

POINT LEVEL SENSOR

# Hensortech

## SPM Series

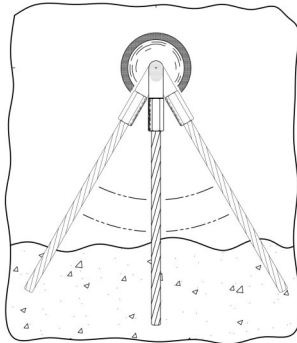
Swinging Paddle Material Sensor



“Wig Wag”

### How it Works

The Swinging Paddle Material Sensor is a totally new, patented concept in point level sensors. Instead of rotating through a full 360 degrees as is the case with a rotary type unit, the paddle moves 30 degrees either side of a vertical position. When material blocks the movement of the paddle, an output switch is activated and the motor is shut off. This simple but effective design has major advantages over existing bin level monitors.



### Applications

Material sensors are designed for controlling and monitoring dry bulk material level in bins, hoppers, and tanks. It is used as plug up detectors in chutes and conveyors. Typical applications include sawdust, bark, wood chips, grains, aggregates, and coal.

### Locate in the Material Stream

Unlike other sensor technologies, the Hensortech Swinging Paddle Sensor may be mounted in the material stream in most cases. This is a great advantage when mounting in a chute. It may even be mounted in the cone of a cyclone with no protective shield. The paddle is somewhat inline with the material movement. The moving material tends to slide off of the paddle and therefore not give a false indication.

### Not Affected by Stringy Material

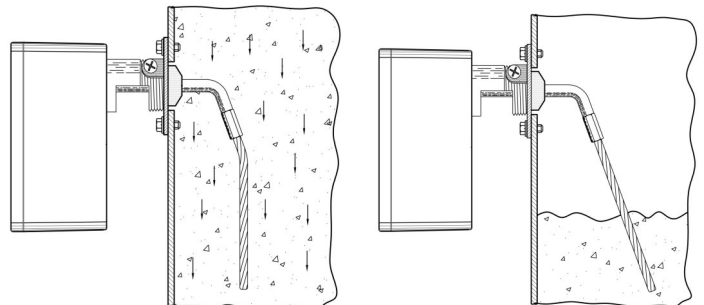
Stringy material may wrap up on the paddle of a rotary unit and may hang on the probe of an RF or vibration unit, giving a false signal. Such material will slide off of the paddle of the Hensortech Swinging Paddle Level Indicator.



- Immune to Shear Forces
- Install in Bin Wall at Any Level
- Drop in Replacement of Rotary Units
- Install in Material Flow
- Protective Shield Rarely Required
- Not Affected by Stringy or Sticky Material
- Very Easy Installation
- Quick Removal and Replacement
- Stainless Steel Shaft and Outer Bearing
- No Fluid Path Between the Vessel Interior and the Electrical Enclosure
- Powder Coat Finish on Enclosure

### Resistant to Damage from Shear Forces

Many sensor technologies are easily damaged in low level applications by the force of the material as it moves down in the bin. The weight of the material may bend a vibration, RF, or capacitance probe. The moving material may damage the shaft or paddle on a rotary unit. The model SPM material sensor has a flexible section that allows the paddle to retract against the bin wall if forced down by the weight of the material. When material moves away from the paddle, it springs back, undamaged to its normal position. No shield is required inside the vessel.



### Locate Almost Anywhere

There are few limits on the mounting location. The shear resistant feature means that no shield is required to prevent damage by the weight of the material moving down in the bin. A shield is often difficult to install and may interfere with the operation of the sensor. The Model SPM may be mounted almost anywhere except the top of the bin.

### Local Indication

A sunlight visible light indicates the presence of material at the paddle.

## Rugged Construction

The shaft and outer bearing is stainless steel. There are no ball bearings or lip seal. The stainless shaft rotates in a stainless bearing surface. This construction is very resistant to damage due to contamination or moisture and is easily cleaned. There is a purge opening between the outer bearing and the enclosure, preventing any bulk material from leaking into the motor enclosure. A very small amount of leakage will occur at the outer bearing. For most materials such as sawdust or grain, this leakage is not significant. An over-travel stop mechanism protects the gearmotor from damage.

## Reliable Sensitivity

The Swinging Paddle Sensor is inherently sensitive. The standard paddle has a swing radius of 7 inches. This is the equivalent of a 14 inch diameter paddle on a rotary unit. This large radius is practical because the paddle only travels through a 60 degree arc. There is a very effective and easily changed sensitivity adjustment inside the unit, also.

## Easy Mounting

The exclusive **Quick Mount** system means speedy installation and even faster mounting. No large holes or welded half-couplings are required. Simply lay out the holes with the included template. Drill one 1 1/2" hole with a hole saw and 4 small holes for the mounting bolts. No welding or flame cutting is required. A hole saw, drill bit, and cordless drill are all that is needed to install the optional **Quick Mount** plate to the vessel wall. Then insert the unit and tighten one clamp screw. This simple and reliable attachment is very convenient. By loosening only one screw, the model SPM can be quickly removed and replaced for cleaning or inspection. There is no spinning of the unit which often damages the electrical wiring. If the mounting surface for the model SPM is subject to severe vibration, use the QM46AV anti-vibration mount.

## 1 1/4" NPT Mounting

If an existing location has a conventional 1 1/4" NPT half coupling mounting, the model SPM is drop in compatible. The half coupling should be no deeper than 1". There must be room to swing the paddle 360 degrees when mounting. The **Quick Mount** system should be used in all new locations. See "SPM Series Mounting Options" for additional information.

## Quick Mount

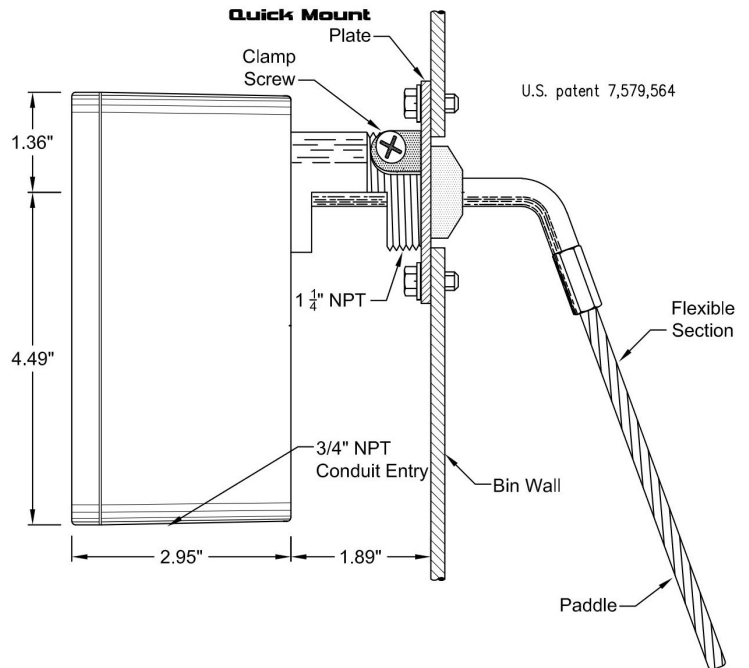


## Specifications

Process Pressure: 1 PSI max  
 Ambient Temperature: -20 to 140 °F (-30 to 60 °C)  
 Output Contacts: SPDT 8A, 250 VAC max  
 Power Requirements: 115 VAC, 60 Hz, 4 watt  
 23 - 25 VDC, 95 ma  
 Conduit Connection: 3/4" NPT  
 Enclosure: Type 4X, ordinary location, powder coat finish  
 Wetted Parts: Stainless steel shaft and bearing  
 Approvals: ETL (US & Canada)

Hensortech LLC reserves the right to change the design and/or specifications without prior notice.

## Mechanical



## Part Numbers

SPM-110 Swinging Paddle Material Sensor, 115 VAC, includes a standard paddle  
 SPM-170 Swinging Paddle Material Sensor, 24 VDC, includes a standard paddle  
 PDL7G Standard 7" Paddle, galvanized  
 QM44 **Quick Mount** plate  
 AP01 Adapter Plate, **Quick Mount** plate to 7.0" bolt circle x 6  
 QM46AV Anti-vibration **Quick Mount** plate  
 PDL7SS 7" Paddle, 316 stainless steel

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