

# The Insider

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

## NEW! BinMaster RL for Reliable Level Measurement in Dust

In October, BinMaster introduced a new non-contact level sensor called the BinMaster RL. For this issue of the Insider, we interviewed Mike Message, product manager for the 3DLevel-Scanner product line, and Mike Cradit, technical services manager for the 3DLevelScanner. With over 1,000 installations under their belts, "Team Mike" are BinMaster's experts when it comes to making sense of challenging level measurement applications.

### What market need was this new product designed to meet?



**Mike Message**  
3D Product Manager

**Message:** Often, when I meet with plant personnel, their biggest frustration has been finding a device that gives reliable and accurate level measurement in high dust environments. I'm still surprised by how frequently I see devices on the top of tanks that are disconnected and no longer in use ... simply because the level measurement data they output couldn't be counted on when bin conditions got tough.

What the market needed was a dust-penetrating, non-contact level sensor that worked reliably in dust. Now, there's the RL.

### What does RL stand for?

**Message:** We call it the RL because what customers are really looking for is highly Reliable Level data in dusty environments.

### Why does the RL perform in dust?

**Cradit:** The BinMaster RL uses acoustics-based technology that emits very low frequency pulses at 4.5 KHz that are able to penetrate dust. It's different than other technologies where the signal is scattered by dust and fails to consistently reflect off of the material surface.



**Mike Cradit**  
3D Technical Support

### The RL looks a lot like the BinMaster 3DLevelScanner. What's different?

**Message:** Except for the label, the RL looks just like a scanner, but it operates differently.

It measures in a narrow beam that's 15 degrees wide, unlike the scanner that measures in a much wider 70 degree beam angle. The RL can be configured at the head of the device, whereas the 3DLevelScanner is configured through the use of the 3DLevelManager software run on a laptop or PC. The RL is designed to provide highly reliable LEVEL data, while the scanner uses extremely complex algorithms to output a highly accurate VOLUME estimate. It all boils down to what kind of information you're looking for to meet the needs of your operation.

## What's Inside



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**The BinMaster RL  
can be used with  
3DMultiVision soft-  
ware to monitor  
multiple vessels.**



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# NEW! BinMaster RL for Reliable Level Measurement in Dust

## BinMaster RL is for Most Every Industry

- Cement & Concrete
- Chemical Processing
- Coal Power Plants
- Ethanol & Bioenergy
- Food Processing
- Grain, Seed & Feed
- Mining & Metals
- Plastics Manufacturing
- Pulp, Paper & Wood Pellets
- Sand & Aggregates



**Credit:** The RL also processes the signals quickly, so the level data you're seeing is updated frequently and continuously.

### What types of materials can it measure?

**Message:** The RL works in just about any powder or solid from fine, light materials like flour, alumina and fly ash to coarse, heavy materials like limestone, clinker and coal. We've also found that this technology works in many materials that are really tough to measure like wood chips, carbon black, and various plastic powders and resins.

### What about materials with low bulk densities or low dielectrics?

**Credit:** This is where the RL is different than a lot of other contact and non-contact level sensors. It works in very low dielectric materials, so it will work in many materials where other sensors just won't work. Materials such as wood chips and shavings, alumina powder and many types of plastics such as polyethylene, polypropylene, polystyrene, polycarbonates and acrylics are low dielectric materials that radar can struggle in.

### What type of maintenance is required?

**Credit:** Very little. We've been installing this kind of hardware for about five years and in some really nasty materials. Soybean meal and alumina have been two of the toughest materials, because they are extremely dusty and sticky. The RL is self-cleaning and doesn't require an air purge to keep it clean, so there's no hassle and expense running air to the top of the bin. In rare instances, when there's a combination of high humidity and the dust gets like glue, we have a Teflon-coated horn that keeps the inside of the horn clean.

### What about installation and set up?

**Credit:** Our intent with the RL was for customers to have a device that was simple to set up and didn't require an on-site visit to get it up and running. The RL installs on the top of the bin and is capable of both 4-20 mA and RS-485 communication. If you're putting the RL on more than one bin, you can daisy-chain the sensors to simplify wiring. Once the RL is installed, you can program it directly from the head of the device. There's a Quick Installation Guide that walks you through set up that should take less than 10 minutes.

### Any mounting tips?

**Message:** Mount the RL so it's out of the fill stream and at least a few feet away from the bin wall. Keep in mind that it measures directly below the device, so install it above the material point you want to measure. Think about it like dropping a tape measure, except you don't need to climb the bin and stand up there all day taking measurements.

### How is it priced?

**Message:** The BinMaster RL is priced comparably to other single-point, non-contact level measurement devices that measure solids, such as non-contact radar. It's less expensive than the 3DLevelScanner and is appropriate when level, not volume, measurement is needed. The S, M and MV 3DLevel-Scanners offer other types of information including volumetric data and material surface visualization that come at a higher price tag. The RL is good value that delivers RELIABLE LEVEL data.

## Features of the BinMaster RL

- Dust-penetrating, non-contact technology
- Acoustics-based, continuous level indicator
- Works in powdered and solid materials
- Performs in low dielectric materials
- Self-cleaning, minimal-maintenance
- Economical and easy to use
- View data for all bins from a PC
- Daisy chain multiple silos to save money
- 4-20 analog output to control system or display module
- RS-485 communication to 3DLevel Manager and 3DMultiVision software



# Monitor Bin Inventory at Multiple Sites on a Private Network

Many companies today have operations and people at multiple sites that need to share inventory data. Often, it is important for operations, purchasing and financial management personnel to know what inventory levels are at each location. This is true in many industries such as grain elevators with a number of cooperative locations, a cement company with multiple batch plants, or a plastics manufacturer with a centralized purchasing office for multiple factories.

The new release of eBob version 5.2 includes the ability for customers with a LAN, WAN or VPN to access the bin level measurement data at every site on the network and activate a current level measurement reading in real time. The new eBob multi-site feature can support any number of sites and vessels across the company regardless of location, so long as they are accessible via the company's private network. The network can be limited to a single office building or can include multiple office buildings so long as they are connected through the LAN, WAN or VPN. eBob multi-site allows for eBob to be installed

on multiple computers on a private network to allow access to real-time data from a single, synchronized database.

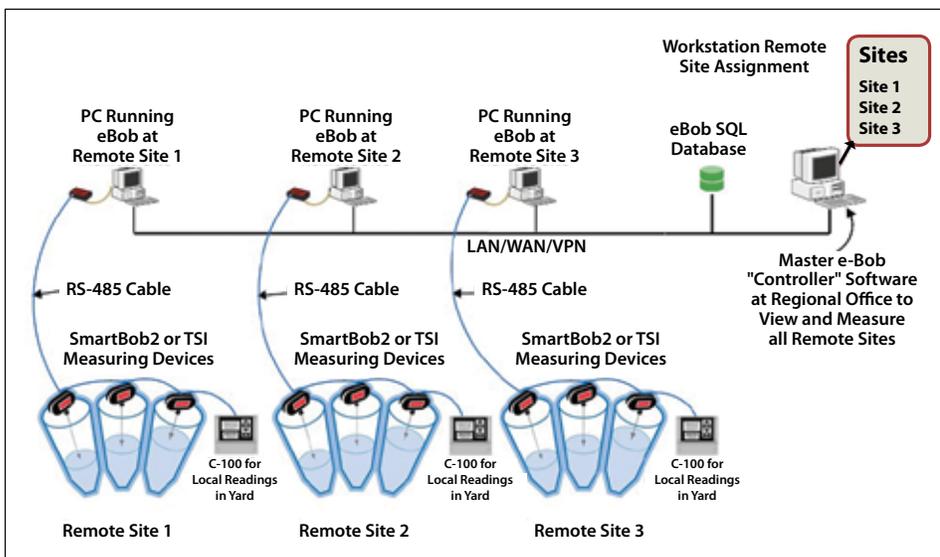
Each remote site would mount SmartBob sensors on each tank to be monitored and install eBob software on a dedicated PC. The data from all remote sites resides in a SQL database on a server at the corporate office. Workstations loaded with eBob software could be located at any number of sites to allow personnel at any site to monitor inventory via the network.

## View Inventory Site-by-Site

Setting up sites takes just a few minutes by accessing the workstation site setup menu that allows the user to create multiple workstation sites. Each site is configured by assigning a site name, its address, and connectivity information including the host IP address and host port, and selecting the appropriate communications port. Each user can select which site's data they want to view by going into the workstation site assignment screen. Once that selection is made, they can see the data for each vessel at the site.

## Operation-Wide Inventory Visibility

For example, in the diagram below there are three remote sites with a dedicated PC running eBob software at each individual site. Each of those PCs is connected to the LAN, WAN or VPN and provides eBob data to a SQL database. Master eBob controller software is installed at the regional office for any number of users to view and request a current measurement for bins at any of the remote sites. Each site can be viewed individually; and users are able to switch from one site to another easily using a menu selection in the eBob software. Remote site 1 can view the inventory data for sites 2 and 3; site 2 can view data for sites 1 and 3, and 3 can view data for sites 1 and 2. A regional or corporate site can also view the data for each site, one at a time, without the need to request a report from another individual located at the site.



*Real-time inventory monitoring is available to users at all locations . . . for all locations.*

# **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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**BINMASTER LEVEL CONTROLS**

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