

# The Insider

Second Quarter 2013  
Volume 34, Issue 14



...because it's what's inside that counts

## Vibrating Rods: Pickin' Up Good Vibrations



The BinMaster VR series vibrating rod level switch is used to detect high-, mid- and /or low-levels in bins, silos, tanks and hoppers or can be used for plugged chute detection. It is most commonly used to detect the level of powders or dry bulk solid materials. It can be used in extremely light, fluffy materials with bulk densities as low as 1.25 lb./cu. ft. and in material with low dielectric constants. It is a proven performer in carbon black, plastics, fly ash, feed, seed, grain, food, chemicals as well as many other materials. As a reliable point level indicator, the vibrating rod sends an alarm to a horn or alarm panel to alert personnel when the material level has reached the probe.

standard 1-1/2" NPT mounting socket and requires no calibration. It has an auto sensing power supply which can accommodate 20 – 250 volts AC/DC and dual conduit entries for easy wiring. A convenient screw-off cap provides easy access to electronic components. The LED status indicator light indicates sensor status and a switch-selectable, high/low fail-safe alerts to power failures. Remote electronics are available for applications with excessive vibration or heat.

### The Long and the Short of It

The VR-21 model has a standard 7.37" probe and can be used for low-, mid- and high-level detection. It is commonly mounted on the side or in the cone of the tank. Additionally, BinMaster offers two extendable vibrating rods for top mounting applications when the device is used for high level detection. The VR-41 features a rigid, extended 1" pipe extension made of galvanized or stainless steel that can be custom made in lengths from 13" up to 13'. The VR-51 uses a flexible steel rope reinforced cable and allows for insertion lengths up to 19'. Both models of the extendable units are factory sized to customer specifications.

### Unique Single-Blade Design

BinMaster's single-rod probe features a sword-shaped probe that resists bridging of material that can occur with tuning forks designs. Due to its sleek design, the material falls around the probe and won't build up. This piezoelectric-driven vibrating rod has very low energy, so it won't "dig a hole" in the material and cause a false alarm.

BinMaster's vibrating rod is easy to install, mounting to the vessel via a



### Playing it Safe in Hazloc

As hazardous location approvals are a requirement for sensors used in many facilities in the United States and Canada, hazardous location approvals on the BinMaster VR-21 and VR-41 vibrating rods provide facilities another option when

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### What's Inside



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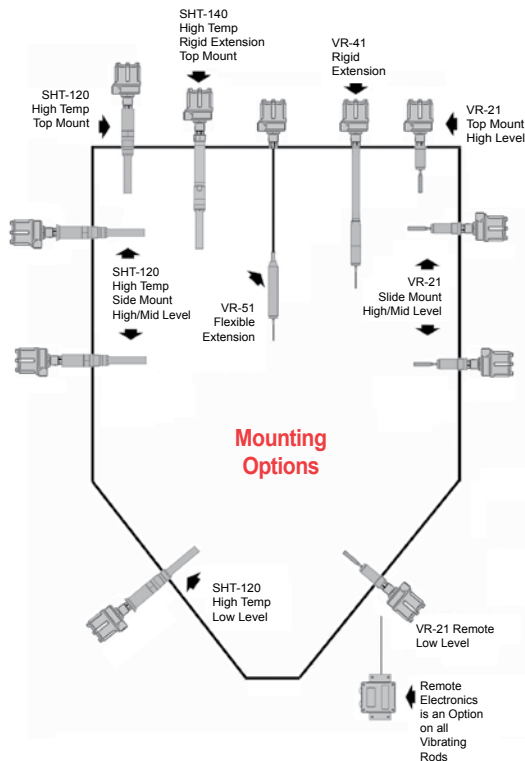


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# Vibrating Rods: Pickin' Up Good Vibrations



they need a level indicator to use in dusty environments. The standard VR-21 vibrating rod level sensor and rigid extended VR-41 vibrating rod level sensor are available with hazardous locations approvals in the US and Canada to CSA standards for Class II, Division I, Groups E, F, and G. Enclosure type certifications for these models include NEMA 4X, 5 and 12.

## Measure Sediment under Liquid

Another unique application for the BinMaster vibrating rod is to measure the level of solid material that has settled in a tank containing liquids. Used to detect when a layer of solid material reaches a specific level in a tank, the VR SED (for sediment) vibrates in water and then stops vibrating when the solid material reaches the level of the probe. It is commonly used in the water and wastewater industry to detect the level of salt, lime, carbon and silt that has settled in tanks at water treatment plants.

The VR SED can also be used in food and beverage manufacturing, chemical or metal processing, pulp and paper making, and at mining operations. Applications include measuring sediment in brine tanks or soak tanks, detecting sand or silt that has settled in tanks at quarries or mines, timely removal of sand and dirt at pumping stations, or measuring manure or compost that has settled in refuse vessels. Alternative uses include detecting the level of materials such as ash, carbon, lime, silt and mud once they have settled under water.

Another common use for the VR SED is to detect coarse and fine sediment in tanks at hydroelectric power stations. In these tanks, it is important to prevent



sediment from reaching the level of the turbines. Detecting sediment before it reaches the turbines allows settled debris to be removed automatically before it interferes with their operation and helps extend the service life of the turbines.

The VR SED vibrating rod is available in two different models. The VR-21 SED is the standard model with a 7.37" insertion length and is recommended for use on the tank wall. The VR-41 SED model is a rigid extended vibrating rod for top mounting applications and is custom made with extensions from 13" up to 13' long, dependent on the needs of the application.

## Calendar

See BinMaster® at these upcoming events.

### PBE Powder Show 2013

May 21 to 23, 2013

Booth 605

Greater Columbus Convention Center

Columbus, OH USA

### Expo Pack 2013

June 18 to 21, 2013

Booth 6824

Centro Banamex

Mexico City, Mexico



# 3DLevelScanner takes the Heat!

BinMaster Level Controls introduces the 3DLevelScanner HT for measuring the volume and mapping the material surface in bins, tanks and silos with high temperatures. This new model of the 3DLevelScanner has an operating temperature range of up to 356°F (180°C) to accommodate high temperatures that may be present when material has been heated in the production process before it is conveyed into storage silos. The new 3DLevelScanner HT maintains a high level of measurement accuracy in high temperatures, unlike some non-contact devices that are prone to becoming unreliable or inaccurate in harsh environments.



## In Powders and Solids

The device measures the material level in multiple locations in the vessel and estimates the volume in storage silos containing challenging materials such as heavy lump material like clinker, fine granular material like frac or silica sand, or powdered materials such as alumina oxide or fly ash. The 3DLevelScanner HT is ideal for use in the cement, aluminum, mining and power industries where there are multiple

challenges such as excessive dust or high humidity as well as very large silos where the material surface in the bin is irregular and difficult to measure.

The sensor sends pulses in a 70° beam angle, taking multiple measurements from the material surface and continually mapping the material surface to

detect changes in level, account for uneven surface topography, and calculate a highly accurate volume estimate for the contents of the silo. The 3DLevel Manager software reports the lowest and highest points detected and the average level based upon a weighted average of all of the measurements detected in the bin. For the MV and the MVL models, a colorful 3D image of the material surface indicates where high and low spots exist in the silo.

# Bendable Capacitance Probes

Think a capacitance probe won't work because of obstacles or tight space in the tank? Think again. BinMaster has developed a bendable probe that fits where many other probes can't. This probe can be bent to avoid obstructions in a vessel while still allowing adequate probe surface



area to confirm the presence or absence of material. Mounted on the side of the bin, the bendable probe can be used in a wide range of solid materials or slurries. One common ap-

plication for the bendable probe is for high and low level detection in smaller mixers or containers used in food processing plants.

Like all BinMaster capacitance probes, the bendable probe offers interference-free, fail-safe operation & "Quick-Set" calibration. BinMaster capacitance probes provide interference-free operation – working far below the RF level of 9 KHz at just 6 KHz – and will not interfere with two-way radios or other equipment operating in the radio spectrum. Standard capacitance probe features include a triple-thread, screw-off cover that allows easy access to internal components and an FDA-recognized powder coat finish. This housing also has dual conduit entries to simplify wiring and installation. The dual

time delay feature allows the user to set flexible time delays up to 30 seconds for covered and uncovered conditions.





# **BINMASTER** 3DLevelScanner

**Accurate,  
Non-Contact  
Volume  
Measurement**

- True volume measurement of bin contents
- Works reliably in high levels of dust
- Accurate, multiple-point measurement
- Measures and maps bin topography
- Eliminates climbing for employee safety



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## **BINMASTER LEVEL CONTROLS**

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# **BINMASTER** Level Measurement for Silos and Bins



## **Automated Inventory Management Systems**

## **Bin Level Indicators**

SmartBob



Guided  
Wave  
Radar



3DLevel-  
Scanner



Rotary



Pressure Switch



Vibrating Rod

# **BINMASTER**

## **BINMASTER LEVEL CONTROLS**

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