CAMPBELL SCIENTIFIC®
WHEN MEASUREMENTS MATTER

RLS
Radar Level Sensor

Simple set up

Non-contact water level measurement

Overview

The OTT RLS is a non-contact radar level sensor with pulse radar technology that is ideal for monitoring in remote or hard to reach locations. The RLS accurately and efficiently measures surface water level by taking approximately 16 individual measurements each second and averaging them after 20 seconds to minimize the influences of waves.

The OTT RLS offers a large measurement range with a small blanking distance and narrow beam width and it easily connects to most any data logger via standardized communication interfaces. The RLS has extremely low power consumption and is ideal for remote or solar powered sites.

User Benefits:

- **Simple setup** – no need for additional software, communicates via standard SDI-12 commands
- **Versatile** – easily mounts to a bridge, frame, pipeline, or extension arm
- **Compact** – transmitting and receiving antenna enclosed in a light weight durable housing with flat antenna design
- **Flexible** – connects to most data loggers via standard communication interfaces
- **Design** – unobtrusive appearance designed specifically for surface water level measurements
- **Low maintenance** – non-contact measuring principle, no need to enter the water

Features:

- **Accurate** – ±0.01 ft accuracy for water level measurements, and will not drift over time
- **Fast** – water level measurements available every 20 seconds
- **Performance** – unaffected by air temperature, wave action, humidity, flood events, floating debris, or contaminated water
- **System integration** – supports standardized communication interfaces: SDI-12, 4-20 mA and RS-485
- **Low power consumption** – Impulse radar technology requires only 12 mA @ 12V
- Installation – mounts to slanted surfaces
- **Light weight** – weighs less than 5 pounds

Detailed Description

With a measurement range of up to a maximum of 35 m the RLS also allows the measurement of large ranges. The OTT RLS is mounted directly above the water surface to be measured, e.g. on bridges or auxiliary constructions. Its solid, relatively light and waterproof housing is easy to install. There is no requirement for complex construction, such as stilling wells or

float shafts, as the OTT RLS determines the water level measurements in a measurement cycle that compensates for wave or other rapid water level movements.

The OTT RLS is specifically designed for use in open air locations.The flat antenna construction, its minimal energy consumption, and its compact waterproof housing offer the user a system that is optimised for use at sites that have no requirement for mains power supply.

Integrated lightning protection (standard): To reduce the possibility of damage caused by over-voltage (lightning).

Specifications

Measurement Range	0.8 - 25 m (2.6 - 115 ft)
Resolution SDI-12 Interface	0.001 m (0.01 ft)
Accuracy (SDI-12)	❱ 2.0 - 30m: ± 3 mm ❱ Average temperature coefficient (range: -10 to +40 °C): 0.01% full scale/10 K ❱ 30 - 35 m: ±10 mm ❱ 0.8 - 2.0 m: ±10 mm
Accuracy (4 - 20 mA)	❱ ±0.1% full scale ❱ Average temperature coefficient: 10 ppm full scale/°C (at 20 °C)
Measurement Time	2 to 20 s
Transmitting Frequency	25.3 GHz (pulse radar)
Beam Angle	+/- 6°
Dead Range	0.8 m (2.6 ft)
Horizontal Clearance	Min.0.2 m (0.66 ft.), e.g. from a wall
Measuring Interval	20 sec. (320 values, creating mean values)
Power Supply	9.6 - 28 V DC, typ. 12/24 V DC
Power Consumption	❱ Active < 140 mW (12mA @ 12V) ❱ Sleep: < 1mw (0.05mA @ 12V)
Interfaces	4 - 20 mA; SDI-12; RS-485; two wire (SDI-12 protocol)
Temperature Range (Operating temperature)	-40 °C to +60 °C (-40 °F to 140 °F)
Dimensions	❱ Length: 8.7 in. ❱ Height: 7.5 in. ❱ Weight: 4.6lbs. ❱ Width: 6.0 in.
Material	❱ Protection: IP 67 ❱ Housing: ASA (UV-stabilized ABS) ❱ Front Plate: TFM PTFE
SDI-12 Interface	❱ Digital transmission up to 230 ft. ❱ Digital transmission up to 985, with separate voltage andpoint-to-point connection (no SDI-12 bus operation)
RS485 Interface	❱ Digital data transmission up to 3,300 ft (1,000 m) distance ❱ Transmission rate 1,200 bps

For comprehensive details, visit: www.campbellsci.ca/rls

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