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LMK 858

Detachable Plastic Probe

Ceramic Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 % FSO

Nominal pressure

from 0 ... 40 cmH_2O up to 0 ... 100 mH_2O

Output signals

2-wire: 4 ... 20 mA
others on request

Special characteristics

- diameter 45 mm
- cable assembly and sensor head detachable
- chemical resistance
- housing PP-HT
- integrated lightning protection and increased overvoltage protection 8 kA gas discharge tube (8/20 µsec); 4 kV surge l-l/l-e according to EN61000-4-5

Optional versions

- diaphragm 99.9 % Al_2O_3
- different kinds of cables and elastomers
- cable protection (on request)

The separable plastic immersion probe LMK 858 was designed for level measurement in aggressive media (acids, alkalis), desalination plants and for use in more viscous media such as sludge. Since the area of application is often outside a building, great emphasis was placed on high surge / lightning protection.

The immersion probe is based on an extremely robust and precise pressure sensor, the membrane of which consists of a high-purity ceramic (99.9% purity), with which even the smallest fill levels can be reliably detected.

Another special feature of the LMK 858 is the separability of the probe head and cable part. This advantage reduces maintenance or service tasks and also simplifies storage.

Preferred areas of use are

Sewage
waste water treatment, dumpsite, water recycling

Aggressive media
level measurement in most of acids and lyes

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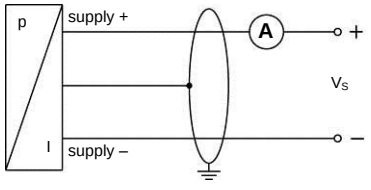
Input pressure range														
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH_2O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35
Max. ambient pressure (housing): 10 bar														

Output signal / Supply		
2-wire	4 ... 20 mA / V_S = 9 ... 32 V_{DC}	others on request
Performance		
Accuracy [1]	standard: ≤ ± 0.35 % FSO	option: ≤ ± 0.25 % FSO
Permissible load	R_{max} = [(V_S – $V_{S\,min}$) / 0.02 A] Ω	
Influence effects	supply: 0.05 % FSO / 10 V	load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.1 % FSO / year at reference conditions	
Turn-on time	700 msec	
Mean response time	< 200 msec	measuring rate 5/sec
Max. response time	380 msec	
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)		
Thermal effects (offset and span)		
Tolerance band	≤ ± 1 % FSO	
In compensated range	-20 … 80°C	
Permissible temperatures		
Permissible temperatures	medium / electronic / environment / storage: -25 ... 80 °C	
Electrical protection [2]		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Electromagnetic compatibility	emission and immunity according to EN 61326	
[2] additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request		
Overvoltage / lightning protection		
Series resistance	9.4 Ω for each positive and negative wire	
Max. leakage current	8 kA (8/20 µsec)	
Overload	4 kV (line-line and line-earth) according to EN 61000-4-5	
Max. rated current	30 mA	
Electrical connection		
Cable with sheath material [3]	PVC (-5 … 70 °C) grey Ø 7.4 mm PUR (-25 … 70 °C) black Ø 7.4 mm FEP [4] (-25 … 70 °C) black Ø 7.4 mm	
Cable capacitance	signal line/shield also signal line/signal line: 160 pF/m	
Cable inductance	signal line/shield also signal line/signal line: 1 µH/m	
Bending radius	static installation: 10-fold cable diameter, dynamic application: 20-fold cable diameter	
[3] shielded cable with integrated ventilation tube for atmospheric pressure reference *[4] do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected*		
Materials (media wetted)		
Housing	PP-HT	
Seals	FKM, EPDM, others on request	
Diaphragm	standard: ceramics Al_2O_3 96 %	option: ceramics Al_2O_3 99.9 %
Cable sheath	PVC, PUR, FEP, others on request	
Miscellaneous		
Option cable protection (on request)	prepared for mounting with PP-HT pipe Ø 25 mm; available as compact product (standard: pipe with a total length up to 2 m possible)	
Current consumption	max. 25 mA	
Weight	approx. 400 g (without cable)	
Ingress protection	IP 68	
CE-conformity	EMC Directive: 2014/30/EU	

Wiring diagram / pin configuration

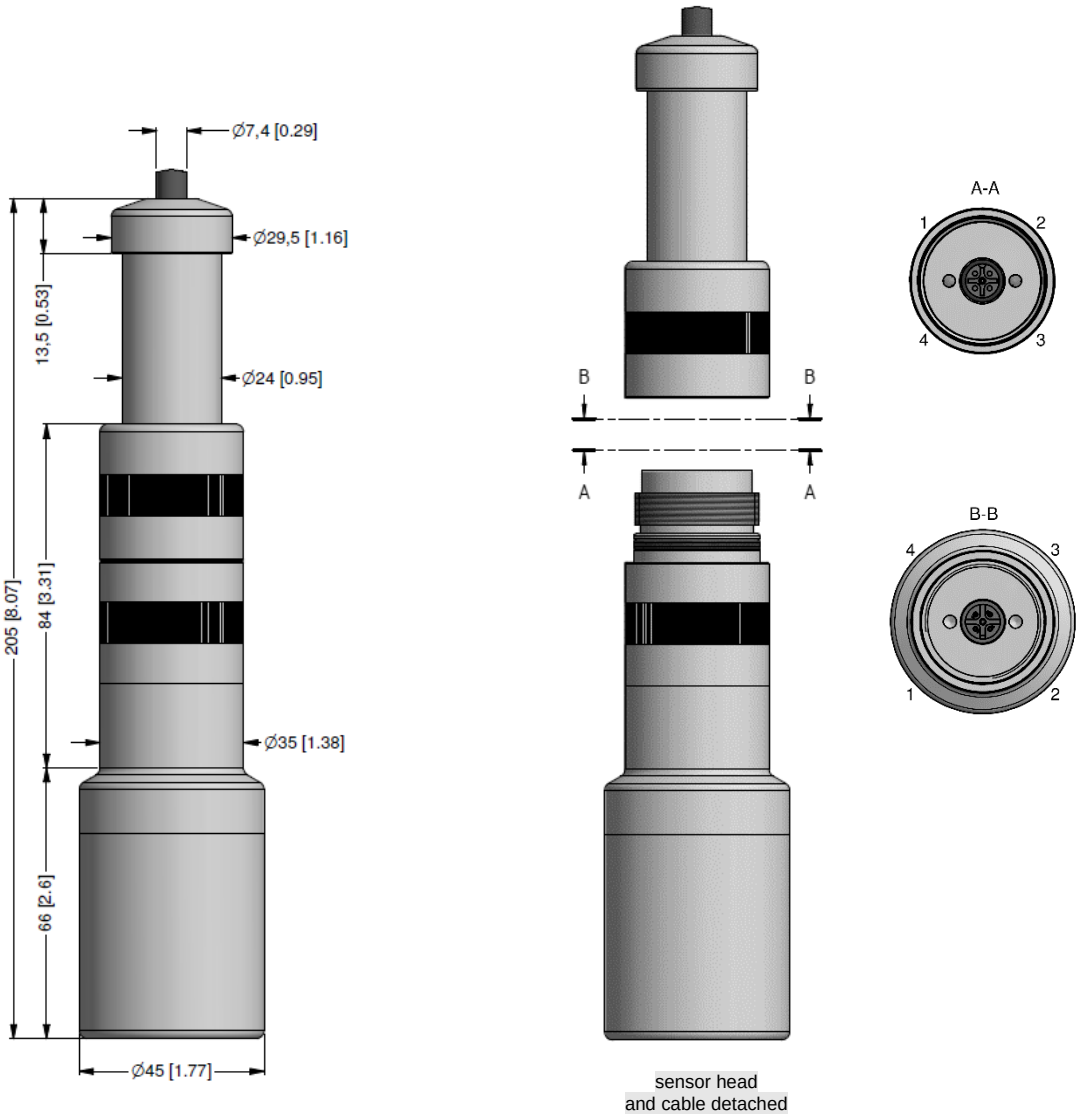
2-wire-system (current)



Electrical connection	M12x1 (4-pin) [5]	cable colours (IEC 60757)
Supply +	3	WH (white)
Supply –	4	BN (brown)
Shield	2	GNYE (green-yellow)

[5] if detached

Dimensions (mm / in)



Accessories

Terminal clamp

Technical data		
Suitable for	all probes with cable ∅ 5.5 ... 10.5 mm	
Material of housing	standard: steel, zinc plated	optionally: stainless steel 1.4301 (304)
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)	
Dimensions (mm)	174 x 45 x 32	
Hook diameter	20 mm	

Ordering type	**Ordering code**	**Weight**
Terminal clamp, steel, zinc plated	Z100528	approx. 160 g
Terminal clamp, stainless steel 1.4301 (304)	Z100527	

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BD|SENSORS pressure measurement

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pressure measurement

Ordering code LMK 858

LMK 858 ☐☐☐ - ☐☐☐☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐ - ☐☐☐ - ☐☐☐

			Code	
Pressure				
		in bar	4 1 5	
		in mH_2O	4 1 6	
Input	[mH_2O]	[bar]		
	0.4	0.04	0 4 0 0	
	0.6	0.06	0 6 0 0	
	1.0	0.10	1 0 0 0	
	1.6	0.16	1 6 0 0	
	2.5	0.25	2 5 0 0	
	4.0	0.40	4 0 0 0	
	6.0	0.60	6 0 0 0	
	10	1.0	1 0 0 1	
	16	1.6	1 6 0 1	
	25	2.5	2 5 0 1	
	40	4.0	4 0 0 1	
	60	6.0	6 0 0 1	
	100	10	1 0 0 2	
		customer	9 9 9 9	consult
Housing				
		PP-HT	R	
		customer	9	consult
Diaphragm				
		ceramics Al_2O_3 96 %	2	
		ceramics Al_2O_3 99.9 %	C	
		customer	9	consult
Output				
		4 … 20 mA / 2-wire	1	
		customer	9	consult
Seal				
		FKM	1	
		EPDM	3	
		customer	9	consult
Electrical connection				
		PVC-cable (grey, Ø 7.4 mm) [1]	1	
		PUR-cable (black, Ø 7.4 mm) [1]	2	
		FEP-cable (black, Ø 7.4 mm) [1]	3	
		customer	9	consult
Accuracy				
standard		0.35 % FSO	3	
option		0.25 % FSO	2	
		customer	9	consult
Cable length				
		in m	9 9 9	
Special version				
		standard	0 0 0	
		prepared for pipe mounting [2]	1 0 6	consult
		customer	9 9 9	consult

[1] shielded cable with integrated ventilation tube for atmospheric pressure reference
[2] pipe is not part of the supply

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