TECHNICAL DATA

# XM-440 MASTER RELAY MODULE

The award winning, Allen-Bradley XM® series is the world's first machine monitoring and protection system designed as a distributed network of modules deployed on an open standard industrial bus.

The XM-440 Master Relay combines 4 relay outputs with XM bus master capabilities to provide remote, shared and voted relay operation for distributed XM measurement modules.

The XM-440 offers 4 high power relays suitable for use in most protection applications. The module also supports linking of one or two XM-441 Expansion Relay modules thereby providing a total capacity of up to 12 relays. The module offers "A out of B" style voting logic. The logic, defined uniquely per relay, can be applied to alarm and relay status broadcast from XM measurement modules located anywhere on the DeviceNet bus, including modules of different types. This capability, combined with the individual alarm and relay logic within each measurement module, provides the most versatile and powerful relay logic system available today.

In addition to relay management the XM-440 can signal any number of modules, in each of up to four groups, to save their trend / trip data upon activation of any XM-440 relay.

Configuration can be performed remotely via the DeviceNet network, or locally by a PC connected to the integral serial interface. A CD containing the Serial Configuration Utility software and the XM Installation and Users Guides is included with every XM measurement and relay module sold.

## INTELLIGENT DISTRIBUTED RELAY MANAGEMENT


## SPECIFICATIONS

### Communications

**DeviceNet**:

- Standard DeviceNet protocol for all functions
- Available Electronic Data Sheet (EDS) file provides support by most DeviceNet compliant systems
- Baud rate selectable to 125kb, 250kb or 500kb or will autobaud to that set by bus master

*Note:The XM-440 uses only the DeviceNet protocol, not power. Module power is provided independently.*

**Side Connector**: All XM measurement and relay modules include side connectors that allow interconnecting adjacent modules thereby simplifying the external wiring requirements. The Interconnect provides primary power, DeviceNet communication and the circuits necessary
to support expansion modules such as the XM-441 Expansion Relay module.

**Serial**

- RS-232 via mini-connector or terminal block
- Local configuration via Serial Utility Program

## Indicators

**6 LEDs:**

- Module Status -red/green
- Network Status - red/green
- Relay 1 - off/red
- Relay 2 - off/red
- Relay 3 - off/red
- Relay 4 - off/red

## Relays

**Number**:

- Four, two sets of contacts each - DPDT (2 Form C)
- Four or eight additional relays when linked to one or two XM-441 Relay Expansion modules

**Relay Rating:**

- Max. Voltage = 150 Vdc, 250 Vac
- Max. Current = 3 A
- Min. Current = 100 mA @ 5 Vdc
- Max. Power = 240 W, 750 VA

**Failsafe:**

- Normally energized (failsafe), or
- Normally de-energized (non-fail-safe)

**Latching:**

- Latching, or
- Non-latching

**Time Delay**: 0 to 25.5 seconds in 100msec increments

**Voting Logic:** Per relay, defined as “A out of B” where “B” is up to 16 alarm or relay status inputs from any measurement module(s) on the bus and “A” is from 1 to “B”.

**Reset**:

- Local reset switch on top of module
- Remote reset switch wired to terminal base
- Digital reset command via serial or DeviceNet interface

## Non-Volatile Configuration

A copy of the module configuration is retained in nonvolatile memory from where it is read upon power up.

## Alarms

**Activation On**:

| Alarm Status | Fault |
|---|---|
| Normal | Transducer Fault |
| Alert | Module Fault |
| Danger | Tachometer Fault |
| Disarm | Unknown* |

**The “Unknown” state indicates that the alarm status is not known, which indicates that the reference module is off line or is unreachable (network fault).*

## DeviceNet Bus Master

The XM-440 acts as a DeviceNet bus master in that it slaves modules used as input to its relays.

When configured as the primary master of a slave the XM-440 will poll the device just as any master/scanner does however it consumes only the Change of State data from each slave. Therefore the content of the poll assembly for each slave is inconsequential to the XM-440, and so may be defined as needed for other master/scanner or HMI requirements.

This integral bus master capability allows distributed relay logic without the need of a separate master/scanner device. And, when the XM-440 is configured as the primary master of its slaves, it insures the utmost in reliability for your relay solution.

## Event Log

Retains a First-In-First-Out log of the last 128 events observed on the DeviceNet network. Events logged include any alarm or relay status change, any set point multiplier status change, and anytime that the XM-440’s configuration is changed.

## Event Management

Can send a “trigger” signal to XM modules in any of up to four groups when any or all relays associated with the group actuate. Capability provides for forcing all modules in a group, typically all modules monitoring the same machine, to capture their event trend and trip spectra/ time waveform upon a common event initiated, or indicated, by an XM-440 relay actuation.

## Power

**Module:** 21.6 - 26.4Vdc

**Consumption:**
Max: 140mA
Typical: 165mA

**Heat Production:**
Max: 3.4 Watts (11.6 BTU/hr)

**Redundant Power:** Independent redundant power inputs on terminal base.

## Physical

**Dimensions**

- Height: 3.8in (97mm)
- Width: 3.7in (94mm)
- Depth: 3.7in (94mm)

**Weight**

- Module: 6.1 ounces (173 grams)
- Base: 8.1 ounces (230 grams)

## Environmental

**Operating Temperature:**
-20 to +65ºC (-4 to 149ºF)

**Storage Temperature:**
-40 to +85ºC (-40 to 185ºF)

**Relative Humidity:**
95% non-condensing

**Conformal Coating:**
All printed circuit boards are conformal coated:

- Per material specifications
  MIL-I-46058C / IPC-CC-830
- In accordance with IPC-A-610C

## Approvals

CE, C-Tick, ODVA,
CSA Class I, Div 2, Groups A B C D,
UL, EEX

# HOW TO ORDER

To order the XM-440 Master Relay Module and for information about the XM-441 Expansion Relay module contact your local authorized Allen-Bradley distributor or Rockwell Automation sales office.

| Catalog Number | Description |
|---|---|
| **1440-RMA00-04RC** | XM-440 Master Relay Module* |
| **1440-TB C** | Terminal Base C for XM-440 |
| **1440-SCDB9FXM2** | XM Serial Communications Cable |

** Requires Terminal Base C*

**www.rockwellautomation.com**

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Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

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