

# TECHNICAL DATA

## XM-360 PROCESS MODULE

The 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-360 Process Module is an intelligent 6-channel general-purpose process monitor. It is a complete process monitoring system in a compact, easily installed, easily maintained package. The module can be configured to measure a DC voltage or a loop current input on each channel and will report both the data value, in engineering units, the difference between measurements on adjacent channels, and the rate of change for each channel.

For applications where it is not possible to integrate XM data directly via DeviceNet the XM-360 provides a standard 4-20mA output for each channel. And for applications requiring relays the XM-360 supports linking of up to two XM-441 Expansion Relay modules thereby providing a total capacity of up to 8 relays.

The XM-360 can operate stand alone, with no interface to higher-level control systems or interactive user interfaces. It can also be deployed on a standard or dedicated DeviceNet™ network where it can provide real-time data and status information to other XM modules, PLC's, DCS and Condition Monitoring Systems.

Configuration can be performed remotely via the DeviceNet™ network, or locally by a PC connected to the integral serial interface. For local configuration, a Serial Configuration Utility is packaged with every XM measurement and relay module sold.

## INTELLIGENT DISTRIBUTED PROCESS MEASUREMENTS



## SPECIFICATIONS

### Communications

#### DeviceNet:

The XM-360 uses only the DeviceNet protocol, not power. Module power is provided independently.

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

**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:** Local configuration via Serial Configuration Utility Program. Requires Serial Communications Cable.

- RS-232 via mini-connector
- Baud rate auto baud to 19200 or 57600

## Inputs

6 channels of:

- DC voltage inputs
- Loop current inputs

**Isolation:** Up to 250 volts of isolation per input

**Input Range:**

User configurable per channel as:

- 0 to 5 Volts
- 0 to 10 Volts
- 4 to 20 mA
- -5 to 5 Volts
- 1 to 5 Volts
- 0 to 20 mA
- 0 to 1 Volt

**Sensitivity:** User configurable in software

**Input Impedance:**

- 50  $\Omega$  current input
- 1 M $\Omega$  voltage input

## Outputs

4-20mA Outputs:

- 2 isolated banks of 3 outputs each
- 1 output per channel configured for:
  - Measured value
  - Difference value
- 600 ohm max load
- Accuracy:  $\pm 1\%$  of full scale

**Isolation:** 250 volts

## Indicators

8 LEDs:

- Module Status -red/green
- Network Status - red/green
- Channel 1 Status - off/yellow/red
- Channel 2 Status - off/yellow/red
- Channel 3 Status - off/yellow/red
- Channel 4 Status - off/yellow/red
- Channel 5 Status - off/yellow/red
- Channel 6 Status - off/yellow/red

## Measurements

**Level:** Measured value in engineering units

**Difference:** Measured value minus the previous channel value (1-6, 2-1, 3-2, 4-3, 5-4, 6-5)

**Rate of Change:**

- Per minute
- Updated once per second

## Data Buffer

**Trend Buffer:** Stores a set of records containing selected measured parameters in response to a trigger event.

- Trend Interval: 1 to 3600 seconds
- Trigger: The trend is saved when a specified relay actuates, or on command from an XM-440, host or controller.
- Capacity: 128 to 2048 records depending on the number of parameters selected.

## Signal Conditioning

**Low Pass Filter:** User configurable for the measurement and rate of change value from each channel

**Resolution:** 0.025% of input range

**Measured Units**

|              |                  |      |
|--------------|------------------|------|
| Temperature  | °F               | °C   |
| Pressure     | PSI              | PA   |
|              | IN Hg            | KPA  |
|              | Mbar             |      |
| Flow         | CFM              |      |
| Acceleration | m/s <sup>2</sup> | gSE  |
|              | g's              |      |
| Current      | mA               |      |
| Frequency    | RPM              | CPM  |
|              | Hz               |      |
| Displacement | mm               | in   |
|              | $\mu$ m          | mil  |
| Velocity     | ips              | mmps |
| Voltage      | V                |      |
| Angle        | Rad              | Deg  |
|              | Rev              |      |
| Other        | Percent (%)      |      |
|              | Unspecified      |      |

## Alarms

**Number:** 18 alarm and danger pairs - 3 per channel, 1 per measured value.

**Operators:**

- Greater than
- Less than
- Inside Range
- Outside Range

**Hysteresis:** User defined

## Relays

### Number:

- Up to eight relays when linked to one or two XM-441 Expansion Relay module - or -
- Eight virtual relays whose status can be used by remote Control Systems

### 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:

Single or paired "And" or "Or" logic applied to any alarms

### Reset:

- Local reset switch on top of module
- Digital reset command via serial or DeviceNet interface

### Activation On:

- Alarm Status
  - Normal
  - Alert
  - Danger
  - Disarm
- Sensor Out Of Range
- Module Fault

## Non-Volatile Configuration

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

## HOW TO ORDER

The XM-360 Series Process modules can be ordered by contacting your local authorized Allen-Bradley distributor or Rockwell Automation sales office.

| Catalog Number  | Description                    |
|-----------------|--------------------------------|
| 1440-TPRO6-OORE | XM-360 Process Module*         |
| 1440-TB-E       | Terminal Base E for XM-36x     |
| 1440-SCDB9FXM2  | XM Serial Communications Cable |

\* Requires Terminal Base E

[www.rockwellautomation.com](http://www.rockwellautomation.com)

### Power, Control and Information Solutions

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation SA/NV, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

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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## Power

**Module:** 21.6 - 26.4Vdc

**Consumption:** Max: 200mA

**Heat Production:** Max: 6 Watts (20.5 BTU/hr)

**Redundant Power:** All XM Measurement and Relay modules support redundant power. Each module includes redundant power inputs on its terminal base.

## Environmental

**Operating Temperature:** -20 to +65°C (-4 to 149°F)

**Storage Temperature:** -40 to +85°C (-40 to 185°F)

**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

## Physical

### Dimensions

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

### Weight

- Module: 5.9 ounces (167 grams)
- Base: 8.3 ounces (235 grams)

## Approvals

CE, C-Tick, ODVA, UL, EEX

CSA Class I, Div 2, Groups A, B, C, D

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