

XM-124 Standard Dynamic Measurement Module

The XM-124 module (catalog number 1440-SDM02-01RA) is a two-channel, general-purpose monitor that supports dynamic measurements such as vibration, pressure, strain, and spike energy (gSE). The module also supports static (DC) thrust and eccentricity measurements.

The XM-124 consolidates and improves on most of the functionality that is provided by the earlier XM-120, XM-120E, XM-121, XM-122 and XM-123 modules. It also provides the same basic, single-channel, thrust measurement as the XM-320 module. The XM-124 is suitable for monitoring almost any rotating machine, including steam turbines, aeroderivative and industrial gas turbines, hydro turbines, motors, pumps, fans, compressors, and gearboxes.

Table 2 - XM-124 Standard Dynamic Measurement Module Attribute Descriptions

Attribute	XM-124 (1440-SDM02-01RA)
Inputs	
Two dynamic channel inputs	<ul style="list-style-type: none"> Eddy current transducer signals Accelerometer signals Voltage signals from any dynamic measurement device, such as a velocity or pressure transducer
Transducer power	<ul style="list-style-type: none"> Constant voltage: 24V DC, -24V DC, 40 mA Constant current 4.5 mA \pm 30% / -20% from 24V DC (IEPE) None (voltage input) Tachometer can be powered, constant voltage, or configured as voltage input
Voltage range	<ul style="list-style-type: none"> -20...0V DC -10...10V DC 0...20V DC
Input impedance	> 100 k Ω
Sensitivity	Up to 15% from nom

mV/g	mV/ips	mV/mms	mV/mil	mV/ μ m	mV/psi	mV/mbar	V/V
10	100	4	100	3.94	20	0.29	1
25	150	6	150	5.91	50	0.73	
50	200	8	200	7.87	100	1.45	
100	500	20	285	11.2			
500	1000	40					
1000							
10000							

Tachometer Input	
One tachometer input	<ul style="list-style-type: none"> \pm25V (50V max peak-to-peak) 1...50,000 events/revolution
Input impedance	> 120 k Ω
Range	<ul style="list-style-type: none"> 1...1,200,000 rpm 0.0167...20,000 Hz
Pulses per revolution	0 (tach off)...50,000
Rate of change of speed, max	500 Hz/s

Table 2 - XM-124 Standard Dynamic Measurement Module Attribute Descriptions (continued)

Attribute	XM-124 (1440-SDM02-01RA)
ESD immunity IEC 61000-4-2	<ul style="list-style-type: none"> • 6 kV contact discharges • 8 kV air discharges
Radiated RF immunity IEC 61000-4-3	<ul style="list-style-type: none"> • 10V/m with 1 kHz sine-wave 80% AM from 80...2000 MHz • 10V/m with 200 Hz 50% pulse 100% AM at 900 MHz • 10V/m with 200 Hz 50% pulse 100% AM at 1890 MHz • 3V/m with 1 kHz sine-wave 80% AM from 2000...2700 MHz
EFT/B immunity IEC 61000-4-4	<ul style="list-style-type: none"> • ±3 kV at 5 kHz on power ports • ±3 kV at 5 kHz on signal ports • ±3 kV at 5 kHz on DeviceNet ports
Surge transient immunity IEC 61000-4-5	<ul style="list-style-type: none"> • ±1 kV line-line (DM) and ±2 kV line-earth (CM) on power and relay ports • ±2 kV line-earth (CM) on shielded signal ports • ±2 kV line-earth (CM) on DeviceNet ports
Conducted RF immunity IEC 61000-4-6	10V rms with 1 kHz sine-wave 80% AM from 150 kHz...80 MHz
Enclosure type rating	None (open-style)
Physical	
Terminal base	1440-TB-A (XM-940) Series C
Dimensions (H x W x D), approx	97 x 94 x 94 mm, (3.8 x 3.7 x 3.7 in.)
Weight	<ul style="list-style-type: none"> • Module: 0.172 kg (0.38 lb) • Terminal base: 0.172 kg (0.38 lb)
Certifications⁽⁴⁾	
c-UL-us	UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810.
CE	European Union 2004/108/EC EMC Directive, compliant with: <ul style="list-style-type: none"> • EN 61326-1; Meas./Control/Lab., Industrial Requirements • EN 61000-6-2; Industrial Immunity • EN 61000-6-4; Industrial Emissions • EN 61131-2; Programmable Controllers (Clause 8, Zone A & B)
RCM	Australian Radiocommunications Act, compliant with: <ul style="list-style-type: none"> • AS/NZS CISPR 11; Industrial Emissions
Ex	European Union 94/9/EC ATEX Directive, compliant with: <ul style="list-style-type: none"> • EN 60079-15; Potentially Explosive Atmospheres, Protection "n" • EN 60079-11; Explosive Atmospheres, Protection "i" • EN 60079-0; General Requirements • II 3 G Ex nAC • [ic] IIC T4 Gc X
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: <ul style="list-style-type: none"> • Article 58-2 of Radio Waves Act, Clause 3

(1) Complex data is available when the channel is configured for dynamic measurements.

(2) Measurement availability is dependent on channel configuration.

(3) Use this Conductor Category information for planning the conductor routing. See Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1.

(4) When product or packaging is marked. See the Product Certification link at <http://www.rockwellautomation.com> for Declarations of Conformity, Certificates, and other certification details.

(5) gSE Measurements can be configured to update continuously, or to alternate with standard acceleration or velocity measurements. The gSE Overall updates in "real-time" only when configured for continuous update.