

BinMaster Level Measurement Systems



Selecting Continuous Level Sensors

SmartBob Weight & Cable



Strengths

- Not affected by dust or other adverse process conditions
- Not affected by material buildup on sensor
- Can be used in extremely light, signal-absorbing materials
- Measures bins up to 180 feet (SmartBob-TS1 up to 60 feet)
- Not affected by material characteristics such as low dielectric constant or angle of repose
- Remote sensor requires no calibration
- High temperature models available up to 1000°F
- Very simple setup and installation
- Consistent, repeatable, and accurate measurements
- Compatible with eBob software
- A variety of digital and analog outputs available
- Cable replacing, wireless communications available
- Hazardous location approvals available

Considerations

- On-demand system, does not provide an instantaneous response to change in the material level
- Seasonal maintenance may be required to clean out mechanical cavity in very dusty conditions, if air-purge is not used
- Not recommended in high pressure bins
- Minimal contact with stored material

GWR-2000 Guided Wave Radar



Strengths

- Continuous level measurement in powders, granules, bulk solids, and liquids
- Measuring distance up to 100 feet
- For light to heavy bulk solids
- 4-20 mA and Modbus RTU communications
- Performs in vessels prone to high dust
- Suitable for vessels of most any shape or diameter, including narrow tanks
- Immune to condensation
- Virtually maintenance free
- Reliable accuracy within 0.08"
- Hazardous location approvals
- BinDisc simple setup and configuration
- Compatible with eBob software
- Very simple setup and installation
- Cable replacing, wireless communications available

Considerations

- Sensing probe is in constant contact with material
- Minimum dielectric constant of material must be above 1.3
- Material like large rock may damage probe and be difficult to sense

3DLevelScanner Acoustic



Strengths

- Continuous level measurement
- Non-intrusive, non-contact design
- Measures uneven powder or solid material surfaces
- Detects cone up, cone down and sidewall buildup
- Provides minimum, maximum and average distances
- Performs in extreme levels of dust
- Calculates highly accurate bin volume due to mapping the surface of the material with multiple measuring points.
- Measuring range up to 200 feet
- Self-cleaning with minimal maintenance
- High temperature applications up to 365°F
- Automatic compensation for temperature changes
- Analog and digital communication options
- Leading-edge 3D MultiVision networkable PC software available for multiple vessel monitoring
- Can generate a 3D image of material surface
- Cable-replacing, wireless interfaces available
- Approved for hazardous locations
- Not affected by material characteristics or low dielectric constants
- RL model compatible with eBob software

Considerations

- The 3DLevelScanner is an acoustic device and elevated background noise can have an affect on its performance.
- Setup requires care in mounting the sensor in the proper location, and mapping the vessel
- Time required to process multiple pulse echoes limits the sample rate
- Not recommended for liquid applications
- Corrugation on small vessels can cause false echoes
- Not recommended for materials with a bulk density under 11 lb./cu. ft. due to absorbing the acoustic pulse

Strengths

- Measures in a very tight 1° beam with no beam divergence
- Accuracy of +/- 1 inch with range up to 160 feet
- Can track during fill in low dust environments
- Ideal for very narrow vessels or constrained spaces
- Unaffected by corrugated bin walls
- Can be precisely targeted to avoid structure inside vessel
- Use for plugged chute detection or monitoring sidewall buildup
- Versatile for bulk solids, pellets, granular materials, and opaque liquids
- Can be used in most any dielectric material
- Unaffected by heavy vapors and pressure
- Adjustable 10° mounting flange for precise aiming
- Integrated dust protection for minimal maintenance
- Easily configured in the field using a USB port
- Configuration can be performed without filling or emptying vessel

Considerations

- Single point measurement will not take into account material topography
- Laser will penetrate clear liquids
- Dusty environments will diminish performance
- Air purge may be required to keep lenses clean in dusty environments

LL-100 Laser Level Sensor



NCR-80 Non-Contact Radar for Solids



Strengths

- Powerful 80 GHz radar significantly outperforms old 26 GHz technology
- 4° versus 10° beam angle for better precision and targeting
- Substantial 393 foot measuring range
- Same sensor technology used by self-driving cars
- Strong signal performs well in dust
- Fast reaction/update time tracks filling or emptying activity
- Versatile for use in solids, liquids, and slurries
- Signal not affected by corrugation
- Loop power capability
- Compatible with eBob software
- 4 - 20 mA and Modbus RTU communications

Considerations

- Single point measurement will not take into account material topography
- Minimum dielectric constant of material must be above 1.3

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