MACHINERY CONDITION MONITORING

Vibration Monitoring Made Easy

Prevent machinery failure



Proactive maintenance



Decrease unscheduled downtime



METRIX

AMETEK

Experienced Leader

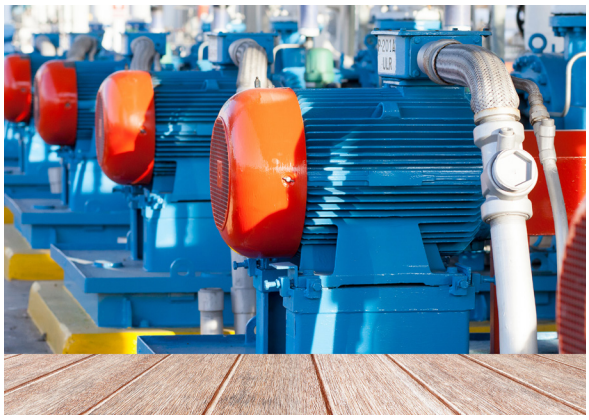
For more than 60 years, Metrix has been the preferred supplier of industrial vibration monitoring systems to many of the world's leading manufacturers and users of pumps, motors, fans, cooling towers, gas turbines, generators, centrifugal and reciprocating compressors, and other rotating and reciprocating machinery. With headquarters in Houston, Texas, we operate in more than 65 countries via factory-direct sales, along with a strategic network of instrumentation partners.

We invented the technology of simple, affordable machinery protection with our vibration switch offerings, revolutionary 4-20mA vibration transmitters, robust high-temperature velocity sensors, and innovative impact transmitter technology.

Metrix has revolutionized the industry with the Digital Proximity System. Imagine being able to support a multitude of cable lengths, target materials and older probe systems with just a single device. Our field-proven Digital Proximity System (DPS) combines the performance of a fully API 670 compliant eddy-current proximity measurement system with the flexibility of digital configurability. DPS saves our customers time and money.

Metrix continuously works with our customers to provide the best solution to meet their requirements.





Hazardous Area Approvals

Metrix serves customers in the oil & gas, chemical processing, power generation, wastewater and other industries where hazardous area approvals are increasingly common. Most of our products are available with North American, ATEX, and IECEx approvals, along with CE mark compliance for Europe and country-specific approvals where appropriate.

0598

1180

Leading Products

Digital Proximity System



When one considers that the Metrix Digital Proximity System (DPS) is field proven with tens of thousands of installations, is field configurable for different manufacturer's probes and cables, variable system lengths up to 12 meters, speed systems out to 22 meters, and for a wide variety of common shaft materials, while maintaining the best amplitude and frequency resolution for a proximity probe system, with the fastest factory standard delivery times in the industry – in a single device, is nothing short of revolutionary.

Seismic Transmitters & Sensors

With more than 60 years of experience building the best in class vibration transmitters and sensors, Metrix has the vibration systems you can trust. We invented the velocity and impact transmitter, that are now benchmarks in the industry. Our transducers are trusted by many OEMs for their accuracy and reliability, which are the hallmarks of our manufacturing technology and continuous improvement programs.



Hardy Shakers



The Hardy Shakers are the industry standard for portable shaker tables. With the ability to check the accuracy of both seismic and proximity sensors, the portable shaker provides the assurance that your vibration monitoring system, the complete vibration loop, is working properly and reporting the correct vibration levels. The Hardy Shaker comes in two models - the HI-903 PRO and the HI-913 for your convenience.

MX5000 Vibration Monitoring System

The MX5000 is a vibration monitoring and protection system that is designed for new installations and to make rack replacement easy and affordable. Metrix has removed cost by removing the rack and making the modules DIN rail mountable, by making transient data features that most customers don't buy optional, providing standard output connections that most customers use, and by providing configuration and display software that can be downloaded for free from the Metrix website. Its modular design allows a user to take advantage of each module's standalone capacity, with the ability to combine systems with up to 7 modules and 24 vibration channels **(Coming Soon)**.



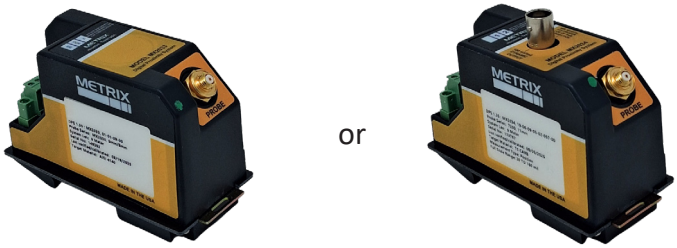
Digital Proximity System

Imagine being able to support a multitude of older probe systems, cable lengths, and target materials with just a single device. The Metrix Digital Proximity System (DPS) allows the user to change the configuration in the field for use with any Metrix, or major competitor, proximity probe and cable.

The Metrix DPS combines the performance of a fully API 670 compliant eddy-current proximity measurement system with the flexibility of digital configurability. Users can configure their transducer system in the field using a custom field-generated curve, as well as, factory pre-configured calibrations for a variety of probe tip diameters, manufacturers, extension cable lengths, target materials, and linear ranges.

One of the biggest uses of the DPS is to correct a faulty once per turn phase marker or speed system. Usually one has to shutdown the machine and open it up to determine the phase trigger issue. Times have changed, the DPS can be used to gain the scale factor to obtain an adequate pulse for the vibration monitoring system to detect, in order to report correct phase and speed values. This advanced speed adjusment feature is available with our free DPS software.

Change manufacturer probe, system length and target material in the field.



Probe Driver, MX2033
3-Wire, Dynamic Voltage Output (mV/µm or mV/mil)

Transmitter, MX2034
4-20 mA
Selectable for vibration, position or speed
Buffered raw signal output via BNC or pin connector



Extension Cable, MX8031
Available with and without protective armor with Triaxial Cable and VIBELOCK® Connector.



Proximity Probe, MX8030
5mm and 8mm tip diameter with Triaxial Cable and VIBELOCK® Connector. TIGHTVIEW® proximity system option available for installations with limited clearances.

Proximity Compatibility

The Metrix DPS is compatible with 5mm, 8mm and 11mm proximity probe systems.

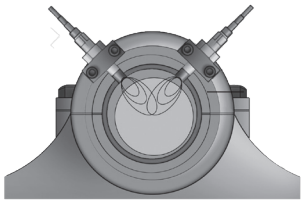
- Metrix MX8030, MX2030, 7200 and 3000 Series Probes
- Other major manufacturer probe and cable systems
- Easily configure a custom DPS with unknown shaft material, variable system lengths up to 12 meters, with various manufacturer 5mm, 8mm and 11mm probe types

DPS Features

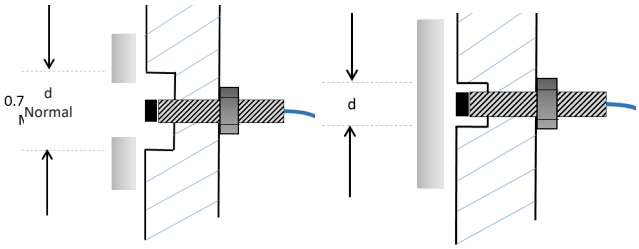
Easily Configure in the Field:

- Different or Unknown Shaft Materials
- Trimmable System Lengths
- TIGHTVIEW® for Limited Clearances
- Other Manufacturer's Probes and Cables
- Older Probes and Cables
- Eliminate Cross Talk
- Configurable Spike Suppression
- Adjustable Speed Pulse Height
- 8mm Probe Extended Range

Reduce the number of spare parts you need.



Crosstalk



TIGHTVIEW®

Accessories



Static Calibrator, 9060
Tool that allows users to ensure the proximity probe system is working properly.



Shaft Calibrator, 9060-SCTS
Touch settings allow users to check gap voltages every 10 mils (250 µm) to ensure the proximity probe system is working properly with shaft material (up to 22mm probes).



Dynamic Signal Checker, MX2040
Tool that dynamically tests the proximity probe system loop by the simulation of rotor vibration.



Cable Trimming and Connector Kit, MX8020
Allows users to trim extension cable and add connector.



Probe Mounting System, 5497PM
Works with reverse mount 8mm proximity probes. Provides physical protection in an attractive package. Hazardous Area Rated.



Heavy Duty Reverse Mount Probe Housing, 5499
Heavy duty accessory for reverse mount probes. Can withstand pressures to 1000 PSIG (6.89 MPa).



NPT Threaded Hole Probe Holder, 9059
Available for all standard probe sizes. (3/4" (pictured) and 1/2" NPT available).



Probe Brackets, 7646
Available for all standard probe sizes.



Low Pressure Feed Through, 5494LP
Seals up to 4 cables to 3 bar (50 PSI). Hazardous Area Rated.



Conduit Body (Junction Box) with Low Pressure Feed Through, 5498JB
Makes internal probe installation easy. Hazardous Area Rated.



High Pressure Feed Through, 5494
Seals up to 2 cables to 10 bar (150 PSI).



Weatherproof Housings
NEMA 4 / IP 65 rated enclosures for 2, 4 or 8 DPS units.



Explosion Proof Housings
NEMA 4 / IP 65 rated enclosures for 2 or 4 DPS units.



Signal Cables, 9041
Bulk cable for wiring probe drivers, transmitters, monitors or signal conditioners.



5497DTPH Dual Thrust Probe Holder
Offers two 5497PM's in a convenient easy mount enclosure. Hazardous Area Rated.

Seismic Transmitters & Sensors

We offer a wide variety of seismic vibration sensing solutions, most with hazardous area approvals. A broad selection of accessories are also available to ensure flexibility and ease of installation.

Transmitters



Velocity Transmitter, ST5484E*
4-20 mA, loop terminals with Independent Polarity Terminals (IPT®) to prevent incorrect wiring, frequency response 2Hz to 2kHz (±3dB).



Indicating Velocity Transmitter, ST5491E
Same as ST5484E with LCD indicator. Built-in protection against temperature shock and "ski slope" problem.



Slim-Bodied Transmitter, 162VTS
Same functionality as ST5484E except it is ideal for narrow spaces.



Impact Transmitter, IT6810*
Measures mechanical looseness in reciprocating compressors with the convenience of 4-20 mA in loop powered sensor technology and a 2 pin MIL-C-5015 style connector.



Impact Transmitter, IT6811*
Impact Transmitter with integral cable twisted shielded pair 20 AWG black polyurethane jacket, 1/2-14 NPT connection.



Impact Transmitter, IT6812*
IT6810 with 12in (305mm) integral cable enclosed in explosion-proof housing.



General Purpose Acceleration Transmitter, ST6911
Compact transmitter, 4-20 mA proportional to acceleration. Frequency response 3Hz to 10kHz (±3dB).



General Purpose Velocity Transmitter, ST6917
Compact transmitter, 4-20 mA proportional to velocity. Frequency response 3Hz to 1kHz (±3dB).

Sensors



General Purpose Accelerometer, SA6200A*
Fully API 670 compliant sensor. Designed for use on a wide variety of machine types with its broad frequency response of 0.5Hz to 10kHz (±3dB).



Underwater Accelerometer, SA6200UW*
Designed for applications that are continuously or frequently exposed to very high levels of condensing humidity on continuous submersion. Frequency response 0.3Hz to 10kHz (±3dB).



Low Profile Accelerometer, SA6210
Uses a side-exit cable connection that allows it to be used in physically constrained locations where a top-exit cable design will not fit. Frequency response 0.2Hz to 10.5kHz (±3dB).



High Frequency Accelerometer, SA6250*
Uses a built-in amplifier to provides a 100mV/g low-impedance, constant-current output that is compatible with vibration monitoring systems, electronic switches, and 4-20mA signal conditioners. Frequency response 0.8Hz to 15kHz (±3dB).



High Temperature Accelerometer, SA6350*
High-Temperature Accelerometer is suitable for use in temperatures up to 325C°. Designed for gas turbines and other machinery with high surface temperatures where an acceleration signal is desired. Frequency response 5Hz to 10kHz (±3dB).



Piezo Velocity Sensor, SV6300*
Piezo-Velocity Sensor provides a velocity output. Solid-state design has no moving parts to wear out and may be mounted in any axis. Frequency response 3Hz to 9kHz (±3dB).



High-Temperature Velocity Sensor, 5485C*
High-Temperature Velocity Sensor is suitable for use in temperatures up to 375°C. It is designed for gas turbines and other machinery with high surface temperatures where a velocity signal is desired. Frequency response 15Hz to 2kHz (±3dB).

***NOTE:** Can be used in a Class I Div I, ATEX/IECEx Ex ia IIC environment.

Signal Conditioners & Switches

5580 Smart Vibration Signal Conditioner and SW5580 Switch



The 5580 is a new generation DIN rail mounted Smart Vibration Signal Conditioner, or SW5580 Switch, from Metrix. It is a fully configurable device that has been designed to accept signals from machine casing mounted velocity sensors, accelerometers or shaft observing proximity probe systems and produce a 4-20 mA output proportional to the measured variable. It provides the user with a configurable signal input type for two independent channels plus a configurable feature to scale output either to peak or RMS units. When the unit is ordered as a Switch it comes with two configurable relays for each channel. For each channel an LED indicates green for sensor and cable integrity, flashing yellow and red alarm condition if applicable, and solid red not-OK if not provided the proper feedback from the sensor. A BNC connector gives access to the raw input signal for local analysis. A built-in 3-digit LCD display is included.

Seismic Compatibility Table

	Transmitters				Sensors					
	Non Indicating			Indicating	Standard Temp.		High Temp.	Underwater	Side Exit	Indicating Single or Dual Channel
	Standard	Slim	Compact	Standard	Std. Freq.	Hi Freq.				
Velocity	 ST5484E	 162VTS	 ST6917	 ST5491E	 SV6300		 5485C			 Velocity & Displacement 5580
Acceleration			 ST6911		 SA6200A	 SA6250	 SA6350	 SA6200UW	 SA6210	 Acceleration, Velocity, Displacement 5580
Impact	Sep. Cable	Integral Cable								
	Standard	Standard	XP							
	 IT6810	 IT6811	 IT6812							 Acceleration & Impact 5580

Accessories



Cables & Accessories
8978-111-AAAA Splashproof Cable Assembly, no armor
8978-200-0000 Cable Connector-Only Assembly
8978-211-AAAA Standard Cable Assembly, no armor
8978-311-AAAA (IP67) Cable Assembly, no armor
9334-111-AAAA-BBBB Splashproof Cable Assembly with stainless steel armor
9334-211-AAAA-BBBB Standard Cable Assembly with stainless steel armor
9193-A-BBBB High Temp. Signal Cable
8169-75-002-AAA Two-Wire Cable Assembly
4850-AAA High Temp. Armored Cable
9061-AAA Bulk Cable
93825-AAA Clamps
100463 Barrel-type Ferrite Bead
97007-007 Clamshell-type Ferrite Bead
93818-004 Cable Grip Strain Relief
93818-018 Cable Grip Strain Relief
93818-015 Cable Grip Strain Relief
8841-090 Cable Adapter







Junction Boxes
NEMA 4



Conduit Elbows & Unions
IP4X Capped Elbows
8200-AAA IP56 Capped Elbows
8200-AAA IP4X Capped Elbows w/terminal strip
8200-AAA Conduit Elbows & Reducers



Mounting Adaptors
9338-101 Spot Facing kit
3719-AAA Mounting Stud
8253-002 Stud Adapter
8841-044 Stud Adapter Bushing
8841-084 Stud Adapter Bushing
8841-058 Reducer
8841-099 Stud Adapter Bushing
99506-020 Magnetic Mount Adapter
99506-021 Magnetic Mount Adapter
9289-AAA Mounting Adapter for 9288
99506-040 Mounting Pad



Explosion Proof Housing
7295-AAA XP Housing
9288-AAA XP Housing for IT6812

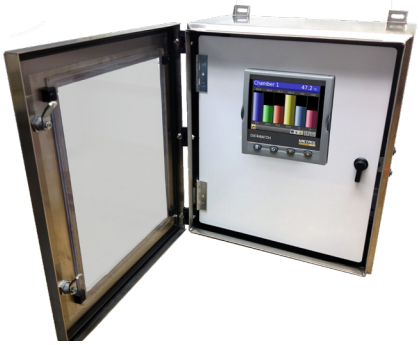
For additional accessories, visit metrixvibration.com or email quotes@metrixvibration.com.

Monitors & Switches

With more customers realizing the need for early warning, alarm condition, local display, recording and remote connectivity, the DATAWATCH IX is a perfect fit. Metrix also provides reliable vibration switches that are regarded as the industry standard. These devices offer reliable vibration protection in a stand-alone package. Various hazardous area approvals and enclosure styles are available to ensure that most applications can be addressed with standard product offerings.

DATAWATCH IX

Local display and data recording combined with alarm capabilities.





The DATAWATCH IX vibration monitor recording device is a powerful, compact panel mount unit offering four (4) or eight (8) channel inputs for vibration monitoring and recording. The recording functionality within the DATAWATCH IX instrument makes capturing and storing machinery data easy.

Features include:

- Automatic data recording
- Panel mounted
- Four or eight 4-20mA inputs
- 50MB internal Flash memory for data storage
- USB port
- 8Hz sample and recording rate (every 0.125 seconds)
- VGA crystal clear display
- Multiple I/O options
- Web server
- Secure, binary data or open (CSV) data files
- 30 additional channels for use as mathematical functions, Modbus inputs or counters
- Modbus TCP/IP over Ethernet communications with PLC, DCS, SCADA system or host computer system

The monitor allows you to view your data in a bar graph, trend, or as numeric values. The clear full color display, with your data in the format you need, makes it easy for operators to see what is happening. The push buttons below the display also enable simple scrolling between configured views.

Monitors & Switches



Configurable Compact Switch, SW5484E
Self-contained combination of seismic velocity transmitter and configurable switch. This switch includes a 4-20 mA signal conditioner and two solid state relays.



Electronic Switch, 440
Vibration on the 440 is monitored in RMS velocity units. Its enclosure carries a NEMA 4X rating.



Electronic Switch, 450
The 450 switch has the same internal electronics as the 440, except it is in an explosion-proof enclosure for CSA-approved use.



Electronic Switch, SW6000
Versatile vibration protection instrument with LCD display using an internal transducer.



Electronic Monitor, SM6100
The SM6100 is a single input vibration monitor with LCD display using external transducer. Available in velocity or displacement units.



Electronic Switch, 5477B
Features two-wire hookup and solid state reliability. This makes it an ideal replacement for mechanical vibration switches when increased accuracy and repeatability are required.



Electronic Switch, SW5580
The SW5580 is a DIN Rail Mounted dual Channel vibration monitor with LCD display using external seismic or proximity transducers. Available in acceleration, velocity or displacement units, with Solid State or Mechanical Relays. The device is field configurable using free Metrix Software.





Mechanical Switches, 5550 and 5550G
These mechanical vibration switches provide basic, economical vibration protection by means of a simple and highly reliable "over center" snap action mass and spring mechanism. The 5550G housing is designed for an explosion-proof environment.

Monitors & Switches Compatibility Table

		Mechanical		Electronic					
		Non Indicating		Multi-Wire			2-Wire	8-Wire	2 Channel
				Indicating	Non-Indicating				Indicating
		Standard	XP	XP	Standard	XP		Standard	XP	Standard
Acceleration	Single Setpoint	 5550	 5550G							
	Dual Setpoint									
Velocity	Single Setpoint						 5477B[2,4]	 SW5484E	 SW5484E	Acceleration, Velocity & Displacement SW5580
	Dual Setpoint			SW6000[1,2]	440[1]	450				
Velocity/ Displacement	Single Setpoint			 SM6100[3]						
	Dual Setpoint									

1. Can be configured with internal sensor or optional external vibration sensor.
2. Available with or without optional integral display.
3. Velocity or integrated displacement measurement with external velocity sensor only.
4. XP (Explosion Proof) rating applies to housing only.

Accessories



DIN-Rail Mounted Relays, 94500-AAA
Use with 5477B



USB Cable, 100468
Use with 5477B



Electronic Module, S8372
Use with 5477B



Flange Mount Adapter, 7084-001
½" NPT to 3-hole, 303 SST

Portables

Portable Vibration Meters

Portable vibration equipment allows you to quickly check the overall vibration of a machine whenever you want. Overall vibration or technically direct amplitude is a measure of the severity of the vibration. The portable vibration meters listed below are integral to an effective predictive and or proactive maintenance program.

Our portable vibration meters are incredibly simple and ideal for collecting spot measurements. They feature accurate, piezo-electric sensors that obtain the most precise readings and an LCD screen with acceleration, velocity, and displacement to ensure the vibration meter clearly communicates the information. They also have an accurate RMS velocity response.



VIBRA-CHECK® Vibration Meter, VM2800A (Standard Model)
All the three useful measurements - acceleration, velocity and displacement are possible with these vibration meters.



VIBRA-CHECK® Vibration Meter, VM3800A (Deluxe Model)
Has all the basic features of the VM2800A (Standard Model), plus temperature measurement capability.



Portable Vibration Meter, 5500
Monitor vibration on your machines with this compact and simple to operate vibration meter. This intrinsically safe meter is ideal for obtaining spot measurements of machine vibration.



Impact Meter, 6850-001
This impact meter is designed for quick checkout or adjustment of Metrix Impact transmitters, either on an operating machine, or with the transmitter removed.

Hardy Shakers

HI-903 PRO & HI-913 Hardy Shakers

The Hardy Shakers ensure that the seismic sensors and transmitters that you have installed are working properly and giving you the results you need. Just like the pressure and flow instruments in your facility need calibration checks every year, so do your seismic sensors and transmitters. This system puts the calibration check of those seismic sensors and transmitters within your control, and within your budget.



Deluxe Portable Shaker, HI-903 PRO
The HI-903 PRO is our top of the line Hardy Shaker. It is compact, battery powered, and completely self-contained vibration reference source which can be conveniently used to calibrate individual sensors, vibration switches and data collectors, as well as to validate the entire condition monitoring system.



Standard Portable Shaker, HI-913
The HI-913 is our Standard Model for heavy duty field use. Necessary for any plant that uses accelerometers or velocity sensors to ensure their proper operation. The unit is a small, handy, completely self-contained vibration reference source.

MX5000 Vibration Monitoring System

MX5000 Overview



The MX5000 is a vibration monitoring and protection system that is designed for new installations and to make rack replacement easy and affordable. Its modular design allows a user to take advantage of each module's standalone capacity, with the ability to combine systems with up to 7 modules and 24 vibration channels **(Coming Soon)**.

Monitoring System Shown Includes:

- **One Rack Emulation Module (REM)**
- **Three Sensor Interface Modules (SIM)**
- **One Temperature Interface Module (TIM)**

MX5000 Features

- Sized to fit in the void created by removing an older vibration monitoring system rack
- DIN rail mounted to facilitate easy modular construction
- 20-pin connector creates a continuous backplane between modules
- Existing wiring can easily be tied in for sensors, communications, 4-20 recorders and emergency shutdown systems
- Configuring the MX5000 is as easy as connecting your laptop to the USB
- Relay mapping is simple and intuitive, making voting logic easy to understand
- Configuration is password protected
- Configuration display software will be available on the Metrix website

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Scan QR Code for more info.

The Vibration Technology Leader

Prevent machinery failure	• Metrix invented the Vibration Transmitter for its simplicity in connecting to the machinery Control System, PLC or SCADA System – We've been the Leader for over 60 years. • Our Hazardous Area Certifications validate that our switches and monitors prevent catastrophic machine failure.
Proactive maintenance	• Our Digital Proximity System (DPS) is the best on the market. It's field configurable for target material, system length and probe type for all your sleeve bearing or reciprocating assets. • Metrix is the global leader in reciprocating machine monitoring, our scalable solution allows you to get the highest value at the least cost. • The Metrix high temperature velocity sensor is an excellent example of how our vibration transducers are trusted by OEMs to prevent false shutdowns.
Decrease unscheduled downtime	• Metrix provides early warning of rotating and reciprocating equipment problems, so maintenance can be planned. • Reduce cost and save money by avoiding unscheduled downtime, production loss and expedited repair cost.

Ways to Stay in Contact

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