**DuraVibe™**

**Model VibraRod™** Vibratory Level Sensor

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**FEATURES & ADVANTAGES**

- **Durability for powders and bulk solids**
  - Stainless steel probe construction for durable, maintenance-free performance.

- **Versatility**
  - Varying moisture, temperature, material composition? No problem!
  - Detects light (10 lbs/ft³) to heavy, dense materials with protective baffling.
  - Pipe extension units are available.

- **Peace-of-mind Reliability**
  - Self-cleaning, single probe design eliminates false signals found with “tuning fork” designs.
  - Probe is tip-sensitive and unaffected by material build-up near mounting base.
  - Reduced probe diameter and overall length to make it less vulnerable to bending and less susceptible to material build-up.
  - Fail safe feature provides alarm in case of a power failure.

- **“Set it and forget it”**
  - No calibration required! Easy installation and commissioning.
  - Three sensitivity settings for optimum performance.
  - External status LED provides visual indication. (Ord. Loc. units only)

- **Superior third party approval compliance**
  - Ordinary and Hazardous location approvals.
  - Intrinsically safe probe for ultimate hazardous location protection.

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**PRINCIPLE OF OPERATION**

The VibraRod™ point level sensor is a mechanical resonance system that is excited at a resonance by an electrical circuit. Two piezoelectric crystals are mounted internally at the probe’s base. The electronic module generates an electrical signal that has an equivalent frequency to the probe’s resonant frequency; this signal is applied to one crystal, which causes the probe to vibrate. The vibration is monitored by the second crystal which provides an electrical signal back to the electronic module. When material contacts and surrounds the probe, the vibration is dampened and the signal from the second crystal is reduced. This signal reduction is detected by the electronic module, which reacts by providing a signal out of the module through the relay contacts. The sensitivity for the VibraRod is selectable. The single probe design prevents material bridging, which is common with the dual-blade (“tuning fork”) design.

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**PRACTICAL APPLICATIONS**

- Versatile, yet economical, vibratory solution.
- Ideal for reliable detection of materials whose physical characteristics are variable, such as, changes in moisture, temperature, composition or geometric shape.
- Excellent for a variety of materials with densities as low as 10 lbs/ft³ (160 kg/m³); with a maximum particle size of about 1 inch (25 mm).
- Acceptable for installations where material clings to sidewall as probe is tip-sensitive and unaffected by material build-up near mounting base.
- Level detection / back-up protection for dust collection hoppers.
- Successful applications include: sugar, flour, whole or ground coffee beans, rice, peanuts, grain, feed pellets/crumbles, tobacco, sawdust, wood shavings, plastic pellets, powdered clay, sand, cement, lime, chemicals/pharmaceuticals, carbon black and more.

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**OPTIONS**

- **Pipe Extensions**
  - For high and low level applications that extend beyond the length of a standard probe.
  - Top-mount is intended for high-level applications only and is suitable for lengths up to 6’ (1.8m).
  - Side-mount is acceptable for short lengths and where probe is properly supported.
- **Variety of Approvals for ordinary locations and hazardous locations**
- **Reducer Fittings:**
  - 1-1/2” NPT x 1-1/4” NPT to attach VibraRod to a 1-1/2” ANSI pipe thread opening (Part #9-0101)
  - R 1-1/2” [BSPT] x 1-1/4” NPT to attach VibraRod to a 1-1/2” BSP/ISO pipe thread opening (Part #9-0102)

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**Level Blog - [http://monitortech.typepad.com](http://monitortech.typepad.com)
### Specifications

<table>
<thead>
<tr>
<th>Power Requirements:</th>
<th>22 - 27VDC (&lt;10%); 22-232VAC (&lt;10%), 50/60 HZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Consumption:</td>
<td>≤ 4VA (AC); ≤ 3W (DC)</td>
</tr>
<tr>
<td>Ambient Temp. Electronics:</td>
<td>-22° F to 149° F (-30° C to 65° C)</td>
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<tr>
<td>Internal Bin Temperature:</td>
<td>-4° F to 176° F (-20° C to 80° C)</td>
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<tr>
<td>Standard probes:</td>
<td>-4° F to 176° F (-20° C to 80° C)</td>
</tr>
<tr>
<td>Pipe Ext. probes:</td>
<td>-4° F to 176° F (-20° C to 80° C)</td>
</tr>
<tr>
<td>Output Relay:</td>
<td>VAC: SPDT isolated; 3 amps @ 250VAC max</td>
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<tr>
<td>VDC:</td>
<td>SPDT isolated; 3 amps @ 30VDC max</td>
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<tr>
<td>Sensitivity:</td>
<td>A: 10.0–12.5lbf/ft² (160–200kg/m²)</td>
</tr>
<tr>
<td>(Minimum Material Density)</td>
<td>B: 12.5–15.6lbf/ft² (200–250kg/m²) or</td>
</tr>
<tr>
<td>C:</td>
<td>18.7–21.8lbf/ft² (300–350kg/m²)</td>
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<tr>
<td>Time Delay (Fixed):</td>
<td>Hold-off (stop of vibration), delay of 1 second;</td>
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<tr>
<td>Hold-on (start of vibration), delay of 2-5 seconds</td>
<td></td>
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<tr>
<td>Fail-Safe:</td>
<td>Switch Selectable: High or Low</td>
</tr>
<tr>
<td>Max. Load at Probe End:</td>
<td>100 lbs [45.4 kg] (450N) - Standard &amp; Pipe Ext.</td>
</tr>
<tr>
<td>Resonance Frequency:</td>
<td>355 to 390 Hz</td>
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</tbody>
</table>

### Enclosure
- Powder coated die-cast aluminum;
- NEMA 4X, ENCLOSURE TYPE 4X: IP66

### Probe/Gland Material
- 304 Stainless Steel

### Process Connection
- 1-1/4" NPT (VibraRod), 1-1/4" NPSC (Vessel); 304 SS

### Pressure Rating:
- 145 PSI (10 bar) - Std Probe & Pipe Ext. Probe

### Conduit Connections:
- (2) 1/2" NPT

### Local Indicator
- Bi-color LED:
  - Green = No material,  
  - Red = Material present,  
  - No light = No power

### Pipe Extension
- 3/4" pipe, 304SS (Customer specified length - max. 6’ [1.83m] for top mount, 2’ [0.61m] for side mount.)

### Approvals:
- CSA, Ordinary Locations;
- II Div. 1 & 2, Groups E, F, G;
- Hazardous Locations - North America
- Hazardous Locations - ATEX/IECEx

### Power Consumption:
- 10%); 22-232VAC (<10%); 50/60 HZ

### Power Requirements:
- 22 - 27VDC (<10%); 22-232VAC (<10%), 50/60 HZ

### Ordering Information

**DuraVibe™ VibraRod™ Vibratory Level**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2400</td>
<td>Spanner Wrench For Cover Removal / Tighten</td>
</tr>
<tr>
<td>9-0101</td>
<td>1-1/2&quot; NPT (male) to 1-1/4&quot; NPT (female) Coupling Reducer Fitting</td>
</tr>
<tr>
<td>9-0102</td>
<td>R 1-1/2&quot; [BSPT] (male) to 1-1/4&quot; NPT (female) Coupling Reducer Fitting</td>
</tr>
<tr>
<td>1-0101</td>
<td>Mounting Plate, half coupling, Std. Carbon Steel, for 1-1/4&quot; NPT</td>
</tr>
<tr>
<td>1-0112</td>
<td>Mounting Plate, half coupling, Stainless Steel, for 1-1/4&quot; NPT</td>
</tr>
<tr>
<td>1-3316</td>
<td>Mounting Plate, heavy duty alum., for 1-1/4&quot; NPT</td>
</tr>
</tbody>
</table>

**Order Number**

9 - 8 6 x 1 - x 1 1

**Note:**
Customer must specify exact required overall length to the nearest inch for Pipe Extension versions. Overall length is the distance from face of threaded hub to the tip of the sensor probe.

Scan this with a smartphone QR-Code app for more product details.

- **2-Year Limited Warranty**

### Ordering Information

For more detailed information, please contact a Monitor representative or visit Monitor’s website at [http://www.monitortech.com/product_p_vrod.shtml](http://www.monitortech.com/product_p_vrod.shtml)

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  - Blog: [www.monitortech.typepad.com](http://www.monitortech.typepad.com)

ISO 9001 Registered Quality System