

# DATASHEET

## IEC 60870-5-104 Ethernet Server Communication Module with Edition 2 Support MVI56-104S

The MVI56 IEC 60870-5-104 Server Communication Module allows ControlLogix compatible processors to interface easily with IEC 60870-5-104 protocol-compatible hosts.

The MVI56-104S module acts as an input/output module between the IEC-60870-5-104 Ethernet network and the ControlLogix processor. Data transfer between the module and the processor is asynchronous from the actions on the network. Databases are defined by the user for the module to hold data as 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

### General Specifications - 104S

Operating in server mode (only), the 104S protocol implementation accepts commands from an IEC-60870-5-104 Client to read data stored in or write data into the gateway's internal database memory registers. The 104S implementation is also capable of generating unsolicited messages. Unsolicited messages can be either spontaneous (event-driven) or cyclic (timing-driven) communication.

The remote Client device uses the fully-configurable gateway memory database to control outputs and monitor inputs to devices on the IEC 104 network. Changes to the gateway database can also be used to transfer monitoring and control data to devices connected to the gateway using another installed network protocol. The 104S gateway thus provides a data transfer solution between an IEC 60870-5-104 Ethernet network and other serial and Ethernet network protocols, as well as proprietary interfaces.

General specifications include:

- ◆ User-definable database memory usage, based on data types and point counts
- ◆ Protocol implementation conforms to the IEC 60870-5-104 specification with fully-configurable parameters
- ◆ SNTP (Simple Network Time Protocol) timestamping for detailed logging of data transactions (events)

## Functional Specifications

The MVI56-104S module accepts data read/write commands from a master/client on the network. In addition, the module can be configured to generate unsolicited messages in either a spontaneous or cyclic fashion.

The module has 4000 words of user defined internal register space that are accessible to the protocol driver and to the ControlLogix processor memory. Any of the supported database types can be individually located (within the total database size limit of 4000 words) and each database point is mapped within the module and can be assigned to one or more Groups. The supported database point types are:

Database Type	Description
M_SP_NA	Monitored single-point database
M_DP_NA	Monitored dual-point database
M_ST_NA	Monitored step-point database
M_ME_NA	Monitored normalized-point database
M_BO_NA	Monitored 32 Bit-string database
M_ME_NB	Monitored scaled-point database
M_ME_NC	Monitored short-float point database
M_IT_NA	Monitored integrated total database
C_SC_NA	Command single-point database
C_DC_NA	Command dual-point database
C_RC_NA	Command step-point database
C_BO_NA	Command 32 Bit-string database
C_SE_NA	Command normalized-point database
C_SE_NB	Command scaled-point database
C_SE_NC	Command short-float point database

## IEC 60870-5-104 Server Specifications

Operating in the Server mode, the module accepts commands from a Client(s) to read/write data stored in the module's internal registers. This data is easily and continuously transferred between the MVI56-104S, Edition 2 module and the ControlLogix processor's data registers.

The IEC 60870-5-104 Server functionality supported by the module includes:

- ◆ The IEC 60870-5-104 communication driver is built in accordance to the approved IEC specification
- ◆ The module functions as a Server on the network supporting data read/write commands from an IEC 60870-5-104 client on the network
- ◆ One TCP server socket
- ◆ Supports unsolicited messages, either cyclic or spontaneous (cyclic rate is configurable)
- ◆ Supports clock synchronization commands from client or from the ControlLogix processor
- ◆ Supports Group interrogation (Global, General 1 to 16, Global Counters, Counters 1 to 4)
- ◆ Event timestamping configurable by type (None, 24 bit, 56 bit)
- ◆ Event queue supports 99 points for each data type
- ◆ Optional user defined list of acceptable client host IP addresses
- ◆ Configurable Common ASDU address (sector) and Information Object Address
- ◆ An IEC Interoperability Document for the MVI56 is available which fully documents data types supported by the module



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## Hardware Specifications

Specification	Description
Backplane Current Load	800 mA @ 5 Vdc 3 mA @ 24 Vdc
Operating Temperature	32°F to 140°F (0° C to 60°C)
Storage Temperature	-40°F to 185°F (-40° C to 85°C)
Shock	30 g operational 50 g non-operational Vibration: 5 g from 10 Hz to 150 Hz
Relative Humidity	5% to 95% (with no condensation)
LED Indicators	Module Status Backplane Transfer Status Application Status Serial Activity
<b>Application port (Ethernet)</b>	
Ethernet Port (Ethernet modules)	10/100 Base-T 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 Unit	RJ45 to DB-9M cables for each port 6-foot RS-232 configuration cable
<b>Debug/Configuration port (CFG)</b>	
CFG Port (CFG)	RJ45 (DB-9M with supplied cable) No hardware handshaking

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