**Water Level Measurement**
OTT PLS
Pressure probe / level probe
with built-in temperature sensor

# OTT PLS

## Ceramic capacitive pressure probe

The OTT PLS probe may be used for both surface water and groundwater measurements. It 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

# OTT PLS – reliable, precise, and consistent

## Features and benefits

— 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)

## 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)



OTT PLS



Ceramic measuring cell

# Technical Data

**Water level measurement (pressure)**
- Measuring range: 0 … 4 m, 0 … 10 m, 0 … 20 m, 0 … 40 m, 0 …100 m water column
- 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 operating range: −5 °C … +45 °C (ice-free)
- Units: cm, m, ft, mbar, psi

**Temperature measurement**
- Measuring range: −25 °C … +70 °C
- Resolution: 0.1 °C / 0.1 °F
- Accuracy: ±0.5 °C / ±0.9 °F
- Units: °C, °F

**Pressure sensor**
(capacitive pressure sensor)
- Ceramic
- Temperature compensated
- Overload safe for up to 5 times the measuring range without permanent mechanical damage

**Temperature sensor**
NTC temperature sensor

**Available interfaces (use as required)**
4 … 20 mA, SDI-12, RS-485 (via SDI-12 protocol)

**Supply voltage**
+9.6 … +28 V DC, typ. 12/24 V DC

**Power consumption (SDI-12)**
- Sleep: < 600 µA
- Active: < 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: 1 …100 m
- SDI-12 via RS-485: 1 …1000 m
- 4 … 20 mA: 1 …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**
EN 61000-4-2/3/4/5/6 and EN 61000-6-3 Class B are adhered to

CE