



LMK 307

Stainless Steel Probe with Ceramic Sensor

accuracy:
0.5 % FSO IEC 60770:
0.25 % FSO BFSL

Stainless Steel Probe

LMK 307

Product characteristics

- ▶ diameter 27 mm
- ▶ nominal pressure ranges
from 0 ... 4 mH₂O
up to 0 ... 250 mH₂O
- ▶ good linearity
- ▶ good long term stability

Optional versions

- ▶ Ex-version zone 0
- ▶ SIL 2 (Safety Integrity Level)
- ▶ different kinds of cable
- ▶ different kinds of elastomeres

The level transmitter LMK 307 is designed for continuous level measurement in water or waste water applications. Basic element is a flush mounted ceramic sensor.

Suitable for all fluids which are compatible with media wetted materials.

Preferred areas of use are

Water



- ▶ drinking water system
- ▶ ground water monitoring
- ▶ storm water reservoir

Sewage



- ▶ waste water treatment
- ▶ water recycling
- ▶ dumpsite

Fuel / Oil



- ▶ fuel storage
- ▶ tank farm
- ▶ biogas plants



Input pressure range										
Nominal pressure gauge [bar]	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Level [mH ₂ O]	4	6	10	16	25	40	60	100	160	250
Overpressure [bar]	1	2	2	4	4	10	10	20	40	40
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 ... 20 mA / V _s = 14 ... 36 V _{DC} 0 ... 10 V / V _s = 14 ... 36 V _{DC}								
Performance										
Accuracy	IEC 60770 ¹ : ≤ ± 0.5 % FSO					BFSL: ≤ ± 0.25 % FSO				
Permissible load	current 2-wire: R _{max} = [(V _s - V _{s min}) / 0.02] Ω current 3-wire: R _{max} = 500 Ω voltage 3-wire: R _{min} = 10 k Ω									
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ									
Response time	< 10 msec									
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)										
Thermal effects (Offset and Span) / Permissible temperatures										
Thermal error	≤ ± 0.2 % FSO / 10 K in compensated range -25 ... 70 °C									
Permissible temperatures	medium: -10 ... 70 °C storage: -25 ... 70 °C									
Electrical protection ²										
Short-circuit protection	permanent									
Reverse polarity protection	no damage, but also no function									
Electromagnetic protection	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										
Electrical connection										
Cable with sheath material ³	PVC grey PUR black FEP black									
³ shielded cable with integrated air tube for atmospheric pressure reference										
Materials (media wetted)										
Housing	stainless steel 1.4571 (316 Ti)									
Seals	FKM / EPDM									
Diaphragm	ceramic Al ₂ O ₃ 96 %									
Protection cap	POM									
Cable sheath	PVC / PUR / FEP									
Explosion protection (with option Ex-protection)										
Approval DX13-LMK 307	zone 0: II 1 G Ex ia IIC T4 zone 20: II 1 D Ex tD A20 IP65 T 85°C									
Safety technical maximum values	U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i ≤ 1nF, L _i ≤ 10 μH									
Permissible media temperature	in zone 0: -10 ... 60 °C with p _{atm} 0.8 bar up to 1.1 bar in zone 1: -10 ... 70 °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										
Option SIL 2 application	according to IEC 61508 / IEC 61511									
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA									
Weight	approx. 250 g (without cable)									
Ingress protection	IP 68									
CE-conformity	EMC Directive: 2004/108/EC									

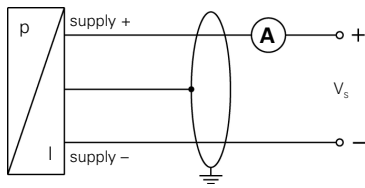
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Stainless Steel Probe

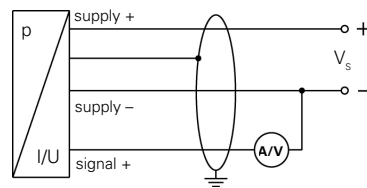
Technical Data

Wiring diagrams

2-wire-system (current)



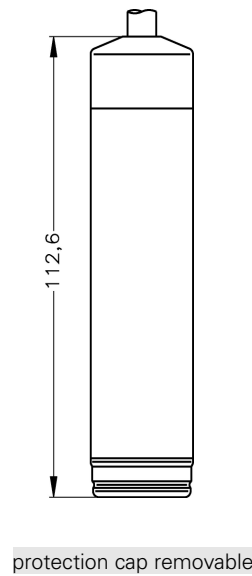
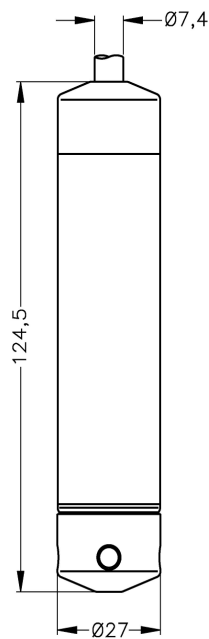
3-wire-system (current / voltage)

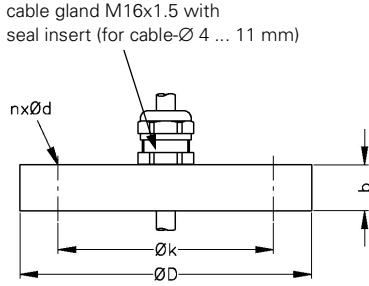
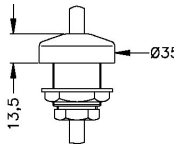
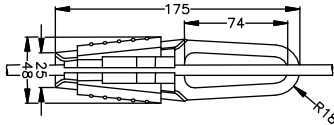



Pin configuration

Electrical connection	cable colours (DIN 47100)
Supply +	white
Supply -	brown
Signal + (only 3-wire)	green
Shield	yellow / green

Dimensions (in mm)



Mounting flange with cable gland		
Technical data		
Suitable for	all probes	
Flange material	stainless steel 1.4571 (316Ti)	
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		5000275
DN50 / PN40 with cable gland brass, nickel plated		5000278
DN80 / PN16 with cable gland brass, nickel plated		5000279
Cable gland		
Technical Data		
Suitable for	all probes with cable \varnothing 7.4 mm through-hole \varnothing 25.8 mm for mounting required; max. clamping range 12 mm	
Material	standard: stainless steel optionally: PVC	
Weight	stainless steel: approx. 150g PVC: approx. 80g	
Ingress protection	IP 68	
Ordering type		Ordering code
Srew fitting, stainless steel		5000280
Srew fitting, PVC		5000281
Cable 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, of steel, zinc plated		1000280
Terminal clamp, of stainless steel 1.4301 (304)		1000278
Process transmitter CIT 400		
Description		
<p>Whether for capacity pump experiments ("well tests"), for groundwater level measurement, as a dry running protection for pumps or in sewage and wastewater treatment: our allpurpose process transmitter CIT 400 combined with – among others – a corresponding level resp. level-temperature measurement transmitter (2- or 3-wire) made by BD SENSORS complies with all requirements regarding functionality and operability.</p> <p>Measuring and processing the sensor signal is carried out with the latest micro-controller technique. Thus it is for example possible to monitor the sensor signal and – in case of a failure – to release an alarm signal or to provide a corresponding linearization for non-linear tank dimensions. On CIT 400 two or four floating relays as well as one alarm relay are available. Due to the corresponding ATEX approval, a supply for 2-wire sensors in intrinsically safe areas is also possible. A decoupling of the intrinsically safe and the non-intrinsically safe area via a zener barrier or a supply transmitter is therefore not necessary. A further processing via peripheral devices / SPS control systems has also been considered: A galvanically insulated reversible output signal (0/4 ... 20 mA), which can additionally be gauged, is available.</p>		   

This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.

Ordering code LMK 307

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Pressure			
	in bar	3	8 0
	in mH ₂ O	3	8 1
Input			
	[mH ₂ O]		[bar]
	4,0	0,40	¹
	6,0	0,60	4 0 0 0
	10	1,0	6 0 0 0
	16	1,6	1 0 0 1
	25	2,5	1 6 0 1
	40	4,0	2 5 0 1
	60	6,0	4 0 0 1
	100	10	6 0 0 1
	160	16	1 0 0 2
	250	25	1 6 0 2
	customer		2 5 0 2
		9 9 9 9	on request
Housing			
	Stainless steel 1.4571 (316Ti)	1	
	customer	9	on request
Diaphragm			
	Ceramics Al ₂ O ₃ 96%	2	
	customer	9	on request
Output			
	4 ... 20 mA / 2-wire	1	
	0 ... 20 mA / 3-wire	2	
	0 ... 10 V / 3-wire	3	
	Intrinsic safety 4 ... 20 mA / 2-wire	E	
	SIL2 4 ... 20 mA / 2-wire	1S	
	SIL2 with Intrinsic safety	ES	
	4 ... 20 mA / 2-wire	9	on request
	customer		
Seals			
	FKM	1	
	EPDM	3	
	customer	9	on request
Accuracy			
	0,5 %	5	
	customer	9	on request
Electrical connection			
	PVC-cable ²	1	
	PUR-cable ²	2	
	FEP-cable ²	3	
	customer	9	on request
Cable length			
	in m	9	9 9
Special version			
	standard		0 0 0
	customer		9 9 9
			on request

¹ not possible in combination with Ex-protection

² cable with integrated air tube for atmospheric pressure reference

