

DATASHEET

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 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.

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

Functional Specifications

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

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

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 database. If a DNP Master port is also configured, a portion of these slave database 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 remote 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 with the latest data values. Optionally date and time stamped data can be passed to the processor through a special block 9903 that is enabled/disabled through the parameter **Event Messages to PLC** within the configuration of the module. When this option is used, events from the attached slaves are passed to an array in the ladder logic containing the event data (slave device, point index, point value) as well as the time stamp of the event from the attached slave device (value is presented as the 48 bit DNP time).
- Special command handling for Digital Output CROB under processor control for pulse output control

DNP 3.0 ports (PRT1 & PRT2)

- User-definable module memory usage
- 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 milliseconds
 - RTS off delay: 0 to 65535 milliseconds



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Hardware Specifications

Specification	Description
Backplane Current Load	800 mA @ 5 Vdc 3 mA @ 24 Vdc
Operating Temperature	0°C to 60°C (32°F to 140°F)
Storage Temperature	-40°C to 85°C (-40°F to 185°F)
Shock	30 g operational 50 g non-operational Vibration: 5 g from 10 Hz to 150 Hz
Relative Humidity	5% to 95% (without condensation)
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 milliseconds
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

Agency Approvals & Certifications

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IEC 60870-5-101 Master Communication Module for ControlLogix (MVI56-101M)
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Ordering Information

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