

LLT100 laser level measurement in water and wastewater



The water and wastewater industry provides many application opportunities for the LLT100.

Measurement made easy

LLT100 measuring water well level

Benefits

In the water and wastewater market segment, the LLT100 laser level transmitter provides an efficient way to measure levels of liquids.

A complement to the ultrasonic level measurement technique, laser level brings several benefits:

- Long range, up to 30 m (100 ft) for liquids
- Narrow laser beam (<math><0.3^\circ</math> divergence) does not interfere with surrounding structures or build-up on vessel walls
- No need to calibrate on site or to empty vessel
- No echo mapping
- Fully certified for hazardous area

Applications

Typical applications and associated benefits of the LLT100 in W&WW are:

- Deep wastewater wet wells or sewers
- Long range allows placing LLT100 at the top of the well, allowing easy maintenance
 - Easy to aim in narrow spaces
 - Laser technology unaffected by sewer gases

- Pumping station level measurement
- Efficient water level measurement even in the presence of internal structures
 - Foam will not prevent the LLT100 from reading surface. Top of foam will be measured.

- Lift station level measurement
- Reliable measurement of water mixed with solids and debris
 - Hazardous area approval required

- Water pond or river level
- Easily detects running water or still water
 - Dust tube used for outdoor applications, protecting the instrument window from dirt

—
01 Swivel flange

- Sludge processing and monitoring
- Unaffected by agitator
 - Unaffected by build-up in the tank
 - Unaffected by vapors and temperature fluctuations

—
02 LLT100 electrical connections

Advantages over other non-contact technologies

LLT100 vs. ultrasonic:

- Longer range
- Works well in constrained spaces
- Keeps reading in the presence of foam (detects top of foam)

LLT100 vs. open-path radar:

- No echo mapping required, easier to setup
- Works well in constrained spaces
- Works well in the presence of build-up

Installation considerations

Beam angle

On liquids, the beam angle must be perpendicular to the liquid surface, which allows measuring even if the liquid surface is still. Using a perpendicular beam is always advised, as the liquid might be agitated during installation but can become still at a later time.

The swivel flange (A910) accessory provides an easy way to set the beam angle precisely.

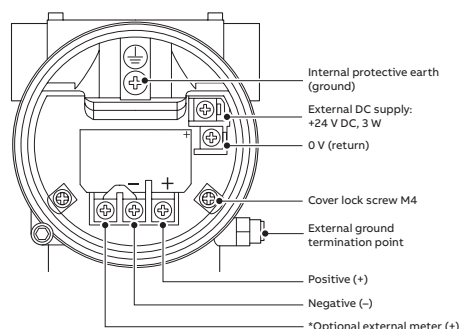


—
01

Condensation prevention

The heater window option should be powered when possible. This slightly elevates the instrument window temperature, thus reducing condensation on the window surface.

HART terminal with heater option – 2+2 wires



—
02

Additionally, a purge ring (P910) can be used. A flow of dry air (or another gas) is very efficient at preventing condensation.

Finally, the dust tube (P910) prevents liquid splashes, dust, or mud, from soiling the LLT100 window, greatly reducing maintenance.



—
03



—
04

—
ABB, Inc.
Measurement & Analytics
3400, rue Pierre-Arduin
Québec (Québec) G1P 0B2
Canada
Tel: +1 418-877-2944
1 800 858-3847 (North America)
Email: lasers@ca.abb.com

abb.com/laserlevel
www.youtube.com/user/ABBMeasurementExpert

—
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

—
ABB reserves all rights in this document and in the subject matter and illustrations herein. Any reproduction, disclosure to third parties or use of its content – in whole or in part – is strictly forbidden without prior written consent from ABB.
©ABB, 2019