PRODUCT CATALOGUE HYDROSTATIC PROBES SCREW-IN TRANSMITTERS





PRESSURE AT THE HIGHEST LEVEL

"Successful medium-sized companies are not successful because they are active in many areas, but rather because they concentrate on one area and do it better than anyone else"

This is our philosophy. That's why BDISENSORS has concentrated on electronic pressure measurement technology from the beginning.

With our unremitting product and and quality strategy we have been successful in becoming a major player on the world market for electronic pressure sensing devices within a few years. With 260 employees at 4 locations in Germany, the Czech Republic, Russia and China BDJSENSORS has solutions from 0.1 mbar to 6000 bar:

- → pressure sensors, pressure transducers pressure transmitters
- \rightarrow electronic pressure switches
- → pressure measuring devices with display and switching outputs
- \rightarrow hydrostatic level probes

Two pressure transmitters and a submersible probe, based on a stainless steel silicon sensor were the beginning. Today the range extends to more than 70 standard products, from economical OEM devices to high-end products with HART[®] communication or field bus interface.

In addition we have developed hundreds of customerspecific applications, underlining the competence and flexibility of BD|SENSORS. The excellent price/performance ratio of our products is proof of the fact that we are able to meet the toughest demand: Being a problem-solver for our customers.

For large production batches as well as for small production numbers, no matter for what medium or external factors, with almost any mechanical or electrical connection - we solve your problem

flexibly, quickly and cost-efficiently.



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		ousin ateri	0					pref	erred a	ireas of	use	cab sen			
	stainless steel	plastic	CuNiFe	ø [mm]	stainless steel sensor	ceramic sensor	pressure range / level [mH20]	water	sewage	fuel and oil	aggressive media	not separable	separable	certificates	page
precision															
LMP 307i	•			26.5	•		0 0.4 up to 0 200	0		0		•		EX	5-8
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industry															
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LMK 387	•			22		•	0 1 up to 0 100	0	0	0		•		EX	57-60
LMK 458	•		•	39.5		•	0 0.4 up to 0 200	0	0	0		•		EX, DNV, GL, CCS	61-64
LMK 358	•			39.5		•	0 0.4 up to 0 100		0	0			•	EX	65-68
LMP 808		•		35	•		0 1 up to 0 100	\bigcirc					•	SIL	69-72
LMK 806		•		21		•	0 6 up to 0 200		0		0	•			73-76
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LMK 809		•		45		•	0 0.4 up to 0 100		0		0	•			81-84
LMK 858		•		45		•	0 0.4 up to 0 100		0		0		•		85-88
screw-in transmitter															
LMP 331	•				•		0 1 up to 0 400	0		0				EX, SIL, UL	89-92
LMK 331	•	•				•	0 4 up to 0 600		0	0	0			EX, SIL, UL	93-96
LMK 351	•	•				•	0 0.4 up to 0 200		0	0	0			EX,UL	97-100
special versions															
EP 500		•				•	0 60 mbar up to 0 20 bar		0	0	0			GL, CCS	101-104



Nominal pressure

from 0 ... 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
- different kinds of cables
- different kinds of seal materials

4

MATRIX

LMP 307i

Stainless Steel Probe

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.1 % FSO

The stainless steel probe LMP 307i is designed for continuous level measurement in water and clean or waste 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



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



<u>Fuel / Oil</u> fuel storage tank farm



6

LMP 307i

Technical Data

Input pressure ran	-	0.40	4	2	4	10	20
Nominal pressure g	auge [bar] [mH ₂ O]	0.40	1 10	2 20	40	10 100	20
Level		2	5	10	20	40	200
Overpressure Burst pressure	[bar] [bar]	3	5	10	20	40 50	120
¹ On customer request		-	-	-	-		120
on outloner request					in ou procouro rungo.		
Output signal / Su	pply						
Standard			20 mA / Vs				
Option Ex-protection	n		20 mA / Vs				
Options 3-wire		3-wire: 0	10 V / V _S	= 14 36 V _{DC}			
Performance							
Accuracy			re ≥ 0.1 bar: $\le \pm$ re < 0.1 bar: $\le \pm$				
Permissible load		$R_{max} = [(V_S - V_S)]$	s min) / 0.02 A] Ω	2			
Influence effects		supply:	0.05 % FSO				
		load:	0.05 % FSO				
Long term stability			/ year at referen				
¹ accuracy according to Thermal effects (O		· · ·	non-inteanty, nyste	esis, repeatability)			
Tolerance band	[% FSO]	≤ ± 0.2	in company	ated range -20	80°C		
	[% FSO / 10K]	≤±0.2 ≤±0.02		ated range -20			
		- 1 0.02	in compens	aleu lange -20	00 0		
Permissible tempe			70 % 0		05 70.00		
Permissible tempera		medium: -10	70 °C	storage:	-25 70 °C		
Electrical protection							
Insulation resistance		> 100 MΩ					
Reverse polarity pro			also no function				
Electromagnetic con			nmunity accordin	•			
² additional external o	vervoltage protection	on unit in terminal t	oox KL 1 or KL 2 w	ith atmospheric pres	sure reference availa	able on request	
Electrical connect	ion						
Cable with sheath n	naterial ³	PVC (-5 70 °	C) grey				
		PUR (-10 70	°C) black				
3		FEP ⁴ (-10 70					
³ cable with integrated ⁴ do not use freely sus	air tube for atmosp	heric pressure refe	erence	charging processo	are expected		
Materials (media w			neets due to mighty	charging processes	are expected		
Housing	litter	stainless steel 1	.4404 (3161)				
·······································		FKM					
Seals		others on reque	et				
Diaphragm		stainless steel 1					
			(010)				
Protection cap		POM					
Explosion protecti	on (only for 4		,				
Approvals				Ex IBE 12.0027X			
DX19-LMP 307i			G Ex ia IIC T4 G				
	vimum values		D Ex ia IIIC T 85 3 mA P = 660 n	°C Da nW, Ci≈0 nF, Li≈	0 uH		
Safety technical ma	Annun values				max. 27 nF to the	housing	
Safety technical ma		the supply conr	lections have an				
	e range	in zone 0:		°C with p _{atm} 0.8 ba	ar up to 1.1 bar		
Ambient temperatur	e range		-20 60 her: -20 70	°C with p _{atm} 0.8 ba °C	•		
Ambient temperatur Connecting cables	re range	in zone 0: in zone 1 or hig cable capacitan	-20 60 her: -20 70 ce: signal line/	°C with p _{atm} 0.8 ba °C /shield also signal	line/signal line: 16		
Ambient temperatur Connecting cables (by factory)	re range	in zone 0: in zone 1 or hig	-20 60 her: -20 70 ce: signal line/	°C with p _{atm} 0.8 ba °C /shield also signal	•		
Ambient temperatur Connecting cables (by factory) Miscellaneous		in zone 0: in zone 1 or hig cable capacitan cable inductanc	-20 60 her: -20 70 ce: signal line/	°C with p _{atm} 0.8 ba °C /shield also signal	line/signal line: 16		
Ambient temperatur Connecting cables (by factory) Miscellaneous		in zone 0: in zone 1 or hig cable capacitan cable inductanc max. 25 mA	-20 60 her: -20 70 ce: signal line, e: signal line,	°C with p _{atm} 0.8 ba °C /shield also signal	line/signal line: 16		
Ambient temperatur Connecting cables (by factory) Miscellaneous Current consumptio		in zone 0: in zone 1 or hig cable capacitan cable inductanc	-20 60 her: -20 70 ce: signal line, e: signal line,	°C with p _{atm} 0.8 ba °C /shield also signal	line/signal line: 16		
Ambient temperatur Connecting cables (by factory) Miscellaneous Current consumptio Weight Ingress protection		in zone 0: in zone 1 or hig cable capacitan cable inductanc max. 25 mA	-20 60 her: -20 70 ce: signal line, e: signal line,	°C with p _{atm} 0.8 ba °C /shield also signal	line/signal line: 16		
Safety technical ma Ambient temperatur Connecting cables (by factory) Miscellaneous Current consumptio Weight Ingress protection CE-conformity ATEX Directive		in zone 0: in zone 1 or hig cable capacitan cable inductanc max. 25 mA approx. 200 g (-20 60 her: -20 70 ce: signal line, e: signal line, without cable)	°C with p _{atm} 0.8 ba °C /shield also signal	line/signal line: 16		

Material of cable glandstandard: on request on requestSeal insertmaterial: accordingHole patternaccordingVersionSize (in r DN25 / PN40DN25 / PN40D = 115, DN80 / PN16DN80 / PN16D = 200, D = 200,Ordering typeDN25 / PN40 with cable gland brast DN80 / PN16 with cable gland brast DN80 / PN16 with cable gland brastDN80 / PN16 with cable gland brast DN80 / PN16 with cable gland brastDN80 / PN16 with cable gland brast DN80 / PN16 with cable gland brastTerminal clampTechnical data	steel 1.4404 (316L) brass, nickel plated st: stainless steel 1.4305 (303); plated TPE (ingress protection IP 68) g to DIN 2507 nm) W k = 85, b = 18, n = 4, d = 14 1. k = 125, b = 20, n = 4, d = 18 3. k = 160, b = 20, n = 8, d = 18 4. Or S, nickel plated ZI s, nickel plated ZI
Flange materialstainlessMaterial of cable glandstandard: on request on requestSeal insertmaterial: material:Hole patternaccording versionVersionSize (in m DN25 / PN40DN25 / PN40D = 115, DN50 / PN40DN50 / PN40D = 165, D = 200, Ordering typeDN25 / PN40 with cable gland brast DN50 / PN40 with cable gland brast DN80 / PN16 with cable gland brast DN80 / PN1	steel 1.4404 (316L) brass, nickel plated st: stainless steel 1.4305 (303); plated TPE (ingress protection IP 68) g to DIN 2507 nm) W k = 85, b = 18, n = 4, d= 14 1. k = 125, b = 20, n = 4, d= 18 3. k = 160, b = 20, n = 8, d= 18 4. O o s, nickel plated ZI s, nickel plated ZI s, nickel plated ZI
Material of cable glandstandard: on request on request seal insertmaterial: material: Hole patternHole patternaccording VersionVersionSize (in m DN25 / PN40DN25 / PN40D = 115, DN80 / PN16DN80 / PN16D = 200, D = 200,Ordering typeDN25 / PN40 with cable gland bras DN80 / PN16 with cable gland bras DN80 / PN16 with cable gland brasDN80 / PN16 with cable gland bras DN80 / PN16 with cable gland brasDN80 / PN16 with cable gland bras Suntable forall probest	brass, nickel plated st: stainless steel 1.4305 (303); plated TPE (ingress protection IP 68) to DIN 2507 nm) W k = 85, b = 18, n = 4, d= 14 1. k = 125, b = 20, n = 4, d= 18 3. k = 160, b = 20, n = 8, d= 18 4. O 0 s, nickel plated ZI s, nickel plated ZI s, nickel plated ZI
on requestSeal insertmaterial:Hole patternaccordingVersionSize (in mDN25 / PN40D = 115,DN50 / PN40D = 165,DN80 / PN16D = 200,Ordering typeDN25 / PN40 with cable gland brasDN50 / PN40 with cable gland brasDN50 / PN40 with cable gland brasDN50 / PN16 with cable gland brasDN80 / PN16 with cable gland brasDN80 / PN16 with cable gland brasTerminal clampTechnical dataSuitable forSuitable forall probest	st: stainless steel 1.4305 (303); pla TPE (ingress protection IP 68) to DIN 2507 nm) W k = 85, b = 18, n = 4, d= 14 1. k = 125, b = 20, n = 4, d= 18 3. k = 160, b = 20, n = 8, d= 18 4. O 0 s, nickel plated ZI s, nickel plated ZI s, nickel plated ZI
Hole patternaccordingVersionSize (in rDN25 / PN40D = 115,DN50 / PN40D = 165,DN80 / PN16D = 200,Ordering typeDN25 / PN40 with cable gland brasDN50 / PN40 with cable gland brasDN50 / PN40 with cable gland brasDN50 / PN40 with cable gland brasDN80 / PN16 with cable gland brasDN80 / PN16 with cable gland brasTerminal clampTechnical dataall probes	a to DIN 2507 nm) W k = 85, b = 18, n = 4, d= 14 1. k = 125, b = 20, n = 4, d= 18 3. k = 160, b = 20, n = 8, d= 18 4. O 0 s, nickel plated ZI s, nickel plated ZI s, nickel plated ZI
Version Size (in r DN25 / PN40 D = 115, DN50 / PN40 D = 165, DN80 / PN16 D = 200, Ordering type DN25 / PN40 with cable gland bras DN50 / PN40 with cable gland bras DN50 / PN40 with cable gland bras DN50 / PN40 with cable gland bras DN50 / PN40 with cable gland bras DN50 / PN40 with cable gland bras DN80 / PN16 with cable gland bras DN80 / PN16 with cable gland bras Terminal clamp Technical data Suitable for all probes	nm) W k = 85, b = 18, n = 4, d= 14 1. k = 125, b = 20, n = 4, d= 18 3. k = 160, b = 20, n = 8, d= 18 4. S, nickel plated ZI s, nickel plated ZI s, nickel plated ZI
DN25 / PN40 D = 115, DN50 / PN40 D = 165, DN80 / PN16 D = 200, Ordering type DN25 / PN40 with cable gland bras DN50 / PN40 with cable gland bras DN50 / PN40 with cable gland bras DN50 / PN40 with cable gland bras DN80 / PN16 with cable gland bras DN80 / PN16 with cable gland bras DN80 / PN16 with cable gland bras DN80 / PN16 with cable gland bras Terminal clamp Technical data Suitable for all probes	k = 85, b = 18, n = 4, d= 14 1. k = 125, b = 20, n = 4, d= 18 3. k = 160, b = 20, n = 8, d= 18 4. o 5. s, nickel plated Zh s, nickel plated Zh s, nickel plated Zh
DN50 / PN40D = 165,DN80 / PN16D = 200,Ordering typeDN25 / PN40 with cable gland brasDN50 / PN40 with cable gland brasDN80 / PN16 with cable gland brasTerminal clampTechnical dataSuitable forall probes	k = 125, b = 20, n = 4, d= 18 3. k = 160, b = 20, n = 8, d= 18 4. O 0 s, nickel plated Zr s, nickel plated Zr s, nickel plated Zr
DN80 / PN16D = 200,Ordering typeDN25 / PN40 with cable gland brasDN50 / PN40 with cable gland brasDN80 / PN16 with cable gland brasTerminal clampTechnical dataSuitable forall probes	k = 160, b = 20, n = 8, d= 18 4. 0 s, nickel plated Zh s, nickel plated Zh s, nickel plated Zh
Ordering type DN25 / PN40 with cable gland bras DN50 / PN40 with cable gland bras DN80 / PN16 with cable gland bras Terminal clamp Technical data Suitable for all probes	s, nickel plated Zr s, nickel plated Zr s, nickel plated Zr s, nickel plated Zr
DN25 / PN40 with cable gland bras DN50 / PN40 with cable gland bras DN80 / PN16 with cable gland bras Terminal clamp Technical data Suitable for all probes	s, nickel plated Zł s, nickel plated Zł s, nickel plated Zł
DN50 / PN40 with cable gland bras DN80 / PN16 with cable gland bras Terminal clamp Technical data Suitable for all probes	s, nickel plated Zf s, nickel plated Zf
DN80 / PN16 with cable gland bras Terminal clamp Technical data Suitable for all probes	s, nickel plated Zt
DN80 / PN16 with cable gland bras Terminal clamp Technical data Suitable for all probes	s, nickel plated Zt
Technical data Suitable for all probes	s with cable Ø 5.5 10.5 mm
Technical data Suitable for all probes	s with cable Ø 5.5 10.5 mm
	with cable \varnothing 5.5 10.5 mm
	steel, zinc plated
optionally	
Weight approx. 1	60 g
Ordering type	0
Terminal clamp, steel, zinc plated	Z
Terminal clamp, stainless steel 1.43	301 (304) Z1
Display program	
CIT 200 Process display with LED display	
CIT 250 Process display with LED display a CIT 300	nd contacts
Process display with LED display, of	contacts and analogue output
CIT 350	pargraph, contacts and analogue out
CIT 400	contacts, analogue output and Ex-ap
CIT 600 Multichannel process display with g	raphics-capable LC display
CIT 650 Multichannel process display with g	raphics-capable LC display and data
CIT 700 / CIT 750	raphics-capable TFT monitor, touch
PA 440 Field display with 4-digit LC display	
For further information please conta homepage: http://www.bdsensors.c	act our sales department or visit our



Ordering code

LMP 307i		□-□	- 🗆 - 🗋 - 🗋 - 🗋	- [] - []		\square	
Pressure							
in bar in mH₂O	4 5 0 4 5 1						
Input [mH ₂ O] [bar]	4 3 1						
4.0 0.40	4 0	0 0					
10 1.0	1 0	0 1					
25 2	2 0	0 1					
40 4.0	4 0	0 1					
100 10	1 0	0 2					
200 20	2 0	0 2					
customer	2 0 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				
customer			9				consult
Accuracy							
standard for $P_N \ge 0.1$ bar 0.1 %			1				
standard for $P_N < 0.1$ bar 0.2 %			В				
customer			9				consult
Electrical connection	1						
PVC-cable			1				
PUR-cable			2				
FEP-cable	1						
customer			9				consult
Cable length							
in m							
Special version							
standard					1 1 1		
cable protection with					1039		
stainless steel corrugated pipe					1 0 3 9	99	consult
with pipe length in m							concult
customer				(9 9 9		consult

¹ cable with integrated air tube for atmospheric pressure reference

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.



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 35 mm
- cable and sensor section separable
- excellent accuracy
- communication connection
- thermal error in compensated range
 -20 ... 70 °C: 0.2 % FSO
 TC 0.02 % FSO / 10K
- ► Turn-Down 1:10

Optional versions

- ► IS-version zone 0
- cable protection via corrugated pipe
- mounting accessories as cable gland and terminal clamp in stainless steel
- different kinds of cables
- different kinds of seal materials

LMP 308i

Separable Stainless Steel Probe Precision

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

The separable precision stainless steel probe LMP 308i is designed for continuous fill level and level measurement of water and liquid mediums. The signal processing of sensor signal is done by digital electronics with 16-bit analog digital converter. Consequently it is possible to conduct an active compensation of sensor intrinsic deviations from normal condions like nonlinearity and thermal error.

In order to facilitate stock-keeping and maintenance the transmitter body is plugged to the cable assembly with a connector and can be changed easily.

Preferred areas of use are



<u>Water / filtrated Sewage</u> ground water level measurement level measurement in wells and open waters / rain spillway basin level measurement in container water treatment plants water recycling



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		
On customer request we adjust the device	ce within the turn-down	n-possibility by sof	tware on the requi	red pressure range.				
Output signal / Supply		· · · · · · · · · · · · · · · · · · ·		p				
Standard	2-wire: 4 2	$0 \text{ mA} / V_{\text{s}} =$	12 36 V ₂₀	with PS-232 co	mmunication in	torfaco		
Option IS-protection		$0 \text{ mA} / V_{\text{s}} = 14$		WITH NO-202 CC		lenace		
Options		$V / V_s = 14$						
•	3-wite. 0 i	$JV / V_S - I$	4 30 V _{DC}					
Performance	2							
Accuracy Performance after turn-down (TD)	IEC 60770 ² : $\leq \pm$							
- TD $\leq 1:5$ no change of accuracy 3 - TD > 1:5formula for accuracy calculating (for nominal pressure gauge ≤ 0.40 bar see note 3): $\leq \pm [0.1 + 0.015 \times turn-down] \%$ FSOwith turn-down = nominal pressure range / adjusted rangee.g. follwing accuracy can be calculated for turn-down 1:10: $\leq \pm (0.1 + 0.015 \times 10) \%$ FSO viz. the accuracy is $\leq \pm 0.25 \%$ FSO								
Permissible load	current 2-wire: voltage 3-wire:		V _S – V _{S min}) / 0.0) kΩ	2 A] Ω				
Influence effects		5 % FSO / 10 V	load:	0.05 % FSO / k	kΩ			
Long term stability	$\leq \pm (0.1 \text{ x turn-d})$							
Response time	ca. 200 msec	,						
Response time ca. 200 msec Adjustability following parameters can be adjusted (interface / software needed ⁴) electronic damping: 0 100 sec offset: 0 90 % FSO turn-down of span: max. 1:10								
2 accuracy according to IEC 60770 − limit ³ nominal pressure gauges ≤ 0,40 bar are ≤ ± (0.1 + 0.02 x turn-down) % FSO e.g. to ⁴ software, interface and cable must sepa	excluded; for these th prn-down 1:3: $\leq \pm (0.1)$	e calculation of ac + 0.02 x 3) % FS	curacy is as follow O viz. the accurac	y is ≤ ± 0.16 % FSC) version 4.0 or high	ner and XP)		
Thermal effects (Offset and Span)								
Tolerance band [% FSO]	≤ ± (0.2 x turn-do	wn) in c	ompensated rar	ge -20 70 °C				
		,		•				
TC [% FSO / 10 K]	± (0.2 x turn-dow	n) in c	ompensated rar	ge -20 70 °C	enviroment: -2	5 65 °C		
TC [% FSO / 10 K] Permissible temperatures		n) in c	ompensated rar	•	enviroment: -2	5 65 °C		
TC [% FSO / 10 K] Permissible temperatures Electrical protection ⁵	± (0.2 x turn-dow medium: -20 7	n) in c	ompensated rar	ge -20 70 °C	enviroment: -28	5 65 °C		
TC [% FSO / 10 K] Permissible temperatures Electrical protection ⁵ Short-circuit protection	± (0.2 x turn-dow medium: -20 7	n) in c '0 °C stor	ompensated rar rage: -25 70 °	ge -20 70 °C	enviroment: -25	5 65 °C		
TC [% FSO / 10 K] Permissible temperatures Electrical protection ⁵ Short-circuit protection Reverse polarity protection	± (0.2 x turn-dow medium: -20 7 permanent no damage, but	n) in c 10 °C stor also no function	ompensated rar rage: -25 70 °	ge -20 70 °C	enviroment: -25	5 65 °C		
TC [% FSO / 10 K] Permissible temperatures Electrical protection ⁵ Short-circuit protection Reverse polarity protection Electromagnetic compatibility	± (0.2 x turn-dow medium: -20 7 permanent no damage, but emission and im	n) in c 10 °C stor also no function munity according	ompensated rar rage: -25 70 ° g to EN 61326	ge -20 70 °C C electronics /		5 65 °C		
TC [% FSO / 10 K] Permissible temperatures Electrical protection ⁵ Short-circuit protection Reverse polarity protection Electromagnetic compatibility ⁵ additional external overvoltage protection	± (0.2 x turn-dow medium: -20 7 permanent no damage, but emission and im	n) in c 10 °C stor also no function munity according	ompensated rar rage: -25 70 ° g to EN 61326	ge -20 70 °C C electronics /		5 65 °C		
TC [% FSO / 10 K] Permissible temperatures Electrical protection ⁵ Short-circuit protection Reverse polarity protection Electromagnetic compatibility ⁵ additional external overvoltage protection	± (0.2 x turn-dow medium: -20 7 permanent no damage, but emission and im	n) in c 10 °C stor also no function munity according	ompensated rar rage: -25 70 ° g to EN 61326	ge -20 70 °C C electronics /		5 65 °C		
	± (0.2 x turn-dow medium: -20 7 permanent no damage, but emission and im n unit in terminal box H PVC (-5 70 °C PUR (-20 70 °C	n) in c 0 °C stor also no function munity according (L 1 or KL 2 with a C) grey 'C) black	ompensated rar rage: -25 70 ° g to EN 61326	ge -20 70 °C C electronics /	ble on request			
TC [% FSO / 10 K] Permissible temperatures Electrical protection ⁵ Short-circuit protection Reverse polarity protection Electromagnetic compatibility ⁵ additional external overvoltage protection Electrical connection Cable with sheath material ⁶	± (0.2 x turn-dow medium: -20 7 permanent no damage, but emission and im n unit in terminal box h PVC (-5 70 °C PUR (-20 70 °C FEP ⁷ (-20 70 heric pressure referen	n) in c 0 °C stor also no function munity according (L 1 or KL 2 with a C) grey (C) black °C) black ce	ompensated rar rage: -25 70 ° g to EN 61326 tmospheric pressu	ge -20 70 °C C electronics /	ble on request	5 65 °C		
TC [% FSO / 10 K] Permissible temperatures Electrical protection ⁵ Short-circuit protection Reverse polarity protection Electromagnetic compatibility ⁵ additional external overvoltage protection Electrical connection Cable with sheath material ⁶ ⁶ cable with integrated air tube for atmosp. ⁷ do not use freely suspended probes with	± (0.2 x turn-dow medium: -20 7 permanent no damage, but emission and im n unit in terminal box h PVC (-5 70 °C PUR (-20 70 °C FEP ⁷ (-20 70 heric pressure referen	n) in c 0 °C stor also no function munity according (L 1 or KL 2 with a C) grey (C) black °C) black ce	ompensated rar rage: -25 70 ° g to EN 61326 tmospheric pressu	ge -20 70 °C C electronics /	ble on request			
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TC [% FSO / 10 K] Permissible temperatures Electrical protection ⁵ Short-circuit protection Reverse polarity protection Electrical compatibility ⁵ additional external overvoltage protection Electrical connection Cable with sheath material ⁶ ⁶ cable with integrated air tube for atmosp. ⁷ do not use freely suspended probes with Materials (media wetted) Housing Seals Diaphragm Protection cap Explosion protection (only for 4 Approvals DX19-LMP 308 i Safety technical maximum values Ambient temperature range	± (0.2 x turn-dow medium: -20 7 permanent no damage, but emission and im nunit in terminal box h PVC (-5 70 °C PUR (-20 70 °C PUR (-20 70 °C FEP ⁷ (-20	n) in c in	ompensated rar rage: -25 70 ° g to EN 61326 trmospheric pressu arging processes a Ex IBE 12.0027 a °C Da W, Ci ≈ 0 nF, Li inner capacity o °C with p _{atm} 0.8 °C	c ge -20 70 °C C electronics / re reference availar re expected x ≈ 0 μH, i max. 27 nF to th bar up to 1.1 bar	ble on request others of			
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TC [% FSO / 10 K] Permissible temperatures Electrical protection ⁵ Short-circuit protection Reverse polarity protection Electrical compatibility ⁵ additional external overvoltage protection Electrical connection Cable with sheath material ⁶ ⁶ cable with integrated air tube for atmosp. ⁷ do not use freely suspended probes with Materials (media wetted) Housing Seals Diaphragm Protection cap Explosion protection (only for 4 Approvals DX19-LMP 308 i Safety technical maximum values Ambient temperature range Connecting cables (by factory)	± (0.2 x turn-dow medium: -20 7 permanent no damage, but emission and im nunit in terminal box h PVC (-5 70 °C PUR (-20 70 °C PUR (-20 70 °C FEP ⁷ (-20	n) in c in	ompensated rar rage: -25 70 ° g to EN 61326 trmospheric pressu arging processes a Ex IBE 12.0027 a °C Da W, C _i \approx 0 nF, L _i inner capacity o °C with p _{atm} 0.8 °C	ge -20 70 °C C electronics / re reference availar re expected x ≈ 0 μH, i max. 27 nF to th bar up to 1.1 bar line/signal line: 1	others of others of he housing 60 pF/m			
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TC [% FSO / 10 K] Permissible temperatures Electrical protection 5 Short-circuit protection Reverse polarity protection Electrical connection Sadditional external overvoltage protection Electrical connection Cable with sheath material 6 6 cable with integrated air tube for atmosp. 7 do not use freely suspended probes with Materials (media wetted) Housing Seals Diaphragm Protection cap Explosion protection (only for 4 Approvals DX19-LMP 308 i Safety technical maximum values Ambient temperature range Connecting cables (by factory) Miscellaneous Current consumption	± (0.2 x turn-dow medium: -20 7 permanent no damage, but emission and im nuit in terminal box k PVC (-5 70 °C PUR (-20 70 °C PUR (-20 70 °C PUR (-20 70 °C FEP ⁷ (-20 70	m) in c 10 °C stor also no function munity according (L 1 or KL 2 with a C) grey (C) black °C) black °C) black ce s due to highly cha (C) black (C) bl	ompensated rar rage: -25 70 ° g to EN 61326 trospheric pressu arging processes a second state of the second Ex IBE 12.0027 a °C Da W, C ₁ \approx 0 nF, L _i inner capacity o °C with p _{atm} 0.8 °C nield also signal lin	ge -20 70 °C C electronics / re reference availar re expected x ≈ 0 μH, i max. 27 nF to th bar up to 1.1 bar line/signal line: 1	others of others of he housing 60 pF/m			
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LMP 308i	□□□-□-□-□-□-□-□-□-□-□-□-□-□-□-□-□-□-□-	∏-□□
Pressure in bar in mH20 in mH20 Input [mH20] [bar] 4.0 0.40 10 1.0 20 2.0 40 4.0 100 10 100 10	4 4 0 4 4 0 4 4 1	
200 20 customer Housing	1 0 0 2 2 0 0 2 9 9 9 9	consult
Stainless steel 1.4404 (316L) customer	1 9	consult
Diaphragm Stainless steel 1.4435 (316L) customer		consult
Output 4 20 mA / 2-wire Intrinsic safety 4 20 mA / 2-wire	1 E 3	
0 10 V / 3-wire customer	9	consult
Seals FKM EPDM customer	1 3 9	account.
Electrical connection PVC-cable ¹		consult
PUR-cable ¹ FEP-cable ¹	1 2 3	
Accuracy	9	consult
0.1 % ² customer	1 9	consult
Cable length in m	9 8	9 9 consult
Version standard with communicaton interface ³		
prepared for mounting ⁴ with stainless steel pipe		1 2 1
cable protection with stainless steel corrugated pipe with pipe length in m		1 2 3 9 9 9 consult
customer		9 9 9 consult

¹ cable with integrated air tube for atmospheric pressure reference

² available on request: calibration of individual pressure range higher than 400 mbar with accuracy 0.1 %

³ Software, interface and cable have to be order separately (Ordering code: CIS-G; Software appropriate for Windows[®] 95, 98, 2000, NT Version 4.0 or newer and XP)

⁴ stainless steel pipe is not part of the supply

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This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.



Nominal pressure

from 0 ... 60 cmH₂O up to 0 ... 200 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 39.5 mm
- HART[®] communication (setting of offset, span and damping)
- ▶ permissible temperatures up to 85 °C
- high overpressure resistance
- high long-term stability

Optional versions

- ► IS-version zone 0
- mounting with stainless steel pipe
- flange version
- diaphragm 99.9 % Al₂O₃
- accessories e.g. assembling and probe flange, mounting clamp

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LMK 382H

Stainless Steel Probe with HART[®]-communication

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

The stainless steel probe LMK 382H has been designed for continous level measurement in waste water, waste and higher viscosity mediums.

Basic element is a robust and high overpressure capable capacitive ceramic sensor e.g. for low levels.

Preferred areas of use are



<u>Water</u> ground water level measurement rain spillway basin



<u>Sewage</u> waste water treatment water recycling



<u>Fuel / Oil</u> level monitoring in open tanks with low filling heights fuel storage tank farms biogas plants



LMK 382 H

Technical Data

IS-protection

Nominal pressure	[bar]	0.06	0.16	0.4	1	2	5	10	20
Level	[mH ₂ O]	0.6	1.6	4	10	20	50	100	200
Overpressure	[bar]	2	4	6	8	15	25	35	45
¹ On customer request we ad	ljust the devic	es by softwar	e on the req	uired pressure ra	anges, within the	e turn-down po	ssibility (startin	g at 0.02 bar).	
Output signal / Supply									
Standard		2-wire: 4	20 mA / Va	s = 12 36	V _{PC} with HAR	T [®] communic	ation	V _{S rated} = 24 V	DC
Option IS- protection		2-wire: 4	20 mA / V	s = 14 28	V_{DC} with HAR	T [®] communic	ation	$V_{\text{S rated}} = 24 \text{ V}$	
Performance				,					50
Accuracy ²	F	P _N ≥ 160 mb	ar	TD ≤ 1:5	< ± 0.2 % F	SO		TD _{max} =	1.10
,			· = max						
	1	P _N < 160 mb	ar		≤ ± [0.2 + 0).1 x TD] % F	SO	TD _{max} =	1:3
	1	P _N ≥ 1 bar		TD ≤ 1:5	≤ ± 0.1 % F	SO		TD _{max} =	1:10
		TD > 1:5 ≤ ± [0.1 + 0.02 x TD] % FSO							
Permissible load		$R_{max} = [(V_s + V_s $	- V _{S min}) / 0	.02 A] Ω			munication: F	R _{min} = 250 Ω	
Long term stability		≤ ± (0.1 x tu	rn-down) 🤅	% FSO / year a	at reference co	onditions			
Influence effects		supply: 0.08	5 % FSO /	10 V		permissible	e load: 0.05 %	6 FSO / kΩ	
Turn-on time		850 msec							
Mean response time			ithout cons	sideration of el	ectronic damp	oing	mean	measuring ra	ate 7/sec
Max. response time		380 msec	n of follow	ing parameters	noccible (inte	orfaco / coffu		a, ³).	
Adjustability		- electronio			•	sinace / SOILW	are necessal	у).	
		- offset:	Gamping	0 80 %					
		- turn dow							
² accuracy according to IEC 6	60770 – limit p	oint adjustme	nt (non-line	arity, hysteresis,	repeatability)				
³ software, interface, and cabl		ordered sepai	rately (softw	are appropriate	or Windows [®] 95	o, 98, 2000, NT	Version 4.0 oi	r higher, and X	P)
Thermal effects (Offset a	. ,	< + (0, 0,		× 500					
Tolerance band TC, average		$\leq \pm (0.2 \text{ x tu})$,	% FSO 6 FSO / 10 K					
in compensated range		-20 80 °C		0F30/10K					
Permissible temperatures	;	medium: electronics storage:		-25 … ent: -25 … -25 …	35 °C				
		eterager							
Electrical protection ⁴									
Electrical protection ⁴ Short-circuit protection		permanent							
Short-circuit protection		permanent no damage.	but also n	o function					
Short-circuit protection Reverse polarity protection	n	no damage,			EN 61326				
Short-circuit protection Reverse polarity protectio Electromagnetic compatib	in iiity i	no damage, emission an	d immunit	y according to		re reference a	vailable on reg	uest	
Short-circuit protection Reverse polarity protection Electromagnetic compatib	in iiity i	no damage, emission an	d immunit	y according to		re reference a	vailable on req	uest	
Short-circuit protection Reverse polarity protection Electromagnetic compatib ⁴ additional external overvolta Mechanical stability	n bility bige protection	no damage, emission an <i>unit in termin</i>	d immunit <u>ı</u> al box KL 1	y according to or KL 2 with atm	ospheric pressu	re reference a	vailable on req	uest	
Short-circuit protection Reverse polarity protection Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration	n bility bige protection	no damage, emission an <i>unit in termin</i>	d immunit <u>ı</u> al box KL 1	y according to	ospheric pressu	re reference a	vailable on req	uest	
Short-circuit protection Reverse polarity protection Electromagnetic compatib ⁴ additional external overvolta Mechanical stability	aterial ⁵	no damage, emission an <i>unit in termin</i> 4 g (accordi PVC (-5 7 PUR (-25 FEP ⁶ (-25	d immunit <u>;</u> al box KL 1 ng to: DIN 70 °C) greg . 70 °C) bla . 70 °C) bla	y according to or <i>KL 2 with atm</i> EN 60068-2-6 y ack ack	ospheric pressu	re reference a	vailable on req	uest	
Short-circuit protection Reverse polarity protectio Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat ma	n in	no damage, emission an unit in termin 4 g (accordi PVC (-5 PUR (-25 FEP ⁶ (-25 TPE (-25 atmospheric j	d immunit al box KL 1 ng to: DIN 70 °C) grey . 70 °C) bla 70 °C) bla 70 °C) blu sof sc) blu pressure ref	y according to or KL 2 with atm EN 60068-2-6 y ack ack lack le erence	ospheric pressu)		vailable on req	uest	
Short-circuit protection Reverse polarity protectio Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat ma	n in	no damage, emission an unit in termin 4 g (accordi PVC (-5 PUR (-25 FEP ⁶ (-25 TPE (-25 atmospheric j	d immunit al box KL 1 ng to: DIN 70 °C) grey . 70 °C) bla 70 °C) bla 70 °C) blu sof sc) blu pressure ref	y according to or KL 2 with atm EN 60068-2-6 y ack ack lack le erence	ospheric pressu)		vailable on req	uest	
Short-circuit protection Reverse polarity protectio Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat ma	n in	no damage, emission an unit in termin 4 g (accordi PVC (-5 PUR (-25 FEP ⁶ (-25 TPE (-25 atmospheric j	d immunit al box KL 1 ng to: DIN 70 °C) grey . 70 °C) bla 70 °C) bla 70 °C) blu sof sc) blu pressure ref	y according to or KL 2 with atm EN 60068-2-6 y ack ack lack le erence	ospheric pressu)		vailable on req	uest	
Short-circuit protection Reverse polarity protectio Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat ma ⁵ shielded cable with integrate ⁶ do not use freely suspended Materials Housing	aterial ⁵	no damage, emission an <i>unit in termin</i> 4 g (accordi PVC (-5 7 PUR (-25 FEP ⁶ (-25 TPE (-25 atmospheric j an FEP cable	d immunit al box KL 1 ng to: DIN 70 °C) grey . 70 °C) bla . 70 °C) bla 85 °C) blu pressure ref if effects du	y according to or KL 2 with atm EN 60068-2-6 y ack ack lack le erence	ospheric pressu)		vailable on req	uest	
Short-circuit protection Reverse polarity protection Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat mat ⁵ shielded cable with integrate ⁶ do not use freely suspended Materials	aterial ⁵	no damage, emission an unit in termin 4 g (accordi PVC (-5 7 PUR (-25 FEP ⁶ (-25 TPE (-25 atmospheric) an FEP cable stainless ste FKM FFKM EPDM	d immunit al box KL 1 ng to: DIN 70 °C) grey 70 °C) bla 70 °C) bla 70 °C) bla boressure ref if effects du eel 1.4404	y according to or KL 2 with atm EN 60068-2-6 y ack ack lack le erence	ospheric pressu)		vailable on req	uest	
Short-circuit protection Reverse polarity protectio Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat ma ⁵ shielded cable with integrate ⁶ do not use freely suspended Materials Housing Seals	aterial ⁵	no damage, emission an unit in termini 4 g (accordi PVC (-5 ? PUR (-25 FEP ⁶ (-25 atmospheric) an FEP cable stainless stee FKM FFKM FFKM EPDM others on re standard: c	d immunity al box KL 1 ng to: DIN 70 °C) grey . 70 °C) bla . 70 °C) bla oressure ref if effects du eel 1.4404 quest ceramics A	y according to or <i>KL 2 with atm</i> EN 60068-2-6 y ack lack lack le <i>erence</i> <i>e to highly charg</i>	ospheric pressu)		vailable on req	uest	
Short-circuit protection Reverse polarity protection Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat ma ⁵ shielded cable with integrate ⁶ do not use freely suspended Materials Housing	aterial ⁵	no damage, emission an unit in termini 4 g (accordi PVC (-5 ? PUR (-25 FEP ⁶ (-25 atmospheric) an FEP cable stainless stee FKM FFKM FFKM EPDM others on re standard: c	d immunity al box KL 1 ng to: DIN 70 °C) grey . 70 °C) bla . 70 °C) bla oressure ref if effects du eel 1.4404 quest ceramics A	y according to or <i>KL</i> 2 with atm EN 60068-2-6 y ack lack lack <i>ieerence</i> <i>e to highly charg</i>	ospheric pressu)		vailable on req		
Short-circuit protection Reverse polarity protectio Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat ma ⁵ shielded cable with integrate ⁶ do not use freely suspended Materials Housing Seals	aterial ⁵	no damage, emission an unit in termin 4 g (accordi PVC (-5 7 PUR (-25 FEP ⁶ (-25 TPE (-25 atmospheric) an FEP cable Stainless ste FKM FFKM EPDM others on re standard: co option: co	d immunity al box KL 1 ng to: DIN 70 °C) grey . 70 °C) bla . 70 °C) bla oressure ref if effects du eel 1.4404 quest ceramics A	y according to or <i>KL</i> 2 with atm EN 60068-2-6 y ack lack lack <i>ieerence</i> <i>e to highly charg</i>	ospheric pressu)		vailable on requ		
Short-circuit protection Reverse polarity protectio Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat ma ⁵ shielded cable with integrate ⁶ do not use freely suspended Materials Housing Seals Diaphragm Protection cap Miscellaneous	aterial ⁵	no damage, emission an unit in termin 4 g (accordi PVC (-5 7 PUR (-25 FEP ⁶ (-25 TPE (-25 atmospheric) an FEP cable stainless stee FKM FFKM EPDM others on re standard: co option: co POM	d immunity al box KL 1 ng to: DIN 70 °C) grey 70 °C) bla . 70 °C) bla . 70 °C) bla boressure ref if effects du eel 1.4404 quest ceramics A ceramics A ceramics A	y according to or <i>KL</i> 2 with atm EN 60068-2-6 y ack lack lack <i>ieerence</i> <i>e to highly charg</i>	ospheric pressu) ing processes a less steel: ava	ilable as con	npact produc		tainless
Short-circuit protection Reverse polarity protection Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat ma ⁵ shielded cable with integrate ⁶ do not use freely suspended Materials Housing Seals Diaphragm Protection cap Miscellaneous Option cable protection	n i protection	no damage, emission an unit in termin 4 g (accordi PVC (-5 7 PUR (-25 FEP ⁶ (-25 TPE (-25 atmospheric) an FEP cable stainless stee FKM FFKM EPDM others on re standard: co option: co POM	d immunity al box KL 1 ng to: DIN 70 °C) grey 70 °C) bla . 70 °C) bla . 70 °C) bla boressure ref if effects du eel 1.4404 quest ceramics A ceramics A ceramics A	y according to or <i>KL 2 with atm</i> EN 60068-2-6 y ack lack lack <i>ierence</i> <i>e to highly charg</i> <i>ierence</i> <i>e to highly charg</i> <i>i</i> ₂ O ₃ 96 % <i>i</i> ₂ O ₃ 99.9 %	ospheric pressu) ing processes a less steel: ava	ilable as con	npact produc		tainless
Short-circuit protection Reverse polarity protectio Electromagnetic compatib ⁴ additional external overvolta Mechanical stability Vibration Electrical connection Cable outlet with sheat ma ⁵ shielded cable with integrate ⁶ do not use freely suspended Materials Housing Seals Diaphragm Protection cap	n i protection	no damage, emission an unit in termini 4 g (accordi PVC (-5 ? PUR (-25 FEP ⁶ (-25 atmospheric) an FEP cable stainless ste FKM FFKM EPDM others on re standard: co option: co POM stainless ste steel pipe w	d immunity al box KL 1 ng to: DIN 70 °C) grey . 70 °C) bla . 70 °C) bla oressure ref if effects du evel 1.4404 quest ceramics A ceramics A ceramics A	y according to or <i>KL</i> 2 with atm EN 60068-2-6 y ack ack ack ack <i>ie</i> <i>erence</i> <i>e</i> to highly charg I ₂ O ₃ 96 % I ₂ O ₃ 99.9 %	ospheric pressu) ing processes a less steel: ava	ilable as con	npact produc		tainless

IBExU 10 ATEX 1186 X zone 0 ⁷ : II 1G Ex ia IIB T4 Ga
$U_i = 28 V$, $I_i = 93 mA$, $P_i = 660$ the supply connections have a
in zone 0: -10 60 °C with p zone 1 or higher: -25 70 °
cable capacitance: signal line
cable inductance: signal line, g designation is valid: "II 1G Ex ia IIC
e + Vs e erfsce erssass - PC
cable colours (IEC 60575)
wh (white) bn (brown)
gnye (green-yellow)
87,A

039,5

standard

thread R1" for stainless steel pipe

. 239.5 -

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I MK 382

	LMK 382H			-	Π		-]-[]	-[]-[]		-	-].	·			
																_			
Pressure		in bar																-	
			5 6 5 5 6 6																
Input	[mH ₂ O]	in mH₂O [bar]	500																
input	0.60	0.06		0	6	0 0													
	1.60	0.00		1	6	0 0													
	4.00	0.40		4		0 0													
	10	1.0		1	0	0 1													
	20	2.0		2	0	0 1 0 1													
	50	5.0		2	0														
	100	10		1	0														
	200	20		2	0	0 2													
	200	customer		2	0	0 1 0 2 0 2 9 9													consult
Housing		customer		3	131	5 5													consult
nousing	Stainless steel 1.44	04 (316L)	_	_	-	-	1			_									
	Stairiiess steer 1.44	customer					9												consult
Diaphragm		customer					9												consult
Diaphraym	Ceramics A	ALO. 96%		-	-	-	_	2											
	Ceramics Al ₂							2 C											
	Ocramos 742	customer						9											consult
Output		customer						9											Consult
Output	HART [®] -comn	nunication	_		-	-				_									
		nA / 2-wire							Н										
	HART [®] -comn																		
In	trinsic safety 4 20 m								I										
		customer							9										consult
Seals									Ū	-									Contourt
		FKM		_	_	_	_	_	_	1						_		T	
		EPDM								3									
		FFKM								7									
		customer								9									consult
Electrical conn	ection									-									
	F	PVC-cable ¹		_	_	_	_	_	_		1					_		T	
		PUR-cable 1									2								
		EP-cable 1									2 3								
		TPE-cable ¹									4								
		customer									9								consult
Accuracy											- 1								
P _N ≥ 1 bar		0.1 %										1							
$P_N < 1$ bar		0,2 %										В							
		customer										9							consult
Cable length																			
		in m											9	9	9				
Special versior	ו <u> </u>																		
		standard														0	0	0	
	prepared for															5	0	2	
	with stainless																		
	flang	ge version														5	1	0	
		customer														9	9	9	consult

¹ cable with integrated air tube for atmospheric pressure reference

² stainless steel pipe is not part of the supply

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Nominal pressure

from 0 ... 60 cmH₂O up to 0 ... 200 mH₂O

Output signals

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

Special characteristics

- shipping approvals acc. to: Lloyd's Register (LR), Germanischer Lloyd (GL), Det Norske Veritas (DNV) China Classification Society (CCS), American Bureau of Shipping (ABS)
- ▶ diameter 39.5 mm
- HART[®] communication (setting of offset, span and damping)
- high overpressure resistance
- high long-term stability

Optional versions

- ► IS-version zone 0
- ▶ diaphragm Al₂O₃ 99.9 %
- different housing materials (stainless steel, CuNiFe)
- screw-in and flange version
- accessories e. g. assembling and probe flange, mounting clamp

LMK 458H

Probe with HART[®]-communication for Marine and Offshore

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

The hydrostatic probe LMK 458H has been developed for measuring level in service and storage tanks and is as a consequence certificated for shipbuilding and offshore applications.

A permissible operating temperature of up to 85°C and the possibility to use the device in intrinsic safe areas enable to measure the pressure of various fluids under extreme conditions. The basis for the LMK 458H is a capacitive ceramic sensor element, which offers a high overload resistance and medium compatibility.

Preferred areas of use are

0

<u>Water</u> Drinking water abstraction Desalinization plant

Shipbuilding / Offshore



Ballast tanks Draught monitoring Level measurement in ballast and storage tanks



18	LMK 458 H
	Technical Data

LMK 458 H

Technical Data

Prossuro rangos								
Pressure ranges Nominal pressure ¹ [ba	orl 0.06	0.16	0.4	1	2	5	10	20
Nominal pressure ' [ba Level [mH ₂ (-	0.16	0.4	1 10	2	5 50	10	20 200
Overpressure [ba	-	4	6	8	15	25	35	45
¹ On customer request we adjust the	3	-	-	-	-	-		-
Output signal / Supply	e devices by soliwa	are on the requ	neu pressure ran	iges, within the	e turn-uown pe	SSIDIIILY (SLATLIT	iy al 0.02 Dai).
			40 0014) .		0414	
Standard	2-wire: 4 2			with HART®		-	$_{rated}$ = 24 V _D	
Option IS-version	2-wire: 4 2	$20 \text{ mA} / \text{V}_{\text{S}} =$	14 28 V _{DC}	with HART®	communica	ation V _s	rated = 24 V	C
Performance								
Accuracy ²	P _N ≥ 160 mb	ar	$TD \leq 1:5$	$\leq \pm 0.$	2 % FSO		TD _{max} = 1	·10
	1 N = 100 mb		TD > 1:5	≤ ± [0	.2 + 0.03 x	FD] % FSO	- D max	
	P _N < 160 mb	ar		≤ ± [0	.2 + 0.1 x TI	D] % FSO	TD _{max} = 1	:3
	$P_N \ge 1$ bar		TD ≤ 1:5	$\leq \pm 0.$	1 % FSO		TD _{max} = 1	. 10
	$P_N \ge 1$ bar		TD > 1:5	≤ ± [0	.1 + 0.02 x ⁻	TD] % FSO	I D _{max} = 1	. 10
Permissible load	$R_{max} = [(V_S -$	V _{S min}) / 0.02	Α] Ω	load at H	ART [®] -comm	unication: R _{mi}	_{in} = 250 Ω	
Long term stability			O / year at refe	rence condit	ions			
Influence effects	supply: 0.05	% FSO / 10	V	1	permissible	load: 0.05 % F	FSO / kΩ	
Turn-on time	850 msec							
Mean response time	140 msec w	ithout consid	eration of elect	ronic dampir	ng	mean n	neasuring r	ate 7/sec
Max. response time	380 msec						2	
Adjustability			parameters po	ossible (inter	face / softwa	are necessary	³):	
		c damping: 0						
		80 % FSO n of span: m						
² accuracy according to IEC 60770 -				neatability)				
³ software, interface, and cable have	to be ordered sep	arately (softwa	re appropriate fo	r Windows [®] 95	5, 98, 2000, N	T Version 4.0 of	r higher, and	XP)
Thermal effects (Offset and S							U /	,
Tolerance band	. ,	•						
TC, average	≤ ± [0.2 x tu ≤ ± [0.02 x tu	rn-down] % F						
in compensated range	-20 80 °C		F30/10K					
Permissible temperatures	medium: -25		electronics	/ environme	nt:_25 85	°C stora	ige: -25 8	85 °C
Electrical protection ⁴	medium20	05 0	electronics		1120 00	0 31014	ige20 (00 0
-								
Short-circuit protection Reverse polarity protection	no damage,	but also no f	iunation					
Electromagnetic compatibility	emission an							
	- EN 613			ischer Lloyd	(GL)	- Det N	orske Verita	as (DNV)
⁴ additional external overvoltage pro	tection unit in termi	inal box KL 1 o	or KL 2 with atmos	spheric pressu	re reference a	available		
Mechanical stability								
Vibration	4 g (accordir	ng to GL: cur	ve 2 / accordin	g to DNV: C	ass B / bas	is: DIN EN 60	068-2-6)	
Electrical connection				-				
Cable	shielded cat	le with integ	rated air tube f	or atmosphe	ric reference	e (for nominal	pressure r	anges abs
Cable		tube is closed					procedio	angee ase
Materials (media wetted)			,					
Housing	standard:	stainless ste	el 1.4404 (316l	_)				
5			In (resistant ag		iter)		others o	n request
Cable sheath			ant, halogen fre			against oil an	d gasoline,	·
			inst salt, sea w	ater, heavy	oil)			
Seals	FKM; FFKM							
	others on re		0.000/					
Diaphragm		ceramics Al ₂	-					
Noso cono	option: POM	ceramics Al ₂	03 99.9 %					
Nose cone	FOIVI							
Miscellaneous	at tale 1	al air - f	ala in statut	a ata - I	able	neet see 1 1	(atomical and	tais la
Cable protection			obe in stainles gth up to 2 m p				(standard: s	stainless
Ingress protection	IP 68		gin up to z m p			incquest)		
Current consumption	max. 21 mA							
Weight		without cable	2)					
CE-conformity		ve: 2004/108	,					
Category of the environment	Lino Bilooti							
• •		2 ENAL2 EN	1\//		umbor of c	rtificato: 12/0	0056	
Lloyd's Register (LR) Germanischer Lloyd (GL)	D, EMC 1	2, EMV3, EN	174			ertificate: 13/2 ertificate: 19 7		
		· D ·					// - II AN	
Det Norske Veritas (DNV)	temperature		numidity: B	-	vibration: B	ertificate: A-12	0144	
	electromagn	ene compati	onity. D	ſ		entinuate. A-12	144	



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LMK 458H	Ľ		-[]-[-[-[]-[-[]-[]-[]-[]-[Π]	
Pressure																		
in bar, gauge	e 7	7 6 E																
in bar, sealed gauge	e ¹ 7	7 6 G 7 6 H 7 6 F																consult
in bar, absolute	9 ¹ 7	7 6 H																
in mH ₂ C) 7	7 6 F																
Input [mH ₂ O] [bar]																		
0.60 0.06			0	6	0	0												
1.60 0.16			1	6	0	0												
4.00 0.40			4	0	0	0												
10 1.0			1	0	0	1												
20 2.0			2	0	0	1												
50 5.0			5	0	0	1												
100 10			1	0	0	2												
200 20			2	0	0	2												
custome	r		9	0 0 9	9	9												consult
Housing																		
Stainless steel 1.4404 (316L						1												
Copper-Nickel-alloy (CuNi10Fe1Mn)					K												
custome	r					9												consult
Design																		
Submersible transmitte	2						1											
Flange transmitte	r ²						3											
Screw-in transmitte	r ²						5											
Diaphragm																		
Ceramics Al ₂ O ₃ 96%	5							2										
Ceramics Al ₂ O ₃ 99.9%	5							С										
custome	r							9										consult
Output																		
HART [®] -communication	ı																	
4 20 mA / 2-wire									Н									
HART [®] -communication																		
Intrinsic safety 4 20 mA / 2-wire									I									
custome	r r								9									consult
Seals									5	1								consult
FKN	1	_	_	_	-	_	_	_	_	1		_						
EPDN										3								
FFKN										7								
custome										9								consult
Electrical connection										Ū	1							Contourt
TPE-U-cable	3	_	_	_	-	_	_	_	_	_	4							
custome											g							
Accuracy	_					_						1						
$P_N \ge 1$ bar 0.1 %												1						
$P_{\rm N} < 1 {\rm bar}$ 0,2 %												B						
custome												9						consult
Cable length												5	1					Concourt
in n	1												9	9 9	9			
Special version													Ū					
standard	1														0	00)	
prepared for mounting with st. steel pipe	2,4														5	0	2	
custome	r .														c	5 0 2 9 9 9	9	consult
00000110																	-	Jonioun

¹ nominal pressure ranges sealed gauge and absolute from 1 bar

² mounting accessories are not part of supply and have to be ordered separately

³ shielded cable with integrated air tube for atmospheric reference

4 stainless steel pipe is not part of the supply

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Nominal pressure

from 0 ... 60 cmH₂O up to 0 ... 100 mH₂O

Output signals

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

Special characteristics

- diameter 39.5 mm
- cable and sensor section separable
- HART[®] communication (setting of offset, span and damping)
- ▶ permissible temperatures up to 85 °C
- high long-term stability

Optional versions

- IS-version zone 0
- cable protection via corrugated pipe ►
- diaphragm 99.9 % Al₂O₃

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LMK 358H

Separable **Stainless Steel Probe** with HART[®]-communication

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

The separable stainless steel probe LMK 358H has been designed for level measurement in waste water, waste and higher viscosity media. Basic element is a capacitive ceramic sensor.

In order to facilitate stock-keeping and maintenance the transmitter head is plugged to the cable assembly with a connector and can be changed easily.

Preferred areas of use are



Water ground water level measurement rain spillway basin



<u>Sewage</u> waste water treatment water recycling



Fuel / Oil level monitoring in open tanks with low filling heights fuel storage tank farms biogas plants



LMK 358 H

Technical Data

Input pressure range ¹ Nominal pressure gauge [bar]	0.06	0.16	0.4	1	2	5	10
Level [mH ₂ O]	0.6	1.6	4	10	20	50	100
Overpressure [bar]	2	4	6	8	15	25	35
¹ On customer request we adjust the dev	vices by software o	on the required	pressure rang	ges, within the turn-c	down-possibility (start	ing at 0.02 ba	ar)
Output signal / Supply							
Standard	2-wire: 4 20	mA /	V _S = 12 3	86 V _{DC} with HART	[□] communication	V _{S rated}	= 24 V _{DC}
Option IS-protection	2-wire: 4 20	mA /	V _S = 12 2	28 V _{DC} with HART	^{Communication}		= 24 V _{DC}
Performance							
Accuracy ²	P _N ≥ 160 mbar		≤ 1:5 > 1:5	≤ ± 0.2 % FSO ≤ ± [0.2 + 0.03 x	TDI % ESO	TD _{max} = 1	:10
	P _N < 160 mba			$\leq \pm [0.2 + 0.1 \text{ x T}]$		TD _{max} = 1	·3
	$P_N \ge 1$ bar		≤ 1:5	$\leq \pm 0.1 \%$ FSO	5]/0100	TD _{max} = 1	
			> 1:5	$\leq \pm [0.1 + 0.02 \text{ x}]$	TDI % FSO	i D max	
Permissible load	$R_{max} = [(V_S - V_S)]$			•	[®] -communication:	$R_{min} = 250$	0
Long term stability	\leq + (0.1 x turr	-down) % Fs	SO / vear at	reference conditio	ons	2001	
Influence effects	supply: 0.05				% FSO / kΩ		
Turn-on time	850 msec						
Mean response time		ithout consid	eration of el	ectronic damping		measuring	g rate 7/sec
Max. response time	380 msec						,
Adjustability ² accuracy according to IEC 60770 – limi	- electronic o - offset: 0 - turn-down o	lamping 0 80 % FSO of span: max	100 sec	·	/ software necessa	ary)	
² accuracy according to IEC 60770 – limit ³ software, interface, and cable have to b	n point adjustment	telv (software :	nysieresis, re appropriate foi	Windows [®] 95, 98, 2	2000, NT Version 4.0	or higher an	d XP)
Thermal effects (Offset and Span						or nighter, all	
Tolerance band	$\leq \pm (0.2 \text{ x turn})$	•					
TC, average	$\pm (0.02 \text{ x turn})$,					
in compensated range	-20 80 °C	00WII) /0 F3	OTION				
Permissible temperatures	-20 80 C		-25 8	5 °C			
	electronic / en storage:	vironment:	-25 8 -25 8	5 °C			
Electrical protection ⁴							
Short-circuit protection	permanent						
Reverse polarity protection	no damage, b	ut also no fur	nction				
Electromagnetic compatibility	emission and	immunity acc	ording to EN	N 61326			
⁴ additional external overvoltage protection unit	in terminal box KL 1	or KL 2 with atm	ospheric pressu	re reference available o	n request		
Mechanical stability							
Vibration	4 g (according	to: DIN EN	60068-2-6)				
Electrical connection			,				
Cable with sheath material ⁵	PVC (-5 70 PUR (-25 7 FEP ⁶ (-25 7 TPE (-2585	0 °C) black 70 °C) black 5 °C) blue					
⁵ shielded cable with integrated air tube t							
⁶ do not use freely suspended probes wit	th an FEP cable if	effects due to	highly chargin	g processes are exp	pected		
Materials (media wetted)							
Housing	stainless steel	1.4404 (316	L)				
Seals	FKM EPDM others on requ	lest					
Diaphragm	standard: cer						
Protection cap	POM						
Explosion protection							
Approval DX15A-LMK 358H	IBExU 10 ATE zone 0 ⁷ : II 10		Ga	zone 2	20: II 1D Ex ia IIIC	T85 °C Da	
Safety technical maximum values	$U_i = 28 V, I_i =$ the supply cor				μΗ, 7 nF opposite the	enclosure	
		nections hav	ve an inner o 60 °C with p		7 nF opposite the	enclosure	





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PROBES

LMK 358H		-		- -[]-[]	- 🗌 -	·□	- []	□-[- 🗌		
Drooouro												_	-	
Pressure in bar	4 4 5													
in mH ₂ O	4 4 5 4 4 6													
Input [mH ₂ O] [bar]	1 1 0													
0.60 0.06		0 6 0	0								П			
1.60 0.16		1 6 0	0											
4.00 0.40		4 0 0	0											
10 1.0		1 0 0	1											
20 2.0		2 0 0	1											
50 5.0		500	1											
100 10		1 0 0 9 9 9	2											
customer	_	999	9			_	_					_	-	consult
Housing Stainless steel 1.4404 (316L)			1											
customer			1											consult
Diaphragm			9											consult
Ceramics Al ₂ O ₃ 96%		_	_	2		_						_		
Ceramics Al ₂ O ₃ 99.9%				C										
customer				9										consult
Output				- 1										
HART [®] -communication 4 20 mA / 2-wire				Н										
4 20 mA / 2-wire HART®-communication														
Intrinsic safety 4 20 mA / 2-wire														
customer				9										consult
Seals					1									
FKM					1									
EPDM					3									
customer					9									consult
Electrical connection														
PVC-cable ¹						1								
PUR-cable ¹						2 3	_	_						
FEP-cable ¹ TPE-cable						3								
customer						4								consult
Accuracy						9								Consult
$P_N \ge 1 \text{ bar}$ 0.1 %	_	_	_	_	_	_	1							
$P_{\rm N} < 1 {\rm bar}$ 0,2 %							B							
customer							9							consult
Cable length														
in m								99	9		Π			
Special version														
standard										0 0	0			
prepared for mounting 2										1 0	6			
with stainless steel pipe														
cable protection with										1 0	3	0	9 9	consult
stainless steel corrugated pipe with pipe length in m										10	3	9	9 9	consuit
customer										9 9	a			consult
Customer										515				consult

¹ cable with integrated air tube for atmospheric pressure reference ² stainless steel pipe is not part of the supply

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Nominal pressure

from 0 ... 1 mH₂O up to 0 ... 250 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 19 mm for cramped areas
- ► small thermal effect
- excellent long term stability
- excellent linearity

Optional versions

- different kinds of cable
- customer specific versions
 e.g. special pressure ranges

LMP 305

Slimline Probe

Stainless Steel Sensor

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

The slimline probe LMP 305 with silicon stainless steel sensor is designed for continous level measurement in confined space conditions. Permissible media are clean or waste water and thin fluids.

A piezoresistiv stainless steel sensor with low thermal error, an excellent linearity and a long term stability, is basis of LMP 305.

Preferred areas of use are

CE

Water level measurement in confined space conditions ground water monitoring depth or level measurement in wells and open waters drinking water system level measurement in container
level measurement in container

LMP 305 Technical Data

Input pressure range														
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	1	1	1	1	3	3	6	6	20	20	60	60	100
Output signal / Supply														
Standard		2-wire:	4.	20 mA	$\lambda / V_s =$	12 36	V _{DC}							
Performance		·												
Accuracy		standa	n	ominal p	ressure	> 0.4 b ≤ 0.4 b > 0.4 b	ar: ≤:	± 0.35 % ± 0.50 % ± 0.25 %	6 FSO					
Permissible load		· ·		/ _{S min}) / 0				/						
Influence effects		supply	: 0	.05 % F	SO / 10	V								
Long term stability		load:		.05 % F		ence cor	ditions							
		< 10 m) year			luitions							
Response time ¹ accuracy according to IEC 6	0770 limi			(non line	ority by	storesis	enestahi	lity)						
			jusimeni	(11011-11116	any, ny:	51010313, 1	epealau	iity)						
Thermal effects (Offset a			< 0.1		< 0	25		< 0.4			- 1		> 1	
Nominal pressure P _N	[bar]		≤ 0.1		≤ 0.	-		≤ 0.4			≦1 1		> 1	'E
	[% FSO]		≤±2		≤ ± 1	-		≤±1			±1		≤ ± 0.7	-
	O / 10 K]		± 0.3		± 0			± 0.14		±	0.1		± 0.07	
in compensated range	[°C]				0	50						0 70		
Permissible temperature														
Permissible temperatures		mediui storag) 70 ° 5 70 °										
Electrical protection ²														
Short-circuit protection		perma	nent											
Reverse polarity protectio	n	no dan	nage, bi	ut also n	o functi	on								
Electromagnetic compatib	ility	emissi	on and i	immunit	y accord	ding to E	N 6132	6						
² additional external overvolta	ge protectio	on unit in	terminal	box KL 1	or KL 2	with atmo	spheric	oressure	referenc	e availabl	e on requ	uest		
Electrical connection														
Cable with sheath materia	ll ³	PUR (∙ FEP⁴ (·10 7	°C) gre 0 °C) bla 0 °C) bl iest	ack									
³ cable with integrated air tube	e for atmos	pheric pr	essure re	ference										
⁴ do not use freely suspended	·	h an FEF	' cable if	effects d	ue to higl	hly charg	ng proce	sses are	expected	d				_
Materials (media wetted))			4 4 4 9 4	(0.4.01.)									
Housing Seals		FKM /		1.4404	(316L)	_	_							
Diaphragm				1.4435	(3161)									
Protection cap		POM	20 01001		(0.02)									
Cable sheath		PVC /	PUR / F	EP										
Miscellaneous														
Connecting cables (by factory)			capacita nductar							ine: 160 ine: 1 µl				
Current consumption		signal	output c	urrent:	max.	25 mA								
Weight		approx	. 100 g	(without	cable)									
Ingress protection		IP 68												
CE-conformity		EMC E	Directive	: 2004/1	08/EC									
Wiring diagram 2-wire-system (current)														
p supply +	A	o I Vs												



This document contains product specifications; properties are not guaranteed. Subject to change without notice.



Protection cap removable

LMP 305 Pressure in bar in mH₂O 4 0 0 4 0 1 mH₂O barl 0.10 1 0 0 0 1 6 0 0 1.0 1.6 0.16 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 1.0 100 1.6 1 6 0 1 16 2 5 0 1 25 25 4 0 0 1 40 4.0 60 6.0 6 0 0 1 0 0 2 100 10 1 6 0 2 2 5 0 2 9 9 9 9 160 16 25 250 customer Stainless steel 1.4404 (316L) 1 customer Stainless steel 1.4435 (316L) 1 custome 4 ... 20 mA / 2-wire 1 customer 9 FKM 1 EPDM customer standard for $P_N > 0.4$ bar 0.35 % 3 standard for $P_N \le 0.4$ bar option for $P_N \ge 0.4$ bar 0.5 % 0.25 % 2

customer consult 9 Electrical connection PVC-cable 1 PUR-cable FEP-cable 3 customer consult 9 Cable length 999 in m Special version

¹ cable with integrated air tube for atmospheric pressure reference

standard

customer

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.



Nominal pressure

consult

consult

consult

consult

consult

consult

0 0 0 9 9

from 0 ... 1 mH₂O up to 0 ... 250 mH₂O

Output signals

2-wire: 4 ... 20 mA 3-wire: 0 ... 20 mA / 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
- SIL 2 (Safety Integrity Level)
- cable protection via corrugated pipe
- different kinds of cables
- different kinds of seal materials

LMP 307

Stainless Steel Probe

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % / 0.1 % FSO

The stainless steel probe LMP 307 is designed for continuous level measurement in water and clean or waste 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



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



<u>Fuel / Oil</u> fuel storage tank farm



Technical Data

Name and successing and the	[her]	0.4	0.40	0.05	0.4	0.0	4	1.0	25	4	<u> </u>	10	10	05
Nominal pressure gauge		0.1	0.16	0.25	0.4	0.6	1	1.6	2.5 25	4	6	10	16 160	25 250
Overpressure	[mH ₂ O]	1 0.5	1.6 1	2.5 1	4	6 5	10 5	16 10	25 10	40 20	60 40	40	80	250 80
Burst pressure >	[bar] [bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	20	50	50	120	120
Buist pressure <u>~</u>	[bai]	1.5	1.0	1.0	5	1.5	7.5	15	15	20	50	50	120	120
Output signal / Supply														
Standard		2-wire:	4.	20 mA	\ / \	/ _s = 8.	. 32 V _D	;	S	IL-versi	on: V _s =	14 2	8 V _{DC}	
Option Ex-protection		2-wire:	4.	20 mA	/ \	/ _s = 10.	. 28 Vn	2	S	IL-versi	on: Vs=	14 2	8 Vpc	
Options 3-wire		3-wire:	0.		/ /	/ _s = 14 . / _s = 14 .	. 30 V _D	; ;						
Performance		1	0.	10 V	, ,	/5 17.		,						
Accuracy		standa	rd: no	minal n	ressure	e < 0.4 ba	ar:	< + (0.5 % FS	30				
Accuracy		option	nc 1: nc	, pminal p pminal p	ressure ressure	$e \ge 0.4$ bases $e \ge 0.4$ bas	ar: ar:	≤±(≤±(0.35 % F 0.25 % F 0.1 % FS	SO SO				
Permissible load		curren	t 2-wire: t 3-wire: e 3-wire	R _m	$_{ax} = [(V_{s})_{ax} = 500]$ $_{ax} = 10 k$		n) / 0.02	2 A] Ω						
Influence effects		supply load:		0.0		SO / 10 V	,							
Long term stability		≤±0.1	% FSC	/ year a	at refere	ence con	ditions							
Response time			< 10	-			3-wir	e: <	3 msec					
¹ accuracy according to IEC 6	60770 – limii				arity, hy	steresis, i								
Thermal effects (Offset	and Span)												
Nominal pressure P _N	[bar]			<	0.40						<u>></u> 0.4	0		
Tolerance band	[% FSO]			5	≤±1						<u> </u>	75		
in compensated range	[°C]							0 70						
Permissible temperatur		<u> </u>												
Permissible temperatures		mediur	n: 10) 70 °	C		storad	10: 25	70 °C	、 、				
Electrical protection ²	5	meului	nn	70	0		Storag	je25	70 C	,				
•														
Short airquit protoction		normo	aant											
•		permai		ut alaa n	o functi	<u></u>								
Reverse polarity protection		no dan	nage, bu	ut also n			N 6132							
Reverse polarity protection Electromagnetic compatil	bility	no dan emissio	nage, bu on and i	mmunity	accord	ding to E			roforono		0 00 000	uoot		
Reverse polarity protection Electromagnetic compatible ² additional external overvolt	bility	no dan emissio	nage, bu on and i	mmunity	accord	ding to E			reference	e availabi	le on req	uest		
Short-circuit protection Reverse polarity protectio Electromagnetic compatil ² additional external overvolt Electrical connection	bility tage protection	no dan emissio on unit in	nage, bu on and i <i>terminal</i>	mmunity box KL 1	/ accord or KL 2	ding to E with atmo	ospheric	oressure		e availabi			0 °C) bl	
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended	bility age protectio al ³ be for atmosp d probes with	no dan emissie on unit in PVC (-	nage, bu on and i <i>terminal</i> 5 70 essure re	mmunity box KL 1 °C) grey ference	/ accord l or KL 2 /	ding to E with atmo PUR (-1	ospheric 0 70	°C) blac	ck			uest -10 7	0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted	bility age protectio al ³ be for atmosp d probes with	no dan emissio on unit in PVC (- pheric pre h an FEP	nage, bu on and i <i>terminal</i> 5 70 essure re cable if	mmunity box KL 1 °C) grey ference effects du	y accord I or KL 2 V Jue to high	ding to E with atmo PUR (-1	ospheric 0 70	°C) blac	ck				0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted	bility age protectio al ³ be for atmosp d probes with	no dan emissio on unit in PVC (- pheric pre h an FEP	nage, bu on and i <i>terminal</i> 5 70 essure re cable if	mmunity box KL 1 °C) grey ference	y accord I or KL 2 V Jue to high	ding to E with atmo PUR (-1	ospheric 0 70	°C) blac	ck				0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing	bility age protectio al ³ be for atmosp d probes with	no dan emissio on unit in PVC (- pheric pre h an FEF stainles FKM	nage, bu on and i <i>terminal</i> 5 70 essure re cable if ss steel	mmunity box KL 1 °C) grey ference effects du 1.4404	y accord I or KL 2 V Jue to high	ding to E with atmo PUR (-1	ospheric 0 70	°C) blac	ck				0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals	bility age protectio al ³ be for atmosp d probes with	no dan emissic on unit in PVC (- obheric pre h an FEF stainle: FKM others	nage, bu on and i <i>terminal</i> 5 70 sssure re cable if ss steel on requ	mmunity box KL 1 °C) grey ference effects du 1.4404 est	y accord l or KL 2 y ue to higu (316L)	ding to E with atmo PUR (-1	ospheric 0 70	°C) blac	ck				0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm	bility age protectio al ³ be for atmosp d probes with	no dan emissie on unit in PVC (- oheric pre h an FEF stainle: FKM others stainle:	nage, bu on and i <i>terminal</i> 5 70 sssure re cable if ss steel on requ	mmunity box KL 1 °C) grey ference effects du 1.4404	y accord l or KL 2 y ue to higu (316L)	ding to E with atmo PUR (-1	ospheric 0 70	°C) blac	ck				0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap	bility age protection al ³ be for atmosp d probes with 1)	no dan emissio on unit in PVC (- obheric pre- h an FEF stainle: FKM others stainle: POM	nage, bu on and i terminal 5 70 essure re cable if ess steel on requ	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4435	y accord l or KL 2 y ue to higu (316L)	ding to E with atmo PUR (-1	ospheric 0 70	°C) blac	ck				0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap Explosion protection (o	bility age protection al ³ be for atmosp d probes with 1)	no dan emissic on unit in PVC (- oberic pre- h an FEF stainle: FKM others stainle: POM . 20 mA	nage, bu on and i terminal 5 70 essure re cable if ss steel on requ ss steel	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4435 est	y accord f or KL 2 y ue to hig (316L) (316L)	ding to E with atmo PUR (-1	ospheric , 0 70 ng proce	°C) blac	ck				0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap	bility age protection al ³ be for atmosp d probes with 1)	no dan emissic on unit in PVC (- oberic pre- h an FEF stainle: FKM others stainle: POM . 20 mA	age, bu on and i terminal 5 70 essure re cable if ss steel on requ ss steel (/ 2-wir 10 ATE : II 1	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4435 e) e) EX 1068 G Ex ia	y accord or KL 2 y (316L) (316L) (316L) X / III IIC T4	ding to E with atmo PUR (-1 hly chargi	ospheric , 0 70 ng proce	°C) blac	ck				0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap Explosion protection (o Approvals	bility age protection al ³ be for atmosp d probes with by boom of the second second bill bill bill bill bill bill bill bill	PVC (- oberic pre- beric pre- beric pre- beric pre- beric pre- stainle: FKM others stainle: POM . 20 mA IBExU zone 0 zone 2 U _i = 28	nage, bu on and i terminal 570 essure re cable if ss steel on requise steel A 2	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4404 est 1.4435 e) EX 1068 G Ex ia ID Ex ia 93 mA, I	y accord f or KL 2 y (316L) (316L) (316L) (316L) IIC T4 IIIC T4 IIIC T4 Fi = 660	ding to E with atmo PUR (-1 hly chargi Bly chargi Ga B5°C Da) mW, C _i	ospheric , 0 70 ng proce. E 12.00 ≈ 0 nF,	oressure °C) blaα sses are 27X L _i ≈ 0 μ	ck expected H,	· · · · · · · · · · · · · · · · · · ·	FEP ⁴ (0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap Explosion protection (o Approvals DX19-LMP 307	bility age protection al ³ be for atmosp d probes with 1) only for 4 m values	no dan emissio on unit in PVC (- oberic pre- beric pre- beric pre- stainle: FKM others stainle: FKM others stainle: POM . 20 mA IBExU zone 0 zone 2 U _i = 28 the suj in zone	age, bu on and i terminal 5 70 sssure re cable if ss steel on requ ss steel (7 2-wir 10 ATE : II 1 0: II 1 3 V, I _i = 9 oply con	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4404 est 1.4435 e) EX 1068 G Ex ia ID Ex ia 93 mA, I inections	y accord or KL 2 y (316L) (316L) (316L) (316L) IIC T4 IIIC T4 IIIC T4 Shave a	ding to E with atmo PUR (-1 hly chargi Ga 85°C Da 0 mW, C _i an inner 50 °C witi	ospheric , 0 70 ng proce. E 12.00 ≈ 0 nF, capacity	°C) blaα sses are 27X L _i ≈ 0 μ γ of max	ck expected H, c. 27 nF ⁻	to the h	FEP ⁴ (0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap Explosion protection (o Approvals DX19-LMP 307 Safety technical maximur	bility age protection al ³ be for atmosp d probes with 1) only for 4 m values	no dan emissio on unit in PVC (- oberic pre- han FEP stainle: FKM others stainle: POM .20 mA IBExU zone 0 zone 2 U _i = 28 the suj in zone in zone cable of	nage, bu on and i terminal 570 sssure re cable if sss steel on requise on requises steel 10 ATE 11 1 0: II 1 3 V, Ii = \$ poly con e 0:	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4435 e) EX 1068 G Ex ia ID Ex ia 93 mA, I nections gher: nce: s	y accord or KL 2 y (316L)(316L) (316L) (316L) (316L) (316L) (316L) (316L) (316L	ding to E with atmo PUR (-1 hly chargi Ga 85°C Da 0 mW, C _i an inner 50 °C witi	 spheric , 0 70 ng proce E 12.00 ≈ 0 nF, capacity n patm 0. also sig 	oressure °C) blaα sses are 27X L _i ≈ 0 μ γ of max 8 bar up gnal line	ck <i>expected</i> H, 27 nF ⁻ to 1.1 t /signal li	to the ho bar ne: 160	FEP ⁴ (0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap Explosion protection (o Approvals DX19-LMP 307 Safety technical maximur Ambient temperature rang Connecting cables (by factory) Miscellaneous	bility age protection al ³ be for atmosp d probes with 1) only for 4 m values ge	no dan emissio on unit in PVC (- oberic pre- han FEP stainle: FKM others stainle: POM .20 mA IBExU zone 0 zone 2 U _i = 28 the suj in zone in zone cable of	hage, but on and i terminal $5 \dots 70$ assure re- cable if assisted on requise steel 10 ATE: 11 10 C $3 \text{ V}, \text{ I}_{1} = 9$ opply con 2 O: 2 O for ini- capacita	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4435 e) EX 1068 G Ex ia ID Ex ia 93 mA, I nections gher: nce: s	y accord or KL 2 y (316L)(316L) (316L) (316L) (316L) (316L) (316L) (316L) (316L	ting to E with atmo PUR (-1 hly chargi BUR (-1 hly chargi bly chargi BUR (-1 hly chargi bly chargi BUR (-1 hly chargi BUR (-1 h	 spheric , 0 70 ng proce E 12.00 ≈ 0 nF, capacity n patm 0. also sig 	oressure °C) blaα sses are 27X L _i ≈ 0 μ γ of max 8 bar up gnal line	ck <i>expected</i> H, 27 nF ⁻ to 1.1 t /signal li	to the ho bar ne: 160	FEP ⁴ (0 °C) bla	ack
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap Explosion protection (o Approvals DX19-LMP 307 Safety technical maximur Ambient temperature rang Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 application	bility age protection al ³ be for atmosp d probes with 1) only for 4 m values ge	no dan emissio on unit in PVC (- oheric pre- h an FEF stainle: FKM others stainle: FKM others stainle: POM . 20 mA IBExU zone 0 zone 2 U _i = 28 the suj in zone cable c cable i accord	age, bu on and i terminal 5 70 ssure re cable if ss steel on requ ss steel (1 2-wir 10 ATE : II 1 0: II 1 3 V, I _i = 9 oply com e 0: 2 1 or hi capacita nductan ing to IE	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4404 est 1.4435 e) EX 1068 G Ex ia ID Ex ia 93 mA, I inections gher: nce: s ce: s EC 6150	y accord or KL 2 ((316L) (316	ding to E with atmo PUR (-1 hly chargi BUR (-1 hly chargi Chargi BUR (-1 hly chargi Chargi BUR (-1 hly chargi Chargi BUR (-1 hly chargi Chargi	2550 peric , 0 70 ng proces E 12.00 ≈ 0 nF, capacity n p _{atm} 0. also sig also sig	oressure °C) blaα sses are 27X L _i ≈ 0 μ γ of max 8 bar up nal line nal line	ck expected H, c. 27 nF 1 b to 1.1 t /signal li /signal li	to the ho par ne: 160 ne: 1µH	FEP ⁴ (ousing		0 °C) bla	
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap Explosion protection (o Approvals DX19-LMP 307 Safety technical maximur Ambient temperature rang Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 application	bility age protection al ³ be for atmosp d probes with 1) only for 4 m values ge	no dan emissio on unit in PVC (- oheric pre- h an FEF stainle: FKM others stainle: FKM others stainle: POM . 20 mA IBExU zone 0 zone 2 U _i = 28 the suj in zone cable c cable i accord	age, bu on and i terminal 5 70 ssure re cable if ss steel on requ ss steel (1 2-wir 10 ATE : II 1 0: II 1 3 V, I _i = 9 oply com e 0: 2 1 or hi capacita nductan ing to IE	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4404 est 1.4435 e) EX 1068 G Ex ia ID Ex ia 93 mA, I inections gher: nce: s ce: s EC 6150	y accord or KL 2 ((316L) (316	ting to E with atmo PUR (-1 hly chargi BUR (-1 hly chargi Context BUR (-1 hly chargi Context BUR (-1 hly chargi Context Contex	2550 peric , 0 70 ng proce E 12.00 ≈ 0 nF, capacity n p _{atm} 0. also sig also sig	oressure °C) blaα sses are 27X L _i ≈ 0 μ γ of max 8 bar up nal line nal line	ck expected H, c. 27 nF 1 b to 1.1 t /signal li /signal li	to the ho par ne: 160 ne: 1µH	FEP ⁴ (ousing		0 °C) bla	
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap Explosion protection (o Approvals DX19-LMP 307 Safety technical maximur Ambient temperature rang	bility age protection al ³ be for atmosp d probes with 1) only for 4 m values ge	no dan emissie on unit in PVC (- oberic pre- h an FEF stainle: FKM others stainle: POM . 20 mA IBExU zone 0 zone 2 U _i = 28 the sup in zone cable c cable i accord signal approx	age, bu on and i terminal 5 70 ssure re cable if ass steel on requise s steel (7 2-wir 10 ATE : II 1 0: II 1 3 V, Ii = S oply com e 0: 2 1 or hi capacita nductan ing to IE output co	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4404 est 1.4435 e) EX 1068 G Ex ia ID Ex ia 93 mA, I inections gher: nce: s ce: s EC 6150	y accord or KL 2 (ue to higu (316L)	ting to E with atmo PUR (-1 hly chargi BUR (-1 hly chargi Chargi BS°C Da 0 mW, C ₁ an inner 0 °C witi 0 °C me/shield 61511 25 mA /	2550 peric , 0 70 ng proce E 12.00 ≈ 0 nF, capacity n p _{atm} 0. also sig also sig	oressure °C) blaα sses are 27X L _i ≈ 0 μ γ of max 8 bar up nal line nal line	ck expected H, c. 27 nF 1 b to 1.1 t /signal li /signal li	to the ho par ne: 160 ne: 1µH	FEP ⁴ (ousing		0 °C) bla	
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap Explosion protection (o Approvals DX19-LMP 307 Safety technical maximur Ambient temperature rang Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 application Current consumption Weight Ingress protection	bility age protection al ³ be for atmosp d probes with 1) only for 4 m values ge	no dan emissie on unit in PVC (- oheric pre- h an FEF stainle: FKM others stainle: FKM others stainle: POM . 20 mA IBExU zone 0 zone 2 U _i = 28 the suj in zone cable c cable i accord signal approx IP 68	hage, bu on and i terminal $5 \dots 70$ assure re- cable if ass steel on requise steel 10 ATE: 11 1 0: 11 1 $3 V, I_i = 9$ oply com- 2 0: 11 - 11 $3 V, I_i = 9$ oply com- 2 0: 11 - 11 $3 V, I_i = 9$ oply com- 2 0: 11 - 11 $3 V, I_i = 9$ oply com- 2 0: 11 - 11 $3 V, I_i = 9$ oply com- 2 0: 11 - 11 $3 V, I_i = 9$ 3 0: 11 - 11 3 0:	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4404 est 1.4435 e) EX 1068 G Ex ia ID Ex ia 93 mA, I inections gher: nce: s ce: s EC 6150 current: (without	y accord or KL 2 ((316L) (316	ting to E with atmo PUR (-1 hly chargi BUR (-1 hly chargi Chargi BS°C Da 0 mW, C ₁ an inner 0 °C witi 0 °C me/shield 61511 25 mA /	2550 peric , 0 70 ng proce E 12.00 ≈ 0 nF, capacity n p _{atm} 0. also sig also sig	oressure °C) blaα sses are 27X L _i ≈ 0 μ γ of max 8 bar up nal line nal line	ck expected H, c. 27 nF 1 b to 1.1 t /signal li /signal li	to the ho par ne: 160 ne: 1µH	FEP ⁴ (ousing		0 °C) bla	
Reverse polarity protectic Electromagnetic compatil ² additional external overvolt Electrical connection Cable with sheath materia ³ cable with integrated air tub ⁴ do not use freely suspended Materials (media wetted Housing Seals Diaphragm Protection cap Explosion protection (o Approvals DX19-LMP 307 Safety technical maximur Ambient temperature rang Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 application Current consumption Weight	bility age protection al ³ be for atmosp d probes with 1) only for 4 m values ge	no dan emissie on unit in PVC (- oheric pre- h an FEF stainle: FKM others stainle: FKM others stainle: POM . 20 mA IBExU zone 0 zone 2 U _i = 28 the suj in zone cable c cable i accord signal approx IP 68	age, bu on and i terminal 5 70 ssure re cable if ss steel on requise ss steel (7 2-wir 10 ATE : II 1 0: II 1 3 V, Ii = S oply con e 0: e 1 or hi apacita nductan ing to IE output co . 200 g	mmunity box KL 1 °C) grey ference effects du 1.4404 est 1.4404 est 1.4435 e) EX 1068 G Ex ia ID Ex ia 93 mA, I inections gher: nce: s ce: s EC 6150 current:	y accord or KL 2 ((316L) (316	ting to E with atmo PUR (-1 hly chargi BUR (-1 hly chargi Chargi BS°C Da 0 mW, C ₁ an inner 0 °C witi 0 °C me/shield 61511 25 mA /	2550 peric , 0 70 ng proce E 12.00 ≈ 0 nF, capacity n p _{atm} 0. also sig also sig	oressure °C) blaα sses are 27X L _i ≈ 0 μ γ of max 8 bar up nal line nal line	ck expected H, c. 27 nF 1 b to 1.1 t /signal li /signal li	to the ho par ne: 160 ne: 1µH	FEP ⁴ (ousing		0 °C) bla	ack



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LMP 307		-]-[]-□	-	-[]-[]	[-[]	[-[]-	Ţ	I]-	Π	T]	
Pressure in bar in mH ₂ O	4 5 0 4 5 1		Ξ											I		I		
Input [mH ₂ O] [bar] 1.0 0.10 1.6 0.16		1 0 0 1 6 0 2 5 0	0															
2.5 0.25 4.0 0.40 6.0 0.60		2 5 0 4 0 0 6 0 0	0															
10 1.0 16 1.6		1 0 0	1															
25 2.5 40 4.0 60 6.0		4 0 0	1 1 1															
100 10 160 16		1 0 0 1 6 0	2															
250 25 customer Housing	_	2 5 0 9 9 9	2 9								÷		1					consult
Stainless steel 1.4404 (316L) customer			1 9															consult
Diaphragm Stainless steel 1.4435 (316L) customer				1							1							consult
Output 4 20 mA / 2-wire				3	1													consult
0 20 mA / 3-wire 0 10 V / 3-wire Intrinsic safety 4 20 mA / 2-wire					2 3 E													
SIL2 4 20 mA / 2-wire SIL2 with Intrinsic safety					1S ES													
4 20 mA / 2-wire customer Seals	_	_			9													consult
FKM customer						1 9												consult
Accuracystandard for $P_N \ge 0.4$ bar0.35 %standard for $P_N < 0.4$ bar0.5 %							3 5				T							
option 1 for $P_N \ge 0.4$ bar0.25 %option 20.1 % 1							2 1											
Electrical connection							9						÷					consult
PVC-cable ² PUR-cable ² FEP-cable ²								1 2 3										
Cable length								9			ł.	ł	ł	ł				consult
in m standard: 3 m PVC									0	0	3							
standard: 5 m PVC standard: 10 m PVC									0	0 0 1 1	5 0							
standard: 15 m PVC standard: 20 m PVC									0 0 9	21	0							
special length PVC standard: 3 m PUR											9							
standard: 5 m PUR									0	0 0 1 1	5							
standard: 10 m PUR standard: 15 m PUR									0	1	0 5							
standard: 20 m PUR special length PUR									0 9	0 1 1 2 9	0							
standard: 5 m FEP										1 1								
standard: 10 m FEP									0	0 1 9	0							
special length FEP Special version									9	9	9							
standard cable protection with												0 (0 (D				
stainless steel corrugated pipe												1	o :	3	9	9 9		consult
with pipe length in m customer												9 9	9 9	9				consult

¹ not in combination with SIL

² cable with integrated air tube for atmospheric pressure reference

Standard lengths 3 / 5 / 10 / 15 / 20 m are available from stock, special lengths are manufactured order-related, price per meter (see above).

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet Subject to change without notice.



Nominal pressure / nominal temperature

from 0 ... 1 mH₂O up to 0 ... 250 mH₂O from 0 ... 30 °C up to 0 ... 70 °C others on request

Output signals

2-wire: 4 ... 20 mA (pressure)

2-wire: 4 ... 20 mA (temperature)

Special characteristics

- ▶ diameter 26,5 mm
- separate output signals for pressure and temperature ranges
- easy handling
- low maintenance and wiring costs

Optional versions

- different kinds of cables
- ▶ different kinds of seal materials
- customer specific versions

LMP 307T

Level and Temperature Transmitter

Stainless Steel Sensor

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

BD|SENSORS has developed the stainless steel submersible probe LMP 307T for continuous level and temperature measurement in water and in clean to lightly-soiled liquids.

The advantage: simultaneous recording of level and temperature with separate independent signal amplification. The maintenance and wiring costs are considerably reduced.

In addition to classical signal processing of the level, an additional signal circuit independent of the level which converts the temperature signal into a 4 ... 20 mA analogue signal in 2-wire technology is provided.

Typical application areas are, for example, drinking water purification, monitoring of rainwater overflow basins and river courses, in addition to level measurement in containers or tank batteries.

Preferred areas of use are



<u>Water / filtrated sewage</u> e.g. drinking water system

water recycling



Fuel / Oil e.g. tank farm



LMP 307 T

Technical Data

[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25
	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250
[bar]	0.5	1	1	2	5	5	10	10	20	40	40	80	80
[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120
ange													
J ²		0 30	°C		0 5	O°O		0	.70 °C		others	on requ	uest ¹
			30°C										
x. temperat	ture: 70 °	С											
			0		·								
			s = 10	30 V _{DC}	;								
solated from	n each ot	her											
	standa												
	ontion		•										
	· ·		ninai pi	essure	2 0,4 Da	ai .	2 I I	0,20 % 1	30				
		-	(min) /	0.00.41	0								
			,										
	supply load:	•											
	≤±0.1	% FSC	/ year a	at refere	nce con	ditions							
	< 10 m	s (for ou	utput sigi	nal 2-wi	ire (pres	sure))							
	o 1h dep	ending or	n constan	t temper	ature and	environ	mental re	espective	ly mass o	condition	S		
d Span)													
			≤	£±1						≤±0.	75		
[°C]							0 70						
	Storage				20 70	0							
	nerma	nont											
2	·		it also n	o functi	00								
		0 /				N 61220	3						
-					•			reference	e availab	le on rea	uest		
ge protectio	on anit ill	Connindi	JOX NL 1	JI NL Z	man duni	spirelie	er cooure	, crerent	e avallabl	o on req	2001		
6	PVC	(-5	70 °C)		arev								
	-												
	FEP ⁷												
	others	•											
probes with	h an FEF	cable if	effects du	e to high	nly chargi	ng proces	sses are	expected	1	_		_	
		ss steel	1.4404	(316L)									
	FKM			(316L)									
	FKM others	on requ	est	. ,									
	FKM others stainle	on requ		. ,									
	FKM others stainles POM	on requ ss steel	est 1.4435 (. ,									
	FKM others stainles POM	on requ	est 1.4435 (. ,									
	FKM others stainles POM PVC, F	on requ ss steel PUR, FE	est 1.4435 (P	(316L)	pe/chiald	also siz	Inal line		ine: 160	nF/m			
	FKM others stainles POM PVC, F	on requ ss steel PUR, FE capacita	est 1.4435 (P nce: s	(316L) ignal lir	ne/shield								
	FKM others stainles POM PVC, F cable of cable i	on requ ss steel PUR, FE capacita nductan	est 1.4435 (P nce: s ce: s	(316L) ignal lir ignal lir	e/shield	also sig	, inal line	signal l	ine: 1µ⊦	I/m			
	FKM others stainles POM PVC, F cable of cable i signal	on requ ss steel PUR, FE capacita nductan output c	est 1.4435 (P nce: s ice: s :urrent:	(316L) ignal lir ignal lir max.		also sig	, inal line	signal l	ine: 1µ⊦	I/m			
	FKM others stainles POM PVC, F cable of cable i signal	on requ ss steel PUR, FE capacita nductan output c	est 1.4435 (P nce: s ce: s	(316L) ignal lir ignal lir max.	e/shield	also sig	, inal line	signal l	ine: 1µ⊦	I/m			
	[mH ₂ O] [bar] [bar] ange C; max. tem x. temperation solated from solated from (bar) [bar] [% FSO] [% FSO] [% FSO] [°C]	$[mH_2O]$ 1 $[bar]$ 0.5 $[bar]$ 1.5ange()()1.5ange()()420()420()420()420() <td>$[mH_2O]$ 1 1.6 $[bar]$ 0.5 1 $[bar]$ 1.5 1.5 ange 030 C; max. temperature range: 8 x. temperature: 70 °C 420 mA / V; solated from each other standard: nc option 1: nc $\leq \pm 1 °C$ $R_{max} = [(V_S - V)$ supply: load: $\leq \pm 0.1 \%$ FSO $< 10 ms$ (for ou 0770 - limit point adjustment n time up to 1h depending or d Span) [bar] [% FSO] [°C] medium: storage: permanent n odamage, bu [lity emission and i ge protection unit in terminal 1⁶ PVC FEP⁷ (-10. FEP⁷ (-10. reson reque atmospheric pressure re</td> <td>[mH20]11.62.5[bar]0.511[bar]1.51.51.5ange030 °CC; max. temperature range:80°Cx. temperature:70 °C420 mA / Vs = 10420 mA / Vs = 10420 mA / Vs = 10420 mA / Vs = 10standard:nominal proprintoption 1:nominal proprintstandard:nominal proprintsupply:0.0load:0.0$\leq \pm 1 °C$Rmax = [(Vs - Vs min) / supply:supply:0.0load:0.0$\leq \pm 0.1 \%$ FSO / year at < 10 ms (for output signed the pending on constant d span)(bar)[bar]<</td> medium: storage:medium: storage:permanent n nn	$[mH_2O]$ 1 1.6 $[bar]$ 0.5 1 $[bar]$ 1.5 1.5 ange 030 C; max. temperature range: 8 x. temperature: 70 °C 420 mA / V; solated from each other standard: nc option 1: nc $\leq \pm 1 °C$ $R_{max} = [(V_S - V)$ supply: load: $\leq \pm 0.1 \%$ FSO $< 10 ms$ (for ou 0770 - limit point adjustment n time up to 1h depending or d Span) [bar] [% FSO] [°C] medium: storage: permanent n odamage, bu [lity emission and i ge protection unit in terminal 1 ⁶ PVC FEP ⁷ (-10. FEP ⁷ (-10. reson reque atmospheric pressure re	[mH20]11.62.5[bar]0.511[bar]1.51.51.5ange030 °CC; max. temperature range: 80° Cx. temperature:70 °C420 mA / Vs = 10420 mA / Vs = 10420 mA / Vs = 10420 mA / Vs = 10standard:nominal proprintoption 1:nominal proprintstandard:nominal proprintsupply:0.0load:0.0 $\leq \pm 1 °C$ Rmax = [(Vs - Vs min) / supply:supply:0.0load:0.0 $\leq \pm 0.1 \%$ FSO / year at < 10 ms (for output signed the pending on constant d span)(bar)[bar]<	Image11.62.54[bar]0.5112[bar]1.51.51.53ange0 30 °C2C; max. temperature range: 80°C x. temperature: 70 °C4 20 mA / V_S = 10 30 V_DC4 20 mA / V_S = 10 30 V_DC4 20 mA / V_S = 10 30 V_DCsolated from each other4 20 mA / V_S = 10 30 V_DCsolated from each other51nominal pressure nominal pressure option 1:nominal pressure solated from each otherstandard:nominal pressure nominal pressure option 1:0.05 % FSsupply:0.05 % FSload:0.05 % FSload:0.05 % FSload:0.05 % FSload:0.05 % FSload:0.400770 - limit point adjustment (non-linearity, hys n time up to 1h depending on constant temper d Span)<	Image11.62.546[bar]0.51125[bar]1.51.51.537.5ange030 °C0537.5ange030 °C0537.5ange030 °C0537.5ange420 mA / Vs = 1030 Vpc44420 mA / Vs = 1030 Vpc444ange420 mA / Vs = 1030 Vpc44ange551.030 Vpc4ange050 mained pressure > 0.4 base0.4 baseange0.05 Mained pressure > 0.4 base0.4 baseange0.05 % FSO / 10 V0.05 % FSO / 10 Vange0.05 % FSO / 10 V0.05 % FSO / 10 Vange0.05 % FSO / 10 V0.05 % FSO / 10 Vange0.05 % FSO / 10 V0.05 % FSO / 10 Vange0.05 % FSO / year at reference con< 10 ms (for output signal 2-wire (press	Image 1 1.6 2.5 4 6 10 [bar] 0.5 1 1 2 5 5 [bar] 1.5 1.5 1.5 3 7.5 7.5 ange 030 °C 050 °C 050 °C c: max. temperature range: 80°C x. x. 4 20 mA / Vs = 1030 Vpc 4 4 x. 4 20 mA / Vs = 1030 Vpc x. x. x. solated from each other x. x. x. x. x. standard: nominal pressure < 0.4 bar: x. x. x. x. option 1: nominal pressure ≥ 0.4 bar: x. x. x. x. x. supply: 0.05 % FSO / 10 V x. x. x. x. x. x. x. supply: 0.05 % FSO / 10 V x. x. <t< td=""><td>$\begin{array}{ c c c c c c c } \hline I & 1.6 & 2.5 & 4 & 6 & 10 & 16 \\ \hline [bar] & 0.5 & 1 & 1 & 2 & 5 & 5 & 10 \\ \hline [bar] & 1.5 & 1.5 & 1.5 & 3 & 7.5 & 7.5 & 15 \\ \hline \end{tabular}$</td><td>Imit-Q 1 1.6 2.5 4 6 10 16 25 [bar] 0.5 1 1 2 5 5 10 10 [bar] 1.5 1.5 1.5 3 7.5 7.5 15 15 ange 030 °C 050 °C 050 °C 0 050 °C 0 2: max. temperature range: 80°C x. temperature: 70 °C 050 °C 0 050 °C 0 4 20 mA / Vs = 10 30 Vpc 4 20 mA / Vs = 10 30 Vpc 4 20 mA / Vs = 10 30 Vpc 4 20 mA / Vs = 10 30 Vpc solated from each other 5 55.0 / kD 5 ± 0.5 % FS 5 ± 0.5 % FS 5 ± 0.5 % FS 5 ± 0.25 % IS 5 ± 0.25 % IS option 1: nominal pressure > 0.4 bar: ≤ ± 0.25 % IS 5 ≤ ± 0.25 % IS 5 ± 0.25 % IS 5 ± 0.25 % IS supply: 0.05 % FSO / 10 V Ioad: 0.05 % FSO / 10 V Ioad: 10 mS (For output signal 2-wire (pressure)) 0070 - limit point adjustment (non-linearity, hysteresis, repeatability) n time up to 1h depending on constant temperature and environmental respective d Span) 0 70 °C</td><td>Imit_2O 1 1.6 2.5 4 6 10 16 25 40 [bar] 0.5 1 1 2 5 5 10 10 20 [bar] 1.5 1.5 1.5 3 7.5 7.5 15 15 25 ange 030 °C 050 °C 070 °C 2 2 2 2 2 3 3 7.5 7.5 15 15 25 2 3 3 7.5 7.5 15 15 25 3 3 7.5 7.5 15 15 25 2 3 3 7.5 7.5 15 15 25 3 3 7.5 7.5 15 15 25 5 10 10 20 3 3 7.5 7.5 15 15 25 5 10 10 20 20 25 5 10 10 20 20 20 20 20 20 20 20 20 20 20 15</td></t<> <td>$\begin{array}{ c c c c c c c c c c c c c c c c c c c$</td> <td>$\begin{array}{ c c c c c c } \hline 1 & 1.6 & 2.5 & 4 & 6 & 10 & 16 & 25 & 40 & 60 & 100 \\ \hline [bar] & 0.5 & 1 & 1 & 2 & 5 & 5 & 10 & 10 & 20 & 40 & 40 \\ \hline [bar] & 1.5 & 1.5 & 1.5 & 3 & 7.5 & 7.5 & 15 & 15 & 25 & 50 & 50 \\ \hline \end{tabular} \en$</td> <td>$\begin{array}{ c c c c c c } \hline 1 & 1.6 & 2.5 & 4 & 6 & 10 & 16 & 25 & 40 & 60 & 100 & 160 \\ \hline [bar] & 0.5 & 1 & 1 & 2 & 5 & 5 & 10 & 10 & 20 & 40 & 40 & 80 \\ \hline [bar] & 1.5 & 1.5 & 1.5 & 3 & 7.5 & 7.5 & 15 & 15 & 25 & 50 & 50 & 120 \\ \hline \mbox{ange} & 0 \dots 30 \ ^{\circ}{\rm C} & 0 \dots 50 \ ^{\circ}{\rm C} & 0 \dots 70 \ ^{\circ}{\rm C} & 0 \ \mbox{temperature range: } 80\ ^{\circ}{\rm C} & \\ \hline$</td>	$\begin{array}{ c c c c c c c } \hline I & 1.6 & 2.5 & 4 & 6 & 10 & 16 \\ \hline [bar] & 0.5 & 1 & 1 & 2 & 5 & 5 & 10 \\ \hline [bar] & 1.5 & 1.5 & 1.5 & 3 & 7.5 & 7.5 & 15 \\ \hline \end{tabular}$	Imit-Q 1 1.6 2.5 4 6 10 16 25 [bar] 0.5 1 1 2 5 5 10 10 [bar] 1.5 1.5 1.5 3 7.5 7.5 15 15 ange 030 °C 050 °C 050 °C 0 050 °C 0 2: max. temperature range: 80°C x. temperature: 70 °C 050 °C 0 050 °C 0 4 20 mA / Vs = 10 30 Vpc 4 20 mA / Vs = 10 30 Vpc 4 20 mA / Vs = 10 30 Vpc 4 20 mA / Vs = 10 30 Vpc solated from each other 5 55.0 / kD 5 ± 0.5 % FS 5 ± 0.5 % FS 5 ± 0.5 % FS 5 ± 0.25 % IS 5 ± 0.25 % IS option 1: nominal pressure > 0.4 bar: ≤ ± 0.25 % IS 5 ≤ ± 0.25 % IS 5 ± 0.25 % IS 5 ± 0.25 % IS supply: 0.05 % FSO / 10 V Ioad: 0.05 % FSO / 10 V Ioad: 10 mS (For output signal 2-wire (pressure)) 0070 - limit point adjustment (non-linearity, hysteresis, repeatability) n time up to 1h depending on constant temperature and environmental respective d Span) 0 70 °C	Imit_2O 1 1.6 2.5 4 6 10 16 25 40 [bar] 0.5 1 1 2 5 5 10 10 20 [bar] 1.5 1.5 1.5 3 7.5 7.5 15 15 25 ange 030 °C 050 °C 070 °C 2 2 2 2 2 3 3 7.5 7.5 15 15 25 2 3 3 7.5 7.5 15 15 25 3 3 7.5 7.5 15 15 25 2 3 3 7.5 7.5 15 15 25 3 3 7.5 7.5 15 15 25 5 10 10 20 3 3 7.5 7.5 15 15 25 5 10 10 20 20 25 5 10 10 20 20 20 20 20 20 20 20 20 20 20 15	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c } \hline 1 & 1.6 & 2.5 & 4 & 6 & 10 & 16 & 25 & 40 & 60 & 100 \\ \hline [bar] & 0.5 & 1 & 1 & 2 & 5 & 5 & 10 & 10 & 20 & 40 & 40 \\ \hline [bar] & 1.5 & 1.5 & 1.5 & 3 & 7.5 & 7.5 & 15 & 15 & 25 & 50 & 50 \\ \hline \end{tabular} \en$	$ \begin{array}{ c c c c c c } \hline 1 & 1.6 & 2.5 & 4 & 6 & 10 & 16 & 25 & 40 & 60 & 100 & 160 \\ \hline [bar] & 0.5 & 1 & 1 & 2 & 5 & 5 & 10 & 10 & 20 & 40 & 40 & 80 \\ \hline [bar] & 1.5 & 1.5 & 1.5 & 3 & 7.5 & 7.5 & 15 & 15 & 25 & 50 & 50 & 120 \\ \hline \mbox{ange} & 0 \dots 30 \ ^{\circ}{\rm C} & 0 \dots 50 \ ^{\circ}{\rm C} & 0 \dots 70 \ ^{\circ}{\rm C} & 0 \ \mbox{temperature range: } 80\ ^{\circ}{\rm C} & \\ \hline $

Wiring diagram	
2x2-wire-system (current)	
	P I Supply P- T I Supply T+ A A Supply T-
Pin configuration	
Electrical connection	
Supply P+ Supply P– Supply T+ Supply T–	
Shield	
Dimensions (in mm)	
	0



LMP 307T			□-□-□-□-□-□	
Pressure	par 4 5 5			
in mH	₂ O 4 5 6			
Input [mH ₂ O] [ba 1.0 0.1				
1.6 0.7	6 1 6 0 0			
2.5 0.2 4.0 0.4	0 4 0 0 0			
6.0 0.6 10 1.	6 0 0 0			
16 1.	6 1 6 0 1			
25 2. 40 4.				
60 6.	0 6 0 0 1			
100 1 160 1	1 6 0 2			
250 2	5 2 5 0 2			
custor Input temperature °(ner 9 9 9 9			
0	30	0 0 0 x 3 0 0 0 x 5 0 0 0 x 7 0		
0 0		0 0 0 x 5 0 0 0 0 x 7 0		
custor	ner	999999		
Stainless steel 1.4404 (31		1		
Diaphragm	ner	9		
Stainless steel 1.4435 (31 custor		1 9		
Output pressure 4 20 mA / 2-v	vire		1	
Output temperature 4 20 mA / 2-v	vire		1	
Seals				
custor	KM ner		1 9	
Accuracy	0/			
standard for $P_N \ge 0.4$ bar0.35standard for $P_N < 0.4$ bar0.5			3	
option 1 for $P_N \ge 0.4$ bar 0.25 custor			2	
Electrical connection			9	
PVC-ca PUR-ca			1 2	
FEP-ca	ble 1		3	
Cable length	ner		9	
in m				
	VC VC		0 0	3 5
standard: 10 m P	VC		0 1	0
	VC VC		0 1 0 2	5
	VC		9 9	9
standard: 3 m P	JR		9 9 0 0 0 0	3
	JR		0 0	5
	JR JR		0 1 0 1	5
standard: 20 m P	JR		0 2	5 0 9
special length P	UR		9 9	9
	EP		0 0	5 0
	EP EP		0 1 9 9	9
Special version				
stand custor				0 0 0 9 9 9
				- - -

1 cable with integrated air tube for atmospheric pressure reference

Standard lengths 3 / 5 / 10 / 15 / 20 m are available from stock, special lengths are manufactured order-related, price per meter (see above).

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet Subject to change without notice.



Nominal pressure

from 0 ... 1 mH₂O up to 0 ... 250 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 35 mm
- cable and sensor section separable
- excellent accuracy ►
- excellent long term stability

Optional versions

- IS-version zone 0
- ► SIL 2 (Safety Integrity Level)
- cable protection via corrugated pipe ►
- mounting accessories as cable gland and terminal clamp of stainless steel
- different kinds of cables
- different kinds of seal materials

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LMP 308

Separable **Stainless Steel Probe**

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO / 0.1 % FSO

The separable stainless steel probe LMP 308 is designed for the continually level measurement of water and thin fluids.

In order to facilitate stock-keeping and maintenance the transmitter head is plugged to the cable assembly with a connector and can be changed easily.

Preferred areas of use are



Water / filtrated sewage ground water level measurement level measurement in wells and open waters rain spillway basin level measurement in container water treatment plants water recycling



Input pressure range	
Nominal pressure gauge [bar]	0.10 0.16 0.25 0.40 0.60 1 1.6 2.5 4 6 10 16 25
Level [mH ₂ O]	
Overpressure [bar]	
Burst pressure [bar]	
Output signal / Supply	
Standard	2-wire: 4 20 mA / V _S = 8 32 V _{DC} SIL-version: V _S = 14 28 V _{DC}
Option IS-protection	2-wire: $4 \dots 20 \text{ mA / V}_{S} = 10 \dots 28 \text{ V}_{DC}$ SIL-version: $\text{V}_{S} = 14 \dots 28 \text{ V}_{DC}$
Performance	
Accuracy ¹	standard: nominal pressure < 0.4 bar: $\leq \pm 0.5 \%$ FSO
Accuracy	nominal pressure ≥ 0.4 bar: $\leq \pm 0.35\%$ FSO option 1: nominal pressure ≥ 0.4 bar: $\leq \pm 0.25\%$ FSO
	option 2: for all nominal pressures: $\leq \pm 0.1 \%$ FSO
Permissible load	$R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	$\leq \pm 0.1$ % FSO / year at reference conditions
Response time	< 10 msec
•	it point adjustment (non-linearity, hysteresis, repeatability)
Thermal effects (Offset and Span)	
Nominal pressure P _N [bar]	< 0.40 ≥ 0.40
Tolerance band [% FSO]	
in compensated range [°C]	0 70
Permissible temperatures	
Permissible temperatures	medium: -20 70 °C storage: -25 70 °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
	ion unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request
Electrical connection	
Cable with sheath material ³	PVC (-5 70 °C) grey
	PUR (-20 70 °C) black FEP ⁴ (-20 70 °C) black
	others on request
³ cable with integrated air tube for atmos	pheric pressure reference
⁴ do not use freely suspended probes wi	th an FEP cable if effects due to highly charging processes are expected
Materials (media wetted)	
Housing	stainless steel 1.4404 (316L)
Seals	FKM EPDM ethors on request
Diaphragm	others on request stainless steel 1.4435 (316L)
Protection cap	POM
Explosion protection	
Approvals	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X
DX19-LMP 308	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 \approx 0nF, L _i \approx 0 μ H, 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 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: 1µH/m
Miscellaneous	
Option SIL ⁵ 2 application	according to IEC 61508 / IEC 61511
	signal output current: max. 25 mA
Current consumption	
Current consumption Weight	approx. 250 g (without cable)
Weight	approx. 250 g (without cable) IP 68
Weight Ingress protection	
Weight	IP 68



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LMP 308		
Pressure in bar	4 4 0	
in mH ₂ O	4 4 1	
Input [mH ₂ O] [bar]		
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 25 2.5	1 6 0 1 2 5 0 1	
40 4.0	2 5 0 1 4 0 0 1	
60 6.0		
100 10	1 0 0 2	
160 16	1 6 0 2	
250 25	2 5 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 SIL2 4 … 20 mA / 2-wire	E	
	1S	
SIL2 with Intrinsic safety 4 20 mA / 2-wire	ES	
customer	9	consult
Seals		
FKM	1	
EPDM	3	
customer	9	consult
Electrical connection		
PVC-cable ¹		1
PUR-cable ¹		2
FEP-cable ¹		3
customer		9 consult
Accuracy standard for $P_N \ge 0.4$ bar 0.35%		3
standard for $P_N < 0.4$ bar 0.35%		5
option 1 for $P_N \ge 0.4$ bar 0.25%		2
option 2 $0.1\%^2$		1
customer		9 consult
Cable length		
in m		9 9 9
Version		
standard		0 0 0
prepared for mounting 3		1 0 6 consult
with stainless steel pipe		
cable protection with		
stainless steel corrugated pipe		1 0 3 9 9 9 consult
with pipe length in m		
customer		9 9 9 consult

¹ cable with integrated air tube for atmospheric pressure reference

² not in combination with SIL

³ stainless steel pipe is not part of the supply





Nominal pressure

from 0 \dots 6 mH₂O up to 0 \dots 200 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 17 mm
- suitable for hydrostatic level measurement e.g. 3/4" pipes
- excellent linearity
- ▶ excellent long term stability

Optional versions

- ▶ different cable materials
- customer specific versions
 e.g. special pressure ranges

LMK 306

Stainless Steel Probe

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

The slimline probe LMK 306 with ceramic sensor has been especially designed for the continuous level measurement at confined space conditions. Permissible media are clean or slightly contaminated water and thin fluids.

Different cable sheath materials are available in order to achieve maximum media compatibility.

Preferred areas of use are



Water

level measurement at confined space conditions ground water monitoring depth or level measurement in wells drinking water abstraction level measurement in open tanks

Dimensions (in mm)

Input pressure range									
Nominal pressure gauge [bar]		1	1.6	2.5	4	6	10	16	20
Level [mH ₂ O]	6	10	16	25	40	60	100	160	200
Overpressure [bar]	2	2	4	4	10	10	20	40	40
Burst pressure ≥ [bar]	4	4	5	5	12	12	25	50	50
Output signal / Supply									
Standard	2-wire: 4 .	20 mA / \	/ _s = 12 36	SV _{DC}					
Performance									
Accuracy	≤±0.5 %	FSO							
Permissible load		s – V _{S min}) /	0.02 Al Ω						
Influence effects	supply:	0 05 % F	SO / 10 V						
	load:		SO / kΩ						
Response time	≤ 10 mse)							
¹ accuracy according to IEC 60770 – lin	nit point adjust	ment (non-lir	nearity, hyster	resis, repeata	bility)				
Thermal effects (Offset and Spa	n) / Permiss	ible tempe	eratures						
Thermal error	≤ ± 0.2 %	FSO / 10 K	(
	in comper	sated rang	e -25 70	°C					
Permissible temperatures	medium:	-10 70	°C						
•	storage:	-25 70	°C						
Electrical protection ²									
Short-circuit protection	permanen	t							
Reverse polarity protection	no damag	e, but also	no function						
Electromagnetic protection			ity according						
² additional external overvoltage protect	ion unit in terr	ninal box KL	1 or KL 2 with	h atmospheric	c pressure re	ference avail	able on reque	st	
Electrical connection									
Cable with sheath material ³		. 70 °C) gr							
		70 °C) b							
3		70 °C) k							
³ shielded cable with integrated air tube ⁴ do not use freely suspended probes w	tor atmosphe	nc pressure i	reterence due to highly	charging prov	accac are a	rected			
Materials (media wetted)			ade to highly	charging proc		peered			
Housing	stainless s	steel 1.4404	4 (316L)						
Seals	FKM		· · · ·						
Diaphragm	ceramics	Al ₂ O ₃ 96 %							
Protection cap	POM								
Miscellaneous									
Connecting cables	cable cap	acitance:	signal line/s	hield also s	ignal line/si	ignal line: 1	60 pF/m		
(by factory)	cable indu		signal line/s						
Current consumption	max. 25 m		-		-	-			
Weight	approx. 10	00 g (withou	ut cable)						
Ingress protection	IP 68	•	,						
CE-conformity	EMC Dire	ctive: 2004	/108/EC						
Wiring diagram									
2-wire-system (current)									

-	 0,000	(0011	0110)
	 _		



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Pin configuration

Electrical connection	cable colours (IEC 60575)
	wh (white) bn (brown)
Shield	gnye (green-yellow)

---- Ø17 ----

Accessories

Terminal clamp			
Technical Data			
Suitable for	all probes w	/ith cable ∅ 5.5 10.5 mm	
Material		steel, zinc plated stainless steel 1.4301 (304)	
Weight	approx. 160) g	
Ordering type			0
Terminal clamp, steel, zir	nc plated		Z
Terminal clamp, stainless	s steel 1.430	1 (304)	Z

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LMK 306		- D - D - I -I	0-0-0		
Pressure					
in bar	3 7 0				
in mH ₂ O	3 7 0 3 7 1				
Input [mH₂O] [bar]					
6 0.60	6 0 0 0				
10 1.0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
16 1.6	1 6 0 1				
25 2.5	2 5 0 1				
40 4.0 60 6.0	4001				
60 6.0 100 10	6001				
160 16	1602				
200 20	2002				
customer					consult
Housing	5 5 5 5				oonour
Stainless steel 1.4404 (316L)		1			
customer		9			consult
Diaphragm					
Ceramics Al ₂ O ₃ 96%		2			
customer		9			consult
Output					
4 20 mA / 2-wire		1			
customer		9			consult
Seals					
FKM			1		
customer			9		consult
Accuracy			-		
0.5 % customer			5		a a marvel to
Electrical connection			9		consult
PVC-cable ¹			1		
PUR-cable ¹					
FEP-cable ¹			2 3		
customer			9		consult
Cable length					
in m				999	
Special version					
standard				0 0	0
customer				0 0 9 9	9 consult

¹ cable with integrated air tube for atmospheric pressure reference

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Nominal pressure

from 0 ... 4 mH₂O up to 0 ... 250 mH₂O

Output signals

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

Special characteristics

- diameter 27 mm
- good linearity
- good long term stability
- easy handling

Optional versions

- ► IS-protection
- SIL 2 (Safety Integrity Level) according to IEC 61508 / IEC 61511
- different kinds of cables and elastomeres
- customer specific versions e.g. special pressure ranges

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LMK 307

Stainless Steel Probe

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

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. Different cable and elastomer matierals can be offered according to the customer-specific operating conditions.

Preferred areas of use are



Water drinking water system ground water monitoring storm water systems Sewage waste water treatment water recycling dumpsite Fuel / Oil



fuel storage tank farm biogas plants



Technical Data

LMK 307 Technical Data

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]	2	2	2 4	4	10	10	20	40	40
Burst pressure [bar]	4	4	4 5	5	12	12	25	50	50
Output signal / Supply									
Standard	2-wire:	4 20 mA	/ V _s = 8	32 \/	SIL vorsio	$n \cdot 1/_{-} = 1/_{-}$	28 V _{DC}		
Option IS-protection			$V_{\rm S} = 0$				28 V _{DC}		
Options 3-wire			$V_{\rm S} = 10$		SIL-VEISIC	/11. V _S – 14	20 V _{DC}	;	
•			/ V _S = 14						
Performance									
Accuracy	≤ ± 0.5 % F								
Permissible load	current 2-w		$ax = [(V_S - V_S mir)]$ $ax = 500 \Omega$,) / 0.02 A] !	Ω				
	voltage 3-w		n = 10 k Ω						
Influence effects		0.05 % FS							
Response time	load: ≤ 10 msec	0.05 % FS0	J / K12						
¹ accuracy according to IEC 60770 – lim		ent (non-line	arity, hysteresis,	repeatability)					
Thermal effects (Offset and Span									
Thermal error	, ≤±0.2 % F	SO / 10 K							
			-25 70 °C						
Permissible temperatures									
Permissible temperatures	medium: storage:	-10 70 ° -25 70 °							
Electrical protection ²	storage.	-20 10	0						
Short-circuit protection	permanent								
Reverse polarity protection	no damage	but also n	o function						
Electromagnetic protection			according to E	N 61326					
² additional external overvoltage protecti					sure referen	ce available	on request		
Electrical connection									
Cable with sheath material ³	PVC (-5	70 °C) arev	/						
	PUR (-10	. 70 °C) bla	ack						
2	FEP ⁴ (-10								
³ shielded cable with integrated air tube ⁴ do not use freely suspended probes wi	for atmospheric	pressure re	ference le to bigbly charge	ina nrocesse	s are evnect	ad			
Materials (media wetted)			le to mgmy charg	ing processe	s are expect	50			
· · · · ·	etainlose at		(3161)						
Housing Seals	stainless sto FKM	561 1.4404	(010L)						
ocais	EPDM								
Diaphragm	ceramics A	₂ O ₃ 96 %							
Diaphragm Protection cap	POM	₂ O ₃ 96 %							
Protection cap	POM	2 0							
Protection cap Explosion protection (only for 4	POM 20 mA / 2-	wire)		E 10 0007	v				
Protection cap Explosion protection (only for 4 - Approvals	POM 20 mA / 2- IBExU 10 A	wire) ATEX 1068	X / IECEX IE	E 12.0027	x				
Protection cap Explosion protection (only for 4 - Approvals	POM 20 mA / 2- IBExU 10 A zone 0:	wire) ATEX 1068 II 1G Ex ia	IIC T4 Ga		x				
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307	POM 20 mA / 2- IBExU 10 A zone 0: zone 20: U _i = 28 V, I _i	wire) ATEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F	IIC T4 Ga a IIIC T 85°C Da P _i = 660 mW, C	a _i ≈ 0nF, L _i ≈	÷0 μH,	E to the he	using		
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307 Safety technical maximum values	POM 20 mA / 2- IBExU 10 <i>A</i> zone 0: zone 20: U _i = 28 V, I _i the supply 0	wire) ATEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F connections	IIC T4 Ga a IIIC T 85°C Da P _i = 660 mW, C s have an inner	a i ≈ 0nF, Li ≈ capacity of	[:] 0 μH, f max. 27 n	F to the ho	using		
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307 Safety technical maximum values Ambient temperature range	POM 1BExU 10 / zone 0: zone 20: U _i = 28 V, I _i the supply 0 in zone 0: in zone 1:	wire) TEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F connections -20 60 °C -20 70 °C	IIC T4 Ga a IIIC T 85°C D $P_i = 660 \text{ mW}, C$ s have an inner C with $p_{atm} 0.8 \text{ b}$	a i ≈ 0nF, Li ≈ capacity of par up to 1.	= 0 μH, f max. 27 n 1 bar				
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307 Safety technical maximum values Ambient temperature range Connecting cables	POM IBExU 10 / zone 0: zone 20: U _i = 28 V, I _i the supply 0 in zone 0: in zone 1: cable capad	wire) TEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F connections -20 60 °C -20 70 °C citance: sig	IIC T4 Ga a IIIC T 85°C Da $P_i = 660 \text{ mW}, C$ s have an inner C with $p_{atm} 0.8 \text{ b}$	a i ≈ 0nF, Li ≈ capacity of par up to 1. also signal	² 0 μH, f max. 27 n l bar line/signal	line: 160 p	F/m		
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307 Safety technical maximum values Ambient temperature range Connecting cables (by factory)	POM IBExU 10 / zone 0: zone 20: U _i = 28 V, I _i the supply 0 in zone 0: in zone 1: cable capad	wire) TEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F connections -20 60 °C -20 70 °C citance: sig	IIC T4 Ga a IIIC T 85°C D $P_i = 660 \text{ mW}, \text{ C}$ s have an inner C with $p_{\text{atm}} 0.8 \text{ b}$ gnal line/shield	a i ≈ 0nF, Li ≈ capacity of par up to 1. also signal	² 0 μH, f max. 27 n l bar line/signal	line: 160 p	F/m		
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307 Safety technical maximum values Ambient temperature range Connecting cables (by factory) Miscellaneous	POM 20 mA / 2- IBExU 10 A zone 0: zone 20: U _i = 28 V, I _i the supply 0 in zone 0: in zone 1: cable capad cable induc	wire) ATEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F connections -20 60 °C -20 70 °C citance: sig tance: sig	IIC T4 Ga a IIIC T 85°C D $P_i = 660 \text{ mW}, \text{ C}$ s have an inner C with $p_{atm} 0.8 \text{ b}$ gnal line/shield gnal line/shield	a i ≈ 0nF, Li ≈ capacity of par up to 1. also signal	² 0 μH, f max. 27 n l bar line/signal	line: 160 p	F/m		
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307 Safety technical maximum values Ambient temperature range Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 application	POM 20 mA / 2- IBExU 10 A zone 0: zone 20: U _i = 28 V, I _i the supply of in zone 0: cable capade cable induce	wire) ATEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F connections -20 60 °C -20 70 °C -20 70 °C -20 50 °C -20 °C -20 °C -20 °C -20 °C -20 °C -20 °C -20 °C	IIC T4 Ga a IIIC T 85°C Da $P_i = 660 \text{ mW}, \text{ C}$ s have an inner C with $p_{atm} 0.8 \text{ b}$ gnal line/shield gnal line/shield 8 / IEC 61511	a ;≈ 0nF, L; ≈ capacity of ar up to 1. also signal also signal	² 0 μH, f max. 27 n l bar line/signal	line: 160 p	F/m		
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307 Safety technical maximum values Ambient temperature range Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 application Current consumption	POM IBExU 10 <i>A</i> zone 0: zone 20: U _i = 28 V, I _i the supply of in zone 1: cable capac cable induce according to signal output signal output	wire) ATEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F connections -20 60 °C -20 70 °C -20 70 °C -20 70 °C -20 60 °C -20 60 °C -20 70	IIC T4 Ga a IIIC T 85°C D P _i = 660 mW, C s have an inner C with p _{atm} 0.8 b gnal line/shield gnal line/shield 8 / IEC 61511 max. 25 mA max. 7 mA	a ;≈ 0nF, L; ≈ capacity of ar up to 1. also signal also signal	² 0 μH, f max. 27 n l bar line/signal	line: 160 p	F/m		
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307 Safety technical maximum values Ambient temperature range Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 application Current consumption Weight	POM 20 mA / 2- IBExU 10 A zone 0: zone 20: U _i = 28 V, I _i the supply 0 in zone 0: in zone 1: cable capad cable induce according to signal output signal output approx. 250	wire) ATEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F connections -20 60 °C -20 70 °C -20 70 °C -20 70 °C -20 60 °C -20 60 °C -20 70	IIC T4 Ga a IIIC T 85°C D P _i = 660 mW, C s have an inner C with p _{atm} 0.8 b gnal line/shield gnal line/shield 8 / IEC 61511 max. 25 mA max. 7 mA	a ;≈ 0nF, L; ≈ capacity of ar up to 1. also signal also signal	² 0 μH, f max. 27 n l bar line/signal	line: 160 p	F/m		
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307 Safety technical maximum values Ambient temperature range Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 application Current consumption Weight Ingress protection	POM 20 mA / 2- IBExU 10 A zone 0: zone 20: U _i = 28 V, I _i the supply 0 in zone 0: in zone 0: in zone 0: cable capad cable capad cable induce according to signal output signal output approx. 2500 IP 68	wire) ATEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F connections -20 60 °C -20 70 °C -20 70 °C -20 70 °C -20 60 °	IIC T4 Ga a IIIC T 85°C D P _i = 660 mW, C s have an inner C with p _{atm} 0.8 b gnal line/shield gnal line/shield 8 / IEC 61511 max. 25 mA max. 7 mA cable)	a ;≈ 0nF, L; ≈ capacity of ar up to 1. also signal also signal	² 0 μH, f max. 27 n l bar line/signal	line: 160 p	F/m		
Protection cap Explosion protection (only for 4 Approvals DX19-LMK 307 Safety technical maximum values Ambient temperature range Connecting cables (by factory)	POM 20 mA / 2- IBExU 10 A zone 0: zone 20: U _i = 28 V, I _i the supply 0 in zone 0: in zone 1: cable capad cable induce according to signal output signal output approx. 250	wire) ATEX 1068 II 1G Ex ia II 1D Ex ia = 93 mA, F connections -20 60 °C -20 70 °C -20 70 °C -20 70 °C -20 60 °	IIC T4 Ga a IIIC T 85°C D P _i = 660 mW, C s have an inner C with p _{atm} 0.8 b gnal line/shield gnal line/shield 8 / IEC 61511 max. 25 mA max. 7 mA cable)	a ;≈ 0nF, L; ≈ capacity of ar up to 1. also signal also signal	² 0 μH, f max. 27 n l bar line/signal	line: 160 p	F/m		



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LMK 307 Ordering code

LMK 307

PROBES

Pressure 3 8 0 3 8 1 in bar in mH₂O Input nH₂C 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 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 1 0 0 2 10 160 16 1 6 0 2 250 25 2 5 0 2 customer 9999 Stainless steel 1.4404 (316L) customer Ceramics Al₂O₃ 96% 2 customer al 4 ... 20 mA / 2-wire 1 0 ... 20 mA / 3-wire 0 ... 10 V / 3-wire 3 Intrinsic safety 4 ... 20 mA / 2-wire SIL2 4 ... 20 mA / 2-wire 1S SIL2 with Intrinsic safety ES 4 ... 20 mA / 2-wire 9 customer Seals FKM 1 EPDM customer 9 0.5 % 5 customer 9 Electrical connecti PVC-cable PUR-cable FEP-cable customer in m standard: 3 m PVC 0 0 3 standard: 5 m PVC

consult consult 0 0 5 PVC 0 1 0 0 1 5





0 0 5

0 1

0 1 0

0 2 0

9 9 9

0 0 0 1 0

9 9 9

0 0 0 9 9 9

consult

consult

consult

consult

consult

consult



Nominal pressure / nominal temperature

from 0 ... 4 mH₂O up to 0 ... 250 mH₂O from 0 ... 30 °C up to 0 ... 70 °C others on request

Output signals

2-wire: 4 ... 20 mA (pressure)

2-wire: 4 ... 20 mA (temperature)

Special characteristics

- diameter 26,5 mm
- separate output signals for pressure and temperature ranges
- good lang term stability ►
- easy handling
- low maintenance and wiring costs

Optional versions

- different kinds of cables
- different kinds of seal materials
- customer specific versions

Standard lengths 3 / 5 / 10 / 15 / 20 m are available from stock, special lengths are manufactured order-related, price per meter (see above)

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet Subject to change without notice.

BD SENSORS www.bdsensors.com

standard: 5 m PUR

standard: 10 m PUR

standard: 15 m PUR

standard: 20 m PUR

special length PUR

standard: 10 m FEP

special length FEP

FFP

standard

customer

standard: 5 m

¹ cable with integrated air tube for atmospheric pressure reference

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LMK 307T

Level and **Temperature Transmitter**

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

BD|SENSORS has developed the stainless steel submersible probe LMK 307T with flush mounted ceramic sensor for continuous level and temperature measurement in water or waste water applications.

The advantage: simultaneous recording of level and temperature with separate independent signal amplification. The maintenance and wiring costs are considerably reduced.

In addition to classical signal processing of the level, an additional signal circuit independent of the level which converts the temperature signal into a 4 ... 20 mA analogue signal in 2-wire technology is provided.

Preferred areas of use are

Water

e.g. drinking water system, RÜBs ground water monitoring storm water systems



<u>Sewage</u> waste water treatment, water recycling, dumpsite, waste water tanks



Fuel / Oil fuel storage tank farm, biogas plants



Technical Data

LMK 307T

Technical Data

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
Burst pressure >	[bar]	2	4	4	5	5	12	12	25	50	50
Input temperature range											
Temperature measuring r	ange										
standard ¹ min. temperature range: 30°		nperature ra	30 °C ange: 80°C		0 50	°C	0.	70 °C		others on I	request ¹
min. temperature: -10°C; ma	ax. tempera	ture: 70 °C									
Output signal / Supply		4 00 m	A / \ / _ 4	0 20.14							
2-wire (pressure) ² 2-wire (temperature) ²			$A / V_{s} = 1$								
² -Wire (temperature) ² the circuits are galvanically i	a a lata d fra		$A / V_s = 1$	0 30 V _E	DC						
Performance	solated from	n each othe	r								
Accuracy (pressure) ³		≤ ± 0.5 %	. ESO								
			0 F3U								
Accuracy (temperature) ⁴		≤±1°C		n) / 0, 00, /	A1 O						
Permissible load			V _S – V _S mi		-						
Influence effects		supply: load:		0.05 % F							
Long term stability			,		rence cond						
Response time			· ·	•	wire (press	,,					
³ accuracy according to IEC 6 ⁴ Pt 100 class B; compensatio	on time up t						tal respectiv	vely mass co	onditions	;	
Thermal effects (Offset an	nd Span)		500 / 40								
Thermal error			5 FSO / 10 Insated rar		. 70 °C						
Permissible temperatures	;	··									
Permissible temperatures		medium: storage:			-10 70 -25 70						
Electrical protection 5											
Short-circuit protection		permane	nt								
Reverse polarity protectio	n	no dama	ge, but als	o no func	tion						
Electromagnetic compatib	oility	emission	and immu	inity acco	rding to EN	61326					
⁵ additional external overvolta	ge protectio	on unit in ter	rminal box K	(L 1 or KL 2	2 with atmos	pheric press	ure referen	ce available	on requ	est	
Electrical connection											
Cable with sheath materia	al ⁶		(-5 70 (-10 70 (-10 70 request	°Ć)	grey black black						
⁶ cable with integrated air tub											
⁷ do not use freely suspended	l probes wit	h an FEP ca	able if effect	s due to hi	ghly chargin	g processes	are expect	ed			
Materials (media wetted)				04.404.55							
Housing			steel 1.44	04 (316L))						
Seals		FKM EPDM others or	request								
Diaphragm			Al ₂ O ₃ 96%	6							
Protection cap		POM	, u ₂ O ₃ 30 /	•							
Cable sheath		PVC, PU	R FEP								
Miscellaneous		1 00,10	IX, I ⊑I								
Connecting cables		cable car	pacitance:	signal	ine/shield	also signal	line/signa	l line: 160	nF/m		
(by factory)		cable ind	luctance:	•	line/shield	•	•		•		
Current consumption		max. 25									
Weight			250 g (with	out cable	:)						
Ingress protection		IP 68									
CE-conformity		EMC Dire	ective: 200	04/108/EC)						

14P · P	
Wiring diagram 2x2-wire-system (current)	
ZAZ-wire-System (current)	P I Supply P- T I Supply T- A A Supply P- A Supply P- A Supply P- A Supply P- A
Pin configuration	
Electrical connection	
Supply P+ Supply P– Supply T+ Supply T–	
Shield	
Dimensions (in mm)	

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LMK 307T 52

Ordering code

LMK 307T

PROBES

Pressure 3 8 A 3 8 B in bar in mH₂O Input [bar] 0.40 4.0 4 0 0 0 6.0 0.60 6 0 0 0 10 1.0 1 0 0 1 1 6 0 1 2 5 0 1 16 1.6 25 2.5 4 0 0 1 6 0 0 1 40 4.0 6.0 60 1 0 0 2 1 6 0 2 100 160 16 250 25 2 5 0 2 9 9 9 9 customer 0 0 0 x 3 0 0 0 x 5 0 0 ... 30 0 ... 50 0 0 0 x 7 0 9 9 9 9 9 9 9 0 ... 70 customer Stainless steel 1.4404 (316L) 1 customer Ceramic Al₂O₃ 96 % 2 customer Output pressure 4 ... 20 mA / 2-wire 1 4 ... 20 mA / 2-wire FKM EPDM customer 0.5 % 5 customer PVC-cable PUR-cable FEP-cable customer in m standard: 3 m PVC 0 0 3 standard: 5 m PVC 0 0 5 standard: 10 m PVC 0 1 0 standard: 15 m PVC 0 1 5 standard: 20 m PVC 0 2 0 special length PVC 9 9 9 0 0 3 0 5 standard: 3 m PUR standard: 5 m PUR standard: 10 m PUR 0 1 0 standard: 15 m PUR 0 1 5 standard: 20 m PUR 0 2 0 special length PUR 999 standard: 5 m FEF 0 0 5 0 1 0 standard: 10 m FEP special length FEP 999

¹ cable with integrated air tube for atmospheric pressure reference

standard

customer

Standard lengths 3 / 5 / 10 / 15 / 20 m are available from stock, special lengths are manufactured order-related, price per meter (see above)



Nominal pressure

from 0 ... 40 cmH₂O up to 0 ... 200 mH₂O

Output signals

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

Special characteristics

- diameter 39.5 mm
- especially for sewage, viscous and pasty media

Optional versions

- IS-protection zone 0
- mounting with stainless steel pipe
- flange version

0 0 0 9 9 9

- diaphragm 99.9 % Al₂O₃
- different kinds of cables
- different kinds of elastomers

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LMK 382

Stainless Steel Probe

Ceramic Sensor

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

The stainless steel probe LMK 382 has been designed for continous level measurement in waste water, waste and higher viscosity media.

Basic element is a robust and high overpressure capable capacitive ceramic sensor e.g. for low levels easily.

Preferred areas of use are



Water drinking water abstraction



Sewage waste water treatment water recycling



Fuel / Oil level monitoring in open tanks with low filling heights fuel storage tank farms / biogas plants



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	16	20
Level	[mH ₂ O]		0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Output signal / Supply																
Standard		2-wi	re: 4	20 mA	$/V_{s} =$	9 32	V_{DC}									
Option IS-protection		2-wi	re: 4	20 mA	/ Vs =	14 2	8 V _{DC}									
Option 3-wire		3-wi	re: 0	10 V	/ Vs=	= 12.5 .	32 V	C								
Performance																
Accuracy ¹		stan	dard:	≤±0.3	5 % FS	60										
		optio			25 % FS											
Permissible load		R _{max}	. = [(V _s	– V _{S mi}	n) / 0.02	2 A] Ω										
Influence effects			oly: 0.	05 % F		0 V 0										
Long term stability		≤±(0.1 % F	SO / y	ear at r	eferen	ce con	ditions								
Turn-on time		700	msec													
Mean response time		-	0 mseo	C					n	neasuri	ng rate	5/sec				
Max. response time			msec													
¹ accuracy according to IEC 6			t adjustn	nent (no	n-lineari	ity, hyste	eresis, re	epeatabl	ility)							_
Thermal effects (Offset a	and Spar															
Thermal error			0.1 % F pmpens			70 °(2									
Permissible temperature	es															
Permissible temperatures			lium: tronics age:	/ enviro	onment	: -25	5 129 5 129 5 129	5 °C								
Electrical protection ²			-													
Short-circuit protection		pern	nanent													
Reverse polarity protection	n	no d	amage	, but al	so no f	unction										
Electromagnetic compatib			ssion ar													
² additional external overvolta	• /				KL 1 or	KL 2 wit	h atmos	spheric p	oressure	e referer	nce avai	lable on	request			
Electrical connection (or	-															
Cable with sheath materia		PUR FEP TPE	; (-5 R (-25 ⁴ (-25 . (-25	. 70 °C 70°C . 125 °) black) black C) blue											
³ shielded cable with integrate ⁴ do not use freely suspended	d air tube probes wi	for atm ith an F	ospheric EP cabl	c pressu e if effe	re refere ts due t	ence to highly	chargin	g proce	sses ar	e expect	ted					
Materials (media wetted))															
Housing		stair	nless st	eel 1.4	404 (31	16 L)										
Seals		FKN FFK EPD othe	Μ	equest												
Diaphragm		stan Opti	dard: on:)₃ 96 %)₃ 99.9										
Nose cone		PON	Λ													
Explosion protection																
Approval DX14-LMK 38	12	zone	x U05A e 0 ⁵: II e 20: II	1G Ex 1D Ex	ia IIB T ia IIIC ⁻	T85 °C										
Safety technical maximum			28 V, I	= 93 r												
Permissible media temper	ature		one 0: e 1 and	higher	: -10		С									
Connecting cables (by factory)			e capa e induc			nal line/ nal line/							m			
	ipe followir															
⁵ for optional stainless steel pi																
Miscellaneous		max	. 21 m/	4												
⁵ for optional stainless steel pi Miscellaneous Current consumption Weight		_	. 21 mA rox. 400		hout ca	ible)										
Miscellaneous Current consumption		appr IP 6	ox. 400) g (wit												



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LMK 382

Pressure																		
		in bar	565															
		in mH ₂ O	566															
Input	[mH₂O]	[bar]																
	0.40	0.04		0 4	4 0 6 0 0 0 6 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0												
	0.60	0.06		0 6	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		2 4	0 0	0				_								
	6.0	0.60		6 (0 0	0												
	10	1.0		1 (o c	1				_								
	16	1.6		1 (6 0	1												
	25	2.5		2 !	5 0	1												
	40	4.0		2 4 4 0 6 0	0 0	1												
	60	6.0		6 (0 0	1												
	100	10		1 (0 0	2												
	160	16		1 6	3 0	2												
	200	20		2 (2												
		customer		2 (0												consult
Housing		Justonner		5	5 3	3												Consult
	ainless steel 1 1/10	1 (3161)	_				1											
51	ainless steel 1.440						1											00001-14
Dionhuo	(customer					9											consult
Diaphragm	Coromico Al	0.06%						-										
	Ceramics Al	12U3 96%						2										
	Ceramics Al ₂ C							C 9										
		customer						9										consult
Output																		
	4 20 mA								1									
	0 10 \	/ / 3-wire							3 E									
Intrinsio	safety 4 20 mA	A / 2-wire							E									
	0	customer							9									consult
Seals																		
		FKM								1								
		EPDM								3								
		FFKM								3 7								
	(customer								9								consult
Electrical connect	tion																	
		VC-cable 1									1							
		JR-cable ¹									2							
		EP-cable ¹									2 3							
		PE-cable									4							
		customer									9							consult
Accuracy		Juotonnon									0							Contourt
standard		0.35 %		_	_	_	_	_	_	_	_	3						
option		0.25 %										3 2 9						
option	(customer										0						consult
Cable length	(Justonner										3						Consult
	in n	•	_															
	in n												0	0	2			
	standard: 3 n												0	0	3			
	standard: 5 n												0	0	5			
	standard: 10 n												0	1	0			
	standard: 15 n												0	1	5			
	standard: 20 n												0	2	0			
	special length	h PVC											9	9	9			
	standard: 3 n												0	0	3			
	standard: 5 n												0	0	5			
	standard: 10 n												0	0 1 1 2 9	0			
	standard: 15 n												0	1	5			
	standard: 20 n	n PUR											0	2	0			
	special length												9	9	9			
	. 3																	
	standard: 5 n	n FEP											0	0	5			
	standard: 10 n												0	1	5 0 9			
	special lengt	h FEP											9	9	9			
	opoolariongti												3					
	enocial lar et	TDE											0	9	0			
Spacial version	special length	h TPE											9	3	3			
Special version		otondard														-		
	ana a	standard															0 0	
	prepared for r	nounting -														5	0 2	
	with stainless s																	
		e version														5	1 0 9 9	
	(customer														9	9 9	consult
	, i i i i i i i i i i i i i i i i i i i	0000000000															- 1 -	

¹ cable with integrated air tube for atmospheric pressure reference

² stainless steel pipe is not part of the supply



Nominal pressure

from 0 \dots 1 mH₂O up to 0 \dots 100 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 22 mm
- diaphragm ceramics 96% Al₂O₃
- good long-term stability
- especially for waste water,

Optional versions

- diaphragm ceramics 99,9% Al₂O₃
- IS-version
 Ex ia = intrinsically safe for gases and dust
- mounting with stainless steel tube
- different kinds of cable
- different kinds of elastomer

LMK 387

Stainless Steel Probe

Ceramic Sensor

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

The stainless steel probe LMK 387 was developed for level and gauge measurement in wastewater, sludge or water courses. The mechanical robustness of the front-flush ceramic diaphragm facilitates an easy disassembly and cleaning of the probe in case of service.

Compared to the level probe LMK 382 the outside-diameter is only 22mm, which allows an easy installation and backfitting in 1" tubes or in cramped fitting conditions. An IS-version is also available.

Preferred areas of use



<u>Water</u> Groundwater and level monitoring



Sewage waste water treatment water recycling



<u>Fuel and oil</u> Tank battery Biogas plants



Technical Data

Input pressure range											
Nominal pressure gauge [bar]	0,1	0,16	0.25	0,4	0.6	1	1.6	2,5	4	6	10
Level [mH ₂ O]	1	1,6	2,5	4	6	10	1,0	25	40	60	100
Overpressure [bar]		4	5	5	7	7	12	20	20	20	20
Berst pressure ≥ [bar]	4	6	8	8	9	9	18	25	25	30	30
Permissible vacuum [bar]	-0.2	-0.3		-0	.5				-1		
Output signal / Supply											
Standard	2-wire: 4	20 m	$A/V_s = 1$	2 36 V	DC						
Option IS-version	2-wire: 4	20 m	$A/V_s = 1$	4 28 V	DC						
Option			$/V_{\rm S} = 14$		-						
Performance	0 1110.0	10 1	/ •5 1	1 00 1	DC						
Accuracy 1	otondard	· <+0	35 % FSC	<u> </u>							
-	option:	≤±0.	25 % FSC)						others on	reques
Permissible load	2-wire: F	$R_{max} = [(V$	$(s - V_{S min})$) / 0.02 A	Ω						
Influence effects	supply:	0.	05 % FSC	D / 10 V			loa	id: 0.	05 % FS0) / kΩ	
Long term stability	≤±0.1 %	% FSO /	year								
Turn-on time	450 mse										
Mean response time	≤ 70 ms										
		60									
Measuring rate	80 Hz	of ma = == 1 /	n lizza il	hurta		:1:4: -)					
¹ accuracy according to IEC 60770 – lim		stment (ne	n-inearity,	, nysteresi	s, repeatab	nity)					
Thermal effects (Offset and Span	-	00							00 00	° 0	
	≤ 1.0% F	-50				IN COL	npensate	ed range -	-20 80	·C	
Permissible temperatures											
Permissible temperatures	medium: electroni storage:		ronment:	-40	85 °C 85 °C 85 °C						
Electrical protection ²	storage.			-+0	00 0						
Short-circuit protection	permane		1 6								
Reverse polarity protection	i no dama										
Electromagnetic compatibility			also no fui		EN 6132	6					
	emission	and imr	nunity acc	cording to	EN 6132		eference a	vailable on	request		
² additional external overvoltage protecti	emission	and imr	nunity acc	cording to			eference a	vailable on	request		
² additional external overvoltage protecti Electrical connection	emission	and imr rminal bo	nunity acc (KL 1 or K	cording to L 2 with at	mospheric	pressure re				sure rang	es
² additional external overvoltage protecti Electrical connection	emission	and imr rminal bo cable wit	nunity acc KL 1 or K h integrat	cording to L 2 with at ted air tub		pressure re				sure range	es
² additional external overvoltage protecti Electrical connection Cable outlet	emission	and imr rminal bo cable wit	nunity acc KL 1 or K h integrat	cording to L 2 with at ted air tub	mospheric	pressure re				sure rang	es
² additional external overvoltage protecti Electrical connection Cable outlet Materials (media wetted)	emission ion unit in te shielded absolute,	and imr rminal bo cable wit the air t	nunity acc KL 1 or K h integrat	cording to L 2 with at ted air tul sed)	<i>mospheric</i> be for atm	pressure re			inal pres	sure rang	
² additional external overvoltage protecti Electrical connection Cable outlet Materials (media wetted) Housing	emission ion unit in te shielded absolute,	cable with the air t	nunity acc <i>KL 1 or K</i> th integrat ube is clo	cording to L 2 with at ted air tul sed) 4404 (31	<i>mospheric</i> be for atm	pressure re			inal pres		
² additional external overvoltage protecti Electrical connection Cable outlet Materials (media wetted) Housing	emission on unit in te shielded absolute, standard PVC PUR	cable with the air the	hunity acc <i>KL 1 or K</i> th integrat ube is clo s steel 1. '0 °C) gra 70 °C) bla	cording to L 2 with at ted air tul sed) 4404 (31 y ack	<i>mospheric</i> be for atm	pressure re			inal pres		
Electrical connection	emission on unit in te shielded absolute, standard PVC PUR FEP ³	and imr rminal box cable with the air t : stainles (-5 7 (-25 (-25	hunity acc <i>kL 1 or K</i> h integrat ube is clo s steel 1. '0 °C) gra 70 °C) blo 70 °C) blo	ted air tul sed) 4404 (31 y ack ack	<i>mospheric</i> be for atm	pressure re			inal press	hers on r	equest
² additional external overvoltage protecti Electrical connection Cable outlet Materials (media wetted) Housing Cable	emission on unit in te shielded absolute, Standard PVC PUR FEP ³ TPE	and imr rminal box cable with the air t : stainles (-5 7 (-25 (-25 (-25	hunity acc <i>KL 1 or K</i> th integrat ube is clo s steel 1. '0 °C) gra 70 °C) bla	ted air tul sed) 4404 (31 y ack ack	<i>mospheric</i> be for atm	pressure re			inal press		equest
² additional external overvoltage protecti Electrical connection Cable outlet Materials (media wetted) Housing Cable	emission on unit in te shielded absolute, standard PVC PUR FEP ³ TPE standard	and imr rminal box cable with the air t : stainles (-5 7 (-25 (-25 (-25 (-25	nunity acc <i>kL 1 or K</i> th integrat ube is clo ss steel 1. 70 °C) gra 70 °C) bl 70 °C) bl 125 °C) bl	cording to L 2 with at ted air tul sed) .4404 (31 y ack ack lue	mospheric be for atm 6 L)	pressure re	reference	e (for nom	inal press	hers on re	equest equest
 ² additional external overvoltage protecti Electrical connection Cable outlet Materials (media wetted) Housing Cable Seals (O-rings) 	emission on unit in te shielded absolute, standard PVC PUR FEP ³ TPE standard option:	and imr rminal box cable wit the air t (-57 (-25 (-25 (-25 t) FKM EPDM	nunity acc <i>kL 1 or K</i> th integrat ube is clo ss steel 1. 70 °C) gra 70 °C) bl. 70 °C) bl. 70 °C) bl. 125 °C) bl. 125 °C) bl. 125 °C) bl.	cording to L 2 with at ted air tul sed) 4404 (31 y ack ack lue	mospheric be for atm 6 L) nissible te	pressure re ospheric	e from -1	e (for nom	inal press	hers on r	equest equest
² additional external overvoltage protecti Electrical connection Cable outlet Materials (media wetted) Housing Cable Seals (O-rings) Diaphragm	emission on unit in te shielded absolute, Standard PVC PUR FEP ³ TPE standard option: standard	and imr rminal box cable wit the air t (-57 (-25 (-25 (-25 t) FKM EPDM	nunity acc <i>kL 1 or K</i> th integrat ube is clo ss steel 1. 70 °C) gra 70 °C) bl 70 °C) bl 125 °C) bl	cording to L 2 with at ted air tul sed) 4404 (31 y ack ack lue	mospheric be for atm 6 L) nissible te	pressure re	e from -1	e (for nom	inal press	hers on re	equest equest
² additional external overvoltage protecti Electrical connection Cable outlet Materials (media wetted) Housing Cable Seals (O-rings) Diaphragm Protection cap	emission on unit in te shielded absolute, Standard PVC PUR FEP ³ TPE standard option: standard POM	n and imr rminal box cable wit the air t (-57 (-25 (-25 (-25 (-25 EFKM EPDN : cerami	nunity acc <i>kL 1 or K</i> th integrat ube is clo ss steel 1. 70 °C) gra 70 °C) bl. 70 °C) bl. 70 °C) bl. 125 °C) bl.	cording to L 2 with at ted air tul sed) 4404 (31 y ack ack ack lue (min. perr 96%	mospheric be for atm 6 L) nissible te optio	emperatur n: ceramic	e from -1 cs Al ₂ O ₃	e (for nom	inal press	hers on re	equest equest
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Ordering code

PROBES

LMK 387

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min. permissible temperature from -15 °C cable with integrated air tube for atmospheric pressure reference

stainless steel pipe is not part of the supply



Nominal pressure

from 0 ... 40 cmH₂O up to 0 ... 200 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 39.5 mm
- LR-certificate (Lloyd's Register)
- GL-certificate (Germanischer Lloyd)
- DVN-certificate (Det Norske Veritas)
- ABS-certificate (American Bureau of Shipping)
- CCS-certificate (China Classification Society)
- high overpressure resistance
- high long-term stability

Optional versions

- diaphragm Al₂O₃ 99.9 %
- different housing materials (stainless steel, CuNiFe)
- IS-version zone 0
- screw-in and flange version
- accessories e.g. assembling and probe flange, mounting clamp

LMK 458

Probe For Marine And Offshore

Ceramic Sensor

accuracy according to IEC 60770: standard: 0.25 % FSO option: 0.1 % FSO

The hydrostatic probe LMK 458 has been developed for measuring level in service and storage tanks and is as a consequence certificated for shipbuilding and offshore applications.

A permissible operating temperature of up to 125°C and the possibility to use the device in intrinsic safe areas enable to measure the pressure of various fluids under extreme conditions. The basis for the LMK 458 is a capacitive ceramic sensor element designed by BD|SENSORS, which offers a high overload resistance and medium compatibility.

Preferred areas of use are



Water

drinking water abstraction desalinization plant

Shipbuilding / Offshore



ballast tanks monitoring of a ship's position and draught level measurement in ballast and storage tanks



LMK 458 Technical Data

Pressure ranges																
Nominal pressure ¹	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
		2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Overpressure Permissible vacuum	[bar] [bar]		.2	-).3	0	-0	-	0	15	20	20	-1	35	45	40
¹ available in gauge and abso						1 hor	-0	.5					-1			
Output signal / Supply	Jule, Homi	iai pressi	ure rang	es abso	iule iioiii	i i Dai										
Standard		2 miro:	4 20	mA / \/	- 0	22.1/		V		24.17						
Option IS-version			4 20 4 20					-	rated = 2 rated = 2	-						
Performance		2-1116.	4 20		5 - 14	20 VDC		vs	rated -	24 VDC						
Accuracy ²		ctandar	rd: ≤ ± 0	25.0/ 5	20				ontic	n: for E		har ³ .	< ± 0.1	% FSC		
Permissible load			<u>u. ≤ ± u</u> [(V _s – V			2			οριια	11. IUI F	N ≥ 0.0	Dal .	≤ ± 0.1	% F3C)	
Long term stability			% FSO				nditions									
Influence effects			: 0.05 %			1100 001			per	missible	e load.	0 05 %	FSO /	kQ.		
Turn-on time		700 ms							P * .			/-				
Mean response time		< 200 i	msec						mea	an mea	suring	rate 5/s	ec			
Max. response time		380 ms														
² accuracy according to IEC 6																
³ Under the influence of distu			<u> </u>	1 61000	-4-4 (200	04) +2 k\	/ accura	acy decr	reased	to $\leq \pm 0$.	25 % F	SO.				
Thermal effects / Permis	sible tem										_					
Thermal error			% FSC					sated r	ange -			105	0.0			
Permissible temperatures		mediur	n / elect	ronics	environ	iment: -2	25 12	25 °C		stora	ge: -40	125	°C			
Electrical protection ⁴																
Short-circuit protection		perma														
Reverse polarity protection Electromagnetic compatibil			nage, bu on and i													
Electromagnetic compatibil	ity		N 61326		y accord		manisc	her Llo	vd (GL)		- Det	Norsk	e Verita	s (DN\	0
⁴ additional external overvolta	ae protecti				1 or KL					·	e availal					/
Mechanical stability	.ge p. eteet.															
Vibration		4 g (ac	cording	to GL:	curve 2	/ accord	ling to I	DNV: C	lass B	/ basis	: DIN E	N 6006	68-2-6)	1		
Electrical connection																
Cable outlet		shielde	d cable	with int	egrated	air tube	for atm	nosphe	ric refe	rence (i	for nom	inal pre	essure	ranges	sealed	
		gauge	and abs	olute, tl	ne air tu	be is plu	igged)									
Materials																
Housing		standa	rd: stain	less ste	el 1.440	04 (316L	_)									
		<u> </u>	CuNi10		(resista	nt agair	ist sea	water)					0	others o	n reque	st
Seals (media wetted)		standa			FKM (m	in norm	ioniblo	tompor	oturo f	rom 15	· • C)			thora a	n roque	ot
Diaphragm		options	rd: cera				ISSIDIE	temper		tion: ce	/			others o	iiieque	51
Cable sheath		TPE -L			esistant.		n free, i	ncrease								
			· ·		against	0	,				J		J	- ,		
Miscellaneous																
Optionally cable protection			ss steel									duct (st	andaro	d: stainle	ess stee	el pipe
			total len	gth up t	o 2 m p	ossible;	other le	engths	on req	uest)						
Ingress protection		IP 68	1 m 1													
Current consumption Weight		max. 2	AIIIIA													
The second se		min 64	50 a (wit	hout co	hle)											
CE-conformity			50 g (wit Directive		,											
CE-conformity Option Pt 100 temperatu	ıre eleme	EMC D	50 g (wit Directive		,											
Option Pt 100 temperatu	ire eleme	EMC D nt ⁵	Directive		,											
Option Pt 100 temperature Temperature range		EMC D nt ⁵ -25 1	Directive		,											
Option Pt 100 temperatu		EMC D nt ⁵ -25 3-wire	Directive		,											
Option Pt 100 temperature Temperature range Connection temperature ele		EMC D nt ⁵ -25 1	Directive 125°C at 0°C		,											
Option Pt 100 temperature Temperature range Connection temperature ele Resistance		EMC D nt ⁵ -25 3-wire 100 Ω 3850 p	Directive 125°C at 0°C	: 2004/	,											
Option Pt 100 temperatu Temperature range Connection temperature ele Resistance Temperature coefficient	ement	EMC D nt ⁵ -25 3-wire 100 Ω 3850 p	Directive 125°C at 0°C opm/K	: 2004/	,											
Option Pt 100 temperatu Temperature range Connection temperature ele Resistance Temperature coefficient Supply Is	ement	EMC D nt ⁵ -25 3-wire 100 Ω 3850 p 0.3	Directive 125°C at 0°C opm/K	2004/ 0C	108/EC				nu	mber of	f certific	cate: 13	3/20055	5		
Option Pt 100 temperatu Temperature range Connection temperature ele Resistance Temperature coefficient Supply Is Category of the environ	ement	EMC D nt ⁵ -25 3-wire 100 Ω 3850 p 0.3	Directive 125°C at 0°C ppm/K 1.0 mA r	2004/ 00	108/EC					mber of						
Option Pt 100 temperature Temperature range Connection temperature ele Resistance Temperature coefficient Supply Is Category of the environ Lloyd's Register (LR) Germanischer Lloyd (GL)	ement	EMC D nt ⁵ -25 3-wire 100 Ω 3850 p 0.3 EMV1 D, EW	Directive 125°C at 0°C pm/K 1.0 mA to 1, EMV2 IC 1	: 2004/ oc , EMV3	108/EC	miditv [.] F	3		nu		f certific					
Option Pt 100 temperatu Temperature range Connection temperature ele Resistance Temperature coefficient Supply Is Category of the environ Lloyd's Register (LR)	ement	EMC L nt ⁵ -25 ³ -wire 100 Ω 3850 p 0.3 ⁶ EMV1 D, EM tempe	Directive 125°C at 0°C ppm/K 1.0 mA r	: 2004/' oc , EMV3	, EMV4	midity: E	3		nu vib	mber of	f certific B	ate: 60) 481 -	09 HH		
Option Pt 100 temperatu Temperature range Connection temperature ele Resistance Temperature coefficient Supply Is Category of the environ Lloyd's Register (LR) Germanischer Lloyd (GL) Det Norske Veritas (DNV)	ement	EMC L nt ⁵ -25 ³ -wire 100 Ω 3850 p 0.3 ⁶ EMV1 D, EM tempe	Directive 125°C at 0°C ppm/K 1.0 mA t 1, EMV2 IC 1 erature:	: 2004/' oc , EMV3	, EMV4		3		nu vib	mber of ration:	f certific B	ate: 60) 481 -	09 HH		
Option Pt 100 temperatu Temperature range Connection temperature ele Resistance Temperature coefficient Supply Is Category of the environ Lloyd's Register (LR) Germanischer Lloyd (GL) Det Norske Veritas (DNV) IS-protection	ement	EMC L nt ⁵ -25 3-wire 100 Ω 3850 p 0.3 EMV1 D, EW tempe electr	Directive 125°C at 0°C pm/K 1.0 mA p 1, EMV2 1C 1 erature: omagne	2004/ oc , EMV3 D tic com	, EMV4 hui patibility		3		nu vib nu	mber of ration: mber of	f certific B f certific	cate: 60 cate: A-) 481 - 12144	09 HH		
Option Pt 100 temperatu Temperature range Connection temperature ele Resistance Temperature coefficient Supply Is Category of the environ Lloyd's Register (LR) Germanischer Lloyd (GL) Det Norske Veritas (DNV)	ment	EMC D nt 5 -25 3-wire 100 Ω 3850 p 0.3 EMV1 D, EM tempe electric IBExt U _i = 2	Directive 125°C at 0°C pm/K 1.0 mA r l, EMV2 I, EMV2 IC 1 erature: omagne J 07 AT 8 V, I _i =	2004/	i, EMV4 hui patibility 0 X Pi = 66	v: B 0 mW, 0	C _i = 105	5 nF; L _i	nu vib nu zo	mber of ration: mber of ne 0: I	f certific B f certific I 1G Ex	cate: 60 cate: A- k ia IIB) 481 - 12144 T4 Ga	09 HH	ner cap	acity
Option Pt 100 temperatu Temperature range Connection temperature ele Resistance Temperature coefficient Supply Is Category of the environ Lloyd's Register (LR) Germanischer Lloyd (GL) Det Norske Veritas (DNV) IS-protection Approval DX14A-LMK 458	ement ment values	EMC D nt 5 -25 3 -wire 100 Ω 3850 p 0.3 4 EMV1 D, EM tempe electro IBExL U _i = 2 of ma	Directive 125°C at 0°C pm/K 1.0 mA 1.0 mA 1.	2004/ 2004/ 2005 2005 2005 2005 2005 2005 2005 200	, EMV4 hun patibility 0 X Pi = 66 site the	0 mW, 0	C _i = 105 re		nu vib nu zo = 5 µH	mber of ration: mber of ne 0: 1 ; the su	f certific B f certific I 1G Ex pply co	cate: 60 cate: A- k ia IIB) 481 - 12144 T4 Ga ons hav	09 HH ve an in	ner cap	acity
Option Pt 100 temperatu Temperature range Connection temperature ele Resistance Temperature coefficient Supply Is Category of the environ Lloyd's Register (LR) Germanischer Lloyd (GL) Det Norske Veritas (DNV) IS-protection Approval DX14A-LMK 458 Safety technical maximum	ement ment values	EMC D nt ⁵ -25 3-wire 100 Ω 3850 p 0.3 EMV1 D, EM tempe electro IBExt U _i = 2 of ma in zon cable	Directive 125°C at 0°C pm/K 1.0 mA t l, EMV2 1C 1 erature: omagne J 07 AT 8 V, I _i = x. 140 n	2004/ 2004/ 200 200 200 200 200 200 200 20	, EMV4 hun patibility 0 X Pi = 66 site the	r: B 0 mW, 0 enclosu p _{atm} 0.8 ne/shiel	C _i = 105 re bar up d as we	to 1.1 l ell as si	nu vib nu zo = 5 µH bar zo gnal lin	mber of ration: mber of ne 0: I ; the su ne 1 ar e/signa	f certific B f certific I 1G Ex pply co ad highe	cate: 60 cate: A- k ia IIB onnectio er: -25 . 160 pF/	0 481 - 12144 T4 Ga ons hav 70°C m	09 HH ve an in	ner cap	acity



LMK 458	Щ]-[-	-[-[-	-	-[-	-].	- 🗆			
Pressure																		
in bar, gauge	7 6 5 7 6 8	5																
in bar, absolute ¹	768	3																
in mH ₂ O	7 6 6	5																
Input [mH ₂ O] [bar]																		
0.40 0.04		0	4 0	0 0														
0.60 0.06		0	60	0 0														
1.0 0.10		1	00	0 0														
1.6 0.16		1	60	0 0														
2.5 0.25		2	5 0	0 0														
4.0 0.40		4	00	0 0														
6.0 0.60		6	0 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	00) 1														
60 6.0		6	0 0) 1) 2														
100 10		1	0 0	2														
160 16		1	6 0) 2														
200 20		2	00	2														
customer		9	99) 2) 2) 2) 9														consult
Housing																		
Stainless steel 1.4404 (316L)					1													
Copper-Nickel-alloy (CuNi10Fe1Mn)					K													
customer					9													consult
Design																		
Probe						1												
Flange version ²						3												
Screw-in version						5												
Diaphragm																		
Ceramics Al ₂ O ₃ 96%							2											
Ceramics Al ₂ O ₃ 99.9%							С											
customer							9											consult
Output																		
4 20 mA / 2-wire								1										
Intrinsic safety 4 20 mA / 2-wire								E							_		-	
customer		_	_	_	_	_	_	9						-	_	-	-	consult
Seals FKM																		
EPDM									1									
FFKM ³									3 7									
customer									9									consult
Electrical connection						_			J									consuit
TPE-U-cable 4										4								
customer										4 9								consult
Accuracy										3								consult
standard 0.25 %											2							
option für $P_N \ge 0.6$ bar: 0.1 %											1							
0.1%											9							consult
Cable length												1						oonoult
in m												9	9	9				
Special version												5		-				
standard															0	0	0	
with temperature sensor Pt 100															0		3	
prepared for mounting with st. steel pipe 5																	2	
customer															9	9	9	consult
																	- 1	

¹ nominal pressure ranges absolute from 1 bar

² mounting accessories are not part of supply and have to be ordered separately

 3 min. permissible temperature from -15 $^\circ\text{C}$

⁴ shielded cable with integrated air tube for atmospheric reference

⁴ stainless steel pipe is not part of the supply



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Nominal pressure

from 0 ... 40 cmH₂O up to 0 ... 100 mH₂O

Output signals

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

Special characteristics

- ▶ cable and probe separable
- diameter 39.5 mm
- especially for sewage, viscous and pasty media

Optional versions

- IS-protection zone 0
- cable protection via corrugated pipe
- diaphragm 99.9 % Al₂O₃
- different kinds of cable
- different kinds of elastomers

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LMK 358

Separable **Stainless Steel Probe**

Ceramic Sensor

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

The separable stainless steel probe LMK 358 has been designed for level measurement in waste water, waste and higher viscosity media. Basic element is a capacitive ceramic sensor.

In order to facilitate stock-keeping and maintenance the transmitter head is plugged to the cable assembly with a connector and can be changed easily.

Preferred areas of use are



Water

ground water level measurement rain spillway basin



<u>Sewage</u> waste water treatment water recycling



Fuel / Oil level monitoring in open tanks with low filling heights fuel storage tank farms / biogas plants



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
	[mH ₂ O]	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
Output signal / Supply														
Standard		2-wire	4 20	mA	/ Ve	= 9 3	2 Vpc							
Option IS-protection			4 20			= 14	-							
Option 3-wire			0 10		-	= 14	-							
Performance		S-wire.	010	v	/ V _S	- 12.5 .	32 VD	C						
Accuracy ¹		standa	rd. <	1025	% FSO									
Accuracy		option:			% FSO % FSO									
Permissible load		<u> </u>).02 A] ()								
Influence effects			: 0.05			-								
		load:		% FSO										
Long term stability						ence con	ditions							
Turn-on time		700 m	sec											
Mean response time		< 200	msec				m	easurin	g rate 5	/sec				
Max. response time		380 m												
¹ accuracy according to IEC 60	770 – limi	t point ao	justment	(non-lin	earity, hy	steresis, r	epeatabi	lity)						
Thermal effects (Offset a	nd Span)												
Thermal error	-	≤ ± 0.1	% FSO	/ 10 K										
		in com	pensate	d range	e 0 70	°C								
Permissible temperatures	6													
Permissible temperatures		mediur				5 125								
				/ironme		5 125								
E la stais e l'anna ta stian 2		storage	9:		-4() 125	°C							
Electrical protection ²														
Short-circuit protection		perma			f									
Reverse polarity protection Electromagnetic compatibil			U .		no functi	ling to E	N 61320	3						
² additional external overvoltag										a availabl		ia at		
	e protectio		lemma	DOX NL	I OF RE 2	wiin aimo	spirenc p	lessuie	rererence	z avallabi	e on requ	1031		
Electrical connection	3		- 70	°O)										
Cable with sheath material			5 70 25 7(
		FUR (-	25 7 ·25 7	0°C)bi	ack lack									
			25 12											
³ shielded cable with integrated														
⁴ do not use freely suspended p	probes wit	h an FEF	cable if	effects d	ue to higl	nly chargi	ng proce	sses are	expected	1				
Materials (media wetted)														
Housing			ss steel	1.4404	(316L)									
Seals		FKM												
		EPDM												
Diaphragm			on requ		Al ₂ O ₃ 96	0/_								
Diapinayin		option:			$A_{12}O_3 90$ $A_{12}O_3 99$									
Nose cone		POM	001		1203 00	.0 /0								
Explosion protection (onl	v for 4	-	A / 2_wi	re)										
Approval DX14-LMK 358	y 101 4 .		05ATE		(
					x IB T4 Ga	а								
					IC T85									
Safety technical maximum	values	U _i = 28	V, I _i = 9	93 mA,	$P_i = 660$	mW, C _i	= 27 nF	⁻ , L _i = 5	μН					
Permissible temperature		-25	70 °C											
Connecting cables (by factory)						e/shield a e/shield a								
⁵ for optional stainless steel pip	e following	g designa	tion is va	lid: "II 1	G Ex ia II	C T4 Ga"	(zone 0)							
Miscellaneous		0					,							
Current consumption		max. 2	1 mA											
Weight				(withou	t cable)									
	_		y		(0,0,0)									
Ingress protection		IP 68												







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LMK 358		-0-0-0-0-0		□-□	
Pressure					
in bar	4 4 5				
in mH ₂ O	4 4 5 4 4 6				
Input [mH ₂ O] [bar]					
0.40 0.04	0 4 0 0 0 6 0 0				
0.60 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 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 2 5 0 1				
25 2.5	2 5 0 1 4 0 0 1 6 0 0 1 1 0 0 2 9 9 9 9				
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					
Stainless steel 1.4404 (316L)		1			
customer		9			consult
Diaphragm Ceramics Al ₂ O ₃ 96%					
Ceramics Al ₂ O ₃ 90% Ceramics Al ₂ O ₃ 99.9%		2			
		C 9			
customer		9			consult
Output 4 20 mA / 2-wire		1			
0 10 V / 3-wire		3			
Intrinsic safety 4 20 mA / 2-wire		E			
customer		9			consult
Seals		3			consult
FKM		1			
EPDM		3			
customer		9			consult
Electrical connection					concur
PVC-cable ¹		1			
PUR-cable ¹		2			
FEP-cable ¹		2			
TPE-cable ¹		4			
customer		9			consult
Accuracy					
standard 0.35 %			3		
option 0.25 %			2		
customer			9		consult
Cable length					
in m			9 9 9		
Special version					
standard			0 0	0	
prepared for mounting 2			1 0	6	consult
with stainless steel pipe					oonouit
cable protection with					
stainless steel corrugated pipe			1 0	3 9 9 9	consult
with pipe length in m					
customer			9 9	9	consult

¹ cable with integrated air tube for atmospheric pressure reference

² stainless steel pipe is not part of the supply

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Nominal pressure

from 0 ... 1 mH₂O up to 0 ... 100 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 35 mm
- cable and sensor section separable
- excellent linearity
- ► small thermal effect

Optional versions

- SIL 2 (Safety Integrity Level) according to IEC 61508 / 61511
- mounting accessories as screw fitting and terminal clamp of stainless steel
- different kinds of cables and elastomers
- customer specific versions
 e. g. special pressure ranges

BD SENSORS www.bdsensors.com

LMP 808

Separable Plastic Probe

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 <u>%</u>_____

The separable plastic probe is designed for level measurement of water, waste water as well as fuels and oils. Basic element is a piezoresistive stainless steel sensor.

In order to facilitate stock-keeping and maintenance the transmitter head is plugged to the cable assembl with a connector and can be changed easily.

Preferred areas of use are



<u>Water / filtrated sewage</u> ground water level measurement storm water systems drinking water system water treatment plants

<u>Fuel / Oil</u> fuel storage tank farm biogas plants process water recycling



Technical Data

LMP 808 Technical Data

Input pressure range														
Nominal pressure gauge [bar]	0.1 0.1	6 0.25	0.4	0.6	1	1.6	2.5	4	6	10				
Level [mH ₂ O	1 1.	6 2.5	4	6	10	16	25	40	60	100				
Overpressure [bar]			2	5	5	10	10	20	40	40				
Burst pressure ≥ [bar]	1.5 1.	5 1.5	3	7.5	7.5	15	15	25	50	50				
Output signal / Supply				<u> </u>				<u> </u>						
Standard		. 20 mA / V			SIL-	version:	V _S = 14	28 V _{DC}						
Options 3-wire		. 20 mA / V . 10 V / V												
Performance	0.	. 10 V / V	5 17	OO VDC										
Accuracy	standard:	nominal pres	sure < 0	4 bar	≤±0.5 %	6 FSO								
		nominal pres			≤ ± 0.35									
	option 1:	nominal pres	sure ≥ 0.	4 bar:	≤ ± 0.25	% FSO								
Permissible load	current 2-wire													
		urrent 3-wire: $R_{max} = 500 \Omega$												
la fluenza a ffa ata		oltage 3-wire: $R_{min} = 10 k\Omega$												
Influence effects	supply: load:													
Long term stability	≤ ± 0.1 % FS			onditions										
Response time	< 10 msec	. jour at re												
¹ accuracy according to IEC 60770 – lim	it point adjustmer	t (non-linearity	, hysteres	is, repeatab	oility)									
Thermal effects (Offset and Spar	1)													
Nominal pressure P _N [bar]		< 0.4	0				≥	: 0.40						
Tolerance band [% FSO]		≤ ± ′	1				≤	± 0.75						
in compensated range [°C]					0 50									
Permissible temperatures														
Permissible temperatures		0 50 °C 0 50 °C												
Electrical protection ²														
Short-circuit protection	permanent													
Reverse polarity protection	no damage, t													
Electromagnetic compatibility	emission and						wailabla an	request						
² additional external overvoltage protection	on unit in termina	DOXINL TOFF	<pre>\L 2 With al</pre>	mospheric	pressurer	elerence a	ivaliable on	request						
Cable with sheath material ³	PVC (0 50	°C) arev												
Cable with sheath material	PUR (0 50													
	FEP ⁴ (0 50													
Cable protection	standard: w	thout cable												
3		epared for m	nounting o	of a PVC p	pipe with	diameter	25 mm							
³ cable with integrated air tube for atmos ⁴ do not use freely suspended probes wi			highlv cha	arging proce	esses are e	expected								
Materials (media wetted)				5 67 10										
Housing	PVC grey													
Seals	FKM													
	EPDM													
Diaphragm	stainless stee	1.4435 (31	6L)											
Protection cap	POM													
Miscellaneous	Langer P. C.	E0.04500.0	50.0454	4										
Option SIL ⁵ 2 application Connecting cables	according to				nal lina/si	ianal line	160 00/0							
(by factory)	cable capacit cable inducta							1						
Current consumption	signal output	<u>v</u>	max. 25 m	0	nar mors	griar inte.	/pri/iii							
	signal output	voltage: r	max. 7 m/											
Weight	approx. 400 g		ole)											
Ingress protection	IP 68													
CE-conformity	EMC Directiv	e: 2004/108/	EC											
⁵ only for 420mA / 2-wire														



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PROBES

LMP 808		
Pressure		
in bar	4 1 0	
in mH ₂ O Input [mH ₂ O] [bar]	4 1 1	
1.0 0.10	1 0 0 0	
1.6 0.16		
2.5 0.25	1 6 0 0 2 5 0 0 4 0 0 0	
4.0 0.40		
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		
PVC	A	
customer	9	consult
Diaphragm		
Stainless steel 1.4435 (316L)	1	
customer	9	consult
Output		
4 20 mA / 2-wire 0 20 mA / 3-wire	1	
0 20 MA7 5-wile 0 10 V / 3-wile	2	
SIL2 4 20 mA / 2-wire	3 1S	
customer	9	consult
Seals	9	Consult
FKM	1	
EPDM	3	
customer	9	consult
Electrical connection		
PVC-cable	1	
PUR-cable		
FEP-cable	2 3	
customer	9	consult
Accuracy		
standard for $P_N \ge 0.4$ bar 0.35 %	3	
standard for $P_N < 0.4$ bar 0.5 %	5	
option 1 for $P_N \ge 0.4$ bar 0.25 %	2	
customer	9	consult
Cable length		
in m	9 9 9	
Special version		
standard		0 0 0
prepared for mounting with PVC pipe		1 0 6 9 9 9 consult
customer		9 9 9 consult

¹ cable with integrated air tube for atmospheric pressure reference

² PVC pipe is not part of the supply

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet Subject to change without notice.



Nominal pressure

from 0 ... 6 mH₂O up to 0 ... 200 mH₂O

Output signals

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

Special characteristics

- diameter 21 mm
- suitable for hydrostatic level measurement e.g. 3/4" pipes
- excellent linearity
- excellent long term stability

Optional versions

- different cable materials
- customer specific versions e.g. special pressure ranges

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LMK 806

Plastic Probe for Aggressive Media

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

The LMK 806 with ceramic sensor and diameter from only 21 mm has been especially designed for the continuous level measurement at confined space conditions. Permissible media are waste water and different aggressive media.

Basic element of the plastic submersible probe is the flush mounted ceramic sensor, which makes cleaning easier when solid parts of the medium deposit on it. Different cable and elastomer materials are available in order to achieve maximum media compatibility.

Preferred areas of use are



Sewage waste water treatment water recycling dumpsite



Aggressive media level measurement in most of acids and lyes



Input pressure range Nominal pressure gauge [bar] 0.6 Level $[mH_2O]$ 6 Overpressure [bar] 2

[bar]

4

Output signal / Supply		
2-wire	4 20 mA / V _S =	12 32 V _{DC}
Performance		
Accuracy ¹	≤ ± 0.5 % FSO	
Permissible load	$R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$	
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ	
Response time	≤ 10 msec	
	mit point adjustment (non-linearity, hysteresis, repeatal	bility)
Thermal effects (Offset and Sp	, .	
Thermal error	≤ ± 0.4 % FSO / 10 K in compensated range -25 70 °C	
Permissible temperatures	medium: -10 50 °C storage: -25 50 °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 6132	
	ction unit in terminal box KL 1 or KL 2 with atmospheric	pressure reference available on request
Electrical connection		
Cable with sheath material ³	PVC (-5 … 50 °C) grey PUR (-10 … 50 °C) black FEP ⁴ (-10 … 50 °C) black	
³ shielded cable with integrated air tui ⁴ do not use freely suspended probes	e for atmospheric pressure reference with an FEP cable if effects due to highly charging proc	esses are expected
Materials (media wetted)		
Housing	PVC	
Seals	FKM	
Diaphragm	ceramics Al ₂ O ₃ 96 %	
Protection cap	POM	
Miscellaneous		
Connecting cables		gnal line/signal line: 160 pF/m
(by factory)		gnal line/signal line: 1 µH/m
Current consumption	max. 25 mA	
Weight	approx. 100 g (without cable)	
Ingress protection	IP 68	
CE-conformity	EMC Directive: 2004/108/EC	
Wiring diagram		

1.6 16

4

5

1

10

2

4

2.5 25

4

5

4

40

10

12

10 100

20

25

6 60

10

12

20 200

40

50

16

160

40 50

2-wire-system (current)



Pin configuration

Electrical connection	cable colours (IEC 60575)
	wh (white) bn (brown)
Shield	gnye (green-yellow)

Technical Data



Accessories

Terminal clamp Technical Data Suitable for all probes with cable Ø 5.5 10.5 mm	
Suitable for all probes with cable Ø 5.5 10.5 mm	
Material standard: steel, zinc plated optionally: stainless steel 1.4301 (304)	
Weight approx. 160 g	
Ordering type	0
Terminal clamp, steel, zinc plated	Ζ
Terminal clamp, stainless steel 1.4301 (304)	Ζ

LMK 806

Technical Data

Burst pressure ≥



PROBES

LMK 806				-П-Щ	□-□]
Pressure						
in bar	3 7 5 3 7 6					
in mH ₂ O	3 7 6					
Input [mH ₂ O] [bar]						
6 0.60	6 0 0 0					
10 1.0	1 0 0 1					
16 1.6 25 2.5	1 6 0 1					
25 2.5 40 4.0	2 5 0 1 4 0 0 1					
60 6.0	6 0 0 1					
100 10	1 0 0 2					
160 16	1 6 0 2					
200 20	2 0 0 2					
customer	2 0 0 2 9 9 9 9					consult
Housing						
PVC		A				
customer		9				consult
Diaphragm Ceramics Al ₂ O ₃ 96%						
customer		2 9				consult
Output		9				Consult
4 20 mA / 2-wire			1			
customer			9			consult
Seals						
FKM			1			
customer			9			consult
Accuracy						
0.5 %			5			
customer Electrical connection			9	_		consult
PVC-cable ¹		_	_	1		
PUR-cable ¹				2		
FEP-cable ¹				3		
customer				9		consult
Cable length						
in m				99	9	
Special version						
standard					0 0 0	
customer					9 9 9	consult

¹ cable with integrated air tube for atmospheric pressure reference

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Nominal pressure

from 0 \dots 4 mH₂O up to 0 \dots 100 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 35 mm
- excellent long term stability
- easy handling

Optional versions

- SIL 2 (Safety Integrity Level) according to IEC 61508 / IEC 61511
- different kinds of cables and elastomers
- customer specific version
 e. g. special pressure ranges

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LMK 807

Plastic Probe for Aggressive Media

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

The plastic submersible probe LMK 807 is designed for continous level measurement for waste water or and different aggressive media.

Basic element of the plastic submersible probe is the flush mounted ceramic sensor, which makes cleaning easier when solid parts of the medium deposit on it. Different cable and elastomer materials are available in order to achieve maximum media compatibility.

Preferred areas of use are



<u>Sewage</u> waste water treatment water recycling dumpsite



<u>Aggressive media</u> level measurement in most of acids and lyes



Dimensions (in mm)

Input pressure range									
Nominal pressure gauge	[bar]	0.4	0.6	1	1.6	2.5	4	6	10
Level [r	mH ₂ O]	4	6	10	16	25	40	60	100
Overpressure	[bar]	1	2	2	4	4	10	10	20
Burst pressure ≥	[bar]	2	4	4	5	5	12	12	25
Output signal / Supply									
Standard		2-wire: 4	20 mA / \	√ _s = 8 32 ∖		SIL-version:	V _S = 14 2	8 V _{DC}	
Performance									
Accuracy ¹		≤ ± 0.5 % F	SO						
Permissible load			– V _{S min}) / 0.0)2 A1 O					
Influence effects		supply:	0.05 % FSO 0.05 % FSO	/ 10 V					
Long term stability				reference co	nditions				
Response time		< 10 msec	,						
¹ accuracy according to IEC 607	70 – limit	point adjustm	ent (non-lineal	rity, hysteresis,	repeatability)				
Thermal effects (Offset and									
Thermal error		≤±0.2 % F in compens	SO / 10 K ated range -:	25 70 °C					
Permissible temperatures	`								
Permissible temperatures		medium: storage:		50 °C 50 °C					
Electrical protection ²									
Short-circuit protection		permanent							
Reverse polarity protection		no damage	but also no	function					
Electromagnetic compatibility				according to	EN 61326				
² additional external overvoltage	protection	n unit in termi	nal box KL 1 o	r KL 2 with atm	ospheric press	sure reference a	available on re	quest	
Electrical connection									
Cable with sheath material ³		PVC (0 5 PUR (0 5 FEP ⁴ (0							
³ cable with integrated air tube for									
⁴ do not use freely suspended pr	obes with	an FEP cable	e if effects due	to highly charg	ging processes	are expected			
Materials (media wetted)									
Housing		PVC grey							
Seals		FKM / EPD							
Diaphragm		ceramics A	₂ O ₃ 96 %						
Miscellaneous									
Option SIL 2 application				/ IEC 61511					
Connecting cables						ne/signal line:			
(by factory)			<u>v</u>	al line/shield	also signal li	ne/signal line	: 1µH/m		
Current consumption		max. 25 mA							
Weight			g (without c	able)					
Ingress protection		IP 68	000000	0/50					
CE-conformity		EMC Direct	ive: 2004/10	8/EC					

Wiring diagram





Pin configuration	
Electrical connection	cable colours (IEC 60575)
Supply + Supply –	wh (white) bn (brown)
Shield	gnye (green-yellow)

0			
0			
0			
0			
0			
0			
0			
0			
0			
0			
			0

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PROBES

Pressure in mH ₂ O 3 9 0	LMK 807		-0-0-0-	-0-0-0]
in bar 3 9 0 in mH_O is m H_O <	Pressure						
Input (mH,Q) (bar) (mH,Q) (bar) (mH,Q) (bar) (mH,Q) (bar) (mH,Q) (bar) (mH,Q) (bar)	in bar	3 9 0					
Input (mH,Q) (bar) (mH,Q) (bar) (mH,Q) (bar) (mH,Q) (bar) (mH,Q) (bar) (mH,Q) (bar)	in mH ₂ O	3 9 1					
6.0 0.60 6 0 0 1 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
16 1.6 1		4 0 0 0					
16 1.6 1		6 0 0 0					
60 6.0 6 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0		1 0 0 1					
60 6.0 6 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0		1 6 0 1					
60 6.0 6 0 1 0 0 1 0 0 0 1 0 0 0 1 0 0 0 1 0		2 5 0 1					
100 100 100 2 Image: Consult in the image		4001					
Housing PVC A A A A A A Customer 9 4 4 4 4 6 6 Diaphragm Ceranics Al ₂ O ₃ 96% 2 4 4 6 6 6 Customer 2 4 4 6 6 6 6 Output 1 4 6 6 6 6 SIL2 4 20 mA / 2-wire 1 6 6 6 Subserver 9 6 6 6 6 Seats FKM 1 6 6 6 EPDM 3 6 6 6 6 FKM 7 6 6 6 6 Customer 9 6 6 6 6 FKM 7 6 6 6 6 Customer 9 6 6 6 6 PUR-cable 1 1 6 6 6 6 PUR-cable 1 2 6 6 6 6 PUR-cable 1 2 6 6 6 6 Customer 9 9 6 6 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Housing PVC A A A A A A Customer 9 4 4 4 4 6 6 Diaphragm Ceranics Al ₂ O ₃ 96% 2 4 4 6 6 6 Customer 2 4 4 6 6 6 6 Output 1 4 6 6 6 6 SIL2 4 20 mA / 2-wire 1 6 6 6 Subserver 9 6 6 6 6 Seats FKM 1 6 6 6 EPDM 3 6 6 6 6 FKM 7 6 6 6 6 Customer 9 6 6 6 6 FKM 7 6 6 6 6 Customer 9 6 6 6 6 PUR-cable 1 1 6 6 6 6 PUR-cable 1 2 6 6 6 6 PUR-cable 1 2 6 6 6 6 Customer 9 9 6 6 <td></td> <td>1002</td> <td></td> <td></td> <td></td> <td></td> <td>concult</td>		1002					concult
PVC A A A A A A A A A A A Consult Diaphragm Ceramics Al ₂ O ₃ 96% 2 2 4 4 4 4 6 <td></td> <td>9 9 9 9 9</td> <td></td> <td></td> <td></td> <td></td> <td>Consuit</td>		9 9 9 9 9					Consuit
customer 9 1 1 1 1 1 1 Diaphragm 2 2 4 4 4 4 Ceramics Al ₂ O ₃ 96% 2 4 4 4 6 4 Output 9 4 4 4 6 6 6 Output 1 1 4 6 6 6 SIL2 4 20 mA / 2-wire 1 4 6 6 SIL2 4 20 mA / 2-wire 1 6 6 6 Sulz 4 20 mA / 2-wire 15 6 6 6 Seals FKM 1 6 6 6 EPDM 3 6 6 6 6 EPDM 3 6 6 6 6 Customer 9 6 6 6 6 PUR-cable 1 2 6 6 6 6 PUR-cable 1 2 6 6 6 6	PVC		Δ				
Diaphragm Ceramics Al_Qo, 96% 2 2 4 4 4 2 4 4 4 Customer 9 1			9				consult
Ceramics Al ₂ O ₃ 96% 2 2 4 4 4 4 Consult Output 4 20 mA / 2-wire 1 4			5				Consult
Customer 9 I I I I I I I Output 1 1 1 I I I I I SIL2 4 20 mA / 2-wire 1 I I I I I I Customer 9 I I I I I I I Seals FKM 1 I I I I I FFKM 7 I I I I I Customer 9 I I I I I Accuracy 0.5 % 5 I I I I PUR-cable 1 1 I I I I I PUR-cable 1 2 I I I I I Customer 9 I I I I I PUR-cable 1 2 I I I I I Customer 9 I I I I I PUR-cable 1 2 I I I I I PUR-cable 1 3 I I I I I <td>Ceramics Al₂O₃ 96%</td> <td></td> <td>2</td> <td></td> <td></td> <td></td> <td></td>	Ceramics Al ₂ O ₃ 96%		2				
Output 4 20 mA / 2-wire 1 4 4 4 4 SIL2 4 20 mA / 2-wire 1S 1 4 4 6 customer 9 4 4 6 6 Seals FKM 1 4 6 6 EPDM 3 4 6 6 FFKM 7 6 6 6 Customer 9 6 6 6 Customer 9 6 6 6 Accuracy 0.5 % 5 6 6 Customer 9 6 6 6 PUR-cable 1 1 6 6 6 PUR-cable 1 2 6 6 6 Customer 9 6 6 6 Customer 9 6 6 6 Customer 9 6 6 6 PUR-cable 1 1 6 6 6 Cable length 1 6 6 6 in m 9 9 6 6							consult
4 20 mA / 2-wire 1							
customer 9 a<			1				
Seals FKM 1 I </td <td>SIL2 4 20 mA / 2-wire</td> <td></td> <td>1S</td> <td></td> <td></td> <td></td> <td></td>	SIL2 4 20 mA / 2-wire		1S				
FKM 1			9				consult
EPDM 3 3 4							
customer 9 I<				1			
customer 9 I<				3			
Accuracy 0.5 % 5 0 1 1 1 1 1 Customer 9 1 1 1 1 1 1 1 PVC-cable 1 1 2 1 1 1 1 1 PUR-cable 1 2 1 1 1 1 1 FEP-cable 1 3 1 1 1 1 Cable length 1 9 9 9 1 in m 9 9 9 1 1				7			
0.5 % 5				9			consult
customer 9 4 4 Consult Electrical connection 1 4 4 4 PVC-cable 1 1 4 4 4 PUR-cable 1 2 4 4 4 FEP-cable 1 3 4 4 4 Cable length 9 9 9 4 4 Special version 5 9 9 4 4				-			
Electrical connection I I I PVC-cable 1 1 2 4 4 PUR-cable 1 2 4 4 FEP-cable 1 3 4 4 customer 9 4 4 Cable length 9 9 9				5			
PVC-cable 1 1 <td< td=""><td></td><td></td><td></td><td>9</td><td></td><td></td><td>consuit</td></td<>				9			consuit
PUR-cable 1 2 2 2 FEP-cable 1 3 2 2 customer 9 2 2 Cable length 3 2 2 in m 9 9 3 Special version 9 9 3	Electrical connection			1			
FEP-cable 1 3 4 4 customer 9 4 4 consult Cable length 4 4 4 in m 9 9 9 4 Special version 4 4 4	PLIR-cable ¹						
customer 9 4 Consult Cable length 9 9 9 in m 9 9 9	FEP-cable ¹			2			
Cable length 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9							consult
in m 9 9 9 9 Special version				5			Conduct
Special version					999		
standard 0 0 0							
					0	0 0	
standard000customer999consult	customer				9	99	consult

¹ cable with integrated air tube for atmospheric pressure reference



Nominal pressure

from 0 ... 0.4 mH₂O up to 0 ... 100 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 45 mm
- ► chemical resistance
- ► high overpressure resistance
- especially for tank level measurement of viscous and aggressive media
- ▶ diaphragm 99.9 % Al₂O₃
- ▶ housing material PP or PVDF

Optional versions

- different kinds of cable and seal materials
- prepared for mounting with pipe

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

LMK 809

Plastic Probe For Aggressive Media

High Purity Ceramic Sensor

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

The plastic submersible probe LMK 809 is designed for continous level measurement in waste water or in most of aggressive media. Basic element is a capacitiv ceramic sensor.

Basic element of the plastic probe is the flush mounted ceramic sensor, which makes cleaning easier when solid parts of the medium deposit on it. Different cable and seal materials are available in order to achieve maximum media compatibility.

Preferred areas of use are



<u>Sewage</u>

waste water treatment water recycling dumpsite



CE

Aggressive media

level measurement in most of acids and lyes

LMK 809 Technical Data

• •														
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 [r	mH₂O]	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
Output signal / Supply														
Standard		2-wiro	1 20	mA /)	√s = 9	32 1/20								
Option 3-wire					-		/							
		3-wire	: 0 10	V / V	V _s = 12.	5 32 \	/ _{DC}							
Performance														
Accuracy ¹		standa option			% FSO % FSO									
Permissible load		R _{max} =	$[(V_S - V_S)]$	/ _{S min}) / (0.02 A] 🤇	2								
Influence effects		supply load:		5 % FS 5 % FS	0 / 10 V	1								
Long term stability					at refere	ence cor	ditions							
Turn-on time		700 m		ycui	at refere	100 001								
Mean response time		< 200						m	easuring	rate: 5	leoc			
Max. response time		380 m							sasunny	grate. J	300			
¹ accuracy according to IEC 607	70 <u> </u>			(non-lin	earity hv	steresis	reneatahi	lity)						
			gustment	(11011-1111)	canty, ny	51010313, 1	ереалаы	iity)						
Thermal effects (Offset and	u Span		0/ FOO	1 4 0 1 4										
Thermal error		-	% FSC		e 0 70	°C								
Permissible temperatures														
Permissible temperatures			nic / en	vironme	ent: -28	5 100 5 100 5 100	°C							
Electrical protection ²		storag	с.		-2:	100	0							
Short-circuit protection		perma	nent											
Reverse polarity protection				it also r	no functi	on								
Electromagnetic compatibility	~				y accord		N 6132	3						
² additional external overvoltage	<i>,</i>								roforonco	availabl	le on requ	lest		
Electrical connection	protectio	on unit in	terminar	DOXINE	I OF INE 2	with atmo	sprierie p	1033010	rererence	availabi	e on requ	1031		
			05 7											
Cable with sheath material ³		FEP ⁴ (-25 7 -25 7 25 1(0 °C) b	lack									
³ cable with integrated air tube fo		pheric pr	essure re	ference										
⁴ do not use freely suspended pro-	obes wit	h an FEF	P cable if	effects d	ue to high	nly chargi	ing proce	sses are	expected	1				
Materials (media wetted)														
Housing		standa	rd: PP											
Seals			EPDM /											
Diaphragm			ics Al ₂ O		6									
		ocram	100 Al2O	500.07	•									
Miscellaneous						1-1-1-1-1				100	- 5/			
Connecting cables (by factory)		cable i	nductan		ignal line ignal line									
Current consumption		max. 2												
Weight		approx	. 320 g	(withou	t cable)									
Ingress protection		IP 68												
CE-conformity		EMC D	Directive	: 2004/	108/EC									
Wiring diagram														
2-wire-system (current)						3-wir	e-system	(voltage)					
p I supply -		Vs				P	supp	ly +	Û	v	• + Vs			
Din configuration									-					
Pin configuration		a a b l a												
Electrical connection				(IEC 60	575)									
	ipply +	wh (wh												
Su Signal + (only for 3	ipply –	bn (bro gn (gre												
0 ()	,		,											
	Shield	j griye (green-ye	=IIOW)										



This document contains product specifications; properties are not guaranteed. Subject to change without notice.



LMK 809 Ordering code PROBES

LMK 809 P In

Pressure																						
		in bar in mH ₂ O	3	95 96																		
Input	[mH₂O]	[bar]	0		1																	
input	0.40	0.04	_	_		14	0	0	_	_	_		_		_	17			T.	T.		
	0.60	0.06					0	0														
	1.0	0.10				1 0	0	0														
	1.6	0.10				1 6	0	0														
	2.5	0.10					0	0														
	4.0	0.25				1 0	0	0														
	6.0	0.40				+ 0	0	0														
	10	1.0					0	1														
	16	1.6				1 6	0	1														
	25						0															
		2.5				2 0	0	4														
	40	4.0				+ 0	0	1														
	60 100	6.0 10					0	2														
	100	customer					0 0 <t< td=""><td>2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>onsult</td></t<>	2														onsult
Housing		customer				9 9	9	9													(onsuit
Housing		PP							-													
		PVDF							E													
									B 9													opoult
Dianhraum	_	customer							9											ł.	(onsult
Diaphragm	Ceramics Al	0.00.0%								0												
	Ceramics Ai	customer								C 9												onsult
Output		customer								9	1										(onsuit
Output	4 20 n	nA / 2-wire				-	-				1											
		V/3-wire									3											
	0 10	customer									9											onsult
Seals		customer				-	-				9									ł.		onsuit
Seals		FKM				-	-					4										
		EPDM										1										
		FFKM										7										
		customer										9										onsult
Accuracy		Gustomer		_					_			9	1									onsuit
standard		0.35 %											3									
option		0.35 %											2									
option		customer											9									onsult
Electrical conne	oction	customer											9									Jonsuit
Liectrical conne		PUR-cable ¹												2						F		
		FEP-cable ¹												3								
		TPE-cable ¹												4								
		customer												9						L		onsult
Cable length		Gustomer												9	· I							onsuit
Gable length		in m														9 9						
Special version																9 9	9	1				
opecial version		standard																(0 0			
		pipe R1"																e	5 1	0		
		customer																0	9 9	0		onsult
		Customet																	19	19	, i	onsuit

¹ cable with integrated air tube for atmospheric pressure reference

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet Subject to change without notice.



Nominal pressure

from 0 ... 40 cmH₂O up to 0 ... 100 mH₂O

Output signals

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

Special characteristics

- diameter 45 mm
- cable and probe separable
- chemical resistance ►
- housing PVC

Optional versions

- cable protection via PVC pipe
- diaphragm 99.9 % Al₂O₃
- different kinds of cable
- different kinds of seal materials

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LMK 858

Separable Plastic Submersible Probe

Ceramic Sensor

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

The separable plastic submersible probe LMK 858 is designed for level measurement in most aggressive media. Usage in more viscous media as for example sludge is possible because of the semiflush diaphragm.

In order to facilitate stock-keeping and maintenance the transmitter head is plugged to the cable assembly with a connector and can be changed easily.

Preferred areas of use are



Sewage

waste water treatment water recycling dumpsite



Aggressive media level measurement in most of acids and lyes

LMK 858 Technical Data

Input pressure range														Pin configuration	
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		Electrical connection	Bind
Level [mH ₂ O]			1 1.6	2.5	4	6	10) 16	25	40	60	100			2 - wire
Overpressure [bar]			4 4	6	6	8	8		25	25	35	35		Supply +	3
													-	Supply –	1
Output signal / Supply														Signal + (only for 3-wire)	-
Standard	2-wire:	1 20) mA / V _s =	0 221	/ 0	ption 3-\	wiro:	0	10 V / V	- 12 5	22.1/		-		_
	z-wire.	4 20	MA/V_{S} –	9 32 \	DC 0	puon 3-v	wire.	0	10 v / v	s = 12.5	32 VI	DC	-	Shield	5
Performance						. 1							-	⁵ in separated version	
Accuracy				IE	EC 6077	70 '							-	Dimensions (in mm)	
	standar	d:			± 0.35										
	option:			≤	± 0.25	% FSO									
Permissible load	R _{max} = [(V _S – V _{S min}	n) / 0.02 A]	Ω											
Influence effects	supply:	0.05 % F	SO / 10 V												
	load:	0.05 % F													
Long term stability	≤ ± 0.1		ear at refer	ence cor	ditions										
Turn-on time	700 ms														
Mean response time	< 200 n	nsec				me	easur	ing rate 5	/sec						
Max. response time	380 ms	ес						0							
¹ accuracy according to IEC 60770 – lin			n-linearity, hy	steresis, i	repeatabi	ility)							1		
Thermal effects (Offset and Spar		,	.,,,,,,	.,.		• ·							1		
Thermal error	•	% FSO / 1	0 K										-		
mermarenoi	-		ange 0 50)°C											
Permissible temperatures	in comp	chisateura	inge 0 ot	, 0									-	- 001.5	
	Luce of the sec			0 50 %	0								-		
Permissible temperatures	medium			0 50 °										S 0 2 2	
			nment: -1												
	storage		-1	0 50 °	C								-	and a second second	
Electrical protection ²															
Short-circuit protection	perman														
Reverse polarity protection			so no funct											7	
Electromagnetic compatibility			unity accor											and the second	
² additional external overvoltage protect	tion unit in t	erminal box	KL 1 or KL 2	with atmo	spheric	oressure	refere	nce availat	le on requ	uest					
Electrical connection															
Cable with sheath material ³	PVC (-5	5 50 °C)	grey												
	PUR (-1	0 50 °C) black												
	FEP ⁴ (-	10 50 °(C) black												
Cable protection	standar	d: withou	t cable prot	ection											
	optional	: prepar	ed for mou	nting of a	a PVC p	ipe with	diam	eter 25 m	m						
³ cable with integrated air tube for atmo	spheric pres	ssure refere	nce												
⁴ do not use freely suspended probes w	ith an FEP	cable if effec	cts due to hig	hly chargi	ng proce	sses are	expec	ted					-		
Materials (media wetted)														045	
Housing	PVC gre													standard	
Seals	FKM / E	PDM / oth	ers on requ	iest											
Diaphragm	standar		$cs Al_2O_3 96$												
	option:	cerami	cs Al ₂ O ₃ 99	.9 %											
Miscellaneous															
Connecting cables	cable ca	apacitance	: signal line	/shield a	lso sign	al line/si	ignal	line: 160 i	oF/m				1		
(by factory)	cable in	ductance:	signal line/s	shield als	so signa	l line/sig	gnal li	ne: 1 µH/i	n						
Current consumption	max. 25	mA					-								
Weight	approx.	400 g (wit	hout cable)												
Ingress protection	IP 68	0.	,												
CE-conformity	EMC Di	rective: 20	04/108/EC										1		
Wiring diagram			011100.20										1		
								1					-		
2-wire-system (current)		3-wire-sys	stem (voltage)						connecto					
p supply + A		ps	upply +			o +			ļ		Į				
	Vs			f	`	/s			Ċ		5				
I supply –		- 1/ L	upply – ignal +	$\prod_{i=1}^{n}$	2				4	à	14				



LMK 858		<u> </u>]-[]-[]-[]-[]-[]]-[]	
Pressure					
in bar	4 1 5				
in mH ₂ O	4 1 5 4 1 6				
Input [mH ₂ O] [bar]					
0.40 0.04	0	4 0 0			
0.60 0.06	0	6 0 0			
1.0 0.10	1	6 0 0 0 0 0 6 0 0 5 0 0			
1.6 0.16	1	6 0 0			
2.5 0.25	2	500			
	2				
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	0 0 0 1 5 0 1 5 0 1 0 0 1 0 0 1 0 0 1 0 0 2 9 9 9			consult
Housing					
PVC		A			
customer		9			consult
Diaphragm					
Ceramics Al ₂ O ₃ 96%			2		
Ceramics Al ₂ O ₃ 99.9%		(
customer			9		consult
Output					
4 20 mA / 2-wire			1		
0 10 V / 3-wire			3		
customer			9		consult
Seals					
FKM			1		
EPDM			3		
customer			3		consult
Electrical connection					
PVC-cable ¹			1		
PUR-cable ¹			2		
FEP-cable ¹			3		
customer			9		consult
Accuracy					
standard 0.35 %				3	
option 0.25 %				2	
customer				9	consult
Cable length					
in m				999	
Special version					
standard				0.0	0
prepared for mounting with PVC pipe ²				1 0	6
customer				0 0 1 0 9 9	9 consult
				0	

¹ cable with integrated air tube for atmospheric pressure reference

² PVC pipe is not part of the supply

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet Subject to change without notice.



Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 bar

Output signals

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

Special characteristics

- ▶ pressure port G 3/4" flush
- excellent accuracy
- small thermal effect
- excellent long term stability

Optional versions

- ▶ accuracy 0.1% FSO IEC 60770
- IS-version: Ex ia = intrinsically safe for gases and dusts
- ► SIL 2 application according to IEC 61508 / IEC 61511
- different electrical connections
- customer specific versions e. g. special pressure ranges

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LMP 331

Screw-In Transmitter

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % / 0.1 % FSO

The screw-in transmitter LMP 331 has been designed for continuous level measurement and is characterized by an excellent performance and a robust construction. The modular construction allows the user the highest possible flexibility in the adaption of LMP 331.

Optional features like e.g. an intrinsically safe version or a functionally safe version (SIL 2) increase the advantages when launching and realizing projects for plants and systems.

Preferred areas of use are





Environmental Engineering (water - sewage - recycling)



LMP 331 Technical Data

Input pressure range		
		1.6 2.5 4 6 10 16 25 40 16 25 40 60 100 160 250 40
Level [mH ₂ O]		16 25 40 60 100 160 250 40 10 10 100 100 160 250 40
Overpressure [bar] Burst pressure ≥ [bar]		10 10 20 40 40 80 80 10 15 15 25 50 50 120 120 21
	1.51.51.537.5 $P_N \ge 1$ bar: unlimited vacuum resistance	15 15 25 50 50 120 21
Vacuum resistance	$P_N < 1$ bar: unlimited vacuum resistance $P_N < 1$ bar: on request	
Output signal / Supply		
Standard	2-wire: 4 20 mA / V_S = 8 32 V_{DC}	SIL-version: V _S = 14 28 V _{DC}
Option IS-version	2-wire: 4 20 mA / V _S = 10 28 V _{DC}	SIL-version: V _S = 14 28 V _{DC}
Options 3-wire	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	
Performance		
Accuracy1	standard: nominal pressure < 0.4 bar:	
Permissible load	$ \begin{array}{c} \mbox{current 2-wire:} & R_{max} = [(V_S - V_{Smin}) / 0.0] \\ \mbox{current 3-wire:} & R_{max} = 500 \Omega \\ \mbox{voltage 3-wire:} & R_{min} = 10 k\Omega \end{array} $	02 A] Ω
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ	
Long term stability	$\leq \pm 0.1$ % FSO / year at reference conditions	3
Response time ²	2-Leiter: ≤ 10 msec 3-Leiter: ≤ 3 msec	
¹ accuracy according to IEC 60770 – lim ² with optional accuracy 0,1 % FSO the	nit point adjustment (non-linearity, hysteresis, repeata response time is 200 msec	ability)
Thermal effects (Offset and Spar	1)	
Nominal pressure P _N [bar]	≤ 0.40	> 0.40
Tolerance band [% FSO]	≤ ± 1	≤ ± 0.75
in compensated range [°C]	0 70	-20 85
Permissible temperatures		
Permissible temperatures	medium: -40 125 °C electronics / environment: -40 85 °C storage: -40 100 °C	
Electrical protection		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Electromagnetic compatibility	emission and immunity according to EN 6132	26
Mechanical stability		
Vibration	10 g RMS (25 2000 Hz) accord	ling to DIN EN 60068-2-6
Shock		ling to DIN EN 60068-2-27
Explosion protection (only for 4		
Approvals	IBEXU 10 ATEX 1068 X / IECEX IBE 12.0	0027X
DX19-LMP 331	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 \approx 0nF the supply connections have an inner capac	
Permissible temperature for medium	in zone 0: -20 60 °C with p _{atm} (in zone 1 or higher: -20 70 °C	0.8 bar bis 1.1 bar
Conneting cables	cable capacitance: signal line/shield also signal	ignal line / signal line: 160 pF/m
(by factory)	cable inductance: signal line /shield also s	
		- · · ·
Materials		
	stainless steel 1.4404 (316L)	
Materials Pressure port Housing	stainless steel 1.4404 (316L) stainless steel 1.4404 (316L)	
Pressure port	stainless steel 1.4404 (316L) standard: FKM option: EPDM	
Pressure port Housing	stainless steel 1.4404 (316L) standard: FKM	



LMP 331		Ш	-]-[]-[-]-[-[-	-			
Pressure																	
	in bar	4 3 0			Т												
	in mH ₂ O	4 3 0 4 3 1															
Input [mH ₂ O]	[bar]																
1	0.10		1	0 6 5 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 1												
1.6	0.16		1	6	0 0												
2.5	0.25		2	5	0 0												
4	0.40		4	0	0 0												
6	0.60		6	0	0 0												
10	1.0		1	0	0 1											_	
16	1.6		1	0 6 5 0	0 1												
25 40	2.5		2 4	5	0 1 0 1											-	
	4.0		4	0													
60	6.0 10		0	0	0 1												
100 160	10		1	6													
250	25		1	5	0 1 0 2 0 2 0 2 0 2 9 9												
400	25 40		2	0													
400	customer		4	0													consult
Pressure port	customer		9	9	9 8												Consult
Stainless steel 1.4	404 (316L)	_		-	-	1							-		-		
	customer					g											consult
Diaphragm	customer					0											Consult
Stainless steel 1.4	435 (316L)	_		-	-		1						-		-		
	customer						9										consult
Output	odotornor						5	1									Consult
	mA / 2-wire	_	_	-	_	_	_	1					_				
	mA / 3-wire							2									
	0 V / 3-wire							3									
Intrinsic safety 4 20 r								3 E									
SIL2 4 20 r								1S									
SIL2 with Intri	nsic safety							ES			1						
4 20 ı	mA / 2-wire																
	customer							9									consult
Seals																	
	FKM								1								
	EPDM								3								
	customer								9								consult
Electrical connection																	
Male and female plug										1	0	0					
Male plug Binder series	723 (5-pin)									2 T	0	0 0 0					
Cable outlet with	PVC cable									T	A	0					
	Cable outlet ²										R 1 1	0				-	
Male plug M12x1 (4- Compact fie																	
stainless s										8	5	0					
5141111255 5	customer									۵	9	a					consult
Accuracy	Sustomer									9	19	3					consult
standard for $P_N \ge 0.4$ bar	0.35 %												3				
standard for $P_N < 0.4$ bar	0.5 %												5				
option 1 for $P_N \ge 0.4$ bar	0.25 %												5 2				
option 2	0.1 % 3												1				
	customer												9				consult
Special version																	
	standard													0	0	0	
	customer													9	9	0 9	consult

Prices EXW Thierstein, excluding package

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), others on request

² cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

³ not in combination with SIL

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.



Nominal pressure

from 0 ... 400 mbar up to 0 ... 60 bar

Output signals

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

Special characteristics

- pressure port G 3/4" flush for pasty and impuritied media
- pressure port PVDF for aggressive media

Optional versions

- IS-version (only for 4 ... 20mA / 2-wire): Ex ia = intrinsically safe for gases and dusts
- SIL 2 application according to IEC 61508 / IEC 61511
- customer specific versions

LMK 331

Screw-In Transmitter

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

The screw-in transmitter LMK 331 has been especially designed for level and process measurement and is suitable for pressure measurement of liquids, oils and gases. Usage in more viscous or polluted media is possible because of the semi-flush pressure sensor.

For the usage in aggressive media we recommended the version with PVDF pressure port. Additional features like e.g. an intrinsically safe version or a functionally safe version (SIL 2) complete the range of possibilities.

Preferred areas of use are





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	Technical Data

LMK 331 Technical Data

Nominal pressure gauge	[bar]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40 ¹	60 ¹
Level	[mH ₂ O]	4	6	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	1	2	2	4	4	10	20	20	40	40	100	200
Burst pressure	[bar]	2	4	4	5	7,5	12	25	30	50	50	120	250
Vacuum resistance			bar: unlii						00				
1 and a passible with stainlass.			bar: on r	equest									
¹ only possible with stainless s	steel press	sure port											
Output signal / Supply													
Standard		2-wire:				3 32 V _D			-	= 14 28			
Option IS-protection ²		2-wire:) 28 V _D		SIL-vers	sion: V _s	= 14 28	3 V _{DC}		
Optionen 3-wire		3-wire:				↓ 30 V _D ↓ 30 V _D							
² IS-protection not possible wi	th plastic	pressure											
Performance													
Accuracy ³		$\leq \pm 0.4$	5 % FSO										
Permissible load		currer	t 2-wire:		$R_{max} = [$	(V _S – V _{S n}	_{in}) / 0.02	2 A1 Ω					
		currer	it 3-wire: e 3-wire:		$R_{max} = 5$ $R_{min} = 1$	Ω 00							
Influence effects		supply		5 % FSO		0 1122							
		load:	0.05	5 % FSO									
Response time			: ≤10 m : ≤3 m										
Long term stability		≤±0,3	3 % FSO	/ year a		ice condit							
³ accuracy according to IEC 6						teresis, rep	peatability	()					
Thermal effects (Offset a	and Spar	1) / Peri	nissible	Temper	ratures								
Thermal error		≤±0.2	% FSO	/ 10 K									
in compensated range		-25	85 °C										
Permissible temperatures		mediu	m:		-4(0 125 °	С						
			nics / en	vironme	nt: -2	5 85 °C	;						
Electrical protection		storag	e:		-4(0 100 °	С						
•		normo	nont										
Short-circuit protection	_	perma		t alaa na	function								
Reverse polarity protection			nage, but				1226						
Electromagnetic compatib	iiity	emissi	on and in	nmunity	accordin	ng to EN 6	01320						
Mechanical stability		10 5											
Vibration		-	MS (25 .	2000 F	,			N 60068-					
Shock		500 g /	1 msec		a	ccording	to DIN E	N 60068	-2-27				
Materials													
Pressure port / housing						essure po				housing			
		standa	ird:		sta	ainless ste	eel 1.440	04 (316L)) !	stainless s	teel 1.44	04 (316L)
		option	s for P _N ≤	25 bar:	P٧	/DF				PVDF			
Option compact field hous	ing	stainle	ss steel '	1.4305 w	ith cable	e gland bi	ass nick	el plated	other	s on reque	est		
Seals		standa	rd: Fł	<m< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></m<>									
		options	s: El	PDM							oth	ers on re	quest
Diaphragm		ceram	cs Al ₂ O ₃	96 %									
Media wetted parts		pressu	re port, s	seals, dia	aphragm								
Explosion protection (or	ly for 4												
Approval DX19-LMK 331	-					Ex IBE 1	2 0027	(
stainless steel pressure po		zone 0	: I	I 1G Ex i	ia IIC T4	Ga	2.00277	`					
Safaty toobaical mavimum	volues	zone 2				85°C Da)	0.11					
Safety technical maximum	values					nW, C _i ≈ (inner cap			nF to th	e housing			
Permissible temperatures	for	in Zon						ar up to 1					
environment			e 1 or hig										
Connecting cables		cable of	capacitar	nce: sig	nal line/s	shield als	o signal	line / sigr	nal line:	160 pF/m			
(by factory)			nductano					l line / sig					
Miscellaneous													
Option SIL 2 application		accord	ing to IE	C 61508	/ IEC 61	1511							
Current consumption			output cu		max. 2		0	ignal outp		ade. ma	x. 7 mA		
Weight		<u> </u>	. 150 g	anont.	max. 2		3	igna out		.go. ma	A. F HIA		
Installation position			. 150 g										
		any	× 10 ⁶	001150 0									
Operational life			x 10 ⁶ pre										
CE-conformity			Directive:	2004/10	18/EC								
ATEX Directive		94/9/E											



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LMK 331

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LMK	33

LMK 331	-		· 🗌 - 🗋]-[]]]-[-	-[]	- 🗌	-[]		
Pressure												
gauge in bar	4 6 0 4 6 1											
gauge in mH ₂ O	4 6 1											
Input [mH ₂ O] [bar] 4.0 0.40		4 0 0 0										
6.0 0.60		$\begin{array}{cccccccccccccccccccccccccccccccccccc$										
10 1.0		1 0 0 1										
16 1.6		1 6 0 1										
25 2.5 40 4.0		2 5 0 1 4 0 0 1							_	_		
40 4.0 60 6.0		6 0 0 1										
100 10		1 0 0 2										
160 16		1 6 0 2										
250 25 400 40 ¹		2 5 0 2										
600 60 ¹		6002										
customer		1 0 0 2 1 6 0 2 2 5 0 2 4 0 0 2 6 0 0 2 9 9 9 9										consult
Analogue output												
4 20 mA / 2-wire			1									
0 20 mA / 3-wire 0 10 V / 3-wire			2 3							_		
Intrinsic safety 4 20 mA / 2-wire ²			E									
SIL2 4 20 mA / 2-wire			1S									
SIL2 with Intrinsic safety ²			ES									
4 20 mA / 2-wire customer			9									consult
Accuracy			0									Consult
0.5 %			5	5								
customer			ç						_			consult
Electrical connection Male and female plug ISO 4400	_	_		1 0	0							
Male plug Binder series 723 (5-pin)				2 0	0							
Cable outlet with PVC cable ³				TA	0							
Cable outlet ⁴				TR	0					_		
Male plug M12x1 (4-pin) / metal compact field housing				M 1								
stainless steel 1.4305				8 5	0							
customer				99	9							consult
Mechanical connection												
G3/4" DIN 3852 with flush sensor					K	00						
customer					9	99						consult
Seals												
FKM							1					
EPDM customer							3 9					consult
Pressure port	_						9					Consult
Stainless steel 1.4404 (316L)								1				
for $P_N \le 25$ bar PVDF ⁵								В				
Diaphragm	_	_						9				consult
Ceramics Al ₂ O ₃ 96%									2			
customer									9			consult
Special version												
standard customer										0	0 0 9 9	
customer										9	9 9	consult

¹ only possible for pressure port of stainless steel

⁵ Ex-protection not possible with plastic pressure port
 ³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
 ⁴ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable
 ⁵ min. permissible temperature -30 °C

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Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 bar

Output signal

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

Product characteristics

- pressure port PVDF-version for aggressive media
- ▶ pressure port G 1 ½" for pasty and polluted media

Optional versions

- IS-version Ex ia = intrinsically safe for gases and dust
- diaphragm 99.9 % Al₂O₃
- customer specific versions

LMK 351

Screw-in Transmitter

Ceramic Sensor

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

The screw-in transmitter LMK 351 has been designed for measuring small system pressure and level measurement in container. The LMK 351 is based on an own-developed capacitive ceramic sensor element. Usage in viscous and pasty media is possible because of the flush mounted sensor.

For the usage in aggressive media a pressure port in PVDF and the diaphragm in AI_2O_3 99.9 % is available. An intrinsically safe version complete the range of possibilities.

Preferred areas of use are



Plant and Machine Engineering

Environmental Engineering (water - sewage - recycling)

Preferred used for



Fuel and Oil

Viscous and Pasty Media





Pressure ranges																
Nominal pressure	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[Dai] [mH ₂ O]	0.04	0.00	1	1.6	2.5	4	6	10	1.0	2.5	40	60	100	160	20
Overpressure		2	2	4	4	6	6	8	8	15	25	25	35	35	45	4
Low pressure	[bar] [bar]).2		4 .3	0	-	.5	0	15	25	25	-1	35	40	4
Low pressure	[bai]	-0).2	-0	.ა		-0	.5					-1			
Output signal / Supply																
Standard		2-wire	<u>م</u> · <u>۸</u>	20 r	$n\Delta / \lambda$	$l_{0} = 0$	32 \/									
Option Ex-version		2-wire		20 r		-		-								
		3-wire														
Option 3-wire		S-WII	e. 0	10 \	/ / \	$V_{\rm S} = 12$		2 V DC								
Performance																
Accuracy ¹		stand option	dard: n for P _№	ó 0.6		≤ :	± 0.35 ± 0.25	% FSC)							
Permissible load			nt 2-wii ge 3-wi		R_{max} R_{min}	= [(V _s = 10 kg	– V _{S mir} D) / 0.02	2 A] Ω							
Influence effects		suppl load:			0.05	% FS0 % FS0) / 10 \	/								
Long term stability		$\leq \pm 0$	1 % FS	SO / ye	ar at re	ferenc	e cond	tions								
Turn-on time		700 n														
Mean measuring time		5/sec														
Response time			n respo	onse tin	ne: < 20)0 mse	С		m	ax res	sponse	time: 3	80 ms	ec		
¹ accuracy according to IEC	60770 - limi		· ·					eatahilit			201100		55 113			
							1313, Tep	calabilit	y)							_
Thermal effects (Offset	and Span				•											
Tolerance band	2		1 % FS								80 °C					
Permissible temperatures			um: -40	-	-	-	lectron	ics / en	vironm	nent:-4	0 85	°C	sto	orage: -4	40 1	00
² for pressure port of PVDF t	he minimum	n permis	sible te	mperatu	re is -30	0°C										
Electrical protection																
Short-circuit protection		perm	anent													_
Reverse polarity protection	าท		mage,	but als	o no fu	Inction										
Electromagnetic compatil			sion an				n to EN	61326	:							
	Dinty	emise	sion an	u innin	inty ac	coruni		01520	,							
Mechanical stability																
Vibration		10 g l	RMS (2	20 20	00 Hz))			a	ccordir	ng to DI	N EN 6	60068-2	2-6		
Shock		100 g) / 1 ms	ec					a	ccordir	ng to DI	N EN 6	60068-2	2-27		
Materials (media wetted	D	-									-					
Pressure port	·)	stand	lard	etainl	nee eto	el 1.44	04 (31)	31.)	0	ntion:	PVDF					_
Housing						el 1.44		,			PVDF					
Seals		stand FKM			125 °C		04 (310)	0	ption.	FVDF					
Seals		FFKN	Λ	-15	125 °C 125 °C 125 °C)										
Diaphragm		stand	lard:	ceran	nics Al	O ₃ 96 9	%									
p		optior				O ₃ 99.9										
Media wetted parts		· ·	ure po													
·	20	•		.,	,											_
IS-protection (only for 4	20 mA	1														
Approval DX14-LMK 351		stainl	J05ATI ess ste Zone 0:	el-pres	sure p	ort with Ex ia IIC			ctor):							
		plasti	Zone 20 c-press Zone 0/ Zone 20	sure po /1 ³ :	rt with II 1/2G	ix ia III male (c Ex ia I Ex ia I	connec IC T4 (tor): Ga/Gb	/Db							
Safety technical maximum values		U _i = 2	28 V, I _i :	= 93 m	A, P _i =	660 m\	N, C _i =	27 nF	, L _i = 5	іμН						
			0.01		-20	60 °	•	atm 0.8	bar up	to 1.1	bar					
	ature	in zor zone	1 and h	nigher:	-25	70 °(C									
Max. permissible tempera for environment Connecting cables	ature	zone capao	1 and I city:	signa	l line /	shield	also sig	·	•		: 160 pl : 1 μH/r					
Max. permissible tempera for environment Connecting cables (by factory) ³ The designation depends on ⁴ With nominal pressure rang	n the used p	zone capao induc	1 and h city: tance: e range.	signa signa With no	l line / l line / minal pi	shield a shield a ressure	also sig also sig <i>ranges</i>	, gnal lin∉ ≤ 60 mb	e / sign ar the a	nal line: Iesignat	: 1 μΗ/r ion is "2	n G".				
Max. permissible tempera for environment Connecting cables (by factory) ³ The designation depends or ⁴ With nominal pressure rang Miscellaneous	n the used p	zone capac induc pressure ar and	1 and h city: tance: e range. < 10 bar	signa signa With no (see ite	l line / l line / minal pi m 17 of	shield a shield a ressure the type	also sig also sig <i>ranges</i> e-exami	, gnal lin∉ ≤ 60 mb	e / sign ar the o ertificat	nal line: lesignat e) must	: 1 μH/r tion is "2 be atter	n G". nded!				
Max. permissible tempera for environment Connecting cables (by factory) ³ The designation depends or ⁴ With nominal pressure rang Miscellaneous Current consumption	n the used p	zone capac induc pressure ar and signa	1 and h city: tance: a range. < 10 bar	signa signa With no (see ite t currer	l line / l line / minal pi m 17 of	shield a shield a ressure	also sig also sig <i>ranges</i> e-exami	, gnal lin∉ ≤ 60 mb	e / sign ar the o ertificat	nal line: lesignat e) must	: 1 μΗ/r ion is "2	n G". nded!		max. 5	mA	
Max. permissible tempera for environment Connecting cables (by factory) ³ The designation depends of ⁴ With nominal pressure rang Miscellaneous	n the used p	zone capac induc pressure ar and signa	1 and h city: tance: e range. < 10 bar	signa signa With no (see ite t currer	l line / l line / minal pi m 17 of	shield a shield a ressure the type	also sig also sig <i>ranges</i> e-exami	, gnal lin∉ ≤ 60 mb	e / sign ar the o ertificat	nal line: lesignat e) must	: 1 μH/r tion is "2 be atter	n G". nded!		max. 5	mA	
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LMK 351 Pressure

in l

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				-			-	-	-			-			-		-	-		
bar	4	7	0																	

Input (mH-0) (bar) (bar) <t< th=""><th></th><th>in mH₂O</th><th>4 7 0</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>		in mH ₂ O	4 7 0																
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100 10 100 1 0 0 2 0 0 2 0 0 2 0 0 2 0 0 2 0 0 2 0 0 2 0 0 2 0 0 2 0 0 2 0 0 2 0 0 2 0 0 2 0 </td <td>40</td> <td></td> <td></td> <td>4 0</td> <td>0</td> <td>1</td> <td></td>	40			4 0	0	1													
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Output 420 mA / 2-wire 1 0				1 0	0	2													
Output 420 mA / 2-wire 1 0				1 6	0	2													
Output 420 mA / 2-wire 1 0				2 0	0	2													
Output 420 mA / 2-wire 1 0				9 9	9	9													consult
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010 V/3-wire 3 1		A / 2-wire		_	_	_	1	_											
Intrinsic safety 4 20 mA / 2-wire E I <thi< th=""> I I</thi<>							3												
Accuracy standard 0.35 % 3 option for P _N ≥ 0.6 bar: 0.25 % 2 oustomer 0							Ē												
Accuracy standard 0.35 % 3 option for P _N ≥ 0.6 bar: 0.25 % 2 oustomer 0							9												consult
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Customer 9 1<																			
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$\begin{tabular}{ c c c c } \hline Mechanical connection & M & 0 & 0 & & & & & & & & & & & & & &$									N/	1 0						_			
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FFKM 7 7 7 7 6 6 customer 9 9 6 6 consult Pressure port 1 1 6 6 6 Stainless steel 1.4404 (316L) 1 1 6 6 6 PVDF ³ B 6 6 6 6 6 Customer 9 0 6 6 6 6 Diaphragm 2 2 6 6 6 6 Ceramics Al ₂ O ₃ 96% 2 2 6 6 6 6 6 Ceramics Al ₂ O ₃ 99.9% 2 2 6 6 6 6 6 Special version 9 0																			
customer9IConsultPressure portIIIIStainless steel 1.4404 (316L)1IIIPVDF 3BIIICustomer9IIIDiaphragm2IICeramics Al_2O_3 96%2IICeramics Al_2O_3 99.9%CIICustomer9IIISpecial versionIIII													7						
Pressure port I <													0						concult
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customer 9 consult															2				
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standard 0 0 0 customer 9 9 9 consult		Customer													5				Consult
customer 9 9 9 consult		standard														0	0		
																0	0	0	consult
																3	5	~1	consult

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

² cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

³ not possible in combination with compact field housing; min. permissible temperature -30 °C

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Technical Data

Input pressure range								
Nominal pressure P _N gauge [bar]	0.06	0.16	0.4	1	2	5	10	20
Nominal pressure P_N abs. [bar]				on re	quest			
Permissible overpresure [bar]	2	4	6	8	15	25	35	40
$\begin{array}{l} \mbox{Permissible vacuum for } P_{N} \\ \mbox{gauge} & \mbox{[bar]} \end{array}$	-0.2	-0.3	-0	.5		-	1	

Output signal / Supply	
Standard	2-wire: 4 20 mA / V _S = 9 32 V _{DC}
Current consumption	max. 21 mA
Performance	
Accuracy ¹	IEC 60770 ² : ≤ ± 0.2 % FSO
Turn-on time	700 msec
Permissible load	$R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$
Long term stability	≤ ± 0.1 % FSO / year at reference co
Response time (10 90 %)	120 msec - without consideration of
Measuring rate	8/sec
	r the accuracy is calculated as follows: ≤ ± [imit point adjustment (non-linearity, hysteres
Thermal errors (Offset and Span	n)/ Permissible temperatures
Thermal error	≤ ± (0.02 x nominal range / adjusted in compensated range 0 80°C
Permissible temperatures	medium: -40 125°C electronics

100

EP 500

Pressure Transmitter

Special application: level measurement via air bubbling

Characteristics:

- ► capacitive ceramic sensor
- nominal pressure range from
- 0 ... 60 mbar up to 0 ... 20 bar
- ▶ output signal 4 ... 20 mA / 2-wire
- hat rail housing
- programming via integrated interface



; V_{S Nom.} = 24 V_{DC} BFSL: ≤±0.1 % FSO onditions electronic damping [0.2 + 0.04 x(nominal pressure range / adjusted range)] % FSO esis, repeatability) d range) % FSO / 10 K s / environment / storage: -40 ... 85°C

Short-circuit protection					
	permanent				
Reverse polarity protection	no damage, but also no f	unction			
Electrical connection					
Input	terminal clamps (3-pin)				
Communication connector	M12x1 (8-pin), metal	,			
Materials					
Pressure port	standard: stainless sto on request: brass	on request: brass			
Housing	version EP 500: PA6 (housing foot: PA66) varsion EP 500 - 500: ABS				
Seals (media wetted)	FKM				
Diaphragm	ceramic Al ₂ O ₃ 96 %				
Media wetted parts	pressure port, seals of se	ensor, diaphragm			
Category of the environment					
Lloyd's Register (LR)	EMV1, EMV2, EMV3		of certificate: 13/20056		
Germanischer Lloyd (GL)	C, EMC1	number	of certificate: 86 482 - 09 HH		
Miscellaneous					
Ingress protection	IP 00				
Function display	green SMD-LED - lights	by information flow through the tran	smitter		
Installation position	any				
Operational life	> 100 x 10 ⁶ pressure cyc	les			
Weight	approx. 200 g	nming kit CIS 700 ³ ; following config			
9	 electronic damping: 0 100 sec offset: 0 67 % FSO turn down of span: max. 1:20 configuration of pressure unit calibration via connected pressure reference 				
	separately (software appropriate	for Windows [®] 95, 98, 2000, NT Version	4.0 or higher, and XP)		
Pin configuration					
Electrical connections		terminal clamps	M12x1 (8-polig), metal		
Supply +1 Supply +2 Supply – Tx Rx		1 - 2	- 4 2 5 6		
	GND	-	7		
	NC	-	1		
	Shield	3	3		

EP 500 Technical Data



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104 EP 500

Ordering code

ACCESSORIES

EP 500		- 🗌 - 🔲			-		
Pressure							
gauge	U P 5 U P 6						
absolute	U P 6						consult
Input [bar]							
0.06	0 6 0 0 1 6 0 0						
0.16	1 6 0 0 4 0 0 0 1 0 0 1						
0.4	4 0 0 0						
1.0	1 0 0 1						
2.0	2 0 0 1 5 0 0 1 1 0 0 2						
5.0	5 0 0 1						
10	1 0 0 2						
20	2 0 0 2						
customer	1 0 0 2 2 0 0 2 9 9 9 9						consult
Output							
4 20 mA / 2-wire		1					
customer		9					consult
Accuracy							
0.2 %		В					
customer		9					consult
Mechanical connection							
hose connection Ø 4.5 mm ¹			Y 0 2				
G1/4" EN 837			4 0 0				
customer			Y 0 2 4 0 0 9 9 9				consult
Seal							
FKM			1				
customer			9				consult
Pressure port							
stainless steel 1.4301 (304)				2			
brass				M			consult
customer				9			consult
Diaphragm							
ceramics Al ₂ O ₃ 96%				2 9			
customer				9			consult
Special version							
standard					0 0	0	
option					5 0	0	consult
customer					9 9	9	consult

¹ hose connection only up to 5 bar



Product characteristics

- ► aluminium die cast case
- ► for connecting 2-wire submersible transmitters
- ► integrated pressure balance item
- 2 signal lines

Optional versions

- overvoltage protection with nominal discharge current of 10 kA
- ► Pt 100 temperature sensor for submersible pressure transmitters with built in Pt 100 sensor

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Terminal Box

Aluminium

The terminal box KL 1 is intended for the professional electrical connection of 2-wire transmitters.

It offers integrated atmospheric pressure compensation. Optionally with overvoltage protection and Pt 100 temperatur sensor for BD|SENSORS devices.

The terminal box KL 1 is equipped with a pressure balance item for equalization of atmospheric reference, therefore a cable without ventilation tube can be used on the supply side.

Vertical terminal clamps enable easy connection of cables inside. The terminal box has to be mounted with two fastening screws.

Number of signal lines				
ramoor or orginar inteo	2-wire (4 20 mA)			
Housing	aluminium die cast case, grey powder-coating			
Ingress protection	IP 66			
Cable entries	cable gland M16x1.5 Polyamide, seals NBR, IP 68,			
	diameter range: standard 5 10 mm			
	others on request			
Atmospheric pressure	pressure balance item with PTFE filter			
compensation	•			
Terminal clamps	vertical clamps for stranded and solid wires up to 2.5 mm ²			
Weight	approx. 550 g			
Optional overvoltage protection				
Series resistance	10 Ω for each wire			
Nominal discharge current	10 kA (8/20 µs)			
Max. rated current	30 mA			
Optional Pt 100 temperature sen	isor ¹			
Temperature range	standard: 070 °C			
Temperature range	option: $T_{min} \dots T_{max}$ can be in range from -40 °C up to 400 °C			
Connection temperature sensor	3-wire			
Output signal / Supply	2-wire: 4 20 mA / V _s = 12 34 V _{DC}			
Accuracy	< 0.15 %			
Linearity	<0.1%			
Thermal effects	< 0.01 % / K			
	uipped with a Pt 100 temperature sensor			
Wiring diagram				
	* The supply V _S has to be chosen according to needs of the used transmitter.			
Dimensions (in mm)				
	equipped only with Pt 100 version			
Pt 100 transmitter (equipped only with Pt 100 version)	BND V-V-V+T-T-T+ BND VT+VT-VP+VP- GND VT+VT-VP+VP- S8 mm			

KL 1 - ZB.601 -Version 1 0 0 1 0 1 1 T 0 1 T 1 standard over voltage protection thermo element Pt 100 thermo element Pt 100 and over voltage protection Special version standard customer

¹ only necessary if the submersible transmitter is equipped with a Pt 100 temperature sensor

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cable gland M16x1.5

This document contains product specifications; properties are not guaranteed. Subject to change without notice.

pressure balance item



KL 2 Technical Data

General specifications	
Number of signal lines	2-wire (4 20 mA)
Housing material	plastic ABS, grey
Ingress protection	IP 66
Cable entries	cable gland M16x1.5 Polyamide, se diameter range: standard 5 10 others on reques
Atmospheric pressure compensation	pressure balance item with PTFE fi
Terminal clamps	vertical clamps for stranded and so
Weight	approx. 220 g
Optional overvoltage protection	n
Series resistance	10 Ω for each wire
Nominal discharge current	10 kA (8/20 µs)
Max. rated current	30 mA
Optional HART [®] connection	
Connections	terminal clamp connection
Wiring diagram	





55 mm

HART[®] is a registered trade mark of HART Communication Foundation

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Product characteristics

- ► cost-efficient ABS case
- ► for connecting 2-wire submersible transmitters
- ▶ integrated pressure balance item
- ► 2 signal lines

Optional versions

- ► Version for two independent 2 wire circuits
- overvoltage protection
- ► HART[®] connection

KL 2

Terminal Box

Plastics

CE

HART

The terminal box KL 2 is intended for the professional electrical connection of submersible level transmitters. Thus, it is a cost-effective alternative to our well proven aluminium terminal box KL 1.

A pressure balance item is responsible for the compensation of atmospheric pressure variations. On the supply side a cable without ventilation tube can be used.

Vertical terminal clamps enable easy connection of cables inside the case.

The KL 2 with optional overvoltage protection is additionally equipped with surge arresters with a nominal discharge current of 10 kA.

As a further option the KL 2 is available with a HART[®] connection.

ACCESSORIES

KL 2 - ZB.601	
Version	
standard	2 0 0
over voltage protection	2 0 1
version with 2 channels ¹	2 2 0
version with 2 channels and over voltage protection ¹	2 2 1 2 H 0
HART [®] communication interface	2 H 0
HART [®] communication interface and over voltage protection	2 H 1
Special version	
standard	0 0 0
customer	9 9 9

¹ Version for 2 independent 2 wire circuits

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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; plasti	с
Seal insert	material: TPE (ingress protection IP 68)	
Hole pattern	according to DIN 2507	
Version	Size (in mm)	We
DN25 / PN40	D = 115, k = 85, b = 18, n = 4, d= 14	1.4
DN50 / PN40	D = 165, k = 125, b = 20, n = 4, d= 18	3.2
DN50 / PN40 DN80 / PN16	D = 165, k = 125, b = 20, n = 4, d= 18 D = 200, k = 160, b = 20, n = 8, d= 18	
		3.2 4.8 Orc
DN80 / PN16 Ordering type		4.8 Orc
DN80 / PN16 Ordering type DN25 / PN40 with cable	D = 200, k = 160, b = 20, n = 8, d= 18	4.8 Orc ZM
DN80 / PN16 Ordering type DN25 / PN40 with cable DN50 / PN40 with cable	D = 200, k = 160, b = 20, n = 8, d= 18 e gland brass, nickel plated	4.8

Terminal clamp		
Technical Data		
Suitable for	all probes with cable \varnothing 5.5 10.5 mm	
Material	standard:steel, zinc platedoptionally:stainless steel 1.4301	
Weight	approx. 160 g	
Ordering type		
Terminal clamp, steel, zinc plated		
Terminal clamp, stainless steel 1.4301 2		

probe flange				
Technical data				
Suitable for	LMK 382, LMK 382H, LMK 458, LMK 458H			
Flange material	stainless steel 1.4404 (316L)			
Hole pattern	according to DIN 2507			
Version	Size (in mm)	We		
DN25 / PN40	D = 115, k = 85, b = 18, n = 4, d= 14	1.2		
DN50 / PN40	D = 165, k = 125, b = 20, n = 4, d= 18	2.6		
DN80 / PN16	D = 200, k = 160, b = 20, n = 8, d= 18	4.1		
Ordering type C				
Transmitter flange DN25 / PN40				
Transmitter flange DN5	0 / PN40	ZSI		
Transmitter flange DN80 / PN16 Z				

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.







112 ACCESSORIES

ACCESSORIES

	Description	Display	Input
PA 430	Plug-on Display self powered with Contacts and Ex-approval	4-digit LED-display 4 x 7 mm, rotatable	4 20 mA, 0 10 V
PA 440	Field Display with Contacts and Ex-approval	4-digit LED-display 4 x 10 mm 4-digit LCD-display 4 x 18 mm	4 20 mA
PA 450	Field Display for Difference Formation	4-digit LED-display 4 x 10 mm	2 inputs: 4 20 mA
CIT 200	Process Display	4-digit LED-display 4 x 13 mm	0/4 20 mA, 0/1 5 V, 0/2 10 V, PT100 / PT500 / PT1000
CIT 250	Process Display with Contacts	4-digit LED-display 4 x 13 mm	0/4 20 mA, 0/1 5 V, 0/2 10 V, PT100 / PT500 / PT1000
CIT 300	Process Display with Contacts and Analogue Output	4-digit LED-display 4 x 20 mm	0/4 20 mA, 0/1 5 V, 0/2 10 V, PT100 / PT500 / PT1000
CIT 350	Process Display with Bargraph, Contacts and Analogue Output	4-digit LED-display 4 x 9 mm + 20-segment-Bargraph	0/4 20 mA, 0/1 5 V, 0/2 10 V
CIT 400	Process Display with Contacts, Analogue Output and Ex-approval	4-digit LED-display 4 x 10 mm	4 20 mA
CIT 600	Multichannel Process Display (LCD)	graphic LC-display 128 x 64 pixel	2 / 4 / 8 inputs: 0/4 20 mA, PT100 / PT500 / PT1000
CIT 650	Multichannel Process Display (LCD) with Datalogger	graphic LC-display 128 x 64 pixel	1 / 4 / 8 inputs: 0/4 20 mA, PT100 / PT500 / PT1000
CIT 700	Mulitchannel Process Display (TFT) with Contacts, Analogue Outputs and Datalogger	graphic 3,5" TFT- monitor, touchscreen	max. 48 inputs: 0 20 mA, 0 10 V max. 12 inputs: PT 100 / PT 500 / PT 1000 (Ω) max. 24 inputs: thermocouple (mV)
CIT 750	Mulitchannel Process Display (TFT) with Contacts, Analogue Outputs and Datalogger	graphic 5,7" TFT- monitor, touchscreen	max. 72 inputs: 0 20 mA, 0 10 V max. 18 inputs: PT 100 / PT 500 / PT 1000 (Ω) max. 36 inputs: thermocouple (mV)

Output	Housing Dimensions (B x H x T) in mm
0 / 1 / 2 PNP-outputs 4 20 mA, 0 10 V	plastic, rotatable 47 x 47 x 68
0 / 1 / 2 PNP- outputs 4 20 mA	plastic 120 x 80 x 57 aluminium 125 x 80 x 57
0 / 1 / 2 PNP- outputs 4 20 mA	plastic 120 x 80 x 57
	front panel 72 x 36 x77 (95)
0 / 1 / 2 relay- outputs	front panel 72 x 36 x 77
0 / 2 / 4 relay- outputs 0/4 20 mA	front panel 96 x 48 x 98
0 / 2 / 4 relay- outputs 0/4 20 mA	front panel 48 x 96 x 98
2 / 4 relay- outputs 0/4 20 mA	front panel 72 x 72 x 110 hat rail 70 x 75 x 110
2 OC- outputs	front panel 96 x 96 x 100
2 OC- outputs	front panel 96 x 96 x 100
max. 16 relay- outputs, max. 24 SSR-ouputs, max. 8 outputs 4 20 mA	front panel 96 x 96 x 100
max. 36 relay- outputs, max. 72 SSR-outputs, max. 24 outputs 4 20 mA	front panel 144 x 144 x 100

Interface	
-	3
-	12.85
-	
RS 485 Modbus RTU	1548
RS 485 Modbus RTU	1648
RS 485 Modbus RTU	1648
RS 485 Modbus RTU	
-	
RS 485 Modbus RTU	88.9
RS 485 Modbus RTU USB-Host Port	88.9
RS 485 Modbus RTU, RS 232, Ethernet (Modbus TCP, Java Applets) USB Host Port	
RS 485 Modbus RTU, RS 232, Ethernet (Modbus TCP, Java Applets) USB Host Port	-

COMPETENCE

PRICE / PERFORMANCE

Industrial pressure measurement technology from 0.1 mbar up to 6000 bar

- → pressure transmitters, electronic pressure switches or hydrostatic level probes
- \rightarrow OEM or high-end products
- ightarrow standard products or customized solutions

BD|SENSORS has the right pressure measuring device at the right price.

pressure measurement at the highest level

The concentration on electronic pressure transmitter has led to extraordinary efficiency and economical pricing.

BD|SENSORS is certain to be one of the most economical suppliers on the world market, given equal technical and commercial conditions.

RELIABILITY

projectable delivery times and strict observance of deadlines

Short delivery times and firm deadlines, even for special designs, make BDISENSORS a reliable partner for our customers.

BD|SENSORS reduces the level of your stock-keeping and increases your profitability.

FLEXIBILITY

We have special solutions for your individual requirement.

We solve your problem in industrial pressure measurement quickly and economically, not only with large-scale production lines, but also for smaller requirements.

BD|SENSORS is especially flexible when technical support and quick assistance are required in service case as well as for rush orders.

4 ⁰	plant and machine engineering
	chemical and biochemical industry
¥	energy industry
1	renewable energy
Ø	semiconducter industry / cleanroom technology
13%	HVAC
	hydraulics
	refrigeration
AL *	calibration techniques
	laboratory techniques
0	medical technology
	food and beverage
6 6	vehicles and mobile hydraulics
A	oil and gas industry
80	pharmaceutical industry
	marine / shipbuilding / offshore
	heavy industry
0	environmental industry
	packaging and paper industry

INDUSTRIES

115

MEDIA

0	sewage
0	aggressive media
S	colours
C02 N2	gases
0	fuels and oils
	pasty and viscous media
02	oxygen
0	water



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