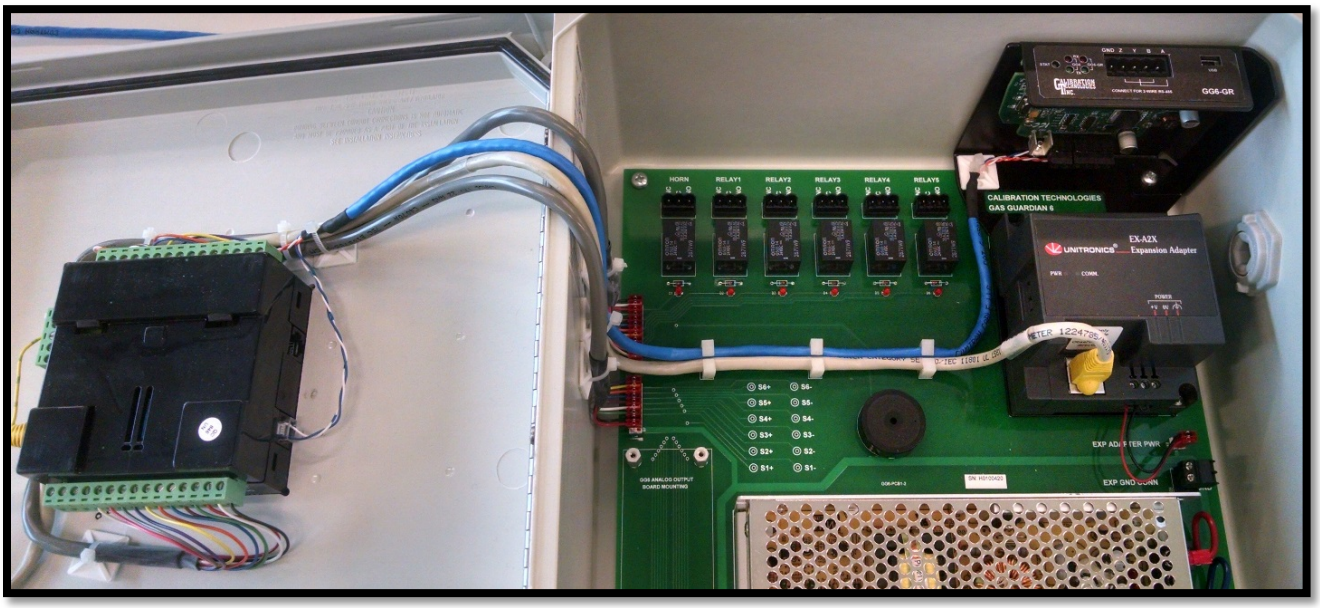


866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

7. Plug the Blue, White/Blue pair of wires with the RJ-11 connector into Port 2 (the RS-485 port) on the PLC.



8. Reinstall any zip ties that were removed.



866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

General Set Up

Power up the GG-6 and check the GG-6 MODBUS Configuration (see GG-6 Manual for menu navigation):

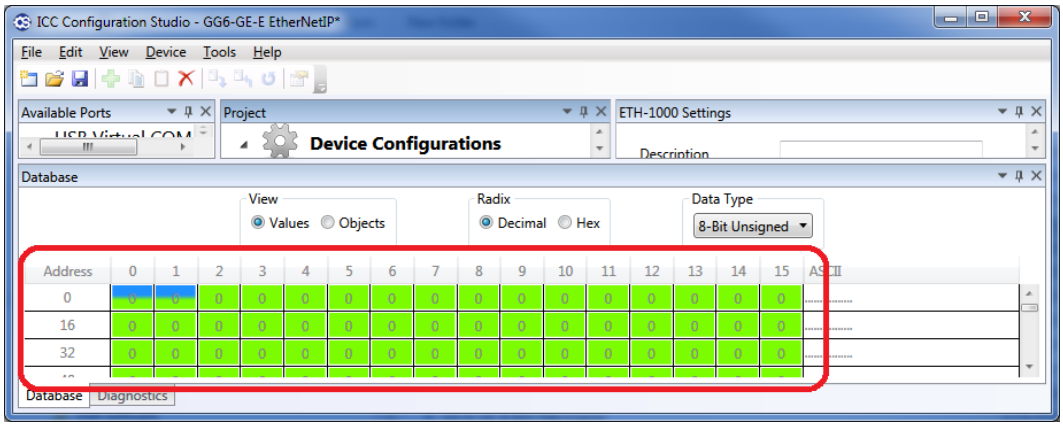
ID (64 to 127): 64
Master/Slave: Slave
Display: Main

Download and install the ICC Configuration Studio SW ver 2.0.3.7 on a PC, running Win 7 or higher. The computer will need a spare USB Port. The program can be found on the CTI website at **https://www.ctiengineering.com/Downloads**. Scroll down to the **Tools** section at the bottom of the page and download **ICC Configuration Studio V2.0.3.7 Installer**. Un-Zip the file and install the program.

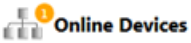
Run the ICC Configuration Studio program. **Do not upgrade** to a newer version of ICC Configuration Studio.

Connect the GG-6 Gateway Module to the computer using the mini-USB cable.

Check for data activity in Database.



Once connected, the Online Devices should show one new device under the Device Configurations.



Select the Online Devices, and select the Discovered Devices tab. Double click on the ETH-1000 (for the GG6-GE-x) or the XLTR-1000 (for the GG6-GR-x), and select the Project tab.

Right click on ETH-1000 or XLTR-1000 and select Upload Configuration.

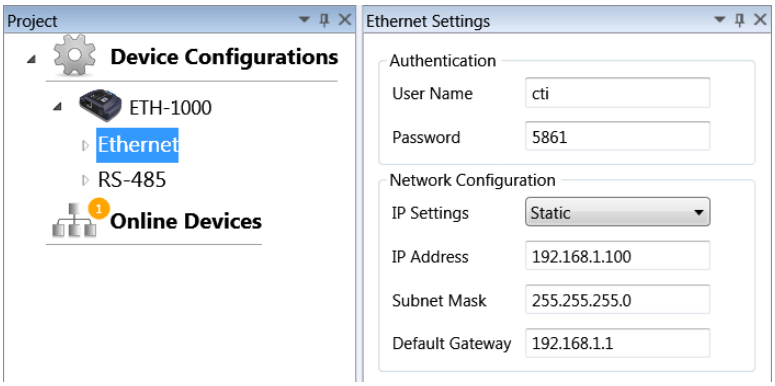
CAUTION

Do not change any parameters, other than directed, within the GG-6 Gateway Module or you may compromise the performance and safety of the GG-6.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

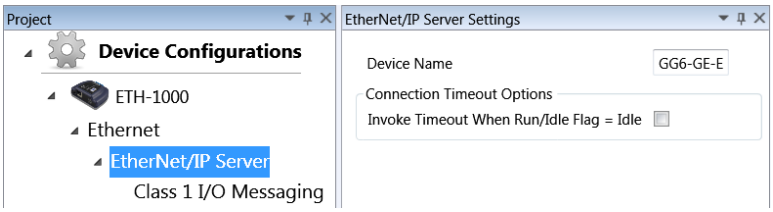
GG6-GE-E Configuration

Select the Ethernet tab on the uploaded ETH-1000 configuration.



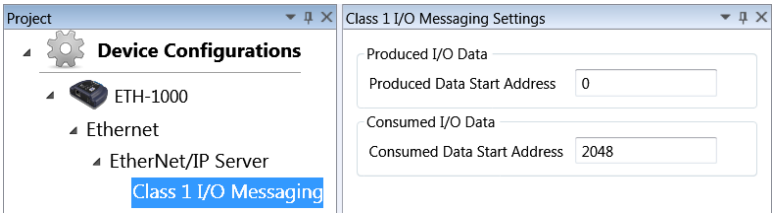
From this tab the IP Settings can be changed from Static to DHCP. In the Static mode, the IP Address, the Subnet Mask and the Default Gateway can be set.

Select the EtherNet/IP Server tab on the uploaded ETH-1000 configuration.



From this tab the Device Name and Connection Timeout Options can be set.

Do not change anything on or below the Class 1 I/O Messaging tab.

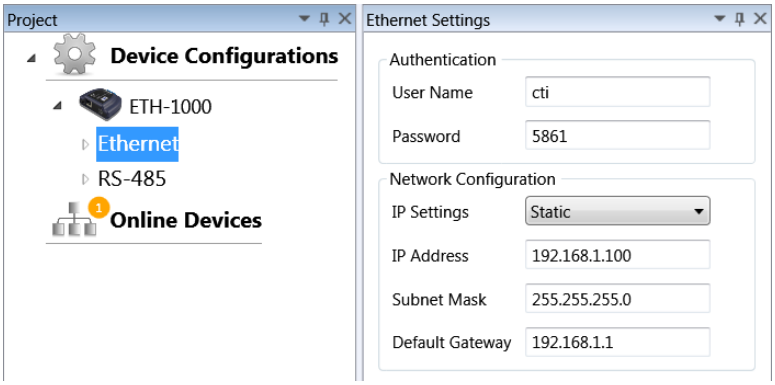


Once all of the changes have been made, right click on uploaded ETH-1000 configuration and select Download Configuration. Answer Yes to overwriting the configuration. Remove the mini-USB cable and close the program.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

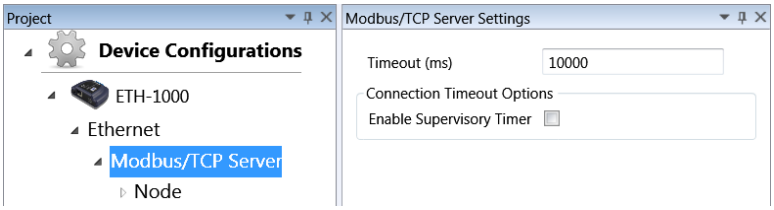
GG6-GE-M Configuration

Select the Ethernet tab on the uploaded ETH-1000 configuration.



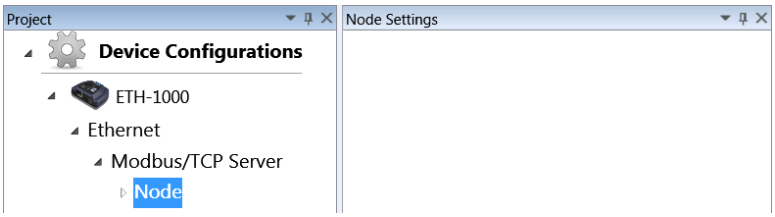
From this tab the IP Settings can be changed from Static to DHCP. In the Static mode, the IP Address, the Subnet Mask and the Default Gateway can be set.

Select the Modbus/TCP Server tab on the uploaded ETH-1000 configuration.



From this tab the Timeout and Connection Timeout Options can be set.

Do not change anything below the Node tab.

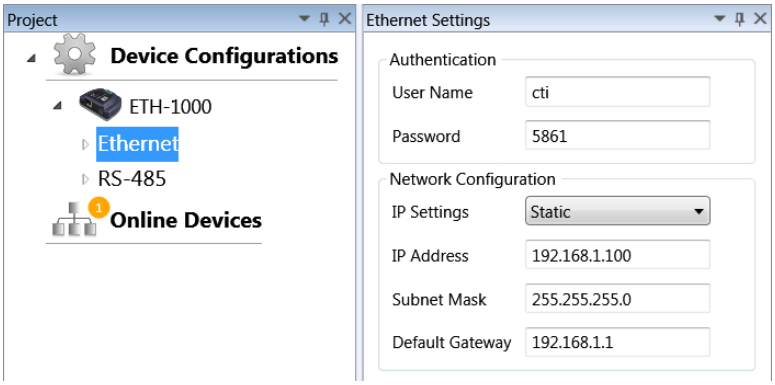


Once all of the changes have been made, right click on uploaded ETH-1000 configuration and select Download Configuration. Answer Yes to overwriting the configuration. Remove the mini-USB cable and close the program.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

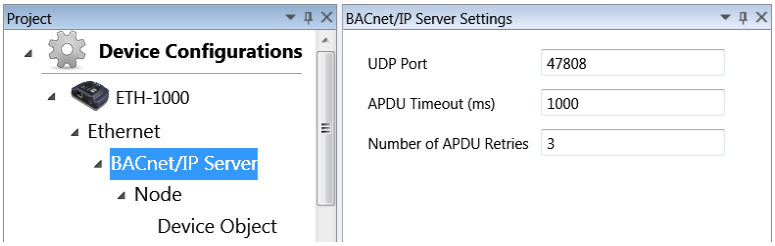
GG6-GE-B Configuration

Select the Ethernet tab on the uploaded ETH-1000 configuration.



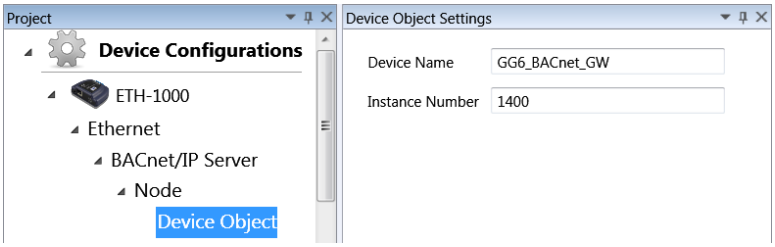
From this tab the IP Settings can be changed from Static to DHCP. In the Static mode, the IP Address, the Subnet Mask and the Default Gateway can be set.

Select the BACnet/IP Server tab on the uploaded ETH-1000 configuration.



From this tab the UDP Port, APDU Timeout and the Number of APDU Retries can be set.

Select the Device Object tab under the Node tab on the uploaded ETH-1000 configuration.



From this tab the Device Name and the Instance Number can be changed.

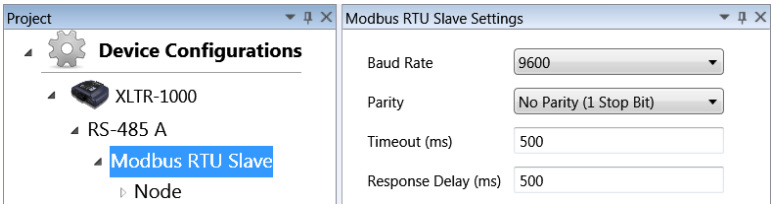
Do not change anything below the Device Object tab.

Once all of the changes have been made, right click on uploaded ETH-1000 configuration and select Download Configuration. Answer Yes to overwriting the configuration. Remove the mini-USB cable and close the program.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

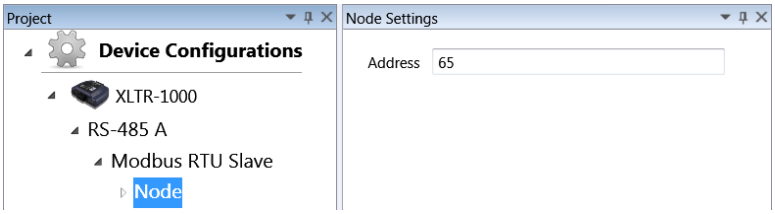
GG6-GR-M Configuration

Select the Modbus RTU Slave tab on the uploaded XLTR-1000 configuration.



From this tab the Baud Rate, Parity, Timeout and Response Delay can be set to match the RS-485 network.

Select the Node tab on the on the uploaded XLTR-1000 configuration.



From this tab the Modbus Address can be set.

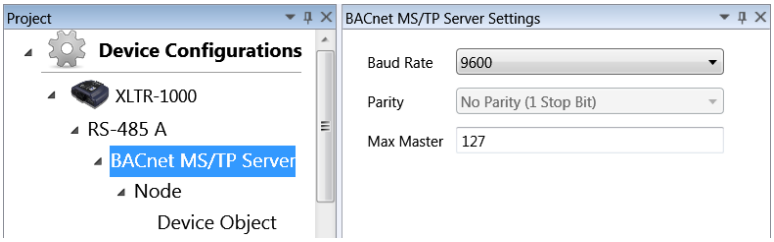
Do not change anything below the Node tab.

Once all of the changes have been made, right click on uploaded XLTR-1000 configuration and select Download Configuration. Answer Yes to overwriting the configuration. Remove the mini-USB cable and close the program.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

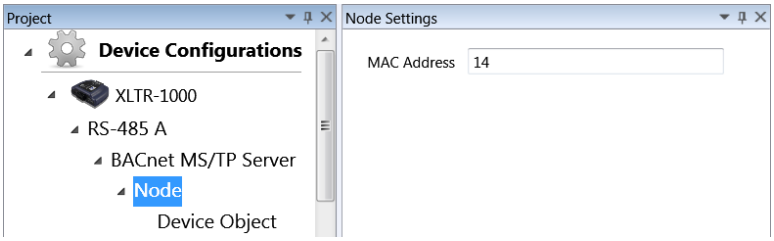
GG6-GR-B Configuration

Select the BACnet MS/TP Server tab on the uploaded XLTR-1000 configuration.



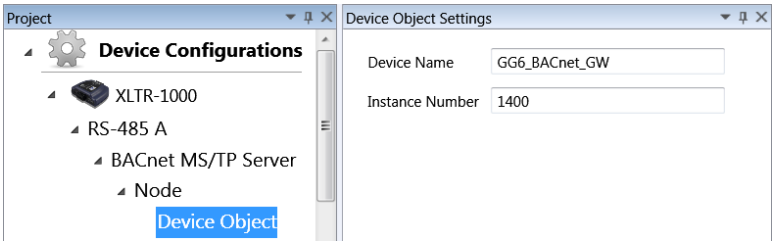
From this tab the Baud Rate, Parity and Max Master can be set to match the RS-485 network.

Select the Node tab on the on the uploaded XLTR-1000 configuration.



From this tab the MAC Address can be set.

Select the Device Object tab on the uploaded XLTR-1000 configuration.



From this tab the Device Name and the Instance Number can be set.

Do not change anything below the Device Object tab.

Once all of the changes have been made, right click on uploaded XLTR -1000 configuration and select Download Configuration. Answer Yes to overwriting the configuration. Remove the mini-USB cable and close the program.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

Troubleshooting

Download the appropriate Help Manual from the ICC Configuration Studio.

Help >> Help Manuals >> *select from table below*:

GG6-GE-E	ETH-1000 >> EtherNet/IP Server Driver Manual
GG6-GE-M	ETH-1000 >> Modbus/TCP Server Driver Manual
GG6-GE-B	ETH-1000 >> BACnet/IP Server Driver Manual
GG6-GR-M	XLTR-1000 >> Modbus RTU Slave Driver Manual
GG6-GR-B	XLTR-1000 >> BACnet MS/TP Server Driver Manual

Check the MODBUS Configuration on the GG-6.

With the USB cable connected, check for data activity in Database section of the ICC Configuration Studio.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

GG6-GE-E Register Map

If connecting to a ControlLogix PLC (such as a 1756-L61) coupled with a 1756-ENBT/A comm interface, follow the example in Sec 1.5.3 starting on pg 11 of the "EtherNet/IP Server Driver Manual" (see pg. 12 above for help finding the Driver Manual).
Use the CIP Data Table Read message type.
Use the Data Type INT (16 bit) and the Database addresses.
On pg 12 step g), change the Data Type to INT[194].

Description	DB Address	Data Type	Source Element	Num of Elements	Dest Element
Signal Data (1,2)	0	16-Bit Unsigned	DB_w_0	30	data_array[0]
Fault Discretes (3)	60	16-Bit Unsigned	DB_w_60	2	data_array[30]
Warn Discretes (3)	64	16-Bit Unsigned	DB_w_64	2	data_array[32]
Alarm1 Discretes (3)	68	16-Bit Unsigned	DB_w_68	2	data_array[34]
Alarm2 Discretes (3)	72	16-Bit Unsigned	DB_w_72	2	data_array[36]
Relay Discretes (3)	76	16-Bit Unsigned	DB_w_76	2	data_array[38]
STEL Data (2)	100	16-Bit Unsigned	DB_w_100	30	data_array[40]
STEL Discretes (3)	160	16-Bit Unsigned	DB_w_160	2	data_array[70]
TWA Data (2)	200	16-Bit Unsigned	DB_w_200	30	data_array[72]
TWA Discretes (3)	260	16-Bit Unsigned	DB_w_260	2	data_array[102]
Warn Setpoint (2,4)	300	16-Bit Unsigned	DB_w_300	30	data_array[104]
Alarm1 Setpoint (2,4)	360	16-Bit Unsigned	DB_w_360	30	data_array[134]
Alarm2 Setpoint (2,4)	420	16-Bit Unsigned	DB_w_420	30	data_array[164]

Notes: (1) Signal data from Sensor channels.
(2) Data represents values displayed on the GG-6. If the range is less than 10 then the signal needs to be divided by 100. If the range is greater than or equal to 10 and less than 100 then the signal needs to be divided by 10.
(3) 30 discretes are packed into two 16 bit words.
(4) Setpoints are read only.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

GG6-GE-M Register Map

Description	Start Register	Number of Registers	Modbus Address	Data Type
Signal Data (1,2,3)	30001	30	0	16-Bit Unsigned
Fault Discretes (4)	30061	2	60	16-Bit Unsigned
Warn Discretes (4)	30065	2	64	16-Bit Unsigned
Alarm1 Discretes (4)	30069	2	68	16-Bit Unsigned
Alarm2 Discretes (4)	30073	2	72	16-Bit Unsigned
Relay Discretes (4)	30077	2	76	16-Bit Unsigned
STEL Data (2,3)	30101	30	100	16-Bit Unsigned
STEL Discretes (4)	30161	2	160	16-Bit Unsigned
TWA Data (2,3)	30201	30	200	16-Bit Unsigned
TWA Discretes (4)	30261	2	260	16-Bit Unsigned
Warn Setpoint (2,3,5)	30301	30	300	16-Bit Unsigned
Alarm1 Setpoint (2,3,5)	30361	30	360	16-Bit Unsigned
Alarm2 Setpoint (2,3,5)	30421	30	420	16-Bit Unsigned

Notes: (1) Signal data from Sensor channels.
(2) Two registers numbers are used to represent each data value. For example, Sensor 1 = 30001, Sensor 2 = 30003, Sensor 3 = 30005, etc.
(3) Data represents values displayed on the GG-6. If the range is less than 10 then the signal needs to be divided by 100. If the range is greater than or equal to 10 and less than 100 then the signal needs to be divided by 10.
(4) 30 discretes are packed into two 16 bit words.
(5) Setpoints are read only.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

GG6-GE-B Register Map

Description	Object Name	Instance	Object Type	Data Type
Signal Data (1,2)	Sensor 1 - Sensor 30	0-29	Analog Input	16-Bit Unsigned
Fault Discretes (3)	Faults	30	Multi-state Input	32-Bit Unsigned
Warn Discretes (3)	Warnings	31	Multi-state Input	32-Bit Unsigned
Alarm1 Discretes (3)	Alarm1s	32	Multi-state Input	32-Bit Unsigned
Alarm2 Discretes (3)	Alarm2s	33	Multi-state Input	32-Bit Unsigned
Relay Discretes (3)	Relays	34	Multi-state Input	32-Bit Unsigned
STEL Data (2)	STEL 1 - STEL 30	40-69	Analog Input	16-Bit Unsigned
STEL Discretes (3)	STEL Alarms	70	Multi-state Input	32-Bit Unsigned
TWA Data (2)	TWA 1 - TWA 30	80-109	Analog Input	16-Bit Unsigned
TWA Discretes (3)	TWA Alarms	110	Multi-state Input	32-Bit Unsigned
Sessions Count (4)	Sessions Count	120	Multi-state Input	32-Bit Unsigned

Notes: (1) Signal data from Sensor channels.
(2) Data represents values displayed on the GG-6. If the range is less than 10 then the signal needs to be divided by 100. If the range is greater than or equal to 10 and less than 100 then the signal needs to be divided by 10.
(3) 30 discretes are packed into two 16 bit words.
(4) Sessions Count is a counter that increments every time the GG-6 communicates with the Gateway Module. This can be used as a watchdog timer.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

GG6-GR-M Register Map

Description	Start Register	Number of Registers	Modbus Address	Data Type
Signal Data (1,2,3)	30001	30	0	16-Bit Unsigned
Fault Discretes (4)	30061	2	60	16-Bit Unsigned
Warn Discretes (4)	30065	2	64	16-Bit Unsigned
Alarm1 Discretes (4)	30069	2	68	16-Bit Unsigned
Alarm2 Discretes (4)	30073	2	72	16-Bit Unsigned
Relay Discretes (4)	30077	2	76	16-Bit Unsigned
STEL Data (2,3)	30101	30	100	16-Bit Unsigned
STEL Discretes (4)	30161	2	160	16-Bit Unsigned
TWA Data (2,3)	30201	30	200	16-Bit Unsigned
TWA Discretes (4)	30261	2	260	16-Bit Unsigned
Warn Setpoint (2,3,5)	30301	30	300	16-Bit Unsigned
Alarm1 Setpoint (2,3,5)	30361	30	360	16-Bit Unsigned
Alarm2 Setpoint (2,3,5)	30421	30	420	16-Bit Unsigned

Notes: (1) Signal data from Sensor channels.
(2) Two registers numbers are used to represent each data value. For example, Sensor 1 = 30001, Sensor 2 = 30003, Sensor 3 = 30005, etc.
(3) Data represents values displayed on the GG-6. If the range is less than 10 then the signal needs to be divided by 100. If the range is greater than or equal to 10 and less than 100 then the signal needs to be divided by 10.
(4) 30 discretes are packed into two 16 bit words.
(5) Setpoints are read only.

866-394-5861
sales@CTiengineering.com
www.CTiengineering.com

GG6-GR-B Register Map

Description	Object Name	Instance	Object Type	Data Type
Signal Data (1,2)	Sensor 1 - Sensor 30	0-29	Analog Input	16-Bit Unsigned
Fault Discretes (3)	Faults	30	Multi-state Input	32-Bit Unsigned
Warn Discretes (3)	Warnings	31	Multi-state Input	32-Bit Unsigned
Alarm1 Discretes (3)	Alarm1s	32	Multi-state Input	32-Bit Unsigned
Alarm2 Discretes (3)	Alarm2s	33	Multi-state Input	32-Bit Unsigned
Relay Discretes (3)	Relays	34	Multi-state Input	32-Bit Unsigned
STEL Data (2)	STEL 1 - STEL 30	40-69	Analog Input	16-Bit Unsigned
STEL Discretes (3)	STEL Alarms	70	Multi-state Input	32-Bit Unsigned
TWA Data (2)	TWA 1 - TWA 30	80-109	Analog Input	16-Bit Unsigned
TWA Discretes (3)	TWA Alarms	110	Multi-state Input	32-Bit Unsigned
Sessions Count (4)	Sessions Count	120	Multi-state Input	32-Bit Unsigned

Notes: (1) Signal data from Sensor channels.
(2) Data represents values displayed on the GG-6. If the range is less than 10 then the signal needs to be divided by 100. If the range is greater than or equal to 10 and less than 100 then the signal needs to be divided by 10.
(3) 30 discretes are packed into two 16 bit words.
(4) Sessions Count is a counter that increments every time the GG-6 communicates with the Gateway Module. This can be used as a watchdog timer.