

Continuous Monitoring for Critical Machinery

Utilizing 4 to 20 mA vibration transmitters with PLC, DCS, and SCADA systems

- Two-wire, Loop-powered, Current Output Vibration Sensors and Transmitters
- Interface with Existing Alarm, Control and Monitoring Systems
- Reduce Sophisticated Analysis Requirements
- Effective Machinery Vibration Monitoring with Less Training
- Intrinsically Safe and Side Exit Models Available



Maintain an awareness of critical machinery vibration levels with sensors and transmitters that operate over conventional 4 to 20 mA loops. These devices operate continuously and interface with existing plant floor monitoring and alarm systems to provide an early warning of impending machinery failure. Such automated vibration detection allows for timely machinery maintenance and a reduction of costly downtime. Decrease man-hours spent on sophisticated data analysis by limiting diagnostics to troublesome areas, as they become a concern.

As with all equipment from PCB®, these products are complemented with toll free applications assistance, 24-hour customer service, and are backed by a no risk policy that guarantees satisfaction or your money refunded.

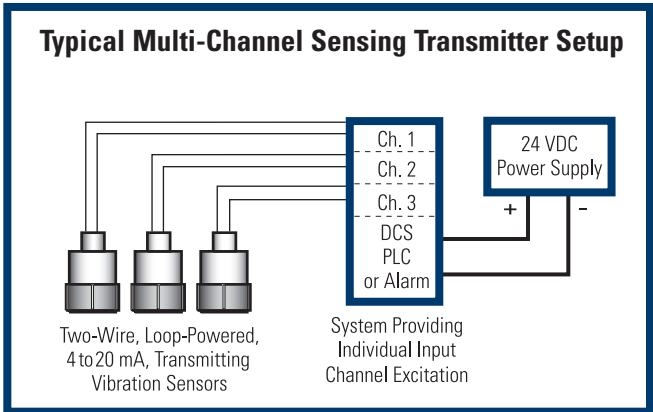


Total Customer Satisfaction Guaranteed



Two-wire, Loop-powered, 4 to 20 mA Vibration Sensors	2-pin MIL Connector		Integral Cable		Integral Armored Cable		Customer Supplied Conduit		
	Top	Side	Top	Side	Top	Side	1" NPT Body	Condulet with 1" NPT ⁽¹⁾	
4 to 20 mA Output Signal Proportional to Peak Velocity (Low Frequency) - 180 to 60k cpm (3 to 1000 Hz)									
0-0.5 ips peak	640B00	642A00	640B10	642A10	640B60	642A60	640B70	EP640B70	EX640B70
0-1.0 ips peak	640B01	642A01	640B11	642A11	640B61	642A61	640B71	EP640B71	EX640B71
0-2.0 ips peak	640B02	642A02	640B12	642A12	640B62	642A62	640B72	EP640B72	EX640B72
4 to 20 mA Output Signal Proportional to rms Velocity - 600 to 60k cpm (10 to 1000 Hz)									
0-0.5 ips RMS	641B00	643A00	641B10	643A10	641B60	643A60	641B70	EP641B70	EX641B70
0-1.0 ips RMS	641B01	643A01	641B11	643A11	641B61	643A61	641B71	EP641B71	EX641B71
0-2.0 ips RMS	641B02	643A02	641B12	643A12	641B62	643A62	641B72	EP641B72	EX641B72
4 to 20 mA Output Signal Proportional to rms Acceleration (Low Range) - 0 to 5 g rms									
180-60k cpm (3-1000 Hz)	645B00	647A00	645B10	647A10	645B60	647A60	645B70	EP645B70	EX645B70
180-300k cpm (3-5000 Hz)	645B01	647A01	645B11	647A11	645B61	647A61	645B71	EP645B71	EX645B71
180-600k cpm (3-10,000 Hz)	645B02	647A02	645B12	647A12	645B62	647A62	645B72	EP645B72	EX645B72
4 to 20 mA Output Signal Proportional to rms Acceleration (High Range) - 0 to 10 g rms									
180-60k cpm (3-1000 Hz)	646B00	648A00	646B10	648A10	646B60	648A60	646B70	EP646B70	EX646B70
180-300k cpm (3-5000 Hz)	646B01	648A01	646B11	648A11	646B61	648A61	646B71	EP646B71	EX646B71
180-600k cpm (3-10,000 Hz)	646B02	648A02	646B12	648A12	646B62	648A62	646B72	EP646B72	EX646B72
Available Options - designate with prefix letters to model number as shown (e.g., RV642A01)									
High Temperature Range	HT	HT	HT	HT	HT	HT	n/a	n/a	n/a
Raw Vibration Output	RV	RV	RV	RV	RV	RV	RV	RV	RV
Temperature Output Signal	TO	TO	TO	TO	TO	TO	TO	TO	TO
ATEX/CSA Certified ⁽²⁾	EX	EX	EX	EX	EX	EX	n/a	n/a	included
Notes									
(1) Includes condulet elbow with 1 inch NPT fitting for conduit connection. Sensor is provided with screw terminal connections.									
(2) Includes hazardous area certification. See www.imi-sensors.com or www.pcb.com for full details of approved environments for specific models.									

All Configurations Available with Intrinsic Safety Approval





Available Options

Option "HT" - High Temperature Range (e.g., HT640B01)

Option "HT" (High Temperature) provides an increased operating temperature range on certain models by providing slightly different microelectronic circuitry. The standard operating

temperature range for the Series 640 sensors is +185 °F (+85 °C). By selecting the "HT" option, the temperature range is increased to +257 °F (+125 °C).

Option "RV" - Raw Vibration (Analog Acceleration) Output Signal (e.g., RV640B01)

Option "RV" (Raw Vibration) provides a third connector pin, or integral cable lead, upon which a 100 mV/g (10.2 mV/(m/s²)) analog acceleration signal is provided. This analog signal is useful for frequency spectrum analysis and machinery fault diagnostic purposes. (Also available with "EX" hazardous area approval option.)



(Sensor connector shown)

Pin A: + 4 to 20 mA
Pin B: - 4 to 20 mA
Pin C: Analog Acceleration

Option "TO" Temperature Output Signal (e.g., TO640B01)

Option "TO" (Temperature Output) provides an integral temperature sensor and two additional connector pins, or integral cable leads, upon which an additional 4 to 20 mA output for temperature measurement is provided. This output signal corresponds to a temperature range from -40 to +257 °F (-40 to +125 °C) with an overall accuracy of ± 5% FS.



(Sensor connector shown)

Pin A: + 4 to 20 mA Vibration
Pin B: - 4 to 20 mA Vibration
Pin C: + 4 to 20 mA Temperature
Pin D: - 4 to 20 mA Temperature

Option "EX" Hazardous Area Approval (e.g., EX640B01, EXRV640B01)

Option "EX" (Hazardous Area Approval) provides ATEX and/or CSA certifications for hazardous area use. See www.imi-sensors.com or www.pcb.com for full details of approved environments for specific models.



Vibration transmitters monitor vertical pumps in a water treatment facility



Bearing vibration monitoring on an electric motor



Vibration levels are monitored at the control room

Using ICP® Accelerometers with 4 to 20 mA Loops

Existing ICP® accelerometers may be easily adapted for use into 4 to 20 mA process loops with a transmitter that converts their raw analog output into a 4 to 20 mA signal, which is proportional to rms or peak vibration. A variety of transmitters are available to support this technique and are shown on the back of this brochure.



ICP® Accelerometer

Model 682A03 Transmitter



CE



Model 682A03

ICP® Sensor to 4 to 20 mA Transmitter

- Provides constant-current ICP® sensor excitation
- Adjustable low-pass & high-pass filtering
- Peak or rms proportional output
- Selectable acceleration, velocity, or displacement output signal format
- 24 VDC powered
- 4 to 20 mA output proportional to temperature (when used with ICP® sensors having the "TO" sensor option)

CE Pending



Model 682A05
(US Patent Number 6,889,553)

Bearing Fault Detector

- Provides early warning of bearing and gear faults
- Detects impacting associated with spalling, cracking, and lubrication problems
- Outputs 4 to 20 mA signals for peak acceleration and overall vibration
- Compatible with existing with PLC, DCS, SCADA, alarm, and control systems
- Offers analog output signal for spectral analysis and diagnostics
- Conducts continuous vibration monitoring- 24/7



Model 689B01

Vibration Transmitter

- Accepts input from ICP® accelerometers
- Integrates acceleration signals and provides a 4 to 20 mA output signal proportional to peak velocity of vibration
- Provides access to analog acceleration signal for data collection, analysis, and diagnostics
- 20-30 VDC powered
- Surface mount aluminum enclosure

CE



Model 683A

Indicator/Alarm

- Provides 24 VDC excitation for loop-powered 4 to 20 mA sensors
- Also accepts and powers ICP® accelerometers
- Highly visible, fully scalable LED display
- Up to four programmable set-point relays
- Time delay eliminates false alarm trips
- Optional 4 to 20 mA output signal
- 1/8 DIN panel mount
- User friendly, menu-driven setup

CE Pending



Series 685

Electronic Vibration Switch

- Offers two set points with individual alert and alarm relays
- 4 to 20 mA output signal for continuous vibration monitoring
- Analog, 100 mV/g (10.2 mV/(m/s²)) output signal for fault analysis and diagnostics
- Utilizes built-in or remote vibration sensor
- Choice of AC or DC power
- Adjustable time delay



Model 682A06
shown with optional
programmable display
Model 070A80

Universal Transmitter

- Provides loop power for 2-wire, 4 to 20 mA sensors
- Offers two set points with Form A relay outputs
- Accepts mA, VDC, ohm, RTD, thermocouple, and potentiometer inputs
- Delivers current and voltage output signals
- Fully programmable via detachable display
- DIN rail mount



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A2LA ACCREDITED to ISO 17025

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The IMI Sensors Division of PCB® Piezotronics, Inc. specializes in the development, application, and support of industrial vibration sensors, transmitters, meters, and accessories for machinery condition monitoring and predictive maintenance requirements. This product focus, coupled with the strengths and resources of PCB, permits the IMI Sensors Division to offer exceptional customer service, 24-hour technical assistance, and a **Total Customer Satisfaction** guarantee.

Visit www.imi-sensors.com to locate your nearest sales office