

XM-160/161/162 Overall Machine Vibration Modules

Stand-alone or Part of a Networked Solution

The XM-160/161/162 modules are cost effective, flexible, and intelligent solution for general machinery monitoring and protection.

Application

XM-160 series modules are suitable for most rotating machinery applications where only a measure of the machines overall vibration is necessary. However, the modules are generally not recommended for machines with operating speeds below 700 RPM.



XM® is Allen-Bradley's award winning, and the world's most comprehensive family of distributed machine condition monitoring and protection devices.

With the XM series, discreet or networked monitoring solutions can be quickly and cost effectively deployed for steam, gas and hydro turbines, motors, compressors, pumps, fans, blowers and most other rotating machinery.

The XM Overall Vibration Modules are a series of intelligent 6-channel monitors designed to cost effectively serve applications for real time monitoring of overall (direct) vibration. Designed as a

simple but complete monitoring system in a compact easily installed and easily maintained package, each module measures and reports the overall vibration level between selected high and low pass filters, as well as the bias (gap) voltage per channel. The Series includes three modules:

The XM-160 Overall Vibration Module is ideal for monitoring accelerometers and self or externally powered sensors. Via DeviceNet, the module can be easily integrated with other XM modules, PLC controllers, DCS systems, graphical displays (HMI) and condition monitoring systems. The XM-160 also includes

comprehensive alarm logic per channel and supports linking of up to two XM-441 Expansion Relay modules thereby providing a total capacity of up to 8 relays.

The XM-161 and XM-162 Overall Vibration Modules each offer the same capabilities as the standard XM-160 but also include:

- XM-161: Six 4-20mA outputs
- XM-162: -24Vdc power supply for standard eddy current probe drivers.

LISTEN.
THINK.
SOLVE.™

Specifications

Communications

DeviceNet

Side connector 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
- Auto baud to 19.2 or 57.6kb

Non-volatile Configuration

Configuration is retained in non-volatile memory

Approvals

ODVA, CE, C-Tick, UL, EEX, CSA C1D2 ABCD

Inputs

6 Channels of accelerometers, eddy current probes or voltage inputs

Constant voltage (-24Vdc) (XM-162 only)

IEPE current (2.69mA \pm 20% from +24Vdc)

Voltage Range: \pm 24Vdc, 6.5V pp

Sensitivity: User configurable

Input Impedance: >100k.

Outputs

One Buffered Output per channel

4-20mA per channel (XM-161 Only)

- Accuracy: \pm 0.2% of full scale
- Requires external loop power source

2 buffered outputs per channel can be accommodated via BNC or other appropriate connections

Indicators

Module & Network Status LED's

Per Channel Status LED's

Signal Conditioning

A/D Conversion: 12 bits

Resolution: 0.05% of full scale

Accuracy (typical): \pm 1% of full scale

Units:

- volts: G ips mm/s
- mils: Um psi PA

Integration: Single level, selectable / channel

Filters

- Low Pass: 1 kHz or 5 kHz
- High Pass: 3.0 Hz or 10.0 Hz
- Roll Off: -12 dB per octave

The 3.0 Hz High Pass Filter should not be used when integrating measurements

Trend Buffer

1 to 3600 seconds interval

1 to 12 parameters, 170 to 2048 records

Trigger on relay or signal from XM-440 or PLC

Eight Logical Relays

Up to 2 XM-441 Expansion Relay modules

Normally energized (failsafe), or de-energized

Latching or Non-latching

0 to 25.5 seconds delay

Reset:

- Local reset switch
- Digital reset command
- Remote reset switch (XM-161 / 162 only)

One Alarm per Channel

Startup Inhibit

- Period: 0 to 1092 min in 0.1 min inc
- Function: xN (0-10, 0=Disarm)
- Inhibit initiated by:
 - DeviceNet command
 - Front terminal SPM circuit¹ closure
- Inhibit terminated by:
 - Expired timer
 - DeviceNet command
 - XM-161/162 Only:
 - Front terminal SPM circuit1 open

¹ Front terminal SPM circuit on XM-161 & XM-162 only.

Measured Parameters

Overall Level (RMS, Peak, Peak to Peak)

Bias (gap) voltage

Primary & Redundant Power

Module: 18 - 32Vdc, 8 Watts @ 32Vdc

Consumption: Max: 400mA @ 18Vdc

- XM-160 / 161: 190mA @ 24Vdc
- XM-162: 310 mA @ 24Vdc

Environmental & Physical

Temperature:

- Operating: -20 to +65°C,
- Storage: -40 to +85°C

Humidity:

- 95% non-condensing

Catalog Number	Description
1440-VDRS06-00RH	XM-160 Overall Vibration Module
1440-VDRS06-06RH	XM-161 Overall Vibration Module w/4-20mA Outputs
1440-VDRP06-00RH	XM-162 Overall Vibration Module w/Proximity Probe Power
1440-TB-H	Terminal Base H for XM-16x
1440-SCDB9FXM2	XM Serial Communications Cable

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