ProSoft Technology MVI56-DFCM

DF1 Serial Communication Module

The MVI56 DF1 Master/Slave Communication Module is a ControlLogix backplane compatible module that allows Allen-Bradley ControlLogix I/O compatible processors to interface easily with DF1 protocol compatible devices and hosts. Devices commonly supporting the protocol include Rockwell Automation PLCs and power monitoring equipment, as well as several other third party devices in the marketplace.



Technical Specifications

Product Identity	
Manufacturer	ProSoft Technology
Model	MVI56-DFCM
General Specifications	Single Slot – 1756 backplane compatible · Local or remote rack
Shipped with Unit	RJ45 to DB-9M cables for each port · 6-foot RS-232 configuration cable
Functional Configuration	
LED Indicators:	Module Status · Backplane Transfer Status · Application Status · Serial Activity
CFG Port (CFG)	RJ45 (DB-9M with supplied cable) · RS-232 only
Application ports (PRT1 & PRT2)	Full hardware handshaking control, providing radio, modem and Multidrop 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
Performance & Power	
Backplane Current Load	800 mA @ 5 V
Internal data	5,000 words
Master command list	Up to 100 commands per port
Environment	
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)

Selected original manufacturer pages follow on pages 3–4.

Compatibility & Selection Guide

ControlLogix chassis. MVI56-DFCM occupies one slot in a 1756 ControlLogix chassis. A local or remote chassis can host the module. The ControlLogix application exchanges data with the module through ladder logic and its internal database.

DF1 port selection. The two application ports can be assigned independently as a DF1 master or slave. Match each port's serial interface and DF1 mode to its connected equipment. The separate configuration port uses RS-232.

Wiring & Installation Reference

Serial connections

Application ports. Set the hardware jumpers for the required RS-232, RS-422 or RS-485 interface before connecting P1/P2.

Configuration port. Use the separate RS-232 configuration/debug connection; it is not an Ethernet port.

Rack mounting

Isolate power. Turn off chassis power before installation.

Insert the module. Align the upper and lower guides and slide the module into the ControlLogix rack until the backplane connector is engaged.

Secure and identify. Engage both retaining clips and use the actual slot number in the controller project.

Installation precautions. Remove power or confirm a non-hazardous location before disconnecting equipment. Energized removal can cause an electrical arc. Use the applicable serial pinout and interface jumpers; RJ45 connector shape alone does not define the interface.

Mounting reference · PDF page 3 | Installation / connection reference · PDF page 4

Source: ProSoft Technology MVI56-DFCM manufacturer manual, December 3, 2020.

1.4 Installing the Module in the Rack

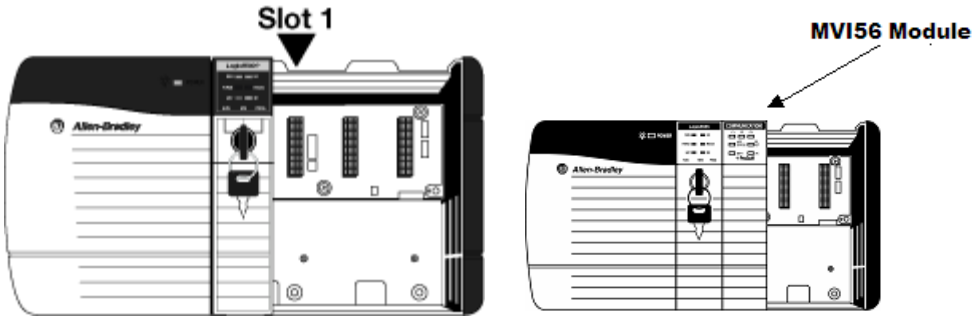
If you have not already installed and configured your ControlLogix processor and power supply, please do so before installing the MVI56-DFCM module. Refer to your Rockwell Automation product documentation for installation instructions.

Warning: You must follow all safety instructions when installing this or any other electronic devices. Failure to follow safety procedures could result in damage to hardware or data, or even serious injury or death to personnel. Refer to the documentation for each device you plan to connect to verify that suitable safety procedures are in place before installing or servicing the device.

After you have checked the placement of the jumpers, insert MVI56-DFCM into the ControlLogix chassis. Use the same technique recommended by Rockwell Automation to remove and install ControlLogix modules.

Warning: When you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations. Verify that power is removed or the area is non-hazardous before proceeding. Repeated electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance that can affect module operation.

1. Turn power OFF.
2. Align the module with the top and bottom guides, and slide it into the rack until the module is firmly against the backplane connector.

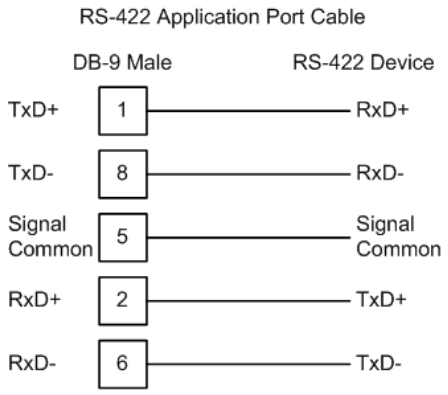


3. With a firm but steady push, snap the module into place.
4. Check that the holding clips on the top and bottom of the module are securely in the locking holes of the rack.
5. Make a note of the slot location. You must identify the slot in which the module is installed in order for the sample program to work correctly. Slot numbers are identified on the green circuit board (backplane) of the ControlLogix rack.
6. Turn power ON.

Note: If you insert the module improperly, the system may stop working, or may behave unpredictably.

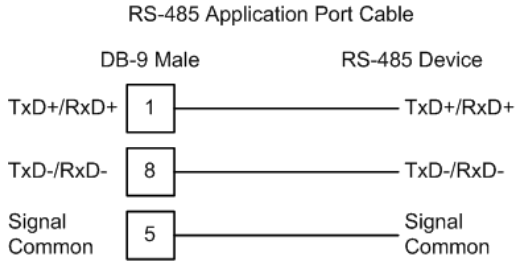
5.5.3 RS-422

The RS-422 interface requires a single four or five wire cable. The Common connection is optional, depending on the RS-422 network devices used. The cable required for this interface is shown below:



5.5.4 RS-485 Application Port(s)

The RS-485 interface requires a single two or three wire cable. The Common connection is optional, depending on the RS-485 network devices used. The cable required for this interface is shown below:



Note: Terminating resistors are generally not required on the RS-485 network, unless you are experiencing communication problems that can be attributed to signal echoes or reflections. In these cases, installing a 120-ohm terminating resistor between pins 1 and 8 on the module connector end of the RS-485 line may improve communication quality.

RS-485 and RS-422 Tip

If communication in the RS-422 or RS-485 mode does not work at first, despite all attempts, try switching termination polarities. Some manufacturers interpret + and -, or A and B, polarities differently.