DATASHEET

Modbus TCP/IP to BACnet/IP Client Gateway

5201-MNET-BACNET

The ProLinx Modbus TCP/IP to BACnet/IP Client Gateway creates a powerful connection between devices on a Modbus TCP/IP network and BACNET devices. This stand-alone DIN-rail mounted protocol gateway provides a single Ethernet port.

The Modbus TCP/IP driver supports Schneider Electric processors as well as most other devices that use Modbus TCP/IP. The driver allows Client (Master) and Server (Slave) configurations that use standard Ethernet TCP/IP connections and recognize both Modbus TCP/IP MBAP and Encapsulated Modbus message formats.

The BACnet protocol provides mechanisms by which computerized equipment of arbitrary function may exchange information, regardless of the particular building service it performs. As a result, the BACnet protocol may be used by head-end computers, general-purpose direct digital controllers, and application specific or unitary controllers with equal effect.

Features	Benefits
Powerful network integration	♦ Communicate between dissimilar networks ♦ Shared database exchanges information from devices on both networks ♦ View diagnostics between both networks
Modbus TCP/IP protocol interface	♦ Modbus TCP/IP adds Ethernet capability to one of the most widely used industrial protocols ♦ Suitable for SCADA and "foreign device" interface applications ♦ Floating point data movement supported, including configurable support for Enron and Daniel® floating point applications ♦ Communicate with programmable controllers, intelligent devices, sensors and instruments ♦ Allows PCs and HMIs to monitor field devices
BACnet/IP Client	♦ Standard protocol for Building Automation and Control limited to Analog and Digital I/O commands ♦ Communicate with Building Automation controllers, HVAC, Fire and Safety equipment ♦ Support for Trane Building Control Unit (BCU)
Easy to Configure and Monitor	♦ Graphical drag-and-drop configuration tool for simple module configuration ♦ LED diagnostics for at-a-glance health check ♦ Easy to use diagnostics window with menu-driven hardware and protocol diagnostics ♦ View module database contents through serial connection to a desktop PC
Backed by ProSoft Technology®	♦ 20-year history of delivering high-quality, reliable solutions designed with you in mind ♦ Free, unlimited, worldwide Technical Support by phone for pre-sale, set-up, or troubleshooting support helps you get going sooner and stay running longer ♦ Three-Year Warranty ensures reliability and protects against equipment failures ♦ Free ProSoft Software tools tightly integrate with our hardware...a simple and quick, total solution to help you make our products fit your applications

Configuration

ProSoft Configuration Builder (PCB) provides a PC-based software configuration solution for quick and easy management of gateway configuration files, as well as viewing communication and network diagnostics. The 5201-MNET-BACNET Setup Guide and sample configuration provide a quick and easy example with step-by-step instructions on how to move data from one network to the other.

General Specifications

ProLinx® Communication Gateways provide connectivity for two or more dissimilar network types. The gateways, encased in sturdy extruded aluminum, are stand-alone DIN-rail mounted solutions that provide data transfer between many of today's most widely used industrial automation protocols.

Modbus TCP/IP

ProSoft's Modbus TCP/IP implementation uses the module's shared internal memory for data transfer. Sharing the memory with another protocol driver allows the module to transfer data between Modbus TCP/IP devices and other devices on other networks. Configurable floating-point data movement is supported, including support for Enron or Daniel® floating-point applications.

Modbus TCP/IP Server (Slave)

The server driver accepts incoming connections on Service Port 502 for clients using Modbus TCP/IP MBAP messages and from clients on Service Port 2000 (or other Service Ports) for clients using Encapsulated Modbus messages..

- Supports five independent server connections for Service Port 502 (MBAP)
- Supports five independent server connections for Service Port 2000 (Encapsulated)
- Supports a total Modbus TCP/IP data transfer capacity of up to 4000 registers or up to 64,000 bits in any combination of data types throughout the memory database
- Modbus data types overlap in the gateway's memory database, so the same data can be conveniently read or written as bit-level or register-level data.

Modbus TCP/IP Client (Master)

- Actively reads data from and writes data to Modbus TCP/IP devices, using MBAP or Encapsulated Modbus message formats
- Offers one client connection with up to 100 commands to talk to multiple severs

Status Data

Error codes, counters, and port status available

BACnet/IP Client

- The BACnet driver supports a single UDP client to interface with one or more devices that contain a BACnet/IP server
- The ProLinx BACnet/IP driver implements a limited subset of the BACnet/IP protocol primarily used with the Trane BCU
- The module controls the read/write data transfer between the gateway and other BACnet/IP devices

Functional Specifications

Modbus TCP/IP

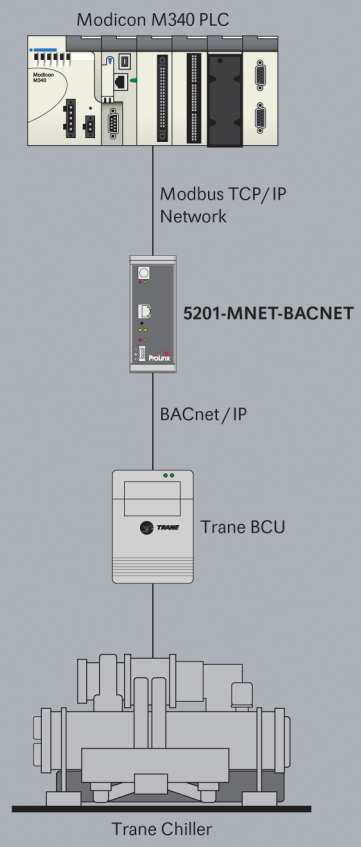
Modbus Commands Supported (Client and Server)	1: Read Coils Status 2: Read Input Status 3: Read Holding Registers 4: Read Input Registers 5: Force (Write) Single Coil	6: Preset (Write) Single Holding Register 15: Force (Write) Multiple Coils 16: Preset (Write) Multiple Holding Registers
Configurable Parameters: (Client and Server)	Gateway IP Address Modbus data type starting address offsets Floating point start address and database offset	
Configurable Parameters: Client Only	Minimum Command Delay Response Timeout Retry Count Command Error Pointer	
Command List	Up to 100 fully-configurable Client commands	
Status Data	Error codes reported individually for each command	
Command List Polling	Each command can be individually enabled or disabled; write-only-on-data-change is available	

BACnet/IP Client

The BACnet/IP (Building Automation and Control networking) protocol is designed specifically to meet the communication needs of building automation and control systems for applications such as heating, ventilating, and air-conditioning control, lighting control, access control, and fire detection systems.

The BACnet/IP Client can be used to interface many different protocols with Ethernet-enabled BACnet devices.

Schematic



BACnet/IP

General	One client
Command List	Support for 100 commands, each configurable for command, IP address, register to/from addressing and word/bit count.
Service Port	1 to 65535
Function Code	12=Read Single Property 14=Read Multiple Properties 15=Write Single Property 16=Write Multiple Property.
Data Type	0=Analog Input 1=Analog Output 3=Binary Input 4=Binary Output.
Point Count	1 to 25

Hardware Specifications

Specification	Description
Power Supply	24 VDC nominal 18 to 32 VDC allowed Positive, Negative, GND Terminals 2.5 mm screwdriver blade
Current Load	500 mA max@ 32 VDC max
Operating Temperature	-20 to 50°C (-4 to 122°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Relative Humidity	5% to 95% (non-condensing)
Dimensions	Standard: 5.20 H x 2.07 W x 4.52 D inches (13.2 cm H x 5.25 cm W x 11.48cm D) Extended: 5.20 H x 2.73 W x 4.52 D inches (13.2 cm H x 6.934 cm W x 11.48cm D)
LED Indicators	Power and Module Status Application Status Serial Port Activity LED Serial Activity and Error LED Status
Configuration Serial Port	DB-9M RS-232 only No hardware handshaking
Ethernet Port (Ethernet protocol gateways only)	10Base-T half duplex RJ45 Connector Link and Activity LED indicators Electrical Isolation 1500 V rms at 50 Hz to 60 Hz for 60 s, applied as specified in section 5.3.2 of IEC 60950: 1991 Ethernet Broadcast Storm Resiliency = less than or equal to 5000 [ARP] frames-per-second and less than or equal to 5 minutes duration
Application Serial Ports	RS-232/422/485 RS-232 handshaking configurable RS-422/485 screw termination included
Serial Port Isolation	2500V RMS port signal isolation per UL 1577 3000V DC min. isolation port to ground and port to logic
Shipped with Each Unit	Mini-DIN to DB-9M serial cables 4 ft RS-232 configuration cable 2.5mm screwdriver CD (docs and Configuration utility) RS-422/485 DB-9 to Screw Terminal Adaptor (1 or 4, depending on ports)

Agency Approval & Certification

UL/cUL	ISA 12.12.01 Class I, Div 2 Groups A, B, C, D
cUL	C22.2 No. 213-M1987

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Additional Products

ProSoft Technology® offers a full complement of hardware and software solutions for a wide variety of industrial communication platforms.

For a complete list of products, visit our web site at: www.prosoft-technology.com

Ordering Information

If you are unsure which product to select, please contact your local distributor. To order this product, please use the following:

Modbus TCP/IP to BACnet/IP Client Gateway

5201-MNET-BACNET

To place an order, please contact your local ProSoft Technology distributor. For a list of ProSoft Technology distributors near you, go to: www.prosoft-technology.com and select Distributors from the menu.

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