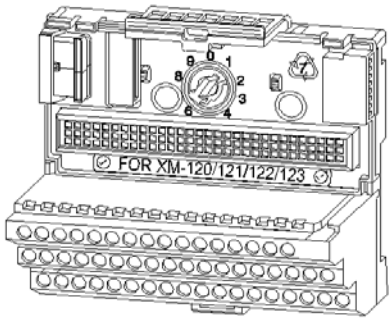
The Eccentricity module includes a single on-board relay, expandable to five, making it a complete monitoring system. It can operate stand-alone, or it can be deployed on a standard or dedicated DeviceNet network where it can provide real-time data and status information to other XM modules, PLCs, distributed control systems (DCS), and Condition Monitoring Systems.

The Eccentricity module can be configured remotely via the DeviceNet network, or locally using a serial connection to a PC or laptop. Refer to Chapter 3 for a list of the configuration parameters.

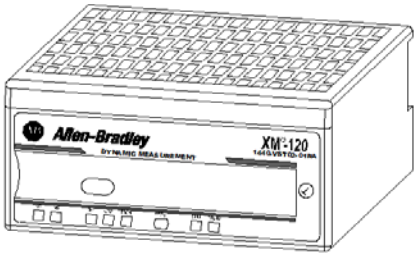
Eccentricity Module Components

The Eccentricity module consists of a terminal base unit and an instrument module. The XM-120 Dynamic Measurement Module and the XM-940 Terminal Base are shown below.

Figure 1.1 Eccentricity Module Components



XM-940 Dynamic Measurement Module Terminal Base Unit
Cat. No. 1440-TB-A



XM-120 Dynamic Measurement Module
Cat. No. 1440-VST02-01RA

- XM-940 Dynamic Measurement Module Terminal Base - A DIN rail mounted base unit that provides terminations for all field wiring required by XM Dynamic Measurement and Eccentricity modules.
- XM-120 Dynamic Measurement Module - The XM-120 mounts on the XM-940 terminal base via a keyswitch and a 96-pin connector. The XM-120 contains the measurement electronics, processors, relay, and serial interface port for local configuration.

IMPORTANT

The XM-441 Expansion Relay module may be connected to the XM-120 module via the XM-940 terminal base.

When connected to the module, the Expansion Relay module simply "expands" the capability of the XM-120 by adding four additional epoxy-sealed relays. The module controls the Expansion Relay module by extending to it the same logic and functional controls as the on-board relay.

Using this Manual

This manual introduces you to the XM-120 Eccentricity module. It is intended for anyone who installs, configures, or uses the XM-120 Eccentricity module.

Organization

To help you navigate through this manual, it is organized in chapters based on these tasks and topics.

Chapter 1 "Introduction" contains an overview of this manual and the XM-120 Eccentricity module.

Chapter 2 "Installing the XM-120 Eccentricity Module" describes how to install, wire, and use the Eccentricity module. It also provides instructions on how to install the Eccentricity firmware.

Chapter 3 "Configuration Parameters" provides a complete listing and description of the Eccentricity parameters. The parameters can be viewed and edited using the XM Serial Configuration Utility software and a personal computer.

Appendix A "Specifications" lists the technical specifications for the Eccentricity module.

Appendix B "DeviceNet Information" provides information to help you configure the module over a DeviceNet network.

Appendix C "DeviceNet Objects" provides information on the DeviceNet objects supported by the XM-120 Eccentricity module.

Appendix D "Wiring Connections for Previous Module Revisions" provides terminal block assignments and wiring diagrams of earlier revisions of the XM-120 module (before revision D01).

For definitions of terms used in this Guide, see the Glossary at the end of the Guide.

Document Conventions

There are several document conventions used in this manual, including the following:

The XM-120 Eccentricity module is referred to as XM-120, Eccentricity module, device, or module throughout this manual.

TIP A tip indicates additional information which may be helpful.

EXAMPLE This convention presents an example.

Installing the XM-120 Eccentricity Module

This chapter discusses how to install and wire the XM-120 Eccentricity module. It also describes the module indicators and the basic operations of the modules.

ATTENTION

Environment and Enclosure

This equipment is intended for use in a Pollution Degree 2 Industrial environment, in overvoltage Category II applications (as defined in IED publication 60664–1), at altitudes up to 2000 meters without derating.

This equipment is supplied as “open type” equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present, and appropriately designed to prevent personal injury resulting from accessibility to live parts. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosures.

XM Installation Requirements

This section describes wire, power, and grounding requirements for an XM system.

Wiring Requirements

Use solid or stranded wire. All wiring should meet the following specifications:

- 14 to 22 AWG copper conductors without pretreatment; 8 AWG required for grounding the DIN rail for electromagnetic interference (emi) purposes
- Recommended strip length 8 millimeters (0.31 inches)
- Minimum insulation rating of 300 V
- Soldering the conductor is forbidden
- Wire ferrules can be used with stranded conductors; copper ferrules recommended

ATTENTION

See the XM Documentation and Configuration Utility CD for Hazardous Locations installation drawings. The XM Documentation and Configuration Utility CD is packaged with the XM modules.

Power Requirements

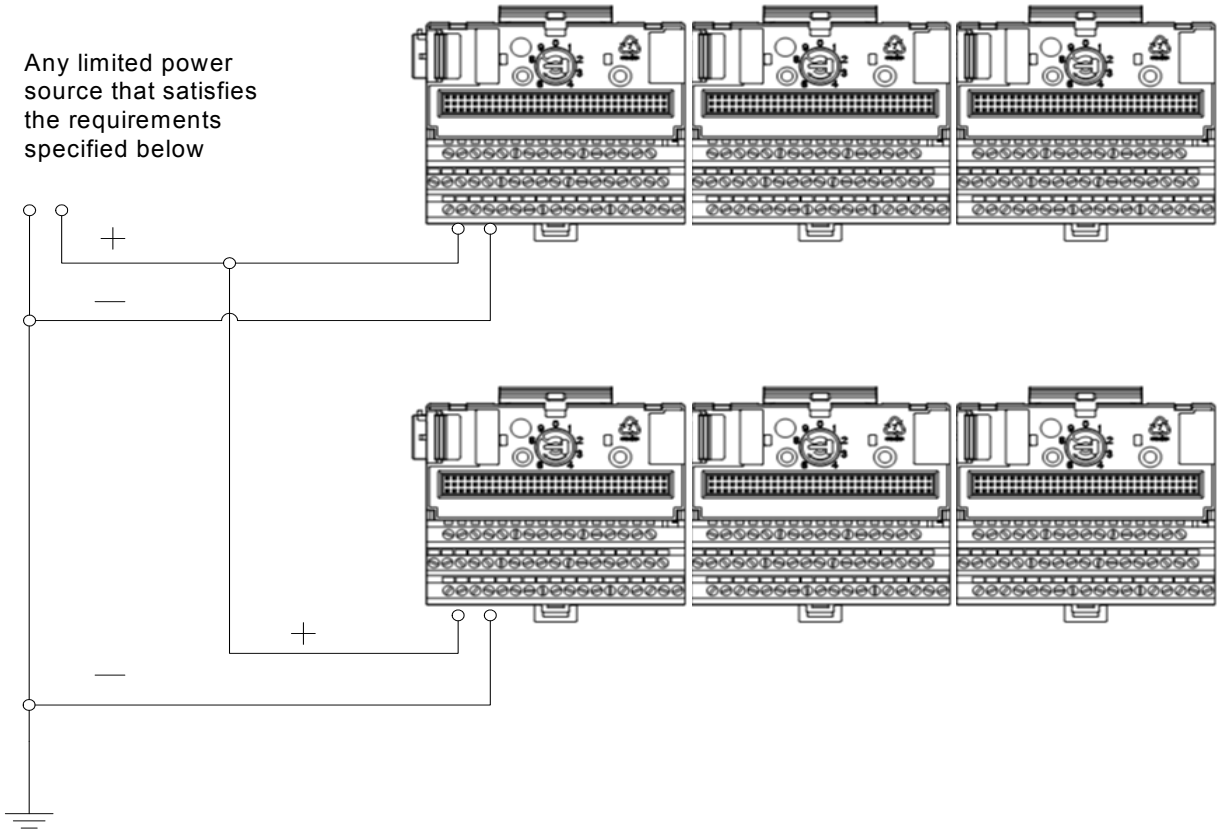
Before installing your module, calculate the power requirements of all modules interconnected via their side connectors. The total current draw through the side connector cannot exceed 3A. Refer to the specifications for the specific modules for power requirements.

ATTENTION

A separate power connection is necessary if the total current draw of the interconnecting modules is greater than 3 A.

Figure 2.1 is an illustration of wiring modules using separate power connections.

Figure 2.1 XM Modules with Separate Power Connections



Power Supply Requirements

XM Power Supply Requirements	
Protection	Listed Class 2 rated supply, or
	Fused* ITE Listed SELV supply, or
	Fused* ITE Listed PELV supply
Output Voltage	24 Vdc ± 10%
Output Power	100 Watts Maximum (~4A @ 24 Vdc)
Static Regulation	± 2%
Dynamic Regulation	± 3%
Ripple	< 100mVpp
Output Noise	Per EN50081-1
Overshoot	< 3% at turn-on, < 2% at turn-off
Hold-up Time	As required (typically 50mS at full rated load)

* When a fused supply is used the fuse must be a 5 amp, listed, fast acting fuse such as provided by Allen-Bradley part number 1440-5AFUSEKIT

IMPORTANT See Application Technique "XM Power Supply Solutions", publication ICM-AP005A-EN-E, for guidance in architecting power supplies for XM systems.

Grounding Requirements

Use these grounding requirements to ensure safe electrical operating circumstances, and to help avoid potential emi and ground noise that can cause unfavorable operating conditions for your XM system.

DIN Rail Grounding

The XM modules make a chassis ground connection through the DIN rail. The DIN rail must be connected to a ground bus or grounding electrode conductor using 8 AWG or 1 inch copper braid. See Figure 2.2.

Use zinc-plated, yellow-chromated steel DIN rail (Allen-Bradley part no. 199-DR1 or 199-DR4) or equivalent to assure proper grounding. Using other DIN rail materials (e.g. aluminum, plastic, etc.), which can corrode, oxidize, or are poor conductors can result in improper or intermittent platform grounding.