OTT PLS
Pressure Probe / Level Probe for
Water Level Measurement of Ground
and Surface Waters

OTT PLS

Ceramic capacitive pressure probe

The OTT PLS probe is fitted with a ceramic capacitive pressure sensor featuring long-term stability and high accuracy. The sensor is particularly resistant to mechanical overload and aggressive media. By compensating for temperature effects, relative density of the water, and specific gravitation of the earth, the electronic circuit of the probe captures pressure and temperature values and precisely determines the water level with high repeatability.

The OTT PLS can be supplied with various outputs for transferring the values to an attached data logger – the analog 4 … 20 mA output or the digital SDI-12 or RS-485 outputs.

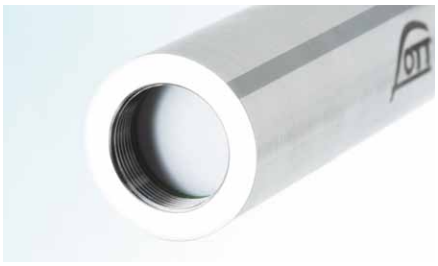
Quantitative
Hydrology

Reliable, precise, and consistent

Features

— Relative pressure probe with air capillary used to compensate for changes in barometric pressure
— Compared with piezo-resistive standard measuring cells using sensitive metallic membranes, this ceramic measuring cell provides significant benefits because of its high accuracy, ruggedness, and long-term stability
— Built-in microcontroller – compensates for temperature effects and takes into account specific correction values, e.g. gravitational acceleration or water density
— Robust probe lead with Kevlar core for length stabilization and internal compensating capillary
— Rugged design: waterproof molded electronics (IP68 rated) and enclosure made of high-quality saltwater resistant steel
— Optimized resolution is achieved by assigning the 4 … 20 mA to that part of the measuring range that is actually required
— Water temperature output in addition to water level (for SDI-12 output)

OTT PLS



Ceramic measuring cell

Potential applications

Measuring water level in ground and surface waters, including:

— Stations with sloping bottom, e.g. banks
— Small diameter pipes or holes (from 1“ Ø)
— Dams, weirs
— Irrigation systems
— Waterways that are occasionally iced over
— Brackish water, saltwater
— Waterways that do not contain water throughout the year (e.g. retaining basins or wadis)

Technical Data

Pressure measurement range

0 … 4 m, 0 … 10 m, 0 … 20 m, 0 … 40 m, 0 ... 100 m water column

Pressure measurement accuracy

- Resolution (SDI-12): 0.001 m; 0.1 cm; 0.01 ft; 0.1 mbar; 0.001 psi
- Accuracy (linearity and hysteresis)
  SDI-12: ≤ ±0.05 % FS
  4 … 20 mA: ≤ ±0.1 % FS
  10 ppm/°C at 20 °C
- Long-term stability (linearity and hysteresis): ≤ ±0,1 % /year FS
- Zero point drift: ≤ ±0.1 % FS

Temperature-compensated working range

–5 °C … +45 °C (ice-free)

Temperature measurement range

–25 °C … +70 °C

Temperature measurement accuracy

- Resolution: 0.1 °C / 0.1 °F
- Accuracy: ±0.5 °C / ±0.9 °F

Pressure sensor (capacitive pressure sensor)

- ceramic
- temperature compensated
- overload safe for up to 5 times the measuring range without permanent mechanical

Temperatur sensor

NTC temperature sensor

Available interfaces (use as required)

4 … 20 mA, SDI-12, RS-485 (via SDI-12 protocol)

Units

cm, m, ft, mbar, psi, °C, °F

Supply voltage

+9.6 … +28 V DC, typ. 12/24 V DC

Power consumption (SDI-12)

- sleep: < 600 µA
- activ: < 4 mA

Reaction time

After power-on, the measured value is steady and ready for output <1s

Dimensions and weight

- Dimensions L x Ø: 195 mm x 22 mm
- Weight: approx. 0.3 kg

Interface cable lengths

- SDI-12: max. 100 m
- SDI-12 via RS-485: max. 1000 m
- 4 … 20 mA: max. 1000 m

Environmental conditions

- Operating temperature: – 25 °C … +70 °C
- Storage temperature: – 40 °C … +85 °C

Materials

- Housing: POM, Stainless steel 1.4539 (904L), resistant to sea water
- Seals: Viton
- Cable jacket: PUR

Protection type

IP68

Mechanical strength

Meets the mechanical shock tests of IEC 68-2-32

EMC limits

- CE conformity
- EN 61000-4-2/3/4/5/6 and EN 61000-6-3 Class B are adhered to

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