

## DuraVibe™

Newest Generation

## Model VibraRod™ Vibratory Level Sensor

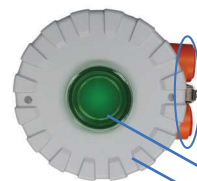
### FEATURES & ADVANTAGES

- ▼ **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/ft<sup>3</sup>) 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.



Single Probe Design

*Practical Tip*  
Ideal level probe for materials, like powders, that may normally get packed in a “tuning fork” style probe which could cause false signalling.



- Two Conduit Openings
- Bi-color LED Indication
- Die-Cast Aluminum Housing

### 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.

### 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/ft<sup>3</sup> (160 kg/m<sup>3</sup>); 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.

### 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)



## SPECIFICATIONS

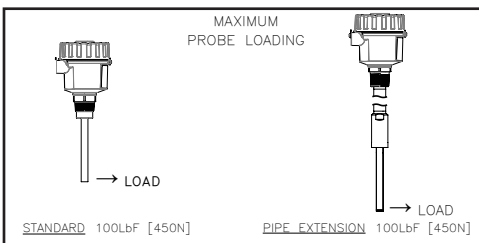
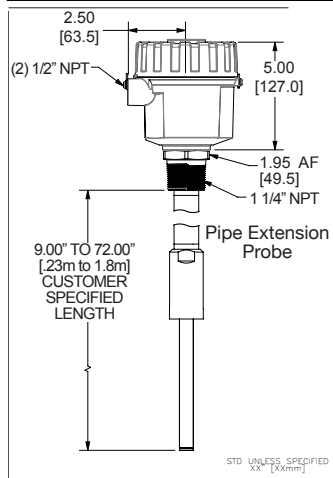
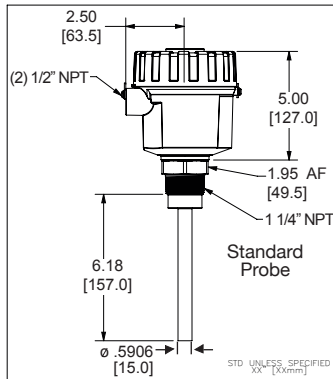
For more detailed information, please contact a Monitor representative or visit Monitor's website at [http://www.monitortech.com/product\\_p\\_vrod.shtml](http://www.monitortech.com/product_p_vrod.shtml)

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

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 <sub>US/C</sub> : Ordinary Locations; Class II, Groups E, F, G; Class III Dust Ignition Proof with Intrinsically Safe Probe  ATEX: Ex tb [ia Da] IIIC T75°C Db IECEX: Ex tb [ia Da] IIIC T75°C Db (See Bulletin #554K regarding specific conditions of use.)  CE Mark CHINA RoHS 2
Approx. Ship Dims. & Weight: (Standard Probe Version)	17.75"Lx6.5"Wx6.5"H (451x165x165mm); 5 lbs (2.3kg)

## MECHANICALS

DIMENSIONS ARE SHOWN IN INCHES WITH MILLIMETER EQUIVALENT IN BRACKETS



## ORDERING INFORMATION

Information on this sheet is subject to change without notice.

DuraVibe™ VibraRod™ Vibratory Level	
Select	Model Series
6	VibraRod™ Series
Select	Probe Configuration
1	Standard Probe
3	Pipe Extension Probe - Specify Length 9" to 72" (0.23M to 1.83M) <sup>1</sup>
Select	Temperature Grade
1	Standard Temperature
Select	Environment/Approvals
1	Ordinary Locations
2	Hazardous Locations - North America
3	Hazardous Locations - ATEX/IECEX
Select	Operating Voltage
1	Universal 20-250 VAC/DC
Select	Process Connection
1	1-1/4" NPT
<b>9 - 8 6 x 1 - x 1 1</b> Order Number	

### ACCESSORIES:

Part #	Description
1-2400	Spanner Wrench For Cover Removal / Tighten
9-0101	1-1/2" NPT (male) to 1-1/4" NPT (female) Coupling Reducer Fitting
9-0102	R 1-1/2" [BSPT] (male) to 1-1/4" NPT (female) Coupling Reducer Fitting
1-0101	Mounting Plate, half coupling, Ctd. Carbon Steel, for 1-1/4" NPT
1-0112	Mounting Plate, half coupling, Stainless Steel, for 1-1/4" NPT
1-3316	Mounting Plate, heavy duty alum., for 1-1/4" NPT

### NOTE:

<sup>1</sup> 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.



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