Wm. Neundorfer & Co.
Your local Binmaster distributor

Phone: (440) 350-7460
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Address: 831 Callendar Blvd.
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BINMASTER® Guided-Wave Radar

Precision measurement

rides on guided high-frequency waves

Guided Wave Radars by BinMaster use TDR time domain reflectometry technology to measure levels in vessels up to 75-feet tall. Guided wave are radar-type level sensors that emit microwave pulses along a cable or rod to measure time differences between sent and reflected signals.

The proven technology excels in challenging environments where problems like steam and vapor in liquids, or high dust or low dielectric materials in solids.

Guided radar level transmitters can handle multi-layer liquid applications with immiscible (unmixable) liquids or applications requiring precise layer control. For bulk solids, guided wave radar is often used in grains, plastics, and powders.

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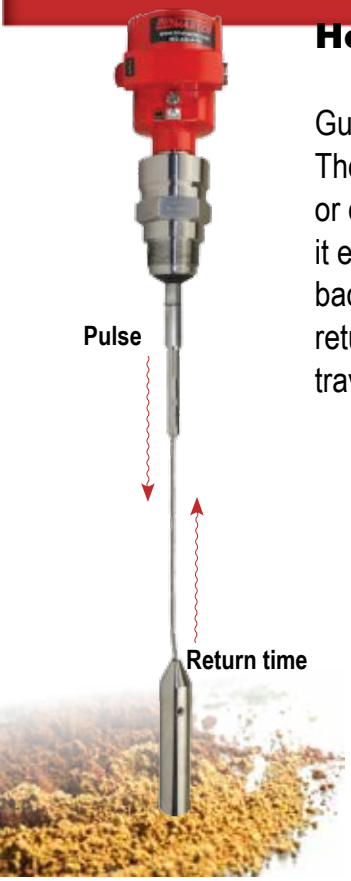
Smart sensors. **Resilient performance.**



How does a guided wave radar work?

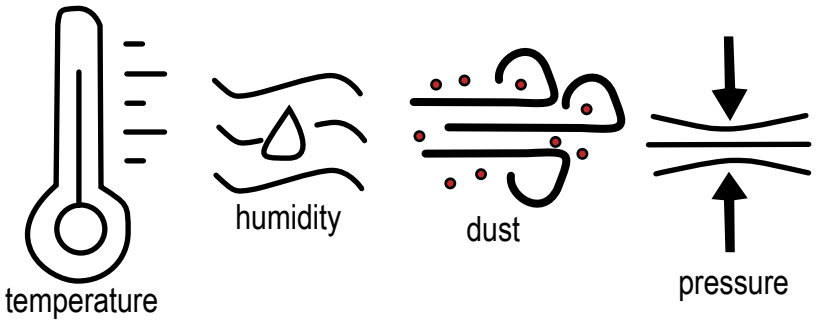
Guided Wave Radars (GWRs) operate on the principle of time domain reflectometry. These devices emit high-frequency electromagnetic pulses along a probe—typically a rod or cable—that extends into the measured material. As the pulse travels down the probe, it encounters the surface of the material, causing a portion of the energy to be reflected back to the sensor. The device measures the time it takes for this reflected signal to return, using the known speed of the electromagnetic wave to calculate the distance traveled. This distance corresponds to the level of material in the vessel.

Mounting options

The GWR transmitter is mounted on the top of a vessel in an unobstructed area through a 1 1/2” NPT opening or a 3” ANSI flange. A single, flexible 8 mm or 4 mm stainless steel cable with counterweight is suspended from the transmitter to the bottom of the vessel.

Guided wave radar overcomes

BinMaster Guided Wave Radar performs reliably and is immune to dust, humidity, temperature, pressure, and bulk density changes as well as noise that might be present when filling or emptying vessel. This, along with comprehensive diagnostics allows our radars to be highly reliable and maintenance free.



Simple setup

BinMaster’s guided wave radar is easy to set up using a simple, timesaving BinDisc interface with optional Bluetooth that can be moved from sensor to sensor, so you only need one BinDisc to set up all your sensors

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GWR perfect **for your application**

GWR-2000 for solids

The GWR-2000 provides continuous level measurement for powders, granules, pellets, and other bulk solids. It can be installed and performs equally reliably in vessels constructed of plastic, cement, or steel. GWR-2000 is for level measurement in vessels up to 100 feet tall with accuracy of ± 0.08 inches (2mm). This sensor has a very small upper dead zone and assures highly-accurate level measurement in powders and solids with a dielectric constant as low as 1.3. It has 4-20 mA and Modbus RTU communication options and is compatible with HMI or PLC, as well as BinCloud web apps or Binventory LAN-based software.

What's Great About the GWR-2000

- Measures distances up to 100 feet with 0.08" accuracy
- For light and heavy solids or powders with dielectric down to 1.3
- Immune to steam, condensation, buildup, and virtually maintenance free
- BinDisc module with optional Bluetooth for simple setup and configuration
- Choice of 4-20 mA and Modbus RTU communications
- Variety of optional hazardous location approvals available
- Works in challenging conditions like high dust, air movement, or excessive noise

Solid measures
Grain, milling, pet food, animal feed, seed, food processing and ingredient silos, plastic pellet, flakes, or powders, cement, lime, chemical manufacturing, food pellet manufacturing, pigment powders, and much more

GWR-3000 for liquids

The GWR-3000 guided wave radar measures liquid storage tanks or standpipes often installed for tank metering at tank farms. It measures separation layers for interface measurement in tanks, bypass tubes, or standpipes. It reports distance to each layer by detecting the difference in specific gravity between the two fluids. GWR-3000 measures levels at distances up to 75 feet with accuracy of ± 0.08 inches. It is offered with either a cable or rod customized to the depth of the vessel. This sensor measures all types of liquids including those with steam, vapor, foam, condensation, or those prone to residual buildup.

GWR-3000 Excels in Liquids

- Single or double chamber housings in plastic, stainless steel, or aluminum
- Available with protection ratings up to IP 68 (1 bar)
- Modbus, 2-wire 4-20 mA, and 4-wire 4-20 mA electronics options
- Models for use in ordinary locations or with hazardous location approvals
- Wetted parts are made of stainless steel for durability in caustic liquids
- Seals are made of FKM, FFKM, or EPDM for longevity over the life of the sensor
- BinDisc with optional Bluetooth ensures simple, time-saving, and reliable setup
- Comprehensive diagnostics eliminate downtime

Liquid measurement
Ammonia, bitumen or liquefied gas, ethanol,anhydrous ammonia tanks, water separators, level and oil/water interface measurement in separators at petrochemical plants, steel mills, food manufacturers, flavoring and fragrance makers, metal recyclers, metalworking and finishing, waste transfer facilities, industrial wastewater treatment systems, and more.

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Guided Wave Radar in bins, tanks & silos

tackles tough stuff

Guided wave radar provides highly accurate, continuous level measurement utilizing time domain reflectometry (TDR) to measure the distance, level, and volume of solid or liquid material contained in bins, tanks, and silos.

IoT inventory sensors and software:

• Provide insights for data-driven decisions. Increase efficiency and drive down costs • Shorten lead times for production • Reduce carrying costs and last-minute purchases • Reduces waste on bulk inventory that could spoil • Integrates inventory data to Enterprise Resource Planning systems • Streamlines transportation and timely ordering • Requires less labor and guesswork

	GWR 2000	GWR-3000
Measuring Range	(30.48 meters) ±0.08”	(23 meters) 0.08”
Accuracy Process	(2 mm)	(2 mm)
Temperature Process	-40°F to 392°F (-40° to 200°C) -14.5	-76°F to 392°F (-60° to 200°C) -14.5
Pressure Mounting	to +58Ø psig (-1 to +40 bar)	to 58Ø psig-(1 to +40 bar)
Housing Material	1-1/2” NPT opening or 3” ANSI flange	1-1/2” or 2” NPT threaded, 2” or 3” flange Plastic,
Enclosure Rating	Plastic, aluminum, or stainless steel	aluminum, or stainless steel IP66/IP67/IP68 dependent
Approvals	IP66/IP67/IP68 dependent on housing	on housing CSA / FM Class II, Div 2, Groups E, F, G;
	CSA / FM Class II, Div 2, Groups E, F, G - Other approvals available	Other approvals available
Output	Two-wire 4 - 20 mA/HART®, Four-wire 4 - 20 mA/HART®, Modbus RTU Up	Two-wire 4 - 20 mA/HART®, Four-wire 4 - 20 mA/HART®, Modbus RTU Ranges from 3.15” to 7.874” depending on
Dead Zone	to 12”	use of rod, coated or uncoated cable and whether water or oil is measured.