DISCONTINUED
'C' Programmable over Ethernet to Modbus TCP/IP Gateway
5201-ADMNET-MNET

The ProLinx® 'C' Programmable Application Development Module with Ethernet to Modbus TCP/IP creates a powerful platform for developing and running 'C' applications to communicate with Modbus TCP/IP networks and devices. The gateway provides one Ethernet port.

The ADMNET functionality allows the module to be programmed to accommodate devices with unique Ethernet protocols. The module includes General Software Embedded DOS 6-XL. This operating system provides DOS compatibility along with real-time multitasking functionality. DOS compatibility allows user applications to be developed using standard DOS tools, such as DigitalMars and Borland compilers.

The Modbus TCP/IP protocol driver supports Schneider Electric processors as well as most other devices that use Modbus TCP/IP for communicating over Ethernet networks. The gateway offers both Client (Master) and Server (Slave) configurations that use standard Ethernet TCP/IP connections. The driver recognizes both Modbus TCP/IP MBAP and Encapsulated Modbus messages.

Features	Benefits
Powerful network integration	◆ Communicate between dissimilar networks ◆ Shared database exchanges information from devices on both networks ◆ View diagnostics between both networks
'C' Programmable over Ethernet	◆ Develop and deploy 'C' applications for a custom implementation, or to protect a proprietary algorithm ◆ Interface Modbus TCP/IP devices to Ethernet devices such as bar code scanners, alarm/status printers, terminal port emulation, and legacy protocols ◆ Rapidly create specialized applications using a familiar programming language
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
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

The 'C' Programmable modules are completely configurable. The included API offers the option of text or binary configuration files, configuration through ladder logic, or hard-coded configuration within the application.

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.

'C' Programmable over Ethernet

The ADMNET API is one component of the ProLinx ADM API Suite. The ADMNET API provides a simple module-level interface that is portable between members of the ProLinx Family. This is useful when developing an application that implements an Ethernet protocol for a particular device, such as a scale or bar code reader. After an application has been developed, it can be used on any of the ProLinx family modules.

Applications for the ADMNET module may be developed using industry-standard DOS programming tools and the appropriate API components.

Development Environment

- Operating system: General software DOS 6-XL
- Compatible compiler (16-bit DOS target)
  - o Digital Mars C++ V8.49 (included)
  - o Borland C++ V5.02

SDK Includes

- ADM API LIB (library) File
- ADM API Header File
- Complete API Documentation
- Image file creation utility
- Image file download utility
- DigitalMars 'C' compiler
- General software DOS 6-XL
- Example Code Files

Modbus TCP/IP

ProSoft's Modbus TCP/IP implementation uses the gateway's shared internal memory database for data transfer. Sharing the memory database with another protocol driver allows the gateway 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..
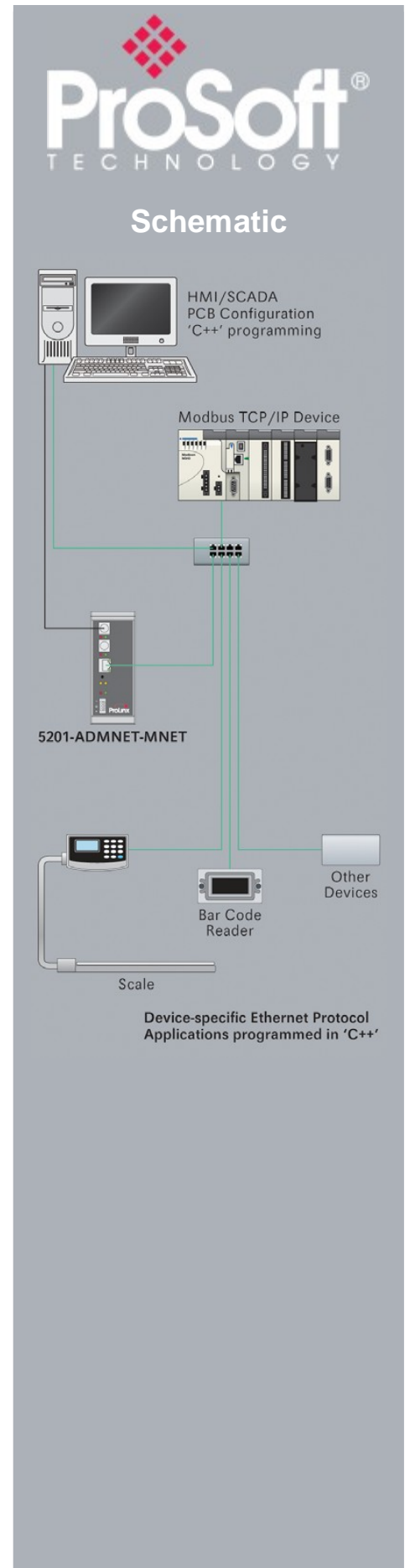
- Supports five independent server connections for Service Port 502 (MBP)
- Supports five independent server connections for Service Port 2000 (Encapsulated)
- Supports a total Modbus TCP/IP data transfer capacity of up to 4000 registers or up to 64,000 bits in any combination of data types throughout 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

Schematic

HMI/SCADA
PCB Configuration
'C++' programming

Modbus TCP/IP Device

5201-ADMNET-MNET

Other Devices

Bar Code Reader

Scale

Device-specific Ethernet Protocol
Applications programmed in 'C++'

Functional Specifications

'C' Programmable over Ethernet

Each API provides a library of function calls. This library supports any programming language that is compatible with the 'C' calling convention.

Initialization	Open and close the API Debug
Port	Debug port user interface
Database	Read and write data to database
Timer	Start and check timers
LED	Set user LED indicators
Flash	Parse configuration files

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	

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: 5.20H x 2.07W x 4.52D in. (13.2cmH x 5.25cmW x 11.48cmD) Extended: 5.20H x 2.73W x 4.52D in. (13.2cmH x 6.934cmW x 11.48cmD)
LED Indicators	Power and Module Status, Application Status
Configuration Serial Port	DB-9M RS-232 only No hardware handshaking
Ethernet Port (Ethernet modules 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
Shipped with Each Unit	Mini-DIN to DB-9M serial cable 4 ft RS-232 configuration cable 2.5mm screwdriver CD (docs and Configuration utility)

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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