



**The Leader in Dry Bulk Level Measurement**

## ORIGINAL, GENUINE

Established in 1936, Bindicator® has built level switches to solve the toughest bulk material handling challenges. We have more history and experience with dry bulk level measurement than any other company. There are over a million Bindicator® level instruments at work every day around the world.

## PRODUCTS THAT ARE BUILT TO LAST

Bindicator® has always emphasized heavy-duty construction and rugged designs. Bindicator® products are built to withstand rough treatment and extreme environmental conditions. Our products are built in an ISO-9001 factory and are endorsed by leading approval agencies including UL, FM, CSA, and ATEX.

## APPLICATION EXPERTISE YOU CAN RELY ON

Bindicator® is well known for our applications engineering expertise and after sales service. Our application engineers and service technicians understand the various types of materials and the vessels in which they are stored and processed. These application experts take genuine responsibility in ensuring the right product is applied in each application.

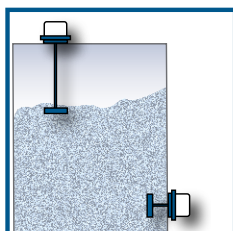
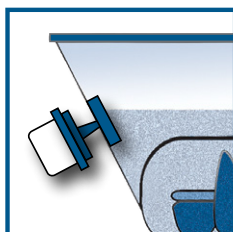
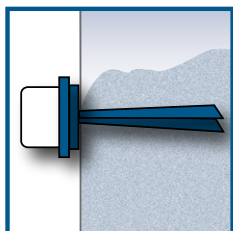
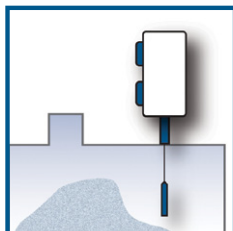
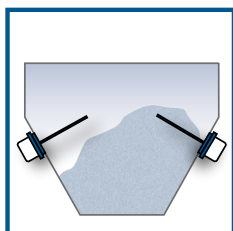
## DEDICATED TO YOUR SUCCESS

Bindicator® stands behind its products. We have been a leader in the industry for decades because we deliver value.





Bindicator® has a product  
that best fits  
your application:



\* MARK-4 ONLY

\*\* TO 90 PSI WITH SPECIAL LIP SEAL

	POINT LEVEL							CONTINUOUS LEVEL				
	VRE®/RF Capacitance Cable Series	VRE®/RF Capacitance Integral Series	VRE®/RF Capacitance Remote Series	Pulse Point™ LP-100	Pulse Point™ LP-200 (remote)	Roto-Bin-Dicator®	Bin-Dicator® Diaphragm	Yo-Yo™ (GP-4 and Mark-4)	TDR-2000 Guided Wave Radar	Phase Tracker®	SonoTracker™	Cap-Level® II/IIA
<b>Material</b>												
Powder	•	•	•	•	•	•	•	•	•	•	•	•
Granular	•	•	•	•	•	•	•	•	•	•	•	•
Slurry	•	•	•						•	•	•	•
Liquid	•	•	•					•	•	•	•	•
<b>Material Density</b>												
Very Low <10 PCF				•	•			•				
Low >10 PCF		•	•	•	•	•	•	•	•	•	•	
High >40PCF	•	•	•	•	•	•	•	•	•	•	•	•
<b>Material Moisture</b>												
Low	•	•	•	•	•	•	•	•	•	•	•	•
High	•	•	•	•	•	•	•	•	•	•	•	•
<b>Temperature</b>												
High [over 200°F)			•		•		•	*				
<b>Pressure</b>												
<10 PSI	•	•	•	•	•	•		•	•	•	•	•
10-50 PSI	•	•	•	•	•	•			•	•	•	•
50-100 PSI	•	•	•			**			•			
<b>Vibration</b>												
Low	•		•		•	•	•	•	•	•	•	•
High							•		•	•	•	
<b>Material Coating</b>												
Minimal	•	•	•			•	•	•	•	•	•	
Heavy Build Up	•	•	•			•		•			•	
<b>Corrosive</b>												
Mild	•	•	•	•	•	•	•	•	•	•	•	•
Aggressive		•	•								•	•
<b>Installation</b>												
Vertical (Top)	•	•	•	•	•	•	•	•	•	•	•	•
Horizontal (Side)		•	•	•	•	•	•					
Non-Contact											•	
<b>Atmosphere</b>												
Dust	•	•	•	•	•	•	•	•	•	•	•	•
Steamy				•				•	•			
Non-Air Vapor	•	•	•	•	•	•	•	•	•	•		•
Liquid/Solid Inter.				•	•			•				

# Roto-Bin-Dicator®

The Roto-Bin-Dicator® is the most universal of all level sensing technologies and is the most popular level switch used in dry bulk materials. The Roto-Bin-Dicator® is a rotating, paddle-type bulk material level sensor. It offers a wide variety of paddle options for unequaled application versatility. It is easy to install and requires no special tools or calibration.

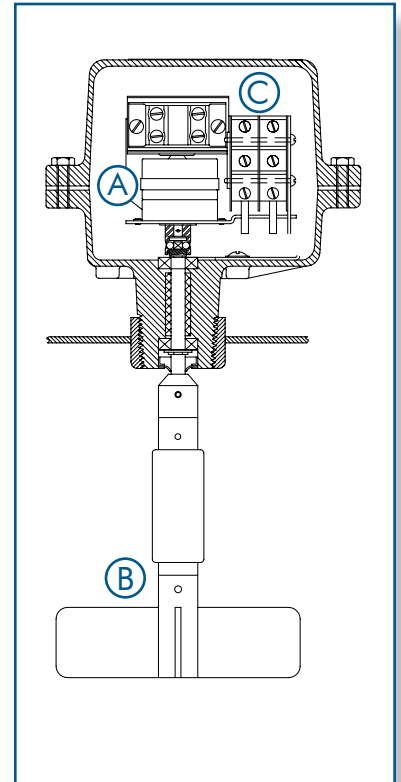
## FEATURES AND BENEFITS

- **Simple Mechanical Device**  
No calibration required
- **Wide Variety of Paddle Options**  
Unequaled application versatility
- **Ease of Installation and Maintenance**  
Mount in Any Orientation  
Gives user the option of applying sensor for high, intermediate, or low level control
- **Cover with Captive Screws**
- **1 or 2 SPDT Switches**  
Gives user the capability to turn off or on up to two auxiliary devices
- **Explosion Proof and Stainless Steel Enclosures Available**
- **Special Motor Design**  
Allows power to be applied all the time, producing heat and eliminating condensation inside the enclosure
- **Fail-Safe Protection**  
Low-level, High level
- **Power Status and Alarm Lights**  
Green LED indicates power status and red LED indicates alarm status
- **Test in Place**  
Test by using a magnetic fob without removing the cover



## How the Roto-Bin-Dicator® Works

- 1 The Roto-Bin-Dicator® incorporates a low torque, slow speed synchronous motor (A). The motor rotates a paddle (B) which is extended into the bin.
- 2 As the material level rises to the Roto-Bin-Dicator®, the paddle is stopped, which in turn stalls the motor. As the motor stalls, it actuates switches.
- 3 The torque of the motor, while stalled, serves to keep the switches actuated (C) while the paddle rotation is stopped by the presence of bulk material.
- 4 The switches in the Roto-Bin-Dicator® serve to energize audible and visual signal systems and/or stop and start machinery such as conveyors, elevators, feeders, etc.



## Typical Applications

Roto-Bin-Dicator® level switches can be used to eliminate bin overflow, empty bins, clogged conveyors, or choked elevators. The Roto-Bin-Dicator® can be used on practically any bulk material such as:

- coal
- feed
- grain
- powders
- chemicals
- aggregates
- food products
- cement

### Original



- Low level fail-safe protection
- Low torque motor
- Few parts

### Super-Safe-Plus



- High or low level fail-safe operation
- External status LEDs
- External function test using magnetic fob

### Mini



- Compact size
- Adjustable sensitivity
- External LED

# Pulse Point™

The Pulse Point™ is an electronic vibratory level control especially effective in lightweight powders and granular solids. Because the Pulse Point™ senses material using a mechanical principle, the dielectric constant of the material is irrelevant.

## FEATURES AND BENEFITS

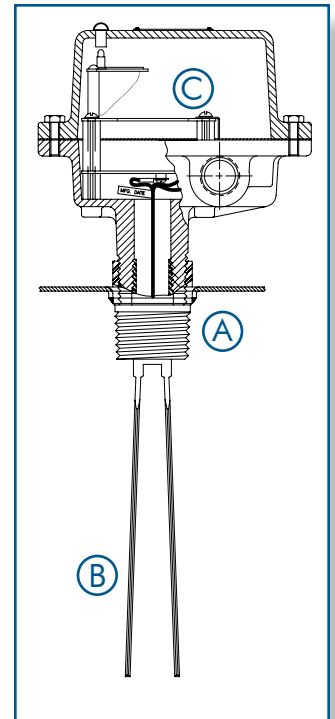
- **Simple Mechanical Device**  
No calibration required
- **1¼" or 1½" NPT Top or Side Mount**  
Multiple mounting options to choose from
- **Dual-Tine, Self-Cleaning Action**  
Will not "rat hole" like single-tine vibratory units
- **Field-Selectable Fail-Safe Operation**  
Low-level  
High-level
- **DPDT (LP-100) or SPDT (LP-30) Switches**  
Gives user the capability to turn off or on for up to two auxiliary devices
- **Adjustable Time Delay**  
Switch activation can be delayed to user defined time settings (0-25 seconds)
- **Ability to Sense Lightweight Materials**  
Densities as low as 2 lbs/ft<sup>3</sup> (32 kg/m<sup>3</sup>)
- **Cover with Captive Screws**
- **Power Status and Alarm Lights**  
Green LED indicates power status and red LED indicates alarm status
- **Test in Place**  
Test by using a magnetic fob without removing the cover





## How the Pulse Point™ Works

- 1 Piezoelectric crystals (A) in the base of the fork create and sense movement of the tines (B). When electrical voltage is applied to the crystals (C), it causes them to oscillate at a fixed frequency.
- 2 When material contacts the tip of the fork, the oscillation diminishes.
- 3 The crystals (A) sense the difference in oscillation and change the state of the output relay.



## Typical Applications

The Pulse Point™ products are designed for use in dry materials which are heavily aerated or lightweight such as:

- plastics
- reground plastic film
- tobacco
- cement
- sawdust
- carbon black
- paper shavings
- sand
- insulation
- light fibers
- dry cereals
- clay

### LP-100



- External LED power and alarm lights
- DPDT output relay
- External function test using magnetic fob
- No calibration required
- Liquid/solid interface detection

### LP-30



- Simple design
- SPDT output relay
- Dual conduit housing allows for separation of input wiring and alarm wiring

### LP-200



- Remote version of LP-100
- High temperature applications up to 248°F (120°C)
- External function test using magnetic fob
- No calibration required
- Liquid/solid interface detection



# VRF®/RF Capacitance Series

The Bindicator® VRF (Radio Frequency) Series is a family of point level switches used to detect the presence or absence of material at a point inside a tank, bin or other vessel. The RF Series is used for high and low level detection in thousands of applications from bulk solids to slurries and liquids.

## FEATURES AND BENEFITS

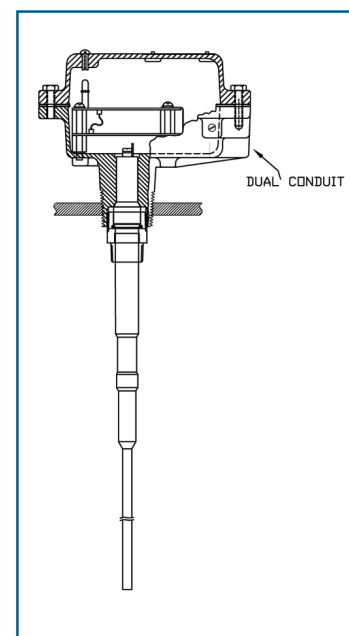
- **Opti-Sense™**  
Uses variable radio frequency (VRF®) technology to determine the optimal operating frequency for greatest sensitivity and stability
- **Wide Variety of Probe Options**  
Unequaled application versatility
- **Test In Place**  
Test by using a magnetic fob without removing the cover (VRF®-2000 and selected RF Explosion Proof Models)
- **Pro-Guard™**  
Probe design ignores material build-up on probe
- **EZ-Cal™ II for VRF®/EZ-Cal™ for RF**  
No initial manual calibration required
- **Calibration Status and Alarm Lights**  
Green LED indicates calibration status; red LED indicates alarm status (VRF®-2000 and select RF Explosion Proof Models)
- **Cover with Captive Screws**
- **Hazardous Location Approvals for Gas and Dust** (RF Explosion Proof Models)  
Class I, Groups C & D (Gas)  
Class II, Groups E, F, and G (Dust)  
ATEX Approvals (II 2G T6)





## How the VRF® Series Works

- 1 The sensing electronics of the VRF® have been designed to detect the difference between the electrical characteristics of air (no material) and the material being detected.
- 2 A microprocessor digitally analyzes voltage and current values to characterize the complex impedance seen by the probe. The digital signal processor continuously analyzes the conductance and susceptance of the probe circuit and calculates when to alarm the unit.
- 3 EZ-Cal™ II automatically calibrates the unit to air. The VRF® can be installed in a silo with or without material. If installed in material, as material discharges and leaves the probe, the VRF® will sense the lower load capacitance and recalibrate.



## Typical Applications

The VRF®/RF Series are well suited for severe applications including high temperatures, high pressures, and corrosives. Specific applications include, but are not limited to:

- coal
- flour
- grains
- plastics
- sawdust
- flyash
- sugar
- asphalt
- concrete
- pharmaceuticals

### VRF® Series



VRF®-2000 Shown

- EZ-Cal™ II
- External function test using magnetic fob
- Dual conduit housing
- External CAL and alarm lights (VRF®-2000)
- Calibration indication output relay (VRF®-2000)

### RF Explosion Proof Series



RF-9200 Shown

- EZ-Cal™
- Class I, Groups C and D (Gas)
- Class II, Groups E, F, and G (Dust)
- ATEX Approvals (II 2G T6)

### Remote Version



VRF®-2000 Remote Shown

- EZ-Cal™ II (VRF®-2000)
- High temperature applications up to 1000°F
- For high vibration applications
- Dual conduit housing (VRF®)
- Explosion Proof Models Available

The original electromechanical point level switch, Bin-Dicator® diaphragm-type level controls were the first to enjoy general usage in the industry. Bin-Dicator® controls eliminate bin overflow, empty bins, clogged conveyors, choked elevators and resulting damage and waste.

## FEATURES AND BENEFITS

- **Simple and Rugged Construction**  
Can be mounted outside the bin for lower installation costs
- **Simple Operating Mechanism**  
Makes entire unit readily accessible for inspection for lower maintenance costs
- **Many Variations Available**  
For use in a wide range of dry materials and conditions of temperature, corrosion and moisture
- **SPDT Switch**  
No electronics to power

## How the Bin-Dicator® Works

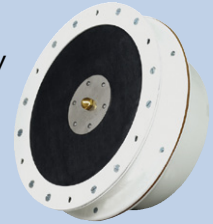
- 1 The Bin-Dicator® control is a pressure actuated switch for use with free flowing bulk materials at atmospheric pressure.
- 2 Actuation of the switch is the result of pressure exerted by the bulk material against the diaphragm assembly.
- 3 De-actuation or switch release is a result of the bulk material clearing away from the diaphragm.

## Typical Applications

- chemicals
- mining
- plastics
- ceramics

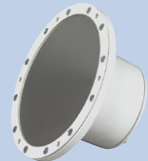
## Model "A"

- 10 ¼" diameter
- Explosion proof model available
- 7 diaphragm material options
- Heavy duty



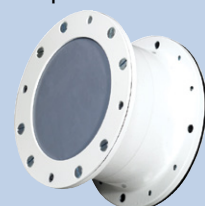
## Auto-Bin-Dicator®

- 8" diameter
- Explosion proof model available
- Cast aluminum housing
- Neoprene or stainless steel diaphragm material
- Medium duty
- 5¾" diameter



## Bantam

- 2 diaphragm material options
- Light duty
- Ideal for tight quarters or limited spaces

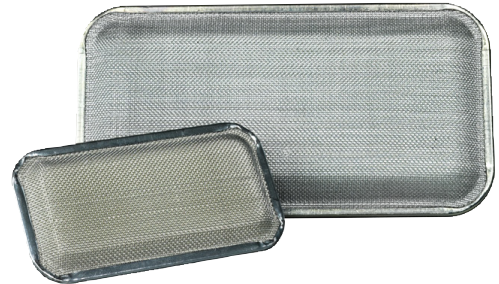


# Bin-Flo®

The Bin-Flo® aerator is a simple and efficient means of introducing low pressure air into any dry finely ground material. The air is equally distributed in controlled quantities to give the material the ability to flow by gravity from bins, hoppers or chutes. Bin-Flo® aerators incorporate non-clogging diffusers, an integral orifice and construction features which assure long, maintenance-free life.

## Typical Applications

- detergents
- chemicals
- clay
- sawdust
- feed
- flour
- cement
- fly ash



- **Simple Installation**  
Can be installed from inside or outside the bin, only one drilled hole needed per pad
- **Integral Orifice**
- **Non-clogging Diffuser**

# Flo-Guard™

Flo-Guard™ is a stable and reliable Broken Bag Detector and a Flow/No-Flow Switch for dry, powdered, and granular materials. The Flo-Guard™ uses a floating alarm point reference and a digital triboelectric microcontroller to eliminate instability common in other flow switches.

## Typical Applications

- grains
- plastics
- sawdust
- food
- aggregates
- chemicals



- Easy set-up
- External function test using magnetic fob
- External alarm and power LEDs
- Field selectable fail-safe operation
- Remote version available

The Bindicator® Yo-Yo™ sensors comprise a reliable continuous weight and cable level measurement system designed especially for dry bulk materials.

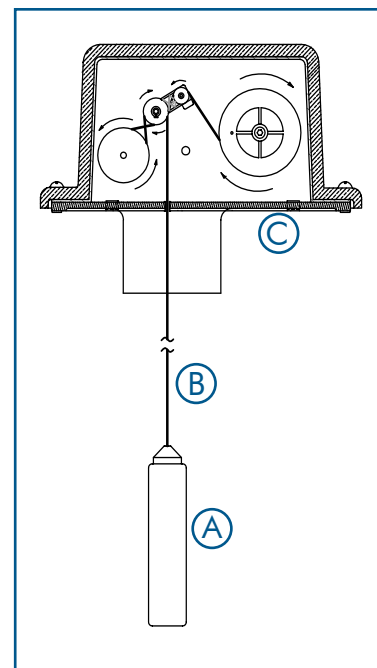
## FEATURES AND BENEFITS

- **Silos up to 100 ft (30.5m)**  
Large range of silo heights can be accommodated
- **1cm (0.39 in) Resolution**  
Most accurate readings
- **Isolated 4-20mA Output with Adjustable Span (Reversible)**  
No loop isolator is required when connecting to a PLC or DCS
- **RS-485 Communication**  
MODBUS protocol
- **Remote Display Programmer with Keypad**  
4-line x 20-character backlit LCD display  
Programmable sensor names and ranges  
Enable/Disable network addresses  
Request Manual Measurement
- **ORB™ Enabled** (See Page 16)  
Remote Inventory System
- **Variety of cables and weights available**



## How the Yo-Yo™ Works

- 1 The Bindicator® Yo-Yo™ is an electromechanical device consisting of a sensor mounted on the top of a vessel.
- 2 The sensor contains a weight (A) suspended by a cable (B) with motion provided by a motor drive (C) and associated electronics.
- 3 The measurement cycle is initiated either on demand or on a timed interval and causes the sensor to lower the weight to the material level. As the weight is being lowered, the length of cable dispensed is measured in 1cm (0.39 in) increments.
- 4 When the weight reaches the material level, the unit reverses and the weight is drawn into the stored position in the sensor. The distance measurement can then be transmitted to any device via a 4-20mA output. Alternatively, it can also be transmitted via RS-485 MODBUS to the display/programmer or to a Bindicator® ORB™ Remote Inventory System (See Page 16).



## Typical Applications

- aggregates
- pellets
- plastic resin
- liquid/solid
- powders
- liquids
- granules
- food interfaces

### GP-4

- NEMA 4X
- UV resistant polyethylene enclosure
- Low profile
- Corrosion resistant



### Mark-4

- NEMA 4X/7/9
- Cast Aluminum housing
- Rugged construction



### Remote Display

- 4-line x 20 character backlit LCD display
- Monitors and requests readings of up to 99 vessels
- Programs vessel parameters and enables/disables sensors



# SonoTracker™

The SonoTracker™ Ultrasonic Level System uses transducers of various frequencies to monitor up to 16 vessels of different heights and shapes. The system can accurately measure the level of many different materials like powders, solids, liquids and slurries.

The SonoTracker™ is easy to set up and can provide usable level information within minutes of start-up. For continuous non-contact level measuring and monitoring in your bins and silos, the ideal solution is Bindicator®'s SonoTracker™ Ultrasonic System.

## FEATURES AND BENEFITS

- **Quick Configuration**  
Menu driven quick set up in less than 5 minutes
- **Modular Design**  
Configurable for number of sensors, relays, point level inputs, current loops, and PLC interfaces
- **Multiple Functions In One Unit**  
Solids and liquid level, open channel flow, and differential level measurement. Adjusts system parameters and pre-calibrates unit without special software
- **Continuous Non-Contact Level Measurement**  
No contamination of material, no lost parts or cables, no material build-up on sensing face
- **Sentry DSP™**  
Provides stable and accurate reading under process conditions
- **NEMA 4X Enclosure**  
Suitable for outdoor installations
- **Built-in Optically Isolated Serial Port**  
Versatile interfacing for data collection, servicing and building large multi-vessel communications systems
- **ORB™ Enabled** (See page 16)  
Remote Inventory System





## How The SonoTracker™ Works

- 1 Sound energy (A) is transmitted towards the material surface.
- 2 Time required to send and receive “echo” is used by processor to calculate level.

## Typical Applications

- aggregates
- plastic resin
- powders
- granules
- pellets
- liquids

## FEATURES AND BENEFITS

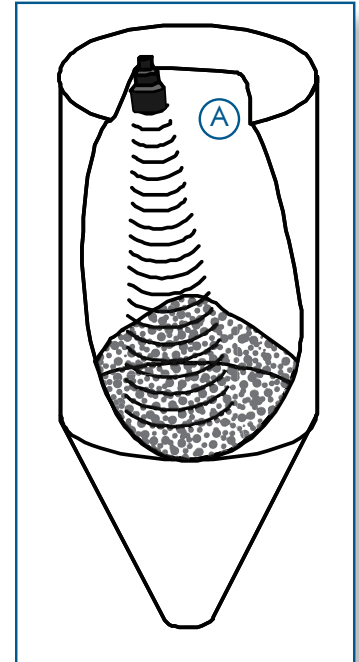
The range of sensors allows you to read levels from 1 foot to beyond 100 ft in solids. The BT-55 transducer has an extremely narrow beam angle, designed specifically for plastic pellet applications.

### • Versatile

The transducers are designed for your specific application and environment. Available in frequencies of 14kHz, 22kHz, 24kHz and 43kHz to fit a variety of materials and distances.

### • Accurate

Our transducers have an accuracy of 1% of rated span in approved bulk solids applications and 0.25% of rated span in approved liquid applications.



**BT-26**



**BT-101**



**BT-55**



# TDR-2000

The TDR-2000 provides continuous, non-mechanical level measurement, utilizing guided wave radar technology. The TDR-2000 is particularly suited for measuring the level of solids, granules, and powders as well as a wide range of liquids. For many application, the TDR-2000 is an economical and superior alternative to capacitance, ultrasonic, and plumb bob technologies.

## FEATURES AND BENEFITS

- **Flexibility for a wide range of applications**

Suitable for a broad range of tank sizes, geometries and internal constructions.

Ideal for dirty service applications.

- **Accurate and reliable level measurement across a range of dynamic process conditions**

Insensitive to changes in dielectric, pressure, conductivity, vacuum, humidity, dust, viscosity, vapor, foam, pH, bulk density, temperature or turbulence.

Unaffected by filling or emptying conditions such as dust, noise and material movement.

The TDR-2000 is intrinsically safe and approved for use in hazardous locations.

- **Easy Installation**

Simple to install in new tanks or retrofit in existing tanks.

Can be installed while tank is in service.

Does not require special configuration to compensate for environmental or structural conditions.

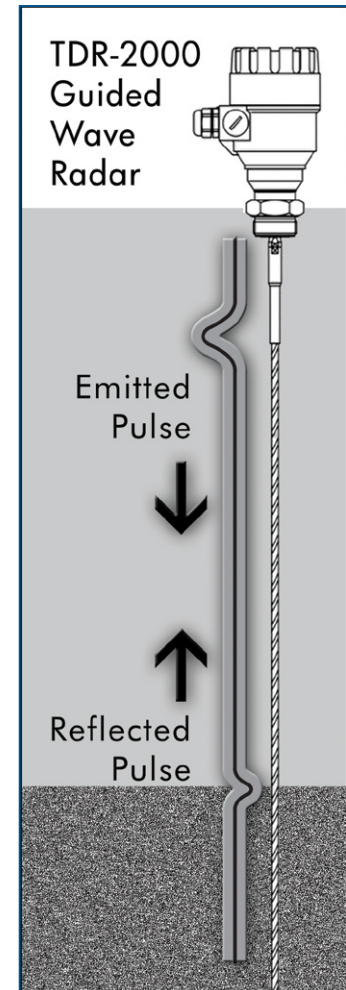
Convenient HART® compatible  
24V 4-20mA loop-powered wiring.

Factory calibrated and configured.



## How The TDR-2000 Works

- 1 The TDR-2000 two-wire guided microwave level transmitter uses the TDR (Time Domain Reflectometry) principle. The instrument sends low power nanosecond-wide pulses along an electrically conductive rod, cable or coaxial probe with a known propagation speed (the speed of light).
- 2 As the pulse reaches the surface of the medium (altered dielectric constant  $\epsilon_r$ ), a part of it is reflected back to the electronic module. The efficiency of the reflected signal depends on the dielectric constant ( $\epsilon_r$ ) difference of the mediums.
- 3 The reflected pulse is detected as an electrical voltage signal and is then processed by the electronics. Level distance is directly proportional to the flight time of the pulse.
- 4 The measured level data is converted to 4-20mA current and HART<sup>®</sup> signals and is displayed on the LCD display. From the level data, further derived measuring values can be calculated such as volume and mass. The TDR-2000 is unaffected by the other properties of the medium as well as that of the space above it.



## Typical Applications

### SOLIDS AND POWDERS

- Feed, grains, seed
- Food products, pharmaceuticals
- Cement, granules, chips, stucco
- Coal, sand, lime, minerals

### LIQUIDS

- Chemicals and corrosives
- Resins, oils, syrups
- Wastewater, sludge

# ORB™ Remote Inventory System

The ORB™ Remote Inventory System transforms inventory and process data into management information that can increase productivity and reduce supply chain costs. By providing a reliable means of gathering and transmitting real-time inventory and process information via your LAN or the Internet, high volumes of data can be securely monitored, retrieved and organized by various users within the plant or remotely.

## FEATURES AND BENEFITS

### Remote Inventory Management

- Access inventory information and stored data from a remote location
- Manage multiple sites with multiple vessels
- Manage inventory via the internet
- Set notifications/alarms to automatically send alerts via email

### Increase Supply Chain Visibility

- Automate re-order process with suppliers
- Grant permissions for remote supplier communication
- Improve efficiencies with real-time accessibility to inventory levels

### Improve Data Management

- Integrate or import to the ERP System
- Store historical data
- Run reports for tracking trends or other statistical measures

### Reduce Local Site Maintenance

- Store and replicate calibration settings for all vessels remotely
- Remote instrument maintenance
- Eliminate routine and manual inventory reporting

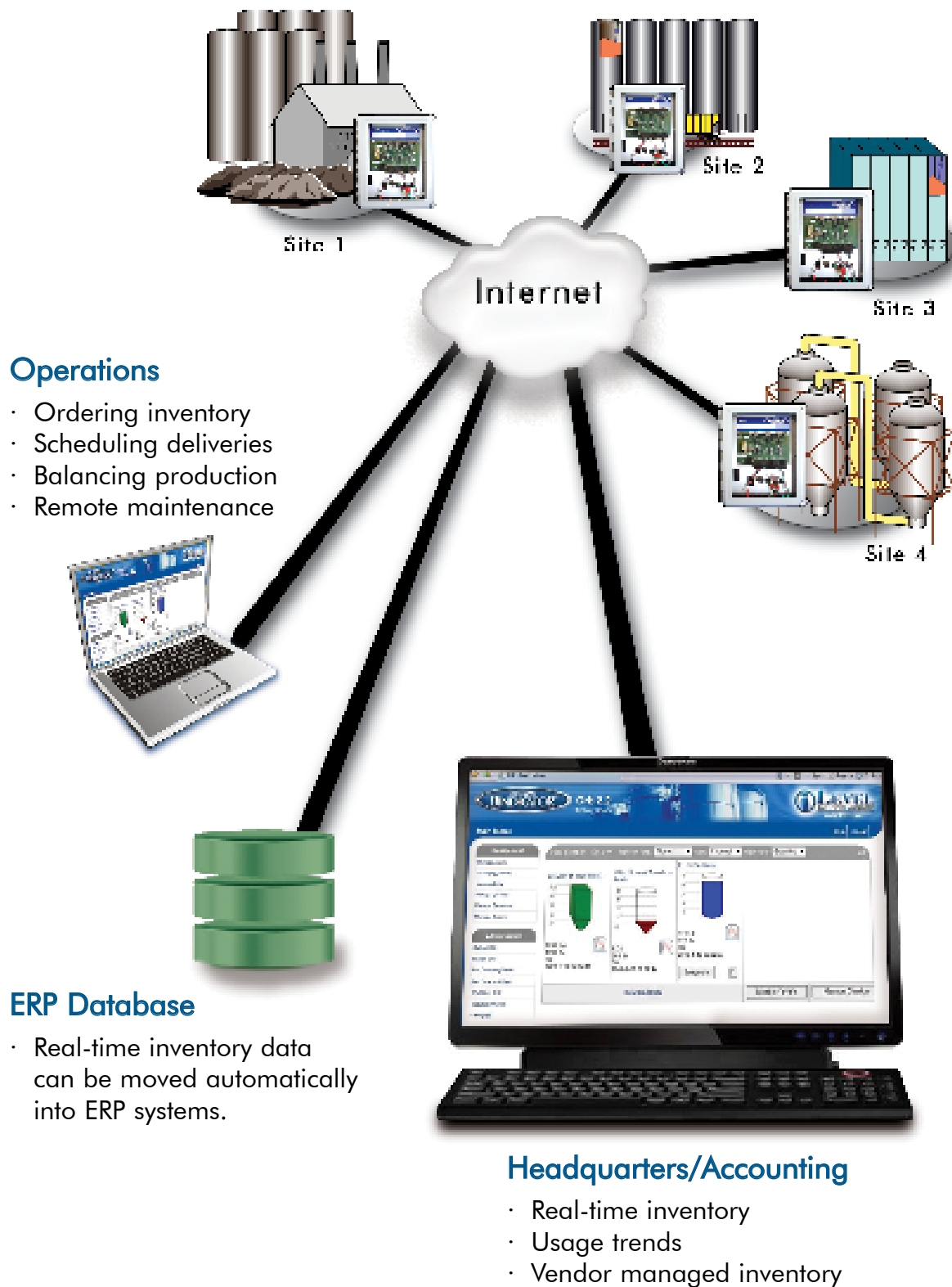
### System Description

The ORB™ is a controller that connects to process instrumentation via serial and 4-20 dedicated interfaces. The ORB™ contains a database and integrated web server. It becomes a gateway between process instruments and the Internet. The ORB™ web pages can be accessed using any browser from any device that has Internet connectivity.



The ORB™ generates and updates a real-time website using level and process data from multiple silos and tanks across geographically distant physical locations and tank farms.

## How the ORB™ Remote Inventory System Works



A map of North America, including the United States, Canada, and Mexico. The map is overlaid with a grid of small blue triangles, each representing a Bindicator representative location. The triangles are distributed across the entire continent, with a higher density in the United States. Above the map, there is a blue oval with a silver border containing the text "genuine BINDICATOR®".

*genuine*  
**BINDICATOR®**

Bindicator® has an established network of trained representatives across North America that stock Bindicator® level instruments. Visit our website or call us to be directed to the Bindicator® representative in your area.

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[www.bindicator.com](http://www.bindicator.com)

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