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Flex I/O Serial Communications Module
MVI 94 Installation Instructions

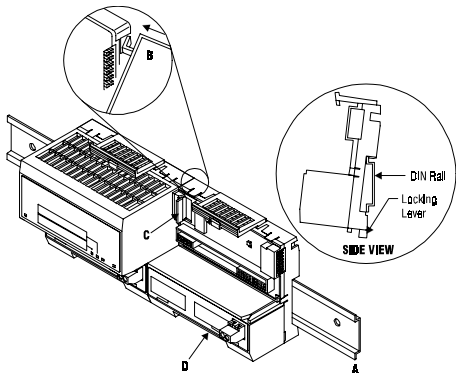
Use this manual to install and configure the MVI94 Multi-Vendor Interface module into a Flex I/O system and to connect the module to a serial device.

Verify Package Contents

Make sure that you verify the contents of the product before you discard the packing material. The following components should be included with the product:

1. A MVI94 Flex I/O Base
2. A MVI94 Module with 3 jumpers installed
3. Two Serial Adapter Cables
4. Installation Instructions Manual (Pub #801.11)
5. Quick Start Guide (Pub #801.12)

Mounting the MVI 94 Flex I/O Base



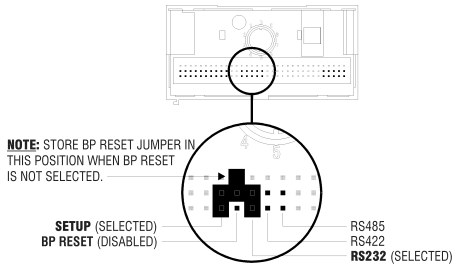
ATTENTION: Do not remove or replace a base unit when power is applied. Interruption of the flexbus can result in unintended operation or machine motion.

1. Remove the cover plug (if used) in the male connector of the unit to which you are connecting this Base.
2. Check to make sure that the 16 pins in the male connector on the adjacent device are straight and in line so that the mating female connector on this Base will mate correctly.
3. Make certain that the female flexbus connector **C** is **fully retracted** into the Base.
4. Position the Base on a 35 x 7.5mm DIN rail **A** at a slight angle with the hook **B** on the left side of the Base hooked into the right side of the unit on the left.
5. Rotate the Base onto the DIN rail with the top of the rail hooked under the lip on the rear of the Base. **Use caution to make sure that the female flexbus connector does not strike any of the pins in the mating male connector.**
6. Press the terminal base down onto the DIN rail until flush. The locking tab **D** snaps into position and locks the terminal base to the DIN rail.
7. If the Base does not lock in place, use a screwdriver or similar device to move the locking tab down, press the Base flush with the DIN rail and release the locking tab to lock the base in place.
8. **Gently** push the female flexbus **C** connector into the adjacent base or adapter male connector to complete the flexbus connections.

Setting the Configuration Jumpers

Before installing the MVI94 module onto its base, the module's configuration can be set using the jumpers on the bottom of the module as shown in this figure.

MVI94-DOS Shipping Configuration

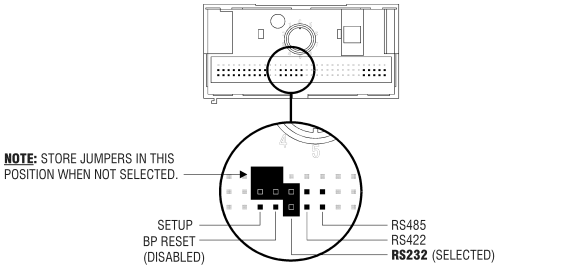


SHIPPING CONFIGURATION

NOTE: RS422 OR RS485 MAY BE SELECTED BY MOVING JUMPER TO APPROPRIATE PINS.

Port 2 RS-232/422/485: Select with jumper (shipped in 232).
BP Reset : If the MVI94 module is to be reset when the Flex Bus is reset, install the BP RESET jumper in the Enabled position.
SETUP : To place the module in SETUP mode, install the jumper in the Selected position (DOS default). To prevent the module from being in Setup mode, move the jumper to the disabled position (GSC, MBM, etc. default), as shown in the figure below.

MVI94-GSC/MBM/DNPM, etc Shipping Configuration

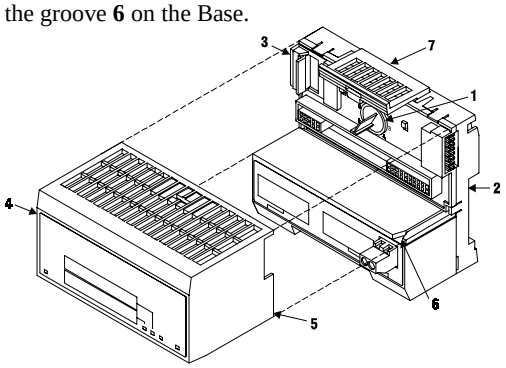


NOTE: RS422 OR RS485 MAY BE SELECTED BY MOVING JUMPER TO APPROPRIATE PINS.

Installing the Module onto the Base

1. Rotate the keyswitch **1** on the Base clockwise to position #1.
2. Make certain the flexbus connector **3** on the Base is pushed all the way to the left to connect with the neighboring base or adapter. **The Module cannot be installed unless the flexbus connector is fully extended.**
3. Make sure that the pins on the bottom of the Module are straight so they will align properly with the connector socket on the Base.

4. Position the Module with its alignment bar **5** aligned with the groove **6** on the Base.

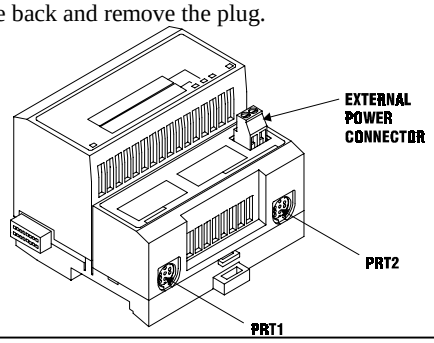


5. Press firmly and evenly to seat the Module in the Base. The Module is seated when the latch **7** on the Base is locked into the Module.

Installing the Serial Adapter Cables

Two identical serial adapter cables are supplied. Each cable has a locking-type 8 pin Mini-DIN plug on one end and a DB-9 male connector on the other end. The Mini-DIN connector on each cable is inserted into the Mini-DIN receptacles marked **PRT1** and **PRT2** on the Base.

To install the locking-type Mini-DIN connector, slide the spring-loaded sleeve back while inserting the plug into the receptacle on the Base, and then release the sleeve when fully seated. The locking mechanism prevents the cable from being removed during normal operation. To remove the cable, slide the sleeve back and remove the plug.



ATTENTION

Remove field-side power before removing or installing the Module. The Module is designed so you can **remove and insert it under backplane power**. When you remove or insert a Module with field-side power applied, an electrical arc may occur. An electrical arc can cause personal injury or property damage by:

- Sending an erroneous signal to your system's field devices causing unintended machine motion
- Causing an explosion in a hazardous environment.

Repeated electrical arcing causes excessive wear to contacts on both the Module and its mating connector. Worn contacts may create electrical resistance.

Wiring the Power Connections

External power is supplied to the Base on the 2 pin screw terminal block. The power supply can be either 24Vdc or 12Vdc, and should be located in close proximity of the base.

- Connect dc common to the **COM** terminal
- Connect +24V dc or +12V dc to the **24VDC** terminal

Serial Port Connector Pinouts

The pinout of the serial ports are identical for RS232 communications. However, since PRT2 can be configured for RS422 and RS485 communications, additional signals are supported. The tables below list the pinouts of the serial ports at the DB-9 of the serial adapter cable.

DB-9M	PRT1 & PRT2 RS-232	PRT 2 RS-422	PRT 2 RS-485
1	DCD	TXD+	TXD/RXD+
2	RXD	RXD+	--
3	TXD	--	--
4	DTR	--	--
5	COM/GND	COM/GND	COM/GND
6	DSR	RXD-	--
7	RTS	--	--
8	CTS	TXD-	TXD/RXD-
9	--	--	--
Shell	Shield	Shield	Shield

Input/Output Configuration

See the User Manual for the appropriate I/O configuration of the MVI94-XXX. For the DOS Version, this is configurable in the setup menu of the BIOS, where the I/O sizes can be set to the values shown in the table below.

I/O Size	Description
8 In / 7 Out Words	Balanced I/O
12 In / 3 Out Words	More input data than output data
3 In / 12 Out Words	More output data than input data
14 In / 1 Out Words	Mostly input data

If using one of the other MVI94 units (MBM, DFM, etc.) see the associated User Manual for the appropriate setup of the I/O Configuration.

Specifications

Dimensions (with Module installed in Base)	3.7H x 3.7W x 2.7D inches 94H x 94W x 69D mm
Flexbus Current	20mA
Power Dissipation	3.25W @ 24V dc 3.25W @ 12V dc
External Supply Voltage 24V Supply 12V Supply	 24V dc +/- 20% (including ripple) 12V dc +/- 20% (including ripple)
External Supply Current 24V Supply 12V Supply	 170mA 340mA
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity Shock Operating Non-operating Vibration	 0 to 55°C (32 to 131°F) -40 to 85°C (-40 to 185°F) 5 to 95% noncondensing (operating) 5 to 80% noncondensing (nonoperating) 30g peak acceleration, 11(+1)ms pulse width 50g peak acceleration, 11(+1)ms pulse width Tested 5g @ 10-500Hz
Agency Certification (when product or packaging is marked)	• UL listed • c-UL Class 1, Division 2, Groups A,B,C,D certified • CE marked for all applicable directives

Flex I/O is a trademark of Allen-Bradley Co. Inc.