

Impact Transmitter

IT6810/6811/6812 Mechanical Looseness Detector 4-20 mA



SEISMIC PRODUCTS

Features

- Measures mechanical looseness
- Loop powered, self contained sensor
- Center bolt for mounting ease
- Stainless steel housing
- 4-20 mA output
- 2 Pin MS connector

Applications

- Reciprocating compressors
- Engines • Pumps

Specifications

Sensor: Piezoelectric accelerometer with integral signal conditioner
Output: 4 to 20 mA proportional to a number of impacts above threshold within a time period (16 impacts = 20mA)
Time Period: Adjustable 0.8 to 3.2 sec.
Impact Threshold: 50mV to 1200mV.
Case Material: 303 stainless steel
Mounting: Center through-hole supplied with 1/4"-28 and M6 captive allen screws
Shock Limit: 5,000 g peak
Temperature Range: -40° to +100°C (-40° to +212°F)
Sensitivity vs. Temperature: <.05%/°C
Cross Axis Response: Less than 5%
Loop Supply Voltage: 15 to 30 Vdc.
Maximum Load Resistance: 50 (Vs-15) ohms
Sealing: Welded construction with sealed adjustments
Electrical Connection: 2 pin MIL-C-5015 Style
Isolation: 500 Vrms, circuit to case
Hazard Rating:
IT6810/IT6811: CSA certified Class I, Div. 1, Groups A-D. ATEX LCIE Intrinsically Safe EEx ia IIC T4 (Tamb = 100°C), UL certified Class I, Div 2, Grps A-D, Class II, Div 2, Grps F & G.
IT6812: No certifications. For use in installations in 9288 series housings.
Environmental Rating: NEMA 4 / IP 65
Electromagnetic Compatibility: CE Mark

The Model IT6810/6811/6812 Impact Transmitter uses new technology to measure impact severity on reciprocating machinery.

Impact is a proven method of detecting mechanical looseness on large reciprocating compressors. The Impact Transmitter combines the benefits of this measurement with the convenience of 4-20 mA loop powered sensor technology.

It has a built-in piezoelectric crystal sensing element, and uses a timing function as part of its severity determination. An impact event counter and memory device is used to record events meeting a preset amplitude threshold level.

The 4-20 mA signal represents the number of impact events above the threshold level that occur within a preset time window called the reset time.

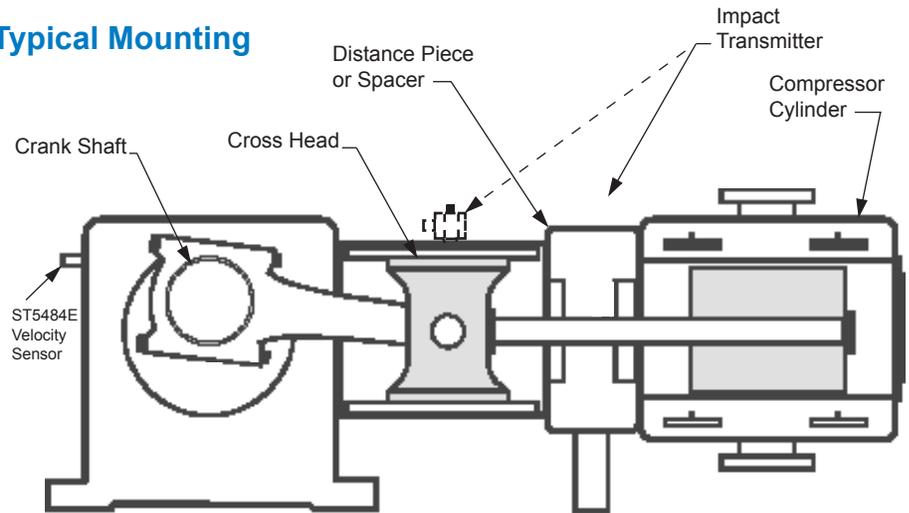
Mechanical impacts are both measured and qualified within the transmitter. The result is a current output proportional to impact severity.

The Impact Transmitter detects the following:

- Loose rod nuts
- Cracked rod
- Broken or loose bolts
- Liquids in the process
- Loose or worn wrist pins
- Excessive clearance in the slipper
- Other loose or broken parts

Note: See Benefits of Impact Monitoring on page 2.26.

Typical Mounting



How To Select

IT6810 - A

Machine RPM Range

A	0	0	1	= Low, < 500 RPM
	0	0	2	= Medium, 500-1000 RPM
	0	0	3	= High, > 1000 RPM

NOTE: As set from factory *
 A = 001 - 300 RPM, 7 g threshold
 A = 002 - 600 RPM, 12 g threshold
 A = 003 - 1200 RPM, 16 g threshold
 * Field Adjustable

IT6811 - A - B

IT6812 - A - 0 0 3

A Machine RPM Range

	0	0	1	= Low, < 500 RPM
	0	0	2	= Medium, 500-1000 RPM
	0	0	3	= High, > 1000 RPM

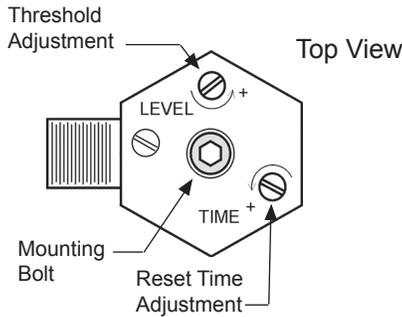
B Cable** Length

Length in meters, in meter increments.
 003 is minimum 0.3 meters (1 ft).
 200 is maximum 20 meters (66 ft).

**Use 9061-XXX cable for IT6812.

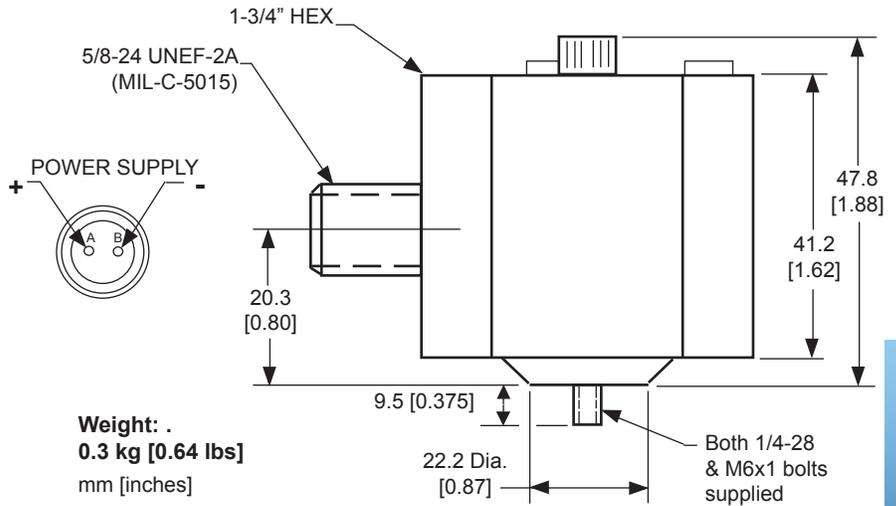


Field Adjustments



Note: Remove sealing screws to gain access to adjustment potentiometers

Weight & Dimensions

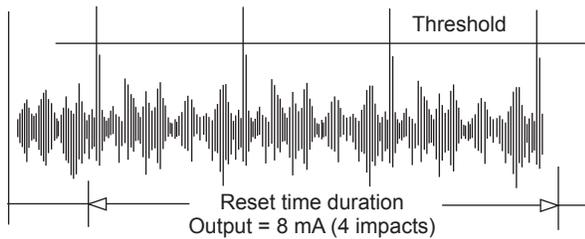


SEISMIC PRODUCTS

Theory of Operation

The output of the Impact Transmitter is a 4-20 mA signal proportional to the number of impact events over the threshold in a set time period. The relationship between the mA signal and the number of impact events remains the same. The time frame over which the events are measured can be changed. This will allow you to match the measuring time frame with the RPM range of your equipment. Chart #1 indicates mA output vs impact events over the set threshold.

Waveform being detected by IT6810 Impact Transmitter



Option for Class 1, Div 1 area
Specify IT6812 and 9288-series EP housing and mounting kit. Contact Metrix for ordering information. Area classification met by using housing.

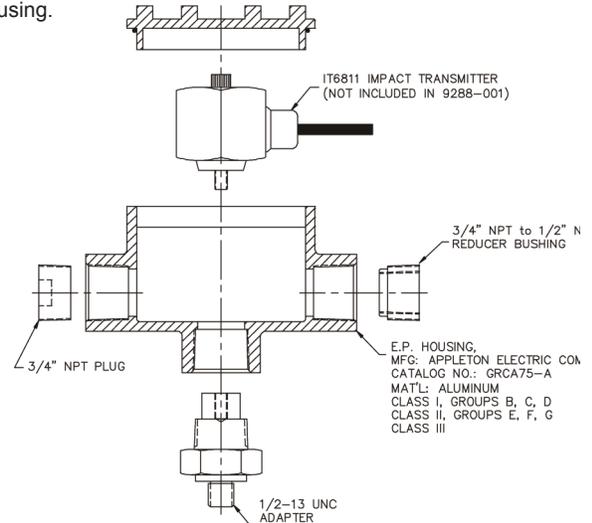


CHART #1

Severity Level	Output
16 impacts > threshold	20 mA
14 impacts > threshold	18 mA
12 impacts > threshold	16 mA
10 impacts > threshold	14 mA
8 impacts > threshold	12 mA
6 impacts > threshold	10 mA
4 impacts > threshold	8 mA
2 impacts > threshold	6 mA
No impacts > threshold	4 mA
Loss of Power	0 mA

Translates number of impact events into 4-20 mA signal

How To Select...Mating Connector/Cable Assemblies



8978-211-XXXX, Cable Assembly

Two (2) pin socket connector with cable strain relief with 6.4 mm (0.25") diameter polyurethane jacketed cable with twisted shielded pair wires. xxx.x = Cable length in meters.

Note: All 8978 connector/cable assemblies rated to 121°C (250°F) max.



9334-211-XXXX-YYYY, Cable Assembly, w/Stainless Steel Armor

Two (2) pin socket connector with 7.1 mm (0.28") diameter, ss armored jacket with cable, twisted shielded pair wires. xxx.x = Armor length in meters. yyy.y = Cable length in meters.

Additional Accessories - Page 2.33