



Instruction Manual

FT01

Hydrostatic Submersible Sensor



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Safety Information

General Instructions

The device should only be operated according to the specifications in the instruction manual. The requisite Health & Safety regulations for a given application must also be observed. This also applies to the use of accessories.

Proper Usage

Hydrostatic level sensors measure fluid height and thus its level by means of the hydrostatic pressure applied by the water column directly above the sensor. All other usage is regarded as being improper and outside the scope of the device.

The series FT01 devices should not be deployed as the sole agents to prevent dangerous conditions occurring in plant or machinery. Machinery and plant need to be designed so that faulty conditions do not arise that could pose a safety risk for operators.

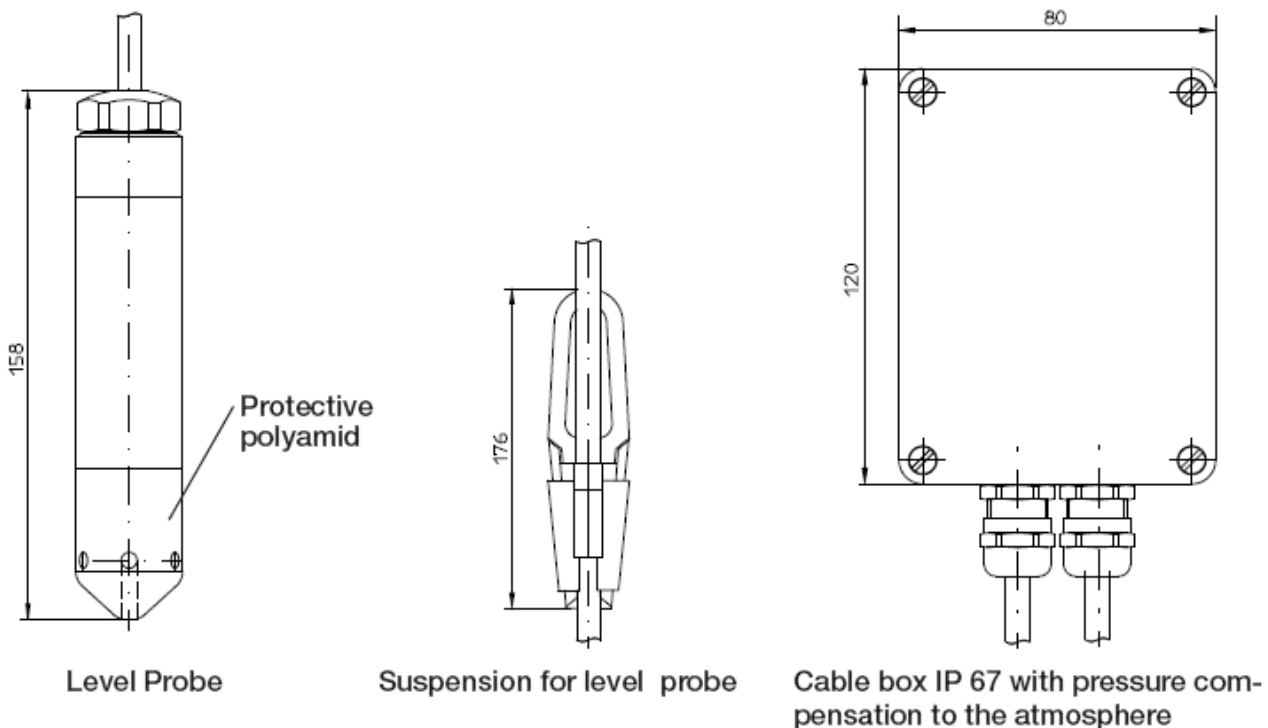
Qualified Personnel

FT01 devices may only be installed by trained, qualified personnel who are able to mount the devices correctly. Qualified personnel are persons, who are familiar with assembling, installation, placing in service and operating these devices and who are suitably trained and qualified.

Functional description

Hydrostatic level sensors measure fluid height and thus its level by means of the hydrostatic pressure applied by the water column directly above the sensor.

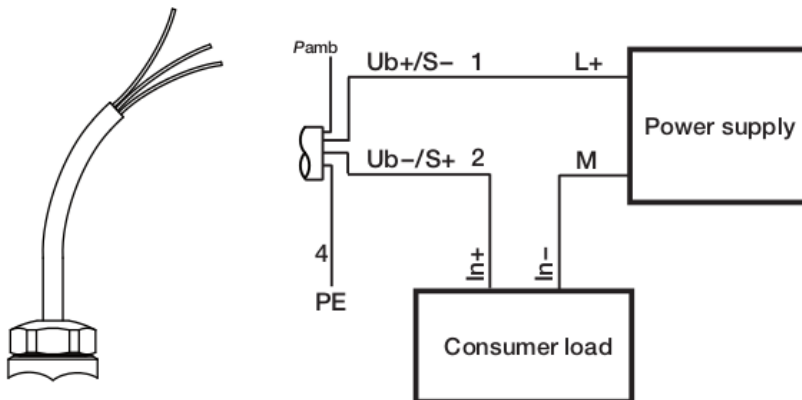
A measuring cell at the bottom of the sensor registers this pressure so that the sensor's internal electronics can generate a 4-20 mA or a 0-10 VDC signal proportional to the detected fluid level.



Electrical Connection

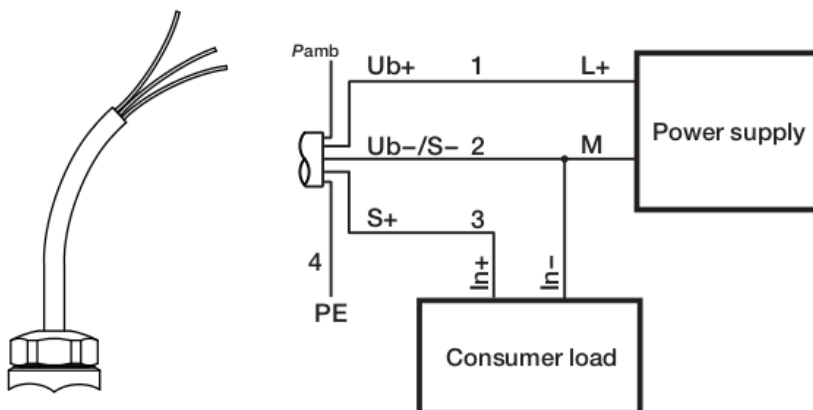
- Before carrying out the electrical installation, make sure that the supply voltage corresponds to the data provided!
- Switch off any power supply before the electrical installation.
- Electrical connection is made by shielded cable with capillary tube.
- Precise wiring schemes can be seen in the drawings.
- In addition, wiring details and required power supply are given on the rating plate.

Cable connection, 2-wire 4 ... 20 mA



1: white, - 2: gray, - 3: green - 4: yellow.

Cable connection, 3-wire 0 ... 20 mA, 0 ... 10 V



1: white, - 2: gray, - 3: green - 4: yellow.

!! Attention !!

The connecting cable with capillary must not be pinched or bended to avoid interruption of pressure compensation to ambient pressure.

Minimum bending radius: fixed = 20 mm / flexible application = 100 mm

Commissioning

The level probe is immediately ready for service after the electrical connections have been made. The output signal must be in accordance with the nameplate 0 or 4 mA. Thereafter, the level probe is lowered corresponding to the measurement range.

Significance of applied terminal designations:

Ub+ / Ub- supply voltage
S+ / S- output signal
shield / PE cable shield/case, earth

Current output

output signal: 4 ... 20 mA / 2 wire-system
 0 ... 20 mA / 3 wire-system
Power supply: Ub = 12 ... 30 V DC
Admissible load: Ra = (Ub - 12 V) / 20 mA

V-Signal

Output signal: 0 ... 10 V / 3 wire-system
Power supply: Ub = 17 ... 30 V DC
Admissible load: Ra ≥ 10 kΩ

Service and Maintenance

The level probe described here under is maintenance free. It includes no components which have to be repaired or replaced on the site.

Repairs have to be carried out at the factory. Depending on working conditions, the level probe should be checked about once a year to ensure that it is within their specifications and be adjusted if necessary.

FT01

Hydrostatic Level Sensor

- compact design
- measuring cell with high overpressure resistance
- optional current or voltage output
- corrosion resistant stainless steel version
- max. temperature: 80 °C
- protection class IP 68
- up to 250 m immersion depth



Description:

Hydrostatic level sensors measure fluid height and thus its level by means of the hydrostatic pressure applied by the water column directly above the sensor.

A measuring cell at the bottom of the sensor registers this pressure so that the sensor's internal electronics can generate a 4-20 mA or a 0-10 VDC signal proportional to the detected fluid level.

Because all parts of the pressure sensor coming in contact with the liquid being measured are made of stainless steel, this sensor is suitable for unrestricted use in the food industry.

Typical applications:

The FT01 level sensor is used in measuring applications that require provision of a precise, stable and reliable output signal even under extreme operating conditions.

The high electrical protection rating (IP 68) and its high resistance to corrosion make the FT01 level sensor suitable for use in a vast variety of containers, basins, shafts and tanks.

With its large diaphragm surface area, the FT01 has proven to be especially suitable for monitoring wastewater systems.

Materials:

Housing:	stainless steel 1.4571
Pressure sensor:	stainless steel 1.4435 / 1.4568
Protective cap:	PA
Cable:	polyurethane coated

Technical Data:

Process connection:	G 1/2 B
Overload limit:	2 bar up to measuring range R69 4 bar measuring range R70 13 bar measuring range R72-R74 32 bar measuring range R75-R78
max. Medium temp.:	-25...+80 °C
max. Storage temp.:	-40...+100 °C
Compensated range:	0...+70 °C
Temperature influence:	average TK zero point: < 0,2 % FS / 10 K average TK range: < 0,2 % FS / 10 K
Accuracy:	linearity + hysteresis + repeatability: < 0,3 % FS
Response time:	< 10 ms
Cable:	PUR, with pressure compensating capillary tube and strain relief, polyurethane coating
Cable length:	display range + 2,5 m
Lightning protection:	acc. to IEC 801-5

Electrical Data:

Supply voltage:	12...30 VDC for current output 17...30 VDC for voltage output
Power consumption:	$P_{max} = 0,75$ Watt
Output:	current output 4...20 mA, load (UB-10 V) / 0,02 A voltage output 0...10 V, load 100 kOhm
Protection class:	IP68 acc. to EN 60 529 / IEC 529
Electr. prot. classes:	reverse polarity, overvoltage- and short-circuit proof

Order Code:

Order number: FT01. 1. 1. R72. 01. 0

Hydrostatic level sensor

Output signal:

1 = 4...20 mA, 2-wire
2 = 0...10 VDC, 3-wire

Accuracy class:

1 = 0,3 %

Measuring range:

R63 = 0 to 0,1 bar
R64 = 0 to 0,16 bar
R65 = 0 to 0,25 bar
R66 = 0 to 0,4 bar
R67 = 0 to 0,6 bar
R69 = 0 to 1 bar
R70 = 0 to 1,6 bar
R72 = 0 to 2,5 bar
R73 = 0 to 4 bar
R74 = 0 to 6 bar
R75 = 0 to 10 bar
R76 = 0 to 16 bar
R78 = 0 to 25 bar
9 = special measuring range, please specify in plain text

Cable length:

01 = display range + 2,5 m (standard)
xx = special length, please specify in plain text

Options and Accessory (multiple selection possible):

0 = without
1 = stainless steel protective cap 1.4571
2 = suspension for level probe
3 = additional weight made of stainless steel 1.4571
4 = test certificate
5 = cable box with atmospheric ventilation (IP67)
9 = please specify in plain text
VR = housing with extension tube

Dimensions:

