

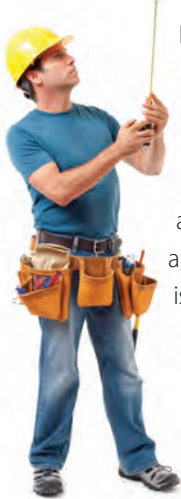
The Insider

Second Quarter 2012
Volume 30, Issue 10



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

Level Sensing Is Not One Size Fits All



Because BinMaster carries a complete selection of level sensors, we can outfit your facility with the type of sensor that best suits your application. Call BinMaster and one of our sales specialists will consult with you on your application, determine what devices are best suited, provide you with price quotes, and place your order for you. If we

don't have the right solution to meet your objectives, we'll let you know.

Selecting the right product for your level sensing application can be determined by a wide range of factors. Some or all of these may influence sensor selection.

- The material being measured
- The material's bulk density
- The material's propensity to buildup
- How corrosive the material may be
- How much moisture is present
- The temperature and pressure in the silo
- If there is a lot of vibration
- If there is dust, steam or vapor present
- The size and shape of the silo
- Excessive noise
- Where the sensor is mounted on the silo

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In addition to the physical factors, there may also be specific business or data needs for the sensor.

- Is a simple high, mid or low level point indicator adequate?
- What type of alert is needed?
- Is it important to know the status of the device?
- Is continuous level measurement a requirement?
- How often do I need to measure?
- How precise does the level measurement need to be?
- Is level, volume, or weight needed?
- Is the sensor tied to a process?
- How many people need access to the data? How will the information be shared?
- What are the budgetary requirements for equipment?

Point Level Indicators

This variety of devices simply detects when material in the bin has reached a certain point in the vessel. Most commonly used to prevent overflowing or running out of material, most can be mounted for high, mid or low level detection and indicate when material reaches the level of the indicator or falls below it.

Rotaries



The rotary is the most common workhorse of all point level indicators. What's different about BinMaster is how we've made it easy to tailor a rotary to an application. Start with choosing either the standard BMRX or the advanced MAXIMA+ with genuine fail-safe protection

and LED indicator light to provide an immediate alert when continuous operation of the rotary is critical. Mounting plates come in a variety of angles to fit bin roofs to make rotaries easy to install. There are 16 different paddles to choose from including insertable, collapsible paddles that install without entering the bin. A horizontal rotary extension can be used when bin walls are thick, such as in cement silos. Optional heat tubes can be added to distance electronics from a heat source in higher temperature environments. A stainless steel process connection offers durability in caustic environments or in food processing applications where all components that come into contact with material must be stainless steel. Vertical rotary extensions up to 12 feet can be used on top-mounted rotaries used for high level indication.

Capacitance Probes

BinMaster offers thousands of capacitance probe configurations, all featuring interference-free operation. Unlike many other probes, BinMaster probes do not use RF signals, so they are not affected by RF present in the facility and won't interfere with other devices using RF in the plant. Pro-shield technology protects against false readings due to buildup. A flexible extended probe (up to 35') can be used in aggregates and lump material that might damage a rigid probe. Flush mounted probes can be installed when there are space constraints. Remote electronics enable use in hostile environments, such as when high temperatures and vibration are present. A



(continued on page 2)

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bendable probe can be used when there are obstructions in the vessel. Explosion proof models can be used in hazardous locations. For the food and pharmaceutical industries, a clean-in-place configuration is 3-A and USDA compliant.

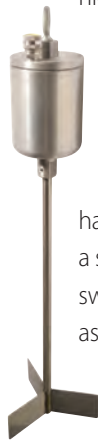
Vibrating Rods

BinMaster's single-rod design with a sword-shaped blade has been updated in a new enclosure with dual conduit entries, an LED indicator light, two conduit entries and double-pole, double-throw relays are now standard. When it comes to vibrating rods, BinMaster offers more configurations to meet top, mid and low-level mounting requirements. For top-mounted applications as a high level detector, BinMaster vibrating rods are available with flexible or rigid extensions. Remote electronics can be used when the electronics need to be distanced from sensor. For super high temperatures up to 482°F (250°C), there are standard and extended length vibrating rods that can be customized in lengths from 13 inches to 13 feet. A mini vibrating rod is ideal for small bins and hoppers and tight spaces.



Tilt Switch

By activating an alarm when tilted more than 15° the tilt switch features a simple mechanical design that operates reliably as a high level indicator in bins, tanks and silos, detects plugged or clogged chutes, or can be used as a high limit sensor on piles. The tilt switch is easy to install by hanging it from a wire rope, chain or flexible hanger. A paddle can be attached to a stainless steel shaft when the tilt switch is used in heavy materials such as aggregates, rock, or coal. For lighter materials or powders, an optional spherical float attached to a stainless shaft can be used.



Inventory Management Systems

When the level of material needs to be monitored on an ongoing basis and the information needs to be accurate, continuous level measurement sensors may output data to a console, use specialized software, or send the information to a PLC. These systems can report the data from all of the bins on site, making it easy to monitor inventory status for an entire operation.

SmartBob

BinMaster's SmartBob system offers two different sensors – the SmartBob2 for bins up to 180' tall and the SmartBob-TS1 for bins up to 60' tall. What differentiates the SmartBob system from other types of bob systems is the number

Made in the USA

BinMaster's point level indicators and SmartBob systems were designed by BinMaster engineers and are manufactured in Lincoln, Nebraska in our ISO 9001:2008 certified facility. Technical support is provided by a team of seasoned professionals who work alongside our engineers and sales specialists. You will always get a live person to answer your questions – whether you call or email BinMaster.

**BinMaster Level Sensors
Make Good Sense**



Custom Products at Stock Prices

Set on 30 acres, BinMaster's 75,000 square foot facility also houses our state-of-the-art machine shop. Not only does BinMaster manufacture products in house, we can machine parts so a product can be made precisely for an application. Custom configurations and built-to-order equipment is at the core of our business. We are different from many companies who manufacture or assemble overseas and are unable to customize equipment to an application.

of options that allow the system to be customized for your operation. The advanced C-100 display console can report data for up to 128 bins from a single console to save money and eliminate walking from bin-to-bin to get readings. A Modbus-compatible model allows for integration into facilities utilizing the protocol, and the C-50 analog expansion console provides multiple 4 -20 mA outputs to reduce wiring costs associated with monitoring up to 120 bins.



Monitor all of the bins from a PC using eBob software, which now is capable of integrating strapping table data to help with measuring the contents of materials prone to compaction or adjust weight-to-distance readings for cone-bottomed or other irregular shaped vessels. MultiBob – a configuration that allows multiple sensors on a single bin – can average the level data, providing better information such as indicating cone up or down and high or low spots in the bin. The SmartBob SS for submersed solids can be used in interface applications, such as measuring the level of solid material under liquid.

3DLevelScanner

BinMaster has more experience with the 3DLevelScanner non-contact, dust-penetrating technology than any other US company. With a dedicated sales and technical staff and more than 600 installations in place, BinMaster is the

best qualified company to assess your application and set up the scanners to ensure they operate properly. With its multiple-point measurement and optional 3D mapping and visualization, the 3DLevelScanner also offers the ability to calculate material volume with a high degree of accuracy. The MVL multiple scanner system allows for two or more sensors mounted on a single bin, with a processor that combines the data from multiple sensors to get better accuracy in big bins. MultiVision software allows all of the bins with the 3DLevelScanner to be monitored from a single screen and share information easily among all departments in the facility. The model HE for harsh environments can handle temperatures up to 250°F, making it suitable for materials like clinker, fly ash and alumina or any other powder or solid that may get heated in the production process.



SmartSonic and SmartWave

BinMaster's SmartSonic ultrasonic and SmartWave radar non-contact level measurement devices eliminate the risk of contamination or interfering with the internal bin structure. They are also ideal and highly accurate in liquid applications, as liquid levels are even across the tank. Ultrasonic and radar-based technologies use single-point, continuous measurement technology which can be used for ongoing level measuring and monitoring of tanks that are up to 100 feet tall. They can be used in limited solids applications with a measuring range of approximately half the distance for that of liquids. Ultrasonic and radar may not perform consistently in high dust environments, where their signals can become "confused" and provide inaccurate measurements or no data at all. Since they only measure a single point in the tank, they may offer compromised accuracy in materials like powders that are more prone to bridge or have an irregular surface area which makes the tank more difficult to measure accurately.



PRODUCT SELECTION CHART

	Point Level Indicators											Inventory Management						
	BMPX Rotary	MAXIMA+ Rotary	PROCAP I & II Cap Probe	PRO Remote Cap Probe	PROCAP I & II FL Cap Probe	Pro HTRC 20 Cap Probe	CompactPRO Cap Probe	VR-21 Vibrating Rod	VR-41 Vibrating Rod	CVR-600 Vibrating Rod	SHT 120 Vibrating Rod	Diaphragm Switch	Tilt Switch	SmartBob 2	SmartBob - TS1	3DLevelScanner	SmartSonic	SmartWave
Material																		
Powder	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	*	*
Granular	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	*
Slurry	*	*	✓	✓	✓	✓	*							✓	✓		✓	✓
Liquid			✓	✓	✓	✓	✓	*	*					✓	✓		✓	✓
Material Density																		
Low	✓	✓	*	*	*	*	*	✓	✓		✓		✓	✓	✓	✓	✓	✓
High	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Material Moisture																		
Low	✓	✓	*	*	*	*	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
High	✓	✓	✓	✓	✓	✓	✓						✓	✓	✓	✓	✓	✓
Temperature																		
High	✓			✓		✓					✓			✓				
Pressure																		
Atmospheric	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Low	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓
Medium			✓	✓	✓	✓		✓	✓	✓	✓		✓	✓		✓		
Vibration																		
Low	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
High	✓			✓		✓							✓	✓	✓			
Material Coating																		
Minimal	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓
Heavy Buildup				✓		✓							✓	✓	✓	✓		✓
Corrosive																		
Low	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
High			✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓
Installation																		
Top Mounted	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Side Mounted	✓	✓	✓	✓	✓	✓	✓			✓	✓							
Atmosphere																		
Dust	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓		
Steam								✓		✓	✓		✓	✓				✓
Vapor	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓				✓

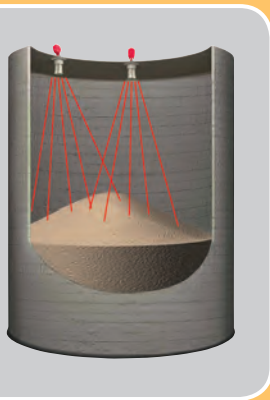
✓ - Applicable * - Consult Factory

BINMASTER 3D LEVEL SCANNER

Unsurpassed Accuracy



- Measures and maps uneven surfaces
- Non-contact
- Dust penetrating
- Multiple-point measurement
- MVL multi-scanner system for big bins



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BIN LEVELS *without* CLIMBING!

Inventory Management Systems and Bin Level Indicators



SmartBob
and eBob
Software



Rotary



Diaphragm



Vibrating Rod



Capacitance Probe

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