



DATASHEET

ControlLogix[®] Enhanced Modbus Master/Slave Communications Interface Module with Reduced Data Block MVI56E-MCMR

The MVI56E-MCMR Enhanced Modbus Master/Slave Communication Module with Reduced Data Block allows Rockwell Automation[®] ControlLogix[®] processors to easily interface with devices using the Modbus RTU/ASCII serial communications protocol.

Compatible devices include a wide variety of instruments, process measurement devices, popular brands of programmable logic controllers (PLCs) and programmable automation controllers (PACs).

The MVI56E-MCMR acts as an input/output module on the ControlLogix backplane, making Modbus data appear as I/O data to the processor. Backplane data transfers to and from the processor are asynchronous from communications on the Modbus network. Two independently-configurable serial ports can operate on the same or different Modbus networks. Each port can be configured as a Modbus Master or Slave, sharing the same user-controlled 5000-word database.



Features	Benefits
Backward Compatibility	<ul style="list-style-type: none"> All MVI56E products are backward-compatible allowing direct replacement of earlier MVI56 modules without the need to change existing controller programs Enjoy Enhanced features and flexibility without incurring expensive reprogramming costs
Reduced Data Block	<ul style="list-style-type: none"> Reduced Data Block implementation requires less backplane/network bandwidth Smaller data blocks are easier to schedule and transfer on ControlNet[™] networks Ideal solution for remote chassis installations using ControlNet and redundant controllers
CIPconnect [®] -enabled	<ul style="list-style-type: none"> ProSoft Configuration Builder software (PCB), with CIPconnect, facilitates remote user access across the ControlLogix backplane through Rockwell Automation's 1756-ENBT module Configure, diagnose, and analyze process data and communications status CIPconnect can bridge through multiple ENBT/CNBT links to connect to MVI56E-MCMRs installed in remote chassis for configuration and diagnostics
4-digit LED display	<ul style="list-style-type: none"> See critical configuration and status information without having to hook up to the ports
Ethernet Port with Built-in Web Server	<ul style="list-style-type: none"> Module Ethernet port provides a built-in web server for access to documentation, module status, firmware update software, and support software Local and remote configuration and diagnostics access available through the Ethernet Port

Configuration

ProSoft Configuration Builder (PCB) provides a PC-based software configuration solution for quick and easy management of ProSoft Technology[®] modules, as well as viewing module and network diagnostics. PCB provides an excellent diagnostic tool for the module when used with CIPconnect technology, providing communication over local and remote chassis. The MVI56E-MCMR Setup Guide and Sample configuration provide a quick start up with step by step instructions on how to move data from the Modbus network to the controller.



General Specifications

- ◆ Backward-compatible with previous MVI56-MCMR version
- ◆ Single Slot - 1756 ControlLogix® backplane compatible
- ◆ 10/100 MB Ethernet port for configuration with Auto Cable Crossover Detection
- ◆ User-definable module data memory mapping of up to 5000 16-bit registers
- ◆ CIPconnect®-enabled network configuration and diagnostics monitoring using ControlLogix 1756-ENxT modules and EtherNet/IP® pass-thru communications
- ◆ Sample Ladder Logic or Add-On Instruction (AOI) used for data transfers between module and processor
- ◆ Internal web page access to product documentation, module status, and firmware update software
- ◆ 4-character, scrolling LED display of status and diagnostic data in plain English
- ◆ ProSoft Discovery Service (PDS) software finds the module on the network and assigns a temporary IP address to facilitate module access and configuration
- ◆ Personality Module (non-volatile CF card) to store all configuration settings, allowing quick in-the-field product replacement by transferring the CF card

Functional Specifications

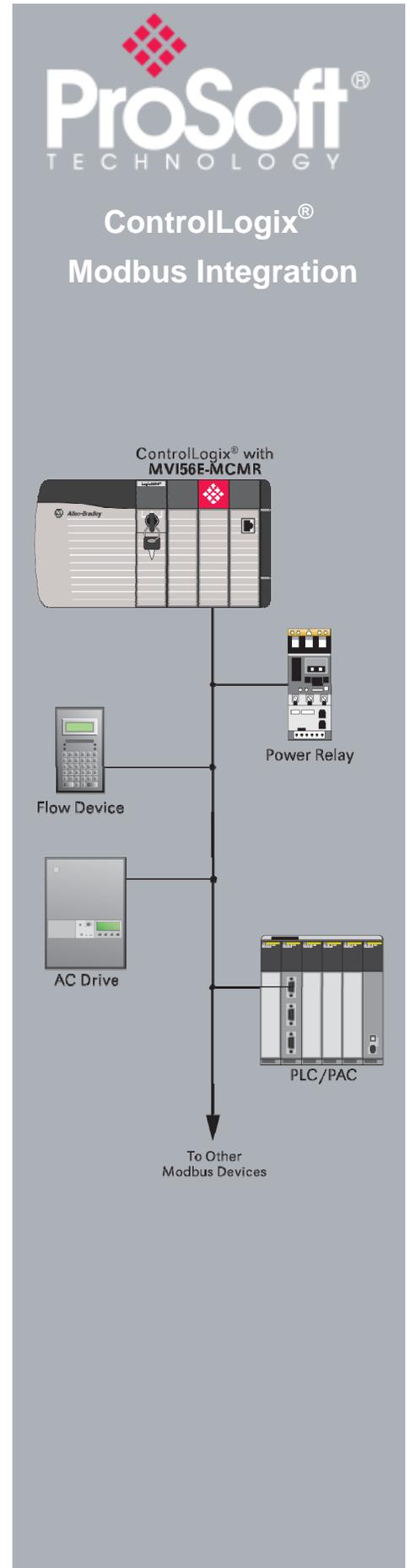
- ◆ Adjustable Modbus floating point data support in Enron, Daniels® and other formats
- ◆ Powerful Modbus network analyzer diagnostics using ProSoft Configuration Builder
- ◆ Optional Message functions, like User-configured Command and Event Command messages, give users the option to place normally automatic Modbus polling under logic control for special situations.
- ◆ Error codes, network error counters, and port status data may be stored in user data memory or requested by using unscheduled MSG (message) instructions
- ◆ 40 Word Data Block (Scheduled)

Modbus General Specifications

Communication parameters	Baud Rate: 110 baud to 115.2 kbps Stop Bits: 1 or 2 Data Size: 7 or 8 bits Parity: None, Even, Odd RTS Timing delays: 0 to 65535 milliseconds
Modbus Modes	RTU mode (binary) with CRC-16 ASCII mode with LRC error checking
Floating Point Data	Floating point data movement supported, including configurable support for Enron and Daniel implementations
Modbus Function Codes	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 Register 8: Diagnostics 15: Force (Write) Multiple Coils 16: Preset (Write) Multiple Data Registers 17: Report Slave ID 22: Mask Write 4x Register 23: Read/Write 4x Registers

Modbus Master Specifications

Command List	Up to 100 commands per Master port, each fully configurable for function code, slave address, register to/from addressing and word/bit count.
Optimized Polling	Configuration options allow Master ports and commands to be optimized to poll slaves with communication problems less frequently.
Command Status/Error Monitoring	Command Status or Error codes are generated for each command as it executes, allowing careful monitoring of communication health between the Master and its Slaves.



Modbus Slave Specifications

Full Memory Access	A port configured as a Modbus Slave permits a remote Master to read from or write to any of the 5000 registers that make up the user memory database.
Multi-source Slave data	Data presented at the Slave port can be derived from other Modbus Slave devices on a different network through the module's Master port or from the processor tag database.
Node address	1 to 247 (software selectable)
Status Data	Slave port error codes, counters and statuses are available separately for each port when configured as a Slave

Hardware Specifications

General

Specification	Description
Backplane Current Load	800 mA @ 5 V DC
Operating Temperature	0 to 60°C (32 to 140°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Shock	30g Operational 50g non-operational Vibration: 5 g from 10 to 150 Hz
Relative Humidity	5% to 95% (non-condensing)
LED Indicators	Battery Status (ERR) Application Status (APP) Module Status (OK)
4-Character, Scrolling, Alpha-Numeric LED Display	Shows Module, Version, IP, Port Master/Slave Setting, Port Status, and Error Information

Debug/Configuration Ethernet port (E1 - Config)

Ethernet Port	10/100 Base-T, RJ45 Connector, for CAT5 cable Link and Activity LED indicators Auto-crossover cable detection
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Serial Application ports (P1 & P2)

Full hardware handshaking control, providing radio, modem, and multi-drop support

Software configurable communication parameters	Baud rate: 110 baud to 115.2 kbps RS-232, 485 and 422 Parity: none, odd or even Data bits: 5, 6, 7, or 8 Stop bits: 1 or 2 RTS on/off delay: 0 to 65535 milliseconds
App Ports (P1, P2)	RJ45 (DB-9M with supplied adapter cable) Configurable RS-232 hardware handshaking 500V Optical isolation from backplane RS-232, RS-422, RS-485 jumper-select, each port RX (Receive) and TX (Transmit) LEDs, each port
Shipped with Unit	RJ45 to DB-9M cables for each serial port 5 foot Ethernet Straight-Thru Cable (Gray)

Agency Approvals & Certifications

ANSI / ISA	ISA 12.12.01 Class I Division 2, GPs A, B, C, D
CSA/cUL	C22.2 No. 213-M1987
CSA CB Certified	IEC61010
ATEX	EN60079-0 Category 3, Zone 2 EN60079-15



RoHS

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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.

Compatible products in this product line include:

Modbus Plus Communication Module for ControlLogix (MVI56-MBP)
Modbus TCP/IP Client Server Communication Module for ControlLogix (MVI56-MNET)
Modbus TCP/IP Client Communication Module for ControlLogix (MVI56-MNETC)

Visit our web site at
<http://www.prosoft-technology.com>
for a complete list of products.

Ordering Information

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

Modbus Master/Slave Communication Module

MVI56E-MCMR

To place an order, please contact your local ProSoft Technology distributor. For a list of ProSoft Technology distributors near you, go to <http://www.prosoft-technology.com>

Distributors:

Place your order by email or fax to:

North American / Latin American / Asia Pacific

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