

# Laser and ultrasonic level transmitters

## Non contact level measurement

Continuous level measurement is an important customer requirement since level output gives a better indication of how full is a vessel and allows predictive control.

Measurement made easy



## Introduction

To meet its customer's needs, ABB offers a range of complementary non-contact level products using laser and ultrasonic technology, enabling optimal performance in a wide range of conditions.

### Non-contact & continuous level measurement

Non-contact level transmitters are more desirable than contact type because:

- Granular solid materials can cause a high rate of wear on surfaces.
- Certain liquids can be very corrosive. There are no contamination concerns.

# Laser and ultrasonic level transmitters

## Non contact level measurement

### Laser level transmitters LM80 and LM200

#### Reliable results at all levels

ABB's laser level transmitters are not affected by changes in surface profile and their long measuring range provides a consistent signal at all levels. There are no false signals. The narrow beam helps to reach all the way to the bottom of the vessel and aim around obstacles. Additionally, the ability to reject intermittent obstacles make laser level transmitters an ideal solution.

#### A product line with inherent capabilities

ABB's laser level transmitters can manage many different applications and vessel sizes. They are designed specifically for granular solid materials and liquids (except completely clear liquids), are competitively priced and can be used in many different applications thanks to their wide distance range.

#### LM80



<b>Features</b>	Intermediate range laser level transmitter Designed for use in dusty and foggy environments Auto-ranging to measure all levels Measures solids and liquids (except clear) Built-in laser pointer for accurate alignment in narrow or tall vessels
<b>Transmitters</b>	0.5 to 30 m (1.5 to 100 ft) – dark colored surfaces 0.5 to 100 m (1.5 to 328 ft) – light colored surfaces 0.5 to 150 m (1.5 to 500 ft) – reflective targets in positioning applications
<b>Resolution</b>	±10 mm (0.4 in)
<b>Accuracy</b>	±30 mm (1.2 in)
<b>Update rate</b>	3 readings per second (maximum) 1 reading per minute (minimum)
<b>Power</b>	24 V DC typical (18 to 32 V DC)
<b>Output</b>	4 to 20 mA current loop and 2 set point relays
<b>Pressure</b>	1 bar (higher requires pressure sight glass)
<b>Temperature</b>	-40 to 60 °C (-40 to 140 °F) -40 to 45 °C (-40 to 113 °F) with non-condensing option (heated lens option [AC and SC])

#### Easy to install, configure and maintain

ABB's laser level transmitters can be installed inside or outside the vessels, or mounted directly to a sight glass (for pressure vessel applications). To assist installation, the transmitters are equipped with a visible laser pointer that can be seen easily inside silos and other tall vessels. When installing and commissioning the laser level transmitter, the pointer helps to align the instrument to ensure it measures all the way to the bottom of the vessel. No mapping or calibration is required, only a simple program selection depending on the application.

#### Evaluating performance before installation

ABB's laser level transmitters can be demonstrated within an application, enabling a customer to see it in action before permanently installing it.

#### LM200



<b>Features</b>	Long range laser level transmitter Designed for use in dusty and foggy environments Auto-ranging to measure all levels Measures solids and liquids (except clear) Built-in laser pointer for accurate alignment in narrow or tall vessels
<b>Transmitters</b>	0.5 to 40 m (1.5 to 131 ft) – dark colored surfaces 0.5 to 190 m (1.5 to 623 ft) – light colored surfaces 0.5 to 400 m (1.5 to 1300 ft) – reflective targets in positioning applications
<b>Resolution</b>	±10 mm (0.4 in)
<b>Accuracy</b>	±30 mm (1.2 in)
<b>Update rate</b>	3 readings per second (maximum) 1 reading per minute (minimum)
<b>Power</b>	24 V DC typical (18 to 32 V DC)
<b>Output</b>	4 to 20 mA current loop and 2 set point relays
<b>Pressure</b>	1 bar (higher requires pressure sight glass)
<b>Temperature</b>	-40 to 60 °C (-40 to 140 °F)

## Ultrasonic level transmitters LST400 and KMicro

### Penetrates dust

In bulk solid applications, dust can make non-contact level measurement very difficult. ABB ultrasonic instruments automatically adjust Power, Amplitude & Gain to penetrate dusty conditions easily.

### Great performance to cost

Ultrasonic is the perfect level technology for basic applications that don't require extreme temperatures or pressures. There is no other technology that matches ultrasonic when comparing performance to cost.

#### LST400



<b>Features</b>	Remote sensor ultrasonic level transmitter Designed for use in dusty environments Graphic echo display for easy installation Open channel flow with totalizer 5 relays for pump control and / or alarms Linearizer with volume output
<b>Sensors</b>	S15 for liquid applications up to 15m (50ft) F15 for bulk solids applications up to 15m (50ft) C15 for chemical applications up to 15m (50ft) S30 for long range applications up to 30m (100ft)
<b>Accuracy</b>	0.25 % of full span with best case 3 mm (0.15 in.)
<b>Power</b>	AC or DC
<b>Output</b>	4 to 20 mA with HART
<b>Temperature</b>	Transmitter: -20 to 65 °C (-4 to 150 °F) Sensor: -40 to 80 °C (-40 to 175 °F)

### Easy installation

Ultrasonic level instruments are easy to install above existing processes, and require no changes to the mechanical design of the tank.

The integrated echo display is not common on ultrasonic level instruments and offer users a unique view into the process for easy, seamless setup.

### No maintenance

No moving parts and nothing in contact with the process mean no parts needing routine cleaning, replacement or general maintenance.

#### KMicro



<b>Features</b>	Integrated ultrasonic level transmitter Powerful device in a compact form Perfect for small liquid tanks Low power consumption
<b>Sensors</b>	Standard sensor suitable for all liquid applications including chemical applications up to 10 m (30 ft) for 4-wire and 5 m (16 ft) on the loop power model
<b>Accuracy</b>	0.25 % of full span with best case 3 mm (0.15 in.) for 4-wire 1 % of full span for loop power model
<b>Power</b>	DC, 2-wire or 4-wire options
<b>Output</b>	4 to 20 mA
<b>Temperature</b>	-30 to 65 °C (-20 to 150 °F)

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