Quick start instructions for LLT100 laser level transmitter

Measurement made easy

Introduction

The LLT100 is a high performance laser level transmitter that accurately measures level, distance, and position over long ranges in industrial environments. The LLT100, using an eye-safe pulsed laser beam, features advanced timing and sophisticated signal processing for pinpoint accuracy.

Features

- Range up to: 100 m (330 ft) for level of solids / 30 m (100 ft) for level of liquids / 200 m (660 ft) for positioning applications
- Narrow, easy-to-aim laser beam
- Measures solid surface even at wide angles
- Measures liquid levels even for clear liquids
- Robust aluminum or stainless steel enclosure
- Easy and intuitive setup / no calibration required
- Explosion proof class 1 / division 1 (zone 1)
- 2-wire power from the 4 to 20 mA loop
- HART communication
- Embedded HMI / Display

For more information

Further publications for LLT100 transmitters are available for free download from: www.abb.com/laserlevel

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1 Health & Safety

**WARNING**

Bodily injury
Read the LLT100 Operating Instruction OI/LLT100-EN carefully before working with the product. For personal and system safety, and for optimum performance, make sure that you thoroughly understand the contents before installing, using or maintaining this instrument.

**NOTICE**

- All servicing of the equipment is to be performed at factory by qualified service personnel only.
- No user / operator adjustments inside the LLT100 level transmitter are recommended by the manufacturer.

Product labels
Symbols that appear on this product are shown below:

- Protective earth (ground) terminal.
- Direct current supply only.

2 Electrical connection

**HART terminal – 2 wires**

![HART terminal - 2 wires diagram]

- Internal protective earth (ground)
- Cover lock screw M4
- External ground termination point
- Positive (+)
- Negative (–)
- *Optional external meter (+)

**HART terminal with heater option – 2 + 2 wires**

![HART terminal with heater option - 2 + 2 wires diagram]

- Internal protective earth (ground)
- External DC supply: +24 V DC, 3 W
- 0 V (return)
- Cover lock screw M4
- External ground termination point
- Positive (+)
- Negative (–)
- *Optional external meter (+)

**Attention – location of ground**
The Ground symbols is used to identify protective earth conductor terminals.

**Attention – direct current**

Use wires and cable glands rated 90 °C (194 °F) minimum.
3 Mounting

Install away from falling material for easiest configuration

For solids laser beam can be aimed at any angle
Also typically applies to other scattering surfaces such as slurries and some turbulent liquids

For typical liquid applications laser beam must be as perpendicular as possible, not exceeding 90° ± 5° to the surface

4 Easy setup

1 Rotate the housing: unscrew the stop tang-screw by approximately 1 rotation (do not pull it out) before removing the housing. When the desired position is reached, re-tighten the stop tang-screw.

2 Connect the cables (15.5 to 42 V DC) to the LLT100 laser level transmitter – if using HART the minimum input voltage is 21 V DC.

3 Power on the transmitter.

4 Press the Right arrow key (↑) on the display and select your access level using the Up and Down arrow keys (↓).

5 Set the main parameters at the Easy Setup menu:

- a Select the required language.
- b Select the measurement mode: standard, clear liquid, positioning or dust/vapor.
- c Enter the vessel height (URP).
- d Set the sensor offset from the vessel top.
- e Select the primary variable (PV) for the 4 to 20 mA output: level, ullage, volume.
- f Choose the unit of the primary variable (PV): m, cm, mm, ft.
- g Set the value for vessel empty (LRV).
- h Set the value for vessel full (URV).
- i Enable or disable the filling rate.
- j Enter the Tag name.

6 Once the settings are completed, press Exit to return to the Distance view.

Refer to Operating Instruction OI/LLT100-EN for detailed configuration / setup information.
5 General model

6 Specification

Environmental conditions
Operating temperature
-40 to 60°C (–40 to 140°F),
up to 280°C (535°F)
with cooling tube
Altitude
Up to 2000 m (6561 ft.)
Relative humidity
0 to 100%
Electrical equipment
Class III
Pollution degree
4 (IP66 / IP67 / Type 4X)
Overvoltage
Category 1

Output
Analog
4 to 20 mA, NAMUR compliant
Digital
HART 7 (multi-variable output)
Communication
Local HMI, EDD / DTM, handheld

Power supply
Powered from the loop
4 to 20 mA, 15.5 to 42 V DC
Heated lens option
24 V DC (3W)