



Whitepaper

SENSORS & SILOS

seconds count

Workforce shortages in the U.S. have sparked great energy towards technology. The urgency to implement automated work processes continues to climb. BinMaster sensors and software can provide significant labor relief by replacing repeatable and frequent physical labor. It results in a safer workplace, accurate inventory and aids in strategic ordering and dispatching.

To illustrate the benefits and **return on investment**, consider Acme Company. Acme stores bulk materials in a 50-foot-tall silo. Acme's control room sits 100 yards from the silo and an employee measures silo levels twice a shift during seasonal production. Before a BinMaster system was installed, Acme wasted time, human resources, and opened the door to error.

United States workforce shortage

- 47 million workers quit their jobs during "The Great Resignation" in 2021
- Manufacturing lost 1.4 million jobs at the onset of the pandemic (US Chamber, November 2022)
- 91% of workers desire to work from home, and 3 in 10 workers signaled they would seek new jobs if recalled to the office (Gallup)
- 2.8 million workers are missing in the labor force compared to February 2020 (BLS)
- Labor force participation rate is 62.4%

Time scenario for silo measurement

- 4 minutes - Employee walks from control room to silo and back.
- 2 minutes - Employee climbs 50-foot-ladder, up and down.
- 4 minutes - Employee pulls heavy roof inspection door atop silo and drops a tape measure.
- 5 minutes - Employee records measurements and communicates to manager, fills form, or enters to spreadsheet.
- Total 15 minutes - For one measurement. One silo. How many bins and silos are you measuring?

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KEYWORDS

silos measurement, bulk inventory, plastic industry

OBJECTIVE

Learn to combine sensor and software technology to automate bin measurement.

CONSIDER

Manual bulk measurement is risky, material overflow costly, and labor short.

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Level sensors play leading role and cloud-based software and phone apps are compatible with a wide range of sensors and measurement technologies. Their versatility lends them to use with silos, bins, and tanks of different shapes and sizes, storing all types of solids, powder, and liquids including: plastic, cement, grain, feed, ingredients, fuel, and more.

Is manual silo/bin measurement good exercise or risky? Workforce shortage cannot be completely cured with a bulk material inventory system by BinMaster, but it's a good step. Sensors measuring material eliminate ladder climbs and saves time. BinMaster improves processing efficiency, ordering and delivery scheduling. Improved inventory accuracy eliminates material shortages and reduces carrying costs. Employees monitor silos/bin levels while on-site or off-premises. Automated alerts via text or email allow for proactive supply chain actions that can add to an operation's bottom line.

Sensor & software return on investment

- Better Accuracy: Most level sensors are accurate within 0.2" of distance measured
- Improved Safety: Automated measurements eliminate the need for climbing ladders
- Time Saving: More measurements done with less manpower, requiring fewer people

Sensors bring safety benefits

- Ladder injuries account for 136,118 emergency room visits in the US annually.
- Falls from ladders account for 20% of fatal falls in the workplace with an average of 113 deaths per year in the US between 2011 and 2016 (CDC).
- A small inspection hatch on a silo could weigh around 20 pounds, while a large steel door could be hundreds of pounds. Now imagine maneuvering on top of a silo with high winds, a heavy door, and floppy tape measure...and the hatch slamming shut. Ouch!

BinMaster is your source for level measurement sensors and inventory management software.

