XM-120 Standard Dynamic Measurement Module

and

XM-121 Low Frequency Vibration Module

The XM-120 and XM-121 modules are general-purpose, dynamic measurement monitors. They are identical except that the XM-121 module is designed for low-frequency applications such as cooling tower fans, hydro turbines, and other types of low-speed, rotating machinery. They are suited for monitoring shaft, casing, or pedestal vibration in rotating equipment.

Attribute	XM-120 (1440-VST02-01RA) XM-121 (1440-VLF02-01RA)
Inputs	
Two channels	Eddy current transducer signals Accelerometer signals Voltage signals from any dynamic measurement device, such as a velocity or pressure transducer
Transducer power	Constant voltage 24V DC Constant current 4.5 mA ± 20% from 24V DC None (voltage input) Tachometer can be powered, constant voltage, or configured as voltage input
Voltage range	Selectable in software as 0…20V min; 40V max peak-to-peak
Sensitivity	User configurable in software
Input impedance	> 100 kΩ
Tachometer Input	
One tachometer input	±25V (50V max peak-to-peak) 1…50,000 events/revolution
Input impedance	120 kΩ min
Speed/frequency range	1…1,200,000 rpm 0.0167…20,000 Hz
Speed measurement error	1…12,000 rpm: ±1 rpm 12,001…120,000 rpm: ±6 rpm 120,001…1,200,000 rpm: ±50 rpm Exponential Averaging Time Constant parameter set to ≥ 120 ms
Outputs	
4…20 mA	Each output is independently programmed to represent any measured parameter, from either channel Two isolated outputs 300 Ω max load
Buffered outputs	One active buffer per vibration input channel Resistive buffer for tachometer
Indicators	
Status indicators	Module - red/green Network - red/green Channel 1 - yellow/red Channel 2 - yellow/red Tachometer - yellow/red Setpoint multiplier - yellow Relay - red
Communication	
DeviceNet network	Standard DeviceNet protocol for all functions (not power—module power is provided independently) Available EDS file provides support for most DeviceNet compliant systems Baud rate automatically set by bus master to 125, 250, or 500 Kbps Configurable I/O Poll Response message helps optimize space utilization within scanner input tables. Selectable poll response assembly Selectable poll response size (bytes)
Serial	RS-232 via mini-connector or terminal base unit Baud rate fixed at 19,200 Kbps. Local configuration via the Serial Configuration utility.
Signal Conditioning	
Sampling modes	Asynchronous Synchronous
Frequency Range	1 Hz…20 kHz
Resolution	A/D conversion: 24 bits Dynamic range: < 80 dBfs (0.01% fs), -90 dBfs, typical FFT lines/waveform block size: 100/256 200/512 400/1024 800/2048
Amplitude range	Dependent on sensitivity
Integration	Two levels provided, first in hardware, second in firmware
Averaging	Any number of averages may be specified. If sampling mode is: Asynchronous: Averaging performed on the spectra Synchronous: Averaging performed on the waveforms
Low pass filters	Independently configured per channel Spectra FMAX (10 Hz…20 kHz) Optional overall measurement LP filter (200 Hz…20 kHz) Roll Off: -24 db/octave