

## DuraVibe™ Model PZP Vibratory Level Sensor

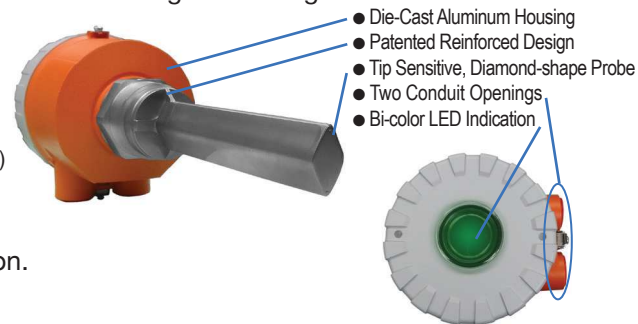
Includes Latest Enhancements

### FEATURES & ADVANTAGES

- ▼ **Exceptional Durability for powders and bulk solids**
  - ▼ Patented steel gusset reinforced design provides industry-leading probe strength.
  - ▼ Stainless steel probe construction for durable, maintenance-free performance.
- ▼ **Excellent Versatility**
  - ▼ Varying moisture, temperature, material composition? No problem!
  - ▼ Unaffected by dust clouds and agitation.
  - ▼ Detects very light (1.5 lb/ft<sup>3</sup>) to heavy, dense materials with proper protective baffling.
  - ▼ Pipe extension, cable extension and high-temp units are available.
- ▼ **Peace-of-mind Reliability**
  - ▼ Self-cleaning diamond shape probe eliminates false signals found with “tuning fork” designs.
  - ▼ 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.



*Practical Tip*  
PZP's exceptional sensitivity can reliably sense lightweight material such as expanded polystyrene beads and fumed silica (Aerosil®).



### PRINCIPLE OF OPERATION

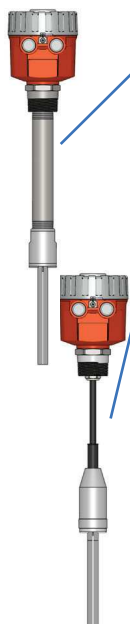
The **Model PZP** point level sensor is a mechanical resonance system that is excited at a resonance by an electrical circuit. Two piezoelectric crystals are mounted internally at the probe's base. The electronic module generates an electrical signal that has an equivalent frequency to the probe's resonant 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 PZP is selectable. The single probe design prevents material bridging, which is common with the dual-blade (“tuning fork”) design.

### PRACTICAL APPLICATIONS

- ▼ Ideal choice for reliable detection of materials whose physical characteristics are variable, such as, changes in moisture, temperature, composition or geometric shape.
- ▼ Suitable for storage vessels where material is regularly changed. For example, one day corn is stored and then another day beans are stored.
- ▼ Excellent for extremely lightweight materials with densities as low as 1.5 lb/ft<sup>3</sup> (24 kg/m<sup>3</sup>); with a maximum particle size about 1.6 inches (40 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, spices, salt, powdered milk, tea(leaf), whole or ground coffee beans, rice, peanuts, feed & grain, tobacco, ice chips, sawdust, wood shavings, chalk, chemicals, polystyrene beads, Styrofoam®, plastic pellets, cellulose, glass, powdered clay, carbon black, foundry sand, gravel, cement, fly ash and more.

### OPTIONS

- ▼ **Pipe Extensions**
  - ▼ For high and low level applications that extend beyond the length of a standard probe.
  - ▼ Top-mount is intended primarily for high-level applications and is suitable for lengths up to 12' (3.6m).
  - ▼ Side-mount is acceptable for short lengths and where probe is properly supported.
- ▼ **Cable Extensions**
  - ▼ For top-mount, high-level applications where head clearance prohibits mounting of pipe extension or where free-hanging weight is preferred.
  - ▼ Suitable for lengths up to 20' (6.1m).
- ▼ **High Temperature / Remote Electronics**
  - ▼ For applications where it is necessary to keep the electronics away from the vessel due to excessive temperatures or vibration.
  - ▼ Interconnection of sensing probe and electronics is done by a conduit.
  - ▼ Standard separation distance is 6' (1.8m).





## SPECIFICATIONS

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

Power Requirements:	22 - 27VDC (±10%); 22-232VAC (±10%), 50/60 HZ
Power Consumption:	≤ 4VA (AC); ≤ 3W (DC)
Ambient Temp. Electronics:	-22° F to 149° F (-30° C to 65° C)
Process Temperature:	
Standard probes:	-22° F to 176° F (-30° C to 80° C)
High Temp. probes *:	-22° F to 302° F (-30° C to 150° C)
Output Relay:	<b>VAC:</b> SPDT isolated; 3 amps @ 250VAC max <b>VDC:</b> SPDT isolated; 3 amps @ 30VDC max
Sensitivity:	<b>A:</b> High, ≥ 1.5 lb/ft <sup>3</sup> (24 kg/m <sup>3</sup> ) <b>B:</b> Medium, ≥ 10 lb/ft <sup>3</sup> (160 kg/m <sup>3</sup> ) or <b>C:</b> Low, Product build-up applications
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. Vertical Load at Probe End:	225 lbs [102 kg] (1000N) - Standard & Pipe Ext.
Max. Horizontal Load at Probe End:	34 lbs [15.4 kg] (150N) - Standard & Pipe Ext.
Max. Tensile Load of Cable:	440 lbs [200 kg] - Cable Ext. Version
Operating Frequency:	286 Hz (+/- 1 Hz)

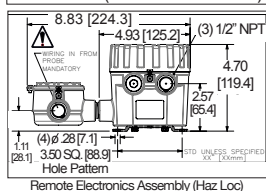
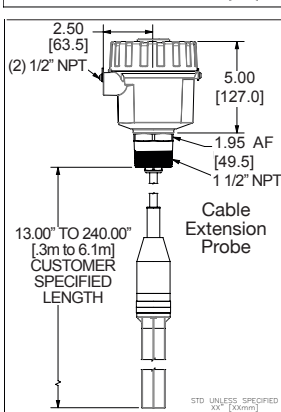
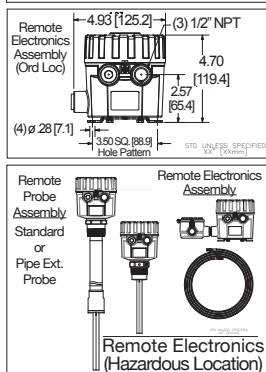
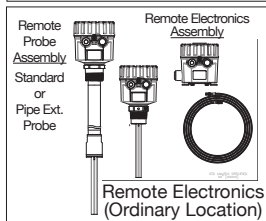
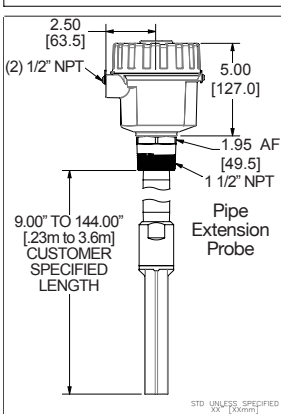
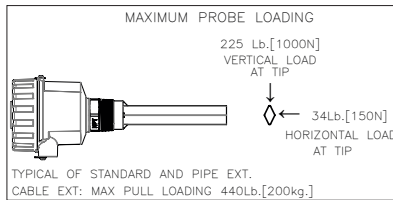
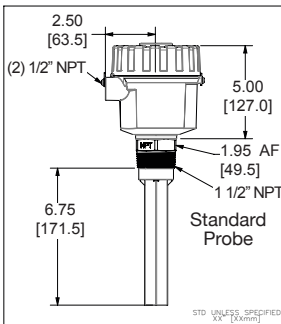
Enclosure:	Powder coated die-cast aluminum; NEMA 4X, ENCLOSURE TYPE 4X; IP66
Probe Material:	304 Stainless Steel
Process Connection:	1-1/2" NPT (PZP), 1-1/2" NPSC (Vessel); 304 SS
Pressure Rating:	145 PSI (10 bar) - Std Probe & Pipe Ext. Probe
Conduit Connections:	(2) 1/2" NPT; (3) 1/2" NPT for Remote Elec
Local Indicator:	Bi-color LED: Green = No material, Red = Material present, No light = No power
Pipe Extension:	1" pipe, 304SS (Customer specified length - max. 12' [3.66m] for top mount, 2' [0.61m] for side mount.)
Cable Extension:	Polyurethane Jacketed Cable; 20' (6.1m) length max. (Customer specified length)
Approvals	CSA <sub>US/IC</sub> : Ordinary Locations; Class II, Groups E, F, G; Class III Dust Ignition Proof with Intrinsically Safe Probe  <b>Standard-Temp &amp; Remote Electronics:</b> ATEX: II 2D Ex tb [ia Da] IIC T75°C Db IECEx: Ex tb [ia Da] IIC T75°C Db  <b>Remote Probe:</b> ATEX: II 1D Ex ia IIC T90°C Da IECEx: Ex ia IIC T90°C Da (See Bulletin #564K 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)

\* High temperature probes are those paired with remote electronics. The high temp. probe enclosure will reflect the maximum process temperature of 302° F (150° C).

## MECHANICALS

DIMENSIONS ARE SHOWN IN INCHES WITH MILLIMETER EQUIVALENT IN BRACKETS



4 Remote Elec. includes Part #9-1005, Interconnect Cable w/ Pins at each end, 88in/2.2m that augments 6ft/1.8m span between Remote Probe and Remote Electronics. Customer specified length(CSL) interconnect cable, no pins (Part #R-3614-008) is sold separately.

## ORDERING INFORMATION

Information on this sheet is subject to change without notice.

DuraVibe™ PZP Vibratory Level	
Select	Model Series
7	PZP Series
Select	Probe Configuration
1	Standard Probe
2	Cable Extension Probe - Specify Length 13" to 240" (0.3M to 6.10M) <sup>1</sup>
3	Pipe Extension Probe - Specify Length 9" to 144" (0.23M to 3.66M) <sup>1</sup>
Select	Temperature Grade
1	Standard Temperature
2	High Temperature w/ Remote Electronics <sup>2,3,4</sup>
Select	Environment/Approvals
1	Ordinary Locations
2	Hazardous Locations - N. America
3	Hazardous Locations - ATEX/IECEx
Select	Operating Voltage
1	Universal 20-250 VAC/DC
Select	Process Connection
2	1-1/2" NPT
9 - 8 7 x x - x 1 2	Order Number

### ACCESSORIES:

- Part # Description**
- 1-2400 Spanner Wrench For Cover Removal / Tighten
  - 9-0027<sup>3</sup> 1/2" Flexible Conduit Assy, Liquid-Tight, 6ft/1.8m for Remote Elec. (Ord. Loc. units only)
  - 9-1005<sup>4</sup> Interconnect Cable w/ Pins at each end, 88in/2.2m for Remote Elec. (Ord. Loc. or Haz. Loc. units)
  - F3614-008<sup>4</sup> Interconnect Cable w/o Pins for Remote Elec. (Ord. Loc. or Haz. Loc. units, Custom Length (16" + CSL)
  - 9-4019 Mounting Flange, 150# ANSI, Painted Carbon Steel, 1-1/2" NPT
  - 16-3070 Mounting Flange, K-style, Flat, Aluminum, 1-1/2" NPT

### NOTE:

- Customer must specify exact required overall length to the nearest inch for Cable or Pipe Extension versions. Overall length is the distance from end of threaded hub to the end of the sensor probe.
- High Temperature w/ Remote Electronics is **NOT** available on Cable Extension Probe.
- Conduit (6ft/1.8m length) for Remote Elec. is sold separately.



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