

LMP 307i



Stainless Steel Probe

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.1 % FSO

Nominal pressure

from 0 ... 4 mH₂O up to 0 ... 200 mH₂O

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



Input pressure range ¹							
Nominal pressure gauge	[bar]	0.40	1	2	4	10	20
Level	[mH ₂ O]	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] Ω 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

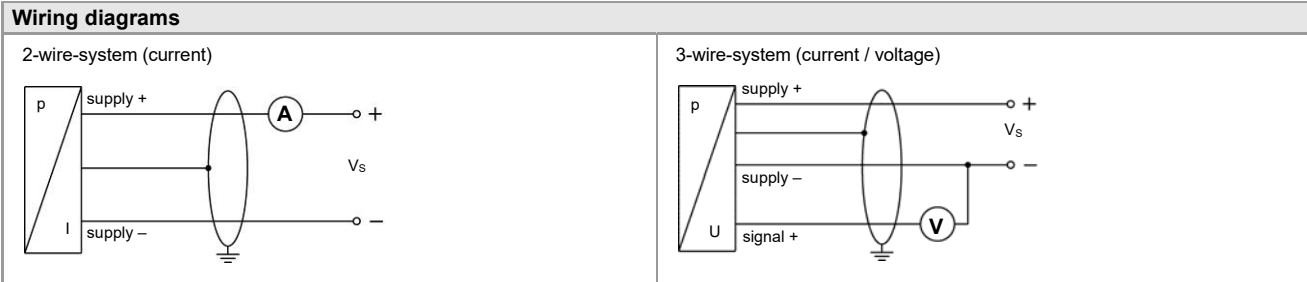
⁵ do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected

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

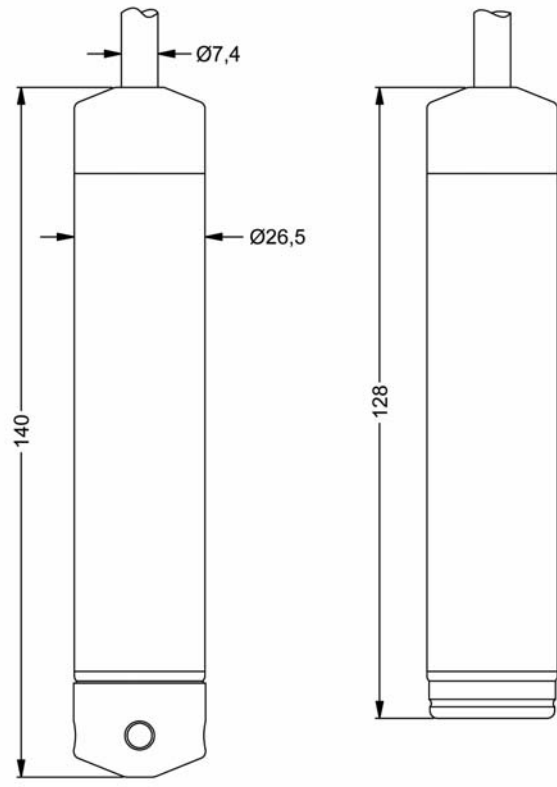
⁶ only possible with EPDM seal in combination with TPE-U cable; not possible with IS-protection (explosion protection)

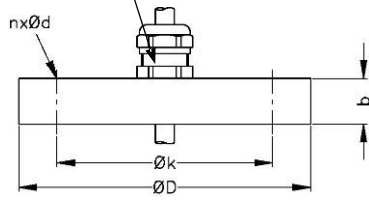
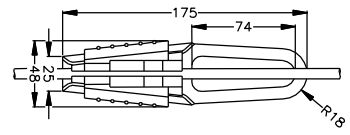



Pin configuration

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		cable gland M16x1.5 with seal insert (for cable- \varnothing 4 ... 11 mm) 
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
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 \varnothing 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		
<p>CIT 200 Process display with LED display</p> <p>CIT 250 Process display with LED display and contacts</p> <p>CIT 300 Process display with LED display, contacts and analogue output</p> <p>CIT 350 Process display with LED display, bargraph, contacts and analogue output</p> <p>CIT 400 Process display with LED display, contacts, analogue output and Ex-approval</p> <p>CIT 600 Multichannel process display with graphics-capable LC display</p> <p>CIT 650 Multichannel process display with graphics-capable LC display and datalogger</p> <p>CIT 700 / CIT 750 Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts</p> <p>PA 440 Field display with 4-digit LC display</p>		
		

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Ordering code LMP 307i

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Pressure																						
	in bar	4	5	0																		
	in mH ₂ O	4	5	1																		
Input		[mH ₂ O]	[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 ≥ 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
	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