Level Sensors

www.automationdirect.com/ultrasonic-level-sensors

Up-to-date price list:
www.automationdirect.com/pricelist

FREE Technical Support:
www.automationdirect.com/support

FREE Videos:
www.automationdirect.com/videos

FREE Documentation:
www.automationdirect.com/documentation

FREE CAD drawings:
www.automationdirect.com/cad
Level Sensors and Switches

Level sensors monitor the level of liquids, pellets, powders, and other similar products in tanks and process systems. The measurement can be used for monitoring purposes or to control a process. Integrated level controllers can sense level and operate alarms, pumps, valves, and other industrial equipment. A variety of sensing technologies are available, including contact and non-contact methods.

Ultrasonic Level Sensors
Ultrasonic sensors emit a sound impulse and measure the elapsed time to receive an echo from a detected object or material. These downward facing, non-contact level sensors are unaffected by environments with dirty, sticky, or scaling media. Models with discrete outputs indicate the presence of the material within the sensing range; distance sensing models with analog outputs indicate the material’s relative level within the sensing range.

Pulsed Radar Level Sensors
Downward-looking pulsed radar level sensors emit pulses towards the surface of a liquid and measure the time (time of flight) for the pulses to reflect from the surface and return to the sensor. Since the distance to the liquid surface is proportional to the time of flight, the level can be determined.

Guided Wave Radar Level Sensors
Guided wave radar level sensors use electromagnetic pulses that travel down a metal probe until they reach the medium, which then reflects the pulse waves back to the probe. The time difference between the transmitted and received pulses is used to compute and display the level with high precision.

Float Level Switches
Low-cost float switches provide single-point liquid level monitoring in industrial applications. Powerful permanent magnets within the float actuate a highly reliable, repeatable, hermetically sealed reed switch as the float rises and lowers with liquid level. A variety of material constructions and mounting styles offer compatibility with many liquids, temperature ranges, and system pressures.

Differential Pressure Level Sensors
Differential pressure level transmitters measure the difference in pressure between two points in a fluid. This pressure difference is directly proportional to the level of the fluid.

Capacitive Level Sensors
Capacitive sensors are useful for detecting the level of solids such as plastic pellets, or water-based conductive liquids. These devices output a discrete signal when the presence of material is detected within the sensing range.

Vibrating Fork Switches
Vibrating fork switches use a harmonic vibrating frequency which is reduced when the fork contacts the liquid being monitored. The frequency reduction indicates the presence of the liquid, and the switch sends a signal to the control unit. These switches provide reliable level detection of dirty liquids that coat, scale, or foam such as wastewater, diluted caustic soda, and light oils. They can be mounted through-the-wall or inside a tank as high- or low-level indicators.

Why buy level sensors from us?
There are several distinct advantages to purchasing level sensing equipment from AutomationDirect:

- **Price**
  As with all our product lines, our prices are often well below the list prices of traditional automation suppliers. Our direct business model allows us to operate more efficiently than other suppliers and pass the savings on to you.

- **Availability**
  All the level components we provide are stocked in our local warehouses in Georgia. That’s correct. When we say we have them in stock, they are in our inventory and ready to be shipped to you. No more waiting for months when you need a replacement component that is keeping your facility from operating.

- **Service**
  We give you options for self-service, but at the same time are there when you need us. You can place your order online or call our customer service team. Have a technical question about one of our products? Need help selecting a bill of materials for one of your projects? You can call our free Technical Support. If you get stuck or have a question, our knowledgeable technical support experts can help you with product selection and configuration or wiring.
Ultrasonic Liquid Level Sensors

Flowline ultrasonic liquid level sensors emit a sound impulse and measure the echo’s return time from the material’s surface. They are available in contact and non-contact versions, with models designed for hazardous or high-condensation locations.

Software Configured Ultrasonic Level Sensors & Switches

The Flowline EchoPod and EchoSonic II general-purpose ultrasonic sensors, suitable for use in small, medium, and large capacity tanks, are available with single and multi-function capabilities, including continuous level measurement, switching, and control.

EchoPod DL Series Multi-Function Ultrasonic Liquid Level Sensors
- In ranges up to 4.1 ft (1.25m), 9.8 ft (3m) or 18 ft (5.5m)
- Level switch and level control functions with continuous level measurement
- Analog output and four programmable relays
- NEMA Type 6P/IP67 enclosure rating

EchoPod DX10 and DL10 Series Ultrasonic Liquid Level Transmitters
- Continuous level measurement up to 9.8 ft (3m), 18 ft (5.5m), 26.2 ft (8m), or 32.8 ft (10m)
- Selectable 0-5 VDC, 0-10 VDC or 976-2000 Hz frequency signal output (DX10), or a 4-20 mA output for longer signal distances, up to 1000 ft (300m) (DL10)

EchoPod DS14 Series Ultrasonic Liquid Level Switch & Controller
- Continuous liquid level detection up to 4.1 ft (1.25m)
- NEMA Type 6P/IP67 enclosure rating
- Four programmable relay outputs for level switch or control functions

EchoSonic II LU Series Ultrasonic Liquid Level Transmitters
- In ranges up to 9.8 ft (3m), 18 ft (5.5m), 26.2 ft (8m), or 32.8 ft (10m)
- 4-20 mA output
- NEMA 6P polycarbonate enclosure

EchoPod DX10 and DL10 Series Ultrasonic Liquid Level Transmitters
- Continuous liquid level measurement up to 9.8 ft (3m), 18 ft (5.5m), 26.2 ft (8m), or 32.8 ft (10m)
- Selectable 0-5 VDC, 0-10 VDC or 976-2000 Hz frequency signal output (DX10), or a 4-20 mA output for longer signal distances, up to 1000 ft (300m) (DL10)

PodView® Digital Level Indicator
The PodView is a low-cost general purpose level indicator that displays engineering units for level or volume and is compatible with the EchoPod Series ultrasonic sensors.
- Operates with EchoPod DL, DS, and DX series level sensors compatible with WebCal 6.0 software/firmware 50.0 or higher
- No separate power supply required
- Level indication up to 15 ft away from sensor

Pushbutton Configured Ultrasonic Liquid Level Sensors & Switches

Flowline EchoSpan and EchoSwitch ultrasonic level sensors are easily configured using integral pushbuttons and an LCD digital display.

EchoSwitch® LU Series Ultrasonic Level Sensors
Flowline EchoSwitch ultrasonic level sensors sensor provide continuous level detection up to 26.2 ft (8m) with three programmable relays for level switch or level control functions, and a 4-20 mA signal output.
- In ranges up to 9.8 ft, 18 ft, and 26.2 ft
- Narrow 2" or 3" beam for limited space applications
- LCD display indicates level height
- Corrosion resistant PVDF transducer & NEMA-4X/IP65 polycarbonate enclosure

EchoSonic II LU Series Ultrasonic Liquid Level Transmitters
Flowline EchoSonic II LU Series ultrasonic liquid level transmitters provide continuous level measurement up 32.8 ft (10m) and are configured via WebCal software.
- In ranges up to 9.8 ft (3m), 18 ft (5.5m), 26.2 ft (8m), or 32.8 ft (10m)
- 4-20 mA output
- NEMA 6P polycarbonate enclosure

For the latest prices, please check AutomationDirect.com.
**Reflective Ultrasonic Liquid Level Sensors**

**Flowline® Reflective Technology™**

Condensation is commonly encountered in liquid level applications. It forms on the horizontal sensing face, weakening signal strength, and substantially reducing measurement reliability. Flowline’s proprietary Reflective Technology™ uses vertical surfaces to limit water droplet formation. The vertical orientation preserves the sensor performance by preventing condensation from building up on the sensing face. A 45° reflector redirects signals to and from the liquid, delivering reliable level measurement.

- **Starting at $525.00**
- Measurement ranges: Up to 9 ft [1.5m], 5.8 ft [1.8m], and 3.9 ft [1.2m]
- Maintains reliable level measurements in applications with condensation
- IP66/68 and NEMA 4X/6P protection rating
- Rugged, hermetically sealed
- 1-1/2in. male NPT process connection
- 10.5-30 VDC operating voltage
- 4-20mA analog output
- FREE SmartBlue Mobile App

**Flowline® Reflective Technology™**

EchoPod UG01, UG03, UG06, and UG12 Series Ultrasonic Level Sensors

Reflective Technology™ uses vertical surfaces to prevent most water droplets from adhering to the sensor surface.

- Measurement ranges: Up to 9 ft [1.5m], 6 ft [1.8m], and 3.9 ft [1.2m]
- IP68 protection rating
- 10.5-30 VDC operating voltage
- 4-20mA or relay outputs (depending on model)
- Units with 6-digit LCD display available
- Type 6P (IP68) enclosure rating

**Flowline® Reflective Technology™**

EchoTouch US01, US02, and US03 Series Ultrasonic Level Sensors

Flowline EchoTouch ultrasonic level transmitters provide continuous level measurement with a 4-20mA analog signal output, are configured via WEBCAL software, and feature Flowline’s proprietary Reflective Technology™ that delivers reliable level measurement in condensing environments.

- Measurement ranges: Up to 9 ft [1.5m], 9.8 ft [3m], and 19.6 ft [6m]
- Intrinsically safe approvals for hazardous locations
- Unit with 6-digit LCD display available
- Type 6P (IP68) enclosure rating

**Endress+Hauser Micropilot FMR10 Free Space Radar Liquid Level Sensor**

The Endress+Hauser Micropilot FMR10 series pulsed radar level sensor provides accurate, reliable non-contact liquid level measurement. It is designed for storage tanks, basins, and channels; is ideal for a variety of applications, including water, wastewater, and utilities; and offers one of the best price to performance ratios on the market.

The Micropilot FMR10 features an extremely compact footprint, making it ideal for space-limited applications. It is easily commissioned with only three simple parameter settings using the SmartBlue Mobile App, which allows simple, safe, and secure wireless remote access via Bluetooth - even in places that are difficult to reach.

**Features**

- 4-20mA analog output
- 10.3-30 VOC operating voltage
- 8m (26.25 ft) sensing range or 12m (39.37 ft)
- IP68/69 and NEMA-4X/6P protection rating

**Operation**

The Micropilot FMR10 is a downward facing, non-contact pulsed radar level sensor that emits radar pulses and determines level based on the time of flight required for a reflected pulse to reach the sensing unit. It is immune to temperature variations, humidity, air density, and dust, and offers several advantages over other types of sensors, including non-contact measurement, long range, accuracy, repeatability, and maintenance-free operation with no moving parts.

**FREE SmartBlue Mobile App**

The SmartBlue Mobile App allows configuration as well as comprehensive access to device data.

- Time saving mobile access to device diagnostics and process information
- Secure data transmission for fast and reliable configuration and maintenance
- At-a-glance device status and live list allows efficient maintenance
- Available for Android and iOS

**Endress+Hauser Submersible Level Sensors**

Endress+Hauser Waterpilot hydrostatic submersible level transmitters provide continuous liquid level measurement by sensing the hydrostatic pressure produced by the height of liquid above the sensor and providing a 4-20mA output signal corresponding to their specific pressure sensing range. The Waterpilot FMX11 series is designed for freshwater applications and NSF Certified for drinking water applications. The Waterpilot FMX21 series has FM hazardous location approvals for intrinsically safe applications and is suitable for wastewater applications.

**Features:**

- Up to 2 bar (66.9 ftWC) sensing range
- Rugged 316 stainless steel construction
- Shielded cable with atmospheric pressure compensation tube and Teflon filter
- IP68 protection rating

**Accessories Include:**

- Terminal box
- Additional weight
- Suspension clamp
- Cable shortener

**Endress+Hauser E+H FMR10**

Endress+Hauser E+H FMR10 Free Space Radar Liquid Level Sensor

The Endress+Hauser Micropilot FMR10 series pulsed radar level sensor provides accurate, reliable non-contact liquid level measurement. It is designed for storage tanks, basins, and channels; is ideal for a variety of applications, including water, wastewater, and utilities; and offers one of the best price to performance ratios on the market.

The Micropilot FMR10 features an extremely compact footprint, making it ideal for space-limited applications. It is easily commissioned with only three simple parameter settings using the SmartBlue Mobile App, which allows simple, safe, and secure wireless remote access via Bluetooth - even in places that are difficult to reach.

**Features**

- 4-20mA analog output
- 10.3-30 VOC operating voltage
- 8m (26.25 ft) sensing range or 12m (39.37 ft)
- IP68/69 and NEMA-4X/6P protection rating

**Operation**

The Micropilot FMR10 is a downward facing, non-contact pulsed radar level sensor that emits radar pulses and determines level based on the time of flight required for a reflected pulse to reach the sensing unit. It is immune to temperature variations, humidity, air density, and dust, and offers several advantages over other types of sensors, including non-contact measurement, long range, accuracy, repeatability, and maintenance-free operation with no moving parts.

**FREE SmartBlue Mobile App**

The SmartBlue Mobile App allows configuration as well as comprehensive access to device data.

- Time saving mobile access to device diagnostics and process information
- Secure data transmission for fast and reliable configuration and maintenance
- At-a-glance device status and live list allows efficient maintenance
- Available for Android and iOS

**Available for Android and iOS**

**1-800-633-0405**

www.automationdirect.com/ultrasonic-level-sensors
Guided Wave Radar Level Sensors

Prosense GWR level sensors use innovative guided wave radar technology to provide reliable, low-cost liquid level measurement for industrial applications. These sensors are ideal for use in smaller tanks and for challenging applications with liquids that are soiled, viscous, or prone to formation of deposits. Probe and coaxial tube configurations are available in lengths from 240mm to 1600mm and can be cut to adapt to custom level applications.

• Active measuring range dependent on probe length and media
• 4-20 mA outputs for both continuous and point level measurement
• Measure and display liquid level in millimeters, inches, or percent
• 4-pin M12 quick disconnect electrical connection

Differential Pressure Level Transmitters

Differential level transmitters calculate the hydrostatic liquid level in pressurized or open tanks.

For the latest prices, please check AutomationDirect.com.
Level Switches

Flowline Vibration Fork Liquid Level Switches
Flowline general-purpose vibration liquid level switches provide high or low liquid level detection of dirty liquids or those with light to medium coating or scaling characteristics with a 1A relay output.

Flowline Buoyancy Level Switch
The Flowline general-purpose buoyancy level switch provides high or low liquid level detection of relatively clean water and chemical solutions with a 15VA reed switch output.

Flowline Ultrasonic Level Switch
CSA approved for use in hazardous locations, the Flowline intrinsically safe ultrasonic level switch provides high or low liquid level detection of chemical, solvent or low viscosity petroleum based liquids with a 1A relay output.

Flowline Capacitive Level Switch
The general-purpose guard capacitance point liquid level switch provides reliable high or low liquid level detection of water based conductive liquids with light coating, crystallizing or scaling characteristics with a 1A relay output.

Endress+Hauser Nivector FT126 Capacitance Level Switches
Endress+Hauser Nivector FT126 capacitance point level switches detect powders or fine-ground bulk solids in silos, hoppers, and bins.

Liquipoint FTW23 Capacitance Level Switches
Endress+Hauser Liquipoint FTW23 capacitance point level switches detect water-based liquids in vessels, tanks, or pipes.

Level Controllers

Flowline Switch-Pro™ Level Controllers
Flowline Switch-Pro™ and DataPoint™ Remote Level Controllers provide continuous liquid level control with the accuracy and dependability you need. The fail-safe relay design can be configured for alarming or automatic fill control using valves and pumps in a closed-loop system.

- 35mm DIN rail mount or panel mount enclosure with removable terminal strips
- Relay control of pumps or valves with 0-60 second delay
- LED status indicators
- 3.5-digit LED display indicates level in custom engineering units (LC52 model)
- Invert switch changes relay state from NO to NC without rewiring
- The DataPoint™ LC52 controller provides 2 relay outputs, up to three setpoints, and an isolated analog 4-20 mA repeater

Dual Probe Installation for Metallic Tanks
The figure on the right shows two ways to mount the probes for a dual-probe installation on a typical storage tank. When installed in a metallic conductive tank, the tank acts as the common probe. For plastic tanks, a third probe is needed for the common probe.

For the latest prices, please check AutomationDirect.com.