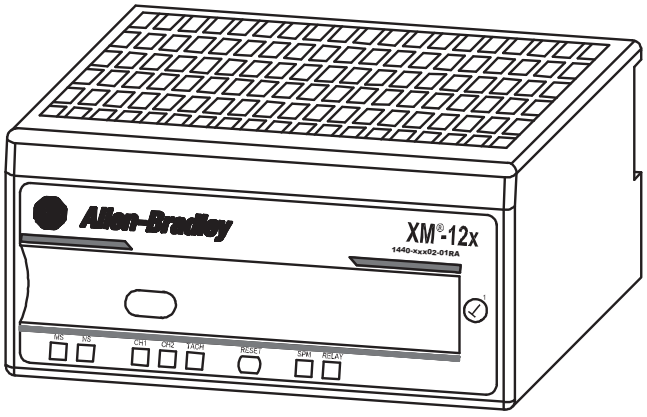
Installation Instructions

Allen-Bradley

XM-120, XM-121, XM-122, and XM-123 Dynamic Measurement Modules

Catalog Numbers 1440-VST02-01RA, 1440-VLF02-01RA, 1440-VSE02-01RA,1440-VAD02-01RA



LISTEN. THINK. SOLVE.®

Mount the Module

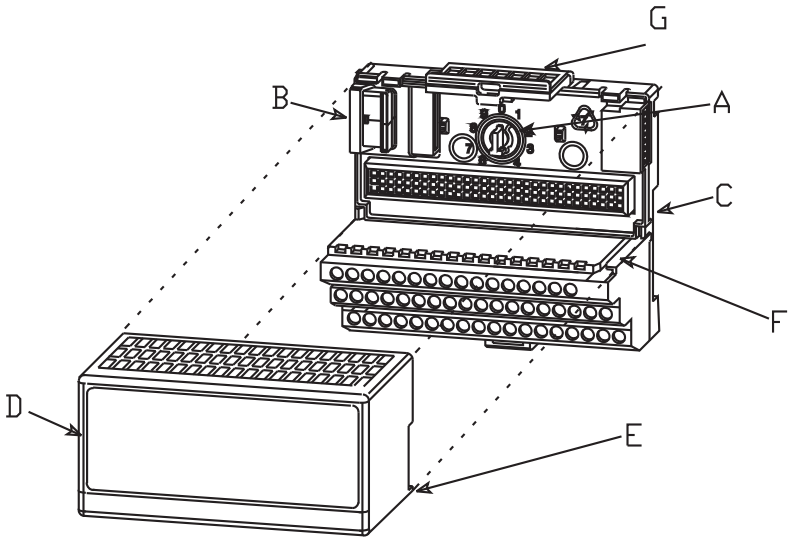
The modules mount on a XM® 940 terminal base unit, catalog number 1440-TB-A. We recommend that you mount the modules after you have connected the wiring on the terminal base unit. Refer to the XM-940 Dynamic Measurement Terminal Base Installation Instructions, publication GMSI10-IN020, or the user guide for the specific module for wiring information.

ATTENTION: The XM-12X modules are compatible only with the XM-940 terminal base unit. Verify that the keyswitch on the terminal base unit is at position 1 for the modules.

Do not attempt to install the XM-12X modules on other terminal base units.

Do not change the position of the keyswitch after wiring the XM-940 terminal base unit.

1. Make certain the keyswitch (A) on the terminal base unit (C) is at position 1 as required for the modules.



2. Make certain the side connector (B) is pushed all the way to the left.

   You cannot install the module unless the connector is fully extended.

3. Make sure that the pins on the bottom of the module are straight so they align properly with the connector in the terminal base unit.
4. Position the module (D) with its alignment bar (E) aligned with the groove (F) on the terminal base unit.
5. Press firmly and evenly to seat the module in the terminal base unit.

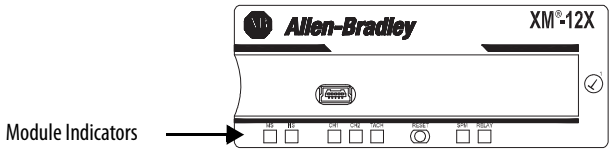
   The module is seated when the latching mechanism (G) is locked into the module.
6. Repeat the above steps to install the next module in its terminal base unit.

All grounds in the system must be tied to the same point of the same grounding electrode system.

Maintain a 2.54 cm (1 in.) minimum clearance between the module and adjacent equipment. There are no orientation restrictions.

Module Indicators

Each module has seven status indicators, which are on top of the module.



Module Status (MS) Indicator

Color	State	Description
No color	Off	No power applied to the module.
Green	Flashing Red	Module performing power-up self-test.
	Flashing	Module operating in Program mode.(1)
	Solid	Module operating in Run mode.(2)
Red	Flashing	• Application firmware is invalid or not loaded. Download firmware to the module. • Firmware download is currently in progress.
	Solid	An unrecoverable fault has occurred. It is possible that the module must be repaired or replaced.

(1) Program mode - Typically this occurs when the module configuration settings are being updated with the Serial Configuration Utility. In Program mode, the module does not perform its normal functions. The signal processing/measurement process is stopped, and the status of the alarms is set to the disarm state to prevent a false alert or danger status.

(2) Run mode - In Run mode, the module collects measurement data and monitors each measurement device.

Network Status (NS) Indicator

Color	State	Description
No color	Off	Module is not online: • Module is autobauding. • No power applied to the module; look at Module Status indicator.
Green	Flashing	Module is online (DeviceNet network) but no connections are currently established.(1)
	Solid	Module is online with connections currently established.
Red	Flashing	One or more I/O connections are in the timed-out-state.
	Solid	Failed communication (duplicate MAC ID or bus-off).

(1) Normal condition when the module is not a slave to an XM-440 module, programmable controller, or other master device.

Channel 1, Channel 2, and Tachometer Status Indicator

Color	State	Description
No color	Off	• Normal operation with alarm limits on the channel. • No power applied to the module; look at Module Status indicator.
Yellow	Solid	An alert level alarm condition exists on the channel (and no transducer fault, tachometer fault, or danger level alarm condition exists).
	Flashing (tach status indicator only)	Tachometer fault (no transducer fault) condition exists on the tachometer channel.
Red	Solid	A danger level alarm condition exists on the channel (and no transducer fault or tachometer fault condition exists).
	Flashing	A transducer fault condition exists on the channel.

Setpoint Multiplier Indicator

Color	State	Description
Yellow	Off	Setpoint multiplier is not in effect.
	Solid	Setpoint multiplier is in effect.

Relay Indicator

Color	State	Description
Red	Off	On-board relay is not activated.
	Solid	On-board relay is activated.

Self-Test

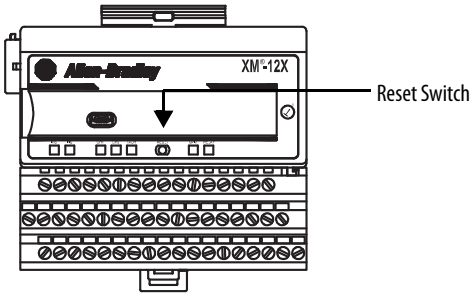
The XM-12*x* modules perform a self-test at powerup. The self-test includes a status indicator test and a device test. During the status indicator test, the indicators turn on independently and in sequence for approximately 0.25 seconds.

The device test occurs after the status indicator test. The Module Status (MS) indicator is used to indicate the status of the device self-test.

MS Indicator State	Description
Flashing red and green	Device self-test is in progress.
Solid green or flashing green	Device self-test completed successfully, and the firmware is valid and running.
Flashing red	• Device self-test completed, the hardware is OK, but the firmware is invalid. • The firmware download is in progress.
Solid red	Unrecoverable fault, hardware failure, or Boot Loader program corruption.

Reset Switch

The XM-12*x* modules have an external reset switch on top of the module. The Reset switch can be used to reset all latched relays in the relay expansion module when it is attached to an XM-12*x* module.



IMPORTANT	The Reset switch resets the relays only if the input is no longer in alarm or the condition that caused the alarm is no longer present.

Install the XM Serial Configuration Utility Software

The XM Documentation and Configuration Utility CD is packaged with the XM modules. It contains the XM Serial Configuration Utility software, a set of user guides, hazardous location installation drawings, and electronic data sheet (EDS) files that are used by network configuration tools such as RSNetWorx™ for DeviceNet software. The user guides are in portable document format (PDF), and must be viewed with Adobe Acrobat Reader software.

To install the XM Serial Configuration Utility software, follow the steps on the next page.

1. Insert the XM Documentation and Configuration Utility CD-ROM into the CD-ROM drive.

If autorun is	Then
Enabled	The Setup program starts automatically and the XM Serial Configuration Utility opening screen appears.
Disabled	Follow these steps. 1. Click Start, and then click Run. The Run dialog box appears. 2. In the Open box, type `x:\autorun`, where x is the letter of the drive containing the XM Documentation and Configuration Utility CD-ROM. 3. Click OK. The XM Serial Configuration Utility opening screen appears.

2. Follow the instructions that appear to install the XM Serial Configuration Utility.
3. When you are finished installing the software, remove the XM Documentation and Configuration Utility CD-ROM from the CD-ROM drives; store it in a safe place.
4. See the Product Certification link at http://www.rockwellautomation.com for Declarations of Conformity, Certificates and other certification details.

Specifications

The following table lists the technical specifications for the XM-120, XM-121, XM-122, and XM-123 modules.

Attribute	XM-120, XM-121, XM-122, and XM-123 Modules
Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock)	-20…65 °C (-4…149 °F)
Temperature, surrounding air, max	65 °C (149 °F)
Temperature, nonoperating IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold), IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat), IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock)	-40…85 °C (-40…185 °F)
Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Damp Heat)	5…95% noncondensing
Vibration IEC 60068-2-6 (Test Fc, Operating)	2 g @ 10…500 Hz
Shock, operating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	15 g
Shock, nonoperating IEC 60068-2-27 (Test Ea, Unpackaged Shock)	20 g
Emissions CISPR 11 (IEC 61000-6-4)	Class A
ESD immunity IEC 61000-4-2	6 kV contact discharges 8 kV air discharges
Radiated RF immunity IEC 61000-4-3	10V/m with 1 kHz sine-wave 80% AM from 80…2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 1890 MHz 3V/m with 1 kHz sine-wave 80% AM from 2000…2700 MHz
EFT/B immunity IEC 61000-4-4	±2 kV at 5 kHz on power ports ±1 kV at 5 kHz on relay and shielded signal ports ±1 kV at 5 kHz on XMbus port
Surge transient immunity IEC 61000-4-5	±1 kV line-earth(CM) on relay and shielded signal ports ±1 kV line-earth(CM) on XMbus port
Conducted RF immunity IEC 61000-4-6	10V rms with 1 kHz sine-wave 80% AM from 150 kHz…80 MHz
Enclosure type rating	None (open-style)
Voltages/ranges	Supply: 24V DC, 0.3 A max, Class 2/SELV Relay: 120V AC, 50/60Hz, 0.5 A Res 110V DC, 0.3 A Res 30V DC, 1.0 A Res
Power dissipation	7 W max
External over-current protection	440-5AFUSEKIT for SELV/PELV power sources