

# The Insider

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

## Rotary Level Indicators Contribute to Efficiency

Are you looking to make improvements in process control this year? A rotary system can quickly and economically contribute to the overall efficiency of your manufacturing operations. A rugged rotary provides a cost-efficient, safe solution to high and low bin level indication. Rotaries are generally the most trusted and widely used monitor when working with all types of powders, pellets, granular and aggregate material.

Rotaries are used to prevent overflow and low levels of material through the use of a spinning paddle at the end of the device. Once the material in the bin comes



into contact with the paddle, it begins to cover the paddle and stops rotating. At this point, an alert is provided. It also sends an alert when the paddle is uncovered, indicating a low bin level. Rotaries can be mounted either on top or on the side of a bin or silo, providing for high, mid or low level detection at whatever point an alarm is needed. BinMaster's rotaries provide more options than any other rotary on the market, ensuring the ability to configure a rotary to most any material, application or environment. From light powders to heavy lump materials, BinMaster rotaries offer solutions to even the most difficult operational situations.

BinMaster offers two types of rotaries: a standard version and a fail-safe version. The standard rotary level indicator is ideal for use with dry bulk solids including grain, feed, plastic pellets, cement, plastics, coal, sand, chemicals and aggregates. It can be mounted on either the top or the side of the bin and can be used in materials with bulk densities from 2 lb./ft.<sup>3</sup> to over 100 lb./ft.<sup>3</sup>.

The fail-safe rotary level indicator is an advanced rotary indicator that alerts to the loss of power, as well as to electrical and motor failure. Its design allows the rotary to provide immediate status notification when the device isn't operating properly, ensuring continuous operation. While competitors' rotaries simply stall, BinMaster's fail-safe rotary de-energizes to save you money. In addition to level detection in bins and silos, this rotary can also be used to indicate a plugged condition in chutes and on conveyors.

### Combating Mounting Problems

While most companies only offer a standard, short-shaft rotary, BinMaster has developed a wide variety of options for unique applications to fit your needs, allowing for a greater amount of flexibility. The vertical rotary for high level detection is a top-of-the-bin mounted device that prevents overflowing. It is available in custom lengths up to 144". The horizontal rotary extension can be installed on the side of the bin in thick bin walls measuring up to 12", such as concrete or insulated silos.

Installation can be difficult and raises both cost and safety concerns. These problems are easily solved when a rotary system is combined with a single-vane, bayonet-style, or collapsible paddle, which allows



The collapsible paddle "squeezes" shut to insert into the bin and then automatically "pops" open.

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### What's Inside



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# Rotary Level Indicators Contribute to Efficiency

the rotary to be installed from outside of the bin through a pre-existing opening in the tank. By collapsing the paddles, the device is able to fit through the existing coupling and then “pops” back out to its full size when it clears the coupling opening.



**Stainless steel connection for corrosive materials.**



## Stainless Steel Saves the Day

BinMaster advises using a rotary with a stainless steel process connection in harsh and corrosive materials in order to extend the life span of the device. The 304 SS solid stainless steel fitting is available in both 1-1/4” and 1-1/2” NPT sizes and can be used with both the standard and fail-safe rotaries. Rotaries equipped with this connection are configured so all materials that come into contact with the bin are stainless steel, making it ideal for applications such as food processing or in caustic materials.



By combining the stainless steel rotary connection with a collapsible paddle, managers can also save time and ensure safety by preventing workers from climbing inside the bin to install or remove the device. This also prevents OSHA violations and production stoppages due to climbing inside the bin.

## Prevent Damage Caused by Heavy Materials

Heavy materials can either damage or destroy rotaries, and interrupt processing operations. Not investing in the right rotary extension can also lead to the decreased life-span of the product when working in atypical environments. BinMaster provides accessories specifically designed for use in problem environments, providing peace of mind and ensuring that no operational time is lost.

The flexible rotary extension for lump materials is ideal for use in bins containing rock, aggregates, coal, ores and other lump materials. The extension works in bins containing heavy materials without being damaged or bent by heavy substances. It is easy to install and is mounted on the top of a bin. It is used for high level detection and can be manufactured to a custom length up to 14 feet. This extension can be used with both the standard and fail-safe rotaries.

## Adjustable Top Mount Rotary

BinMaster has a unique solution when it’s necessary to adjust the length of a top mounted rotary used for high level detection. The adjustable rotary extension allows for the length of the rotary to be easily adjusted from a variable length of 6” up to 72”. This can accommodate differing high levels when material might be changed in a bin or when the high level is changed seasonally.

The point level alarm panel is another rotary option designed to alert the user to vessel level conditions via a blinking LED light and an audible alarm. The alarm comes with the capability of monitoring

multiple bins, up to 24, from one location and allows the operator to distinguish between the bin being full, partially full, or empty depending upon the number of rotaries present in the bin. The panel is also compatible with a number of other BinMaster products, including capacitance probes, vibrating rods, pressure switches, and tilt switches.

With its wide-range of accessories and extensions, as well as its reliable standard and fail-safe rotaries, BinMaster can help combat most application problems. Providing consumers with many options to suit their individual needs, BinMaster delivers products that ensure safety, cost-efficiency and continuity of operations.



**Adjustable Rotary Coupling**

**Flexible rotary and adjustable rotary.**

# Measure Corrosive Material Reliably in 3D

Contact with highly corrosive materials can lead to a reduced life span in monitoring devices. BinMaster's 3DLevelScanner HC provides a solution to this problem. Ensuring a long life span depends greatly on the strength of the design

components. This scanner uses HALAR® coating for the mechanical parts, VITON® for the O-rings, and specially coated stainless steel fasteners, which enable the device to function in especially difficult environments. These materials perform well in otherwise destructive environments, assuring the durability of the product and providing users with greater value than other products on the market that might succumb to damage under corrosive conditions.

BinMaster's 3DLevelScanner HC mea-



sures materials used in the production and storage of quick lime, ammonia, and PTA, among other harsh materials such as those on the USA's DOT class 8 material list. The power, petroleum, fertilizer, resin, industrial fiber, mining, and salt production industries will find this sensor to be particularly useful. By allowing for accurate volume level measurement without climbing, the scanner allows you to save manpower, time, and address safety concerns while providing precise reporting.

The 3DLevelScanner HC provides highly accurate level and volume measurement and measures uneven powder or

solid material surfaces and detects cone up or down conditions. The device does this through acoustics-based technology, measuring from various points within the bin. It is able to penetrate large amounts of dust, which causes problems in harsh environments. It also features self-cleaning technology that works reliably in undesirable conditions.

## Accuracy and Convenience United

The device also provides you with convenience. It allows you to manage silos in real-time through 3DMultiVision software or an HMI, allowing for the accurate monitoring of the volume of material in the vessel. Acoustics-based technology paired with 3D mapping capabilities ensure that accurate volume and level information is reported. The device also provides you with the ability to share information via a remote computer, providing easily accessible, up-to-the-minute data updates.

# Glass Bob Sensor for Frac Sand Measurement

The glass bob sensor was especially designed for use in bins containing silica sand, which is often also referred to as frac sand. This type of sand is used in the process of fracking when mining for natural gas. Measuring the level of silica or frac sand can create unique difficulties. If a sensor should get caught in the material in the bin, it can get stuck in the mechanical structures and stop production, leading to wasted time and expensive repair costs.

## Reliable Inventory Monitoring

BinMaster now offers a glass bob sensor as part of its SmartBob line of sensors to provide a solution to this



problem. If the bob should become caught or detached from the cable, the bob will be ground up during production if it does fall into the material. As glass is essentially sand itself, it won't harm mechanical systems or the final product. Bobs made of steel or other materials could get stuck and stop operations altogether.

Like all SmartBob sensors, the glass bob sensor helps save time, money, and increases safety when measuring materials in bins. Acting as an automated tape measure, the sensor takes measurements at predetermined time intervals or on demand. The glass bob sensor is dropped toward the material surface and when it makes contact with the surface, it immediately retracts and, by counting pulses, calculates a highly

accurate measurement from the top of the silo to the material surface. This eliminates the need for workers to climb the bin.

The glass bob sensor is compatible with other products, software and accessories in the SmartBob product line. It can be used in a mixed network of SmartBobs which are measuring other materials. Measurements from the sensor can be displayed along with data from all other tanks in the operation when the C-100 console or eBob software is being used.



# **BINMASTER**

## **Bin Level Sensor**

**RL** for Reliable Levels

**New! BinMaster RL for Reliable Level Measurement in Dusty Environments**

- Dust-penetrating, non-contact technology performs reliably and consistently over time

- Acoustics-based, continuous level indicator for tough environments where other sensors fail
- Works in powdered and solid materials of all types, including low dielectric materials
- Self-cleaning, minimal-maintenance sensor doesn't require air purge for cleaning

**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



3DLevelScanner



Rotary



Pressure Switch



Vibrating Rod



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