

*Babel Buster*® 3  
**MODBUS  
 NETWORK GATEWAY**  
 MODEL BB3-6101-GW



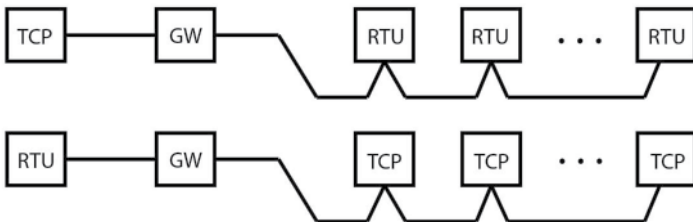
**CONTROL SOLUTIONS MINNESOTA**

## Directly Access Modbus RTU Devices From Modbus TCP and Vice Versa!



*Control Solutions' Babel Buster*® BB3-6101-GW is a non-mapping gateway used to directly route Modbus RTU messages to Modbus TCP and vice versa. This version of gateway does not do any data translation or remapping of registers, nor does it even look at the data being transferred. The BB3-6101-GW will satisfy your requirement for either of these two options:

- Accessing multiple RTU devices from one or more TCP clients
- Accessing multiple TCP devices from single RTU master



The Babel Buster BB3-6101-GW is a non-mapping Modbus gateway used to simply forward Modbus RTU requests and responses to Modbus TCP, and vice versa. Most Control Solutions gateways involve mapping, and the gateway itself contains registers or objects which hold copies of data found in other devices. This intermediate data buffering is what allows access to the same data from multiple protocols. The non-mapping gateway discussed here does not contain any of its own registers. It simply forwards whatever request it receives to the other side by simply repackaging and retransmitting exactly the same request.

The process of “repackaging” the Modbus request or response is illustrated below. The core of a Modbus data packet is the same for RTU and TCP. It contains a slave address (or unit number), a function code, and some data. The “data” is most often a starting register number, register count, and register data (if writing).

MODBUS RTU			
SLAVE ADDRESS	FUNCTION CODE	DATA	CRC

MODBUS TCP			
TCP HEADER	UNIT	FUNCTION CODE	DATA

The process of translating RTU to TCP or vice versa is simply a matter of adding or subtracting TCP header and RTU checksum. The only configuration required in this type of gateway is to create an association between RTU slave addresses and TCP IP addresses.

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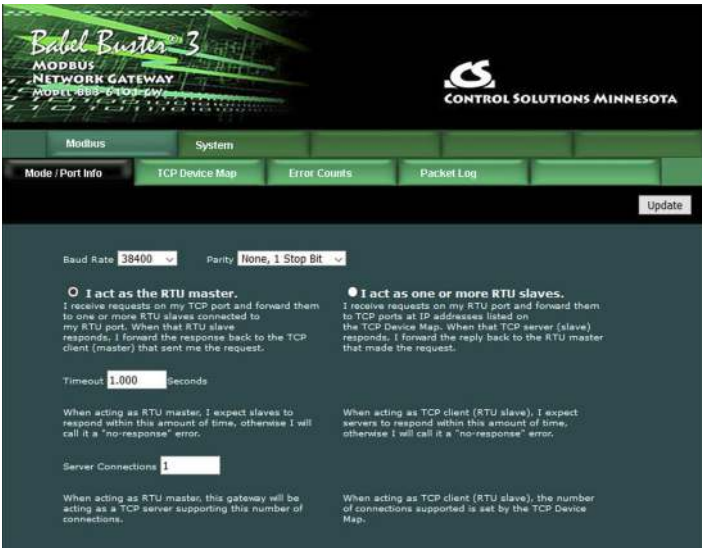
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**FEATURES**

- Modbus RTU Master or Slave
- Modbus TCP Client and Server
- Modbus TCP over Ethernet 10/100BaseT
- Up to 120 simultaneous TCP connections
- Full range of 1 to 247 RTU device addresses
- Configure via secure web pages with password protection
- Flash file system for XML configuration files
- Online help, Quick Help section at bottom of every web page
- Field upgradeable firmware upload via ftp
- DHCP or static IP address
- Hardened EIA-485 transceiver for Modbus RTU
- Optional RS-232 transceiver (in place of RS-485)
- Powered by 10-30VDC or 24VAC 50/60 Hz
- Power Consumption: 0.1A @ 24VDC
- DIN rail mounting, 100mm H x 70mm W x 60mm D
- Pluggable screw terminal block for power & RTU network
- Operating temperature -40°C to +85°C
- Humidity 5% to 90% non-condensing
- FCC Class A, CE Mark
- Listed to UL 916 and (Canadian) C22.2 No. 205-M1983



Accessing one or more Modbus RTU slaves from TCP with the external Modbus TCP device acting as client (master) means the gateway needs to act as an RTU master on the RTU network. Select “I act as the RTU master” for mode. You do not need to do anything on the TCP Device Map page for this mode.

Accessing one or more Modbus TCP server devices from an external Modbus RTU master means the gateway needs to act as one or more RTU slaves on the RTU network. Select “I act as one or more RTU slaves” for mode.

The gateway can present one or more TCP servers as one or more RTU slaves. There can be a one to one mapping, or a many to one mapping. The most common application will be a one to one mapping of RTU address to TCP address.

The TCP Device Map is where you establish your association between RTU address and TCP device IP address. When operating in this mode, if an RTU address is not found in this table, then the gateway will simply not respond. The expected behavior for RTU slave devices is that they remain silent if the request does not contain their address (aka slave ID or unit number). This gateway may be acting as multiple RTU slaves, but it will remain silent if the RTU address is not found in this table.

Device #	First RTU Address In	First RTU Address Out	No. Units at this IP	Type	IP Address	Port	Status
1	1	1	1	IPv4	192.168.1.21	0	0
2	2	1	1	IPv4	192.168.1.33	0	0
3	3	1	1	IPv4	192.168.1.39	0	0
4	4	1	1	IPv4	192.168.1.62	0	0
5	5	1	1	IPv4	192.168.1.87	0	0
6	0	0	0	IPv4	0.0.0.0	0	0

Configuration of the gateway is done via the secure web pages served by the internal web server. The user simply fills in templates. The entire configuration is saved in the internal Flash file system in XML format. This file may be exported to replicate additional copies of the configured device, or for backup.

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