

BINMASTER

3DLEVELSCANNER

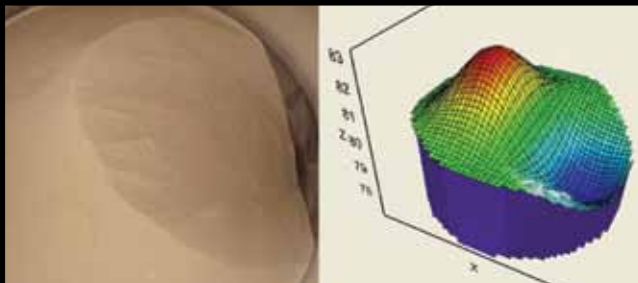


It's a 3D Revolution!

With over 500 installations in the field, the BinMaster 3DLevelScanner has evolved from a single non-contact, multiple-point sensor to a suite of devices and software that address the growing demands of the marketplace. With material costs skyrocketing, customers are telling us it's more important than ever that their inventories be accurate. Just think about it ... one percentage point in a large corn bin or a

high value plastics resin silo can represent thousands of dollars. Real-time and just-in-time inventory monitoring practices have become a mainstay in today's competitive environment. Continuous additions and enhancements to the 3DLevelScanner product line, coupled with BinMaster's technical service and expertise have been helping companies throughout North America meet their biggest bin challenges.

January 2009	January 2009	August 2010	July 2011	February 2012
3DLevelScanner	3DLevelScanner MV	MVL Multi-Scanner System	3D MultiVision Software	3DLevelScanner HE
Features: Acoustics-based sensor with dust-penetrating, non-contact, multiple-point measurement technology	Features: 3D mapping and visualization of material contents	Features: Multiple sensor system for wide and large bins	Features: Displays data for multiple bins in the network on a single screen. Compatible with all 3DLevelScanner models.	Features: For harsh environments and temperatures up to 250°F (120°C)
Benefits: Measures multiple points in bins to accurately estimate material volume. Works in dust where other non-contact technologies are unreliable.	Benefits: Maps materials topography in bin. Detects cone up or down conditions and sidewall buildup.	Benefits: Synchronized data from all sensors for improved volume accuracy for large bins. 3D visualization of contents.	Benefits: Multiple users across many departments can view data for all bins or selected bins to improve inventory management.	Benefits: Ideal for clinker, fly ash, alumina or any material where higher temperatures, dust and humidity are present.



The photograph on the left is the material in the bin. The visual representation generated by the 3DLevelManager software is on the right.

The BinMaster 3DLevelScanner uses non-contact, dust-penetrating technology to provide unsurpassed bin volume accuracy.

Unlike single point devices, it works by measuring multiple points within the bin.

This advanced acoustics-based technology is proven to perform in powders and bulk solids in bins, tanks and silos.

Its unique 3D mapping capabilities provide a visual representation of bin contents, detecting cone up or down as well as sidewall buildup.



MVL Multiple-Scanner System for Big Bins



It seems like everything is super-sized these days. It's certainly a trend in storage bins. When a bin is very wide or contains material that has a tendency toward irregular topography, two or more

scanners might be needed to provide the desired volume accuracy.

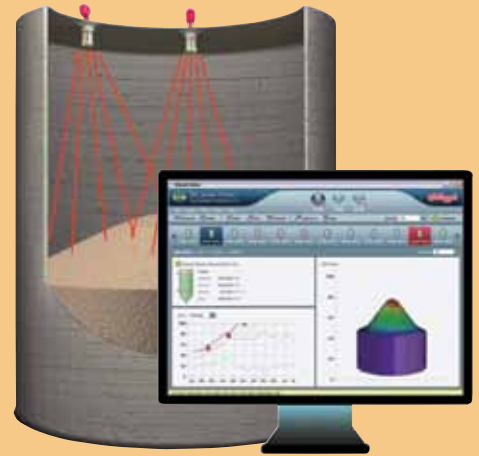
Until the introduction of the BinMaster MVL system, operations with very wide, large bins, tanks and silos were relying primarily on traditional process instruments that only measured one point in the silo, or even manual measurements taken with a tape measure. However, as the topography of material can

vary greatly in large silos or silos with multiple-fill or discharge sites, the level measurement and resulting volume estimate for the silo could be highly inaccurate based upon where that one measurement was taken in the silo. The BinMaster MVL takes multiple measurements with multiple scanners to provide improved volume accuracy for large bins. The measurement information from all sensors is synchronized to provide a minimum, maximum and average level and a volume estimate for the entire vessel.

To date in North America, the MVL system has been used primarily in bins and silos in the grain, cement, aggregate, mining and power industries. These big bins are not only wide, but also can be extremely tall. Large steel bins often have sloping roofs and a single ladder from the sidewall to the peak. Climbing bins to check levels is undesirable and a serious safety risk that can be virtually eliminated with an MVL system. For volatile environments, the BinMaster MVL system is

hazardous location approved to CAN/CSA and FM Listed for Classes I & II, Division 1, Groups C, D, E, F & G.

If you have a very wide bin, BinMaster technical service experts can help you determine the optimal number of scanners for your application.



The MVL multiple-scanner system combines the measurement data from two or more scanners and provides a single volume estimate and visual representation.

New 3DLevelScanner HE for Harsh Environments

Measuring powders and solids in large silos is tough. Add high temperatures, dust and humidity and it's even tougher. Challenging materials, such as clinker, fly ash and alumina can be especially challenging, as the material is processed using heat before entering the silo and when loaded into the silo, the material can still be quite hot. The presence of higher temperatures as well as dust can render some technologies ineffective until the material cools or the dust settles. If harsh environments are typical in your operation, the 3DLevelScanner HE can provide accurate measurements and volume data while dust is present and when temperatures are up to 250°F (120°C).

The 3DLevelScanner HE is ideal for use in the cement, aluminum and power industries where there are multiple challenges such as dust or high humidity and very large silos where the material surface in the bin may be uneven and difficult to measure. It works in all types of material

from heavy lump material like clinker, fine granular material like alumina oxide, or powdered materials such as fly ash.

The 3DLevelScanner HE maintains a high degree of level and volume accuracy despite the presence of high temperatures, humidity and excessive dust that can tend to make other devices erratic or unreliable.



Material	Industry
Clinker	Cement
Fly Ash	Power
Alumina	Aluminum

Just as with the standard models, one or more 3DLevelScanners is mounted on the top of the silo dependent on the diameter and height of the silo and the desired level of volume accuracy. Each dust-penetrating, non-contact sensor sends pulses in

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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 3DLevelManager 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 graphical representation will indicate where high and low spots exist in the silo.

The 3DLevelScanner HE model can be integrated into a network of multiple silos using 3D technology. The 3D MultiVision software can be used when an operation has a mixture of S, M, MV, MVL and HE models, enabling personnel to review the status of all silos in the network regardless of the material being measured. For example, a cement plant that has silos containing limestone, clay, sand, clinker, fly ash and portland cement can network all of its silos and view them by product type and be alerted when levels reach critical high or low levels.



View the level and volume data in all the silos at your facility with the click of a mouse.

Multiple Silos, One Screen ...

That's 3D MultiVision!

If you have the 3DLevelScanner installed on multiple silos at your facility, you can quickly view the level in all your silos on a single screen using 3D MultiVision software. This Windows-based inventory management software program makes it easy to view the levels of all

the silos in your 3D network. MultiVision software is compatible with all models of the 3DLevelScanner – S, M, MV, MVL and the new HE – and features a unique graphical overview of your inventory with one simple click of the mouse. MultiVision software can be accessed via a Local Area Network by any authorized user who has been assigned a user id and password.

With MultiVision software, there is no need to open a new window for each bin, unlike the standard 3DLevel-Manager software that allows only one bin to be viewed at a time. Users can

easily view all their bins 'at a glance' and quickly focus on those bins needing attention. As data is available 24/7 and in real-time, Multi-Vision can help users optimize operations and make better decisions based on timely, accurate data. Users can zero in on bins whose levels are low and may need

replenishment, or are reaching capacity and need to stop filling to reduce the risk of overfilling.

By simply clicking on a single bin while in the multi-bin view, a user can view the detailed information for that bin and view the 3D profile, for those bins with an MV or MVL installed. MultiVision software offers users the flexibility to customize their dashboard view of the bin data to make them most efficient at their job. For example, a purchasing person may only want to view bins containing certain materials, while a production manager may want to view only silos related to a particular production line. People from different departments can view the data for the bins simultaneously and be assured it is accurate and all from the same database.

All silos in a network can be viewed at once with 3DMultiVision.



MultiVision helps many users!

User	Use
Plant Manager	Facility overview
Production	Monitor inventory in critical bins
Logistics	Schedule just-in-time deliveries
Maintenance	View 3D image to detect buildup
Purchasing	Optimize order planning
Accounting	Month-end inventory

3D for Challenging Bins

If you have –

- high levels of dust
- uneven material topography
- multiple fill and discharge sites
- very large or wide bins

And you want –

- volume accuracy
- multiple measurement points
- non-contact technology
- reliable measurement in dust
- visualization of bin contents
- very limited maintenance

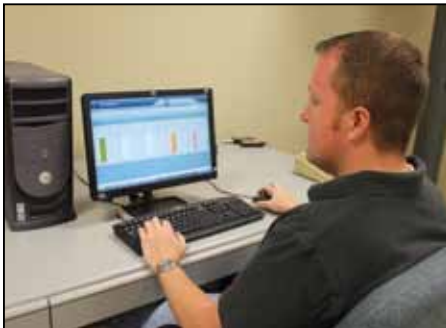
For your
3D solution
Read Inside!



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Remote Monitoring



Start-up Services

North America's 3DLevelScanner Leader

With its 3DLevelScanner in more than 500 bins, tanks and silos across the United States and Canada, BinMaster has more experience with more scanners in more applications than any other company on the continent.

BinMaster's dedicated team of 3D technical and sales specialists is highly trained, responsive and committed to your success – from understanding your measurement objectives, to starting up sensors at your site, to monitoring performance from our engineering laboratory in Lincoln, Nebraska, USA.

3D – It's better with BinMaster.



BINMASTER

BINMASTER LEVEL CONTROLS

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