MODEL **685A01**

Solid-State, Electronic Vibration Switch

for Early Warning of Impending Rotating Machinery Failure

- Initiates Alarm or Shutdown Due to Excessive Vibration
- Detects Machinery Imbalance, Misalignment, Worn Bearings, and Gear Faults
- Explosion-proof Enclosure Mounts Directly to Machinery
- 5-amp, Form C Relay with Selectable Latching or Non-latching Action
- Time Delay for Eliminating False Trips During Upsets, Startup, or Rundown
- Ideal for Fans, Engines, Compressors, Pumps, and Other Critical Equipment

Model 685A01
Electronic Vibration Switch

An increase in vibration can be an early indicator of machinery problems, which can lead to catastrophic failure. Common sources of vibration include imbalance, worn bearings, faulty gears, and misalignment. An early warning of impending problems can help save money and keep processes up and running, by eliminating surprise failures and permitting maintenance to be scheduled during planned downtimes.

The **Model 685A01** vibration switch is specifically designed to alarm when vibration levels increase beyond a predetermined limit. Appropriate action, such as further analysis, scheduled maintenance, or machinery shutdown, can then be taken.

The 685A01 is DC-powered and includes an on-board piezoelectric accelerometer, which produces an electrical signal that is proportional to measured vibration. The amplitude of this signal is compared with a user-adjustable set point, which —when exceeded— will trip a 5-amp, Form C relay. A time delay circuit safeguards against false alarms that could occur during momentary upsets.

As with all IMI instrumentation, this equipment is complemented with toll-free applications assistance, 24-hour customer service, and is backed by a no-risk policy that guarantees satisfaction or your money refunded.

IMI SENSORS
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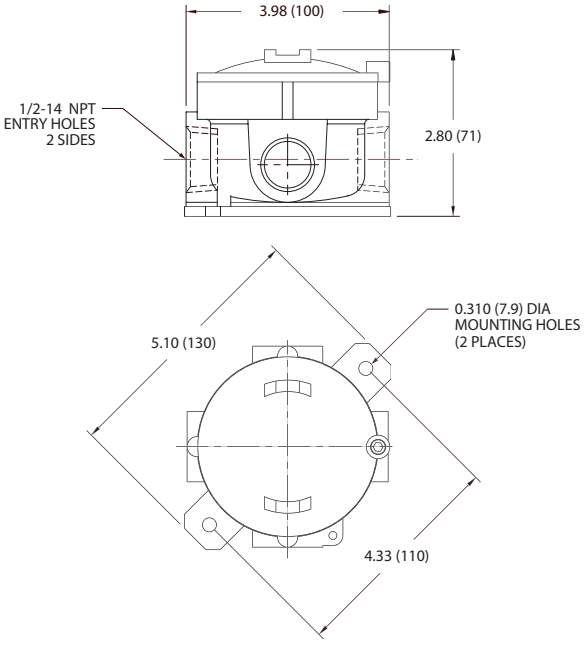
Total Customer Satisfaction Guaranteed

Specifications

Model		685A01	
Performance		**English**	**SI**
Measurement Range (FS)	[1]	10 g pk	98.1 m/s² pk
Frequency Range (± 3 dB)		180 to 60,000 cpm	3 to 1000 Hz
Set Point Adjust (single turn potentiometer)	[2]	0 to 100% FS	0 to 100 % FS
Alarm Time Delay (fixed)		5 seconds	5 seconds
Relay Action (switch selectable)		latching or non-latching	latching or non-latching
Environmental			
Operating Temperature Range		-13 to 158 °F	-25 to 70 °C
Storage Temperature Range		-40 to 257 °F	-40 to 125 °C
Enclosure Rating (explosion proof)		NEMA 4X	IP56
Hazardous Area Approval (enclosure)		EEX-dIIC T6	EEX-dIIC T6
Electrical			
Power Required		10 to 30 VDC	10 to 30 VDC
Current Draw	[3]	<100 mA	<100 mA
Turn-on Time Delay (fixed)		3 seconds	3 seconds
Sensor Type		piezoelectric accelerometer	piezoelectric accelerometer
Relay Type (SPDT, dry contact)		5-amp, Form C, 230 VAC/30 VDC	5A Form C, 230 VAC/30 VDC
Physical			
Housing Material		cast aluminum	cast aluminum
Electrical Connections		power, relay, remote reset	power, relay, remote reset
Electrical Connectors		screw terminals	screw terminals
Wire Sizes (accommodated by screw terminals)		24 to 14 AWG	0.2 to 2.5 mm²
Conduit Hubs (two places)		1/2 inch NPT female	no metric equivalent
Mounting	[4]	0.310 inch holes	7.9 mm holes
Size (w × h × d)		5.1 × 2.8 × 3.98 inch	130 × 71 × 100 mm
Weight		1.4 lb	635 gm
Indicators/Controls			
Power On LED		green	green
Alarm LED		red	red
Alarm Set Point Adjustment (0 to 100% FS)		single turn potentiometer	single turn potentiometer
Reset Function		momentary pushbutton or remote contact closure	momentary pushbutton or remote contact closure



Model 685A01
Product Drawing Description

Dimensions shown are in inches (millimeters)

Notes:
[1] Optional range: 1 ips (25.4 mm/s) FS.
[2] HIGH alarm set point is standard. LOW alarm set point is optional.
[3] Pulse to 150 mA occurs for approximately. 2 sec during alarm activation.
[4] Two 5/16 - 18 × 5/8 inch hex screws supplied.

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ISO 9001 CERTIFIED 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.

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