LMP 307i

Stainless Steel Probe

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.1 % FSO

Nominal pressure

from 0 ... 4 mH_2O up to 0 ... 200 mH_2O

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 ... 10 V
others on request

Special characteristics

- diameter 26.5 mm
- small thermal effect
- excellent accuracy
- excellent long term stability

Optional versions

- IS-protection zone 0
- cable protection via corrugated pipe
- drinking water certificate according to DVGW and KTW
- different kinds of cables
- different kinds of seal materials

The stainless steel probe LMP 307i is designed for continuous level measurement in water and clean or lightly polluted fluids.

Basic element is a high quality stainless steel sensor with high requirements for exact measurement with excellent long term stability.

Preferred areas of use are

Water / filtrated sewage
drinking water system
ground water level measurement
rain spillway basin
pump and booster stations
level measurement in container
water treatment plants
water recycling

Fuel / Oil
fuel storage
tank farm

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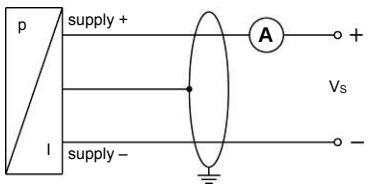
Input pressure range [1]							
Nominal pressure gauge	[bar]	0.40	1	2	4	10	20
Level	[mH_2O]	4	10	20	40	100	200
Overpressure	[bar]	2	5	10	20	40	80
Burst pressure ≥	[bar]	3	7.5	15	25	50	120
[1] On customer request we adjust the device within the turn-down-possibility by software on the required pressure range.							

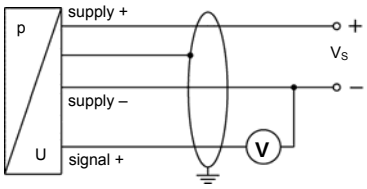
Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 12 ... 36 V_{DC}
Option Ex-protection	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}
Options 3-wire	3-wire: 0 ... 10 V / V_S = 14 ... 36 V_{DC}
Performance	
Accuracy [2]	nominal pressure ≥ 0.1 bar: ≤ ± 0.1 % FSO nominal pressure < 0.1 bar: ≤ ± 0.2 % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S\ min}) / 0.02\ A]\ \Omega$ voltage 3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Response time	ca. 200 msec
[2] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (Offset and Span)	
Tolerance band	≤ ± 0.2 % FSO in compensated range -20 … 80°C
TC	≤ ± 0.02 % FSO / 10K in compensated range -20 … 80°C
Permissible temperatures	
Permissible temperatures	medium: -10 ... 70 °C storage: -25 ... 70 °C
Electrical protection [3]	
Insulation resistance	> 100 MΩ
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
[3] additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request	
Electrical connection	
Cable with sheath material [4]	PVC (-5 … 70 °C) grey PUR (-10 … 70 °C) black FEP [5] (-10 … 70 °C) black TPE-U (-10 … 70 °C) blue (without/with drinking water certificate)
[4] cable with integrated air tube for atmospheric pressure reference *[5] do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected*	
Materials (media wetted)	
Housing	stainless steel 1.4404 (316L)
Seals	FKM EPDM (without/with drinking water certificate) others on request
Diaphragm	stainless steel 1.4435 (316L)
Protection cap	POM-C
Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approvals DX19-LMP 307i	**IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X** zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T 85°C Da
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0 nF, L_i ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF to the housing
Ambient temperature range	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -20 ... 65 °C
Connecting cables (by factory)	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
Miscellaneous	
Drinking water certificate [6]	according to DVGW W 270 and UBA KTW (with order the indication "with drinking water certificate" is necessary)
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 200 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU
[6] only possible with EPDM seal in combination with TPE-U cable; not possible with IS-protection (explosion protection)	

Wiring diagrams

2-wire-system (current)



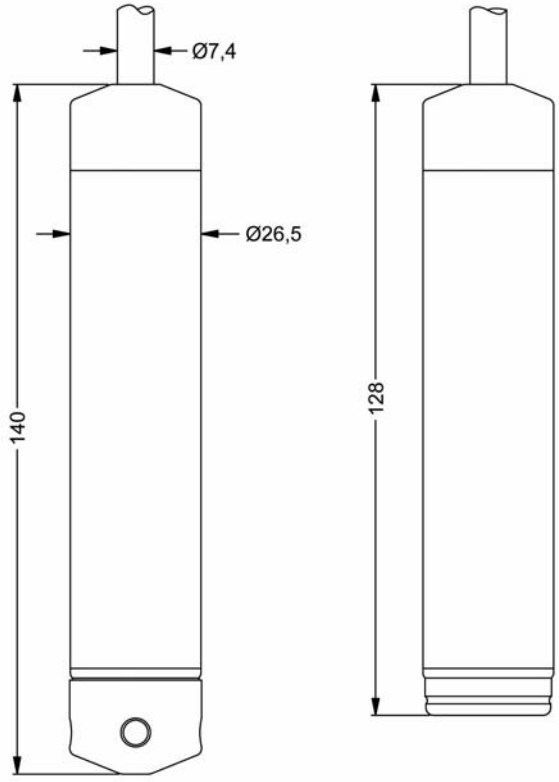
3-wire-system (current / voltage)



Pin configuration

Electrical connection	cable colours (IEC 60757)
Supply +	wh (white)
Supply –	bn (brown)
Signal + (only 3-wire)	gn (green)
Shield	gnye (green-yellow)

Dimensions (in mm)



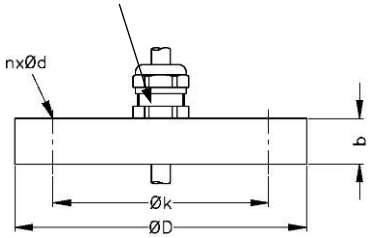
Mounting flange with cable gland

Technical data

Suitable for	all probes
Flange material	stainless steel 1.4404 (316L)
Material of cable gland	standard: brass, nickel plated on request: stainless steel 1.4305 (303); plastic
Seal insert	material: TPE (ingress protection IP 68)
Hole pattern	according to DIN 2507

Version	Size (in mm)	Weight
DN25 / PN40	D = 115, k = 85, b = 18, n = 4, d= 14	1.4 kg
DN50 / PN40	D = 165, k = 125, b = 20, n = 4, d= 18	3.2 kg
DN80 / PN16	D = 200, k = 160, b = 20, n = 8, d= 18	4.8 kg

cable gland M16x1.5 with
seal insert (for cable-∅ 4 ... 11 mm)

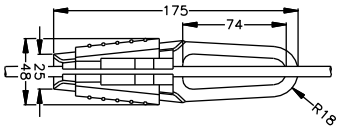


Ordering type	Ordering code
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016

Terminal clamp

Technical data

Suitable for	all probes with cable ∅ 5.5 ... 10.5 mm
Material	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)
Weight	approx. 160 g



Ordering type	Ordering code
Terminal clamp, steel, zinc plated	Z100528
Terminal clamp, stainless steel 1.4301 (304)	Z100527

Display program

CIT 200
Process display with LED display

CIT 250
Process display with LED display and contacts

CIT 300
Process display with LED display, contacts and analogue output

CIT 350
Process display with LED display, bargraph, contacts and analogue output

CIT 400
Process display with LED display, contacts, analogue output and Ex-approval

CIT 600
Multichannel process display with graphics-capable LC display

CIT 650
Multichannel process display with graphics-capable LC display and datalogger

CIT 700 / CIT 750
Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts

PA 440
Field display with 4-digit LC display

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Ordering code LMP 307i

LMP 307i ☐☐☐-☐☐☐☐-☐-☐-☐-☐-☐-☐-☐☐☐-☐☐☐-☐☐☐

Option		Code	Note
Pressure			
in bar		4 5 0	
in mH_2O		4 5 1	
Input			
[mH_2O]	[bar]		
4.0	0.40	4 0 0 0	
10	1.0	1 0 0 1	
25	2.0	2 0 0 1	
40	4.0	4 0 0 1	
100	10	1 0 0 2	
200	20	2 0 0 2	
customer		9 9 9 9	consult
Housing			
stainless steel 1.4404 (316L)		1	
customer		9	consult
Diaphragm			
stainless steel 1.4435 (316L)		1	
customer		9	consult
Output			
4 … 20 mA / 2-wire		1	
intrinsic safety 4 … 20 mA / 2 wire		E	
0 … 10 V / 3-wire		3	
customer		9	consult
Seals			
FKM		1	
EPDM		3	
DVGW/KTW:	EPDM [1]	3T	
customer		9	consult
Accuracy			
standard for $P_N \geq 0.1$ bar	0.1 % FSO	1	
standard for $P_N < 0.1$ bar	0.2 % FSO	B	
customer		9	consult
Electrical connection			
PVC-cable [2]		1	
PUR-cable [2]		2	
FEP-cable [2]		3	
TPE-U cable [2]		4	
DVGW/KTW:	TPE-U cable [1, 2]	F	
customer		9	consult
Cable length			
in m		9 9 9	
Special version			
standard		1 1 1	
cable protection with stainless steel corrugated pipe with pipe length in m		1 0 3 - 9 9 9	consult
customer		9 9 9	consult

[1] drinking water certification only possible with EPDM seal (code 3T) in combination with TPE-U cable (code F); not possible with IS-protection (explosion protection)

[2] cable with integrated air tube for atmospheric pressure reference

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TR automatyka

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