

# Guided Wave Radar for Powders & Solids

BinMaster's GWR-2000 guided microwave level transmitter utilizes time domain reflectometry (TDR) to continuously measure the distance, level, and volume of powders and solids in bins, tanks and silos. The transmitter is mounted on the top of the vessel in an unobstructed area through a 1-1/2" NPT opening or 3" ANSI flange. A single, flexible 6 mm stainless steel cable with a counter weight is suspended from the transmitter to the bottom of the vessel.

## Reliable level measurement in high dust and low dielectrics

The transmitter emits a high frequency microwave pulse guided along the cable. When the pulse reaches the material surface, the pulse energy is reflected back up to the sensor head. Level is calculated based on the time difference between the pulse being sent and the reflected pulse received. This sensor features hazardous location approvals, a very small upper dead zone, and assures highly accurate level measurement in low dielectric materials down to 1.3.

## Hazardous location approval and Modbus RTU options



### GWR-2000 for Bulk Solids

- Measuring distance up to 100 feet
- For light to heavy bulk solids
- 4-20 mA and Modbus RTU communications
- Performs in high dust
- Immune to condensation
- Virtually maintenance free
- Reliable accuracy within 0.08"
- Hazardous location approvals
- BinDisc simple setup and configuration

## GWR-2000 Guided Wave Radar



**BINMASTER**



## Ideal for Granules, Powders, and Bulk Solids

The GWR uses innovative technology to automatically monitor the dielectric constant of the material as low as 1.3, making it a superior guided wave radar for powders and solids. Advanced, high resolution signal processing significantly reduces or eliminates the upper deadband, ensuring accurate level measurement at the top of the vessel. The TDR technology is proven to work in difficult applications with excessive steam, condensation, or buildup. The GWR-2000 excels in challenging conditions such as vessels with high dust and air movement, or excessive noise.

## Reliable and Maintenance Free

The GWR-2000 housing is available in plastic, stainless steel, or aluminum and has IP66/IP67/IP68 ratings (dependent on enclosure selected) for protection against dust ingress and water. Housings are configured as a single chamber when requiring a two-wire output or a dual chamber for the four-wire / Modbus RTU output. This robust sensor comes with a 6 mm cable with a gravity weight at the end to stabilize the cable location. Each sensor is made-to-order with a ready-to-install cable made to your custom length at the factory.

Guided wave radar can be used in metal or concrete vessels equally well. The sensor design makes it immune to buildup, resulting in virtually maintenance-free operation. The GWR-2000 has self-activating false signal suppression for increased reliability and level accuracy. Automatic probe monitoring reports immediately if the probe is broken to avoid damage to discharge equipment in the bottom of the vessel.

## Data to a PLC, Cloud, or PC Software

The GWR-2000 offers a wide array of communications options. Data can be sent to your PLC using a 4 - 20 mA output or Modbus RTU communications. Alternatively, data can be sent to BinMaster's cloud-based BinView program or to BinMaster's LAN-based eBob software. When using Binview or eBob, an assortment of other sensors from BinMaster or other Modbus-compatible sensors can be monitored from the program.

## Fast and Simple Setup with BinDisc

An optional BinDisc interface enables push-button sensor setup and configuration.

The BinDisc is integrated into the sensor housing and is installed and visible under the housing cover for easy viewing. BinDisc simplifies setup and provides continuous, at-a-glance, operational status of the sensor. This handy interface aids in on-site system diagnosis. Data can also be sent to a PLC in a control system



# GWR-2000 Excels in Bulk Solids

The GWR-2000 can be used in a variety of powders, granules, pellets, and other bulk solids in a variety of plastic, cement, or steel vessels. With the ability to measure materials with a dielectric as low as 1.3

and an upper dead band of just over 3 inches, it is very versatile and reliable in a wide range of applications. The sensing cable allows it to be used in narrow or chambered vessels, as well as vessels with corrugation.



**Grain**



**Milling**



**Pet Food**



**Cement**



**Seed**



**Lime**



**Pigment Powders**



**Wood Pellets**



**Food**



**Chemicals**



**Animal Feed**



**Plastics**

# GWR-2000 Specifications



<b>Measuring Range</b>	100 feet (30.48 meters)
<b>Accuracy</b>	± 0.08" (2mm)
<b>Power Requirements</b>	Low Voltage Version: 9.6 to 48 V DC, 20 to 42 V AC, 50/60 Hz Regular Voltage Version: 90 to 253 V AC, 50/60 Hz
<b>Process Temperature</b>	-40°F to 392°F (-40°C to 200°C)
<b>Process Pressure</b>	-14.5 to +58Ø psig (-1 to +40 bar)
<b>Mounting</b>	1-1/2" NPT opening or 3" ANSI flange
<b>Housing Material</b>	Plastic, aluminum, or stainless steel
<b>Enclosure Rating</b>	IP66/IP67/IP68 dependent on housing
<b>Approvals</b>	CSA / FM Class II, Div 2, Groups E, F, G - Other Approvals Available
<b>Output</b>	Two-wire 4 - 20 mA/HART®, Four-wire 4 - 20 mA/HART®, Modbus RTU

