

Can't Touch This! Non-Contact Level Sensors

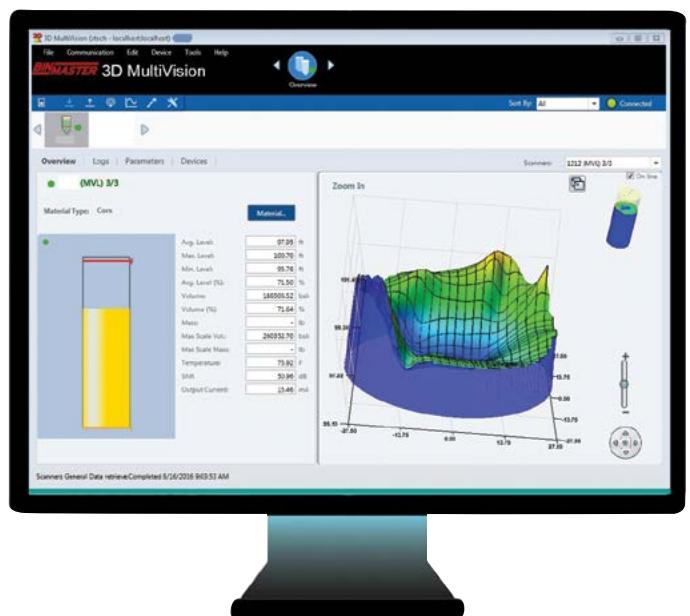
Comparing laser, 3D scanners and radar

By Jenny Nielson Christensen, MBA, VP of Marketing, BinMaster

Food manufacturers find non-contact level sensors attractive for a number of reasons. Of course, since nothing comes into contact with the material, there's no risk of equipment interfering with the process or rogue parts breaking off and getting stuck in equipment or contaminating ingredients intended for human consumption. Plus, they provide continuous level measurement for optimizing inventory and preventing silos from running empty. No food manufacturer wants to risk tagging a bad batch due to a missing ingredient.

Today's most popular non-contact technologies are laser, radar, and 3D scanners. The sensor that might be best for your application is determined by a number of factors including the material being measured, the amount of dust in the environment, the size

of the silo, and the desired inventory accuracy. Communications options for getting your needed data can also vary as well as the price of the sensor, its mounting, wiring, and installation costs.



SEE THROUGH SILO WALLS WITH 3D SCANNERS

Using a 3D scanner level sensor is like having Superman's x-ray vision. With its dust-penetrating technology, you can actually see the topography of what's inside the silo using the graphical option. The 3D scanner is mounted on top of the silo at an optimal location recommended for superior surface coverage, so the scanner can "see" the utmost material surface. It sends acoustic pulses that sound like chirping crickets to the material surface in a 15°, 30°, or 70° beam angle depending on the model. It then measures and maps the material surface at multiple points to detect uneven topography.

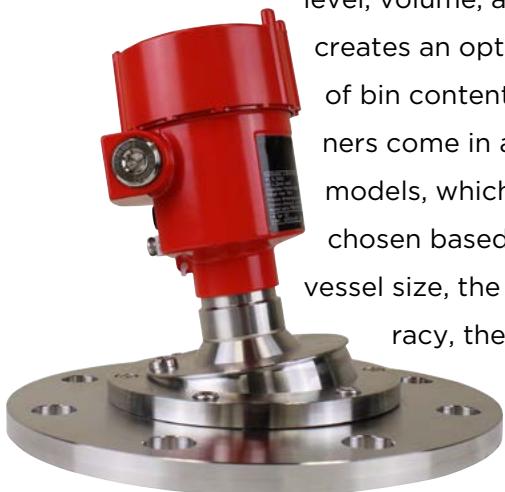
Distance is calculated using advanced algorithms that convert the difference between the timing the echo was sent and received to a distance. Data is sent via 4-20 mA or RS-485 output to software, or if you prefer an HMI / PLC. The included software records the data and calculates

level, volume, and mass and creates an optional 3D visual of bin contents. 3D scanners come in a variety of models, which are generally chosen based upon the vessel size, the desired accuracy, the need for a 3D visual, and the operation's budget.



The 3D scanner is the only level sensor that measures multiple points on the material surface to account for irregular topography. To your operation, that can convert to precise volume measurement within 1% to 3% of total stored volume. For food plants, it offers the added benefit of detecting cone up, cone down, or sidewall buildup. When the MV or MVL models are used, 3D scanners are the only sensor that offers a 3D visual of silo contents. The 3D scanner is a popular choice for waste bins and rendering operations, even used in challenging materials like bloodfeather.

A key advantage of 3D scanners to operational efficiency is volume accuracy in large silos. When silos are over 45 feet in diameter, more than one 3D scanner can be used on a single vessel. The software takes into account measurements taken by multiple sensors and aggregates it to a single volume and single 3D visual.



Download the complete white paper [here](#).

Need Volume Accuracy?

START SEEING RED.



3DLevelScanner

Works in High Dust

Measures & maps entire material surface for unsurpassed accuracy

Non-Contact Safety

For all types of granules, pellets & powders to comply with FSMA

3D Visual

X-ray vision into your silo's topography, detects buildup

Low Maintenance

Resists buildup, simple annual maintenance, no air purge required

Real-Time Inventory

MultiVision software tracks volume across entire operation



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