AMETEK Drexelbrook is known throughout the world as a leader in level measurement technology. We’ve earned our reputation for excellence from over four decades of experience in providing level solutions to virtually every industry...including chemical, petrochemical, refining, power, water and wastewater, food, pharmaceutical, pulp and paper, mining, automotive, and many others.

Our prestigious position stems from a unique combination of application expertise, innovative product design, and breadth of technology offerings. Drexelbrook pioneered, and continues to advance, RF Admittance level instrumentation. Today, we also offer superior Ultrasonic, Magnetostrictive, Hydrostatic Pressure, Radar, and TDR instrumentation. This comprehensive product offering enables us to provide our customers with the best level or open channel flow measurement solution for any application...from the most basic to the most complex.

We pledge to always provide our customers with a quality solution using the measurement technology that is best suited for the application.

Sincerely,

The Employees of AMETEK Drexelbrook and Our Worldwide Network of Representatives and Distributors.
Level Measurement

Modern instrumentation features many different technologies to satisfy the ever-growing requirement for the measurement of level, in a wide variety of applications. Level measurements can be classified into two major categories – point level measurement and continuous level measurement.

- **Point Level (ON/OFF)** measurement indicates the absence or presence of level at a certain threshold (point) within a vessel. Point level switches are used as high level and spill prevention alarms, low level and pump protection alarms, and to turn final control elements on and off.

- **Continuous Level (Proportional)** measurement indicates the level in a vessel over the full span of measurement. These devices are typically used for process control, inventory control, and management.

Technologies used to measure level are affected differently by the varying process conditions. No single technology is appropriate for all application needs. To satisfy these needs, Drexelbrook offers nine different level measurement technologies. At Drexelbrook, our goal is to provide the most appropriate technology for your application needs. Our pre-sale application engineering support will insure you are recommended the most appropriate technology and how it can best be applied.

**RF Admittance**
Although similar to the capacitance concept, this technology employs a radio frequency signal and adds circuitry that enables the instrument to ignore the effect of buildup or material coating on the sensing element. RF Admittance is unaffected by temperature, pressure, or density changes in the process material, making it by far the most versatile technology, good for a very wide range of conditions from cryogenics to high temperature, from vacuum to 10,000 psi pressure. RF Admittance works very well on a wide range of liquid and solid applications. It has also proven itself many times on some of the most difficult interface applications and installations where foam and vapors are present.

**Radar**
Frequency Modulated Continuous Wave (FMCW) through-air transmission allows for accurate reading of reflected electromagnetic signals from the surface of process materials. The technology provides a level measurement without making contact with the process material and is suitable for level measurement of both liquids and solids.

**Magnetostrictive**
A ferro-magnetic wire protected by process compatible tubing provides the basis of accurately detecting the position of a float with embedded magnets. An electrical pulse is transmitted on the magnetostrictive wire. As the traveling pulse intersects the magnetic field from the float, a torsional pulse is reflected back to the electronic circuit that makes a transit time measurement. This provides highly accurate readings of both level and interface measurements of non-viscous materials.

**Conductivity Switch**
The resistance between two probes, or a probe and vessel wall, is significantly higher in air, than in a conductive liquid. When a conductive liquid is brought in contact with the probe, a drop in resistance measured between the two probes will change output status.

**Ultrasonic**
For point level measurement, ultrasonic gap switches have one crystal electrically resonating at a fixed frequency that generates sound waves, which travel across an air gap to a second crystal. As material fills the gap, sound has a better medium to travel, causing the second crystal to resonate with the first. In continuous level measurements the transmitter generates an ultrasonic pulse to the surface of the material in the vessel. The length of time it takes for the signal to return to the transducer is proportional to the level. This technology is suitable for liquid level and open channel flow measurements.

**Time Domain Reflectometry (TDR)**
An electromagnetic wave is guided by a metallic rod or flexible cable. The electromagnetic wave travels in a tightly focused beam to the surface of the process material. The process material reflects the wave back along the rod or cable, making this technology advantageous in applications that may have internal vessel obstructions. This technology is suitable for liquid, solid, and interface measurements. TDR uses lower energy levels than airborne radar technologies.

**Hydrostatic Pressure**
The immersion transmitter uses a sensing diaphragm that seals the electronic circuitry from the process. The transmitter is a 2-wire device that generates an analog signal proportional to the liquid level above the sensor.

**Vibration**
Vibration switches, such as tuning forks, are used for point level measurements. The tuning fork uses piezoelectric crystals to drive the fork and make it vibrate at a specific frequency. When the tuning fork is covered in the product, the frequency changes. This change is detected by the internal oscillator and converted to a switching command, which changes the output state of the switch. Vibration is best suited for liquid level measurements.

**Float Switch**
Generally used to measure liquid levels only, this technology is easily understood and widely used. A low density float is mounted in the vessel and magnetically coupled to a limit switch.
IntelliPoint RF™

Our BEST and most versatile point level switch for liquids, slurries, granulars, and interface applications. With the IntelliPoint, simply install the sensor in your vessel and connect the power. The IntelliPoint, with an Auto-Ranging power supply, automatically calibrates itself. The self-test function of the IntelliPoint insures proper system operation. An AutoVerify™ self check circuit continuously monitors the complete system to verify it is functioning properly. The manual Certify™ not only checks the function of the system, but also checks the AutoVerify self-test circuits to make sure that they are also working properly. All these features make the IntelliPoint the most versatile RF switch on the market.

- Auto-Calibration
- Cote-Shield™ circuitry ignores coatings
- Auto-Ranging power supply
- Dual compartment housing
- Relay or current outputs
- Integral or remote mount electronics
- AutoVerify™ and Certify™ test features
- No moving parts for maintenance free operation
- Applications from cryogenic to 2,000°F, vacuum to 10,000 psi
- 3A/sanitary sensors available
- Time delay
- Optional SIL 1 and SIL 2 compliant models
- 3 year warranty

ThePoint™

An excellent product for most of your point level application needs. ThePoint offers many of the features and benefits of the IntelliPoint, at a more economical price. Maintenance free and no moving parts make this the ideal choice to replace high maintenance, less robust point level products. ThePoint is the BEST VALUE for a no calibration point level switch in the industry.

- Auto-Calibration
- Push-button selectable manual calibration and high sensitivity for special applications
- Cote-Shield™ circuitry ignores coatings
- Auto-Ranging power supply
- Relay or current outputs
- Integral or remote mount electronics
- No moving parts for maintenance free operation
- Applications from cryogenic to 500°F, vacuum to 1,000 psi
- 3A/sanitary sensors available
- Time delay
- Optional SIL 1 and SIL 2 compliant models
- 2 year warranty

Z-Tron III™

Economical, general-purpose level switch for many liquids, slurries, and granular applications. The Z-Tron III is a general-purpose point level switch that will meet many of your point level measurement needs. Designed by the leader in RF technology for over 4 decades, the Z-Tron III provides reliable point level operation at an economical price.

- Auto-Calibration
- Cote-Shield™ circuitry ignores coatings
- One-time calibration through a simple potentiometer adjustment
- Relay outputs
- No moving parts for maintenance free operation
- Temperatures to 250°F at 200 psi
- Time delay
- 1 year warranty

TF-100™ Series

The TF-100 Series vibration technology level switch is an excellent choice for most high or low-level liquid level measurement requirements. The TF-100 requires no calibration and is not affected by changes in electrical properties of the material being measured.

- Relay, current, or PNP outputs
- Temperatures from -58°F to 302°F
- Pressure from vacuum to 928 psi
- 3A/sanitary sensors available
- No calibration required
- 1 year warranty

VeriGAP™

Ultrasonic gap switch for liquids. Drexelbrook’s VeriGAP ultrasonic gap switch provides reliable high or low-level measurement in a wide variety of liquids. The VeriGAP requires no calibration and is not affected by changes in electrical properties of the material being measured.

- Relay or current outputs
- Integral or remote mount electronics
- AutoVerify™ and Certify™ test features (optional)
- No moving parts for maintenance free operation
- Applications to 350°F at 1,000 psi
- 3A/sanitary sensors available
- No calibration required
- 1 year warranty

Float Switch

Reliable mechanical switch for use in clean liquids; a general-purpose point level device at an economical price. Simple installation and reliable operation make float switches a good choice for many point level applications.

- Single- and multi-point products available
- Applications to 250°F and vacuum through 500 psi
- No calibration required
- 1 year warranty

Conductivity Switch

Economical level switch for liquids and light slurries. A simple device that utilizes the conductive properties common to aqueous liquids to provide point level measurement.

- Single- and multi-point products available
- SPDT relay modules
- Applications to 400°F and 2,000 psi
- 1 year warranty
Spill Prevention
RF, vibration or ultrasonic Gap-High and High-High point level indication for spill/overfill protection. Drexelbrook point level products meet EPA, OSHA, NFPA, and API recommendations for spill prevention.

Power Plant and Coal Preparation
Rugged RF point level switches are the best solution for measuring high and low level conditions of fly ash in electrostatic precipitators and bag houses. Plugged chute detectors and empty belt detectors keep the coal flowing and reduce downtime.

Fugitive Emissions and Hazardous Materials
The Perm-A-Seal™ RF sensor has a patented injection-molded sealing gland that cannot leak, even under the most severe temperature cycling. Seal-Tyte™ ultrasonic and RF sensors feature a hermetically sealed flange facing designed to eliminate leak paths.

Pilot Plant/Miniature Sensing Elements
Miniature sensing elements are available for pilot plants and other space limited applications.

Pump Protection/Low Level or Interface in Outlet Piping
Non-intrusive ring-type sensor mounts between two flanges, directly into a pipeline. This absence/presence device is also ideal for glass- or rubber-lined vessels where vessel penetration is difficult.

Food/Beverage, Sanitary, and Pharmaceuticals
These sensors come with standard 316L stainless steel Tri-Clamp® fittings that meet sanitary and 3A standards.

Floating Roof Applications
The flexible cable sensor suspends over the floating roof and indicates when the roof comes in contact with the weight.

Plugged Chutes
These sensors mount flush to the chute wall and detect the presence or absence of material and are an excellent solution for aggregate, mining, pulp and paper, and coal handling operations.

Viscous Material
Cote-Shield™ technology eliminates false alarms due to coatings. RF point level switches can be used in applications with even the most viscous materials.

Low and High Temperature
Drexelbrook point level sensing elements are designed to meet a wide range of temperature from cryogenic to over 1,500°F.

OEM Products
Drexelbrook has designed many custom point level products for OEM clients.

Interface
RF point level is the best technology for measuring the interface between two liquids such as oil and water.
### ACCESSORIES

**LCR-3200™**

The LCR-3200 receiver provides centralized tank monitoring for up to 32 2-wire point level switches. Used with the Drexelbrook 2-wire products, the LCR-3200 provides power to the point level switches and monitors the current draw. The receiver interprets the current draw and indicates if the switch is in Normal or Alarm condition. The receiver also monitors the current to indicate if the switch is in a Fault condition. Available with AutoVerify™ and Certify™ options.

**Single Channel Receiver**

The 401-400 series single channel receiver provides power and relay outputs for one 2-wire point level switch such as the 2-wire IntelliPoint™ or the 2-wire VeriGAP™. The receiver interprets the current draw of the switch and will indicate Normal, Alarm, or Fault conditions. Available with AutoVerify™ and Certify™ options.
### Wireless Interface Solution Products

AMETEK Drexelbrook wireless interface utilizes 902-928 MHz ISM band spread spectrum frequency hopping technology to guarantee a license-free, interference-free link between remote devices and the control room. Costly cable and conduit runs are eliminated and replaced with a maintenance-free, reliable wireless solution. Applications include monitoring of level, pressure, flow, and switching of discrete outputs and alarms. Any product that provides a 4 to 20 mA or discrete output can take advantage of this low cost solution that replaces expensive cable and conduit. Products are available for point-to-point and multi-point-to-point installations.
RF Admittance
Universal RF Admittance Systems, 2-wire HART Smart and Intrinsically Safe

Drexelbrook’s 45+ years of application know-how with RF Admittance technology has enabled us to compile the most extensive database of application information in the level measurement industry. RF Admittance technology provides the basis for improved level measurement in the most difficult process environments.

- Patented Cote-Shield™ circuitry ensures accuracy and reliability regardless of product build-up on the sensor
- 2-wire HART Smart and intrinsically safe
- Suitable for all liquids, slurries, and interface measurements
- Unaffected by changes in the process material density, pressure, or temperature variations
- Most versatility of any RF Admittance or capacitance systems
- The widest selection of sensing elements for full process compatibility in the harshest of environments
- One time calibration

Radar

DR7000 (2-wire) Airborne Level Radar Systems

The new DR7000, an FMCW 26 GHz radar, offers state of the art design. The DR7000 is able to operate over a 2 GHz bandwidth; this ensures sharper resolution and higher accuracy. The higher signal dynamics of the DR7000 allow the accurate detection of even the smallest level changes. The DR7000 is a 2-wire device with easy navigation display and touch screen interface, which allows for easy configuration and set up. State of the art signal processing and a large bandwidth allow the DR7000 to determine the true level in the tank, even with agitated surfaces.

- DR7000 Series 2-wire intrinsically safe design systems for the ultimate in false echo rejection, even with multiple blade set agitators
- Several antenna designs allow level measurements in liquids, slurries, solids and granular measurements to 131 ft.
- High temperature and high-pressure designs available
- Interactive help screen
- Touch screen display
- No calibration required

TDR

DR7100 (2-wire) TDR Level Systems

The new DR7100 has a more advanced design solution and higher signal dynamics than other TDR products. A sharper pulse measures thinner interfaces. The superior time base stability allows better reproducibility, which translates to better reliability.

Despite disturbances such as strongly agitated surfaces, foam, and coating on the probe or fine dust in the tank, the DR7100 will continue to measure where others fail. Most 2-wire TDR devices measure to a dielectric of 1.5. As a result, many organic compounds are not measured properly. The DR7100 will measure to a dielectric of 1.4 (and even 1.1 using superior tank bottom following mode).

DR7100 (2-wire) TDR (continued)

- DR7100 2-wire level TDR provides unparalleled performance in difficult to measure products
- 5 different probe designs to measure level to 115 ft
- Accuracy to 3mm in liquids; not affected by product variations
- Measures difficult materials that other TDRs can’t
- Interactive help screen
- Touch screen display
- No calibration required

Hydrostatic Pressure

Well Watcher™ Hydrostatic Level Gauging System

Well Watcher hydrostatic level gauge system is designed for water well level monitoring and control. Ease of installation combined with no calibration makes the Well Watcher the choice for low maintenance water well measurements.

- 2-wire intrinsically safe “down well” transmitter, factory pre-configured for specified measurement range
- Measurement ranges to 690 ft.
- Accuracy: 0.25% of range
- Simple installation with virtually no maintenance
- Large, easy to read 4-digit LED display
- Cost effective price
- Available with slim line and protected flush mount submersible transducer
- No calibration required

Magnetostriective

DM330 Magnetostriective Liquid Level Gauge

A recent technology development for highly accurate level measurement, the DM330 uses proven machine tool positioning accuracy combined with a process compatible float to offer a no maintenance, no calibration liquid level, and interface measurement system for the process industry.

- 2-wire intrinsically safe 4-20mA signal output
- 0.1% accuracy of measurement ranges up to 40 ft.
- Adjustable zero and span, configured via easy to use push buttons
- Patented low clearance head design provides wider mounting options
- Cost effective price
- No calibration required

Ultrasonic

USonic™ and USonic™-R Ultrasonic Level Measurement System

Integral or Remote Mounting Options

A new family of Ultrasonic technology products offers a 2-wire and line powered version for non-contact level measurement of liquids and slurries for level, distance, volume and open channel flow.

- Patented SMART GAIN™ circuitry automatically ignores false echoes from internal tank obstructions and agitator blades without adjustment
- Superior accuracy – 0.15% of measuring range up to 30 ft.
- Choice of display options – Level, distance, volume, flow rate, temperature, signal strength, milliamp, 2 totalizers, one resettable
- USonic – 2-wire HART intrinsically safe or explosion proof, suitable for Class 1, Division 1, hazardous locations
- USonic-R – Line powered design offers 6 programmable relays, 2 channel input for differential level, batch sample activation, pump alternation, data logging, and totalization
- Both offer over 80 flume and weir characterizations built in: custom user generated tables via a 21-point strapping table
Interface Measurements
RF Admittance has a long-standing reputation as a proven technology when making difficult interface measurements. Recent developments in TDR have also made this technology a viable solution for some interface applications. RF level is the time proven, best available technology for indication and control of process interface level. RF technology inherently provides the greatest accuracy and repeatability in interface measurements independent of density changes. Variations in the material make-up of upper and lower liquid phase will have no appreciable effect on system accuracy and recalibration will not be required.

Non-Metallic Vessels
Non-metallic vessels pose no technical problem for Ultrasonic, Magnetostrictive, Hydrostatic Pressure, Radar, and TDR technologies. Should RF technology prove to be the best selection for short span high accuracy needs or corrosive material concerns, RF sensors that incorporate an integral ground reference or a secondary ground element can be used with success.

Long Measurement Ranges
For long measurement ranges or headroom limitations, flexible sensors offer insertion lengths of up to several hundred feet for the Hydrostatic Pressure and RF Admittance technology products. The DR Series of 2-wire TDR technology allows measurement ranges of up to 115 feet in selected applications such as grain silos or liquid applications. Magnetostrictive technology allows accuracy of 0.1% of measurement span in flexible sensor designs up to a maximum range of 40 feet. Non-contact technologies such as the DR Series Radar can have measurement ranges of up to 130 feet, model and application dependent.

Short Span Measurements
RF Admittance technology provides one of the most preferred measurements in short span applications. As the level measurement span requirement decreases, the more appropriate RF technology becomes. In spans of only a few inches, RF systems can repeatedly produce accuracies of 1/32 inch. RF has the added benefit of not being limited by “Dead Zones” that are inherent with many other technologies that are typically selected for measurement ranges greater than 5 feet.

Specialized Sensors
Due to the flexibility of the RF Admittance technology, sensors for specialized service applications can easily be adapted for specific service solutions. A few of these designs have been made industry standards:

> Chlorine Measurement Sensors - designs developed that meet the standards of the Chlorine Institute.
> 3A Sanitary Sensors - designs that meet the sanitary requirements in food and beverage, pharmaceutical, and bio-tech industries.
> Pilot Plant Miniature Sensors - designs that allow the full-featured functionality of the RF technology combined with miniature sensors that will fit most smaller vessel requirements.
> Fugitive Emissions and Hazardous Material Sensors - Seal-Tyte™ sensor designs feature a hermetically sealed flange facing that eliminates any potential leak paths within the sensor.
> High Temperature or Chemical Compatibility - sensor designs for elevated temperature applications, or to meet chemical compatibility requirements, at affordable prices. New age sensor designs utilize modern chemically inert thermoplastics and ceramics that permit the use of high accuracy RF technology in many new and challenging application frontiers.
### Continuous Level Measurement Solutions

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>Universal Lite (RF)</th>
<th>Universal RF Admittance True Level</th>
<th>USonic™ Ultrasonic</th>
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The Drexelcage™ sidearm can be used with any applicable level technology currently offered by AMETEK Drexelbrook. The Drexelcage is offered with 1-1/2” or 2” connection flanges in 150#, 300#, 600#, and 1,500# ratings. In addition, our displacer displacement program (Displacer™) provides our time proven level instruments in a drop-in form for existing cages from all other manufacturers. Just pull the displacer head and mount the level transmitter on the mating flange.
## Continuous Level Measurement Solutions

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>Time Domain Reflectometry (TDR)</th>
<th>Radar</th>
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<td>Corrosives</td>
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<td>Bench Calibration</td>
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### Wireless Interface Solution Products

AMETEK Drexelbrook wireless interface utilizes 902-928 MHz ISM band spread spectrum frequency hopping technology to guarantee a license-free, interference-free link between remote devices and the control room. Costly cable and conduit runs are eliminated and replaced with a maintenance-free, reliable wireless solution. Applications include monitoring of level, pressure, flow, and switching of discrete outputs and alarms. Any product that provides a 4 to 20 mA or discrete output can take advantage of this low cost solution that replaces expensive cable and conduit. Products are available for point-to-point and multi-point-to-point installations.
Over the years a number of different level technologies have proven to be viable solutions for a broad range of industrial and municipal level applications. Because of the many different applications that exist in solid and liquid measurements and the varying application conditions, we feel that there is no one single technology that is best suited in all cases.

At Drexelbrook it is our sincere intention to never over-represent the capabilities of our products or a particular technology. The recommendations we make must represent the best solutions that we feel are appropriate when considering the application conditions and the specific needs of our valued customers.

The following represents an overview of the technologies we offer in our products. It is based on 4 decades of level experience and hundreds of thousands of applications that we have successfully addressed in both industrial and municipal markets.

AMETEK Drexelbrook will not promote any one specific technology. But, we will promote the technology that is best suited for a specific application solution. We routinely review each quotation request for level measurement instrumentation based on all parameters of application requirements, such as temperature, pressure, material compatibility, area classifications, the user’s desired accuracy needs, and what is desired to be accomplished via the measurement.

**RF Technology**

RF Admittance is one of the most versatile and robust technologies available providing both point and continuous level measurements in liquids, solids, and interface to today’s markets. RF has the ability to do short span measurements providing superior accuracies that many newer technologies cannot achieve. RF technology, by virtue of extensive sensing element designs, can provide many years of maintenance free, exceptional performance. This technology is well suited to applications with wide ranges of temperatures and pressures while withstanding severe service in harsh, corrosive environments. For interface measurement, RF admittance is unsurpassed in performance. Unlike many non-contacting technologies, RF will not lose its signal due to foams, vapor, and steam. This technology is the most versatile available for level measurement in both industrial and municipal installations.

**Ultrasonic**

Ultrasonic is applicable to both point and continuous level measurement. This technology was the first industrially accepted non-contact level measurement in the process control market. Ultrasonic technology requires no calibration, which also makes it a favorite method of low cost level measurement. Ultrasonic systems can provide high accuracy level measurements in liquid applications. Ultrasonic technology is somewhat limited to applications that do not have wide variations in either temperature or pressure. Additionally, since the ultrasonic technology is based on a traveling sound pressure wave (pulse time of flight measurement) a constant velocity via it’s media (air) is required if any degree of accuracy is to be maintained. Strong organic vapors layers above the measured materials surface will tend to alter the speed of sound, contributing to errors. However, for non-complicated applications that are at (or near) ambient temperatures and atmospheric pressures, ultrasonic technology provides a simple easy to understand approach that is typically low in price. Ultrasonic is the preferred technology for open channel flow measurement.
Radar

Radar technology corrected many of the non-contact problems that were experienced from the Ultrasonic technology. Radar’s inherent accuracy with its ability to have a more narrow beam angle avoided many vessel internal obstructions from reflecting false level signals. Radar was also unaffected by vapors, steams, and many of the undesired affects of condensation that plagued Ultrasonic level measurements. Properly applied, radar is completely capable of measuring most liquids and solids level applications. Like Ultrasonic, Radar does not require calibration. System configuration can be as simple as determining the location in the vessel that will be used as the 4mA and 20mA points. This combined with the actual tank height allows radar to correctly indicate an accurate level measurement. Radar systems traditionally were only used in high profile level applications that warranted its expense based on the need for very accurate level. Today radar technology is well suited and price positioned for process level measurement. The radar used by AMETEK Drexelbrook uses the same measurement techniques (FMCW) that are used by the high accuracy, premium priced, inventory tank gauging systems. Today these systems are capable of operating on a two-wire design at a price point that is competitive with many other process level technologies.

TDR

TDR (Time Domain Reflectometry) is also known by many other trade names such as “guided wire radar”, “radar on a rope”, “reflex radar”, etc. TDR is a pulse time of flight measurement much like ultrasonic and radar techniques. TDR works on the same principle as radar, which is transmitting an electromagnetic pulse that travels at the speed of light to the surface of the material to be measured. The material must reflect this pulse that travels back to the electronic unit at the speed of light. The measurement is basically determined by the transit time divided in half. TDR has a more narrow beam or pulse width than does radar since it is completely focused on a flexible wire or rod. TDR is a contacting measurement technology which requires consideration of mechanical forces inside of a vessel. Coating deposits on the guide cable (or rod) must be a concern and could affect the measurement. Additionally, TDR does not require calibration since it is a time of flight measurement. Simply determining the 4mA and 20mA points and vessel height and probe length are all that the user needs to enter. TDR is well suited to solids and granular measurements and is not affected by variations in process material or variation in moisture content. TDR technology is also available in an intrinsically safe two-wire design and has reached a price point that makes it suitable for many process level measurements.

Magnetostrictive

Magnetostrictive technology allows high accuracy level measurements of non-viscous liquids. The technology is based on a float with embedded magnets that rides on a tube that contains the magnetostrictive wire. This wire is pulsed with a low voltage, high current electronic signal and when this signal intersects the magnetic field, generated by the float, a torsional pulse is reflected back to the electronics. This creates a time of flight measurement and provides a very accurate indication of the exact location of the level interface. Magnetostrictive requires no calibration and no maintenance if it is correctly matched to the application. Material compatibility, viscosity, temperature, pressure and the stability of the process materials specific gravity are all concerns of the Magnetostrictive technology selection. Magnetostrictive technology can provide a very cost-effective solution for high accuracy needs. Accuracies of 0.1% are common with this technology and system for most applications can be of a two-wire design and offer the best value point for a continuous level measurement. Magnetostrictive systems are available for measurement ranges up to 40 feet.

Hydrostatic Pressure

Hydrostatic Pressure technology has been used in level measurement for hundreds of years. Its basic principle is the measurement of total head pressure above the pressure-sensing diaphragm. AMETEK Drexelbrook utilizes this technology primarily for the measurement of water in below ground wells. The “down well” transmitter is a two-wire intrinsically safe device that is encapsulated in a 316SS housing and connected to its power source, indication and relay contact outputs via a waterproof polyurethane cable. The system is capable of accuracies of 0.25% of measurement range. Relay outputs are generally used to control pumps that maintain acceptable water levels. Application concerns are typically focused on any deposits that may foul the diaphragm or wells that could have contaminants that may produce compatibility problems for stainless steel. Water well measurement ranges that use hydrostatic pressure technology from AMETEK Drexelbrook are available for measurements up to 690 feet at very attractive price points.

Vibration

Vibration products such as tuning forks are used to indicate the presence or absence of material. Tuning forks are used for both liquids and solids measurement however, in solids the tuning fork can "Rat Hole" or tunnel out an air space causing a false normal condition. Also, solid materials often damage the tuning forks. For these reasons, Drexelbrook applies the tuning fork to liquids only. In liquids, tuning forks provide a reliable and repeatable measurement for high or low level indication. Tuning forks can also be used for empty pipe indication to prevent damage in expensive pumps. The tuning fork requires no calibration and is not affected by changes in the electrical properties of the material being measured. This allows the tuning fork to be used in non-dedicated vessels where the material may change from conductive to insulating.

Conductance

For the most part, conductivity devices are used solely for point level measurement. Conductivity switches rely on the material being measured to carry current. For this reason, materials being measured using conductivity switches must be conductive. Typically, conductivity switches are used to measure high and/or low level in liquids such as water, acids, conductive chemicals, etc. The conductivity electrodes are connected to a relay to provide control and require little or no calibration. Multiple, staggered electrodes can be used to measure multiple points.

Float Switch

Float measurements are one of the longest standing methods of level measurement. They continue to be used because they are simple to apply and cost effective on appropriate applications. When properly applied, float switches will provide accurate level measurement. Because floats are a mechanical level switch, it is important to apply them to applications where coating buildup will not occur. Clean, non-coating liquids are typically good applications for float measurement. Because of their mechanical nature, floats are much more prone to long-term performance issues due to coatings and wear.
Industries We Provide Solutions For...

Chemical Processing
- Reactors
- Spill prevention
- Storage
- Separators
- Sumps
- Wastewater
- Pump run dry protection
- Loading arms

Food and Beverage
- Mixing
- Batch processes
- Storage
- Brewing
- Wastewater
- Sumps
- Foam detection

Mining
- Storage silos
- Grinding
- Blending
- Plugged chute
- Sump levels
- Empty belt
- Wastewater
- Empty belt

Petroleum Processing
- Spill prevention
- Water draw off
- Desalter interface
- Oil storage
- Distillation column
- Moisture content in crude oil
- Pump run dry protection
- Loading arms

Pharmaceuticals
- Raw material storage
- Mixing and separation
- Fermentation
- Batch reactor
- Basket centrifuge
- Hoppers

Plastics
- Separators
- Blenders
- Silos
- Chemical storage

Power
- Scrubbers
- Fly ash
- Electrostatic precipitators
- Bag houses
- Reaction tanks
- Plugged chute
- Wastewater
- Empty belt
- Sumps
- Storage silos
- Thermal dryers
- Pulverizer mills

Pulp and Paper
- Stock towers
- Bleach make-up
- Stock tanks
- Sumps
- Wastewater
- Batch digesters
- Blow tanks
- Chip silos
- Plugged chute
- Pump run dry protection

Water and Wastewater
- Sludge blanket and clarity monitoring
- Open channel flow
- Screening and filtration
- Sludge handling
- Chemical slurries
- Chemical storage
- Well monitoring
- Lift stations
- Traveling bar screens
- Flumes and weirs
- Pump run dry protection

OEM APPLICATIONS
In addition to providing level controls for industrial use, Drexelbrook offers special level solutions for OEM applications.

Some examples include:
- Level controls used to ensure efficient operation of pneumatic conveying systems
- Level controls used to monitor liquid oxygen levels in tanks aboard Medivac helicopters
- Level controls used to measure high and low level on evaporators
- Level sensors measuring level in beverage bottling machines
Our Values And Commitment...

We Thank You For Considering Drexelbrook

We are confident that we can exceed your level measurement expectations and provide you with the best level measurement solutions.

We are committed to providing you with:

- Best level expertise in the industry
- Best in customer support
- Highest possible product quality
- Best value in level instrumentation
- Widest breadth of technologies
- Best in class products

For additional information on products or to find a local representative in your area, visit us at www.Drexelbrook.com

We Listen To Our Customers

At Drexelbrook, we value customer input – in fact, we seek it. Each month we survey our customers and ask them to rate our product, service, and delivery performance. We address any problems personally and immediately, and use the customer feedback to improve our future performance.


Control Magazine Awards for 2005

AMETEK ranked 14th in the Control Magazine Annual Top 50 Process Instrumentation and Control Companies

AMETEK Drexelbrook – 2005 Winner of Annual Readers Choice Awards:
- Level Gauge – Electrical Properties Based
- Level Switches – Point
- Exceptional Service
We have over 70 distributors worldwide. Contact our sales support in your region.

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