



## 1-895 Vibration Switch

### Applications

- Motors
- Turbochargers
- Generators
- Industrial Fans & Blowers
- Gear Boxes
- Pumps
- Compressors
- Cooling Towers

### Features

- Dual alarms
- Easy alarm set-up
- 3-digit LCD display
- Start-up trip delay (30 seconds), prevents false alarms
- Alarm trip delays (3 seconds) , filters out transients
- 4-20mA output
- LED alarm indication
- Remote alarm reset input
- Remote start input
- Displacement or Velocity response



### DESCRIPTION

The 1-895 is a versatile multi-purpose vibration switch. It features a built-in accelerometer and solid state electronics. The 1-895 constantly monitors the vibration levels on critical machinery and provides timely feedback in the event of machine breakdown. There is a 30-second monitor start-up delay that is initiated by the application of power or the grounding of the start input. The 1-895 is available in a variety of ranges.

### OPERATION

The 1-895 constantly monitors the vibration levels on critical machinery and provides timely feedback in the event of machine breakdown. There is a 30 second monitor start up delay that is initiated by the application of power or the grounding of the start input. The delay does not begin until the start input is released.

The current vibration level is displayed on a 3 digit LCD and output on a proportional 4-20 mA current loop. The alarm levels are set by two front panel push-buttons and the display. Two alarm indicators are present and indicate when an alarm level is exceeded. The corresponding output is also enabled. The alarms are latched and must be reset at the 1-895 or via a remote alarm reset input.



**Performance Specifications**

Vibration Range (see ordering guide)

- Velocity: inches per second (ips), peak
- Acceleration: g's, peak
- Displacement: mils, peak-peak
- Frequency Range: 5 Hz to 500 Hz ±3 dB (internal sensor)
- Alarm Setpoints: User programmable 0 to full scale
- Alarm Outputs: Dual alarm relays are isolated from system electronics
- Analog Output: 4-20mA current loop proportional to the full scale output
- Alarm reset / start inputs: External inputs shorted to return to active
- Display: 3-digit LCD display
- Power: 20 - 28 VDC @ 125 mA  
100 - 132 VAC @ 40 mA

Temperature Range

- Operating: 0°F to 185°F (-18°C to 85°C)
- Storage: -67°F to 185°F (-55°C to 85°C)
- Humidity: 0 to 95% relative humidity non-condensing

I/O Connections

- Power connections: +24 VDC - Return (-24VDC)
- Analog Output: 4-20mA +  
4-20mA -
- Control Inputs: Start input  
Reset input
- Alarms: 1 Out -  
1 Out +  
2 Out -  
2 Out +

**Ordering Information**

In keeping with CEC's policy of continual product improvement specifications may be changed without notice.

Ordering Information - Vibration Switch		PIN	1	89	A	B	C	D	D																																
<b>Power</b>		5 = 20 - 28 VDC @ 125 mA 6 = * 100 - 132 VAC @ 40 mA * AC Power versions use extended enclosure top. Certification is based on enclosure ratings.																																							
<b>Sensor Input Type</b>		0 = Internal Sensor																																							
<b>Remote Sensor Options:</b>		1 = 100 mV/g Constant current (use CEC model 4-160) 2 = 100 mV/ips Constant current (use CEC model 4-161) 3 = 100 mV/ips velocity coil 4 = 145 mV/ips velocity coil (use CEC model 4-130, 4-131, 4-137, 4-138-0002) 5 = 150 mV/ips velocity coil (use CEC model 4-131-0103, 4-138-0003) 6 = 200 mV/ips velocity coil (use CEC model 4-131-0116, 368925, 4-138-0004)																																							
<b>Relay Type (solid state, optically isolated):</b>		0 = DC contact rating is 3 to 60 Vdc @ 1 Amp 1 = AC contact rating is 12 to 240 Vac @ 1 Amp																																							
<b>Output Type (full Scale Range &amp; Unit of Measure):</b>		<table border="1"> <thead> <tr> <th>Displacement</th> <th>Velocity</th> <th>Acceleration</th> <th>Velocity (metric units)</th> </tr> </thead> <tbody> <tr> <td>0.1 = 0 to 5 mils, pk-pk</td> <td>1.0 = 0 to 0.5 ips, peak</td> <td>2.1 = 0 to 5 g's, peak</td> <td>3.1 = 3 to 40 mm/s, peak</td> </tr> <tr> <td>0.2 = 0 to 10 mils, pk-pk</td> <td>1.1 = 0 to 1 ips, peak</td> <td>2.2 = 0 to 10 g's, peak</td> <td>3.2 = 6 to 80 mm/s, peak</td> </tr> <tr> <td>0.3 = 0 to 20 mils, pk-pk</td> <td>1.2 = 0 to 2 ips, peak</td> <td>2.3 = 0 to 25 g's, peak</td> <td></td> </tr> <tr> <td>0.4 = 0 to 150 mils, pk-pk</td> <td>1.3 = 0 to 5 ips, peak</td> <td>2.5 = 0 to 5 g's, rms</td> <td></td> </tr> <tr> <td>0.5 = 0 to 100 mils, pk-pk</td> <td>1.4 = 0 to 10 ips, peak</td> <td>2.6 = 0 to 10 g's, rms</td> <td></td> </tr> <tr> <td></td> <td>1.5 = 0 to 1.5 ips, rms</td> <td></td> <td></td> </tr> <tr> <td></td> <td>1.6 = 0 to 3 ips, rms</td> <td></td> <td></td> </tr> </tbody> </table>								Displacement	Velocity	Acceleration	Velocity (metric units)	0.1 = 0 to 5 mils, pk-pk	1.0 = 0 to 0.5 ips, peak	2.1 = 0 to 5 g's, peak	3.1 = 3 to 40 mm/s, peak	0.2 = 0 to 10 mils, pk-pk	1.1 = 0 to 1 ips, peak	2.2 = 0 to 10 g's, peak	3.2 = 6 to 80 mm/s, peak	0.3 = 0 to 20 mils, pk-pk	1.2 = 0 to 2 ips, peak	2.3 = 0 to 25 g's, peak		0.4 = 0 to 150 mils, pk-pk	1.3 = 0 to 5 ips, peak	2.5 = 0 to 5 g's, rms		0.5 = 0 to 100 mils, pk-pk	1.4 = 0 to 10 ips, peak	2.6 = 0 to 10 g's, rms			1.5 = 0 to 1.5 ips, rms				1.6 = 0 to 3 ips, rms		
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Note: Special configurations can be accommodated. Please contact Aero Support for assistance.

Example:

Part Number 1 - 89 5 - 0 0 1 2

The example unit is housed in an explosion proof enclosure and requires 24 VDC power. The switch has the internal sensor and DC relay contacts. The display and 4 - 20 mA output are scaled 0 to 2 ips, peak velocity.

**Hazardous Approvals**



**North America**

CSA C/US Class 1 Division 2, Groups A, B, C, D  
Temp code T5; max ambient +85°C



**European**

ATEX EEx d IIC T5  
Ta = -40°C to +85°C

