

# The Insider

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

## BinLink™ Remote Bin Monitoring via the Internet

Need to know bin levels when you are off site? Would you like to be alerted via an email or text message when bins get to a certain level? Does purchasing or the corporate office need access to inventory data? Then say hello to BinLink – BinMaster's new Web-based monitoring solution for bins, tanks and silos that enables remote wireless inventory management of material levels in multiple bins from any computer with access to the Internet.

BinLink is ideal for operations of all sizes from a single site with just a few bins or a multiple site operation with hundreds of bins, and just about any size in between. BinLink can be applied to any industry that needs to monitor



its tanks remotely on an ongoing basis ... from a poultry farm that needs to be sure adequate feed is on hand to a multi-site cement batch plant operation that relies on a fleet of trucks deployed to replenish material.

The core components of the solution are the SmartBob2 (for bins up to 180 feet tall) or SmartBob-TS1 sensors (for bins up to 40 feet tall) mounted on the bins. The sensors are connected via a wireless or wired data communications network to a gateway that provides connectivity to an IP network. Measurements from the sensors can be taken at pre-determined time intervals or on demand and can be displayed on any computer that has a connection to the Internet. Data is available only to authorized users and is secured using end-to-end encryption and authentication to ensure data is safe and confidential from the bin to the corporate office.

BinLink provides 24/7, real-time control as data streams instantaneously from BinMaster sensors to the Internet providing accurate, up-to-date bin information. BinLink can send automated alerts to a computer, PDA or cell phone when bin conditions meet user-defined thresholds. Site mapping capabilities include a built-in visual mapping feature that shows tank types, locations and levels to streamline operations and optimize delivery schedules. Advanced reporting includes historical records that can help companies control inventory levels, make better purchasing decisions, track usage trends and keep people informed at every level of the organization.

Each BinLink solution is tailor-made with options like wireless communications devices to simplify and reduce installation costs and 900 MHz or Zigbee modules that can be easily integrated into a customer's existing system. To see a variety of BinLink configurations visit: <http://www.binmaster.com/BinLink/binlinkintro.html>

### What's Inside



**3DLevelScanner Multiple-Point Measurement.**  
Page 2



**BM-30 LGX for Particulate Emissions Monitoring and Baghouse Leak Detection.** Page 3

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# 3DLevelScanner Multiple-Point Measurement

## Spotlight on Optional Mapping and Visualization

The BinMaster 3DLevelScanner is a non-contact, dust-penetrating bin volume measurement system that uses patented acoustics-based technology to measure bin contents at multiple points within the bin. Unlike many ultrasonic or radar devices that are measuring one point and determining a single distance, the 3DLevelScanner takes measurements from multiple points within the bin and uses these points to determine the volume of material in the bin.

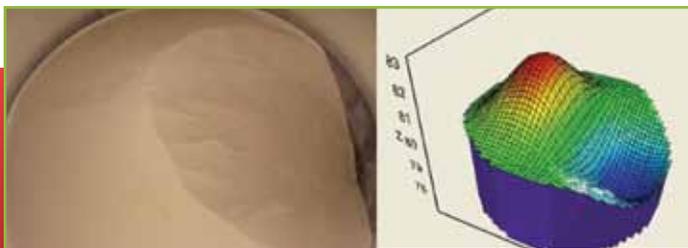


*3DLevelScanner mounted on a 100 ft. rice silo.*

Sampling measurements from multiple points when the material surface of the bin is uneven enables the 3DLevelScanner to calculate bin volume with greater precision than a single point measurement device. Advanced mapping and visualization software, available on the 3DLevelScanner MV model, also provides a pictorial representation of the bin contents. This feature is helpful when used in materials prone to sidewall buildup and bridging, where there are points in the bin that are lower or higher than the majority of the bin contents. Calculating volume after an empty or fill cycle, when there is a “cone down” or “cone up” can also be more accurate when multiple point measurement is used.

At this site, the 3DLevelScanner is mounted on a 100 foot tall, 27 foot diameter, steel silo containing whole distiller’s rice. This silo is a center

*The image on the left shows the irregular material surface during the empty cycle; the image on the right is the visual representation created by the software.*



Actual Application Photo

fill, center discharge configuration and the internal bin environment is very dusty, making it a difficult application for most measurement devices. The 3DLevelScanner is mounted on an existing flange using the BinMaster adapter plate and is mounted one-sixth in from the silo diameter.

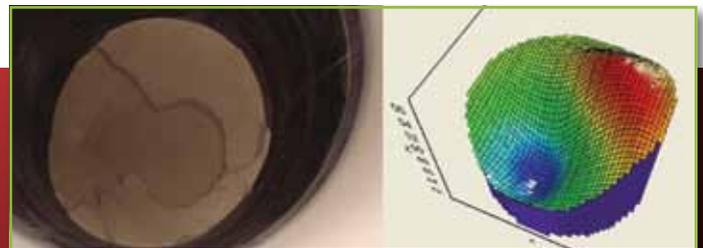
The customer needed highly accurate volume inventories in order to know when to prepare to refill the bin. Allowing material to settle in the bin and then mapping the contents would help the customer more closely manage inventory and schedule refilling at an optimal time. As whole distiller’s rice is very dusty and prone to sidewall buildup and bridging, the MV model – which allows for a pictorial representation of the bin contents – would provide a more accurate estimate of bin volume.

Unlike an ultrasonic or radar device that takes a single measurement, the 3DLevelScanner MV model will sample multiple measurements within a 70° beam angle inside the bin. The 3DLevel Manager Software displays the data in an easy-to-read format. The measurements are sent to a main display screen which includes data such as average, minimum and maximum distances, level, temperature, signal quality (SNR) and volume percentage. Signal-to-Noise Ratio (SNR) is monitored to ensure signal strength is not impacted by noise within a bin and negatively affecting the performance of the 3DLevelScanner.

During the empty cycle, the bin material becomes irregular. The material on the left of the bin is up to five feet higher than the material on the right. The 3DLevel Manager mapping software depicts this in a visual representation of the bin contents. Had a single measurement been taken, bin volume estimates could be significantly higher or lower than the actual volume. Bridging is another problematic factor in many bins. In this example, significant bridging occurred



*Significant bridging is evident in the photo, which is detected and displayed in the 3D image on the right.*



Actual Application Photo

# Calendar

See BinMaster® at these upcoming events.

## GEAPS Exchange 2010

February 20 to 23, 2010

Booth 247A

Wichita Convention Center

Wichita, KS USA

## PTXi, PBS, Chem Pharm & Pack 2

May 4 to 6, 2010

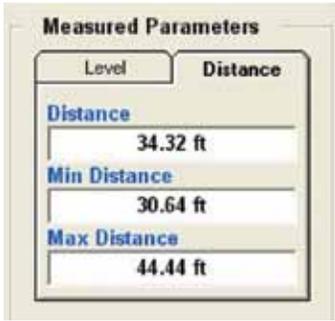
Booth 2243

Donald E. Stephens Convention Center

Rosemont, IL USA

during the empty cycle. The 3DLevelScanner detected distances of close to 10 feet different between the minimum and maximum distances. The mapping software indicates the large indentation. The volume calculations performed by the software will account for the variations in topography and provide the customer with a more accurate volume than could be rendered by an ultrasonic or radar device that may detect only the highest or lowest level, dependent on where it is placed in the bin.

There are three models of the 3DLevelScanner offered with basic to advanced capabilities. The



The main display screen shows average distance, as well as minimum and maximum distances.

base Model S 3DLevelScanner works by taking an average of all the numerous measurements within a 30° coverage window, and calculates the average volume from the measurements within that window. Models M and MV 3DLevelScanners sample measurement points from a wider, 70° beam angle on the surface of the material in the bin. The Model MV highlighted in this article offers visualization software for highly specialized mapping applications.

Want more information on the 3DLevelScanner? Call 1-800-278-4241 or fill out the 3D EZ Inquiry online at <http://www.binmaster.com/3DEZInquiry/default.asp>

# BM-30 LGX for Particulate Emissions Monitoring and Baghouse Leak Detection

The BM-30 LGX is a particulate monitoring device designed for general process and environmental monitoring and is commonly used for broken bag detection. Generally installed in a dust collection system, this particulate monitor consists of a control unit, a particulate sensor and a sensor coaxial cable. Applications for the BM3-LGX include continuous emissions monitoring, baghouse filter leak detection and process particulate flow monitoring. It detects many types of particulate including solid particulates such as dusts, powders, granulars and pellets.



Particulate monitoring helps companies operate more efficiently and meet regulatory requirements by detecting leaks before emissions are

visible, and preventing the escape of valuable powders while providing a cleaner, safer workplace. Here is how the BM-30 LGX can benefit an operation:

- Early Detection:** detects broken bags and prevents cross contamination of materials
- Scheduled maintenance:** prevents unforeseen downtime and expensive equipment repairs
- Regulatory compliance:** monitors air quality and helps companies meet EPA regulations

- Plug & play:** simply set the desired alarm level that will trigger an alert
- Reliable operation:** dust coating on sensor will not affect signal or trigger false alarms
- Improved safety:** available in CSA approved and Intrinsically Safe versions for hazardous area applications.

The BM-30 LGX can also aid in process optimization and loss control by providing essential monitoring and control to prevent the loss of valuable powders, such as expensive pharmaceuticals and chemicals. It can also help protect and prolong equipment life as excessive dust can damage equipment such as expensive vacuum pumps, blowers, turbines, and catalytic filters.

For more information on the BM-30 LGX visit: <http://www.binmaster.com/Dust/bm30lgx.html>

Examples of Industries Needing Particulate Monitoring	
Cement	Minerals
Foundry	Power
Steel	Wood
Chemical	Aluminum
Carbon Black	Food Processing
Grain	Coal
Pharmaceutical	Incineration



Established in 1953, Garner Industries is home to the BinMaster® level control business. Additionally, our state-of-the-art ISO 9001:2000 certified facility in Lincoln, Nebraska USA offers jobshop and precision tooling services for a wide variety of industries including automotive, refining, electronics, aerospace, and telecommunications ... to name but a few. Visit [www.garnerindustries.com](http://www.garnerindustries.com) to find out about our full suite of services.



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# Introducing BinLink

## Web-Based Bin Monitoring Remote Wireless Inventory Management

**Real-Time Control** – Data streams instantaneously from BinMaster sensors to the Internet providing accurate, reliable bin information.

**Wireless Integration** – BinLink simplifies and reduces installation costs with a wireless solution optimized for bin monitoring.

**Data Security** – End-to-end encryption and authentication ensure data is safe and confidential from the bin to the corporate office.



**Highly Scaleable** – BinLink can monitor one or a hundred bins and grow as operations expand.

**Automated Alerts** – Immediately sends email and cell phone alerts when bin conditions meet user-defined thresholds.

**Streamlines Operations** – There is no need to manually check bin levels which saves time, and improves the efficiency of ordering and logistics.



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