SERIES 685B

ELECTRONIC VIBRATION SWITCHES

- 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.

DESIGNED TO PROVIDE CONTINUOUS MACHINERY 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.

APPLICATIONS

- Cooling Tower
- Evaporative Condensers
- Steam Condensers
- Air-Cooled Heat Exchangers (Fin-Fans®)
- Large Blowers and Fans
**SPECIFICATIONS**

<table>
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<tr>
<th>Model Number</th>
<th>685B Series</th>
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**Performance**

- **Measurement Range**: Configurable
- **Frequency Range (±3 dB)**: 2 to 1000 Hz
- **Relay**: Latching/Non-Latching
- **Relay- Alert**: Configurable
- **Relay- Alarm**: Configurable
- **Setpoint- Alert**: 0 to 100% of Vibration Range
- **Setpoint- Alarm**: 0 to 100% of Vibration Range
- **Delay- Power On**: 20 sec
- **Delay- Alert Configurable**: Configurable
- **Delay- Alarm Configurable**: Configurable
- **Acceleration Output (±10%)**: 100 mV/g
- **Current Output**: 4-20 mA

**Control Interface**

- **Reset Function Configurable**: Configurable
- **Self Test Function Yes**: 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 and IP66

**Electrical**

- **Power Required**: Configurable
- **Current Consumption**: < 150 mA
- **External Calibration Input**: 4-20 mA

**Physical (not applicable to enclosure type C1)**

- **Sensing Element**: 100 mV/g ICP Accelerometer
- **Housing Material**: Aluminum Alloy
- **Mounting Torque (Cover Screw)**: 4.1 ft-lb
- **Mounting Screw (Base)**: 2 to 2.5 ft-lb
- **Electrical Connector**: Screw Terminals
- **Screw Terminal Wire Size**: 24-14 AWG
- **Cable Input**: Configurable
- **Mounting Hole Size**: 0.21 in
- **Size (W x H x D)**: 3.5 x 2.8 x 3.5 in
- **Weight**: 0.85 oz

**Enclosure Type**

1. **A1**: Std enclosure, NEMA 4X, CSA Class I, Division 2, internal reset and analog signal
2. **A2**: Same as A1 plus external pushbutton reset
3. **A3**: Same as A1 plus external BNC jack for analog output
4. **A4**: Same as A1 plus external pushbutton reset and external BNC jack for analog output
5. **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:**

- Rows with TEXT IN BLUE are not available with CSA Class I, Division 2 hazardous area approval.
- Rows with TEXT IN BLACK are available with CSA Class I, Division 2 hazardous area approval as standard.

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**MODEL MATRIX**

**Base Model**

- **Model**: 685B

**Electronic Vibration Switch with two set point relays, time delays, internal push button reset, remote reset via contact closure, 4-20 mA test/calibration insertion signal capability and both 4-20 mA and analog 100 mV/g output signals available on screw terminals.**

**Package Size and Sensitivity**

- **0**: Built in accelerometer
- **1**: Remote 100 mV/g accelerometer (Not supplied)
- **2**: Remote 100 mV/g accelerometer low frequency ~1 Hz (Not supplied)
- **3**: Built-in accelerometer, low frequency ~1 Hz
- **4**: Remote 100 mV/g accelerometer w/sensor fault detection (Not supplied)
- **5**: Remote 100 mV/g accelerometer w/sensor fault detection, low frequency ~1 Hz (Not supplied)

**Measurement Range**

- **0**: 0 to 1.5 in/sec peak velocity
- **1**: 0 to 5 g peak acceleration
- **2**: 0 to 15 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**

- **0**: 85 to 245 VAC
- **1**: 24 VDC

**Relay Type (Two provided)**

- **0**: Triac, 5 amp, 230 VAC, 0-45 sec time delay
- **1**: Electromechanical relay, 10 amp Form C, SPDT, 30 VDC/240 VAC, 0-45 sec time delay

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