

PROTOCOL CONVERTER

- **4 Independent Serial I/O Ports plus one Configuration Port**
- **Integral Dial-up and Leased Line Modems (up to 3 on-board modems)**
- **User configurable using serial port of a personal computer or remotely via modem**
- **Master and Slave protocol emulations are user selectable for each port**
- **Desk-top or 19" rack mount**
- **Universal input AC power supply or optional 24 VDC**
- **Remote configuration and debug**
- **Use to connect standard PLC to communication network using other protocols**
- **Use to collect data from other equipment using protocol of the external device**

- **Concentrate data from all devices in on-board memory or transfer to PLC memory**
- **No PLC programming required**

The MARC™ Model 266-001 Protocol Converter is a powerful microprocessor based 4-port communications module that can be used for protocol conversion, polling master and data concentration applications. The unit supports MODBUS, Allen-Bradley, Square D, Omron and Reliance PLC protocols as well as many other popular SCADA protocols.

An IBM PC compatible configuration program, supplied with each module, is used to initialize the Protocol Converter for operation. The program screens guide the user easily through the configuration process. Configurations can be stored on disk and downloaded to the converter when required. Configurations can also be uploaded from an operating unit for analysis and modification. Configuration can also be accomplished remotely via a modem connected to the configuration port.

The movement of data between the ports is controlled by a set of poll tables entered with the configuration program. Each poll table uniquely describes a message transaction which consists of reading data from a port, writing the data collected to a port or to internal memory and optionally reporting the status of the transaction to a port. Poll table entries are divided into three sections. The first section defines the port, protocol, device address (including route), function code and starting address to use



in order to read data. The second portion of a poll table defines the port, protocol, device address, function code and starting address to use for writing the data just collected. The third section of a polling table is used to define the port, protocol, device address, function code and address to use to report the status of the transaction.



Each transfer operation (poll) has two associated timers. One timer is used to determine how often the poll table will be executed. The second timer is used to time the operation of the unit and prevent a hang-up if a device does not respond.

The hardware ports are each assigned a protocol by the configuration table. Each is also uniquely configured for baud rate, number of data bits, parity and stop bits as required. Each hardware port can also have a unique set of protocol options. Some examples are selection of the type of error check to use, "Daniel mode" enable, Source Address, Silence time enable, etc.

A typical Protocol Converter application would connect one of the serial ports to a PLC and a second port to a SCADA network. The PLC port would be set up to use the standard protocol of the PLC and the other port would

use the protocol of the SCADA host. The SCADA port could be configured to use the internal leased line modem. A dial-up modem could be installed and also configured with the SCADA protocol to provide an alternative back up circuit in the event that the leased line fails.

Another popular application uses the Protocol Converter as a data concentrator. From 1 to 3 ports are set up as polling master ports that collect data from external devices connected on 3 separate networks using any of the standard protocols. Another port is set up as a slave port and connected to a host computer using the protocol of the host. Data from all external devices is instantly available to the host at any time and the host can send control commands (write data back) to any of the external devices.

Specifications

Physical:

17"W x 1.75"H x 10"D Desk top enclosure or 19" rack mount 2 lb., 10 oz.

Operating Environment:

0° to 60° Celsius, 10% to 90% RH (non-condensing)

Protocols Supported (partial list):

User selectable for each connector:
MODBUS Master and Slave, RTU or ASCII along with 32-bit data types and "string by flow" options
Allen-Bradley DF1 Half-Duplex or Full Duplex with PLC 2, PLC 5, PLC 5/250 and SLC 500 addressing
Square D SY/MAX Point-to-Point or Multidrop
Omron Host Link
Reliance Automate, Single or Multiple Processor
Teledyne/Control Applications, standard and report by exception

Power Requirements:

Part # 266-001; 85 to 260 VAC 50 to 60 HZ .1A
Part # 266-002; 24 VDC .2A

LED Indicators (12):

Error, Active plus TXD and RXD status for each connector

I/O Ports:

4 Asynchronous Serial Data Ports; 300 to 9600 baud
2 Universal Serial Data Ports (Synchronous or asynchronous); 300 to 2400 baud
2 Dial-up Modem Ports
1 Leased Line or Dial-up Modem Port
1 Configuration/Diagnostic Port
All ports are equipped with modem control lines RTS, CTS, DCD, DTR and DSR

Serial Port Connections:

Connector P1 to P4: 9-pin "D" connector (male), RS232, RS422 or RS485 operation
RS232 1-DCD, 2-RXD, 3-TXD, 4-DTR, 5-GND, 6-DSR, 7-RTS, 8-CTS
RS422 1-TXD+ , 2-RXD+ , 5-GND, 6-RXD-, 9-TXD-
RS485 1-TRD+ , 5-GND, 9-TRD-
Modem M1 to M3: 6-pin RJ11 modular plug
M1, M2 Dial-up only, 3-Tip, 4-Ring;
M3 Dial-up 3-tip, 4-Ring
Leased Line 1-PTT+ , 2-RD+ , 3-TD+
4-TD-, 5-RD-, 6-PTT-

Internal Speaker

Watch dog timer and Reset Switch

Mille Applied Research Company, Inc.
PO Box 87634, Houston, Texas 77287
(800) 729-0818 • (713) 472-6272