DNP 3.0 Master/Slave Communication Module
MVI56-DNP

The MVI56-DNP module is the ideal solution for many applications where DNP 3.0 Master and/or Slave connectivity must be added to a ControlLogix system.

The DNP solution addresses the expanding interest in the DNP 3.0 protocol. The protocol was originally developed for the power utility industry and is recommended by the IEEE for RTU-IED communication applications. Additional applications include Water/Wastewater and Oil and Gas industries.

How to Contact Us: Sales and Support
All ProSoft Technology products are backed with unlimited technical support. Contact our worldwide Technical Support team directly by phone or email:

Asia Pacific
+603.7724.2080, asiapc@prosoft-technology.com
Languages spoken include: Chinese, Japanese, English

Europe – Middle East – Africa
+33 (0) 5.34.36.87.20, support.EMEA@prosoft-technology.com
Languages spoken include: French, English

North America
+1.661.716.5100, support@prosoft-technology.com
Languages spoken include: English, Spanish

Latin America (Sales only)
+1.281.298.9109, latinam@prosoft-technology.com
Languages spoken include: Spanish, English

Brasil
+55-11.5084.5178, eduardo@prosoft-technology.com
Languages spoken include: Portuguese, English

DNP 3.0 Master/Slave Communication Module

MVI56-DNP
The MVI56 DNP 3.0 Master/Slave Communication Module is a single slot, backplane compatible DNP 3.0 interface solution for the Rockwell Automation ControlLogix platform. This module provides highly configurable support of both DNP 3.0 Master and Slave implementations (level 2 minimum), allowing the many SCADA and field devices supporting the DNP protocol to be integrated into the powerful ControlLogix platform.

Features and Benefits
The module supports DNP Subset Level 2 features and some of the Level 3 features allowing the many SCADA and field devices supporting the DNP protocol to be integrated into the ControlLogix platform. The module acts as an input/output module between the DNP network and the ControlLogix backplane. The data transfer from the ControlLogix processor is asynchronous from the actions on the DNP network. Databases are user defined and stored in the module to hold the data required by the protocol.

General Specifications
- Single Slot – 1756 backplane compatible
- The module is recognized as an Input/Output module and has access to processor memory for data transfer between processor and module
- Ladder Logic is used for data transfer between module and processor. Sample ladder file included.
- Configuration data obtained from configuration text file downloaded to module. Sample configuration file included
- Local or remote rack

Hardware Specifications

Specification	Description
Backplane Current Load	800 mA @ 5 V
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)

Specification	Description
LED Indicators:	Module Status
	Backplane Transfer Status
	Application Status
	Serial Activity
Debug/Configuration port (CFG)	
CFG Port (CFG)	RJ45 (DB-9M with supplied cable)
	RS-232 only
Application ports (PRT1 & PRT2)	
Full hardware handshaking control, providing radio, modem and Multi-drop support	
Software configurable communication parameters	Baud rate: 110 to 115,200 baud, depending on protocol
	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 ms
App Ports (P1,P2) (Serial modules)	RJ45 (DB-9M with supplied cable)
	RS-232 handshaking configurable
	500V Optical isolation from backplane
Shipped with Unit	RJ45 to DB-9M cables for each port
	6-foot RS-232 configuration cable

Functional Specifications

The module has two DNP protocol ports that can be user configured to operate in a Master/Slave or in a Slave/Slave redundant port configuration.

User defined internal register space is accessible to the protocol driver and to the ControlLogix processor memory.

DNP 3.0 Slave Protocol Specifications

The DNP Slave port(s) accepts DNP commands to control and monitor data stored in the module's DNP Slave databases. If a DNP Master port is also configured, a portion of these slave databases can be derived from or can control IED devices connected to the DNP master port.

- Report-by-Exception data is logged to the module's database
- Supports unsolicited messaging
- Each DNP point type is user configurable by point
- Class assignments are completely user-definable on a Type and point basis (BI, AI, FI, DI point types)
- Supports clock synchronization from a master or from the processor
- Up to 400 events are stored for Floats, Binary In, Analog In and Double Inputs
- Collision avoidance algorithm per DNP organization for redundant port switching (redundant slave mode)
- Special modem AT command string and timing support for dialing out on redundant port (redundant slave mode)

DNP 3.0 Master Protocol Specifications

The DNP 3.0 Master port can be configured as a virtual DNP Master device that actively issues user-defined DNP commands to nodes on the network.

- The Master port supports 300 user defined commands, each one containing its own set of data link and application layer characteristics
- Master port logically supports up to 40 slave devices
- Individual command configuration includes conditional or continuous polling and Poll Delay Time
- Slave status and Command status available for transfer to the processor
- Event data received from the slave devices updates the module database (Date and Time stamping is not stored or used by module)
- Special command handling for Digital Output CROB under processor control for pulse output control

DNP 3.0 ports (PRT1 & PRT2)

- Memory usage is user definable
- Support for the storage and transfer of all DNP data types across the backplane
- Communication parameters
  - Address: 0 to 65534 (slave mode)
  - Baud rate: 110 to 115K
  - Parity: none, data bits: 8, Stop bit: 1
  - RTS on delay: 0 to 65535 ms
  - RTS off delay: 0 to 65535 ms

Additional Products

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

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:

MVI56-DNP   DNP 3.0 Master/Slave Communication Module

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Place your order by email or fax to:

North American / Latin American / Asia Pacific
orders@prosoft-technology.com,
fax to +1 661.716.5101

Europe
europe@prosoft-technology.com,
fax to +33 (0) 5.61.78.40.52