



Level Probe LFH - Reliable Liquid Level Measurement

The level probe LFH is characterized by its high-quality and precise measurement technology. It is well suited for a wide application range.

The level probe LFH is designed for the hydrostatic level measurement of liquids. The LFH is a water-proof pressure transmitter that is immersed into the liquid together with its connection cable to the desired depth. The LFH provides an analog electrical output signal that is proportional to the applied hydrostatic pressure and hence, to the immersion depth. The level probe is available as standard with various cable lengths from 1.5 m up to 100 m. Other lengths are available upon request. The LFH is ideally suited for applications in water/ sewerage plants, in larger liquid vessels where other level measurement technologies fail and in cases where inserting a fitting into the tank wall is not permitted or is technically unviable.

The connection cable has a PUR sheathing and contains a ventilation tube for pressure compensation relative to the atmosphere. The maximum tensile strength of the cable is 1000 N. The sensor housing is made from stainless steel and has a plastic cap to protect the stainless steel sensor diaphragm. To meet diverse application require-

ments the level probe LFH is available in a *standard* and an *enhanced* version.

The enhanced version is available with a number of options that extend the application range significantly. There is an integrated temperature measurement option using a Pt100 element, surge protection as well as a connection cable with FEP sheathing (tensile strength: 500 N). A special advantage of the enhanced version is the so called longitudinal water resistance feature that prevents any liquid from entering the sensor in the event of cable damage. In addition, this variant also allows a maximum immersion depth of up to 250 m to be realized (standard: 100 m).

Benefits

- Universal use
- High reliability
- Rugged design and high-quality materials
- High tensile strength of connection cable
- Optimized solutions through versatile options
- For cleaning purposes the probe can easily be taken out of the liquid

Technical Data

Measurement ranges	LFH												
Pressure ranges in bar ¹⁾	0.1 ²⁾	0.16 ²⁾	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16 ²⁾	25 ²⁾
Over pressure safety	1	1.5	2	2	4	5	10	10	10 ³⁾ /17	10 ³⁾ /35	10 ³⁾ /35	35	35
Burst pressure	2	2	2.4	2.4	4.8	6	12	12	12 ³⁾ /20.5	12 ³⁾ /42	12 ³⁾ /42	42	42

¹⁾ 1 bar = 10.2 mH₂O (meter water column)

²⁾ Only with enhanced version.

³⁾ With standard version and enhanced version with FEP cable.

Technical data	LFH	
Materials		
■ Wetted parts	Stainless steel	
■ Pressure connection/diaphragm	Stainless steel	
■ Protection cap	PA	
■ Cable	PUR (tensile strength 1000 N), FEP optionally available (tensile strength 500 N) ⁴⁾	
Supply voltage	10 ... 30 V DC	
	14 ... 30 V DC with output signal 0 ... 10 V ⁴⁾	
Output signal and maximum ohmic load R _A	4 ... 20 mA, 2-wire	$R_A \leq (L + 10 \text{ V}) / 0.02 \text{ A} - (0.14 \times \text{cable length in m}) [\text{Ohm}]$
	0 ... 10 V, 3-wire optional ⁴⁾	$R_A > 100 \text{ kOhm}$
	0 ... 5 V, 3-wire optional ⁴⁾	$R_A > 100 \text{ kOhm}$
	Pt 100, 4-wire optional ⁴⁾	I max. = 3 mA, I meas. = 1 mA
Dielectric strength	500 V DC ⁵⁾	
Accuracy ⁶⁾	≤ 0.5 % of span with standard version and enhanced version with p < 0.25 bar	
	≤ 0.25 % of span with enhanced version p ≥ 0.25 bar	
Non-linearity	≤ 0.2 % of span (BFSL) according to IEC 61298-2	
Non-repeatability	≤ 0.1 % of span	
1-year stability	≤ 0.2 % of span (at reference conditions)	
Permissible temperature of		
■ Medium	-10 °C ... +50 °C	-10 °C ... +85 °C with enhanced version with FEP cable
■ Storage	-30 °C ... +80 °C	
Compensated temp range	0 °C ... +50 °C	
Temperature coefficients within compensated temperature range		
■ Mean TC of zero	≤ 0.2 % of span / 10 K (< 0.4 % for pressure ranges ≤ 250 mbar)	
■ Mean TC of range	≤ 0.2 % of span / 10 K	
CE- conformity		
■ EMC directive	2004/108/EC, EN 61 326-2-3	
Wiring protection		
■ Protection class	III	
■ Short-circuit proofness	Q _A towards M	
■ Reverse polarity protection	L* towards M	
	Surge protection EN 61000-4-5 (1.5 J) optional ⁴⁾	
Weight		
■ Level probe	Standard: Approx. 0.18 kg	Enhanced: Approx. 0.20 kg
■ Cable	Standard: Approx. 0.08 kg/m	Enhanced: Approx. 0.08 kg/m

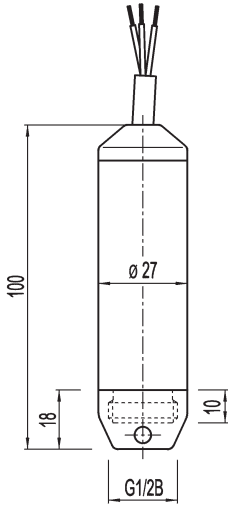
⁴⁾ Only with enhanced version.

⁵⁾ Use NEC Class O2 power supply (low voltage and low current max. 100 VA even under fault conditions)

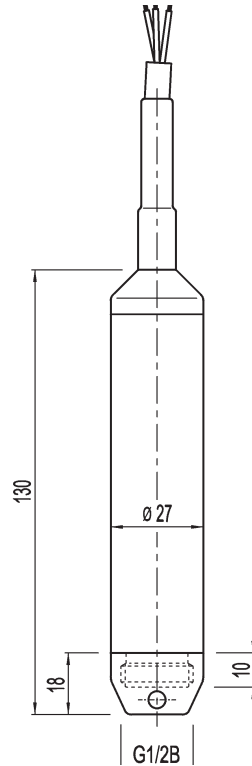
⁶⁾ Including non-linearity, hysteresis, zero point and full scale error (corresponds to error of measurement per IEC 61298-2). Adjusted in vertical mounting position with lower pressure connection.

Dimensional drawings

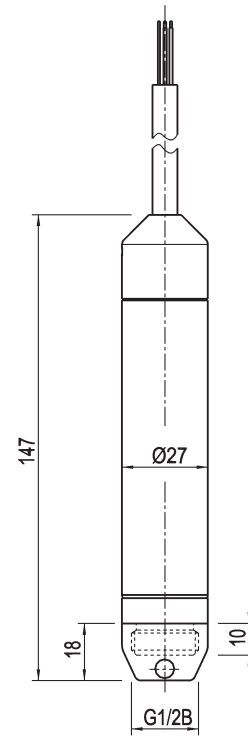
Standard version
(Immersion depth up to 100 m)



Enhanced version with PUR cable
(Immersion depth up to 250 m)



Enhanced version with FEP cable
(Immersion depth up to 100 m)



Dimensions in mm

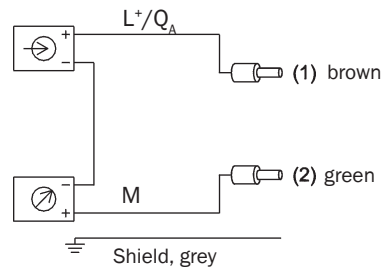
For mounting no additional strain relief required because the cable has a max. tensile strength of 1000 N (500 N with FEP cable).

For installation and safety instructions see the operating instructions for this product.

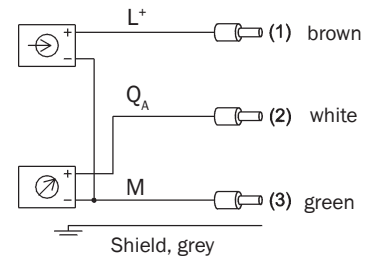
Wiring details

Vented PUR cable,
tensile strength 1000 N
(500 N with FEP cable)
Enclosure rating IP 68 acc.
to IEC 60529

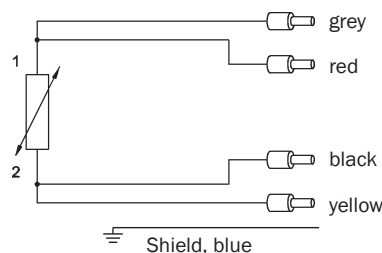
2-wire



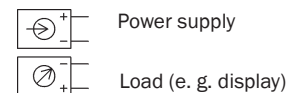
3-wire



Pt 100 - element (4-wire)



Legend:



Type code

Accuracy

S	Standard version
E	Enhanced version

Pressure unit

B	bar
W	mH2O

Standard measurement ranges see the following page

Output signal

A	4 ... 20 mA, 2-wire
V	0 ... 10 V, 3-wire ¹⁾
U	0 ... 5 V, 3-wire ¹⁾

Cable sheathing

S	Standard cable (PUR)
F	FEP cable ¹⁾

Cable length

01	1.5 m
03	3 m
05	5 m
10	10 m
15	15 m
20	20 m
25	25 m
30	30 m
40	40 m
50	50 m
60	60 m
80	80 m
1H	100 m

Other cable lengths upon request

Supply voltage

S	Supply voltage 10 ... 30 V DC
Z	Supply voltage 14 ... 30 V DC with output signal 0 ... 10 V ¹⁾

Electrical options

Z	Non electrical options
V	Overvoltage protection ¹⁾
T	Temperature measurement with Pt100, 4-wire ¹⁾
C	Overvoltage protection + temperature measurement with Pt100, 4-wire ¹⁾

LFH -				G1							0
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¹⁾ Only with enhanced version.

Measurement ranges		bar / Gauge pressure		mH ₂ O / Gauge pressure			
X10	0 ... 0.1 bar ¹⁾	2X5	0 ... 2.5 bar	1X0	0 ... 1 mH ₂ O ¹⁾	025	0 ... 25 mH ₂ O
X16	0 ... 0.16 bar ¹⁾	4X0	0 ... 4 bar	1X6	0 ... 1.6 mH ₂ O ¹⁾	040	0 ... 40 mH ₂ O
X25	0 ... 0.25 bar	6X0	0 ... 6 bar	2X5	0 ... 2.5 mH ₂ O	060	0 ... 60 mH ₂ O
X40	0 ... 0.4 bar	010	0 ... 10 bar	4X0	0 ... 4 mH ₂ O	100	0 ... 100 mH ₂ O
X60	0 ... 0.6 bar	016	0 ... 16 bar ¹⁾	6X0	0 ... 6 mH ₂ O	160	0 ... 160 mH ₂ O ¹⁾
1X0	0 ... 1 bar	025	0 ... 25 bar ¹⁾	010	0 ... 10 mH ₂ O	250	0 ... 250 mH ₂ O ¹⁾
1X6	0 ... 1.6 bar			016	0 ... 16 mH ₂ O		


¹⁾ Only with enhanced version.

Recommended accessories


Vent tube filter

	Brief description	Type	Part No.
	For level probe LFH. Prevents humidity from entering the ventilation tube of the connection cable. For self-mounting at cable end.	APR-VF-LFH001-0001	5324309

Sensor connection box

	Brief description	Enclosure rating	Material	Type	Part No.
	For electrical connection of level probe LFH. With integrated pressure compensation and terminal block	IP 67	Polycarbonate, grey	ASK-CB-LFHPC0-0001	5324310

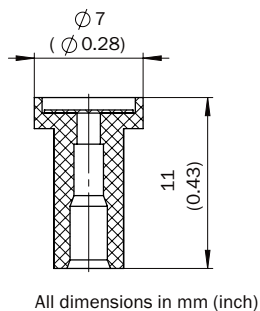
Clamping bracket

	Brief description	Material	Tensile strength	Type	Part No.
	Cable clamp for installation of connection cable of level probe LFH	Galvanized steel, plastics	≤ 2.5 kN	BEF-CC-LFH001-0001	5324307

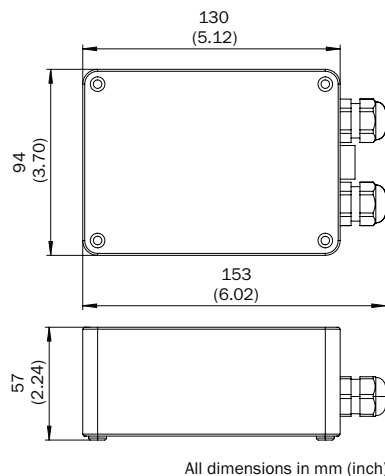
Additional weight

	Brief description	Weight	Material	Type	Part No.
	Additional weight for stabilization of level probe LFH in moving liquids	500 g	Stainless steel 1.4571	BEF-AW-LFHSST-0001	5324308

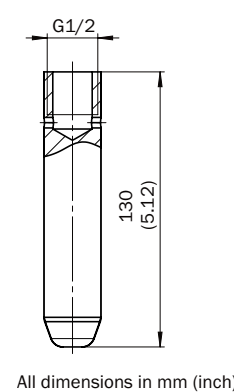
Vent tube filter



Sensor connection box



Additional weight



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