



## **PULSE POINT™ II SERIES**

SIMPLE, CONSISTENT AND SMART

# PULSE POINT II

## SIMPLE, CONSISTENT AND SMART

Simplicity, performance and reliability are key features when choosing a point level sensor to detect the presence or absence of bulk solids at high, low or intermediate points in bins and tanks. Point level sensors must be easy to install and set into operation regardless of material characteristics such as dielectric constant and density, even if conditions or material composition changes. Vibrating fork point level sensors are proven to be one of the most universal solids level sensing technologies available today. The Pulse Point II takes vibrating fork technology to a completely different level. The new Pulse Point II offers the highest sensitivity available, with a minimum material density of 0.5lbs/ft<sup>3</sup> and requires no calibration unlike traditional RF capacitance / admittance sensors. The Pulse Point II is simple to install and operate and will solve a wide range of point level sensing challenges in many industries.

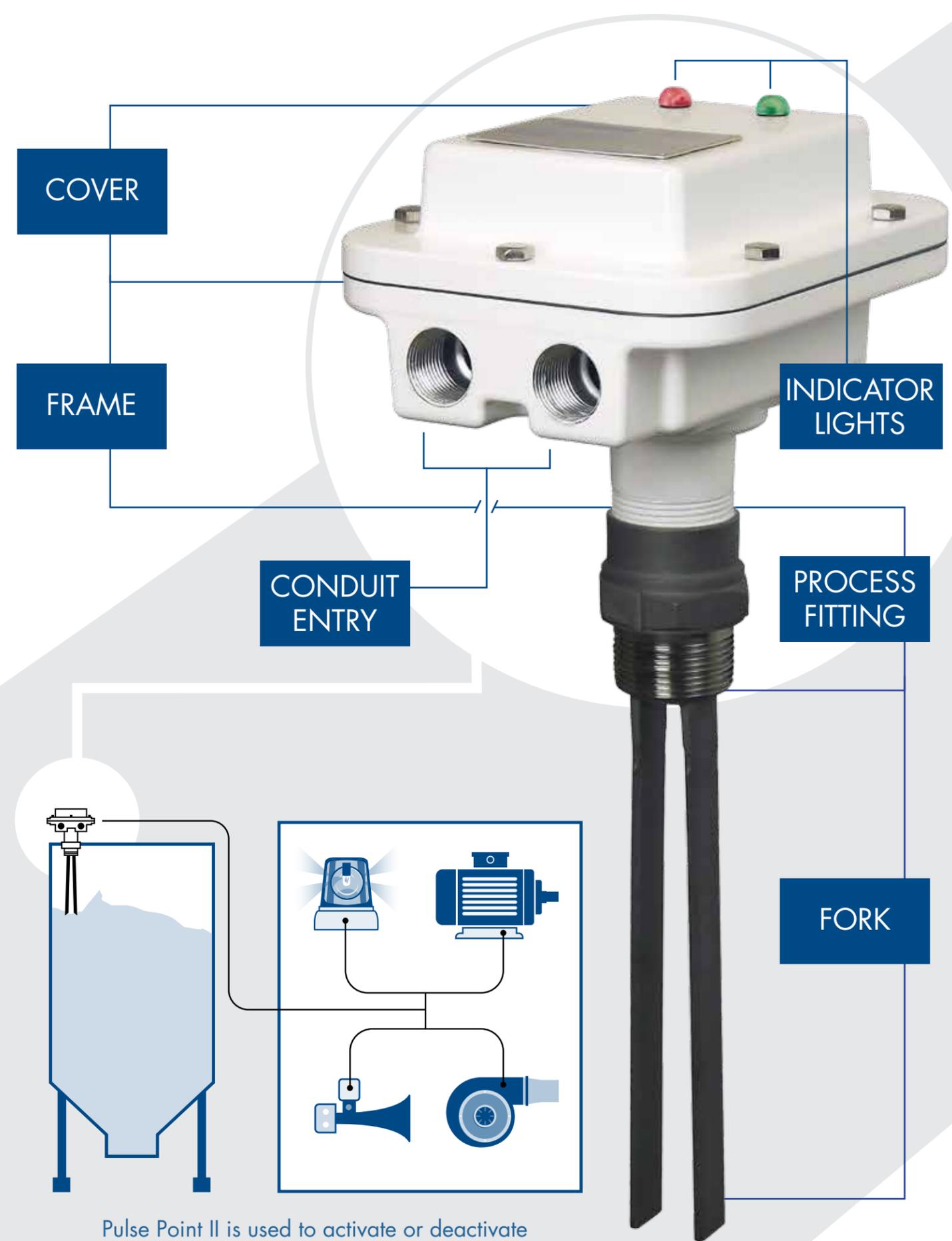
**“HIGHEST SENSITIVITY AVAILABLE... AND REQUIRES NO CALIBRATION”**

## Pulse Point II Technology Highly Sensitive And Smart

The Pulse Point II uses vibrating element technology to detect the presence and absence of bulk solid materials. Implementing this technology in a unique manner the Pulse Point II provides a unique combination of features unlike any unit currently available on the market today. Pulse Point II features include the highest degree of sensitivity (minimum density of 0.5lbs/ft<sup>3</sup>), automatic build-up detection and alarming, easily adjusted sensitivity to fit specific applications and a wide range of probe configurations. The Pulse Point II is the most advanced vibrating fork point level sensor available.

## Why Choose Pulse Point II?

If a point level sensor is required to work in a wide range of applications, including those with changing materials, varying dielectric constant and very low density, Pulse Point II is the solution. The Pulse Point II will detect the presence and absence of dry materials as lightweight as 0.5lbs/ft<sup>3</sup>. It detects material regardless of dielectric properties, temperature swings and even will detect and indicate when material is beginning to build-up on the tines of the fork. Pulse Point II will be on the job working and providing high quality performance and long term reliability. No calibration is required, set it and forget it.



Pulse Point II is used to activate or deactivate alarms, controllers and other devices

*for schematic purposes only*

# FEATURES AND BENEFITS

Choice of Electronics Available with one of two possible electronics modules:

## STANDARD

The Pulse Point II Standard electronics is a basic value package including the Pulse Point II industry leading high sensitivity with minimum material density of 0.5lbs/ft<sup>3</sup>, universal power supply, three possible sensitivity settings, time delay adjustment up to 6 seconds and a push button test function.

- 3 Sensitivity Settings
- Time Delay up to 6 seconds
- Universal Power Supply
- Internal Pushbutton Test Function
- Fail-Safe on Power Failure

## ADVANCED

The Pulse Point II Advanced electronics includes the same industry leading sensitivity and universal power supply, plus even more flexibility and value, including six possible sensitivity settings, material buildup indication, a greater range of time delay adjustment, liquid / solid interface level sensing capability and much more.

- 6 Sensitivity Settings
- Time Delay up to 150 seconds
- Universal Power Supply
- Function Test FOB
- Fail-Safe on Power Failure
- Liquid/Solid Interface Detection
- Material Buildup Detection
- Indicating Lights
- Auxiliary Relay

## Superior Sensitivity

Detecting materials with bulk densities below 1.5lbs/ft<sup>3</sup> (240kg/m<sup>3</sup>) can be challenging for most point level technologies. Not so with the Pulse Point II. Unique to the Pulse Point II is ultra-high sensitivity where even materials with densities down to 0.5lbs/ft<sup>3</sup> (8kg/m<sup>3</sup>) can be sensed with reliability in both horizontal and vertical orientations. The actual density of the material will determine the amount of the fork that will be covered upon material detection in a vertical orientation.

## Adjustable Time Delay

Flexibility goes hand-in-hand with the new Pulse Point II point level sensor allowing it to be used in a wide range of applications. A process control function may need instantaneous notice when an alarm condition is sensed by the Pulse Point II, or it may require the alarm be signaled only after a specific time has elapsed in order to ensure that the next step in the process control response is truly called for. Some applications may have material levels that "pulse" up-and-down as they change. The time delay feature of the Pulse Point II can be set as needed. The standard electronics can be set with up to 6 seconds of delay and the advanced electronics up to 150 seconds if needed.

## Universal Power Supply

Whether the available power supply is 24VDC, 120VAC or 240VAC, Pulse Point II can handle it with the new universal power supply that accepts 120-240VAC or 24-48VDC. This non-polarized power supply permits wires to be connected without regard to polarity, removing concerns during installation. This single universal power supply design may be especially advantageous to OEM's who design with multiple voltages in mind due to their global markets.

## Test FOB

The Test FOB provided with Pulse Point II units equipped with the advanced electronics allows for a periodic function test to be performed without removing the cover. When the function test is initiated the sensing of material is simulated and relay contacts will change state if the unit is functioning properly. This is especially advantageous for hazardous location processes where removing the cover with power applied is not an option, such as applications involving explosive vapor or dust.



# APPLICATION CONSIDERATIONS



## FOR NEARLY EIGHTY YEARS, BINDICATOR

has been solving level measurement and detection problems and meeting the needs of customers worldwide. Each Pulse Point II unit is based on this long history of experience. Because of this, the Pulse Point II is suitable for a wide range of applications. A myriad of application specific features, options and accessories are available. Whether the material is a dry bulk solid or there is a need to measure the interface between a solid and liquid, the Pulse Point II can be considered for even the toughest

## Buildup Detection and Indication

Since their inception, vibrating element point level sensors could not differentiate between a buildup of material on the forks and detection of actual material presence. Material buildup is no longer an issue for Pulse Point II. The advanced electronics option provides a unique feature that detects and indicates material buildup as it is occurring.

When buildup is detected by the Pulse Point II advanced electronics, the green LED will begin flashing and the auxiliary relay will alarm to indicate that buildup exists. The main relay output and red LED will continue to operate as normal. This early warning system provides assurance that, should material buildup begin to occur, notification will be provided.

## Liquid/Solid Interface

Measuring solid levels through a liquid surface is a unique application. The need for liquid/solid interface detection occurs, for example, when cooling or washing a solid material or when controlling dusty solids such as carbon black.

Many point level devices can be used to determine the combined level of a liquid and solid, but cannot determine the level of solid under the liquid surface. Pulse Point II offers a solution. The vibratory fork will ignore liquid and sense only the solids that are under the liquid surface, providing liquid/solid interface detection.

## Process Connections

Each installation can be unique. There are a wide range of methods used to attach level sensors to process vessels. This is why the Pulse Point II has been specially designed to allow for a choice of process connections meeting the needs of nearly all markets and geographies, not just by size of the connection but also the type. Available connections include NPT and BSP options as well as the option to customize a fitting to fit specific requirements.



## Process Fitting

- 1-1/4" NPT
- 1-1/2" NPT
- 1-1/4" R BSP Tapered
- 1-1/2" R BSP Tapered
- 1-1/2" G BSP Straight

and many more!

## Fork Specifications

FORK MATERIAL	MAX TEMP	LENGTH OF FORK*
316 SS	302° F (149° C)	8.0 in. (20 cm)
316 SS w/Teflon Coating	302° F (149° C)	8.0 in. (20 cm)

\*(from bottom mounting thread to tip of fork)

## Material Coating

In addition to the unique buildup detection and indication feature of the Pulse Point II with advanced electronics, a Teflon coated fork option is available to improve immunity to material that may tend to coat, cling and buildup on the fork tines. This unique combination of features helps ensure that even some of the most challenging of applications can be handled.

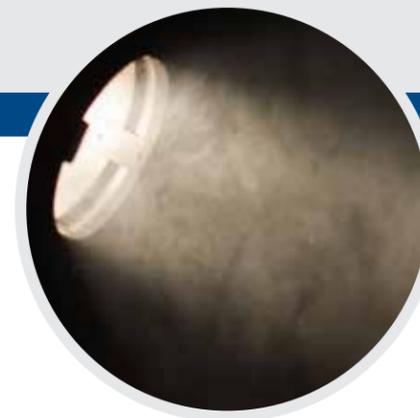


## Mounting Orientation

Not all vessels are created the same and this means the mounting orientation of the Pulse Point II vibrating fork point level sensor may be required to be mounted in virtually any position. The typical mounting position is from either the top or side of the vessel. However, occasionally it may be desired to mount a level sensor on an angle. This is something the Pulse Point II can accommodate so long as the angle is downward or negative. This is required so that the target material naturally sheds away from the forks and does not become prone to building up across the tines. When side mounting the tines they should always be installed so that material will not accumulate on top of the fork tines.

## Hazardous Vapor and Dust Environments

There are a number of installations in chemical processing facilities, grain storage and other industries where hazardous vapor and dust exists. These environments are very explosive and this requires the point level sensor installed in these environments be certified and approved for these applications. The Pulse Point II unit is available with UL approval (for both the US and Canada) and CE marking (electromagnetic compatibility and low voltage directives) for ordinary locations or explosion proof and dust ignition proof hazardous area ratings. For the global markets the Pulse Point II can be provided with ATEX/IEC/IECex hazardous area ratings.



## Changing Materials

When a bin is used for different materials for whatever reason, the level sensor needs to be able to crossover and perform regardless of changing material characteristics, such as bulk density and dielectric constant. Many level sensor technologies may have difficulty. The Pulse Point II vibrating fork point level sensor responds solely to material density. It is unaffected by dielectric properties and therefore is ideal for applications where



the material in the vessel may change. No calibration is required with the Pulse Point II.

## Ultra-Lightweight Materials

Many vibrating element point level sensors have minimum density measurement capability between 2-5lbs/ft<sup>3</sup>. Sensing ultra-lightweight materials remains a significant challenge for most point level sensors. Lightweight materials are not a problem the Pulse Point II point level sensor. The minimum density of the Pulse Point II is 0.5lbs/ft<sup>3</sup>, which is superior to any other unit currently available. Paper dust, foam rubber flakes, and other materials with ultra-low densities can now be reliably sensed.



# APPLICATION CONSIDERATIONS CONT.

## High Temperature

Applications involving temperatures outside the Pulse Point II ratings have a couple of options. The remote electronics option moves the electronics away from the high temperature environment. Remote electronics can be located up to 100 feet (30 meters) away from the probe. A second option is to “lag” the electronics away from the high temperature processes. The lag option increases the total length of the unit with the increased length being above the process fitting. A welded stainless steel pipe is integrated between the process fitting and the housing to move the electronics away from the process.

## Vessel Considerations

In some instances, due to the tank design or process characteristics, a Pulse Point II unit will need to be lengthened in order to access the material. Extensions are used to extend the probe through a vessel wall or deeper into the material being measured. **The Process Fitting is located in the normal location at the base of the housing.** Extensions with a 90 degree bend are also an option to allow for a combination of horizontal mounting and the forks being in a vertical position. These are commonly used in hoppers or more of a funnel type vessel design where top mounting is not an option and vertical fork orientation is required.



Remote Electronics Unit



# BULK DENSITY CHART

MATERIAL	BULK DENSITY*	MATERIAL	BULK DENSITY*
Aluminum Chloride	51	Iron Ore	162
Apple Slices, Dried	15	Lime	35
Ash (Ground)	105	Mica Flakes	10
Baking Powder	56	Milk (Powdered)	13
Soy Beans	46.3	Sawdust	2
Grass Seed (Blue)	11	Nuts (Almonds)	29
Carbon Black	35	Oats	27
Cement	85	Parsley Flakes	3
Charcoal Powder	24	Plastic Pellets	45
Corn (Cracked)	40	Rice	45
Dextrose	36	Rubber Foam (Chopped)	3
Fiberglass	22	Sand	99
Flour	48	Sugar	39
Fly Ash	65	Zinc Dust	200
Glass (Ground)	103	Wheat (Cracked)	35

\*(LB/FT<sup>3</sup>)

The bulk density of a material is defined as the weight of the material divided by the volume it occupies.

This chart is for reference only. Please consult a Bindicator application specialist to discuss specific material characteristics.



Bindicator has an established network of trained representatives across North America. **Scan the barcode or visit our website at [bindicator.com/find-a-rep](http://bindicator.com/find-a-rep) to find a Bindicator Representative near you.**

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