

TSH22

Pressure immersion sensor for water level and temperature



- High level measurement accuracy (0.1% of measuring range)
- Excellent long-term stability
- Very low temperature dependence due to microprocessor signal processing
- Measuring ranges from 0..5 m to 0..10 m
- Integrated temperature sensor
- Sensor diameter 22 mm for installation even in narrow boreholes
- Durable stainless steel design of the sensor body
- RS485 communication interface
- Modbus RTU and FINET communication protocols
- Optional connector connection for easy sensor recalibration
- Special semi-permeable filter preventing the penetration of air humidity into the compensating capillary of the sensor

Basic description

The TSH22 water level and temperature pressure sensor is characterized by high measuring accuracy (0.1% FSO) and very low temperature dependence of the measured value.

The base of the sensor is a 19 mm sensor with a stainless steel membrane. The built-in microprocessor compensates for the temperature dependence of the sensor and its possible nonlinearity. The water temperature is measured by a separate sensor located in the sensor body and can be transmitted via the RS485 serial interface together with the level to the connected master system.

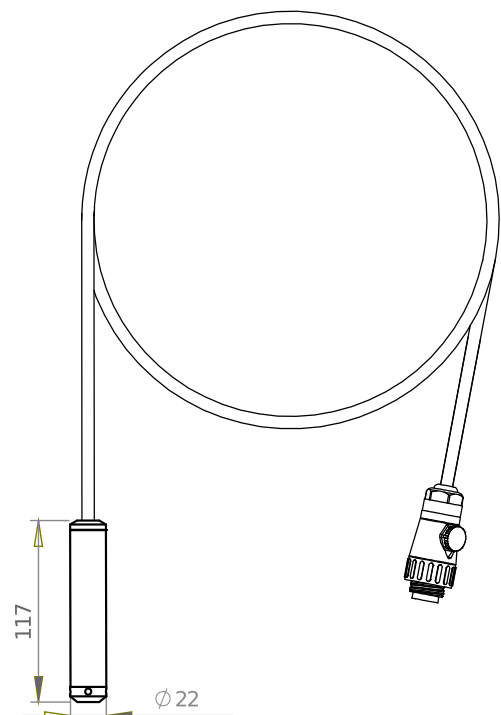
The sensors are supplied as standard with the FINET communication protocol, through which it can be easily and quickly connected to all FIEDLER AMS recording units (M4016, H1, H7, H40, STELA). On request, the sensor can also be supplied with a Modbus RTU interface.

Examples of use

- Groundwater level measurement
- Environmental monitoring
- Monitoring of levels and temperatures in open channel
- Basic sensor for Local Warning Systems (LWS)
- Measurement of levels in reservoirs
- Level sensing in industrial plants

Data for order

The length of the TSH22 sensor connection cable must be defined when ordering the sensor together with the measuring range of the sensor. The cable can be supplied in lengths from 1 m to 150 m. Together with the cable length, the required cable termination (free end or connector with filter) must be specified.



Technical parameters

Measuring channels: K1: level, K2: water temperat.

Measuring range K1: selectable in the range from 0..5 to 0..10 m water column (standard: 5, 7 and 10m)

Permitted overload: 1.5x measuring range

Level measurement accuracy: $\pm 0.1\%$ (0.35%) FSO

Level resolution: 1 mm

Water temperature measurement accuracy: $\pm 0.3\text{ }^{\circ}\text{C}$

Water temperature resolution: $0.1\text{ }^{\circ}\text{C}$

Long-term stability: $\pm 0.1\%$ FSO

Temperature dependence: $\pm 0.2\%$ FSO / 10K

Output signal: RS485

Communication protocol: FINET (Modbus RTU)

Baud rate: FINET: 1200 Bd to 19200 Bd
Modbus RTU: 2400 Bd to 38400 Bd

Supply voltage: 6V to 16 V DC

Current consumption: <5 mA

Working temperature range: 0 to +50 $^{\circ}\text{C}$

Membrane and sensor body material: stainless steel 1.4044

Membrane protective cover material: POM

Sensor dimensions: diameter 22 mm, length 120 mm

Weight: 170 g without cable

Protection: IP68 (sensor with cable)

Connection connector protection: IP67

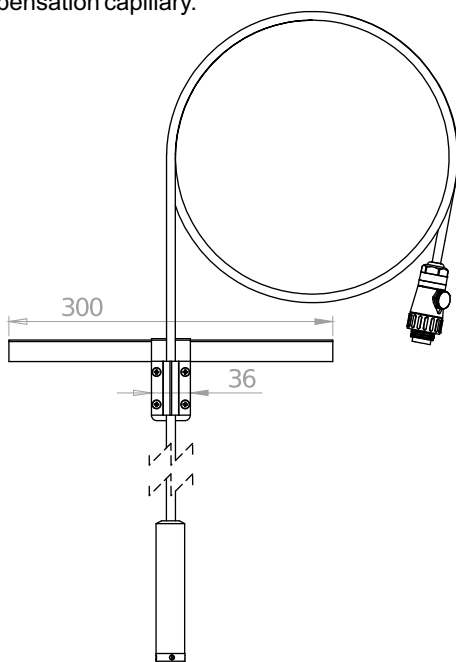
Connection: four-core PUR cable with comp. capillary

Connecting cable diameter: 8 mm

Optional accessories

Hanging bracket

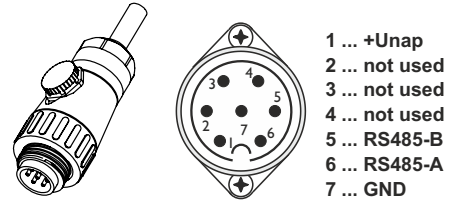
Along with the probe, it is also possible to order a stainless steel suspension holder for the probe, which serves to safely hang the sensor behind the connecting cable in the required position without inadmissible local clamping of the cable and thus possible throttling of the compensation capillary.



Connection cable termination

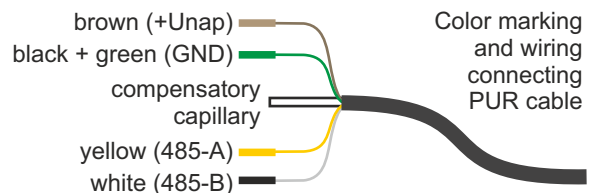
The connecting polyurethane cable with a compensating capillary can be loosely terminated with crimped sockets on the individual signal wires, or it can be provided with a robust 7-pin connector at the end.

Cable connector end:



The connector end of the connecting cable has the advantage of quickly disconnecting the sensor from the recording unit in the event of a fault or other damage to the sensor and when recalibrating the sensor. In addition, the connector includes a semi-permeable filter to equalize the atmospheric pressure of the air behind the sensor membrane.

Free cable termination:



Semi-permeable filter Da284

The loosely terminated cable requires additional treatment of the compensating capillary against the ingress of air humidity into the probe body to the sensitive electronics. Usually this treatment is performed by placing a suitable filter in the wall of the housing of the recording or evaluation unit to which the probe is connected.

The air-permeable filter allows the air pressure inside the wiring box or connector to be equalized with the ambient atmospheric pressure.

However, the semi-permeable membrane of the filter does not allow the penetration of air humidity into the protected space and thus prevents condensation of water vapor inside the device.

