Electronic Vibration Switches
Designed to provide continuous machinery protection

Highlights

- Multiple available outputs:
  - Two independent alert and alarm relays
  - 4-20mA signal
  - Analog, 100mV/g raw vibration signal
- Configurable model with choice of accelerometer configuration, measurement range, power supply, relay type, enclosure type and enclosure connection ports.
- Adjustable time delays prevent false trips during unit start-up and chance occurrences of short term vibration spikes.
- Compatible with PLC, DCS and SCADA systems for data trending.
- Hazardous area approved versions available.

Typical Applications

- Cooling Tower Condition Monitoring
- HVAC Equipment Predictive Maintenance
- Vibratory Screens & Feeders Protection

Electronic vibration switches offer highly-accurate continuous monitoring with excellent repeatability and reliability. They require power to operate and utilize an input signal provided by an electronic vibration sensor. The fully-configurable switch can either utilize either a built-in pellet accelerometer or be wired to a remote accelerometer.
**Technical Specifications**

### Measurement Range

<table>
<thead>
<tr>
<th>Model/Part Number</th>
<th>685B Series</th>
</tr>
</thead>
</table>

### Frequency Range (± 3 dB)

2 to 1000 Hz

### Relay

- Latching
- Non-Latching

### Relay- Alert

Configurable

### Relay- Alarm

Configurable

### Setpoint Alert

10 to 100% of Voltage Range

### Setpoint Alarm

10 to 100% of Input Setpoint

### Delay- Power On

20 sec

### Delay- Alert

Configurable

### Delay- Alarm

Configurable

### Acceleration Output (±10%)

100 mV/g

### Current Output

4-20 mA

### Control Interface

Reset Function

Configurable

Self Test Function

Yes

Time Delay Adjustment

Single Turn Potentiometer

Power LED

Green

Alarm LED

Red

Alert LED

Yellow

### Environmental

#### Temperature Range (Continuous)

-22 to +158 °F

#### Temperature Range (Storage)

-40 to +257 °F

#### Hazardous Area Approval

Configurable

#### Enclosure Rating

NEMA 4X

### Electrical

#### Power Required

< 150 mA

#### Current Consumption

< 150 mA

#### Electrical Connector

Screw Terminals

#### Screw Terminal Wire Size

24-14 AWG

#### Mounting Screw (Base)

2 to 5 ft-lb

#### Mounting Hole Size

0.21 in

#### Size (W x H x D)

3.5 x 2.8 x 3.5 in

#### Weight

0.21 lb

### Sensing Element

100 mV/g ICP® Accelerometer

### Housing Material

Aluminum Alloy

### Mounting Torque

4.1 ft-lb

### Mounting Screw (Cover Screws)

5.7 N/m

### Mounting Screw (Base)

3 to 7 N-m

### Electrical Connector

Screw Terminals

### Package Size and Sensitivity

#### Measurement Range

| 0 | 0 to 1.5 in/sec peak velocity |
| 1 | 0 to 5 g peak acceleration |
| 2 | 0 to 50 mils peak to peak displacement |
| 3 | 0 to 50 mils peak to peak displacement |
| 4 | 0 to 3.0 in/sec peak velocity |

#### Power Required

- 24 VDC, ±10%

#### Relay Type (Two provided)

- 2 Triac, 5 amp, 230 VAC, 0-45 sec adjustable time delay
- 1 Electromechanical relay, 10 amp Form C, SPOT, 30 VDC/240 VAC, 0-45 sec adjustable time delay

#### Enclosure Type

- A1: Standard enclosure, NEMA 4X, CSA Class I, Division 2, internal reset and analog output
- A2: Same as A1 plus external pushbutton reset
- A3: Same as A1 plus external BNC jack for analog output
- A4: Same as A1 plus external pushbutton reset and external BNC jack for analog output
- C1: CSA approved explosion proof for Class I, Division 1 installation

### Enclosure Connection Ports

- 0: Two ports with cord grips
- 1: Two ports with 1/2" NPT conduit hubs
- 2: One port with cord grip
- 3: One port with 1/2" NPT conduit hub
- 4: Two 1/2" NPT ports (Must select C1 enclosure type)
- 5: Two ports with cord grip on left, conduit on right
- 6: Two ports with cord grip on right, conduit on left

### Notes:

Selections in blue are not available with CSA Class I, Division 2 hazardous area approval.

CSA Class I, Division 2 approval standard for switches where all options are black.

---

**IMI Sensors**, a division of PCB Piezotronics, Inc. manufactures industrial vibration monitoring instrumentation, such as accelerometers, vibration transmitters and switches that feature rugged stainless steel housings and survive in harsh environments like paper and steel mills, mines, gas turbines, water treatment facilities and power plants. Integrating with portable analyzers and PLC’s, IMI instrumentation helps maintenance departments reduce downtime and protect critical machinery. Visit IMI Sensors at www.imi-pcb.com. PCB Piezotronics, Inc. is a wholly owned subsidiary of MTS Systems Corporation. Additional information on MTS can be found at www.mts.com.