HYDROSTATIC PROBES SCREW-IN TRANSMITTERS

PRODUCT CATALOGUE



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 BD|SENSORS 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.

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



With 300 employees at 3 locations in Germany, the Czech Republic and China BD|SENSORS has solutions from 0.1 mbar to 6,000 bar:

pressure	sensors,	pressure	transd	ucers
pressure	transmit	ters		

- > electronic pressure switches
- > pressure measuring devices with display and switching outputs
- 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 customer-specific applications, underlining the competence and flexibility of BDISENSORS. 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

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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.

	PRODUCT	PRE	FERI	RED	APPL	.ICAT	ION	Ø	ТҮРЕ	ME	DIA V PAF		ED	NOM PRES	INAL SURE		UTPU IGNA			API	PROV	/AL	
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		water / drinking water	waste water / viscous	sea water / salty water	fuel / oil	petrol / solvents	acid / lye	mm / inch	detachable	metal	plastic	stainless steel	ceramic	meter H ₂ 0 min	meter H ₂ 0 max	analogue	digital	temperature	EX	UL	SIL	drinking water	nautic
sul	omersible pro	bes	digita	al																			
₽	DCL 531	•			•			27		•		•		1	250		•			•		•	
INDUSTRY	DCL 532	•			•			27		•		•		1	40		•						
2	DCL 551	•	•					40		•			•	0,4	200		•			•			
	DCL 571	•	•					22		•			•	1	100		•			•		•	
sul	omersible pro	bes	analo	og																			
NOI	LMP 307 i	•			•			27		•		•		4	200	•			•	•		•	
PRECISION	LMP 308 i	•						35	•	•		•		4	200	•			•	•			
8	LMK 358 H	•	•					40	•	•			•	0,2	100	•	•		•	•			
	LMK 382 H	•	•					40		•			•	0,2	200	•	•		•	•			
	LMK 387 H	•	•					22		•			•	0,3	100	•	•	•	•				
	LMK 458 H			•	•			40		•			•	0,2	200	•	•		•	•			•
ŘΥ	LMP 305	•						19		•		•		1	250	•				•			
INDUSTRY	LMP 307	•			•	•		27		•		•		1	250	•			•	•	•	•	
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	LMP 308	•						35	•	•		•		1	250	•			•	•	•		
	LMP 808	•			•			35	•		•	•		1	100	•				•	•		
	LMK 306	•						17		•		•		6	200	•				•			
	LMK 307	•	•					27		•			•	4	250	•			•	•	•		
	LMK 307 T	•	•					27		•			•	4	250	•		•		•			
	LMK 358	•	•					40	•	•			•	0,4	100	•			•	•			
	LMK 382	•	•					40		•			•	0,4	200	•		•	•	•			
	LMK 387	•	•					22		•			•	1	100	•		•	•	•		•	
	LMK 458			•	•			40		•			•	0,4	200	•		•	•	•			•
	LMK 487			•	•			22		•			•	1	100	•		•	•	•			•
	LMK 806		•				•	21			•		•	6	200	•				•			
	LMK 807		•				•	35			•		•	4	100	•				•	•		
	LMK 808	•	•	•			•	35	•		•		•	1	100	•				•			
	LMK 809		•	•			•	45			•		•	0,4	100	•				•			
	LMK 858		•	•			•	45	•		•		•	0,4	100	•				•			
OEM	18.605 G	•			•			24		•		•		1	10	•				•			
scr	ew-in transm	itter																					
PRECISION	LMP 331 i	•						3/4"		•		•		0,4	400	•			•	•			
>	LMP 331	•						3/4"		•				1.	400				•	•			
INDUSTRY	LMK 331				•			3/4		•		•		4	600	•				•	•		
NDL	LMK 351	•	•				•			•	•		•	4		•			•		•		
	LMK 351		•				•	1 1/2"		•				0,4	200	•			•				

DCL 531



Stainless Steel Probe with RS485 Modbus RTU

Stainless Steel Sensor

accuracy according to IEC 60770: 0.25 % FSO

Nominal pressure

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

Output signal

RS485 with Modbus RTU protocol

Special characteristics

- pressure value
- diameter 26.5 mm
- small thermal effect
- excellent accuracy
- good long term stability
- reset function

Optional versions

- drinking water certificate according to DVGW and KTW
- different kinds of cables and elastomers

The stainless steel probe DCL 531 with RS485 interface uses the communication protocol Modbus RTU which has found the way in industrial communication as an open protocol. The Modbus protocol is based on a master slave architecture with which up to 247 slaves can be questioned by a master – the data are transferred in binary form.

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

Preferred areas of use are

Water / filtrated sewage

drinking water system, ground water level measurement, rain spillway basin pump and booster stations level measurement in container water treatment plants

water treatment plants water recycling



Fuel and oil fuel storage tank farm



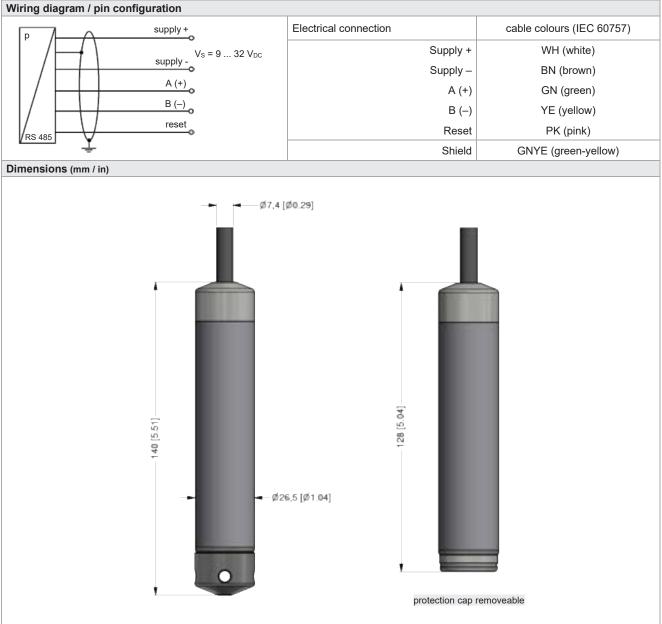






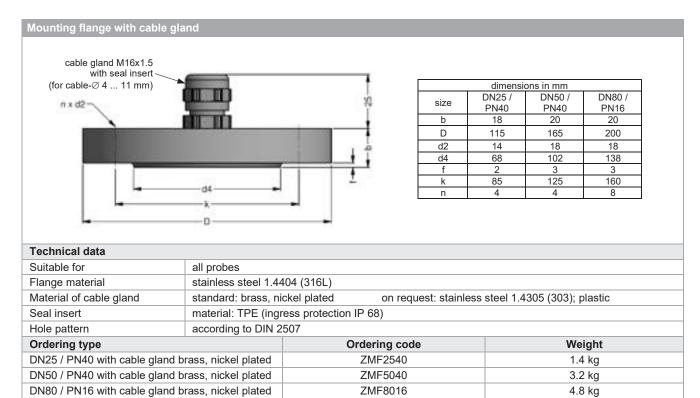
Input pressure range														
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40	40	80	80
Max. ambient pressure (housing): 40 bar														

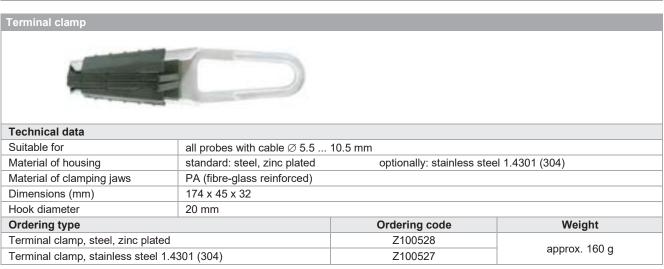
Output signal	
Digital (pressure)	RS485 with Modbus RTU Protocol
Supply	
Direct current	V _S = 9 32 V _{DC}
Performance	
Accuracy ¹	≤±0.25 % FSO
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Measuring rate	500 Hz
Delay time	500 msec
	t point adjustment (non-linearity, hysteresis, repeatability)
Thermal effects (offset and span)	
Tolerance band	≤ ± 0.75 % FSO
in compensated range	-20 85 °C
Permissible temperatures	
Medium	-10 70 °C
Storage	-25 70 °C
Electrical protection ²	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
	on unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request
Electrical connection	m unit in terminal box NL 1 of NL 2 with authospheric pressure reference available on request
Cable with sheath material ³	PUR (-10 70 °C) black Ø 7.4 mm
Cable with sheath material	FEP (-10 70 °C) black Ø 7.4 mm
Cable canacitanes	, , ,
Cable capacitance	signal line/shield also signal line/signal line: 160 pF/m
Cable inductance	signal line/shield also signal line/signal line: 1 μH/m
Bending radius	static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter
3 shielded cable with integrated ventilation	n tube for atmospheric pressure reference
Materials (media wetted)	Tube for authosphienc pressure reference
Housing	stainless steel 1.4404 (316L)
Seals	FKM; EPDM (without / with drinking water approval) others on request
Diaphragm	stainless steel 1.4435 (316L)
Protection cap	POM-C
Cable sheath	
	PUR, FEP, TPE-U
Miscellaneous	according to DVCWW 270 and HDA KTW
Drinking water certificate ⁴	according to DVGW W 270 and UBA KTW (with order the indication "with drinking water certificate" is necessary)
Adjustable units	pressure: mmH ₂ O, mmHg, psi, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa
Read out	serial number; date of calibration, min- and max-value for pressure
	·
Current consumption	max. 10 mA
Weight	approx. 200 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
only possible with EPDM seal in combin	IBDION WITH TME-U CADIE



Standard configuration Address address	001	-	1	-	1
address					
	001				

	247				
Baud Rate					
4800 Bd			0		
9600 Bd			1		
19200 Bd			2		
38400 Bd			3		
Parity					
None					0
Odd					1
Even					2





			Orde	rinç	g	CO	de	DC	L 5	31								
	DCL 531			- 🔲			-[]- <u></u>	 -]-[]-[]-[]-□]-			
Pressure																		
Flessule		in bar	4 5 0 4 5 1		Т	П	_							_		_	_	
		in mH ₂ O	4 5 1															
Input	[mH ₂ O]	[bar]		4														
	1.0 1.6	0.10 0.16		1 0	3 C	0 0												
	2.5	0.25		2	5 0	0												
	4.0	0.40		4	0 0	0												
	6.0	0.60		6	0 0	0												
	10	1.0		1 (0 0	1												
	16	1.6		1 (3 0	1												
	25	2.5		2	5 0	1												
	40	4.0		4 (0 0	1												
	60	6.0		6	0 0	1												
	100 160	10 16		1 1	0 0	2												
	250	25		2	5 0	2												
	250	customer		1 1 2 1 9 1	9 9	9												consult
Housing																		
	stainless steel 1						1											
		customer					9											consult
Diaphragm		1405 (0401)																
	stainless steel 1	.4435 (316L) customer						1										
Output		customer						9										consult
Output	RS485	Modbus RTU			-	-	_	_	L5					_				
Seals	710 100			-			•											
		FKM								1				П				
		EPDM								3								
DVGW/KTW:		EPDM ¹								3T								
		customer					_			9								consult
Accuracy		0.25 % FSO			-	-					2			-			_	
		customer									9							consult
Electrical conn	ection																	Sorioun
	PUR-cable (blace FEP-cable (blace	k, Ø 7.4 mm) ²										2						
	FEP-cable (blace	k, Ø 7.4 mm) ²										3						
DVGW/KTW:	TPE-U cable (blu		2									F						
Cabla law with		customer										9						consult
Cable length		in m																
Special version		111111																
Operative Stor		standard														0	0 0	
		customer														9	9 9	consult

 $^{^{\}rm 1}$ drinking water certification only possible with EPDM seal (code 3T) in combination with TPE-U cable (code F)

² shielded cable with integrated ventilation tube for atmospheric pressure reference



DCL 532

Stainless Steel Probe with i²C interface

Stainless Steel Sensor

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

Nominal pressure

from 0 ... 1 mH₂O up to 0 ... 40 mH₂O

Digital output signal

- i²C
- bus frequency max. 400 kHz

Special characteristics

- ▶ min. current consumption 0.15 mA @ 2.7 V
- ▶ diameter 26.5 mm
- small thermal effect
- excellent accuracy
- good long term stability

Optional versions

- accuracy 0.1 % FSO
- different kinds of cables and elastomers

The stainless-steel level probe DCL 532 is designed for continuous level measurement in water and clean or slightly polluted liquids. A piezoresistive pressure sensor with low thermal error, an excellent linearity and long-term stability, provides the basis of DCL 532.

Contrary to level probes with analogue output signal, the DCL 532 offers a digital i²C-interface. Thanks to the very low current consumption and supply voltage, it is ideally combined with battery-powered data acquisition systems.

Preferred areas of use are

Water / filtrated sewage



drinking water system, ground water level measurement, rain spillway basin pump and booster stations level measurement in container water treatment plants water recycling



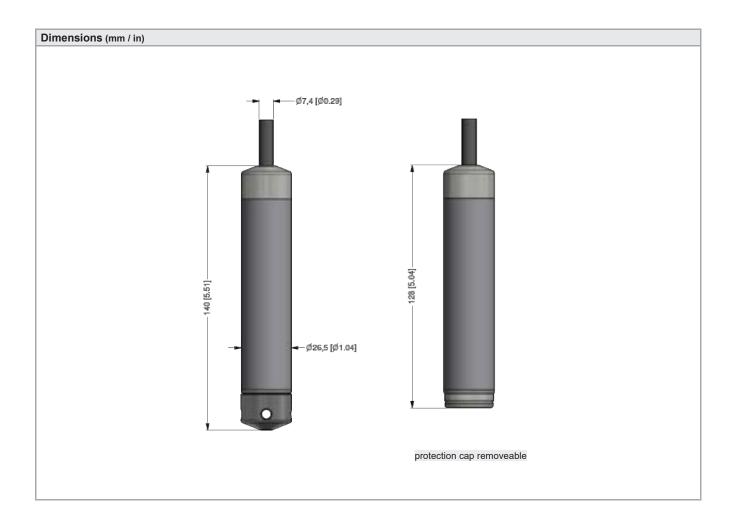
Fuel and oil fuel storage tank farm

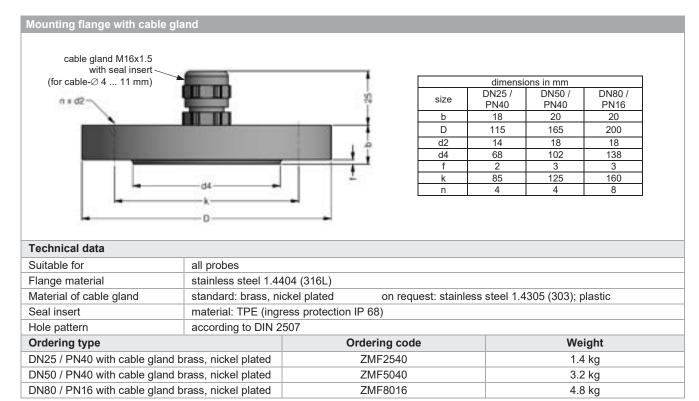


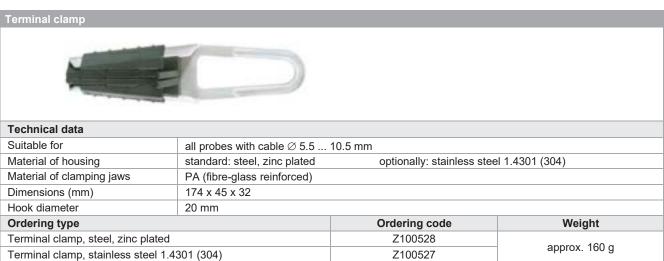




Overpressure										
Overpressure	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4
Overpressure	mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40
<u>'</u>	[bar]	0.5	1	1	2	5	5	10	10	20
Max. ambient pressure (housi	ing): 40	bar								
Output signal / supply										
Digital Digital		i ² C Powe	r Save / V	s = 2.7 5	5.5 V _{DC}	sensor signa	l conditio	ner ZSC31	014	
Performance				,						
Accuracy ¹		standard		25 % FSO % FSO						
Long term stability		≤±0.1%	FSO / year	at referen	ce condition	ns				
Measuring rate		8 Hz (ad	ustable fron	1 8 up to 6	60 Hz)					
Current consumption				•		Hz), max. 3.2 n	nA (V _s 5.	5 V, meası	uring rate 66	0 Hz)
accuracy according to IEC 60770	0 – limit į						, ,	,		
Thermal effects (offset and sp	nan)		<u> </u>							
Tolerance band	puii)	≤ ± 0.75 °	% FSO							
in compensated range		-20 85								
Permissible temperatures		20 00								
Medium		-10 70	°C.							
Storage		-10 70 -25 70								
		-25 10	J							
Electrical protection	I									
Short-circuit protection		none	d b -				. f 4:			
Reverse polarity protection						nge, but also no lines, a dama				
Electrical connection										
Cable with sheath material ²		FEP (-10 70 °C -10 70 °C	c) black	Ø 7.4	mm		able length able length		
Cable capacitance		signal line	e/shield also	signal lir	ne/signal line	e: 160 pF/m				
Cable inductance		signal line	e/shield also	signal lir	ne/signal line	e: 1 µH/m				
Bending radius			application:	20-fc	old cable dia old cable dia					
² shielded cable with integrated ve										
³ with max. cable length and stand	dard setti	ngs, the bu	s frequency m	ust be set to	o < 100 kHz					
Materials (media wetted)										
Housing			steel 1.4404	, ,						
Seals			DM, others							
Diaphragm			steel 1.4435	(316L)						
Protection cap		POM-C								
Cable sheath		PUR, FEI	P, others on	request						
Miscellaneous										
Weight		approx. 2	00 g (withoι	ıt cable)						
Ingress protection		IP 68								
		4.7 kΩ (re	ecommende	d)						
Pull-up resistor	uration									
<u> </u>		$\overline{}$	• U _D		Electrica	I connection		Cable cold	ours (IEC 60	757)
Pull-up resistor		1				Supply	, +	\//	11/12/1	
Pull-up resistor Wiring diagram / pin configu	=	→ PR	SCL			Supply	,	VVI	H (white)	
Pull-up resistor Wiring diagram / pin configu	-	- PR								
Pull-up resistor Wiring diagram / pin configu	1	- PR	SD/			Supply	y —	BN	l (brown)	
Pull-up resistor Wiring diagram / pin configu	1 dC	JR				Supply	y — CL	BN GN	N (brown)	
Pull-up resistor Wiring diagram / pin configu	X-20	J PR				Supply	y —	BN GN	l (brown)	
Pull-up resistor Wiring diagram / pin configu	ht00	J PR				Supply	y — CL	BN GN	N (brown)	
Pull-up resistor Wiring diagram / pin configu		OR OR	SD/			Supply	/- CL DA	BN GN YE	N (brown)	w)







			Orde	ring	C	00	de	DC	L 5	32								
	DCL 532		Ш	- 🔲			-[- <u> </u>	-[]-[]-[]-[]-]- <u></u>	Ц		
Pressure																		
		in bar	4 5 0 4 5 1															
Input	[mH ₂ O]	in mH₂O [bar]	4 5 1				_				_							
input	1.0	0.10		1 0		0											_	
	1.6	0.10		1 6	0	0												
	2.5	0.16		2 5	0	0												
	4.0	0.23		4 0	0	0												
	6.0	0.60		6 0	0	0												
	10	1.0		1 0	Λ.	1												
	16	1.6		1 6	0	1												
	25	2.5		2 5	0	1												
	40	4.0		4 0	0	1												
		customer		1 6 2 5 4 0 9 9	9	9												consult
Housing																		
, in the second	stainless steel 1	.4404 (316L)					1											
		customer					9											consult
Diaphragm																		
	stainless steel 1							1										
		customer						9										consult
Output																		
	i²C	Power Save							IP									
Seal																		
		FKM								1								
		EPDM								3								
A		customer			_	_	_	_	_	9				_			_	consult
Accuracy standard:		0.25 % FSO										2						
option:		0.25 % FSO 0.1 % FSO										1						
Electrical co	nnootion	0.1 % F3U	_	_			-				-	1						
Liectrical co	PUR-cable (blac	k Ø 74 mm) 1											2					
	FEP-cable (blac	k Ø 7.4 mm) ¹											3					
	i Li -odbio (biac	customer											9					consult
Cable length		545.551																Concart
- Casto longiti		in m																
Special vers	ion																	
		standard													0	0	0	
		customer													9	9	9	consult
																. '		

 $^{^{\}rm 1}$ shielded cable with integrated ventilation tube for atmospheric pressure reference, max. cable length 50 m



DCL 551

Stainless Steel Probe with RS485 Modbus RTU

Ceramic Sensor

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

Nominal pressure

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

Output signal

RS485 with Modbus RTU protocol

Special characteristics

- diameter 39.5 mm
- excellent long term stability
- especially for sewage, viscous and pasty media
- reset function

Optional version

diaphragm ceramics Al₂O₃ 99,9%

The stainless steel probe DCL 551 with RS485 interface uses the communication protocol Modbus RTU which has found the way in industrial communication as an open protocol. The Modbus protocol is based on a master slave architecture with which up to 247 slaves can be questioned by a master - the data are transferred in binary form.

DCL 551 has been designed for hydrostatic level measurement in sewage as well as for viscous and pasty media.

Basic element is a robust and high overpressure capable capacitive ceramic sensor.

Preferred areas of use are



Sewage

waste water treatment water recycling

Fuel and oil



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

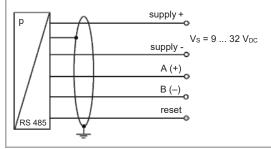






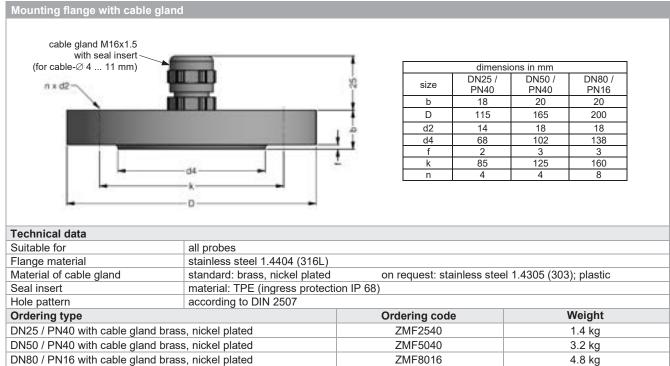
Input pressure range	Input pressure range															
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Max. ambient pressure (housing): 40 bar																

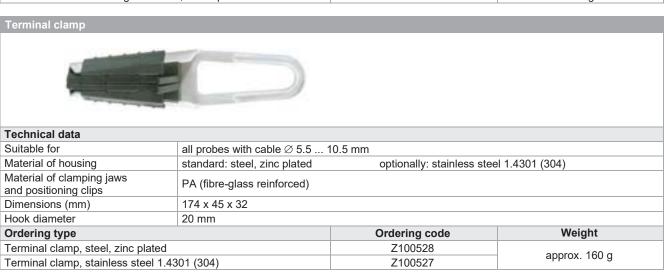
Digital (pressure and temperature)	Output signal	
Direct current Vs = 9 32 Vpc	Digital (pressure and temperature)	RS485 with Modbus RTU protocol
Accuracy ¹ standard: ≤ ± 0.35 % FSO option: ≤ ± 0.25 % FSO coption: ≤ ± 0.25 % FSO search and supplied to the standard: ≤ ± 0.18 FSO / year at reference conditions ### Accuracy 1	Supply	
Accuracy 1 standard: \$\ \pm \ 0.35 \ \ \ FSO \ 0.0 piton: \$\ \pm \ \pm \ 0.25 \ \ \ FSO \ 0.70 piton: \$\ \pm \ \pm \ 0.25 \ \ \ FSO \ 0.70 piton: \$\ \pm \ \pm \ 0.25 \ \ \ FSO \ 0.70 piton: \$\ \pm \ \pm \ 0.25 \ \ \ FSO \ 0.70 piton: \$\ \pm \ \pm \ 0.70 piton: \$\ 0.70 piton: \$\ \pm \ 0.70 piton: \$\ 0.70 p	Direct current	$V_{S} = 9 32 V_{DC}$
Accuracy option: s ± 0.25 % FSO year at reference conditions	Performance	
Measuring rate 500 Hz Delay time 500 msec 500 m	Accuracy ¹	
Delay time 500 msec 3 accuracy according to IEC 60770 – Imit point adjustment (non-linearity, hysteresis, repeatability) Thermal effects (offset and span) Tolerance band ≤±1 % FSO -20 80 °C Permissible temperatures medium / storage: -25 125 °C Electrical protection permanent reversible temperatures reversible temperatures permanent reversible temperatures reversibl	Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Taccuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) Thermal effects (offset and span) Tolerance band ≤ ± 1 % FSO in compensated range -20 80 °C Permissible temperatures Permissible temperatures medium / storage: -25 125 °C Flectrical protection permanent Reverse polarity protection no damage, but also no function Flectromagnetic compatibility emission and immunity according to EN 61326 Fadditional external overvoltage protection until in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request Flectrical connection Flectroal connection Cable with sheath material PUR (-25 70 °C) black Ø 7.4 mm Cable capacitance signal line/shield also signal line/signal line: 160 pF/m Cable inductance signal line/shield also signal line/signal line: 1 µH/m Bending radius static installation: 10-fold cable diameter - shielded cable with integrated ventilation tube for atmospheric pressure reference Materials (media wetted) Housing stainless steel 1.4404 (316 L) Seals FKM others on request Diaphragm standard: ceramics Al₂O₃ 96 % option: ceramics Al₂O₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH₂O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH₂O, MPa Read out serial number, date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Measuring rate	500 Hz
Tolerance band ≤ ± 1 % FSO In compensated range -20 80 °C Permissible temperatures medium / storage: -25 125 °C Electrical protection Permanent Per	Delay time	500 msec
Tolerance band ≤±1 % FSO In compensated range -20 80 °C Permissible temperatures Permission and immunity according to EN 61326 Persiste persister persister reference available on request Permission and immunity according to EN 61326 Persister persister reference available on request Persister persister reference available en request Persister persister reference available Persister	¹ accuracy according to IEC 60770 – lim	it point adjustment (non-linearity, hysteresis, repeatability)
in compensated range	Thermal effects (offset and span)	
Permissible temperatures medium / storage: -25 125 °C	Tolerance band	≤±1%FSO
Permissible temperatures medium / storage: -25 125 °C Electrical protection permanent Perma	in compensated range	-20 80 °C
Electrical protection 2 Short-circuit protection permanent Reverse polarity protection embedies permanent no damage, but also no function Electromagnetic compatibility emission and immunity according to EN 61326 ² additional external overvoltage protection unit in terminal box KL.1 or KL.2 with atmospheric pressure reference available on request Electrical connection Cable with sheath material ³ PUR (-25 70 °C) black Ø 7.4 mm Cable capacitance signal line/shield also signal line/signal line: 160 pF/m Cable inductance signal line/shield also signal line/signal line: 1 μH/m Bending radius static installation: 20-fold cable diameter dynamic application: 20-fold cable diameter ³ shielded cable with integrated ventilation tube for atmospheric pressure reference Materials (media wetted) Housing stainless steel 1.4404 (316 L) Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read o	Permissible temperatures	
Electrical protection 2 Short-circuit protection permanent Reverse polarity protection embedies permanent no damage, but also no function Electromagnetic compatibility emission and immunity according to EN 61326 ² additional external overvoltage protection unit in terminal box KL.1 or KL.2 with atmospheric pressure reference available on request Electrical connection Cable with sheath material ³ PUR (-25 70 °C) black Ø 7.4 mm Cable capacitance signal line/shield also signal line/signal line: 160 pF/m Cable inductance signal line/shield also signal line/signal line: 1 μH/m Bending radius static installation: 20-fold cable diameter dynamic application: 20-fold cable diameter ³ shielded cable with integrated ventilation tube for atmospheric pressure reference Materials (media wetted) Housing stainless steel 1.4404 (316 L) Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read o	Permissible temperatures	medium / storage: -25 125 °C
Short-circuit protection permanent Reverse polarity protection no damage, but also no function Electromagnetic compatibility emission and immunity according to EN 61326 **additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request **Electrical connection** Cable with sheath material ** PUR (-25 70 °C) black Ø 7.4 mm Cable capacitance signal line/shield also signal line/signal line: 160 pF/m Cable inductance signal line/shield also signal line/signal line: 1 µH/m Bending radius static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter **John deable with integrated ventilation tube for atmospheric pressure reference** **Materials (media wetted)** Housing stainless steel 1.4404 (316 L) Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR **Miscellaneous** Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU		
Reverse polarity protection no damage, but also no function Electromagnetic compatibility emission and immunity according to EN 61326 2 additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request Electrical connection Cable with sheath material PUR (-25 70 °C) black Ø 7.4 mm Cable capacitance signal line/shield also signal line/signal line: 160 pF/m Cable inductance signal line/shield also signal line/signal line: 1 μH/m Bending radius static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter 3 shielded cable with integrated ventilation tube for atmospheric pressure reference Materials (media wetted) Housing stainless steel 1.4404 (316 L) Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	•	permanent
Electromagnetic compatibility emission and immunity according to EN 61326 2 additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request Electrical connection Cable with sheath material PUR (-25 70 °C) black Ø 7.4 mm Cable capacitance signal line/shield also signal line/signal line: 160 pF/m Cable inductance signal line/shield also signal line/signal line: 1 µH/m Bending radius static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter 4 yamic application: 20-fold cable diameter 5 whielded cable with integrated ventilation tube for atmospheric pressure reference Materials (media wetted) Housing stainless steel 1.4404 (316 L) Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % or ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	·	
² additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request Electrical connection Cable with sheath material ³ PUR (-25 70 °C) black Ø 7.4 mm Cable capacitance signal line/shield also signal line/signal line: 160 pF/m Cable inductance signal line/shield also signal line/signal line: 1 µH/m Bending radius static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter dynamic application: 20-fold cable diameter ### Authority of the carbon signal line signal line: 1 µH/m Bending radius static installation: 10-fold cable diameter ### Authority of the carbon signal line: 1 µH/m Bending radius static installation: 10-fold cable diameter ### Authority of the carbon signal line: 1 µH/m ### Bending radius ### Static installation: 10-fold cable diameter ### Authority of the carbon signal line: 1 µH/m ### Bending radius ### Bending radius ### Authority of the carbon signal line: 160 pF/m ### Authorit		U ·
Cable with sheath material ³ PUR (-25 70 °C) black Ø 7.4 mm Cable capacitance signal line/shield also signal line/signal line: 160 pF/m Cable inductance signal line/shield also signal line/signal line: 1 μH/m Bending radius static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter 3 shielded cable with integrated ventilation tube for atmospheric pressure reference Materials (media wetted) Housing stainless steel 1.4404 (316 L) Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU		
Cable capacitance signal line/shield also signal line/signal line: 160 pF/m Cable inductance signal line/shield also signal line/signal line: 1 µH/m Bending radius static installation: 10-fold cable diameter dynamic application: 20-fold cab	Electrical connection	
Cable capacitance signal line/shield also signal line/signal line: 160 pF/m Cable inductance signal line/shield also signal line/signal line: 1 µH/m Bending radius static installation: 10-fold cable diameter dynamic application: 20-fold cab	Cable with sheath material ³	PUR (-25 70 °C) black Ø 7.4 mm
Cable inductance signal line/shield also signal line/signal line: 1 µH/m Bending radius static installation: 10-fold cable diameter 20-fold cable diameter 20-fold cable diameter 20-fold cable diameter 20-fold cable diameter 3-shielded cable with integrated ventilation tube for atmospheric pressure reference Materials (media wetted) Housing stainless steel 1.4404 (316 L) Seals FKM others on request 5-folded 5-f	Cable capacitance	
Bending radius static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter shielded cable with integrated ventilation tube for atmospheric pressure reference Materials (media wetted) Housing stainless steel 1.4404 (316 L) Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Cable inductance	
Materials (media wetted) Housing stainless steel 1.4404 (316 L) Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Bending radius	static installation: 10-fold cable diameter
Housing stainless steel 1.4404 (316 L) Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	³ shielded cable with integrated ventilation	· · · · · · · · · · · · · · · · · · ·
Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Materials (media wetted)	
Seals FKM others on request Diaphragm standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Housing	stainless steel 1.4404 (316 L)
option: ceramics Al ₂ O ₃ 99.9 % Protection cap POM-C Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Seals	
Cable sheath PUR Miscellaneous Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Diaphragm	
Miscellaneous Adjustable units pressure: mmH₂O, mmHg, PSI, bar, mbar, g/cm², kg/cm², Pa, kPa, torr, atm, mH₂O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Protection cap	POM-C
Adjustable units pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm ² , kg/cm ² , Pa, kPa, torr, atm, mH ₂ O, MPa Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Cable sheath	PUR
Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Miscellaneous	
Read out serial number; date of calibration, min- and max-value for pressure Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Adjustable units	pressure: mmH ₂ O, mmHg, PSI, bar, mbar, g/cm ² , kg/cm ² , Pa, kPa, torr, atm, mH ₂ O, MPa
Current consumption max. 10 mA Weight approx. 400 g (without cable) Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	· ·	
Ingress protection IP 68 CE-conformity EMC Directive: 2014/30/EU	Current consumption	·
CE-conformity EMC Directive: 2014/30/EU	Weight	approx. 400 g (without cable)
•	Ingress protection	IP 68
Wiring diagram	CE-conformity	EMC Directive: 2014/30/EU
	Wiring diagram	

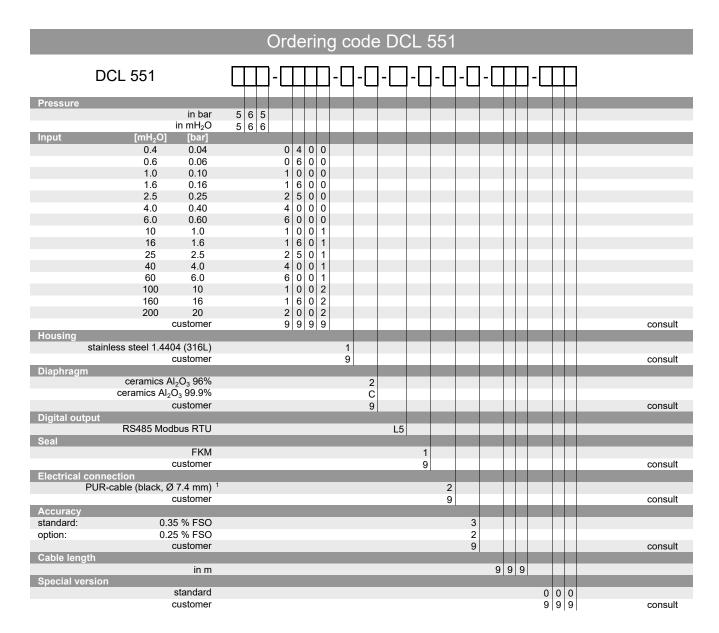


Electrical connection Supply + Supply - BN (brown) A + B - YE (yellow) Reset PK (pink) Shield GNYE (green yellow) Dimensions (mm / in) Dimensions (mm / in) Protection cap removable	Pin configuration	
Supply — BN (brown) GN (green) FR (set PK (pink) Shield GNYE (green yellow) Dimensions (mm / in)	Electrical connection	
A + B - Reset YE (yellow) Reset PK (pink) Shield GNYE (green yellow) Dimensions (mm / in)	Supply +	WH (white)
Reset PK (pink) Shield GNYE (green yellow) Dimensions (mm / in)	Supply –	BN (brown)
Reset Shield GNYE (green yellow) Dimensions (mm / in)	A +	GN (green)
Shield GNYE (green yellow) Dimensions (mm / in) I so	B -	YE (yellow)
Dimensions (mm / in)		CNVE (groop vollow)
173 [6.81]		GIVI E (green yellow)

Configuration Modbus RTU					
Standard configuration	001	-	1	-	1
Address					
Address	001				
	247				
Baud Rate					
4800 Bd			0		
9600 Bd			1		
19200 Bd			2		
38400 Bd			3		
Parity					
None					0
Odd					1
Even					2
·					
Configuration code (to specify with order)		-		-	







¹ shielded cable with integrated ventilation tube for atmospheric pressure reference



DCL 571

Stainless Steel Probewith RS485 Modbus RTU

Ceramic Sensor

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

Nominal pressure

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

Output signal

RS485 with Modbus RTU protocol

Special characteristics

- diameter 22 mm
- good long term stability
- especially for waste water
- reset function

Optional versions

- accuracy: 0.25 % FSO
- different designs
- drinking water certificate according to DVGW and KTW
- different kinds of cables and elastomers

The stainless steel probe DCL 571 with RS485 interface uses the communication protocol Modbus RTU which has found the way in industrial communication as an open protocol. The Modbus protocol is based on a master slave architecture with which up to 247 slaves can be questioned by a master – the data will transfer in binary form.

The probe was developed for level measurement in waste water, sludge or water courses. The mechanical robustness of the flush ceramic diaphragm facilitates an easy disassembly and cleaning of the probe in case of service.

Compared to the level probe DCL 551 the outside-diameter is only 22 mm, which allows an easy installation and back fitting in 1" tubes or in cramped fitting conditions.

Preferred areas of use



<u>Water</u>

groundwater and level monitoring



<u>Sewage</u>

waste water treatment, water recycling



Fuel and oil

tank battery, biogas plants



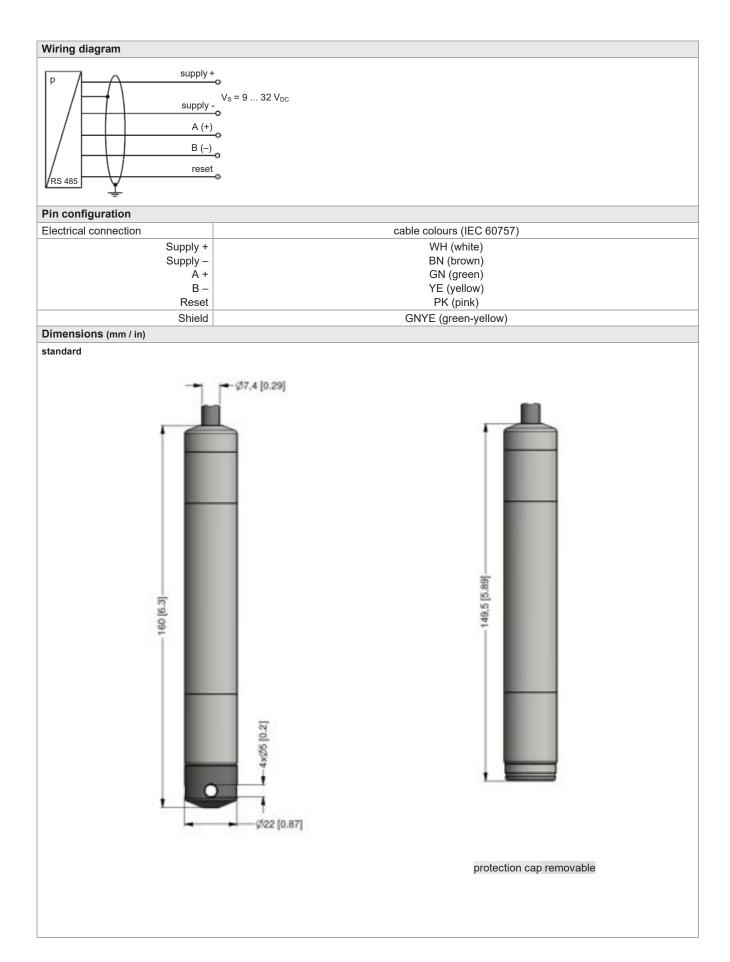


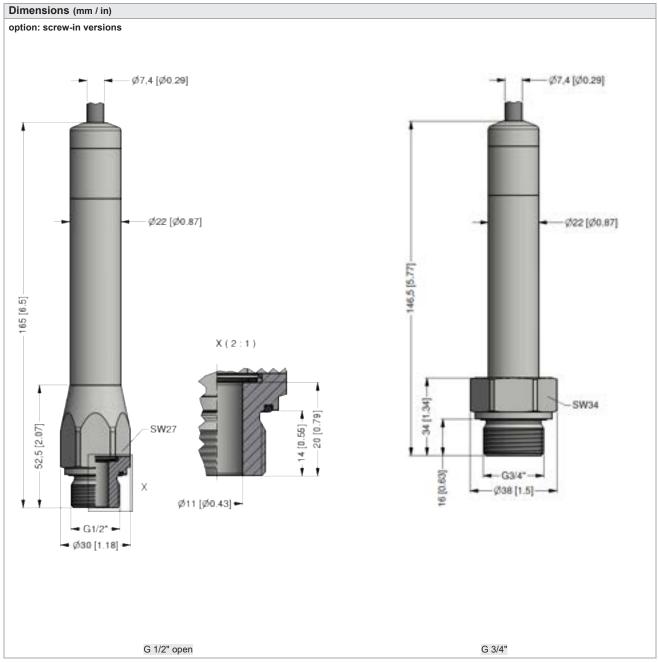




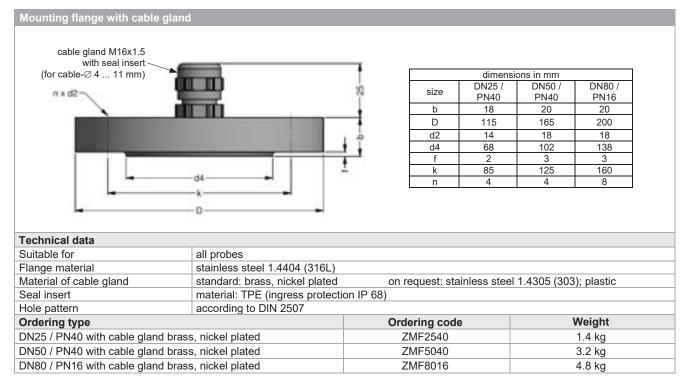
Input pressure range

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	16	25	40	60	100
Overpressure	[bar]	3	4	5	5	7	7	12	20	20	20	20
Max. ambient pressure (hou	sing): 40 b	ar										
Nominal pressure absolute	[bar]	1.2	1.4	4 1	.6	1.8	2	2.5	3	4	6	10
Overpressure	[bar]	7	7	1	2	12	12	12	20	20	20	20
Burst pressure ≥	[bar]	9	9	1	8	18	18	18	25	25	30	30
Max. ambient pressure (hou	sing): 40 b	ar										
Output signal												
Output signal Digital (pressure and temper	ratura) D	S185 v	with Modl	oue DTH	protocol	<u> </u>						
	ature) K	.3463 \	WILLI WIOUI	Jus KTO	protoco	l						
Supply Direct current	\\	- o	. 32 V _{DC}									
Performance	V	s – 9	. 32 V _{DC}									
			J	25.0/ 50	20							
Accuracy ¹		tandard ption:	d: ≤±0).35 % FS).25 % FS						otho	ro on room	ıoot
Long term stability					50					ouie	rs on requ	1621
Measuring rate		00 Hz	% FSO /	yeai								
Delay time		00 ms	2C									
¹ accuracy according to IEC 607	1 -			on-linearity	, hystere	sis renea	tahility)					
Thermal effects (offset and		auju	(III	carity	,,	c, ropca	/					
Tolerance band		± 1 %	FSO									
In compensated range		20 8										
Permissible temperatures	-2	-0 0	 									
Medium / storage		25 8	5 °C									
Electrical protection ²	-2	20 0	, ,									
Short-circuit protection	l n	ormon	nnt .									
Reverse polarity protection	·	ermane	age, but a	oloo no fi	notion							
Electromagnetic compatibilit			age, but a n and imr			to EN 61	226					
² additional external overvoltage								re reference	available o	n request		
Electrical connection	protection	arne mr te	inninar 50.	TIL TOTT	CL Z WILIT	штоортс	no pressur	TO TOTOTOTIOO	avanabic c	ni request		
Cable with sheath material ³	Т	PE-U	(-10	70 °C) blue	9 Ø 7	4 mm	(with dr	inking wa	ter annrov	/al)	
Cable With Sheath material		UR	`	70 °C	•		4 mm	(with the	ilikilig wa	ici appiot	rai)	
Cable capacitance		_					: 160 pF/	/m				
Cable inductance							: 1 µH/m					
Bending radius			stallation			ole diame						
2 on any same			applicat									
³ shielded cable with integrated v												
Materials (media wetted)												
Housing	st	ainles	s steel 1.	4404 (31	6 L)					oth	ers on req	uest
Cable	Т	PE-U,	blue (with	n drinking	water a	pproval)					ers on req	
Seals (O-rings)	E	PDM (with drink	ing wate	r approv	al), FKM				oth	ers on req	uest
Diaphragm	C	eramic	s Al ₂ O ₃ 9	9,9 %								
Protection cap	Р	ОМ-С										
Cable sheath	T	PE-U,	PUR									
Miscellaneous												
Drinking water certificate ⁴			ng to DVO					cate" is ned	cessary)			
Adjustable units								/cm², Pa, I		atm, mH ₂ 0	O, MPa	
								ue for pres				
Read out	S	znai ni	,					•				
Current consumption		ax. 10										
	m	ax. 10										
Current consumption	m a	ax. 10	mA									
Current consumption Weight	m a _l IF	nax. 10 pprox. P 68	mA	ithout cal	ole)							

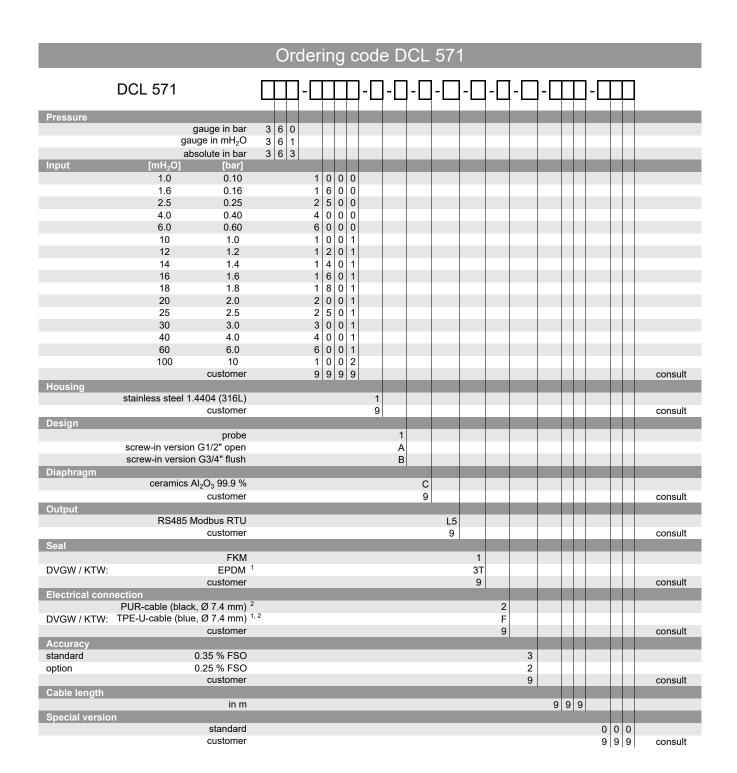




Configuration Modbus RTU					
Standard configuration	001	-	1	-	1
Address					
Address	001				
	•••				
	247				
Baud Rate					
4800 Bd			0		
9600 Bd			1		
19200 Bd			2		
38400 Bd			3		
Parity					
None					0
Odd					1
Even					2
Configuration code (to specify with order)		-		-	



Terminal clamp						
Technical data						
Suitable for	all probes with cable Ø 5.5 1	0.5 mm				
Material of housing	standard: steel, zinc plated	optionally: stainless stee	el 1.4301 (304)			
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)					
Dimensions (mm)	174 x 45 x 32	174 x 45 x 32				
Hook diameter	Hook diameter 20 mm					
Ordering type		Ordering code	Weight			
Terminal clamp, steel, zinc plated		Z100528	400			
Terminal clamp, stainless steel	1.4301 (304)	Z100527	approx. 160 g			



¹ drinking water certification only possible with EPDM seal (code 3T) in combination with TPE-U cable (code F)

² shielded cable with integrated ventilation tube for atmospheric pressure reference

LMP 307i



Stainless Steel Probe

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

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

Output signals

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

Special characteristics

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

Optional versions

- IS-version Ex ia = intrinsically safe for gas and dust
- drinking water certificate according to DVGW and KTW
- different kinds of cables and elastomers

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

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

Preferred areas of use are

Water / filtrated sewage

drinking water systems ground water level measurement rain spillway basins pump and booster stations level measurement in containers water treatment plants water recycling



Fuel and oil fuel storage tank farms











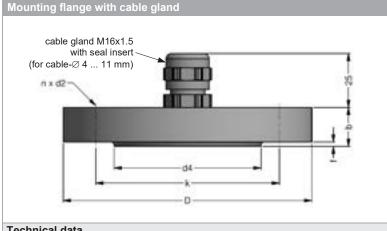




Input pressure range							
Nominal pressure gauge	[bar]	0.40	1	2	4	10	20
Level	[mH ₂ O]	4	10	20	40	100	200
Overpressure	[bar]	2	5	10	20	40	80
Burst pressure ≥	[bar]	3	7.5	15	25	50	120
Max. ambient pressure (housing): 40 bar							

Output signal / Supply	
Standard	2-wire: 4 20 mA / V _S = 12 36 V _{DC}
Option IS-version	2-wire: 4 20 mA / V _S = 14 28 V _{DC}
Options 3-wire	3-wire: 0 10 V / V _S = 14 36 V _{DC}
Performance	
Accuracy ¹	≤±0.1 % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega$
	voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$
Influence effects	supply: 0.05 % FSO / 10 V
Long term stability	load: 0.05% FSO / kΩ $\leq \pm 0.1 \%$ FSO / year at reference conditions
Response time	approx. 5 msec
	it point adjustment (non-linearity, hysteresis, repeatability)
Thermal effects (offset and span)	
Tolerance band	sin compensated range -20 80°C
TC	± 0.02 % FSO / 10K in compensated range -20 80°C
Permissible temperatures	111 confipensated range =20 00 C
Permissible temperatures	medium: -10 70 °C storage: -25 70 °C
<u> </u>	medium: -10 70 °C storage: -25 70 °C
Electrical protection ²	> 400 MO
Insulation resistance	> 100 MΩ
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	DVO (5 70.00)
Cable with sheath material ³	PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm FEP 4 (-10 70 °C) black Ø 7.4 mm TPE-U (-10 70 °C) blue Ø 7.4 mm (without/with drinking water certificate)
Bending radius	static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter
3 shielded cable with integrated ventilation	on tube for atmospheric pressure reference
	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 (without/with drinking water certificate) others on request
Diaphragm	stainless steel 1.4435 (316L)
Protection cap	POM-C
Cable sheath	PVC, PUR, FEP, TPE-U
Explosion protection (only for 4.	
Approvals DX19-LMP 307i	IBEXU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, $C_i \approx 0$ nF, $L_i \approx 0$ μ H, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 65 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m

Miscellaneous	
Drinking water certificate ⁵	according to DVGW W 270 and UBA KTW
	(with order the indication "with drinking water certificate" is necessary) signal output current: max. 25 mA
Current consumption	signal output voltage: max. 7 mA
Weight	approx. 200 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU
	nation with TPE-U cable; not possible with IS-version (explosion protection)
Wiring diagrams	7 1 1 7
2-wire-system (current)	3-wire-system (current / voltage)
supply + supply - supply -	supply + O + Vs vs supply - O - Vsignal + Vs
Pin configuration	
Electrical connection	cable colours (IEC 60757)
Supply +	WH (white)
Supply –	BN (brown)
Signal + (only 3-wire)	GN (green)
Shield Dimensions (mm / in)	GNYE (green-yellow)
	97.4 [0.29]
140 [5.51]	₩ (1.04) ₩ (1.04)
	protection cap removable



	dimensi	ons in mm	
size	DN25 / PN40	DN50 / PN40	DN80 / PN16
b	18	20	20
D	115	165	200
d2	14	18	18
d4	68	102	138
f	2	3	3
k	85	125	160
n	4	4	8

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

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Terminal clamp

Technical data			
Suitable for	all probes with cable Ø 5.5 10	0.5 mm	
Material of housing	standard: steel, zinc plated	optionally: stainless steel	1.4301 (304)
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)		
Dimensions (mm)	174 x 45 x 32		
Hook diameter	20 mm		
Ordering type		Ordering code	Weight

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

Display program

CIT 200	Process display with LED display
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CIT 250 Process display with LED display and contacts

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

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

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

CIT 600 Multichannel process display with graphics-capable LC display

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

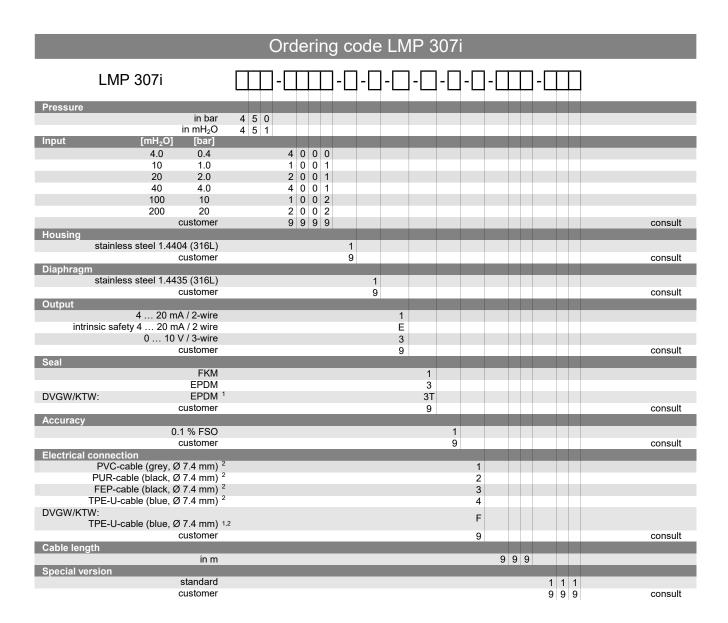
CIT 700 / CIT 750 Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts

PA 440 Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.de



Ordering code



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

² shielded cable with integrated ventilation tube for atmospheric pressure reference

LMP 308i



Detachable **Stainless Steel Probe** Precision

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

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

Output signals

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

Special characteristics

- diameter 35 mm
- cable assembly and sensor head detachable
- excellent accuracy
- communication interface
- thermal error in compensated range -20 ... 70 °C: 0.2 % FSO TC 0.02 % FSO / 10K
- Turn-Down 1:10

Optional versions

- IS-version Ex ia = intrinsically safe for gas and dust
- mounting accessories e.g. mounting flange and terminal clamp in stainless steel
- different kinds of cables and elastomers

The detachable precision stainless steel probe LMP 308i is designed for continuous level measurement in water and low-viscosity fluids. The signal processing of sensor signal is done by digital electronics with 16-bit analogue digital converter. Consequently, it is possible to conduct an compensation of sensor deviations from normal conditions like nonlinearity and thermal error.

order facilitate stock-keeping maintenance the sensor 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 basins level measurement in containers water treatment plants





water recycling





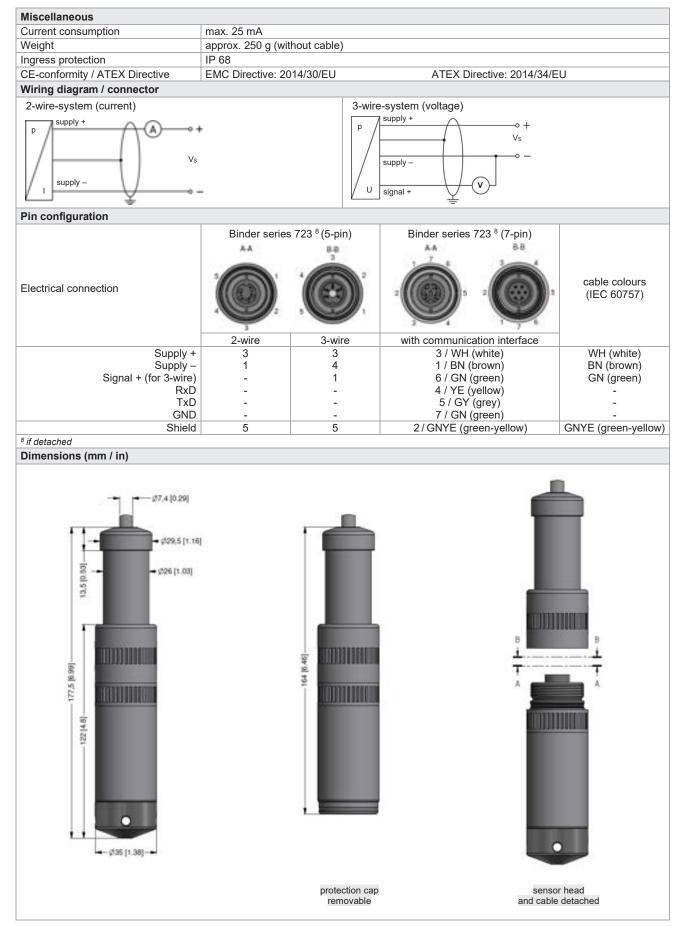


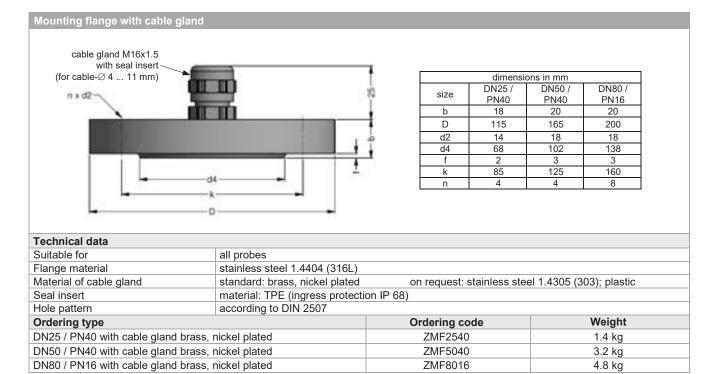


Input pressure range 1							
Nominal pressure gauge	[bar]	0.40	1	2	4	10	20
Level	[mH ₂ O]	4	10	20	40	100	200
Overpressure	[bar]	2	5	10	20	40	80
Burst pressure	[bar]	3	7.5	15	25	50	120
Max. ambient pressure (he	ousing): 40 b	ar					
¹ On customer request we adj	iust the device	within the turn-down	-possibility by soft	ware on the requir	ed pressure range		
Output signal / Supply							
0		0 1 1 00		0011			

Output signal / Supply						
Standard	2-wire: 4 20 mA / V _S = 12 36 V _{DC}					
Option IS-version	2-wire: 4 20 mA / V _S = 14 28 V _{DC}					
Options	2-wire: $4 \dots 20 \text{ mA} / V_S = 12 \dots 36 V_{DC}$ with communication interface					
·	3-wire: $0 \dots 10 \text{ V}$ / $V_S = 14 \dots 36 V_{DC}$					
	$0 \dots 10 \text{ V}$ / $V_S = 14 \dots 36 V_{DC}$ with communication interface					
Performance						
Accuracy	IEC 60770 ² : ≤ ± 0.1 % FSO					
Performance after turn-down (TD)						
- TD ≤ 1:5	no change of accuracy ³					
- TD > 1:5	formula for accuracy calculating (for nominal pressure gauge ≤ 0.40 bar see note 3): ≤ ± [0.1 + 0.015 x turn-down] % FSO					
≤ ± (0.1 + 0.015 x turn-down] % FSO with turn-down = nominal pressure range / adjusted range						
	e.g. following accuracy can be calculated for turn-down 1:10:					
	≤ ± (0.1 + 0.015 x 10) % FSO i.e. the accuracy is ≤ ± 0.25 % FSO					
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$ voltage 3-wire: $R_{min} = 10 k\Omega$					
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ					
Long term stability	≤ ± (0.1 x turn-down) % FSO / year at reference conditions					
Response time	ca. 200 msec					
Adjustability (with option	following parameters can be adjusted (interface / software needed ⁴)					
communication interface)	electronic damping: 0 100 sec offset: 0 90 % FSO turn-down of span: max. 1:10					
³ nominal pressure gauges ≤ 0,40 bar are ≤ ± (0.1 + 0.02 x turn-down) % FSO e.g.	point adjustment (non-linearity, hysteresis, repeatability) excluded; for these the calculation of accuracy is as follows: torn-down 1:3: $\leq \pm$ (0.1 + 0.02 x 3) % FSO i.e. the accuracy is $\leq \pm$ 0.16 % FSO					
	rate be ordered (software is compatible with Windows® 95, 98, 2000, NT from version 4.0 or higher and XP)					
Thermal effects (offset and span)	(0.0 o. t					
Tolerance band [% FSO]	≤± (0.2 x turn-down) in compensated range -20 70 °C					
TC [% FSO / 10 K]	± (0.2 x turn-down) in compensated range -20 70 °C medium: -20 70 °C storage: -25 70 °C electronics / environment: -25 65 °C					
Permissible temperatures	inedium20 70 C storage25 70 C electronics / environment25 65 C					
Electrical protection ⁵						
Short-circuit protection	permanent					
Reverse polarity protection	no damage, but also no function					
Lightning protection	2-wire: integrated 3-wire: without					
Electromagnetic compatibility	emission and immunity according to EN 61326 n unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request					
Electrical connection	Tunit in terminal box KE T of KE 2 with authospheric pressure reference available on request					
Cable with sheath material ⁶	PVC (-5 70 °C) grev Ø 7.4 mm					
Cable with sheath material	PVC (-5 70 °C) grey Ø 7.4 mm PUR (-20 70 °C) black Ø 7.4 mm FEP ⁷ (-20 70 °C) black Ø 7.4 mm					
Bending radius	static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter					
⁶ shielded cable with integrated ventilation						
	an FEP cable if effects due to highly charging processes are expected					
Materials (media wetted)	statistics at all A AAAA (OAAI)					
Housing	stainless steel 1.4404 (316L)					
Seals	FKM, EPDM, others on request					
Diaphragm Protection con	stainless steel 1.4435 (316L)					
Protection cap Cable sheath	POM-C					
	PVC, PUR, FEP, others on request					
Explosion protection (only for 4	· · · · · · · · · · · · · · · · · · ·					
Approvals DX19-LMP 308 i	IBEXU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga					
DATS-LIVII 300 I	zone 0: II 1G Ex la IIC 14 Ga zone 20: II 1D Ex la IIIC T135 °C Da					
Safety technical maximum values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$					
y	the supply connections have an inner capacity of max. 27 nF to the housing					
Permissible temperatures for	in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar					
environment .	in zone 1 or higher: -40/-20 65 °C					
Connecting cables	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m					
(by factory)	cable inductance: signal line/shield also signal line/signal line: 1µH/m					

LMP 308 i



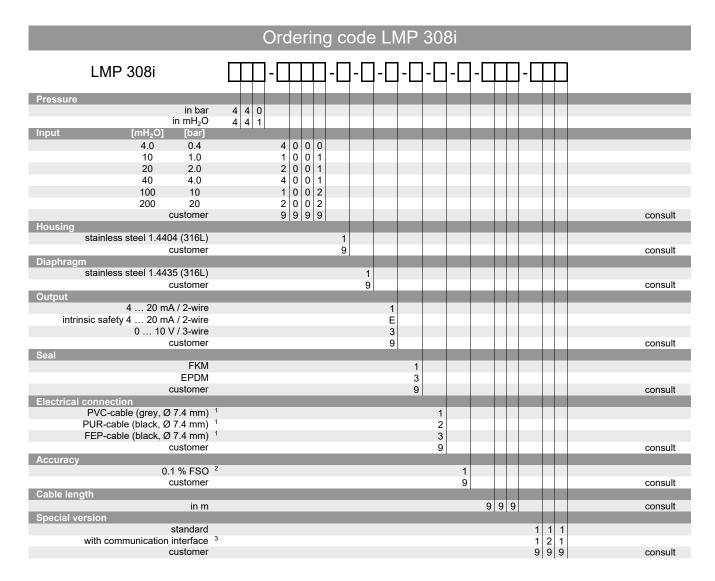


Terminal clamp **Technical data** Suitable for all probes with cable $\varnothing~5.5~...~10.5~mm$ Material of housing optionally: stainless steel 1.4301 (304) standard: steel, zinc plated Material of clamping jaws PA (fibre-glass reinforced) and positioning clips 174 x 45 x 32 Dimensions (mm) Hook diameter 20 mm Ordering type Ordering code Weight Terminal clamp, steel, zinc plated Z100528 annrox 160 d

Terminal clamp, stainless steel 1.4301 (304)		Z100527	approx. 160 g				
Display p	program						
CIT 200	Process display with LED display						
CIT 250	Process display with LED display and contacts						
CIT 300	OO Process display with LED display, contacts and analogue output						
CIT 350	350 Process display with LED display, bargraph, contacts and analogue output						
CIT 400	400 Process display with LED display, contacts, analogue output and Ex-approval						
CIT 600	Multichannel process display with graphics-capable LC dis	splay	25.05				
CIT 650	Multichannel process display with graphics-capable LC dis	splay and datalogger	2799.9 14.50				
CIT 700 /	CIT 750 Multichannel process display with graphics-capa touchscreen and contacts	able TFT monitor,					
PA 440	Field display with 4-digit LC display		THE REAL PROPERTY.				
	er information please contact our sales department or v	visit our homepage:	23.05				

LMP 308 i

Ordering code



¹ cable with integrated ventilation tube for atmospheric pressure reference

Windows® is a registrated trademark of Microsoft Corporation

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)



LMK 358H

Detachable Stainless Steel Probe with HART®-Communication

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

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
- 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 Ex ia = intrinsically safe for gas and dust
- diaphragm 99.9 % Al₂O₃
- accessories e.g. mounting flange with cable gland and terminal clamp

The detachable 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 sensor 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



Sewage

waste water treatment water recycling

Fuel and oil



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



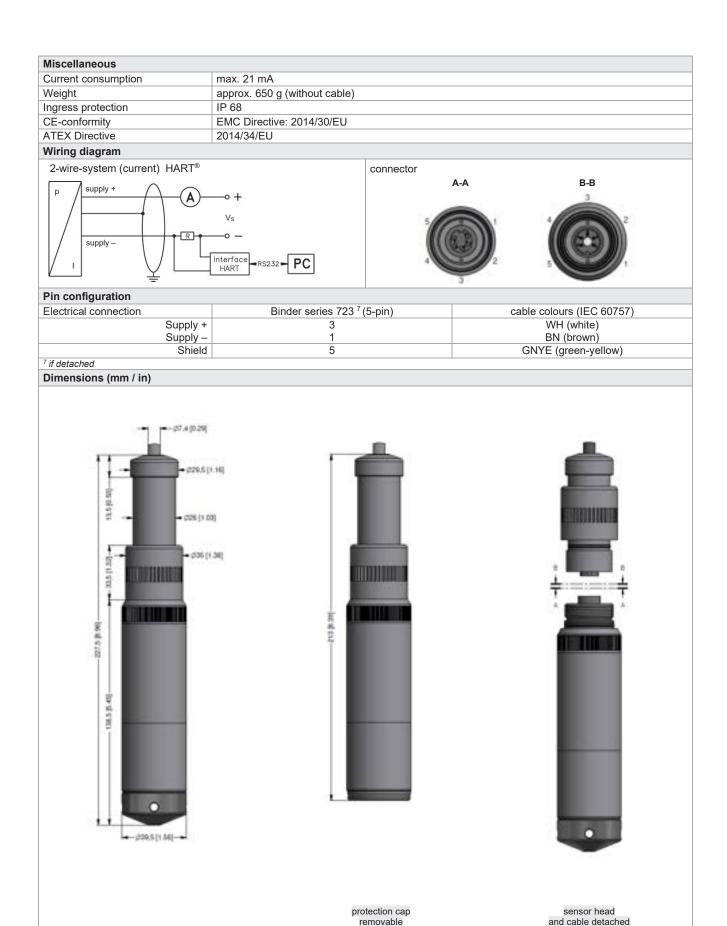




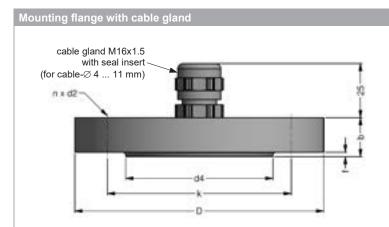


Input pressure range 1								
Nominal pressure gauge	[bar]	0.06	0.16	0.4	1	2	5	10
Level	[mH ₂ O]	0.6	1.6	4	10	20	50	100
Overpressure	[bar]	2	4	6	8	15	25	35
Max. ambient pressure (housing): 40 bar								
on customer request we adjust the devices by software on the required pressure ranges, within the turn-down-possibility (starting at 0.02 bar)								

Output signal / Supply			
Standard	2-wire: 4 20 mA / $V_S = 12$ 36 V_{DC} with HART® communication $V_{S \text{ rated}} = 24 V_{D}$		
Option IS-version	2-wire: 4 20 mA / V_S = 12 28 V_{DC} with HART® communication $V_{S \text{ rated}}$ = 24 V_{DC}		
Performance	0 00 014100		
Accuracy ²	$p_N \ge 160 \text{ mbar}$ $TD \le 1.5$ $\le \pm 0.2 \% \text{ FSO}$ $TD_{max} = 1.10$		
,	TD > 1:5 $\leq \pm [0.2 + 0.03 \times TD] \% FSO$		
	$p_N < 160 \text{ mbar}$ $\leq \pm [0.2 + 0.1 \times TD] \% \text{ FSO}$ $TD_{max} = 1:3$		
	$p_N \ge 1$ bar $TD \le 1.5$ $\le \pm 0.1 \%$ FSO $TD_{max} = 1.10$		
	TD > 1:5 $\leq \pm [0.1 + 0.02 \times TD] \% FSO$		
Permissible load	$R_{\text{max}} = [(V_S - V_{S \text{ min}}) / 0.02 \text{ A}] \Omega$ load at HART®-communication: $R_{\text{min}} = 250 \Omega$		
Long term stability	≤ ± (0.1 x turn-down) % FSO / year at reference conditions		
Influence effects	supply: 0.05 % FSO / 10 V		
	load: 0.05 % FSO / kΩ		
Turn-on time	850 msec		
Mean response time	140 msec – without consideration of electronic damping measuring rate 7/sec		
Max. response time	380 msec		
Adjustability	configuration of following parameters possible (interface / software necessary ³)		
	- electronic damping 0 100 sec		
	- offset: 0 80 % FSO - turn-down of span: max. 1:10		
² accuracy according to IFC 60770 – lin	nit point adjustment (non-linearity, hysteresis, repeatability)		
	be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP)		
Thermal effects (offset and span	n) / Permissible temperatures		
Tolerance band	≤±1% FSO		
in compensated range	-20 80 °C		
Permissible temperatures	medium / electronic / environment / storage: -25 85 °C		
Electrical protection ⁴			
Short-circuit protection	permanent		
Reverse polarity protection	no damage, but also no function		
Lightning protection	integrated		
Electromagnetic compatibility	emission and immunity according to EN 61326		
⁴ additional external overvoltage protect	tion unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request		
Mechanical stability			
Mechanical Stability			
Vibration	4 g (according to: DIN EN 60068-2-6)		
	4 g (according to: DIN EN 60068-2-6)		
Vibration	PVC (-570°C) grey Ø 7.4 mm		
Vibration Electrical connection	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm		
Vibration Electrical connection	PVC (-5 70 °C) grey Ø 7.4 mm PUR (-25 70 °C) black Ø 7.4 mm FEP ⁶ (-25 70 °C) black Ø 7.4 mm		
Vibration Electrical connection Cable with sheath material ⁵	PVC (-5 70 °C) grey Ø 7.4 mm PUR (-25 70 °C) black Ø 7.4 mm FEP 6 (-25 70 °C) black Ø 7.4 mm TPE-U (-25 85 °C) blue Ø 7.4 mm		
Vibration Electrical connection	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter		
Vibration Electrical connection Cable with sheath material ⁵ Bending radius	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter		
Vibration Electrical connection Cable with sheath material ⁵ Bending radius ⁵ shielded cable with integrated ventilation	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter		
Vibration Electrical connection Cable with sheath material ⁵ Bending radius ⁵ shielded cable with integrated ventilation of the control of the contr	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP ° (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilation of the control o	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP ° (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilation on to use freely suspended probes with waterials (media wetted) Housing	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference with an FEP cable if effects due to highly charging processes are expected		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilation of the do not use freely suspended probes with the materials (media wetted) Housing Seals	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference inth an FEP cable if effects due to highly charging processes are expected stainless steel 1.4404 (316L) FKM, EPDM, others on request		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilatied to not use freely suspended probes well to make the don't mak	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference with an FEP cable if effects due to highly charging processes are expected		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilation on to use freely suspended probes well of the one o	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference with an FEP cable if effects due to highly charging processes are expected stainless steel 1.4404 (316L) FKM, EPDM, others on request standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % POM-C		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilation on the use freely suspended probes with the materials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference ith an FEP cable if effects due to highly charging processes are expected stainless steel 1.4404 (316L) FKM, EPDM, others on request standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 %		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilatife on to use freely suspended probes well with the materials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath Explosion protection	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference with an FEP cable if effects due to highly charging processes are expected stainless steel 1.4404 (316L) FKM, EPDM, others on request standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % POM-C PVC, PUR, FEP, TPE-U		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilation on to use freely suspended probes well of the one o	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference with an FEP cable if effects due to highly charging processes are expected stainless steel 1.4404 (316L) FKM, EPDM, others on request standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % POM-C		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilatife 6 do not use freely suspended probes w Materials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath Explosion protection	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference with an FEP cable if effects due to highly charging processes are expected stainless steel 1.4404 (316L) FKM, EPDM, others on request standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % POM-C PVC, PUR, FEP, TPE-U		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilatife 6 do not use freely suspended probes w Materials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath Explosion protection	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference with an FEP cable if effects due to highly charging processes are expected stainless steel 1.4404 (316L) FKM, EPDM, others on request standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % POM-C PVC, PUR, FEP, TPE-U IBEXU 10 ATEX 1186 X zone 0: II 1G Ex ia IIB T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 13,2 nF, L _i = 0 μH,		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilation of the donot use freely suspended probes with waterials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath Explosion protection Approval DX15A-LMK 358H Safety technical maximum values	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference with an FEP cable if effects due to highly charging processes are expected stainless steel 1.4404 (316L) FKM, EPDM, others on request standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % POM-C PVC, PUR, FEP, TPE-U IBEXU 10 ATEX 1186 X zone 0: II 1G Ex ia IIIB T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da U ₁ = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 13,2 nF, L _i = 0 μH, the supply connections have an inner capacity of max. 27 nF opposite the enclosure		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilation of the donot use freely suspended probes with waterials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath Explosion protection Approval DX15A-LMK 358H	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP ° (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter dynamic application: 20-fold cable diameter dintube for atmospheric pressure reference inth an FEP cable if effects due to highly charging processes are expected stainless steel 1.4404 (316L) FKM, EPDM, others on request standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % POM-C PVC, PUR, FEP, TPE-U IBEXU 10 ATEX 1186 X zone 0: II 1G Ex ia IIB T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da U ₁ = 28 V, I ₁ = 93 mA, P ₁ = 660 mW, C ₁ = 13,2 nF, L ₁ = 0 μH, the supply connections have an inner capacity of max. 27 nF opposite the enclosure in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar		
Vibration Electrical connection Cable with sheath material 5 Bending radius 5 shielded cable with integrated ventilation of the donot use freely suspended probes with waterials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath Explosion protection Approval DX15A-LMK 358H Safety technical maximum values	PVC (-570 °C) grey Ø 7.4 mm PUR (-2570 °C) black Ø 7.4 mm FEP 6 (-2570 °C) black Ø 7.4 mm TPE-U (-2585 °C) blue Ø 7.4 mm static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter ion tube for atmospheric pressure reference with an FEP cable if effects due to highly charging processes are expected stainless steel 1.4404 (316L) FKM, EPDM, others on request standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % POM-C PVC, PUR, FEP, TPE-U IBEXU 10 ATEX 1186 X zone 0: II 1G Ex ia IIIB T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da U ₁ = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 13,2 nF, L _i = 0 μH, the supply connections have an inner capacity of max. 27 nF opposite the enclosure		



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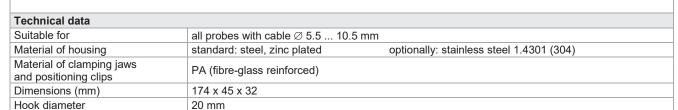


	dimensions in mm			
size	DN25 / PN40	DN50 / PN40	DN80 / PN16	
b	18	20	20	
D	115	165	200	
d2	14	18	18	
d4	68	102	138	
f	2	3	3	
k	85	125	160	
n	4	4	8	

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

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Terminal clamp



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

Display program

CIT 200	Process display with LED display

CIT 250 Process display with LED display and contacts

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

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

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

CIT 600 Multichannel process display with graphics-capable LC display

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

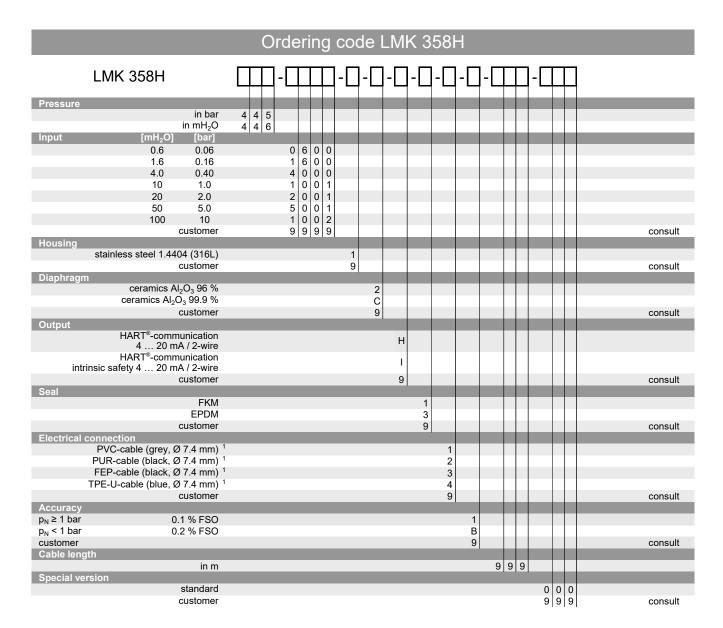
CIT 700 / CIT 750 Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts

PA 440 Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.de



Ordering code



¹ shielded cable with integrated ventilation tube for atmospheric pressure reference

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LMK 382H

Stainless Steel Probe with HART®-communication

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from $0 ... 60 \text{ cmH}_2\text{O}$ up to $0 ... 200 \text{ mH}_2\text{O}$

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 Ex ia = intrinsically safe for gas and dust
- mounting with stainless steel pipe
- flange version
- diaphragm 99.9 % Al₂O₃
- accessories e.g. transmitter and mounting flanges and terminal clamp

The stainless steel probe LMK 382H has been designed for continuous level measurement in sewage, polluted and higher viscosity fluids.

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

Preferred areas of use are



Water

ground water level measurement rain spillway basins



Sewage

waste water treatment water recycling





level monitoring in open tanks with low filling heights fuel storage

tank farms biogas plants







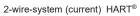


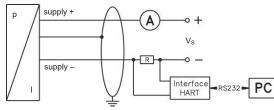
Pressure ranges 1

1 ressure ranges							1		
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
Max. ambient pressure (ho									
¹ on customer request we adju	ıst the devi	ces by softwar	e on the requi	red pressure r	anges, within the	turn-down po	ssibility (startin	g at 0.02 bar)	
Output signal / Supply									
Standard		2-wire: 4	20 mA / V _s	= 12 36	V _{DC} with HAR	T [®] communi	cation	V _{S rated} =	24 V _{DC}
Option IS-version		2-wire: 4	20 mA / Vs	= 14 28	V _{DC} with HAR	T® communi	cation	V _{S rated} =	24 V _{DC}
Performance									
Accuracy ²		p _N ≥ 160 mb		TD ≤ 1:5 TD > 1:5	≤ ± 0.2 % ≤ ± [0.2 + 0	FSO 0.03 x TD] %	FSO	TD _{max} =	1:10
		p _N < 160 mb	ar		≤ ± [0.2 + (0.1 x TD] % F	SO	TD _{max} =	1:3
		p _N ≥ 1 bar		TD ≤ 1:5	≤ ± 0.1 % l	FSO		TD _{max} =	1:10
				TD > 1:5		0.02 x TD] %			
Permissible load		$R_{\text{max}} = [(V_S - V_S)]$					-communicati	ion: $R_{min} = 25$	0 Ω
Long term stability		 	· · · · · · · · · · · · · · · · · · ·		at reference co	onditions			
Influence effects		supply: 0.05	% FSO / 10	0 V	pe	rmissible loa	d: 0.05 % FS	iO / kΩ	
Turn-on time		850 msec							,
Mean response time			ithout consi	deration of e	lectronic damp	oing	mean	measuring ra	te 7/sec
Max. response time		380 msec						31	
Adjustability		- electroni - offset: - turn dov	c damping: /n of span:	0 100 0 80 % max. 1:1	6 FSO 0	erface / softw	vare necessai	ry °):	
² accuracy according to IEC 60 ³ software, interface, and cable						5, 98, 2000, N	T Version 4.0 o	r higher, and X	P)
Thermal effects (offset a			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			., , ,		J . ,	<u></u>
Tolerance band		≤ ± 1 % FS							
in compensated range		-20 80 °C							
Permissible temperature	s								
Permissible temperatures		medium / el	ectronics / e	environment .	/ storage:	-25 85 °C	;		
Electrical protection 4									
Short-circuit protection		permanent							
Reverse polarity protection	า	no damage	but also no	function					
Electromagnetic compatibi	lity	emission ar	d immunity	according to	EN 61326				
⁴ additional external overvoltag	ge protectio	n unit in termin	al box KL 1 o	r KL 2 with atn	nospheric pressu	ire reference a	vailable on req	uest	
Mechanical stability									
Vibration		4 g (accord	ng to: DIN E	EN 60068-2-6	5)				
Electrical connection									
Cable outlet with sheath m	iaterial ⁵	PUR (-2	5 70 °C) 5 70 °C) 5 70 °C) 5 85 °C)	black Ø black Ø	7.4 mm 7.4 mm 7.4 mm 7.4 mm				
Bending radius		static install	ation:	10-fold cab	ole diameter				
⁵ shielded cable with integrated ⁶ do not use freely suspended		tube for atmo	spheric pressi	ure reference		are expected			
Materials	,	55.270		. g, car	5 ,				
Housing		stainless st	eel 1.4404 (316 L)					
Seals				ners on requ	est				
Diaphragm		standard: option:	ceramics Al ₂						
Protection cap		POM-C							
Cable sheath		PVC, PUR,	FEP, TPE-U	J, others on	request				
Explosion protection									
Approval DX15A-LMK 382	Н	IBExU 10 A zone 0 7: zone 20:	II 1G Ex ia		Da				
Safety technical maximum	values	U _i = 28 V, I _i the supply of	= 93 mA, P _i	_i = 660 mW,	C _i = 13.2 nF, L er capacity of r		pposite the e	nclosure	
Permissible media temper	ature	in zone 0: zone 1 or h	-10 gher: -25	60 °C wit 70 °C	h p _{atm} 0.8 bar ı	up to 1.1 bar			
Connecting cables (by factory)		cable capac			d also signal li d also signal li				
⁷ for optional stainless steel pip	ne following	decianation is							

Miscellaneous		
Option cable protection for probes	prepared for mounting with stainless steel pipe	
Ingress protection	IP 68	
Current consumption	max. 21 mA	
Weight	approx. 400 g (without cable)	
CE-conformity	EMC Directive: 2014/30/EU	
ATEX Directive	2014/34/EU	

Wiring diagram

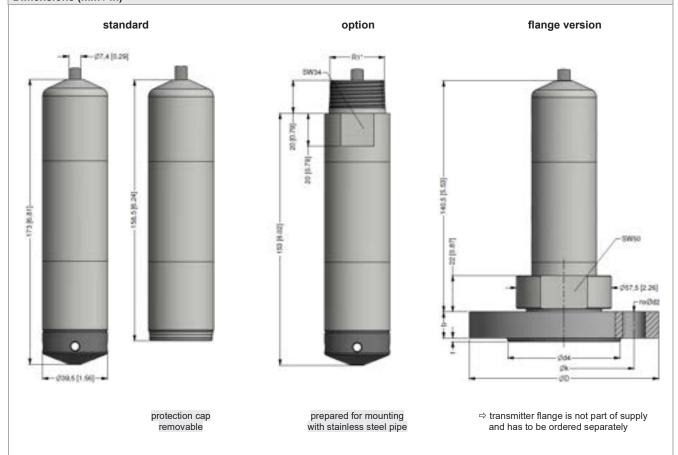




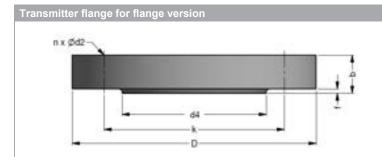
Pin configuration

Electrical connection	cable colours (IEC 60757)
Supply +	WH (white)
Supply –	BN (brown)
Shield	GNYE (green-yellow)

Dimensions (mm / in)



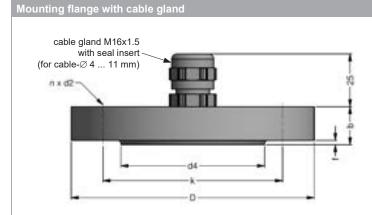
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dimensions in mm			
size	DN25 / PN40	DN50 / PN40	DN80 / PN16
b	18	20	20
D	115	165	200
d2	14	18	18
d4	68	102	138
f	2	3	3
k	85	125	160
n	4	4	8

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	

	3		
Ordering type		Ordering code	Weight
Transmitter flange DN25 / PN40		ZSF2540	1.2 kg
Transmitter flange DN50 / PN40		ZSF5040	2.6 kg
Transmitter flange DN80 / PN16		ZSF8016	4.1 kg



	dimensions in mm					
size	DN25 / PN40	DN50 / PN40	DN80 / PN16			
b	18	20	20			
D	115	165	200			
d2	14	18	18			
d4	68	102	138			
f	2	3	3			
k	85	125	160			
n	4	4	8			

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

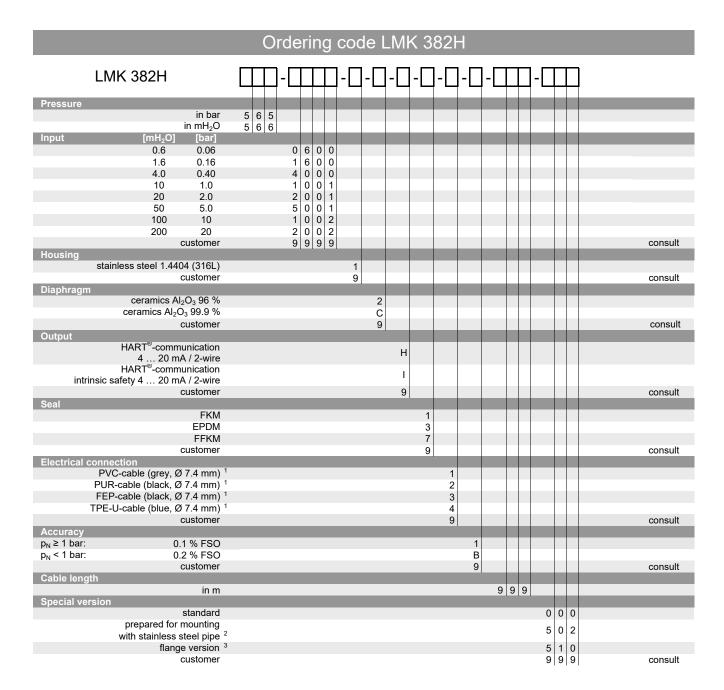
noie pattern	according to DIN 2507		
Ordering type		Ordering code	Weight
DN25 / PN40 with cable gland	d brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated		ZMF5040	3.2 kg
DN80 / PN16 with cable gland	brass, nickel plated	ZMF8016	4.8 kg

Terminal clamp



Technical data			
Suitable for	all probes with cable Ø 5.5 1	0.5 mm	
Material of housing	standard: steel, zinc plated	optionally: stainless stee	el 1.4301 (304)
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)		
Dimensions (mm)	174 x 45 x 32		
Hook diameter	20 mm		
Ordering type		Ordering code	Weight

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



¹ shielded cable with integrated ventilation tube for atmospheric pressure reference

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² stainless steel pipe is not part of the supply

 $^{^{\}rm 3}$ mounting accessories are not part of supply and have to be ordered separately



LMK 387H

Stainless Steel Probe with HART®-communication

Ceramic Sensor

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

Nominal pressure

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

Output signals

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

Special characteristics

- diameter 22 mm
- HART® communication (revision 7)
- setting of offset, span and damping
- diaphragm ceramics 99.9% Al₂O₃
- good long-term stability
- especially for waste water

Optional versions

- housing material titanium
- IS-version Ex ia = intrinsically safe for gas and dust
- drinking water certificate according to DVGW and KTW
- temperature element Pt 100
- different kinds of elastomer

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

The outer diameter is only 22 mm, whereby the installation or retrofitting can be easily carried out in 1 "pipes or in confined installation conditions. In addition to an intrinsically safe version (zone 0), a version with temperature signal is available.

Preferred areas of use



Water

groundwater and level monitoring



Sewage

waste water treatment water recycling



Fuel and oil

tank battery biogas plants















Input pressure range

input procoure runge												
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	16	25	40	60	100
Overpressure	[bar]	3	4	5	5	7	7	12	20	20	20	20
Burst pressure ≥	[bar]	4	6	8	8	9	9	18	25	25	30	30
Permissible vacuum	[bar]	-0.2	-0.3		-().5				-1		
Max. ambient pressure (h	ousing): 4	l0 bar										
Output signal / Supply		0 '	4 00	A / \ /	10 001		A D.T®		. ,	7) () (0.4	
Standard									ion (revisio			
Option IS-version			4 20 m	$A/V_S = 1$	14 28 V	DC with H	ART [®] coı	mmunicat	ion (revisio	on 7) / Vs	_{S rated} = 24	V _{DC}
Option Pt 100-temperatu	ure eleme	ent										
Temperature range		-25 1	25 °C									
Connectivity technology		3-wire				max. v	oltage 10	V _{DC} , in	intrinsically	y safe ci	rcuit 30 V	DC
Resistance		100 Ω a	t 0 °C			max. c	urrent 2 ı		intrinsicall			
Temperature coefficient		3850 pp	m/K			max. p	ower 10	mW, in	intrinsically	y safe ci	rcuit 405	mW
Supply I _S		0.3 1	.0 mA DC									
Performance												
Accuracy 1 s	standard	p _N ≥ 16	0 mbar	TD ≤	 1:5	≤ ± 0.	35 % FS	0		TD _{max}	= 1:10	
•		•		I	1:5			5 x TD] %	FSO			
		p _N < 16	0 mbar			 ≤ ± [0	.35 + 0.1	5 x TD] %	FSO	TD _{max}	= 1:3	
	option	p _N ≥ 16	0 mbar	TD ≤	<u>1:5</u>	≤ ± 0.	25 % FS	0		TD _{max}	= 1:10	
				TD >	> 1:5	≤ ± [0	.25 + 0.0	5 x TD] %	FSO			
		p _N < 16	0 mbar			≤ ± [0	.25 + 0.1	5 x TD] %	FSO	TD _{max}	= 1:3	
Permissible load		R _{max} = [(Vs - Vs m	_{in}) / 0.02 /	Α] Ω		load	at HAR1	-®-commur	nication:	R _{min} = 25	0Ω
Influence effects			0.05 % F				load	d: 0.05 %	FSO / kΩ			
Long term stability		≤ ± (0.1	x turn-do	wn) % F	SO / year	at refere	nce cond	itions				
Turn-on time		≤ 3 sec										
Mean response time		≤ 50 ms	≤ 50 msec without electronic damping									
Measuring rate		≤ 20 Hz			<u> </u>							
Adjustability		configu	ration of f	ollowing	paramete	rs possibl	e (interfa	ce / softw	are necess	sary 2):		
,			configuration of following parameters possible (interface / software necessary ²): electronic damping: 0 100 sec offset: 0 80 % FSO turn down of span: max. 1:10									
¹ accuracy according to IEC 603	accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) oftware, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP)											
			parately (so	ftware appr	ropriate for	Windows® 9	95, 98, 200), NT Versio	n 4.0 or high	er, and XI	?)	
Thermal effects (offset a	and span											
Tolerance band		≤ ± 1 %	FSO			in com	pensated	d range -2	0 80 °C			
Permissible temperature												
Permissible temperatures	;	medium	ı / electroi	nics / env	rironment	/ storage	: -40	85 °C				
Electrical protection ³												
Short-circuit protection		perman										
Reverse polarity protection			age, but a									
Electromagnetic compatib						o EN 6132						
³ additional external overvoltage Electrical connection	e protection	unit in tern	штаг рох К.	I OF KL 21	witri atmosp	meric press	ure reteren	ce available	on request			
Cable with sheath materia	al 4	TDE !!	bluo	Ø 7 1 m	m (with	hout / with	drinkina	water co	rtificata)			
	aı	TPE-U	⁵ red	Ø 9.0 m	m othe	ers on req	uest					
Bending radius			stallation:			neter	dyn	amic app	lication: 20	-fold cal	ole diame	ter
⁴ shielded cable with integrated ⁵ only in combination with IS-ve						100						
Materials (media wetted		olon protec	aon, and le	pc.a.u.e	oromont i-t	, 50						
Housing	,	etandar	d. etainla	es steel 1	4404 (31	16 L); opti	on: titanii	ım		oth	ers on rec	1116et
		standar		oo oleel l	.4404 (3	10 L), OPII	on. utarii	4111		oth	era on rec	Juest
Seals (O-rings)		option:	EPDM			nking wate				oth	are on roo	nuect
Diaphragm		ceromic	:s Al ₂ O ₃ 9		missible i	cinperall	ne nom -	15 ()		oth	ers on rec	uest
Protection cap		POM-C		J.J/0								
Cable ab a stb		TDE II										

TPE-U

in zone 0:

cable capacity: cable inductance:

IBExU 15 ATEX 1066 X / IECEx IBE 18.0019X

zone 1 and higher: -25 ... 65 °C

zone 0: II 1G Ex ia IIB T4 Ga; zone 20: II 1D Ex ia IIIC T135 °C Da U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 14 nF, L_i = 0 μ H;

the supply connections have an inner capacity of max. 27 nF opposite the enclosure

 U_i = 30 V, I_i = 54 mA, P_i = 405 mW, C_i = 0 nF, L_i = 0 μ H (temperature element Pt 100)

signal line/shield also signal line/signal line: 160 pF/m

signal line/shield also signal line/signal line: 1 µH/m

-20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar

Cable sheath

Explosion protection

DX14B-LMK 387H

Safety technical maximum values

Safety technical maximum values

Permissible temperatures for

Approval

(pressure)

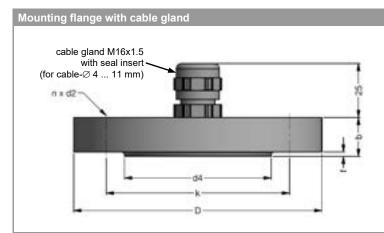
(temperature)

environment

(by factory)

Connecting cables

Miscellaneous						
Orinking water certificate ⁶	according to DVGW W 270 a (with order the indication "with	nd UBA KTW n drinking water certifi	cate" is necessary)			
Current consumption	max. 22 mA					
Weight	approx. 280 g (without cable)					
ngress protection	IP 68					
CE-conformity	EMC Directive: 2014/30/EU					
ATEX Directive	2014/34/EU					
only possible with EPDM seal in combina	tion with TPE-U cable; not possible w	ith IS-version (explosion p	rotection) or housing material titanium			
Pin configuration						
		cable colours				
Electrical connection	4 20 mA / H.		4 20 mA / HART® (pressure) with Pt 100 (temperature)			
Supply V _s +	WH (white		WH (white)			
Supply V _S –	BN (brown	1)	BN (brown)			
Supply T+ (with Pt 100)	-		YE (yellow)			
Supply T– (with Pt 100) Supply T– (with Pt 100)]		GY (grey) PK (pink)			
Shield	GNYE (green-y	ellow)	GNYE (green-yellow)			
Viring diagrams	ONT L (giseli-y	S.1.544)	SITI (glocii-yollow)			
2-wire-system current HART®		2-wire-system H. 3-wire-system (te	ART [®] (pressure) / emperature)			
n supply +		supply V _S +				
p / supply + / A	∘ +	_P /	V _s			
	Vs	supply V _S –	vs			
/	v 9		· -			
supply –	 0 -	supply T+	option Pt 100-			
/ , \	Interface	/ I supply T-	o temperature			
<u> </u>	Interface RS232 PC	supply T-	element			
Dimensions (mm / in)			·-			
standard		IS-versio	on with Pt100 (temperature element)			
	pm					
 Ø7,4 [0	29]	=	Ø9 [0.35]			
	NI .					
+		•				
190%	2		7			
	18.04]	45]	[9.04]			
-230 [9.06]	19,5 [8,04]	[9.45]	.6 [0.04]—			
230 [9,00] —	-219,5 [8,04]	240 [0.45]	229,5 [0.04]			
230 [9.06] —	219,5 [8,64]	240 [0.45]	229,5 [9.04]			
230 [9.06]	219,5 [8,64]	240 [0.45]	229,5 [9,04]			
230 [9.00]	219,5 [8,64]	240 [0.45]	229,5 [9,04]			
230 [9.00]	219,5 [8,04]	240 [0.45]	229,5 [9,04]			
230 [9,00]	219,5 [8,64]	240 [0.45]	229,5 [9,04]			
	219,5 [8,64]	240 [0.45]	229,5 [9,04]			
	219,5 [8,64]	240 [0.45]	220,5 [0,04]			
	219,5 [8,04]	240 [0.45]				
- 230 [9.00]	219,5 [8,04]	240 [0.45]				
	219,5 [8,04] ————————————————————————————————————	240 [0.45]				
	219,5 [8,04] ————————————————————————————————————	240 [0.45]	-4x55 [0.2]			
		240 [0.45]				
	219.5 (8.04)	240 [0.45]				
		240 [0.45]	4x55 [0.2]			
		240 [0.45]				



	dimensions in mm					
size	DN25 /	DN50 /	DN80 /			
OIZO	PN40	PN40	PN16			
b	18	20	20			
D	115	165	200			
d2	14	18	18			
d4	68	102	138			
f	2	3	3			
k	85	125	160			
n	4	4	8			

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

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Terminal clamp



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

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

Display program

CIT 200 Process display with LED display

CIT 250 Process display with LED display and contacts

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

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

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

CIT 600 Multichannel process display with graphics-capable LC display

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

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

PA 440 Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.de



Ordering code

			Orde	ring	go	COC	le L	_MŁ	(3	87F	1								
I	LMK 387H		Ш]-[П]-[]-[]-[]-[]-[]-		-]-[
Pressure																			
		gauge in bar	3 6 0		П	Т											Т	Т	
		gauge in mH₂O	3 6 1																
Input	[mH ₂ O]	[bar]																	
	1.0	0.10		1	0	0 0													
	1.6	0.16		1	6	0 0													
	2.5 4.0	0.25 0.40		2 4	5	0 0													
	6.0	0.40		6	0	0 0													
	10	1.0		1	0	0 0													
	16	1.6		1	6	0 1													
	25	2.5		2	5	0 1													
	40	4.0		4	0	0 1 0 1 0 1 0 2 9 9													
	60	6.0		6	0	0 1													
	100	10		1	0	0 2													
		customer		9	9	9 9													consult
Housing																			
	stainless steel	, ,					1												
		titanium					T												.,
Diambus aus		customer		_			9		_		_	-	_	_	_				consult
Diaphragm	ceramic	s Al ₂ O ₃ 99.9 %						С											
	Ceramic	customer						9											consult
Output		Guotomoi	_					J											CONSUL
HA	RT®-communicati	ion (revision 7)		_		_	_	_			_	_	-	_					
		20 mA / 2-wire							Н	1									
	RT®-communicati								- 1										
int	trinsic safety 4																		
		customer			_				9)	_	_							consult
Seals		FIZM																	
		FKM EPDM								1									
DVGW / KTW:		EPDM 1								3 3T	г								
DVOVV/ICIVV.		FFKM ²								7									
		customer								9									consult
Electrical conn	ection																		
	TPE-U-cable (bl	lue, Ø 7.4 mm) ³										4							
DVGW / KTW:	TPE-U-cable (bl	lue, Ø 7.4 mm) 1,3										F							
	TPE-U-cable (r	red, Ø 9.0 mm) ^{3,4}										42							
		customer										9							consult
Accuracy		0.25 % 500											2						
standard: option for $p_N \ge 16$	30 mbar:	0.35 % FSO 0.25 % FSO											3						
option for pN 2 10	oo mbar.	customer											9						consult
Cable length		GGGGTTGT											3						CONSUIT
Jaioro Torrigan		in m												9	9 9)			
Special version																			
		standard														-	0 0	0	
	with temperature																0 1	3	
		customer														9	9 9	9	consult

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

HART® is a registered trade mark of HART Communication Foundation

 $^{^2}$ min. permissible temperature from -15 $^{\circ}\text{C}$

³ shielded cable with integrated ventilation tube for atmospheric pressure reference

 $^{^{\}rm 4}\,$ only in combination with Ex version (explosion protection) and temperature element Pt 100



LMK 458H

Probe with HART®-communication for Marine and Offshore

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from $0 \dots 60 \text{ cmH}_2\text{O}$ up to $0 \dots 200 \text{ mH}_2\text{O}$

Output signals

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

Special characteristics

- shipping approvals acc. to: Lloyd's Register (LR),
 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
 Ex ia = intrinsically safe for gas and dust
- ▶ diaphragm Al₂O₃ 99.9 %
- different housing materials (stainless steel, CuNiFe)
- screw-in and flange version
- accessories e. g. assembling and probe flange, mounting clamp

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

A permissible operating temperature 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 self-developed capacitive ceramic sensor element, which offers a high overload resistance and medium compatibility.

Preferred areas of use are



<u>Water</u>

drinking water abstraction desalinization plant

Shipbuilding / Offshore



ballast tanks draught monitoring level measurement in ballast and storage tanks













Pressure ranges Nominal pressure gauge	1 [bar]	0.06	0.16	0.4	1	2	5	10	20
Level	[mH ₂ O]	0.60	1.6	4	10	20	50	100	200
		2	4	6	8	15	25	35	45
Overpressure	[bar]		4	0	8	15	25	35	45
Max. ambient pressure on customer request we adj			the required n		within the turn d	num nagaibilitu	(atarting at 0.0°	2 605	
on customer request we au	ust the device	es by sollware or	i ine requirea p	ressure ranges,	within the turn-ut	own possibility	(Starting at 0.02	z Dar)	
Output signal / Supply									
Standard		2-wire: 4 2	0 mA / V _S = 1	12 36 V _{DC}	with HART®	communicat	tion	V _{S rated} =	24 V _{DC}
Option IS-version		2-wire: 4 2	0 mA / V _S = 1	14 28 V _{DC}	with HART®	communicat	tion	V _{S rated} =	24 V _{DC}
Performance									
Accuracy ²		p _N ≥ 160 mba	r	TD ≤ 1:5	≤ ± 0.2 % F	so		TD _{max} = 1	.10
				TD > 1:5	\leq ± [0.2 + 0.	03 x TD] % F	SO	I Dmax - 1	. 10
		p _N < 160 mba	r			1 x TD] % FS	so	TD _{max} = 1	:3
		p _N ≥ 1 bar		TD ≤ 1:5	\leq ± 0.1 % F			TD _{max} = 1	. 10
				TD > 1:5		02 x TD] % F			. 10
Permissible load		$R_{\text{max}} = [(V_S - V_S - V$					ication: R _{min} =	= 250 Ω	
Long term stability					ence condition		F00 / I-0		
Influence effects Turn-on time		supply: 0.05 9 850 msec	70 FSU / 10 V	•	permissible	load: 0.05 %	L20 / K73		
Mean response time			hout consider	ration of electr	onic damning		mean	measuring ra	ate 7/sec
Max. response time		380 msec	TOUL COHOLUE	addit of electi	onio damping		IIIcan	measuring to	11350
Adjustability			of following r	parameters po	ssible (interfac	e / software r	necessary 3):		
,		electronic da	mping: 0 1	00 sec	offset: 0 8			down of span:	max. 1:10
² accuracy according to IEC 6	0770 – limit p	oint adjustment (non-linearity, h	ysteresis, repeat	tability)	000 NT V'-		() (D)	
software, interface, and cab			<u> </u>		1dows® 95, 98, 2	000, NT Versio	n 4.0 or higher,	, and XP)	
Thermal effects (offset a	ina span) /		emperatures	5					
Tolerance band in compensated range		≤ ± 1 % FSO -20 80 °C							
Permissible temperatures			rtronics / envi	ironment / stor	age: -25 85	°C			
Electrical protection 4		mediam relec	otrornos / Crivi	ioninient / Stor	age. 20 00				
Short-circuit protection		permanent							
Reverse polarity protection	n	no damage, b	out also no fu	nction					
Electromagnetic compatil		emission and							
		- EN 6132	.6	- DNV (E	Det Norske Ver	itas)			
⁴ additional external overvolta	ge protection	unit in terminal b	ox KL 1 or KL	2 with atmosphe	ric pressure refei	ence available			
Mechanical stability									
Vibration		4 g (accordin	g to DNV: cla	ss B, curve 2	/ basis: DIN EN	1 60068-2-6)			
Electrical connection									
Cable with sheath materia	al ⁵	TPE-U blu							
Bending radius				able diameter			n: 20-fold cab		
5 shielded cable with integrate		tube for atmosph	eric pressure re	eterence (tor nor	ninal pressure ra	nges absolute	the ventilation t	tube is closed)	
Materials (media wetted)		-1414	4404 (0401)	41	O::N:40E - 41	M- /		
Housing Seals		standard: stai		.4404 (316L)	option	Cunitoreti	vin (resistant	against sea v	vater)
Ocais				nin. permissibl	e temperature	from -15 °C)		others o	n request
Diaphragm		standard: cer				ceramics Al			
Protection cap		POM-C							
Cable sheath					increased resi	stance again	st oil and gas	soline,	
		res	istant against	salt, sea wate	er, heavy oil)				
Miscellaneous									
Option cable protection	-1	prepared for i	mounting with	n stainless stee	el pipe				
for probes in stainless ste Ingress protection	EI	IP 68			• •				
		max. 21 mA							
Current consumption		min. 650 g (w	ithout cable)						
			e: 2014/30/El	U					
Current consumption Weight CE-conformity				-					
Weight CE-conformity		2014/34/EU							
Weight CE-conformity ATEX Directive	ment								
Weight CE-conformity ATEX Directive Category of the environ	ment	2014/34/EU	, EMV3. EM\	/4		nı	ımber of certi	ficate: 13/200	056
Weight CE-conformity				/4 vibration:	В			ficate: 13/200	
Weight CE-conformity ATEX Directive Category of the environ Lloyd's Register (LR)		2014/34/EU EMV1, EMV2			B D				

IBExU 10 ATEX 1186 X zone 0 6: II 1G Ex ia IIB T4 Ga

-25 ... 70 °C

(by factory) cable inductance: signal line/shield as well as signal line/shield as well as signal line 1 μH/m of for optional stainless steel pipe the following designation is valid: "II 1G Ex ia II/C T4" (zone 0)

in zone 0:

zone 1 and higher:

cable capacity:

 $U_i=28~V,~I_i=93~mA,~P_i=660~mW,~C_i=94,6~nF;~L_i=0~\mu H;~the~supply~connections~have~an~inner~capacity~of~max.~110~nF~opposite~the~enclosure$

-20 ... 60 °C with patm 0.8 bar up to 1.1 bar

signal line/shield as well as signal line/signal line: 160 pF/m

zone 20: II 1D Ex ia IIIC T135 °C Da

Explosion protection

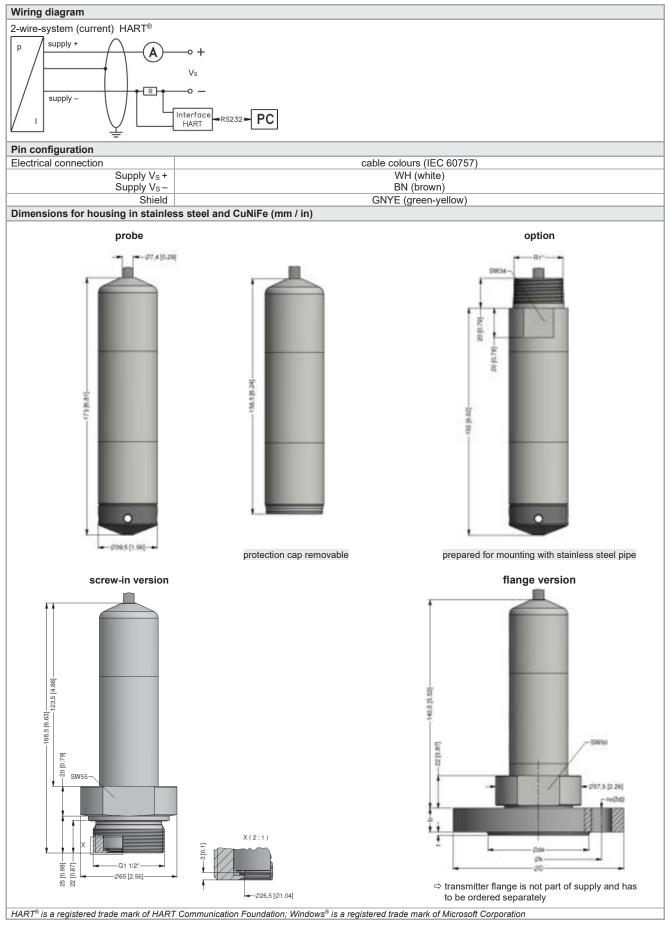
environment

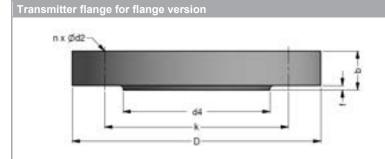
Connecting cables

Approval DX15A-LMK 458H

Safety technical maximum values

Permissible temperatures for

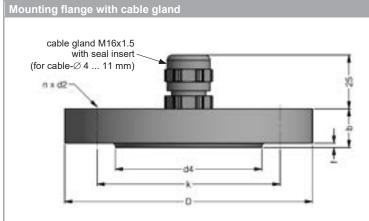




	dimensions in mm								
size	DN25 / PN40	DN50 / PN40	DN80 / PN16						
b	18	20	20						
D	115	165	200						
d2	14	18	18						
d4	68	102	138						
f	2	3	3						
k	85	125	160						
n	4	4	8						

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

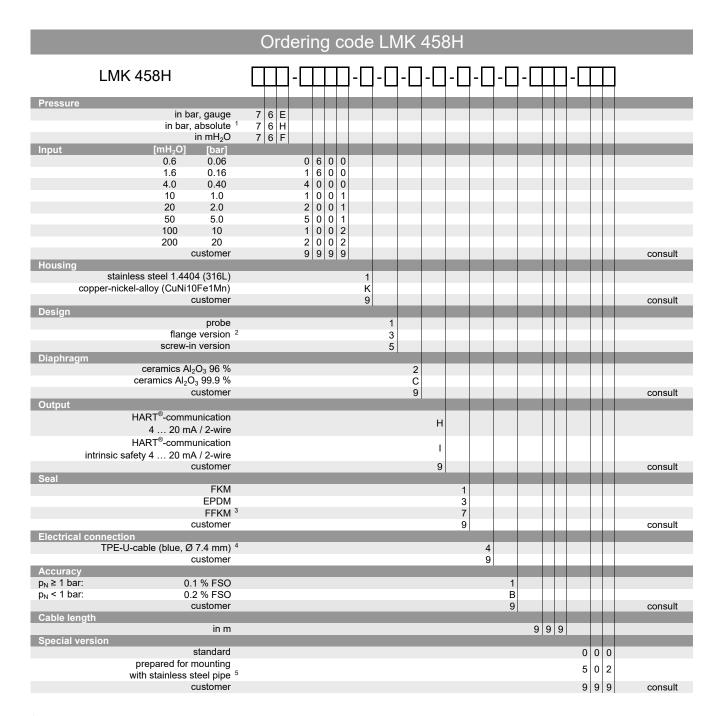
Ordering type	Ordering code	Weight
Transmitter flange DN25 / PN40	ZSF2540	1.2 kg
Transmitter flange DN50 / PN40	ZSF5040	2.6 kg
Transmitter flange DN80 / PN16	ZSF8016	4.1 kg



	dimensions in mm								
size	DN25 /	DN50 /	DN80 /						
SIZE	PN40	PN40	PN16						
b	18	20	20						
D	115	165	200						
d2	14	18	18						
d4	68	102	138						
f	2	3	3						
k	85	125	160						
n	4	4	8						

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

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg



¹ nominal pressure ranges and absolute from 1 bar

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 $^{^{\}rm 2}$ mounting accessories are not part of supply and have to be ordered separately

³ min. permissible temperature from -15°C

 $^{^{\}rm 4}$ shielded cable with integrated ventilation tube for atmospheric reference

 $^{^{\}rm 5}$ possible for probes in stainless steel; stainless steel pipe is not part of the supply



LMP 305

Slimline Probe

Stainless Steel Sensor

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

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 confined space conditions
 e. g. in 1" pipes
- ▶ small thermal effect
- good long term stability
- excellent linearity

Optional versions

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

The slimline probe LMP 305 with silicon stainless steel sensor is designed for continuous level measurement in confined space conditions e.g. 1" pipes. Permissible media are clean or lightly polluted 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

Water

level measurement in confined space conditions



ground water monitoring depth or level measurement in wells and open waters

drinking water system

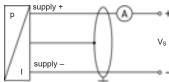
level measurement in container

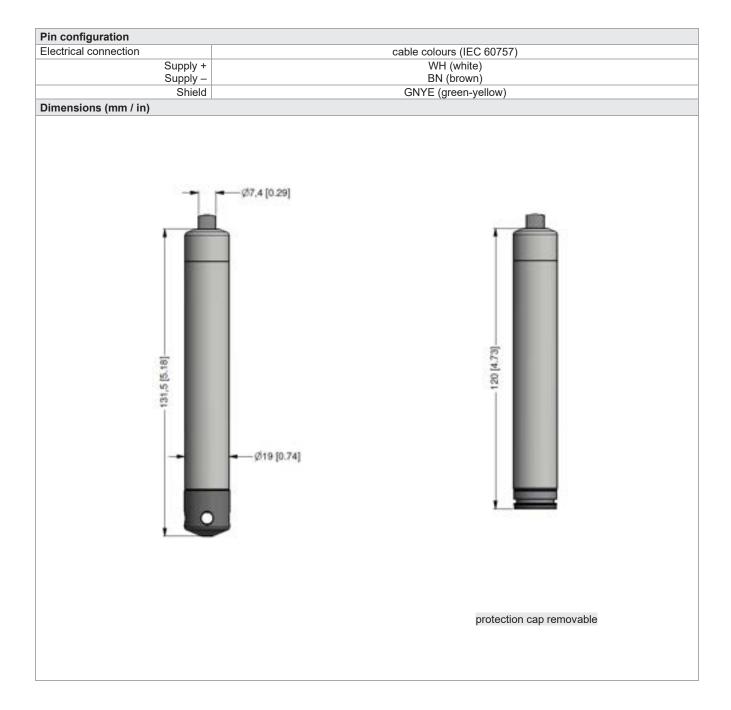


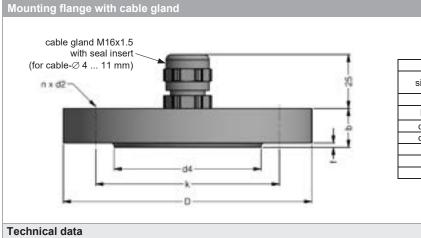
LMP 305

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
Max. ambient pressure (housing): 40 bar														

Output signal / Supply	1									
2-wire		4 20 mA / V _S =	12 36 V _{DC}							
Performance										
Accuracy ¹		standard: nomi	standard: nominal pressure > 0.4 bar: ≤ ± 0.35 % FSO							
,			nal pressure ≤ 0.4 bar:							
		option: nomi	nal pressure > 0.4 bar	≤ ± 0.25 % FSO						
Permissible load		R _{max} = [(V _S - V _{S min}	n) / 0,02 A] Ω							
Influence effects		supply: 0.05 % FS			load: 0.05 % F	SO / kΩ				
Long term stability		≤ ± 0.1 % FSO / y	ear at reference condit	ions						
Response time		≤ 10 msec								
¹ accuracy according to IEC			n-linearity, hysteresis, rep	eatability)						
Thermal effects (offse	t and span)									
Nominal pressure P _N	[bar]	≤ 0.1	≤ 0.25	≤ 0.4	≤ 1	> 1				
Tolerance band	[% FSO]	≤ ± 2	≤ ± 1.5	≤ ± 1	≤ ± 1	≤ ± 0.75				
TC, average [% F	SO / 10 K]	± 0.3	± 0.2	± 0.14	± 0.1	± 0.07				
In compensated range	[°C]		0 50		0	70				
Permissible temperatu	ıres									
Permissible temperature	es	medium: -10 70	°C		storage: -25	70 °C				
Electrical protection 2										
Short-circuit protection		permanent								
Reverse polarity protect	tion	no damage, but also no function								
Electromagnetic compa	tibility	ity emission and immunity according to EN 61326								
² additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request										
Electrical connection										
Cable with sheath mate	rial ³	PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm FEP ⁴ (-10 70 °C) black Ø 7.4 mm								
Cable capacitance			also signal line/signal	line: 160 pF/m						
Cable inductance		signal line/shield	also signal line/signal	line: 1 μH/m						
Bending radius		static installation:	10-fold cable diar							
		dynamic application		neter						
³ shielded cable with integra ⁴ do not use freely suspend	led probes wit			processes are expected	d					
Materials (media wette	ed)									
Housing		stainless steel 1.4	404 (316L)							
Seals		FKM, EPDM								
Diaphragm		stainless steel 1.4	435 (316L)							
Protection cap		POM-C								
Cable sheath		PVC, PUR, FEP,	others on request							
Miscellaneous										
Current consumption		max. 25 mA								
Weight		approx. 100 g (without cable)								
Ingress protection		IP 68								
CE-conformity EMC Directive: 2014/30/EU										
Wiring diagram										
2-wire-system (current)										
supply +	0									







	dimensions in mm								
size	DN25 /	DN50 /	DN80 /						
SIZE	PN40	PN40	PN16						
b	18	20	20						
D	115	165	200						
d2	14	18	18						
d4	68	102	138						
f	2	3	3						
k	85	125	160						
n	4	4	8						

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

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 ka

Terminal clamp



Technical data			
Suitable for	all probes with cable Ø 5.5 10.	5 mm	
Material of housing	standard: steel, zinc plated	optionally: stainless stee	I 1.4301 (304)
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)		
Dimensions (mm)	174 x 45 x 32		
Hook diameter	20 mm		

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

Display program

CIT 200	Process	display	with	LED	display	
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CIT 250 Process display with LED display and contacts

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

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

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

CIT 600 Multichannel process display with graphics-capable LC display

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

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

PA 440 Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.de



	O	rdering c	ode LM	P 305			
LMP 305	П)-[П-П-Г	1 -□-□-	.П-ПТ		
Pressure							
in mH	oar 4 0 0 l ₂ O 4 0 1						
Input [mH ₂ O] [ba							
1.0 0.1		1 0 0 0					
1.6 0.1		1 6 0 0					
2.5 0.2	5	2 5 0 0					
4.0 0.4		4 0 0 0					
6.0 0.6		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 4 0 0 1					
40 4.0		4 0 0 1					
60 6.0		6 0 0 1					
100 10		1 0 0 2					
160 16		1 6 0 2 2 5 0 2 9 9 9 9					
250 25		2 5 0 2					
custon	ner	9 9 9 9					consult
Housing	21.						
stainless steel 1.4404 (310			1				
Custon	ner		9				consult
Diaphragm stainless steel 1.4435 (310	31.)		1				
custon			9				consult
Output							
4 20 mA / 2-w	vire .		1				
custon	ner		Ş)			consult
Seal							
	ΚM			1			
EPI				3			
custon	ner			9			consult
Accuracy standard for $p_N > 0.4$ bar $0.35 \% F_0$	SO.			3			
standard for $p_N \le 0.4$ bar $0.50 \% F$				5			
option for $p_N > 0.4$ bar $0.25 \% F$				2			
custon				9			consult
Electrical connection							
PVC-cable (grey, Ø 7.4 m	ım) ¹				1		
PUR-cable (black, Ø 7.4 m	m) 1				2		
FEP-cable (black, Ø 7.4 m					3		
Cable length custon	iei				9		consult
	ı m				9 9 9		
Special version					3 3 9		
stand	ard					0 0 0	
custon	ner					9 9 9	consult

¹ shielded cable with integrated ventilation tube for atmospheric pressure reference



LMP 307

Stainless Steel Probe

Stainless Steel Sensor

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

Nominal pressure

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
- high accuracy
- good long term stability

Optional versions

- IS-version Ex ia = intrinsically safe for gas and dust
- SIL 2 (Safety Integrity Level)
- drinking water certificate according to DVGW and KTW
- different kinds of cables and elastomers
- petrol-version welded pressure sensor and housing
- mounting with stainless steel pipe

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

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

Preferred areas of use are

Water / filtrated sewage

drinking water systems ground water level measurement rain spillway basins pump and booster stations level measurement in containers water treatment plants



Fuel and oil fuel storage

water recycling















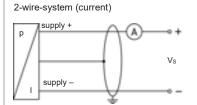


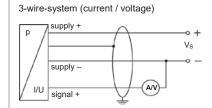
Input pressure range														
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40	40	80	80
Burst pressure ≥	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120
Max. ambient pressure (housing): 40 bar														

Output signal / Supply					
Standard	2-wire: 4 20 mA / V _S = 8 32 V _{DC}	SIL-version: $V_S = 14 \dots 28 V_{DC}$			
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	3-wire: 0 20 mA / V_S = 14 30 V_{DC}	$0 \dots 10 \text{ V} / \text{ V}_{\text{S}} = 14 \dots 30 \text{ V}_{\text{DC}}$			
Performance					
Accuracy ¹	standard: nominal pressure < 0.4 bar:	≤±0.5 % FSO			
		≤ ± 0.35 % FSO			
	, ·	≤ ± 0.25 % FSO			
B : "	-	≤ ± 0.1 % FSO			
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$	Harris Ornina D. 40 ho			
Influence effects		/oltage 3-wire: R _{min} = 10 kΩ			
	supply: 0.05 % FSO / 10 V lc \leq \pm 0.1 % FSO / year at reference conditions	oad: 0.05 % FSO / kΩ			
Long term stability	· · · · · · · · · · · · · · · · · · ·	Queiros < 2 mana			
Response time		3-wire: ≤3 msec			
	it point adjustment (non-linearity, hysteresis, repeatability	у)			
Thermal effects (offset and span)	T. Control of the Con	. 2.42			
Nominal pressure p _N [bar]	< 0.40	≥ 0.40			
Tolerance band [% FSO]	≤±1	≤ ± 0.75			
in compensated range [°C]	0) 70			
Permissible temperatures					
Permissible temperatures	medium: -10 70 °C s	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				
² additional external overvoltage protecti	on unit in terminal box KL 1 or KL 2 with atmospheric pro	ressure reference available on request			
Electrical connection					
Cable with sheath material ³	PVC (-5 70 °C) grey Ø 7.4 mm				
	PUR (-10 70 °C) black Ø 7.4 mm				
	FEP ⁴ (-10 70 °C) black Ø 7.4 mm				
D !! !!		without / with drinking water certificate)			
Bending radius	static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter				
³ shielded cable with integrated ventilation	n tube for atmospheric pressure reference				
⁴ do not use freely suspended probes with	th an FEP cable if effects due to highly charging process	ses are expected			
Materials (media wetted)					
Housing	stainless steel 1.4404 (316L)				
Seals	FKM; EPDM (without / with drinking water certifi	icate)			
	welded version ⁵	others on request			
Diaphragm	stainless steel 1.4435 (316L)				
Protection cap	POM-C				
Cable sheath	PVC, PUR, FEP, TPE-U				
⁵ not in combination with SIL version and only in combination with FEP cable possible					
Explosion protection (only for 4.	20 mA / 2-wire)				
Approvals DX19-LMP 307	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027	7X			
	zone 0: II 1G Ex ia IIC T4 Ga				
	zone 20: II 1D Ex ia IIIC T135 °C Da				
Safety technical maximum values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i$				
Damaia silala taman sestema a ferr	the supply connections have an inner capacity of				
Permissible temperatures for envi- ronment	in zone 0: -20 60 °C with p _{atm} 0.8 in zone 1 or higher: -40/-20 70 °C	par up to 1.1 par			
Connecting cables		nal line/signal line: 160 pF/m			
(by factory)		nal line/signal line: 1 µH/m			
(-)	aastass. signai iiris/siirisia albo sigi				

Miscellaneous						
Option SIL 2 version ⁶	according to IEC 61508 / IEC 61511					
Drinking water certificate 7	according to DVGW W 270 and UBA KTW	according to DVGW W 270 and UBA KTW				
_	(with order the indication "with drinking water	certificate" is necessary)				
Current consumption	signal output current: max. 25 mA	signal output voltage: max. 7 mA				
Weight	approx. 200 g (without cable)					
Ingress protection	IP 68					
CE-conformity	EMC Directive: 2014/30/EU					
ATEX Directive	2014/34/EU					
6 not in combination with the accura-	cv 0.1 %, only for 420 mA / 2-wire					

Wiring diagrams





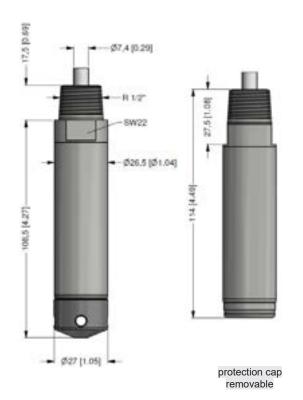
Pin configuration				
Electrical connection	cable colours (IEC 60757)			
Supply +	WH (white)			
Supply –	BN (brown)			
Signal + (only 3-wire)	GN (green)			
Shield	GNYE (green-yellow)			

Dimensions (mm / in)

Standard

Ø7.4 (0.29) 100 14:061 115 |4 53|g26.5 [1.04]

Option



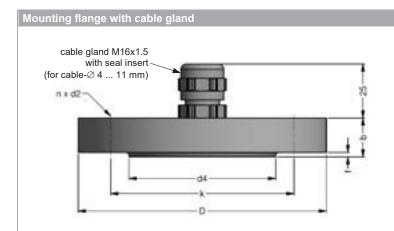
prepared for mounting with stainless steel pipe

Total length of devices with accuracy 0.1 % FSO IEC 60770 increases by 35 mm!

protection cap

removable

⁷ only possible with EPDM seal in combination with TPE-U cable; not possible with IS-version (explosion protection)



dimensions in mm						
size	DN25 / PN40	DN50 / PN40	DN80 / PN16			
b	18	20	20			
D	115	165	200			
d2	14	18	18			
d4	68	102	138			
f	2	3	3			
k	85	125	160			
n	4	4	8			

T	ech	nica	data	
$\overline{}$				

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

Tiolo pattorn	according to Dira 2007		
Ordering type		Ordering code	Weight
DN25 / PN40 with cable gland	brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland	brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland	brass_nickel_plated	ZMF8016	4 8 kg

Terminal clamp



Technical data									
Suitable for	all probes with cable Ø 5.5 10	probes with cable ∅ 5.5 10.5 mm							
Material of housing	standard: steel, zinc plated	optionally: stainless steel	1.4301 (304)						
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)								
Dimensions (mm)	174 x 45 x 32								
Hook diameter	20 mm								

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

Display program

CIT 250 Process display with LED display and contacts

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

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

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

CIT 600 Multichannel process display with graphics-capable LC display

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

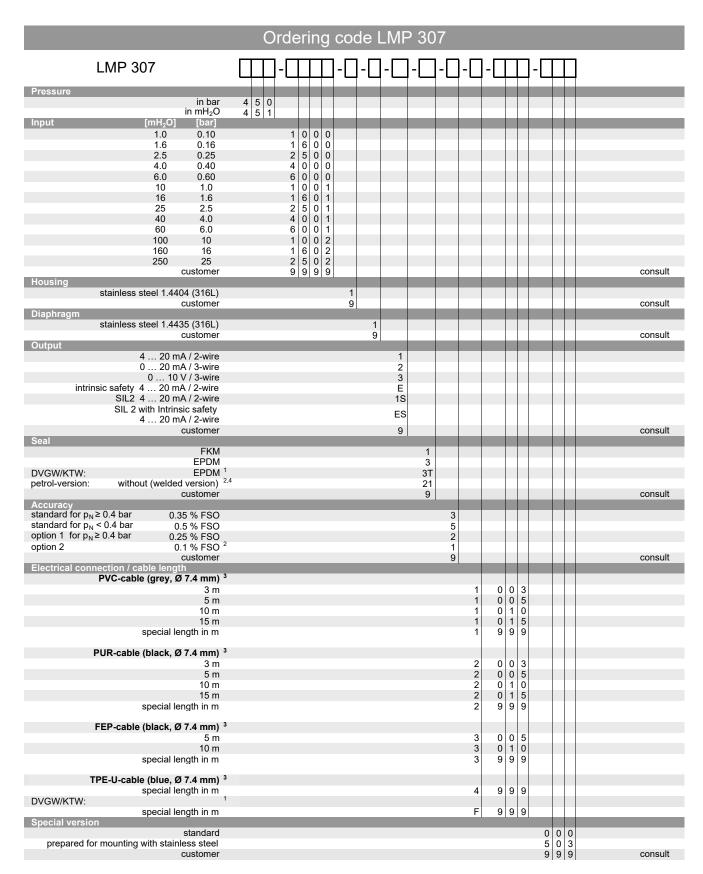
CIT 700 / CIT 750 Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts

PA 440 Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.de



LMP 307



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

² not in combination with SIL

 $^{^{\}rm 3}$ shielded cable with integrated ventilation tube for atmospheric pressure reference

⁴ petrol-version only in combination with FEP cable



LMP 307T

Level and Temperature Transmitter

Stainless Steel Sensor

accuracy according to IEC 60770:

standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure / nominal temperature

from 0 ... 1 mH $_2$ O up to 0 ... 250 mH $_2$ O 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

- drinking water certificate according to DVGW and KTW
- different kinds of cables and elastomers
- customer specific versions

BD|SENSORS has developed the stainless steel submersible probe LMP 307T for continuous level and temperature measurement in water and in clean or lightly polluted fluids. 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 rain spillway basins or river courses and level measurement in containers or tank batteries.

Preferred areas of use are

Water / filtrated sewage



drinking water system rain spillway basins water recycling



Fuel and oil tank farm



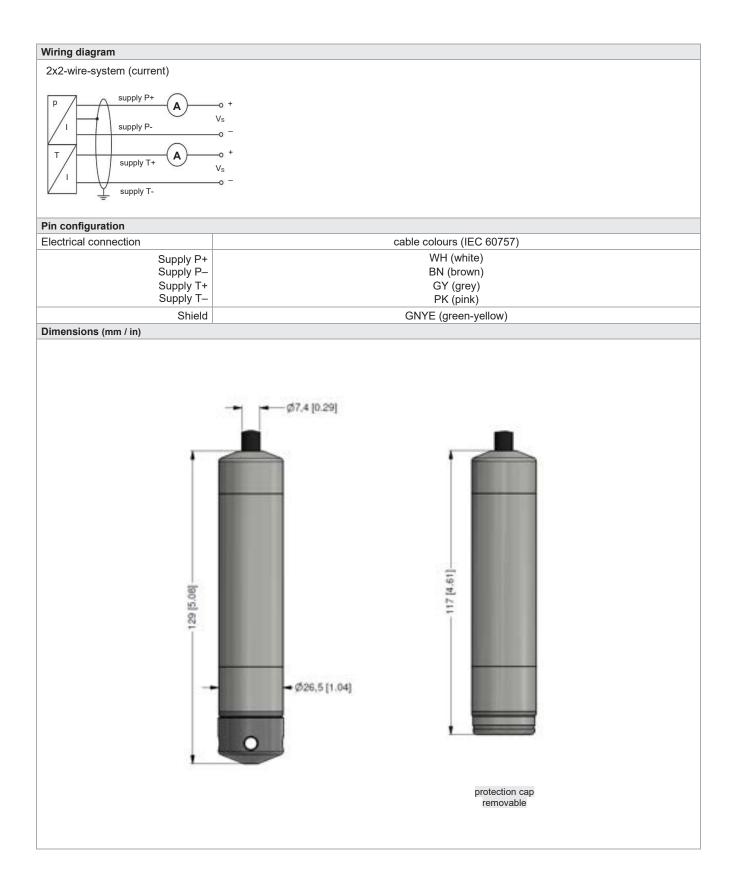


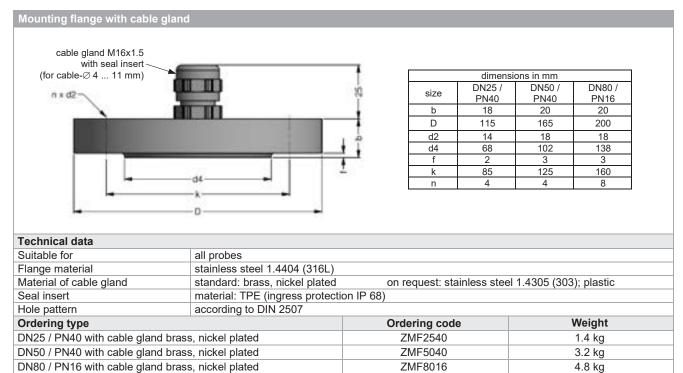




Input pressure range														
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40	40	80	80
Burst pressure >	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120
Max. ambient pressure (housing): 40 bar														

Input temperature range				
Temperature measuring range standard:	0 30 °C	0 50 °C	0 70 °C	others on request 1
¹ min. temperature range: 30°C; max. ter	nperature range: 80°C; min.	temperature: -10°C; max. tem	perature: 70 °C	
Output signal / Supply				
2-wire (pressure) ²	4 20 mA / V _S = 10	30 V _{DC}		
2-wire (temperature) ²	4 20 mA / V _S = 10			
² the circuits are galvanically isolated from	n each other			
Performance				
Accuracy (pressure) ³	standard: nominal pr	essure < 0.4 bar: ≤ ±	0.5 % FSO	
,			0.35 % FSO	
	option 1: nominal pr	essure ≥ 0.4 bar: ≤ ±	0.25 % FSO	
Accuracy (temperature) 4	≤ ± 1 °C			
Permissible load	$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.$	02 A] Ω		
Influence effects	supply: 0.05 % FSO / 1		I: 0.05 % FSO / kΩ	
Long term stability	≤ ± 0.1 % FSO / year a	reference conditions		
Response time	< 10 msec (for output s	gnal 2-wire (pressure))		
³ accuracy according to IEC 60770 – limi	t point adjustment (non-linea	rity, hysteresis, repeatability)		
⁴ Pt100 class B; compensation time up to	o 1 h depending on constant	temperature and environmen	tal respectively mass condition	ns
Thermal effects (offset and span)				
Nominal pressure P _N [bar]		0.40	_	.40
Tolerance band [% FSO]	≤	± 1		0.75
in compensated range [°C]		0.	70	
Permissible temperatures				
Permissible temperatures	medium: -10 70 °C	stor	age: -25 70 °C	
Electrical protection 5				
Short-circuit protection	permanent			
Reverse polarity protection	no damage, but also no	function		
Electromagnetic compatibility	emission and immunity	according to EN 61326		
⁵ additional external overvoltage protect	on unit in terminal box KL 1	or KL 2 with atmospheric pres	sure reference available on re	equest
Electrical connection				
Cable with sheath material ⁶	PVC (-5 70 °C) PUR (-10 70 °C) FEP ⁷ (-10 70 °C) TPE-U (-10 70 °C)		hout/with drinking water ce	ertificate)
Cable capacitance	signal line/shield also	signal line/signal line: 160	pF/m	
Cable inductance		signal line/signal line։ 1 µŀ	H/m	
Bending radius		10-fold cable diameter 20-fold cable diameter		
⁶ shielded cable with integrated ventilatio ⁷ do not use freely suspended probes with			s are expected	
Materials (media wetted)				
Housing	stainless steel 1.4404 (316L)		
Seals	FKM EPDM (without/with dri		othe	ers on request
Diaphragm	stainless steel 1.4435 (316L)		
Protection cap	POM-C			
Cable sheath	PVC, PUR, FEP, TPE-	J, others on request		
Miscellaneous				
Drinking water certificate ⁸	according to DVGW W (with order the indication	270 and UBA KTW n "with drinking water cert	ificate" is necessary)	
Current consumption	max. 25 mA			
Weight	approx. 200 g (without	cable)		
Ingress protection	IP 68			
CE-conformity	EMC Directive: 2014/30)/EU		
⁸ only possible with EPDM seal in combi	nation with TPE-U cable			



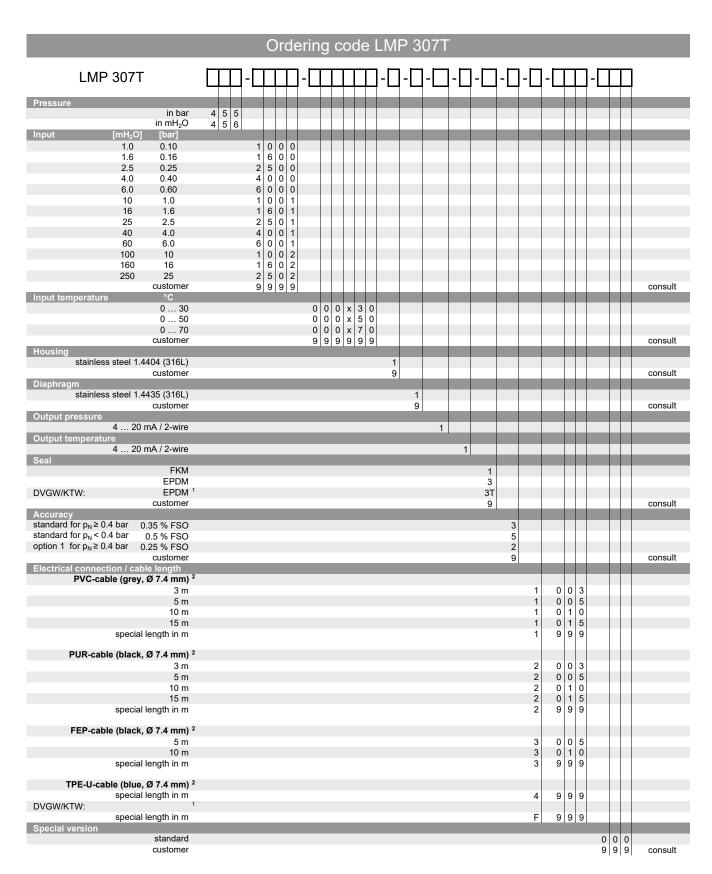


3	,						
Terminal clamp							
Technical data							
Suitable for	all probes with cable ∅ 5.5 1	0.5 mm					
Material of housing	standard: steel, zinc plated	optionally: stainless steel 1.4301 (304)					
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)		· ·				
Dimensions (mm)	174 x 45 x 32						
Hook diameter	20 mm						
Ordering type		Ordering code	Weight				
Terminal clamp, steel, zinc pla	ated	Z100528	100				
Terminal clamp, stainless stee		Z100527 approx. 160 g					

Display	program	
CIT 200	Process display with LED display	
CIT 250	Process display with LED display and contacts	
CIT 300	Process display with LED display, contacts and analogue output	
CIT 350	Process display with LED display, bargraph, contacts and analogue output	
CIT 400	Process display with LED display, contacts, analogue output and Ex-approval	
CIT 600	Multichannel process display with graphics-capable LC display	
CIT 650	Multichannel process display with graphics-capable LC display and datalogger	
CIT 700 /	Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts	
PA 440	Field display with 4-digit LC display	
For furth	ner information please contact our sales department or	

visit our homepage: http://www.bdsensors.de





¹ drinking water certification only possible with EPDM seal (code 3T) in combination with TPE-U cable (code F)

 $^{^{\}rm 2}$ shielded cable with integrated ventilation tube for atmospheric pressure reference

LMP 308



Detachable **Stainless Steel Probe**

Stainless Steel Sensor

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

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 head detachable
- high accuracy
- good long term stability

Optional versions

- IS-version Ex ia = intrinsically safe for gas and dust
- SIL 2 (Safety Integrity Level)
- customer specific versions
- mounting accessories e.g. mounting flange and terminal clamp in stainless steel
- different kinds of cables and elastomers

The detachable stainless steel probe LMP 308 is designed for the continuous level measurement of water and low-viscosity fluids.

order to facilitate stock-keeping maintenance the sensor 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





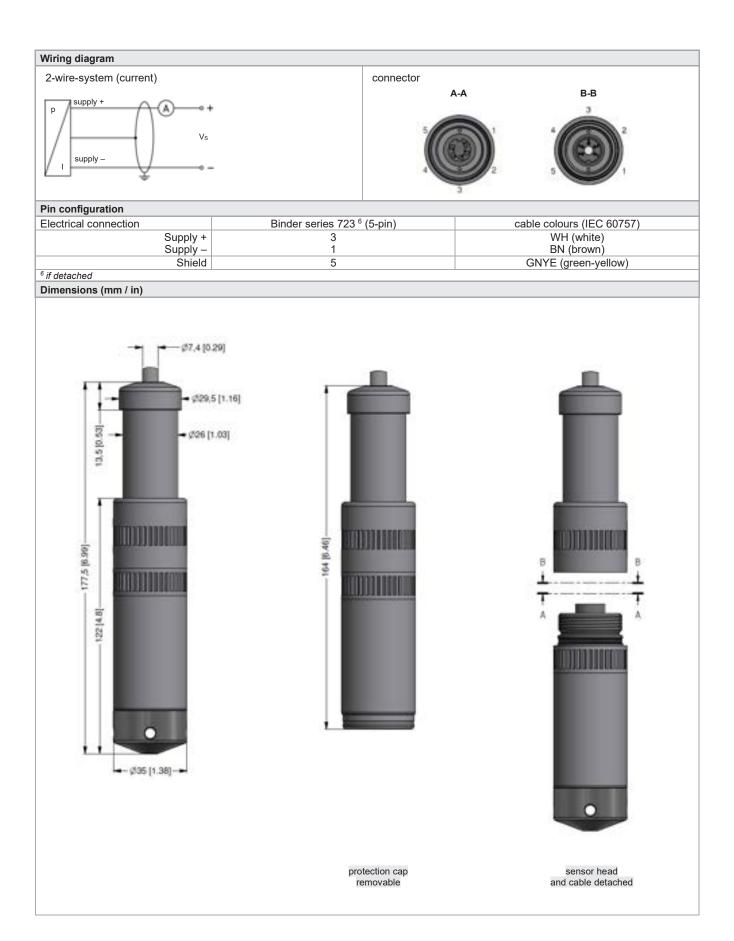


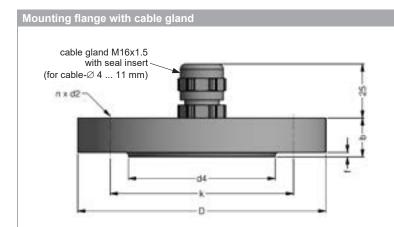






Input pressure range											I -			
Nominal pressure gauge	[bar]	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	10	16	25
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40	40	80	80
Burst pressure	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120
Max. ambient pressure (ho	using): 4	0 bar												
Output signal / Supply														
Standard		2-wire:	4	20 m	A / Ve =	8 32	V _{DC}	SII	-version	· Ve = 1	4 28	Vnc		
Option IS-protection		2-wire:				10 28			-version					
Performance			·		, , , , ,		, . DC				0	100		
Accuracy ¹		standa	rd: no	ominal p	ressure	< 0.4 ba	ar:	≤ +	0.5 % F	SO				
,						≥ 0.4 ba			0.35 %					
		option	1: no	ominal p	ressure	≥ 0.4 ba	ar:	≤±	0.25 %	FSO				
		option	2: fo	r all non	ninal pre	essures:		≤ ±	0.1 % F	so				
Permissible load			$[(V_s - V_s)]$			2								
Influence effects		supply	: 0.05 %	FSO /	10 V			load	1:0.05 %	FSO/	kΩ			
Long term stability		≤ ± 0.1	% FSC) / year a	at refere	nce con	ditions							
Response time		≤ 10 m												
¹ accuracy according to IEC 60	770 – limi	t point ad	justment	(non-line	arity, hys	steresis, r	epeatabil	lity)						
Thermal effects (Offset and	d Span)													
Nominal pressure p _N	[bar]			<	0.40						≥ 0.4	0		
Tolerance band [% FSO]				≤ ± 1						≤ ± 0.	75		
in compensated range	[°C]							0 70						
Permissible temperatures														
Permissible temperatures		mediur	n: - 20 .	70 °C				storage	: -25	70 °C				
Electrical protection ²														
Short-circuit protection		permai	nent											
Reverse polarity protection		no damage, but also no function												
Lightning protection		integrated												
Electromagnetic compatibil	ity	emission and immunity according to EN 61326												
² additional external overvoltag	e protectio	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		70 °C) (ð 7.4 mr								
						ð 7.4 mr								
B " "		FEP ⁴ (-20 70 °C) black Ø 7.4 mm												
Bending radius		static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter												
³ shielded cable with integrated	l ventilatio	n tube for atmospheric pressure reference												
⁴ do not use freely suspended p							na proces	sses are	expected					
Materials (media wetted)						<u> </u>	5 /							
Housing		stainle	ss steel	1.4404	(316L)									
Seals						st								
Diaphragm		FKM, EPDM, others on request stainless steel 1.4435 (316L)												
Protection cap		POM-C												
Cable sheath	·				PVC, PUR, FEP, others on request									
		PVC, F	'UR, FE	:₽, otnei	s on rec	Juesi								
Explosion protection		PVC, F	VR, FE	P, otnei	s on rec	quest								
Approvals DX19-LMP 308							= 12.002	27X						
Approvals DX19-LMP 308		IBExU		X 1068	X / IE	CEx IBI	≣ 12.002	27X						
		IBExU zone 0	10 ATE	X 1068 S Ex ia I	X / IE	ECEx IBI	≣ 12.002	27X						
	values	IBExU zone 0 zone 2 U _i = 28	10 ATE : II 1G 0: II 1D 3 V, I _i = 9	X 1068 6 Ex ia II 9 Ex ia II	X / IE IC T4 G IC T135 P _i = 660	ECEx IBI a 5 °C Da mW, C _i	≈ 0nF, l	_ _i ≈ 0μH						
Approvals DX19-LMP 308 Safety technical maximum		IBExU zone 0 zone 2 U _i = 28 the sup	10 ATE : II 10 0: II 10 B V, I _i = 9 oply con	X 1068 Ex ia II Ex ia II 93 mA, I nections	X / IE IC T4 G IC T135 P _i = 660 s have a	ECEx IBI a 5 °C Da mW, C _i an inner	≈ 0nF, I	_ _i ≈ 0μH ⁄ of max	. 27 nF		ousing			
Approvals DX19-LMP 308 Safety technical maximum Permissible temperatures f		IBExU zone 0 zone 2 U _i = 28 the sup	10 ATE : II 10 0: II 1D 3 V, I _i = 9 pply con e 0:	X 1068 G Ex ia II D Ex ia II 93 mA, I nections	X / IE IC T4 G IC T135 P _i = 660 s have a 20 60	ECEx IBI a 5 °C Da mW, C _i an inner	≈ 0nF, I	_ _i ≈ 0μH ⁄ of max	. 27 nF		ousing			
Approvals DX19-LMP 308 Safety technical maximum Permissible temperatures fenvironment		IBEXU zone 0 zone 2 U _i = 28 the sup in zone in zone	10 ATE : II 10 0: II 10 8 V, I _i = 9 poply con e 0: e 1 or hi	X 1068 Ex ia II Ex ia II 93 mA, I nections	X / IE IC T4 G IC T135 P _i = 660 s have a 20 60 40/-20	ECEx IBI a 5 °C Da mW, C _i an inner '°C with . 70 °C	≈ 0nF, I capacity p _{atm} 0.8	L _i ≈ 0μH v of max bar up	27 nF to 1.1 b	ar				
Approvals DX19-LMP 308 Safety technical maximum Permissible temperatures fenvironment Connecting cables		IBExU zone 0 zone 2 U _i = 28 the sup in zone cable co	10 ATE : II 10 0: II 10 3 V, I _i = 9 pply con e 0: e 1 or hic	X 1068 6 Ex ia II 9 Ex ia II 93 mA, I nections -: gher:	X / IE IC T4 G IC T135 P _i = 660 s have a 20 60 40/-20 ignal lin	ECEx IBI a 5°C Da mW, C _i an inner °C with 70°C e/shield	≈ 0nF, I capacity p _{atm} 0.8	_ _i ≈ 0μH ⁄ of max bar up nal line	to 1.1 b	ar ne: 160	pF/m			
Approvals DX19-LMP 308 Safety technical maximum Permissible temperatures fenvironment Connecting cables (by factory)		IBExU zone 0 zone 2 U _i = 28 the sup in zone cable co	10 ATE : II 10 0: II 10 8 V, I _i = 9 poply con e 0: e 1 or hi	X 1068 6 Ex ia II 9 Ex ia II 93 mA, I nections -: gher:	X / IE IC T4 G IC T135 P _i = 660 s have a 20 60 40/-20 ignal lin	ECEx IBI a 5 °C Da mW, C _i an inner '°C with . 70 °C	≈ 0nF, I capacity p _{atm} 0.8	_ _i ≈ 0μH ⁄ of max bar up nal line	to 1.1 b	ar ne: 160	pF/m			
Approvals DX19-LMP 308 Safety technical maximum Permissible temperatures fenvironment Connecting cables (by factory) Miscellaneous		IBExU zone 0 zone 2 U _i = 28 the su _i in zone in zone cable c	10 ATE : II 1G 0: II 1D 3 V, I _i = 9 pply con e 0: e 1 or hic capacita nductan	X 1068 S Ex ia II D Ex ia II 93 mA, I nections 	X / IE IC T4 G IC T135 P _i = 660 s have a 20 60 40/-20 ignal lin	ECEx IBI a 5 °C Da mW, Ci an inner °C with 70 °C e/shield e/shield	≈ 0nF, I capacity p _{atm} 0.8	_ _i ≈ 0μH ⁄ of max bar up nal line	to 1.1 b	ar ne: 160	pF/m			
Approvals DX19-LMP 308 Safety technical maximum Permissible temperatures fenvironment Connecting cables (by factory) Miscellaneous Option SIL2 version 5		IBExU zone 0 zone 2 U _i = 28 the su _i in zone in zone cable c cable i	10 ATE : II 10 0: II 10 3 V, I _i = 9 pply cone e 0: e 1 or high	X 1068 S Ex ia II D Ex ia II 93 mA, I nections 	X / IE IC T4 G IC T135 P _i = 660 s have a 20 60 40/-20 ignal lin	ECEx IBI a 5 °C Da mW, Ci an inner °C with 70 °C e/shield e/shield	≈ 0nF, I capacity p _{atm} 0.8	_ _i ≈ 0μH ⁄ of max bar up nal line	to 1.1 b	ar ne: 160	pF/m			
Approvals DX19-LMP 308 Safety technical maximum Permissible temperatures f environment Connecting cables (by factory) Miscellaneous Option SIL2 version 5 Current consumption		IBExU zone 0 zone 2 U _i = 28 the su _i in zone in zone cable i accord max. 2	10 ATE : II 10 0: II 10 3 V, I _i = 9 poply cone e 0: e 1 or high capacita nductan ing to IE 5 mA	X 1068 G Ex ia II D Ex ia II D Ex ia II D Ex ia II GRAPHICAL STREET	X / IEC	ECEx IBI a 5 °C Da mW, Ci an inner °C with 70 °C e/shield e/shield	≈ 0nF, I capacity p _{atm} 0.8	_ _i ≈ 0μH ⁄ of max bar up nal line	to 1.1 b	ar ne: 160	pF/m			
Approvals DX19-LMP 308 Safety technical maximum Permissible temperatures f environment Connecting cables (by factory) Miscellaneous Option SIL2 version 5 Current consumption Weight		IBExU zone 0 zone 2 U _i = 28 the su _i in zone in zone cable cable i accord max. 2 approx	10 ATE : II 10 0: II 10 3 V, I _i = 9 pply cone e 0: e 1 or high	X 1068 G Ex ia II D Ex ia II D Ex ia II D Ex ia II GRAPHICAL STREET	X / IEC	ECEx IBI a 5 °C Da mW, Ci an inner °C with 70 °C e/shield e/shield	≈ 0nF, I capacity p _{atm} 0.8	_ _i ≈ 0μH ⁄ of max bar up nal line	to 1.1 b	ar ne: 160	pF/m			
Approvals DX19-LMP 308 Safety technical maximum Permissible temperatures f environment Connecting cables (by factory) Miscellaneous Option SIL2 version 5 Current consumption Weight Ingress protection		IBExU zone 0 zone 2 U _i = 28 the su _i in zone in zone cable cable i accord max. 2 approx IP 68	10 ATE: II 10 O: III 10 O: II	X 1068 6 Ex ia II 9 Ex ia II 93 mA, I nections gher: nce: s ce: s	X / IEC T4 G IC T135 P; = 660 s have a 20 60 40/-20 ignal lin ignal lin 8 / IEC (cable)	ECEx IBI a 5 °C Da mW, Ci an inner °C with 70 °C e/shield e/shield	≈ 0nF, I capacity p _{atm} 0.8	_ _i ≈ 0μH ⁄ of max bar up nal line	to 1.1 b	ar ne: 160	pF/m			
Approvals DX19-LMP 308 Safety technical maximum Permissible temperatures f environment Connecting cables (by factory) Miscellaneous Option SIL2 version 5 Current consumption Weight		IBExU zone 0 zone 2 U _i = 28 the su _i in zone in zone cable cable i accord max. 2 approx IP 68	10 ATE: II 10 O: II 11 II II	X 1068 6 Ex ia II 9 Ex ia II 93 mA, I nections gher: nce: s ce: s	X / IEC T4 G IC T135 P; = 660 s have a 20 60 40/-20 ignal lin ignal lin 8 / IEC (cable)	ECEx IBI a 5 °C Da mW, Ci an inner °C with 70 °C e/shield e/shield	≈ 0nF, I capacity p _{atm} 0.8	_ _i ≈ 0μH ⁄ of max bar up nal line	to 1.1 b	ar ne: 160	pF/m			





	dimensions in mm										
size	DN25 / PN40	DN50 / PN40	DN80 / PN16								
b	18	20	20								
D	115	165	200								
d2	14	18	18								
d4	68	102	138								
f	2	3	3								
k	85	125	160								
n	4	4	8								

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

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Terminal clamp



Technical data			
Suitable for	all probes with cable Ø 5.5 10	.5 mm	
Material of housing	standard: steel, zinc plated	optionally: stainless steel 1.	4301 (304)
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)		
Dimensions (mm)	174 x 45 x 32		
Hook diameter	20 mm		
			147 1 1 4

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

Display program

CH	200	Process	display	with	LED	display	
CH	200	Process	display	with	LED	display	

CIT 250 Process display with LED display and contacts

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

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

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

CIT 600 Multichannel process display with graphics-capable LC display

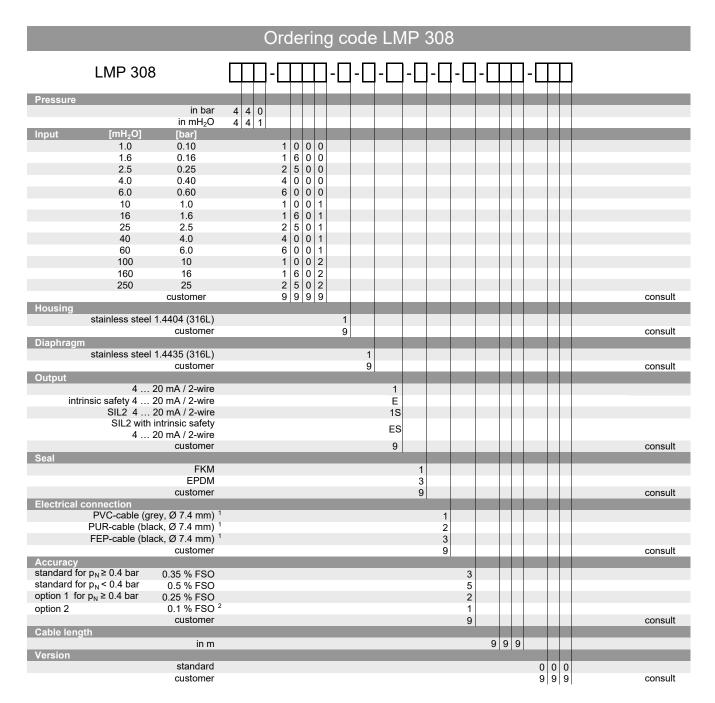
CIT 650 Multichannel process display with graphics-capable LC display and datalogger

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

PA 440 Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.de





¹ cable with integrated ventilation tube for atmospheric pressure reference

² not in combination with SIL



LMP 808

Detachable Plastic Probe

Stainless Steel Sensor

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

Nominal pressure

from $0 \dots 1 \text{ mH}_2\text{O}$ up to $0 \dots 100 \text{ mH}_2\text{O}$

Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 20 mA / 0 ... 10 V

others on request

Special characteristics

- ▶ diameter 35 mm
- cable assembly and sensor head detachable
- excellent linearity
- small thermal effect
- integrated lightning protection and increased overvoltage protection
 8 kA gas discharge tube (8/20 μsec);
 4 kV surge I-I/I-e according to EN61000-4-5

Optional versions

- SIL 2 (Safety Integrity Level) according to IEC 61508 / 61511
- different kinds of cables and elastomers

The separable plastic immersion probe LMP 808 was developed for water applications, for level measurements in rivers and for level measurements by fuels and oils designed. The basic element is a precise stainless steel sensor.

Since the area of application is often outside a building, great emphasis was placed on overvoltage / lightning protection.

To simplify warehousing and Maintenance, the probe head can be separated from the cable part and, if necessary, can be done without time-consuming assembly work can be replaced.

Preferred areas of use are

0

Water / filtrated sewage ground water level measurement rain spillway basins drinking water systems water treatment plants

Fuel and oil fuel storage tank farms biogas plants







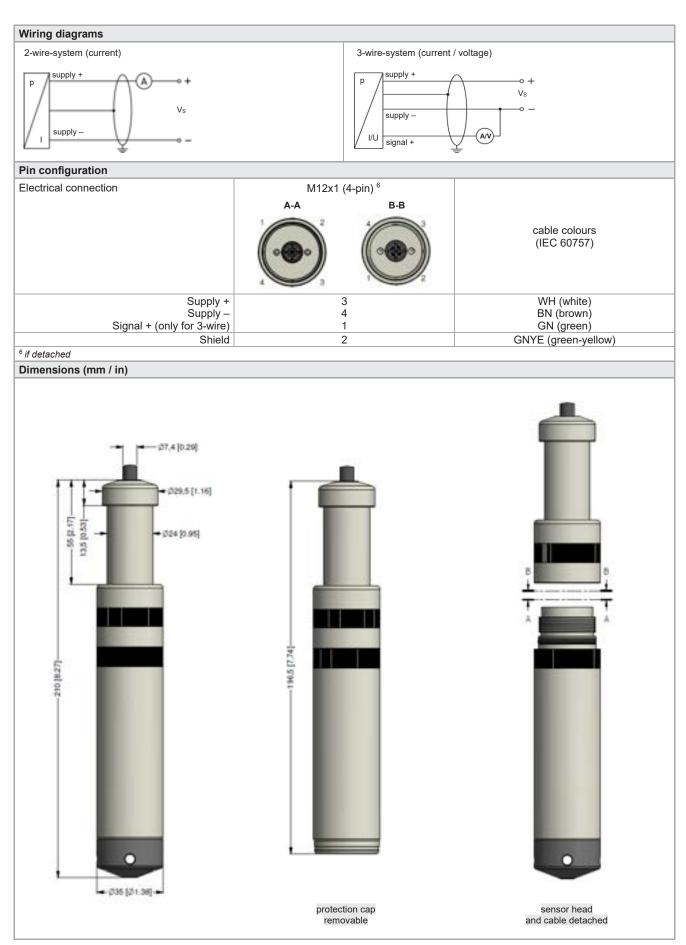
process water recycling

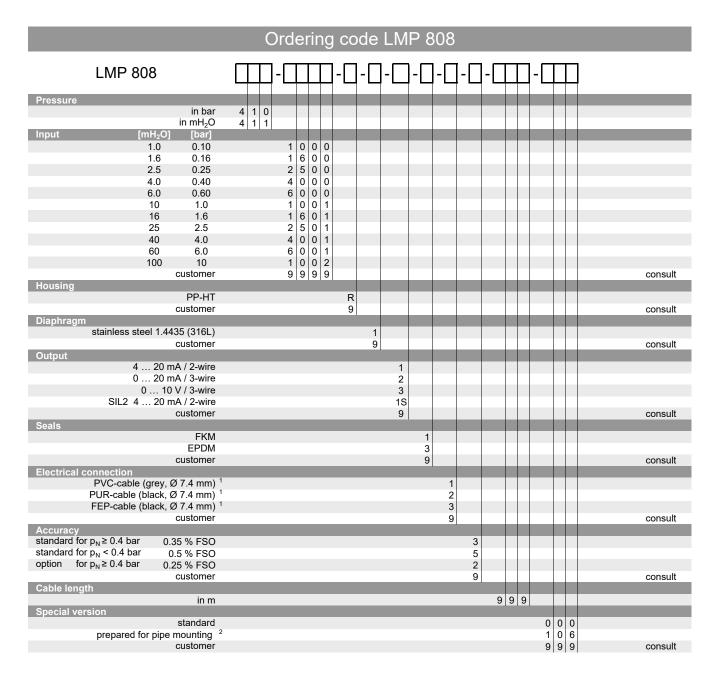




Input pressure range												
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40	40
Burst pressure ≥	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50
Max. ambient pressure (housing): 20 bar												

Output signal / Supply			
Standard		$0 \text{ mA} / V_S = 8 32 V_{DC}$	SIL-version: V _S = 14 28 V _{DC}
Options 3-wire) mA / V _S = 14 30 V _{DC}	
	0 10) V / V _S = 14 30 V _{DC}	
Performance			
Accuracy		nominal pressure < 0.4 bar:	≤ ± 0.5 % FSO
		nominal pressure ≥ 0.4 bar:	≤ ± 0.35 % FSO
Damaiasible land	 	nominal pressure ≥ 0.4 bar:	≤ ± 0.25 % FSO
Permissible load		$R_{\text{max}} = [(V_S - V_{S \text{ min}}) / 0.02 \text{ A}] \Omega$	2
		R_{max} = 500 Ω R_{min} = 10 k Ω	
Influence effects			lood:0.05 % FSO /ko
	supply: 0.05 % F		load:0.05 % FSO / kΩ
Long term stability		year at reference conditions	
Response time	< 10 msec		A
accuracy according to IEC 60770		on-linearity, nysteresis, repeatability	0
Thermal effects (offset and s	· ·		
	par]	< 0.40	≥ 0.40
Tolerance band [% F		≤±1	≤ ± 0.75
	[°C]	0	50
Permissible temperatures			
Permissible temperatures	medium / electro	nics / environment / storage: 0	60 °C
Electrical protection ²			
Short-circuit protection	permanent		
Reverse polarity protection	no damage, but a	also no function	
Electromagnetic compatibility	emission and imr	nunity according to EN 61326	
² additional external overvoltage pro	tection unit in terminal box	x KL 1 or KL 2 with atmospheric pre	essure reference available on request
Overvoltage / Lightning prote	ection (only 4 20 m.	A / 2-wire without SIL2)	
Series resistance		ositive and negative wire	
Max. leakage current	8 kA (8/20 µsec)		
Overload	` ' '	d line-earth) according to EN 6	1000-4-5
Max. rated current	30 mA	d line-cartify according to EIV o	1000-4-0
	30 IIIA		
Electrical connection	D) (0 / 5 70	2.00	
Cable with sheath material ³)°C) grey Ø 7.4 mm	
		0 °C) black Ø 7.4 mm 0 °C) black Ø 7.4 mm	
Cable capacitance		also signal line/signal line: 16	0 pF/m
Cable inductance		also signal line/signal line: 1	
Bending radius	static installation:		21 1/111
bending radius	dynamic applicat		
³ shielded cable with integrated air t	ube for atmospheric press	sure reference	
⁴ do not use freely suspended probe	es with an FEP cable if effe	ects due to highly charging process	es are expected
Materials (media wetted)			
Housing	PP-HT		
Seals	FKM, EPDM		
Diaphragm	stainless steel 1.4	4435 (316L)	
Protection cap	POM-C		
Cable sheath	PVC, PUR, FEP,	others on request	
Miscellaneous			
Option cable protection			m; available as compact product
(on request)		vith a total length up to 2 m pos	sible)
Option SIL 2 application ⁵		61508 / IEC 61511	
Current consumption		rent: max. 25 mA	
	signal output volt		
Weight	approx. 400 g (w	ithout cable)	
Ingress protection	IP 68		
	IP 68 EMC Directive: 2	014/30/EU	





¹ cable with integrated ventilation tube for atmospheric pressure reference

² pipe is not part of the supply



Stainless Steel Probe

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

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

Output signals

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

Special characteristics

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

Optional versions

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

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 and closed tanks





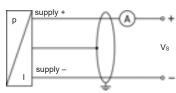




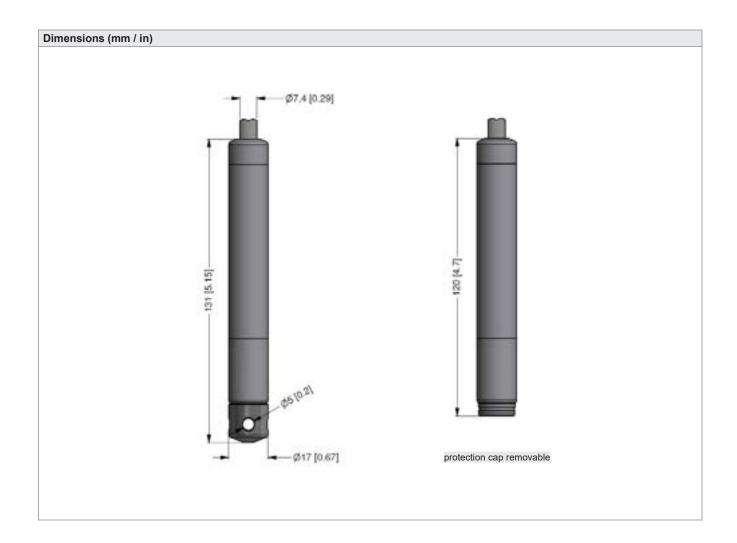
Input pressure range										
Nominal pressure gauge	[bar]	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	10	10	20	40	40
Burst pressure ≥	[bar]	4	4	5	5	12	12	25	50	50
Max. ambient pressure (housing): 40 bar										

curacy $\leq \pm 0.5 \%$ FSO $_{\text{ermissible load}}$ $_{\text{Rmax}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$ cluence effects $_{\text{Supply}} = 0.05 \%$ FSO $_{\text{Intermissible load}}$ $_{\text{Intermissible load}}$ $_{\text{Supply}} = 0.05 \%$ FSO $_{\text{Intermissible load}}$ $_{Intermissible load$	Output signal / Supply	
scuracy $\leq \pm 0.5 \% \text{FSO}$ strmissible load $R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{A}] \Omega$ supply: $0.05 \% \text{FSO} / 10 \text{V}$ load: $0.05 \% \text{FSO} / \text{k}\Omega$ seponse time $\leq 10 \text{msec}$ scuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) sermal effects (offset and span) / Permissible temperatures sermal error $\leq \pm 0.2 \% \text{FSO} / 10 \text{K}$ in compensated range $0 \dots 70 ^{\circ}\text{C}$ sermissible temperatures medium: $-10 \dots 70 ^{\circ}\text{C}$ storage: $-25 \dots 70 ^{\circ}\text{C}$ sectrical protection 2 servicuit protection permanent severse polarity protection on damage, but also no function sectromagnetic protection emission and immunity according to EN 61326 additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request sectrical connection suble with sheath material 3 PVC ($-5 \dots 70 ^{\circ}\text{C}$) grey Ø 7.4 mm PUR ($-10 \dots 70 ^{\circ}\text{C}$) black Ø 7.4 mm FEP 4 ($-10 \dots 70 ^{\circ}\text{C}$) black Ø 7.4 mm FEP 4 ($-10 \dots 70 ^{\circ}\text{C}$) black Ø 7.4 mm others on request signal line/shield also signal line/signal line: 160 pF/m sible inductance signal line/shield also signal line/signal line: 1 μH/m	2-wire	$4 20 \text{ mA} / V_S = 12 36 V_{DC}$
In the state of	Performance	
Supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ sponse time ≤ 10 msec couracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) sermal effects (offset and span) / Permissible temperatures sermal error ≤ ± 0.2 % FSO / 10 K in compensated range 0 70 °C sermissible temperatures medium: -10 70 °C storage: -25 70 °C sectrical protection 2 sort-circuit protection permanent severse polarity protection emission and immunity according to EN 61326 diditional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request sectrical connection suble with sheath material 3 PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm FEP ⁴ (-10 70 °C) black Ø 7.4 mm others on request signal line/shield also signal line: 160 pF/m sible inductance signal line/shield also signal line/signal line: 1 μH/m	Accuracy	≤±0.5 % FSO
seponse time ≤ 10 msec couracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) sermal effects (offset and span) / Permissible temperatures sermal error ≤±0.2 % FSO / 10 K in compensated range 0 70 °C sermissible temperatures medium: -10 70 °C storage: -25 70 °C sectrical protection 2 sort-circuit protection permanent severse polarity protection no damage, but also no function sectromagnetic protection emission and immunity according to EN 61326 diditional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request sectrical connection suble with sheath material 3 PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm others on request signal line/shield also signal line/signal line: 160 pF/m sible inductance signal line/shield also signal line/signal line: 1 µH/m	Permissible load	$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$
accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability) Intermal effects (offset and span) / Permissible temperatures	Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
termal effects (offset and span) / Permissible temperatures termal error ≤ ± 0.2 % FSO / 10 K in compensated range 0 70 °C termissible temperatures medium: -10 70 °C storage: -25 70 °C tectrical protection 2 termal error permanent teverse polarity protection no damage, but also no function tectromagnetic protection emission and immunity according to EN 61326 diditional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request tectrical connection table with sheath material 3 PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm FEP ⁴ (-10 70 °C) black Ø 7.4 mm FEP ⁴ (-10 70 °C) black Ø 7.4 mm others on request signal line/shield also signal line/signal line: 160 pF/m sible inductance signal line/shield also signal line/signal line: 1 μH/m	Response time	≤ 10 msec
sermal error ≤±0.2 % FSO / 10 K in compensated range 0 70 °C extrinsisible temperatures medium: -10 70 °C storage: -25 70 °C extrical protection 2 nort-circuit protection permanent no damage, but also no function exteromagnetic protection emission and immunity according to EN 61326 additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request extrical connection able with sheath material 3 PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm FEP ⁴ (-10 70 °C) black Ø 7.4 mm others on request signal line/shield also signal line: 160 pF/m able inductance signal line/shield also signal line: 1 μH/m	¹ accuracy according to IEC 60770 – limi	point adjustment (non-linearity, hysteresis, repeatability)
remissible temperatures medium: -10 70 °C storage: -25 70 °C rectrical protection permanent permanent modern permanent protection permanent modern protection modern protection permanent protection modern protection modern protection permanent protection permanent protection permanent protection permanent protection permanent permanent protection permanent protection permanent protection permanent protection permanent protection permanent protection	Thermal effects (offset and span)	/ Permissible temperatures
ectrical protection permanent port-circuit protection permanent everse polarity protection no damage, but also no function ectromagnetic protection emission and immunity according to EN 61326 additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request ectrical connection able with sheath material 3 PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm FEP 4 (-10 70 °C) black Ø 7.4 mm others on request able capacitance signal line/shield also signal line/signal line: 160 pF/m able inductance signal line/shield also signal line/signal line: 1 µH/m	Thermal error	≤ ± 0.2 % FSO / 10 K in compensated range 0 70 °C
permanent everse polarity protection no damage, but also no function extromagnetic protection emission and immunity according to EN 61326 dditional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request extrical connection able with sheath material 3 PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm FEP 4 (-10 70 °C) black Ø 7.4 mm others on request signal line/shield also signal line/signal line: 160 pF/m able inductance signal line/shield also signal line/signal line: 1 µH/m	Permissible temperatures	medium: -10 70 °C storage: -25 70 °C
exerse polarity protection no damage, but also no function exertion exertion emission and immunity according to EN 61326 dditional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request exertical connection able with sheath material 3 PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm FEP 4 (-10 70 °C) black Ø 7.4 mm others on request signal line/shield also signal line: 160 pF/m able inductance signal line/shield also signal line: 1 µH/m	Electrical protection ²	
extromagnetic protection emission and immunity according to EN 61326 dditional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request extrical connection able with sheath material 3 PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm FEP 4 (-10 70 °C) black Ø 7.4 mm others on request able capacitance signal line/shield also signal line/signal line: 160 pF/m able inductance signal line/shield also signal line/signal line: 1 µH/m	Short-circuit protection	permanent
dilitional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request extrical connection able with sheath material 3 PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm FEP 4 (-10 70 °C) black Ø 7.4 mm others on request able capacitance signal line/shield also signal line: 160 pF/m able inductance signal line/shield also signal line: 1 µH/m	Reverse polarity protection	no damage, but also no function
PVC (-5 70 °C) grey Ø 7.4 mm PUR (-10 70 °C) black Ø 7.4 mm PEP 4 (-10 70 °C) black Ø 7.4 mm others on request able capacitance signal line/shield also signal line/signal line: 160 pF/m sible inductance signal line/shield also signal line/signal line: 1 µH/m	Electromagnetic protection	emission and immunity according to EN 61326
PVC (-570 °C) grey Ø 7.4 mm PUR (-1070 °C) black Ø 7.4 mm FEP 4 (-1070 °C) black Ø 7.4 mm others on request signal line/shield also signal line/signal line: 160 pF/m sible inductance signal line/shield also signal line/signal line: 1 µH/m	² additional external overvoltage protection	n unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request
PUR (-10 70 °C) black Ø 7.4 mm FEP ⁴ (-10 70 °C) black Ø 7.4 mm others on request able capacitance signal line/shield also signal line/signal line: 160 pF/m able inductance signal line/shield also signal line/signal line: 1 µH/m	Electrical connection	
able inductance signal line/shield also signal line: 1 μH/m	Cable with sheath material ³	PUR (-10 70 °C) black Ø 7.4 mm FEP ⁴ (-10 70 °C) black Ø 7.4 mm
organia moyomota aloo organia moyomota kana kana kana kana kana kana kana ka	Cable capacitance	signal line/shield also signal line/signal line: 160 pF/m
nding radius static installation: 10-fold cable diameter	Cable inductance	signal line/shield also signal line/signal line: 1 µH/m
dynamic application: 20-fold cable diameter	Bending radius	dynamic application: 20-fold cable diameter
hielded cable with integrated ventilation tube for atmospheric pressure reference o not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected	⁴ do not use freely suspended probes wit	n tube for atmospheric pressure reference n an FEP cable if effects due to highly charging processes are expected
·	Materials (media wetted)	
· /	Housing	· ,
	Seals	
	Diaphragm	
	Protection cap	
able sheath PVC, PUR, FEP	Cable sheath	PVC, PUR, FEP
scellaneous	Miscellaneous	
·	Current consumption	
· · · · · · · · · · · · · · · · · · ·	Weight	
	Ingress protection	· ••
E-conformity EMC Directive: 2014/30/EU	CE-conformity	EMC Directive: 2014/30/EU
ring diagram	Wiring diagram	

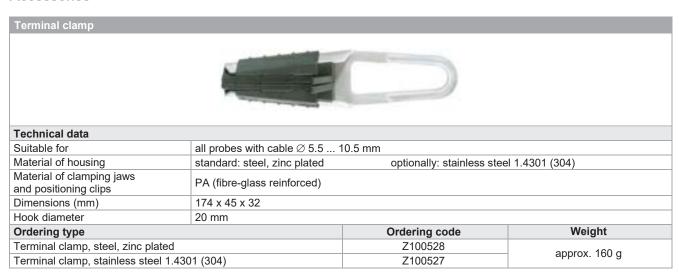
2-wire-system (current)

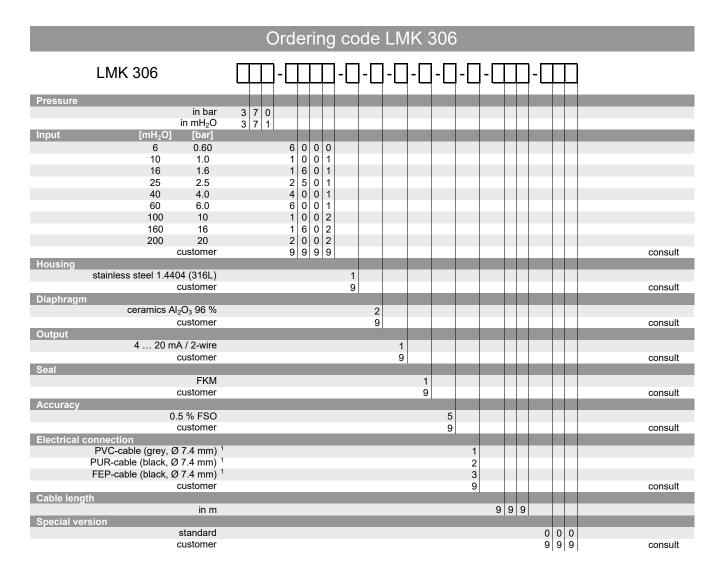


Pin configuration	
Electrical connection	cable colours (IEC 60757)
Supply +	WH (white)
Supply –	BN (brown)
Shield	GNYE (green-yellow)



Accessories





¹ shielded cable with integrated ventilation tube for atmospheric pressure reference



Stainless Steel Probe

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from $0 \dots 4 \text{ mH}_2\text{O}$ up to $0 \dots 250 \text{ mH}_2\text{O}$

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
- excellent long term stability
- easy handling

Optional versions

- ► IS-versionEx ia = intrinsically safe for gas and dust
- SIL 2 (Safety Integrity Level) according to IEC 61508 / IEC 61511
- different kinds of cables and elastomers
- customer specific versions
 e. g. special pressure ranges

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 materials can be offered according to the customer-specific operating conditions.

Preferred areas of use are

<u>Water</u>



drinking water systems ground water monitoring storm water systems

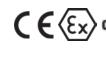
Sewage



waste water treatment water recycling dumpsite

0

<u>Fuel and oil</u> fuel storage tank farm biogas plants







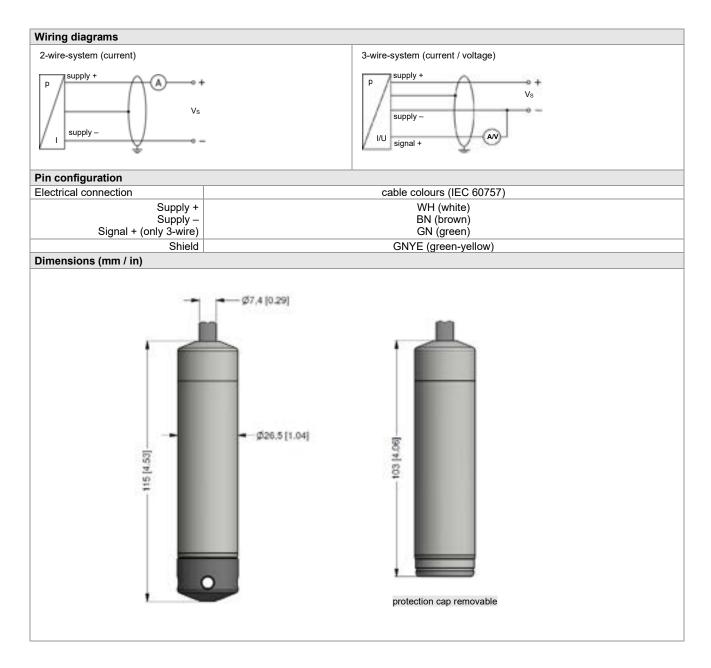




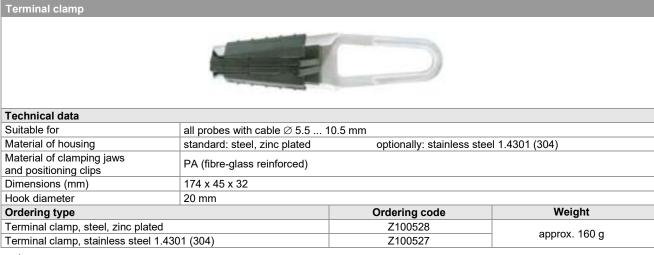


Input pressure range											
Nominal pressure gauge	[bar]	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Level	[mH ₂ O]	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	2	2	2	4	4	10	10	20	40	40
Burst pressure ≥	[bar]	4	4	4	5	5	12	12	25	50	50
Max. ambient pressure (housing): 40 bar											

Output signal / Supply			
Standard	2-wire: 4 20 mA / '	/ _S = 8 32 V _{DC}	SIL-version: V _S = 14 28 V _{DC}
Option IS-version		/ _S = 10 28 V _{DC}	SIL-version: V _S = 14 28 V _{DC}
Options 3-wire		V _S = 14 30 V _{DC} V _S = 14 30 V _{DC}	
Performance			
Accuracy 1	≤ ± 0.5 % FSO		
Permissible load	current 2-wire: $R_{max} = [(V_S - C_{max})] $	2	
Influence effects	supply: 0.05 % FSO / 10 V	2	load: 0.05 % FSO / kΩ
Response time	≤ 10 msec		10au. 0.03 // 1 30 / K22
¹ accuracy according to IEC 60770 – limi		vsteresis repeatability)	
Thermal effects (offset and span)	t point adjustment (non-lineanty, n	ysteresis, repeatability)	
Thermal error	≤ ± 0.2 % FSO / 10 K		in compared tange 0 70 °C
	S ± 0.2 % F3O / 10 K		in compensated range 0 70 °C
Permissible temperatures			
Permissible temperatures	medium: -10 70 °C		storage: -25 70 °C
Electrical protection ²			
Short-circuit protection	permanent		
Reverse polarity protection	no damage, but also no func	tion	
Electromagnetic protection	emission and immunity acco	rding to EN 61326	
² additional external overvoltage protection	on unit in terminal box KL 1 or KL :	with atmospheric pressure re	eference available on request
Electrical connection			
Cable with sheath material ³		Ø 7.4 mm Ø 7.4 mm Ø 7.4 mm	
Bending radius	<u>'</u>	d cable diameter	
³ shielded cable with integrated ventilatio ⁴ do not use freely suspended probes wit	n tube for atmospheric pressure re	eference	expected
Materials (media wetted)			
Housing	stainless steel 1.4404 (316L		
Seals	FKM EPDM		
Diaphragm	ceramics Al ₂ O ₃ 96 %		
Protection cap	POM-C		
Cable sheath	PVC, PUR, FEP		
Explosion protection (only for 4.	20 mA / 2-wire)		
Approvals DX19-LMK 307	IBEXU 10 ATEX 1068 X / IB zone 0: II 1G Ex ia IIC T zone 20: II 1D Ex ia IIIC T	Ga	
Safety technical maximum values	U _i = 28 V, I _i = 93 mA, P _i = 66 the supply connections have	0 mW, C _i ≈ 0nF, L _i ≈ 0 μH	
Permissible temperatures for environment	in zone 0: -20 60 °C with in zone 1: -40/-20 70 °C	p _{atm} 0.8 bar up to 1.1 bar	
Connecting cables (by factory)	cable capacitance: signal lin	ne/shield also signal line/si ne/shield also signal line/si	
Miscellaneous			
Option SIL 2 version ⁵	according to IEC 61508 / IEC	61511	
Current consumption	signal output current: ma	x. 25 mA x. 7 mA	
Weight	approx. 250 g (without cable		
Ingress protection	IP 68	•	
CE-conformity	EMC Directive: 2014/30/EU		
ATEX Directive	2014/34/EU		
⁵ only for 4 20mA / 2-wire	2014/04/LU		
Only IOI 4 ZUITIA / Z-WIFE			



Accessories



	Ordering c	ode LMK	307			
L MIC 207			. – –			
LMK 307		↓-凵- └	J-LJ-LJ-I	-	ЩН	
Pressure in bar	3 8 0					
in mH₂O	3 8 0 3 8 1					
Input $[mH_2O]$ [bar] 4 0.4	4 0 0 0					
6 0.6	6 0 0 0 0 1 1 6 0 1 2 5 0 1					
10 1.0	1 0 0 1					
16 1.6 25 2.5	1 6 0 1 2 5 0 1					
40 4.0	4 0 0 1					
60 6.0	6 0 0 1					
100 10 160 16	1 0 0 2 1 6 0 2 2 5 0 2 9 9 9 9					
250 25	2 5 0 2					
customer	9 9 9 9					consult
Housing stainless steel 1.4404 (316L)	1					
customer Diaphragm	9					consult
ceramics Al ₂ O ₃ 96 % customer		2 9				consult
Output		9				Consuit
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		E				
SIL2 4 20 mA / 2-wire		1S				
SIL2 with intrinsic safety 4 20 mA / 2-wire		ES				
customer		9				consult
Seal FKM		1				
EPDM		3				
customer		9				consult
Accuracy 0.5 % FSO			5			
customer			5 9			consult
Electrical connection / cable length			1			
PVC-cable (grey, Ø 7.4 mm) ¹ 3 m			1	0 0 3		
5 m			1	0 0 5		
10 m			1	0 1 0		
15 m special length in m			1	0 1 5 9 9		
PUR-cable (black, Ø 7.4 mm) ¹						
3 m			2	0 0 3		
5 m			2	0 0 5		
10 m 15 m			2 2 2 2 2	0 1 0 0 1 5		
special length in m			2	9 9 9		
FEP-cable (black, Ø 7.4 mm) ¹						
5 m			3	0 0 5		
10 m special length in m			3 3 3	0 0 5 0 1 0 9 9 9		
Special version						
standard customer					0 0 0 9 9 9	consult
Customer					ן פן פן פ	COnsult

¹ shielded cable with integrated ventilation tube for atmospheric pressure reference



LMK 307T

Level and Temperature Transmitter

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

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 long term stability
- easy handling
- low maintenance and wiring costs

Optional versions

- different kinds of cables and elastomers
- customer specific versions

The stainless steel submersible probe LMK 307T with flush mounted ceramic sensor has developed 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



drinking water systems ground water monitoring domestic water tanks rain spillway basin



waste water treatment, water recycling dumpsite, waste water tanks



Fuel and oil

fuel storage, tank farm, biogas plants

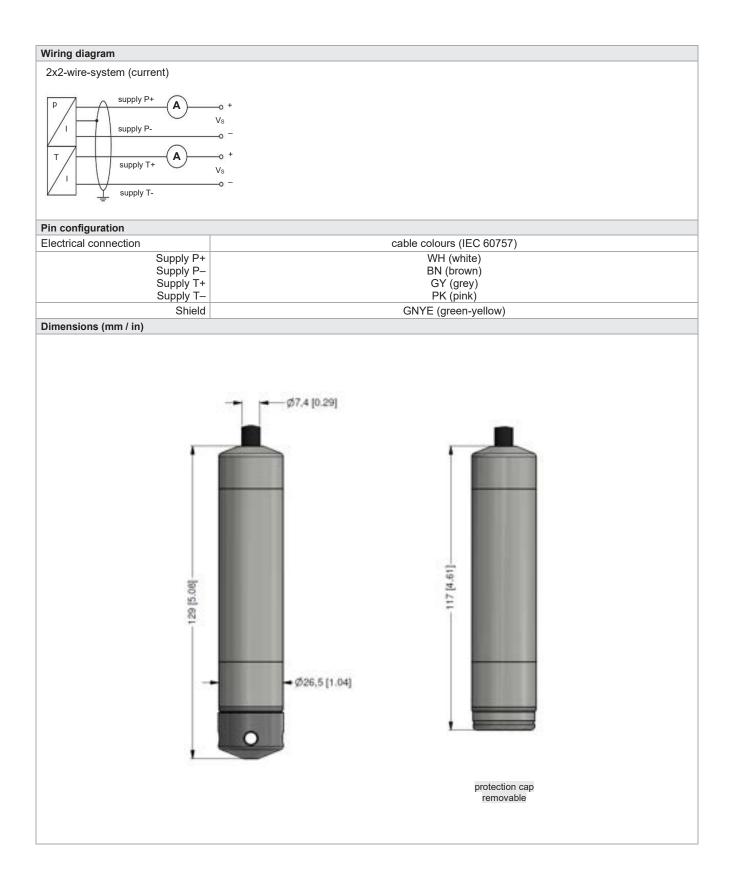


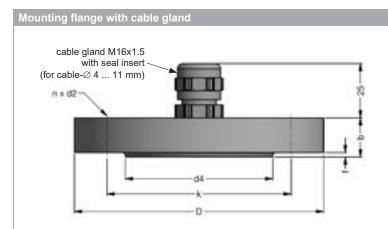




Input pressure range											
Nominal pressure gauge	[bar]	0.4	0.6	1	1.6	2.5	4	6	10	16	25
Level	[mH ₂ O]	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	1	2	2	4	4	10	10	20	40	40
Burst pressure ≥	[bar]	2	4	4	5	5	12	12	25	50	50
Max. ambient pressure (h	ousing): 40) bar									

Input temperature range													
Temperature measuring range	0 30 °C	0 50 °C	0 70 °C	others on request 1									
standard:		0 50 C	0 10 0	oulers on request									
¹ min. temperature range: 30°C; max. to min. temperature: -10°C; max. temperature: -10°C; max. temperature													
Output signal / Supply	alure. 70 C												
2-wire (pressure) ²	4 20 mA / V _S = 10 3	20 \/											
2-wire (pressure) 2	-	$\frac{1}{100} = \frac{10 \cdot 10^{10} \cdot 10^{10} \cdot 10^{10}}{100 \cdot 100^{10} \cdot 100^{10}}$											
² the circuits are galvanically isolated fr		OO A DC											
Performance	om each other												
Accuracy (pressure) ³	< 1.0 E % TSO												
Accuracy (pressure) Accuracy (temperature) 4	≤ ± 0.5 % FSO ≤ ± 1 °C												
Permissible load	$R_{\text{max}} = [(V_S - V_S \text{ min}) / 0]$	Ω2 Δ1 Ω											
Influence effects	supply: 0.05 % FSO / 10		load: 0.05 % FSO /	kO									
Long term stability	≤ ± 0.3 % FSO / year at		10au. 0.03 /01 30 /	NS2									
Response time	< 10 msec (for output sig												
³ accuracy according to IEC 60770 – lin													
⁴ Pt 100 class B; compensation time up			ntal respectively mass conditio	ns									
Thermal effects (offset and span)													
Thermal error	≤ ± 0.2 % FSO / 10 K		in compensated ran	ge 0 70 °C									
Permissible temperatures													
Permissible temperatures	medium: -10 70 °C		storage: -25 70 °0	2									
Electrical protection 5													
Short-circuit protection	permanent												
Reverse polarity protection	no damage, but also no	function											
Electromagnetic compatibility	emission and immunity a	according to EN 61326											
⁵ additional external overvoltage protec	tion unit in terminal box KL 1 or	KL 2 with atmospheric pres	sure reference available on re	quest									
Electrical connection													
Cable with sheath material ⁶	PVC (-5 70 °C) g	rey Ø 7.4 mm											
		lack Ø 7.4 mm											
	(/	lack Ø 7.4 mm											
Cable capacitance	others on request	ianal lina/aianal lina, 160	n T /m										
Cable inductance		ignal line/signal line: 160	<u> </u>										
Bending radius		ignal line/signal line: 1 μͰ 0-fold cable diameter	7/111										
belialing radius	dynamic application: 2												
⁶ shielded cable with integrated ventilate													
⁷ do not use freely suspended probes v	vith an FEP cable if effects due	to highly charging processes	s are expected										
Materials (media wetted)													
Housing	stainless steel 1.4404 (3	16L)											
Seals	FKM												
	EPDM												
Diaphragm	ceramics Al ₂ O ₃ 96%												
Diaphragm Protection cap	POM-C												
Cable sheath	PVC, PUR, FEP												
Miscellaneous	1 VO, 1 OIX, 1 LF												
Current consumption	max. 25 mA												
<u> </u>	approx. 250 g (without c	abla)											
Weight Ingress protection	IP 68	aule)											
CE-conformity	EMC Directive: 2014/30/	/CII											
CL-COMOTHINY	LIVIC DIFECTIVE. 2014/30/	LU											





	dimensi	ons in mm					
size	DN25 /	DN50 /	DN80 /				
3126	PN40	PN40	PN16				
b	18	20	20				
D	115	165	200				
d2	14	18	18				
d4	68	102	138				
f	2	3	3				
k	85	125	160				
n	4	4	8				

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

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Terminal clamp



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

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

Display program

PA 440

CIT 200	Process display with LED display
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CIT 250 Process display with LED display and contacts

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

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

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

CIT 600 Multichannel process display with graphics-capable LC display

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

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

Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.de



			C)rc	der	ing	go	coc	de	LI	MK	30	7T										
LMK 307T		-□].	-П]-		-	-]-[-□	-	- 🗆	-[□ .	-П	П		
Pressure in bar	3 8 A			۱																		-	
$\frac{\text{in mH}_2\text{O}}{\text{Input}}$	3 8 A 3 8 B																						
4 0.4 6 0.6		6		0																			
10 1.0 16 1.6		1 (1																			
25 2.5 40 4.0		2 3	5 0 0 0	1																			
60 6.0 100 10		6	0 0	1																			
160 16		1 (6 0	2																			
250 25 customer		9 !	5 0 9 9	9																		(consult
Input temperature °C 0 30	_		-	-	0	0 0) x	3 (0		-						-		7			-	
0 50 0 70					0	0 0) x) x) x 9 9	5	0														
customer	_		_	_	9	9 9	9	9	9		_						_			_	_	(consult
stainless steel 1.4404 (316L) customer										1									Т				consult
Diaphragm ceramic Al ₂ O ₃ 96 %										9	2												Jorisuit
customer											2 9											C	consult
Output pressure 4 20 mA / 2-wire												1											
Output temperature 4 20 mA / 2-wire	_		-	-	-	-	-	-	-	-	-	-	1				-		7			-	
Seal FKM														1									
EPDM customer														3							Ш	,	consult
Accuracy														3									Jorisuit
0.5 % FSO customer															5 9				1		Ш	C	consult
PVC-cable (grey, Ø 7.4 mm)	th			-		-	-	-	-	-									Т			-	
3 m 5 m																1 1	0	0	3 5				
10 m																1	0	1	0				
special length in m																1	9	9	9				
PUR-cable (black, Ø 7.4 mm)	1																^		2				
3 m 5 m																2	0	0	5				
10 m 15 m																2 2 2 2	0 0 9	0 1 1	5				
special length in m																2	9	9	9				
FEP-cable (black, Ø 7.4 mm) 5 m	1															3	0	0	5				
10 m special length in m																3	0	1	0				
Special version																J	9	ן ט	9		0 0		
standard customer																				9	0 0 9 9	(consult

 $^{^{\}rm 1}$ shielded cable with integrated ventilation tube for atmospheric pressure reference



Detachable **Stainless Steel Probe**

Ceramic Sensor

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

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 assembly and sensor head detachable
- diameter 39.5 mm
- especially suitable for sewage, viscous and pasty media

Optional versions

- IS-version Ex ia = intrinsically safe for gas and dust
- diaphragm 99.9 % Al₂O₃
- different kinds of cables and elastomers

The detachable 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 sensor 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 and oil



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







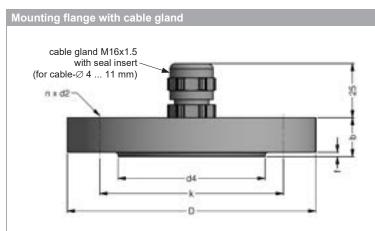


Input pressure range													
Nominal pressure gauge [bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level [mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure [bar]	2	2	4	4	6	6	8	8	15	25	25	35	35
Max. ambient pressure (housing): 4												00	
wax. ambient procedic (nedeling).	o bui												
Output signal / Supply													
Standard	2-wire:	4	20 mA	/ Vs	= 9.	32 V _D	С						
Option IS-version	2-wire:	4	20 mA	/ Vs	= 14.	28 V _D	С						
Option 3-wire	3-wire:	0	10 V	/ Vs	= 12.5	32 V _D	С						
Performance													
Accuracy 1	standa	ırd: ≤±	0.35 %	FSO									
	option:												
Permissible load	R _{max} =	$= [(V_S - V_{S min}) / 0.02 A] \Omega$											
Influence effects	supply	/: 0.05 %	FSO /	10 V		lo	ad: 0.05	% FSC) / kΩ				
Long term stability	≤ ± 0.1	1 % FSC) / year	at refere	nce cor	nditions							
Turn-on time	700 m	sec											
Mean response time	≤ 200	msec				m	easurin	g rate 5/	sec				
Max. response time	380 m	sec											
¹ accuracy according to IEC 60770 – limi	it point ac	ljustment	(non-line	earity, hys	steresis, i	repeatabl	lity)						
Thermal effects (offset and span)													
Tolerance band	≤ ± 1 %	6 FSO											
in compensated range	-20												
Permissible temperatures													
Permissible temperatures	mediu	m /electi	ronic / e	nvironm	ent:	_2	5 125	5 °C					
T difficulties	storage		0111070		OIIC.		0 125	-					
Electrical protection ²													
Short-circuit protection	perma	nent											
Reverse polarity protection	no dan	nage, bı	ut also r	no functio	on								
Lightning protection		integra				3.	wire: w	thout					
Electromagnetic compatibility	emissi	on and i	mmunit	y accord	ling to E	N 6132	6						
² additional external overvoltage protection	on unit in	terminal	box KL 1	or KL 2	with atmo	spheric _l	oressure	reference	availabl	e on requ	est		
Electrical connection													
Cable with sheath material ³	PVC	(-5	. 70 °C) grey	Ø 7.4	mm							
	PUR		. 70 °C		(Ø 7.4	l mm							
		(-25			⟨Ø 7.4								
Dan die er er die e				C) blue									
Bending radius	1	nstallationic application			old cable old cable								
³ shielded cable with integrated ventilation						ulame	EI						
4 do not use freely suspended probes wi						ing proce	sses are	expected	1				
Materials (media wetted)								•					
Housing	stainle	ss steel	1.4404	(316L)									
Seals	FKM			()									
	EPDM												
		on requ											
Diaphragm				I ₂ O ₃ 96 ^o									
	option:		amics A	I_2O_3 99.9	9 %								
Protection cap	POM-0												
Cable sheath		PUR, FE		-U									
Explosion protection (only for 4.													
Approval DX14-LMK 358	_	05ATE											
	Zone (IIB T4 G									
Cofoty tookniss!				IIIC T11			- 1 . ^	11.0	_ 07 .	_			
Safety technical maximum values				$P_i = 660$									
Permissible temperature	in zone 1	e ∪: ⊢or high	er.	-20 60 -25 70		ı p _{atm} U.	o nar up	io i.T.	ıdi				
Connecting cables		capacity				ld also	signal lir	ne / sian	al line: 3	220 pF/n			
(by factory)		inductar								1.5 µH/m			
Miscellaneous	- 22101						J. 150 III	1911		1/11			
Current consumption	max. 2	1 mA											
Weight		c. 650 g	(withou	t cable)									
Ingress protection	IP 68	. 000 g	(vviti i ou	cable)									
CE-conformity		Directive	. 2014/	BO/FII									
OL-COMOTHINITY	LIVIO L	-11 COUVE	. 2014/	JUI LU									

2014/34/EU

ATEX Directive





dimensions in mm						
size	DN25 / PN40	DN50 / PN40	DN80 / PN16			
b	18	20	20			
D	115	165	200			
d2	14	18	18			
d4	68	102	138			
f	2	3	3			
k	85	125	160			
n	4	4	8			

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

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Technical data			
Suitable for	all probes with cable Ø 5.5 1	0.5 mm	
Material of housing	standard: steel, zinc plated	optionally: stainless stee	el 1.4301 (304)
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)		
Dimensions (mm)	174 x 45 x 32		
Hook diameter	20 mm		
Ordering type		Ordering code	Weight

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

Display program

CIT 200 Process display with LED display

Process display with LED display and contacts **CIT 250**

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

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

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

CIT 600 Multichannel process display with graphics-capable LC display

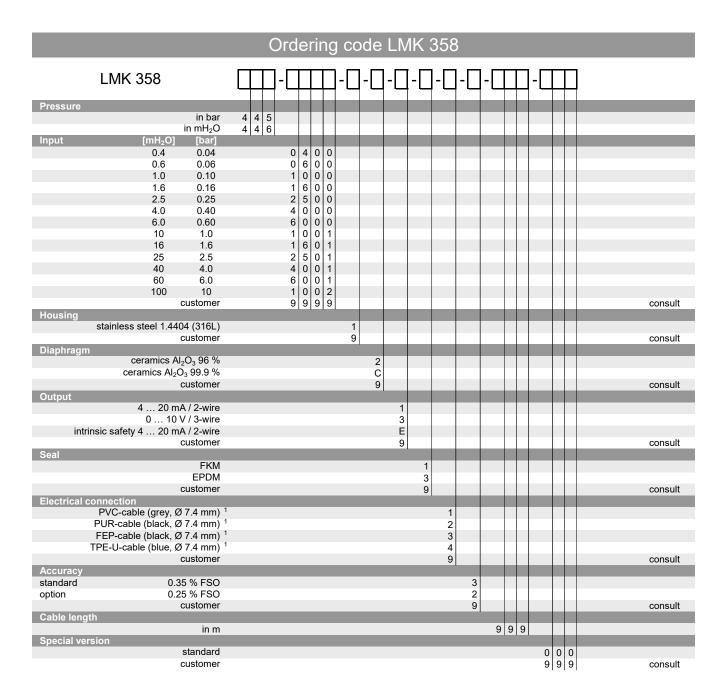
Multichannel process display with graphics-capable LC display and datalogger **CIT 650**

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

PA 440 Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.de





¹ shielded cable with integrated ventilation tube for atmospheric pressure reference



Stainless Steel Probe

Ceramic Sensor

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

Nominal pressure

from 0 ... 40 cm H_2O up to 0 ... 200 m H_2O

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-version Ex ia = intrinsically safe for gas and dust
- temperature element Pt 100
- mounting with stainless steel pipe
- flange version
- diaphragm 99.9 % Al₂O₃
- different kinds of cables and elastomers

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

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

Preferred areas of use are



Water

drinking water abstraction



Sewage

waste water treatment water recycling





level monitoring in open tanks with low filling heights fuel storage

tank farms / biogas plants





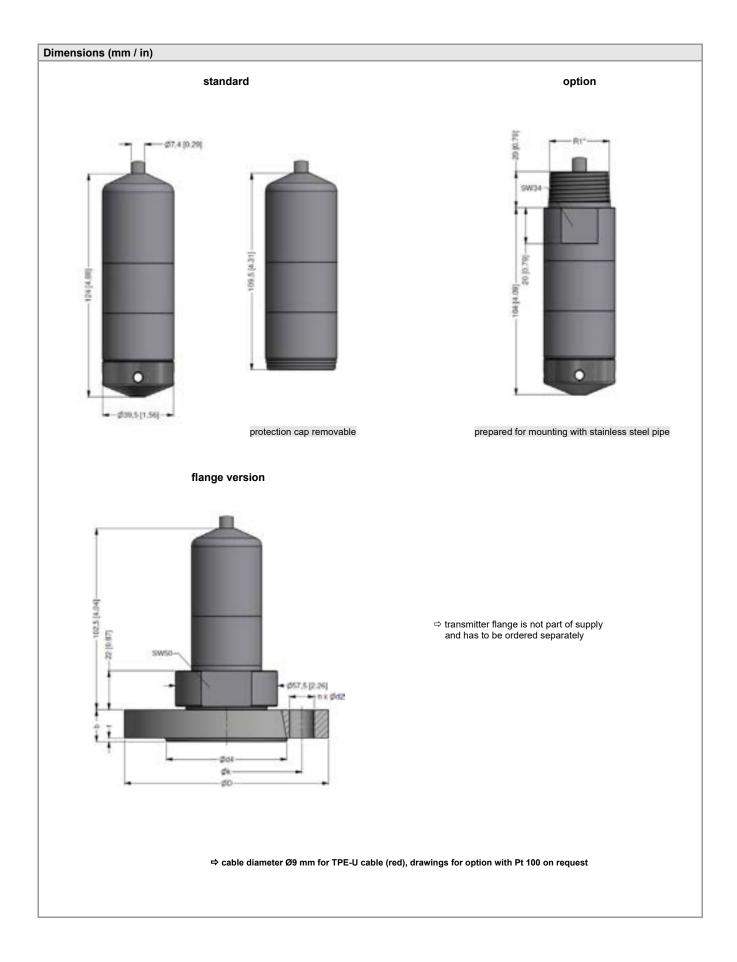




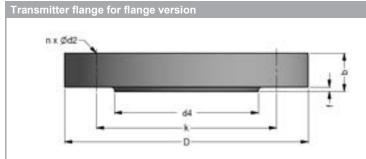
Input pressure range																
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Max. ambient pressure (housing): 40 bar																

Output signal / Supply		2014		
Standard	2-wire: 4 20 mA / V _s = 9 3			
Option IS-version	2-wire: 4 20 mA / V _S = 14			
Option 3-wire	3-wire: 0 10 V / V _S = 12.5	32 V _{DC}		
Option temperature element Pt				
Temperature range	-25 125 °C	125 °C		
Connectivity technology	3-wire	max. voltage 10 V		
Resistance	100 Ω at 0 °C	max. current 2 m/		
Temperature coefficient	3850 ppm/K	max. power 10 m	W, in intrinsically safe circuit 405 mW	
Supply I _S	0.3 1.0 mA _{DC}			
¹ only in combination with 4 20 mA	/ 2-wire (standard and IS-version)			
Performance				
Accuracy ²	standard: $\leq \pm 0.35 \%$ FSO option: $\leq \pm 0.25 \%$ FSO			
Permissible load	$R_{\text{max}} = [(V_S - V_{S \text{ min}}) / 0.02 \text{ A}] \Omega$			
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / $k\Omega$			
Long term stability	≤ ± 0.1 % FSO / year at referer	nce conditions		
Turn-on time	700 msec			
Mean response time	< 200 msec	me	asuring rate 5/sec	
Max. response time	380 msec			
² accuracy according to IEC 60770 –	limit point adjustment (non-linearity, hys	teresis, repeatability)		
Thermal effects (offset and spa	an)			
Tolerance band	≤ ± 1 % FSO			
in compensated range	-20 80 °C			
Permissible temperatures				
Permissible temperatures	medium / electronics / environn	nent / storage: -25	125 °C	
Electrical protection ³				
Short-circuit protection	permanent			
Reverse polarity protection	no damage, but also no functio	n		
Electromagnetic compatibility	emission and immunity accordi	ng to EN 61326		
	ection unit in terminal box KL 1 or KL 2 w		eference available on request	
Electrical connection				
Cable with sheath material ⁴	PVC (-5 70 °C) grey PUR (-25 70 °C) blace	/ Ø 7.4 mm k Ø 7.4 mm		
	,	ck Ø 7.4 mm		
	TPE-U (-25 125 °C) blue			
	TPE-U ⁶ (-25 125 °C) red			
Bending radius	dynamic application: 20-1	old cable diameter old cable diameter		
⁵ do not use freely suspended probes	ation tube for atmospheric pressure refer with an FEP cable if effects due to highl explosion protection) and temperature e	y charging processes are e	xpected	
Materials (media wetted)				
Housing	stainless steel 1.4404 (316 L)			
Seals	FKM, FFKM, EPDM			
	others on request			
Diaphragm	standard: ceramics Al ₂ O ₃ 96 %	6		
· •	option: ceramics Al ₂ O ₃ 99.9	%		
Protection cap	POM-C			
Cable sheath	PVC, PUR, FEP, TPE-U			

Explosion protection (only for 4	20 mA / 2-wire)				
Approval DX14-LMK 382	IBExU05ATEX1070 X zone 0 ⁷ : II 1G Ex ia IIB T4 Ga zone 20: II 1D Ex ia IIIC T110 °C Da				
Safety technical maximum values (pressure)	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 14 nF, L_i ≈ 0 μ H, C_{gnd} = 27 nF				
Safety technical maximum values (temperature)	U_i = 30 V, I_i = 54 mA, P_i = 405 mW, C_i = 0 nF, L_i = 0 μ H (temperature element Pt 100)				
Permissible media temperature	in zone 0: -10 60 °C with p _{atm} 0.8 bar up to 1.1 bar zone 1 and higher: -10 70 °C				
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 220 pF/m cable inductance: signal line/shield also signal line/signal line: 1.5 μH/m g designation is valid: "Il 16 Ex ia IIC T4 Ga" (zone 0)				
Miscellaneous	g designation is valid. If TG Ex ia TiC 14 Ga (20tie 0)				
Option cable protection for probes	prepared for mounting with stainless steel pipe				
Current consumption	max. 21 mA				
<u>'</u>					
Weight	approx. 400 g (without cable)				
Ingress protection	IP 68				
CE-conformity	EMC Directive: 2014/30/EU				
ATEX Directive	2014/34/EU				
Wiring diagrams					
2-wire-system (current) supply + supply - 2-wire-system current (pressure) / 3-wire-system current (pressure) / 3-wire-supply V _S + supply V _S - supply T- supply T- supply T-	a-wire-system (voltage) supply +				
Pin configuration					
Electrical connection	cable colours (IEC 60757)				
$\begin{array}{c} \text{Supply V_S+}\\ \text{Supply V_S-} \\ \text{for Pt 100:} & \text{Supply T+}\\ \text{Supply T-}\\ \text{Supply T-} \end{array}$	WH (white) BN (brown) YE (yellow) GY (grey) PK (pink)				
for 3-wire: Signal +	GN (green)				
Shield	GNYE (green-yellow)				
	, ,				



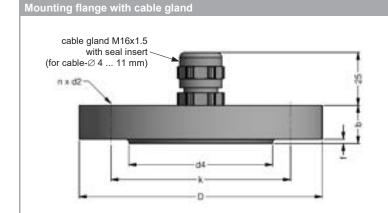
Transmitter flange DN80 / PN16



dimensions in mm						
size	DN25 / PN40	DN50 / PN40	DN80 / PN16			
b	18	20	20			
D	115	165	200			
d2	14	18	18			
d4	68	102	138			
f	2	3	3			
k	85	125	160			
n	4	4	8			

Technical data						
Suitable for	LMK 382, LMK 382H, LMK 458	LMK 382, LMK 382H, LMK 458, LMK 458H				
Flange material	stainless steel 1.4404 (316L)	stainless steel 1.4404 (316L)				
Hole pattern	according to DIN 2507	according to DIN 2507				
Ordering type		Ordering code	Weight			
Transmitter flange DN25 / PN40		ZSF2540	1.2 kg			
Transmitter flange DN50 / PN40		ZSF5040	2.6 kg			

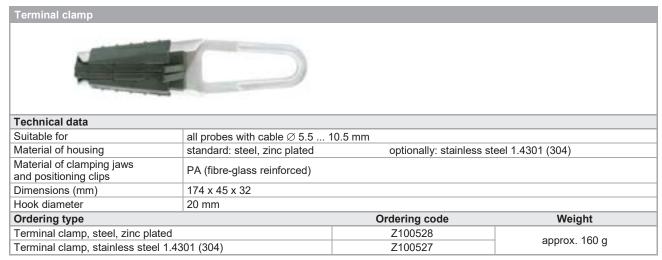
ZSF8016



dimensions in mm						
size	DN25 /	DN50 /	DN80 /			
SIZE	PN40	PN40	PN16			
b	18	20	20			
D	115	165	200			
d2	14	18	18			
d4	68	102	138			
f	2	3	3			
k	85	125	160			
n	4	4	8			

4.1 kg

Technical data							
Suitable for	all probes						
Flange material	stainless steel 1.4404 (316L)	stainless steel 1.4404 (316L)					
Material of cable gland	standard: brass, nickel plated on request: stainless steel 1.4305 (303); plastic						
Seal insert	material: TPE (ingress protection IP 68)						
Hole pattern	according to DIN 2507	according to DIN 2507					
Ordering type		Ordering code	Weight				
DN25 / PN40 with cable gland bras	s, nickel plated	ZMF2540	1.4 kg				
DN50 / PN40 with cable gland bras	s, nickel plated	ZMF5040	3.2 kg				
DN80 / PN16 with cable gland bras	s. nickel plated	ZMF8016	4.8 kg				



	Ordering code LMK 382	
LMK 382	ш-ш-п-п-п-п-п-п-п-п-п-п-п-п-п-п-п-п-п-п	-Ш
Input	5 6 5 6 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
Housing stainless steel 1.4404 (316L)	9 9 9 9	consult
Diaphragm ceramics Al ₂ O ₃ 96 % ceramics Al ₂ O ₃ 99.9 %	2 C	
Output 4 20 mA / 2-wire 0 10 V / 3-wire intrinsic safety 4 20 mA / 2-wire Seal	1 3 E	
FKM EPDM FFKM	1 3 7	
Electrical connection / cable length PVC-cable (grey, Ø 7.4 mm) ¹ 3 m 5 m 10 m 15 m special length in m	1 0 0 3 1 0 0 5 1 0 1 0 1 0 1 5 1 9 9 9	
PUR-cable (black, Ø 7.4 mm) ¹ 3 m 5 m 10 m 15 m special length in m	2 0 0 3 2 0 0 5 2 0 1 0 2 0 1 5 2 0 1 5 2 9 9 9	
FEP-cable (black, Ø 7.4 mm) ¹ 5 m 10 m special length in m TPE-U-cable (blue, Ø 7.4 mm) ¹	3 0 0 5 3 0 1 0 3 9 9 9	
special length in m TPE-U-cable (red, Ø 9.0 mm) special length in m	4 9 9 9	
Accuracy standard 0.35 % FSO option 0.25 % FSO Special version	42 9 9 9 3 2	
standard with temperature sensor Pt 100 ³ prepared for mounting with stainless steel pipe ⁴ flange version ⁵ customer		0 0 0 0 0 0 1 3 3 5 0 2 5 1 0 9 9 9 consult

¹ shielded cable with integrated ventilation tube for atmospheric pressure reference

² only in combination with IS version (explosion protection) and temperature element Pt 100

 $^{^{\}rm 3}$ only in combination with 4 ... 20 mA / 2-wire (standard or IS-version)

⁴ stainless steel pipe is not part of the supply

⁵ mounting accessories are not part of supply and have to be ordered separately



Stainless Steel Probe

Ceramic Sensor

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

Nominal pressure

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

Output signal

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

Special characteristics

- diameter 22 mm
- diaphragm ceramics 99.9% Al₂O₃
- good long-term stability
- especially for waste water

Optional versions

- housing material titanium
- **IS-version** Ex ia = intrinsically safe for gas and dust
- drinking water certificate according to DVGW and KTW
- temperature element Pt 100
- mounting with stainless steel tube
- different kinds of cables and elastomers

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

Compared to the level probe LMK 382 the outer diameter is only 22 mm, whereby the installation or retrofitting can be easily carried out in 1 "pipes or in confined installation conditions. An IS-version (zone 0) is also available.

Preferred areas of use



Water

groundwater and level monitoring



Sewage

waste water treatment water recycling



Fuel and oil tank battery

biogas plants









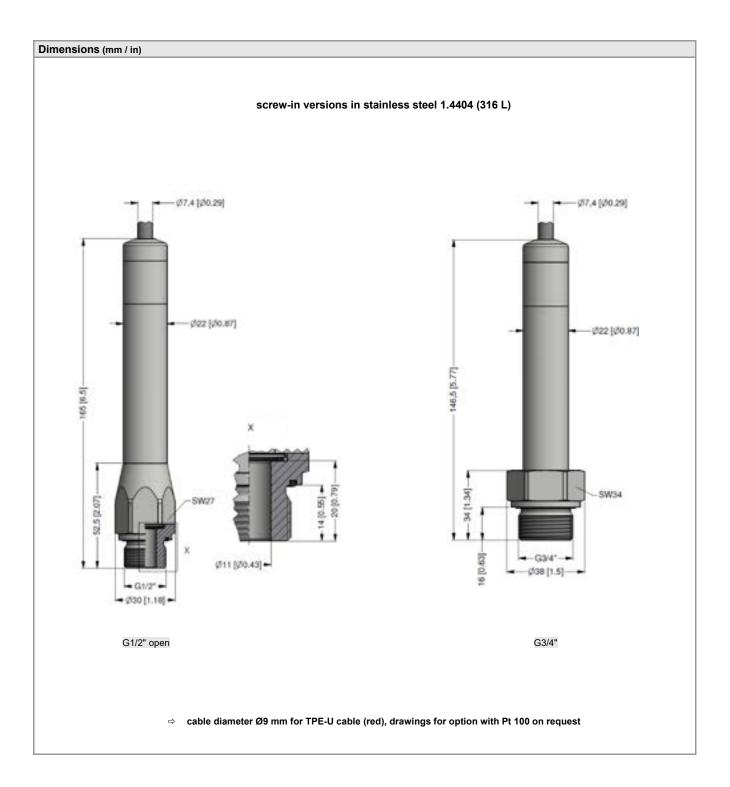


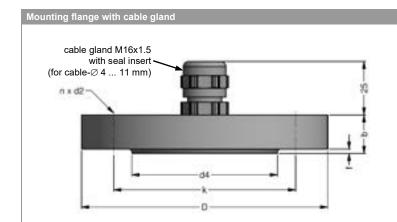


Input pressure range

input pressure range						1	1	1	1	1	_	
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	16	25	40	60	100
Overpressure	[bar]	3	4	5	5	7	7	12	20	20	20	20
Burst pressure ≥	[bar]	4	6	8	8	9	9	18	25	25	30	30
Permissible vacuum	[bar]	-0.2	-0.3		-(0.5				-1		
Max. ambient pressure (ho				l						•		
wax. ambient pressure (ne	Jusing). Ti	o bai										
Output signal / Supply												
Standard		2-wire: 4	20 m/	\ / \/a - 1'	2 36 \/							
Option IS-version		2-wire: 4										
<u> </u>	1 51 10		20 1117	1/ V _S - 1	+ 20 V	DC						
Option temperature elem	ent Pt 10											
Temperature range		-25 12	25 °C									
Connectivity technology		3-wire				max. vol	tage 10 V	I_{DC} , in	intrinsica	lly safe ci	ircuit 30 V	/ _{DC}
Resistance		100 Ω at	0 °C			max. cui	rent 2 m/				ircuit 54 m	
Temperature coefficient		3850 ppr	n/K			max. po	wer 10 m	W, in	intrinsica	lly safe ci	ircuit 405	mW
Supply I _S		0.3 1.0	0 mA _{DC}			1						
Performance												
Accuracy ¹		standard	· < ± 0.3F	5 % ESO				or	tion: ≤ ±	0.25 % =	90	
Permissible load					110			ΟĻ	Juon. a r	0.23 /01	30	
				_{in}) / 0.02 /					-4.005	/ [00 //	.0	
Influence effects				SO / 10 V				IO	ad: 0.05 9	% FSU / k	(7)	
Long term stability		≤ ± 0.1 %		/ear								
Turn-on time		450 mse										
Mean response time		≤ 70 mse	ec									
Measuring rate		80 Hz										
¹ accuracy according to IEC 60	0770 – limit	t point adjus	stment (no	n-linearity,	hysteresi	s, repeatab	ility)					
Thermal effects (offset a	nd span)											
Tolerance band		≤±1%F	-SO									
in compensated range		-20 80										
<u>`</u>		-20 00	, 0									
Permissible temperature												
Medium / storage		- 25 85	°C									
Electrical protection ²												
Short-circuit protection		permane	nt									
Reverse polarity protection	1	no dama	no damage, but also no function									
Electromagnetic compatibi	lity	emission	and imm	nunity acc	ording to	EN 6132	6					
Electromagnetic compatibility emission and immunity according to EN 61326 ² additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request												
Electrical connection	, ,											
Cable with sheath material	1 3	PUR	/ 25	70 °C)	blac	k 01.7	.4 mm					
Cable With Sheath materia	'	FEP ⁴		70°C)	blac		.4 mm					
		TPE-U		125 °C)	blue		.4 mm	(witho	ut / with c	drinkina w	ater certif	ficate)
		TPE-U 5			red		.0 mm	(*********	at / With t		ator corti	liouto)
Bending radius		static ins						applicat	ion: 20-fo	old cable	diameter	
³ shielded cable with integrate	d ventilatio											
⁴ do not use freely suspended							esses are e	expected				,
⁵ only in combination with IS-v		losion prote	ection) and	d temperat	ure eleme	nt Pt 100						
Materials (media wetted)												
Housing		standard	: stainles	s steel 1.	4404 (31	l6 L)	op	otion: titaı	nium	othe	ers on req	uest
Seals (O-rings)		standard	: FKM									
		option:				king wate						
					nissible t	emperatu	re from -1	5 °C)		othe	ers on req	uest
Diaphragm		ceramics	Al ₂ O ₃ 99	9.9%								
Protection cap		POM-C										
Cable sheath		PUR, FE	P, TPE-L	J								
Explosion protection												
Approval DX14B-LMK 387		IBExII 1	5 ATFX 1	066 X / II	CE _Y IRI	E 18.0019	X					
		zone 0:		x ia IIB T		5.5515	- •					
		zone 20:)a						
Safety technical maximum	values					C _i = 49.2	nF, L;= 0	μH;				
(pressure)						er capacit			pposite tl	he enclos	ure	
Safety technical maximum	values											
(temperature)		$U_i = 30 \text{ V}$	', I _i = 54 r	$nA, P_i = 2$	ius mvv,	$C_i = 0 \text{ nF}$, _{Li} = 0 μΕ	ı (temper	ature elei	ment Pt 1	UU)	
Permissible temperatures	for	in zone 0):	-20 6	0 °C with	n p _{atm} 0.8 I	par up to	1.1 bar				
environment		zone 1 a	nd higheı	r: -25 6	5 °C							
Connecting cables		cable cap				l also sigr						
(by factory)		cable ind	luctance:	signal li	ne/shield	l also sigr	al line/sig	nal line:	1 μH/m			
									DSEN	2000		

Miscellaneous	
Drinking water certificate ⁶	according to DVGW W 270 and UBA KTW (with order the indication "with drinking water certificate"
	is necessary)
Option cable protection	prepared for mounting with stainless steel pipe
Current consumption	max. 22 mA
Weight	approx. 180 g (without cable)
ngress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU
	nation with TPE-U cable; not possible with IS-version (explosion protection) or housing material titanium
Pin configuration	
Electrical connection	cable colours (IEC 60757)
Supply V_S + Supply V_S –	WH (white) BN (brown)
Supply T+ (with Pt 100)	YE (yellow)
Supply T– (with Pt 100)	GY (grey)
Supply T- (with Pt 100)	PK (pink)
Shield	GNYE (green-yellow)
Wiring diagrams	
2-wire-system (current) p supply + A	Vs Vs Vs vs supply Vs - supply T- supply T
Dimensions (mm / in) probes	optionally with thread R1/2" for mounting with stainless steel tube
Ø7,4 [Ø0.28	149.5 5.89 17.5 6.89 1.75 6.89 1
gez [gio.)	protection cap





	dimensions in mm			
size	DN25 / PN40	DN50 / PN40	DN80 / PN16	
b	18	20	20	
D	115	165	200	
d2	14	18	18	
d4	68	102	138	
f	2	3	3	
k	85	125	160	
n	4	4	8	

Technical	data

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

Holo pattern	according to Dira 2007		
Ordering type		Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated		ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated		ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated		ZMF8016	4.8 kg

Terminal clamp



Tec	hni	ical	data	

Suitable for	all probes with cable ∅ 5.5 10.5 r	all probes with cable Ø 5.5 10.5 mm		
Material of housing	standard: steel, zinc plated	optionally: stainless steel 1.	4301 (304)	
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)			
Dimensions (mm)	174 x 45 x 32			
Hook diameter	20 mm			

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

Display program

CIT 200	Process display with LED display

CIT 250 Process display with LED display and contacts

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

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

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

CIT 600 Multichannel process display with graphics-capable LC display

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

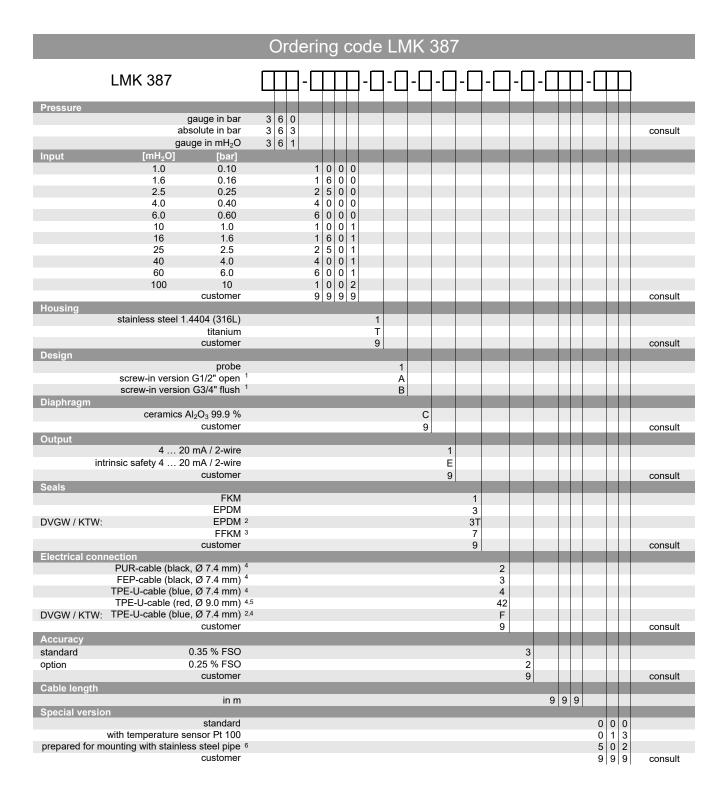
Multichannel process display with graphics-capable TFT monitor, CIT 700 / CIT 750

touchscreen and contacts

Field display with 4-digit LC display PA 440

> For further information please contact our sales department or visit our homepage: http://www.bdsensors.de





¹ only in combination with housing in stainless steel 1.4404 (316L)

² drinking water certification only possible with EPDM seal (code 3T) in combination with TPE-U cable (code F); not possible with IS-protection (explosion protection) or housing material titanium

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

⁴ shielded cable with integrated air tube for atmospheric pressure reference

⁵ only in combination with IS version (explosion protection) and temperature element Pt 100

⁶ stainless steel pipe is not part of the supply



Probe for Marine and Offshore

Ceramic Sensor

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

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)
- DNV-approval (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 Ex ia = intrinsically safe for gas
- screw-in and flange version
- accessories e.g. assembling and probe flange, mounting clamp

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

A permissible operating temperature 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

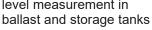


Water

drinking water abstraction desalinization plant

Shipbuilding / Offshore

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







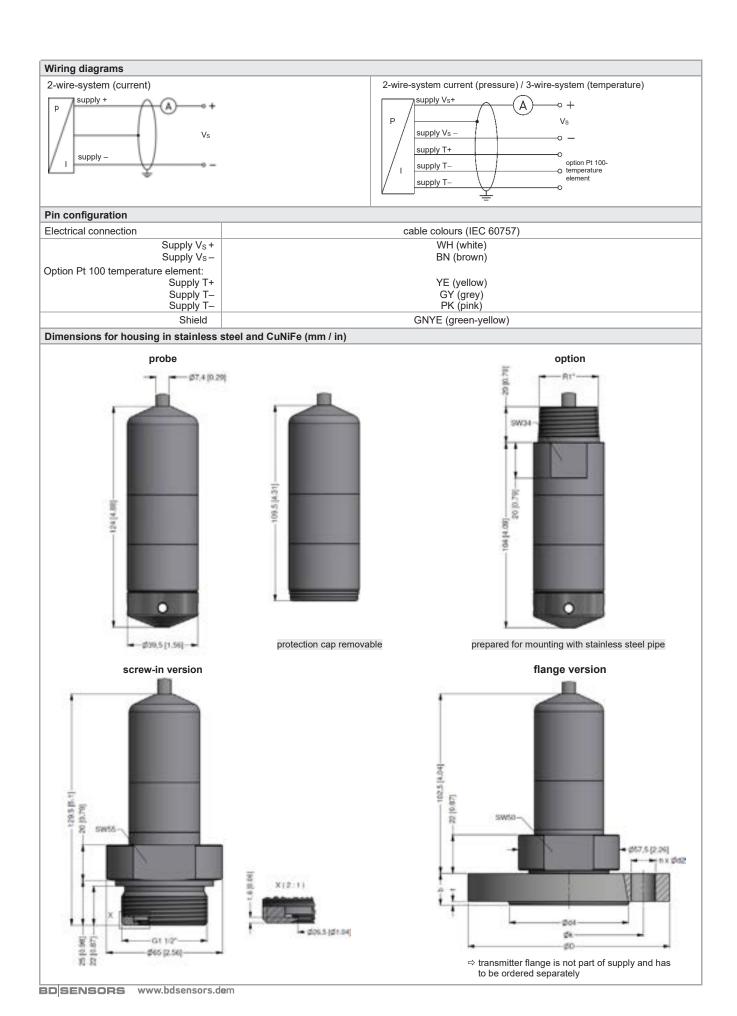
ballast tanks

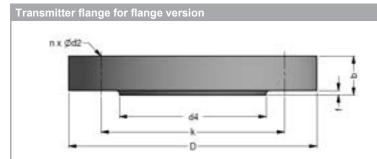






Pressure ranges																
Nominal pressure gauge	1 [bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH2O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	20
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	4:
Permissible vacuum	[bar]	-0).2	-	0.3		-0	.5					-1			
Max. ambient pressure (h	nousing): 40	bar														
1 available in gauge and abso	olute; nominal	pressure	ranges a	absolute	from 1 ba	r										
Output signal / Supply																
Standard		2-wire:	1 20	l mΔ / \/	/o = 10	. 32 V _{DC}			V _o	ated = 24	1 V _P 0					
Option IS-version						. 28 V _{DC}				$_{\text{ated}} = 24$						
-1		Z-WIIC.	4 20	/ IIIA / V	5 - 12	. 20 VDC			VST	ated - Z-	+ VDC					
Performance		Ι .										0				
Accuracy ²				0.25 %					opti	on: for	$p_N \ge 0.0$	3 bar 3	$\leq \pm 0.$	1 % FS	0	
Permissible load					0.02 A]											
Long term stability		≤ ± 0.1	% FS0) / year	at refere	ence con	ditions									
Influence effects		supply	: 0.05 %	6 FSO /	10 V				perr	nissible	e load: (0.05 %	FSO /	kΩ		
Turn-on time		700 ms	sec													
Mean response time		< 200	msec						mea	an mea	suring i	ate 5/s	ec			
Max. response time		380 ms	sec													
² accuracy according to IEC 6																
³ under the influence of distur	rbance burst a	ccording t	to EN 61	000-4-4	(2004) + 2				$to \le \pm 0.2$	25 % FS	0					
Thermal effects (offset a	and span) /	Permiss	sible te	mperat	ures											
Tolerance band		≤ ± 1 %	% FSO						in c	ompen	sated ra	ange -2	20 80	0 °C		
Permissible temperatures	S			tronics	/ enviror	nment: -2	25 12	25 °C			0 12					
Electrical protection ⁴											_					
•		normo	nont													
Short-circuit protection Reverse polarity protection	on	perma		ut alac	no funct	ion										
					no funct			ENLO4	200			- 4 NI	-1 \ /-	!4 \		
Electromagnetic compatil					ty accor			EN 613			DNV (D	et ivor	ske ve	ritas)		
⁴ additional external overvolta	age protection	unit in ter	minai bo	X KL 1 O	r KL 2 Wit	n atmospr	neric pre	essure re	erence	availabi	е					
Mechanical stability																
Vibration		4 g (ad	ccordin	g to DN	V: class	B, curve	2 / bas	sis: DIN	I EN 60	068-2-	6)					
Electrical connection																
Cable with sheath materia	al ⁵	TPE-U	blu	e Ø7	'.4 mm											
Bending radius		static i	nstallat			le diamet	ter		dvr	amic a	pplicati	on: 20-	fold ca	ble diar	neter	
5 shielded cable with integrate	ed ventilation t							oressure								
Materials			,						- J		,			,		
Materiais																
						101/010										
Housing						404 (316			h \					41		
		option:	Cu	Ni10Fe		404 (316 sistant aզ		sea wa	ter)				c	thers o	n reque	est
Housing Seals (media wetted)		option: standa	Cu rd: FK	Ni10Fe M	1Mn (res	sistant aç	gáinst s			m 1E º	20)					
Seals (media wetted)		option: standa options	Cu rd: FK s: EP	Ni10Fe M DM, FF	1Mn (res	sistant aç n. permis	gáinst s		ture fro			AL O	c	thers o		
Seals (media wetted) Diaphragm		option: standa options standa	rd: FKs: EP	Ni10Fe M DM, FF	1Mn (res	sistant aç n. permis	gáinst s		ture fro		°C) eramics	Al ₂ O ₃	c	thers o		
Seals (media wetted) Diaphragm Protection cap		option: standa options standa POM-0	Cu ird: FK s: EP ird: cei	Ni10Fe M DM, FF ramics A	1Mn (res KM (mir Al ₂ O ₃ 96	sistant ag n. permis %	gáinst s	empera	ture fro	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm		option: standa options standa	Cu lrd: FK s: EP lrd: cer	Ni10Fe M DM, FF ramics A	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha	n. permis % alogen fr	gainst s	empera reased	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath		option: standa options standa POM-0	Cu lrd: FK s: EP lrd: cer	Ni10Fe M DM, FF ramics A	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha	sistant ag n. permis %	gainst s	empera reased	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap		option: standa options standa POM-0	Cu lrd: FK s: EP lrd: cer	Ni10Fe M DM, FF ramics A	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha	n. permis % alogen fr	gainst s	empera reased	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection		option: standa options standa POM-C TPE-U	Cu ird: FK s: EP ird: cer C (fla res	Ni10Fe M DM, FF ramics A ime-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha gainst s	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste	əel	option: standa options standa POM-C TPE-U	Cu ird: FK s: EP ird: cer C (fla res	Ni10Fe M DM, FF ramics A ime-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha gainst s	n. permis % alogen fr	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection	eel	option: standa options standa POM-C TPE-U	Cu ird: FK s: EP ird: cer C (fla res	Ni10Fe M DM, FF ramics A ime-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha gainst s	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste	eel	option: standa options standa POM-C TPE-U	Curd: FK s: EP urd: cer C (flat res	Ni10Fe M DM, FF ramics A ime-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha gainst s	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless stellingress protection Current consumption	eel	option: standa options standa POM-C TPE-U prepar IP 68 max. 2	Curd: FK s: EP urd: cer C (fla res red for r	Ni10Fe M DM, FF ramics A ime-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, hagainst sa g with st	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight	eel .	option: standa options standa POM-C TPE-U prepar IP 68 max. 2 min. 68	Curd: FK s: EP rrd: cer C (flat res 21 mA 50 g (w	Ni10Fe M DM, FF amics / ame-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, hagainst sa g with st	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity	eel	option: standa options standa POM-C TPE-U prepar IP 68 max. 2 min. 68	Curd: FK s: EP rd: cer C (flat res red for r 21 mA 50 g (w Directive	Ni10Fe M DM, FF amics A me-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, hagainst sa g with st	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive		option: standa options standa POM-C TPE-U prepar IP 68 max. 2 min. 69 EMC I 2014/3	Curd: FK s: EP rd: cer C (flat res red for r 21 mA 50 g (w Directive	Ni10Fe M DM, FF amics A me-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, hagainst sa g with st	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperate		option: standa options standa POM-C TPE-U prepar IP 68 max. 2 min. 69 EMC D 2014/3	Curd: FK S: EP Ind: cel C Ind: (flat res Red for r R1 mA S0 g (w Directive S4/EU	Ni10Fe M DM, FF amics A me-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, hagainst sa g with st	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperatu Temperature range	ure element	prepar IP 68 max. 2 min. 68 EMC I 2014/3 6	Curd: FK S: EP Ind: cer C Ind: (fla res Red for r R1 mA S0 g (w Directive 84/EU	Ni10Fe M DM, FF amics A me-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, hagainst sa g with st	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature of	ure element	prepar IP 68 max. 2 min. 68 EMC I 2014/3 6 -25 3-wire	Curd: FK S: EP Ind: cer C Ind: (fla res Red for r R1 mA S0 g (w Directive 84/EU 125°C	Ni10Fe M DM, FF amics A me-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, hagainst sa g with st	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature of Resistance	ure element	option: standa options standa POM-C TPE-U prepar IP 68 max. 2 min. 68 EMC L 2014/3 6 -25 3-wire 100 Ω	curd: FK s: EP rd: cer curd: (fla res red for r 21 mA 50 g (w Directive 34/EU 125°C at 0°C	Ni10Fe M DM, FF amics A me-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, hagainst sa g with st	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature of Resistance	ure element	prepar IP 68 max. 2 min. 68 EMC I 2014/3 6 -25 3-wire	curd: FK s: EP rd: cer curd: (fla res red for r 21 mA 50 g (w Directive 34/EU 125°C at 0°C	Ni10Fe M DM, FF amics A me-res sistant a	1Mn (res KM (mir Al ₂ O ₃ 96 istant, hagainst sa g with st	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
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Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature of Resistance Temperature coefficient Supply Is 6 not possible in combinate	ure element element tion with IS-v	prepar IP 68 max. 2 min. 68 EMC I 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3	curd: FK s: EP rd: cer curd: f(flares) red for r 21 mA 50 g (w Directive 34/EU 125°C at 0°C ppm/K	Ni10Fe M DM, FF amics / me-ressistant a mounting ithout care: 2014/	1Mn (res KM (mir Al ₂ O ₃ 96 istant, hagainst sa g with st	n. permis % alogen fr alt, sea v	sible to	empera reased neavy o	ture fro op	tion: ce	eramics		99.9 %	others o		
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Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperatu Temperature range Connection temperature of Resistance Temperature coefficient Supply Is for not possible in combinate Category of the environ Lloyd's Register (LR)	ure element element tion with IS-v	prepar IP 68 max. 2 min. 66 -25 3-wire 100 Ω 3850 p 0.3 /ersion	Curd: FK S: EP Ind: cer C I (fla res red for r R1 mA S0 g (w Directive 84/EU 125°C at 0°C ppm/K 1.0 mA	Ni10Fe M DM, FF amics / Immeres sistant a mounting ithout car 2014/	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha gainst sa g with st able) /30/EU	n. permis % alogen fr alt, sea v ainless s	gáinst s sible te ee, inc vater, h	empera reased neavy o	ture fro op	numbe	eramics ainst oil	and g	99.9 % asoline : 13/20 : TAA0	others o	n reque	
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperatu Temperature range Connection temperature of Resistance Temperature coefficient Supply Is for not possible in combinate Category of the environ Lloyd's Register (LR) Det Norske Veritas (DNV	ure element element tion with IS-v	prepar IP 68 max. 2 min. 68 EMC I 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 /ersion	Curd: FK S: EP Ind: cer C I (fla res red for r R1 mA S0 g (w Directive 84/EU 125°C at 0°C ppm/K 1.0 mA	Ni10Fe M DM, FF ramics / Immeres sistant a mounting ithout can be 2014/	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha gainst sa g with st able) /30/EU	n. permis % alogen fr alt, sea v	gáinst s sible te ee, inc vater, h	empera reased neavy o	ture fro op	numbe	eramics ainst oil	and g	99.9 % asoline : 13/20 : TAA0	others o	n reque	
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature of Resistance Temperature coefficient Supply Is 6 not possible in combinate Category of the environe	ure element element tion with IS-v	prepar IP 68 max. 2 min. 66 -25 3-wire 100 Ω 3850 p 0.3 /ersion	Curd: FK S: EP Ind: cer C I (fla res red for r R1 mA S0 g (w Directive 84/EU 125°C at 0°C ppm/K 1.0 mA	Ni10Fe M DM, FF amics / Immeres sistant a mounting ithout car 2014/	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha gainst sa g with st able) /30/EU	n. permis % alogen fr alt, sea v ainless s	gáinst s sible te ee, inc vater, h	empera reased neavy o	ture fro op	numbe	eramics ainst oil	and g	99.9 % asoline : 13/20 : TAA0	others o	n reque	
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperatu Temperature range Connection temperature of Resistance Temperature coefficient Supply Is 6 not possible in combinate Category of the environ Lloyd's Register (LR) Det Norske Veritas (DNV	ure element element tion with IS-v	prepar IP 68 max. 2 min. 66 EMC I 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 /ersion	Curd: FK S: EP Ind: cer C I (fla res Red for r R1 mA S0 g (w Directive 84/EU 125°C at 0°C ppm/K 1.0 mA , EMV2 rature: ity:	Ni10Fe M DM, FF amics / Immeres sistant a mounting ithout car 2014/	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha gainst sa g with st able) /30/EU	n. permis % alogen fr alt, sea v ainless s	gáinst s sible te ee, inc vater, h	empera reased neavy o	ture fro op	numbe electro	eramics ainst oil	and g	esoline : 13/20 : TAA0 : TAA0	056 00001Gity: B	n reque	
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperatu Temperature range Connection temperature of Resistance Temperature coefficient Supply Is 6 not possible in combinate Category of the environ Lloyd's Register (LR) Det Norske Veritas (DNV Explosion protection 7 Approval DX14A-LMK 45	ure element element tion with IS-v	prepar IP 68 max. 2 min. 66 EMC I 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 rersion	curd: FK EE EC Curd: cer C Curd: res Curd: cer	Ni10Fe M DM, FF amics / Imme-ressistant amounting ithout case: 2014/	1Mn (res FKM (mirr Al ₂ O ₃ 96 istant, hagainst sagainst	n. permis % alogen fr alt, sea v ainless s	gáinst s sible te ee, inc vater, h steel pip	reased neavy o	ture fro op/ resista iil)	numbe electro	eramics ainst oil er of cer	and g	esoline : 13/20 : TAA0 : TAA0	056 00001Gity: B	n reque	
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperatu Temperature range Connection temperature of Resistance Temperature coefficient Supply Is for possible in combinate Category of the environ Lloyd's Register (LR) Det Norske Veritas (DNV Explosion protection 7 Approval DX14A-LMK 45	ure element element tion with IS-v	prepar IP 68 max. 2 min. 68 EMC I 2014/3 6 -25 3-8vire 100 Ω 3850 p 0.3 eersion EMV1, tempel humidi	curd: FK s: EP rd: cer color (flares res red for r 21 mA 50 g (w Directive 34/EU 125°C at 0°C ppm/K 1.0 mA , EMV2 rature: ity:	Ni10Fe M DM, FF amics / Imeres sistant an incontinuithout case: 2014/	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha gainst s g with st able) 30/EU , EMV4 vit en	n. permis % alogen fr alt, sea v ainless s oration: closure:	gáinst s sible te ee, inc vater, r steel pip	reased neavy cope	ture fro op/ resista iil)	numbee electro	eramics ainst oil er of cer er of cer magne	and g	esoline : 13/20 : TAA0 : TAA0	056 00001Gity: B	n reque	
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Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperate Temperature range Connection temperature of Resistance Temperature coefficient Supply Is 6 not possible in combinate Category of the environ Lloyd's Register (LR) Det Norske Veritas (DNV Explosion protection 7 Approval DX14A-LMK 45 Safety technical maximum	element tion with IS-v nment () 88 m values	prepar IP 68 max. 2 min. 68 EMC I 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 /ersion IBEXU U _i = 28 the suj in zone	curd: FK s: EP rd: cer color (fla res red for r r red mA for g (w r r r r r r r r r r r r r r r r r r r	Ni10Fe M DM, FF amics A me-ressistant a mounting ithout care: 2014/	1Mn (res KM (mir Al ₂ O ₃ 96 istant, ha gainst s g with st able) (30/EU , EMV4 vik en) X P ₁ = 660 ns have -20 6	n. permis % alogen fr alt, sea v ainless s oration: closure:	gáinst s sible te ee, inc vater, r steel pip	reased neavy of pe	ture fro op/ resista iil)	numbe numbe electro	eramics ainst oil er of cer er of cer magne	and g	esoline : 13/20 : TAA0 : TAA0	056 00001Gity: B	n reque	
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature of Resistance Temperature coefficient Supply Is 6 not possible in combinate Category of the environ Lloyd's Register (LR) Det Norske Veritas (DNV Explosion protection 7 Approval DX14A-LMK 45 Safety technical maximum Permissible temperatures environment	element tion with IS-v nment () 88 m values	prepar IP 68 max. 2 min. 68 EMC L 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 /ersion EMV1, temper humidi IBExU U _i = 28 the sur in zone zone 1	curd: FK s: EP rd: cer	Ni10Fe M DM, FF amics A me-ressistant a mounting ithout care: 2014/	1Mn (residual files of the control o	oration: closure: 0 mW, Ci an inner 0°C with	gáinst s sible te ee, inc vater, h steel pip B D = 105 capaci patm 0.	reased neavy of pe	ture fro op/ resista iil)	numbe numbe electro zone 0	er of cere of	and g	: 13/20 : TAA0 apatibili IIB T4 osure	056 00001Gity: B	n reque	
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature of Resistance Temperature coefficient Supply Is 6 not possible in combinate Category of the environ Lloyd's Register (LR) Det Norske Veritas (DNV Explosion protection 7 Approval DX14A-LMK 45 Safety technical maximum Permissible temperatures environment Connecting cables	element tion with IS-v nment () 88 m values	prepar IP 68 max. 2 min. 68 EMC I 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 /ersion	curd: FK s: EP rd: cer color (fla res red for r color (fla res red	Ni10Fe M DM, FF ramics / Imme-ressistant a mounting ithout carrier 2014/	1Mn (residual files of the control o	oration: closure: 0 mW, C _i an inner 0°C with 0°C ne/shielc	ee, incovater, heteel piper B D = 105 capaci patm 0.	reased neavy of neavy of m 8 bar u	ture fro opi resista iil) = 0 µH; ax. 140 up to 1.	numbe numbe electro zone 0 nF opp I bar	er of cerer of ceremagne 1 line: 1	tificate titic com	: 13/20 : TAA0 apatibili IIB T4 osure	056 00001Gity: B	n reque	
Seals (media wetted) Diaphragm Protection cap Cable sheath Miscellaneous Option cable protection for probes in stainless ste Ingress protection Current consumption Weight CE-conformity ATEX Directive Option Pt 100 temperature Temperature range Connection temperature of Resistance Temperature coefficient Supply Is 6 not possible in combinate Category of the environ Lloyd's Register (LR) Det Norske Veritas (DNV Explosion protection 7 Approval DX14A-LMK 45 Safety technical maximum Permissible temperatures environment	ure element element tion with IS-v ment 7) 58 m values s for	prepar IP 68 max. 2 min. 68 EMC I 2014/3 6 -25 3-wire 100 Ω 3850 p 0.3 /ersion IBExU U _i = 28 the sufin zone 1 cable 0 cable i	curd: FK s: EP rd: cer color (fla res red for r color (fla res red for r color (fla res red for r color (fla res red red res red red res red red res red	Ni10Fe M DM, FF amics / Imme-ressistant amounting ithout cast 2014/ DB B EX 1180 93 mA, nnection gher: //:nce:	1Mn (residual files of the control o	oration: closure: 0 mW, Ci an inner 0°C with	ee, incovater, heteel piper B D = 105 capaci patm 0.	reased neavy of neavy of m 8 bar u	ture fro opi resista iil) = 0 µH; ax. 140 up to 1.	numbe numbe electro zone 0 nF opp I bar	er of cerer of ceremagne 1 line: 1	tificate titic com	: 13/20 : TAA0 apatibili IIB T4 osure	056 00001Gity: B	n reque	

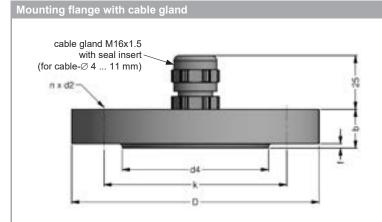




dimensions in mm							
size	DN25 /	DN50 /	DN80 /				
SIZE	PN40	PN40	PN16				
b	18	20	20				
D	115	165	200				
d2	14	18	18				
d4	68	102	138				
f	2	3	3				
k	85	125	160				
n	4	4	8				

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

Ordering type	Ordering code	Weight
Transmitter flange DN25 / PN40	ZSF2540	1.2 kg
Transmitter flange DN50 / PN40	ZSF5040	2.6 kg
Transmitter flange DN80 / PN16	ZSF8016	4.1 kg

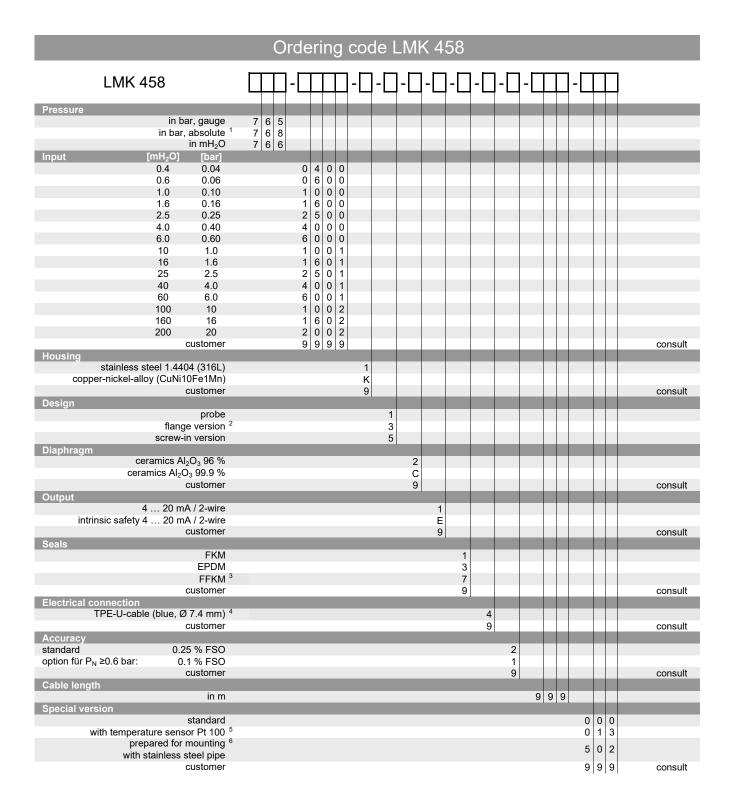


dimensions in mm							
size	DN25 /	DN50 /	DN80 /				
SIZE	PN40	PN40	PN16				
b	18	20	20				
D	115	165	200				
d2	14	18	18				
d4	68	102	138				
f	2	3	3				
k	85	125	160				
n	4	4	8				

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

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Ordering code



¹ nominal pressure ranges absolute from 1 bar

 $^{^{\}rm 2}$ mounting accessories are not part of supply and have to be ordered separately

 $^{^{\}rm 3}$ min. permissible temperature from -15°C

⁴ shielded cable with integrated ventilation tube for atmospheric reference

⁵ not possible in combination with IS-version

 $^{^{\}rm 6}$ possible for probes in stainless steel; stainless steel pipe is not part of the supply



Probe for Marine and Offshore 22 mm

Ceramic Sensor

accuracy according to IEC 60770: 0.25 % FSO

Nominal pressure

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

Output signals

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

Special characteristics

- diameter 22 mm
- ▶ LR-certificate (Lloyd's Register)
- DNV•GL Approval (Det Norske Veritas • Germanischer Lloyd)
- ▶ diaphragm 99.9 % Al₂O₃
- high long-term stability

Optional versions

- housing material titanium
- ► IS-version
 Ex ia = intrinsically safe for gas and dust
- temperature element Pt 100
- different kinds of elastomer

The hydrostatic probe LMK 487 has been developed for measuring levels in various tank applications for shipbuilding and offshore. In comparison to the hydrostatic probe LMK 458 the external diameter amounts to only 22 mm by which the installation in 1" pipes can be carried out easily.

Beside the housing materials stainless steel and titanium, different elastomer materials are available by which an optimum adaptation to the application can be ensured.

Preferred areas of use



<u>Water</u>

drinking water abstraction desalinization plant

Shipbuilding / Offshore

monitoring of a ship's position and draught

ballast tanks

level measurement in ballast and storage tanks







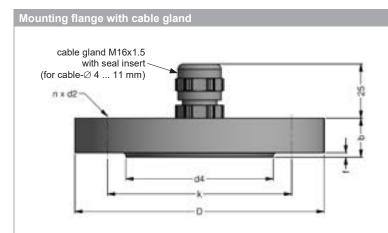






Innut proceure range											
Input pressure range	0.1	0.46	0.25	0.4	0.6	4	1.6	2.5	A	6	10
Nominal pressure gauge [bar] Level [mH ₂ O]	0.1	0.16 1.6	0.25 2.5	0.4	0.6	10	1.6 16	2.5	40	60	100
		4		_		-	12	20	-	20	20
Overpressure [bar]	3 4	6	5 8	5 8	9	9	18	25	20	30	30
Burst pressure ≥ [bar] Permissible vacuum [bar]	-0.2	-0.3	0		<u> 9</u> 0.5	9	10	25	25 -1	30	30
Max. ambient pressure (housing): 4		-0.3			0.5				-1		
Max. ambient pressure (nousing). 4	o bai										
Output signal / Supply											
Standard	2-wire: 4	1 20 m	A / V _s =	12 36 \	V _{DC}						
Option IS-version			A / V _s =								
Option Pt 100-temperature eleme	ent										
Temperature range	-25 1	25 °C									
Connectivity technology	3-wire				max. vol	tage 10 V	/ _{DC} ,	in intrinsi	cally safe	circuit 30) V _{DC}
Resistance	100 Ω a	t 0 °C				rent 2 m/				circuit 54	
Temperature coefficient	3850 pp	m/K			max. po	wer 10 m\	W,	in intrinsi	cally safe	circuit 40)5 mW
Supply I _S	0.3 1	.0 mA DC									
Performance											
Accuracy ¹	nominal	pressure	e ≥ 0.4 ba	r: ≤ ± 0.2	5 % FSO	r	nominal p	oressure <	0.4 bar :	≤ ± 0.35 %	6 FSO
Permissible load	R _{max} = [$(V_S - V_{Sr})$	_{min}) / 0.02	Α] Ω							
Influence effects			SO / 10 \	/		le	oad: 0.0	5 % FSO /	kΩ		
Long term stability		% FSO /	year								
Turn-on time	450 ms										
Mean response time	≤ 70 ms	ec									
Measuring rate	80 Hz										
¹ accuracy according to IEC 60770 – lim		stment (no	n-linearity,	hysteresis	s, repeatabi	lity)					
Thermal effects (offset and span)		500								00.00	
Tolerance band	≤ ± 1 %	FSO				l	n compe	nsated rai	nge -20 .	80 °C	
Permissible temperatures		, ,									
Permissible temperatures	medium	/ storage	e: - 25 8	35 °C							
Electrical protection ²											
Short-circuit protection	permane										
Reverse polarity protection			also no fu		_						
Electromagnetic compatibility	- EN 6		munity ac		o GL (Det No	oreko Vor	itas • Go	rmanicche	or Lloyd)		
² additional external overvoltage protecti			KI 1 or KI								
Mechanical stability					,						
Vibration	4 q (acc	ording to	DNV•GL	: Class B	, curve 2 /	basis: IE	C 60068	3-2-6)			
Electrical connection					<i>,</i>						
Cable with sheath material ³	TPE-U	(-25	.125 °C)	blue	Ø 7.4 mr	n					
	TPE-U 4	(-25	.125 °C)	red	Ø 9.0 mr	n					
Bending radius			: 10-fold c					applicatior			
3 shielded cable with integrated ventilation	on tube for a	tmospheri	c pressure	reference	(for nomina	al pressure	ranges a	bsolute, the	ventilation	tube is clo	osed)
4 only in combination with IS version (exp	iosion prote	ction) and	temperati	ire eiemen	nt Pt100						
Materials (media wetted)	-4	d4_:_l_	41 4	1 4404 /2	401)						
Housing	option:		ss steel 1		16 L) st sea wat	ar)			otho	rs on requ	uest
Seals (O-rings)	standard		ii (iesista	ııı ayalıl	or oca Wal	ы <i>)</i>			Olite	is on requ	ucol
Joans (O-IIIIgo)	options:		: FFKM (min nern	nissible te	mperature	e from -1	5 °C)	othe	rs on requ	uest
Diaphragm		s Al ₂ O ₃ 9	, ,	20111		. _F 2. atal (1	,	5.110	- 51040	
Protection cap	POM-C										
Cable sheath	TPE-U	(flame	-resistant	. halogen	free, incr	eased res	sistance	against oil	and das	oline.	
Cable chean	11.20				a water, h		olotal loo	againot on	and gao	oo,	
Category of the environment				, 550	, 11	, ,,					
Lloyd's Register (LR)	number	of certific	cate: 18/2	0068	El	NV1, EN\	/2, ENV3	B, ENV4			
Det Norske Veritas/	_		cate: TAA			,	,	<u> </u>			
Germanischer Lloyd (DNV GL)	tempera			idity: B		bration: B	}	EMC: B	encl	osure: D	
Explosion protection											
Approval DX14B-LMK 487	IBExU 1	5 ATEX	1066 X /	IECEx IB	E 18.0019	X					
•	zone 0: zone 20	II 1	G Ex ia II D Ex ia III	B T4 Ga							
Safety technical maximum values (pressure)					C _i = 49.2 ner capacit			opposite t	he enclos	sure	
, ,		•				•		rature ele			
Safety technical maximum values (temperature)	U _i = 30 \	v, I _i – 54	111/-1, 1	,						,	
(temperature) Permissible temperatures for environment	in zone	0:	-20	60 °C wi	ith p _{atm} 0.8	bar up to	1.1 bar			,	
(temperature) Permissible temperatures for	in zone	0: and highe	-20 er: -25	60 °C wi 65 °C				al line: 16	0 pF/m	,	

Miscellaneous						
Current consumption	max. 22 mA					
Weight	approx. 180 g (without cable)					
Ingress protection	IP 68					
CE-conformity	EMC Directive: 2014/30/EU					
ATEX Directive	2014/34/EU					
Pin configuration						
Electrical connection		cable colours (IEC 60757)				
Supply +		WH (white)				
Supply –		BN (brown)				
Option Pt 100 temperature element:						
Supply T+		YE (yellow)				
Supply T-		GY (grey)				
Supply T-		PK (pink)				
Shield		GNYE (green-yellow)				
Wiring diagrams		, ,				
		0i				
2-wire-system (current)		2-wire-system (pressure) / 3-wire-system (temperature)				
supply +		supply V _S +				
p / supply + A	+	$(A) \longrightarrow +$				
		P / Vs				
/	s	supply V _s –				
1/		supply T+				
/ I supply –	· —					
I supply –		perature				
=		supply T- element				
		<u> </u>				
Dimensions (mm / in)						
· · · · · ·						
standard		screw-in version				
Standard						
		in stainless steel 1.4404 (316 L)				
p Ø7,4 [Ø0.3	298	→ Ø7,4 [Ø0.29]				
no.	88	and the second s				
		¢22 [¢0.87]				
	1					
	149.5 5.89	146,5 [5.77]				
175	<u>un</u>	<u>10.</u>				
9	9	9				
16.3	7	7				
7						
		- SW34				
		- SW34				
		- SW34				
		- SW34				
		- SW34				
		111				
		111				
		111				
\$22 [50		₹ G3/4*				
\$22 [50	.67]	111				
\$22 [50	protection cap removable	111				
\$22 [50		G34* G38[1.5]				
		G3/4" flush				



	dimensions in mm						
size	DN25 / PN40	DN50 / PN40	DN80 / PN16				
b	18	20	20				
D	115	165	200				
d2	14	18	18				
d4	68	102	138				
f	2	3	3				
k	85	125	160				
n	4	4	8				

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

Ordering type	Ordering code	Weight
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540	1.4 kg
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040	3.2 kg
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016	4.8 kg

Terminal clamp



Technical data			
Suitable for	all probes with cable Ø 5.5 10	.5 mm	
Material of housing	standard: steel, zinc plated	optionally: stainless stee	el 1.4301 (304)
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)		
Dimensions (mm)	174 x 45 x 32		
Hook diameter	20 mm		
Ordering type		Ordering code	Woight

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

Display program

PA 440

CIT 200	Process display with LED	display
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CIT 250 Process display with LED display and contacts

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

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

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

CIT 600 Multichannel process display with graphics-capable LC display

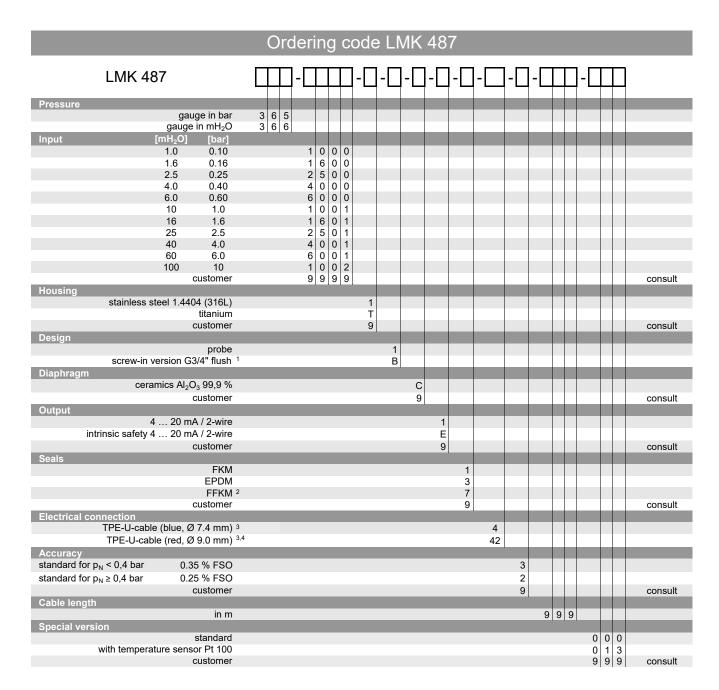
CIT 650 Multichannel process display with graphics-capable LC display and datalogger

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

Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.de





¹ only in combination with housing in stainless steel 1.4404 (316L)

 $^{^{2}\,}$ min. permissible temperature from -15 $^{\circ}\text{C}\,$

³ shielded cable with integrated ventilation tube for atmospheric pressure reference

 $^{^{\}mathrm{4}}$ only in combination with IS version (explosion protection) and temperature element Pt 100



Plastic Probe for **Aggressive Media**

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from $0 \dots 6 \text{ mH}_2\text{O}$ up to $0 \dots 100 \text{ mH}_2\text{O}$

Output signals

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

Special characteristics

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

Optional versions

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

The LMK 806 with ceramic sensor and diameter of only 21 mm has been especially designed for the continuous level measurement at confined space conditions. Permissible media are highly polluted and aggressive fluids.

Basic element of the plastic submersible probe is a flush mounted ceramic sensor, which makes parts cleaning easier when solid 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 dumpsites



Aggressive media

level measurement in most of acids and lyes





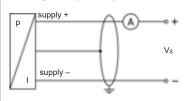




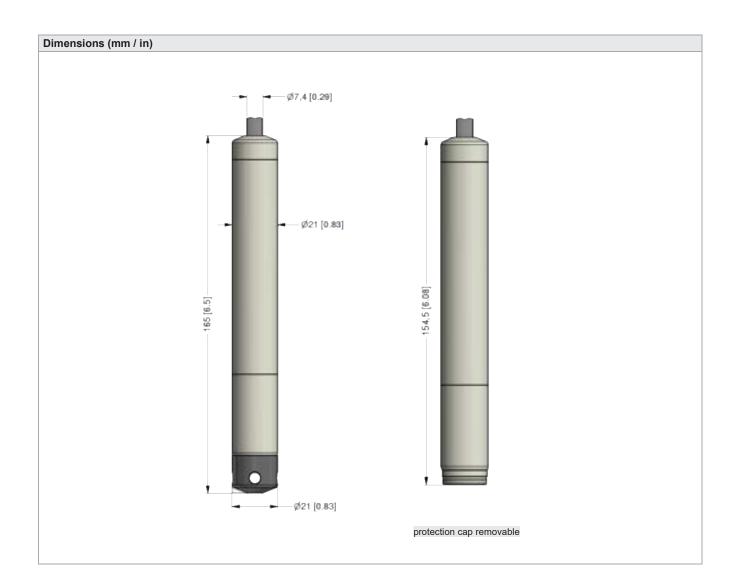
Input pressure range								
Nominal pressure gauge	[bar]	0.6	1	1.6	2.5	4	6	10
Level	[mH ₂ O]	6	10	16	25	40	60	100
Overpressure	[bar]	2	2	4	4	10	10	20
Burst pressure ≥	[bar]	4	4	5	5	12	12	25
Max. ambient pressure (housing): 30 bar								

Output signal / Supply							
2-wire	$4 20 \text{ mA} / V_S = 12 32 V_{DC}$						
Performance							
Accuracy 1	≤ ± 0.5 % FSO						
Permissible load	$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$						
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ						
Response time	≤ 10 msec						
¹ accuracy according to IEC 60770 – I	imit point adjustment (non-linearity, hysteresis, repeatability)						
Thermal effects (offset and spa	nn) / Permissible temperatures						
Thermal error	≤ ± 0.4 % FSO / 10 K in compensated range 0 70 °C						
Permissible temperatures	medium / electronics / environment / storage: 0 60 °C						
Electrical protection ²	<u> </u>						
Short-circuit protection	permanent						
Reverse polarity protection	no damage, but also no function						
Electromagnetic protection	emission and immunity according to EN 61326						
² additional external overvoltage prote	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 70 °C) grey Ø 7.4 mm						
	PUR (-25 70 °C) black Ø 7.4 mm						
	FEP ⁴ (-25 70 °C) black Ø 7.4 mm						
	others on request						
Cable capacitance	signal line/shield also signal line/signal line: 160 pF/m						
Cable inductance	signal line/shield also signal line/signal line: 1 µH/m						
Bending radius	static installation: 10-fold cable diameter						
2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	dynamic application: 20-fold cable diameter						
	ntion tube for atmospheric pressure reference with an FEP cable if effects due to highly charging processes are expected						
Materials (media wetted)	With an Fig. 12 Stable in Shocke due to highly shanging proceeded and expedited						
Housing	PP-HT others on request						
Seals	FKM						
Diaphragm	ceramics Al ₂ O ₃ 96 %						
Protection cap	POM-C						
Cable sheath	PVC, PUR, FEP						
Miscellaneous							
Current consumption	max. 25 mA						
Weight	approx. 100 g (without cable)						
Ingress protection	IP 68						
CE-conformity	EMC Directive: 2014/30/EU						
Wiring diagram							

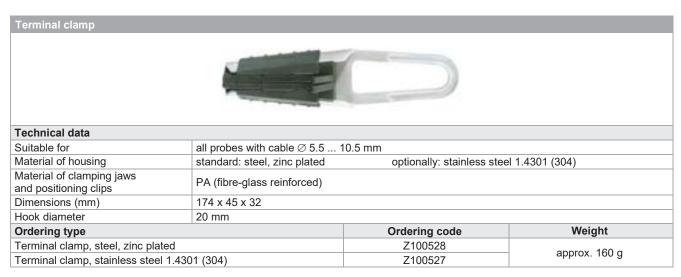
2-wire-system (current)

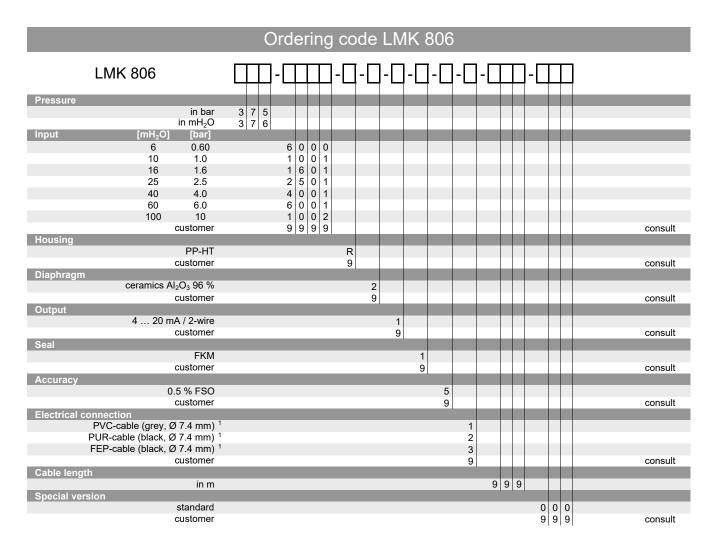


Pin configuration	
Electrical connection	cable colours (IEC 60757)
Supply +	WH (white)
Supply –	BN (brown)
Shield	GNYE (green-yellow)



Accessories





¹ shielded cable with integrated ventilation tube for atmospheric pressure reference



Plastic Probe for Aggressive Media

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 4 mH₂O up to 0 ... 100 mH₂O

Output signals

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

Special characteristics

- ▶ diameter 35 mm
- good 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 versions
 e. g. special pressure ranges

The plastic submersible probe LMK 807 is designed for continuous level measurement for highly polluted and 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



Aggressive media

level measurement in most of acids and lyes





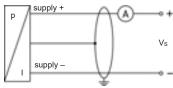




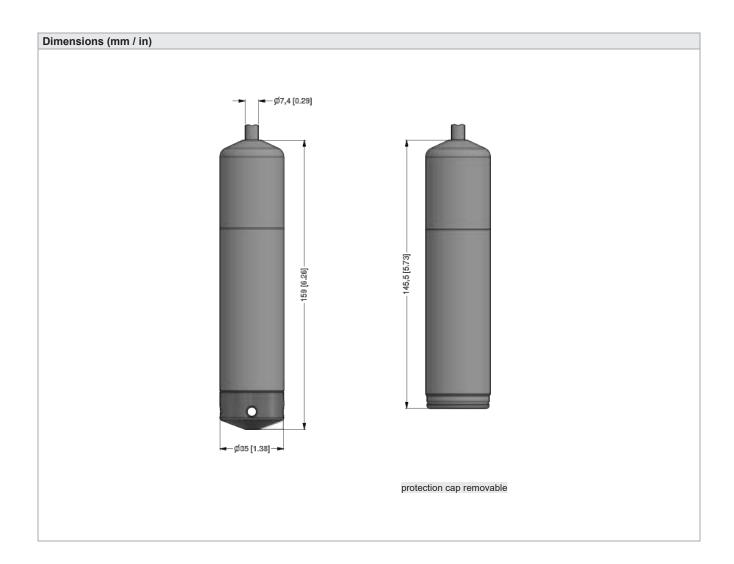


Input pressure range									
Nominal pressure gauge	[bar]	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH ₂ O]	4	6	10	16	25	40	60	100
Overpressure	[bar]	1	2	2	4	4	10	10	20
Burst pressure ≥	[bar]	2	4	4	5	5	12	12	25
Max. ambient pressure (housing): 20 bar									

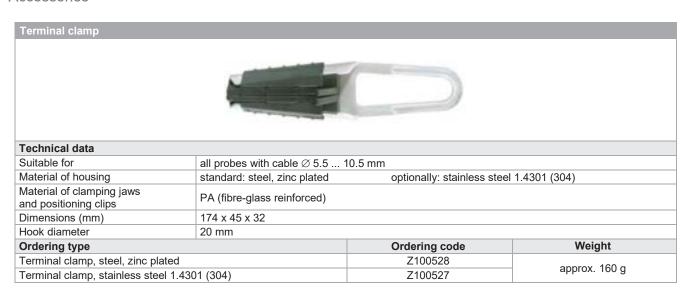
2-wire	4 20 mA / \/ = 9 22 \/	SII version: \/ = 44						
	4 20 mA / V _S = 8 32 V _{DC}	SIL-version: V _S = 14 28 V _{DC}						
Performance								
Accuracy ¹	≤±0.5% FSO							
Permissible load		$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$						
Influence effects	supply: 0.05 % FSO / 10 V	load: 0.05 % FSO / kΩ						
Long term stability	≤ ± 0.1 % FSO / year at reference conditions							
Response time	≤ 10 msec							
	limit point adjustment (non-linearity, hysteresis, repeatability)							
Thermal effects (Offset and Sp	-							
Thermal error	≤ ± 0.2 % FSO / 10 K	in compensated range 0 70 °C						
Permissible temperatures								
Permissible temperatures	medium / electronic / environment / storage:	0 60 °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							
	ection unit in terminal box KL 1 or KL 2 with atmospheric press	ure reference available on request						
Electrical connection								
Cable with sheath material ³	PVC (-5 70 °C) grey Ø 7.4 mm PUR (-25 70 °C) black Ø 7.4 mm FEP 4 (-25 70 °C) black Ø 7.4 mm others on request							
Cable capacitance	signal line/shield also signal line/signal line: 160	oF/m						
Cable inductance	signal line/shield also signal line/signal line: 1 µH	/m						
Bending radius	static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter							
	lation to be for atmospheric consequence							
	lation tube for atmospheric pressure reference is with an FEP cable if effects due to highly charging processes.	are expected						
Materials (media wetted)	s with an FEP cable if effects due to highly charging processes	are expected						
⁴ do not use freely suspended probes Materials (media wetted) Housing	s with an FEP cable if effects due to highly charging processes PP-HT	are expected						
⁴ do not use freely suspended probes Materials (media wetted)	PP-HT FKM, EPDM, FFKM	are expected						
⁴ do not use freely suspe [®] nded probes Materials (media wetted) Housing Seals Diaphragm	PP-HT FKM, EPDM, FFKM ceramics Al ₂ O ₃ 96 %	are expected						
⁴ do not use freely suspe [®] nded probes Materials (media wetted) Housing Seals Diaphragm Protection cap	PP-HT FKM, EPDM, FFKM ceramics Al ₂ O ₃ 96 % POM-C	are expected						
⁴ do not use freely suspended probes Materials (media wetted) Housing Seals	PP-HT FKM, EPDM, FFKM ceramics Al ₂ O ₃ 96 %	are expected						
⁴ do not use freely suspe [®] nded probes Materials (media wetted) Housing Seals Diaphragm Protection cap	PP-HT FKM, EPDM, FFKM ceramics Al ₂ O ₃ 96 % POM-C PVC, PUR, FEP	are expected						
4 do not use freely suspended probes Materials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath Miscellaneous	PP-HT FKM, EPDM, FFKM ceramics Al ₂ O ₃ 96 % POM-C	are expected						
⁴ do not use freely suspended probes Materials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath	PP-HT FKM, EPDM, FFKM ceramics Al ₂ O ₃ 96 % POM-C PVC, PUR, FEP	are expected						
4 do not use freely suspended probes Materials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath Miscellaneous Option SIL 2 version	PP-HT FKM, EPDM, FFKM ceramics Al ₂ O ₃ 96 % POM-C PVC, PUR, FEP according to IEC 61508 / IEC 61511	are expected						
4 do not use freely suspended probes Materials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath Miscellaneous Option SIL 2 version Current consumption Weight Ingress protection	PP-HT FKM, EPDM, FFKM ceramics Al ₂ O ₃ 96 % POM-C PVC, PUR, FEP according to IEC 61508 / IEC 61511 max. 25 mA	are expected						
4 do not use freely suspended probes Materials (media wetted) Housing Seals Diaphragm Protection cap Cable sheath Miscellaneous Option SIL 2 version Current consumption Weight	PP-HT FKM, EPDM, FFKM ceramics Al ₂ O ₃ 96 % POM-C PVC, PUR, FEP according to IEC 61508 / IEC 61511 max. 25 mA approx. 200 g (without cable)	are expected						

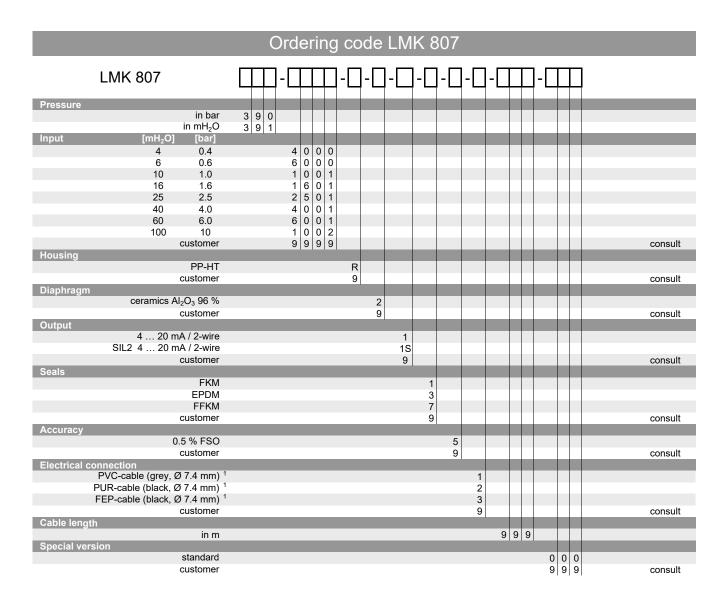


Pin configuration	
Electrical connection	cable colours (IEC 60757)
Supply +	WH (white)
Supply –	BN (brown)
Shield	GNYE (green-yellow)



Accessories





¹ shielded cable with integrated ventilation tube for atmospheric pressure reference



Detachable **Plastic Probe**

Ceramic Sensor

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

Nominal pressure

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

Output signals

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

Special characteristics

- diameter 35 mm
- diaphragm ceramics 99.9% Al₂O₃
- cable assembly and sensor head detachable
- good long-term stability
- integrated lightning protection 8 kA gas discharge tube (8/20µsec); 4 kV surge I-I/I-e according to EN61000-4-5

Optional versions

- different kinds of elastomer
- customer specific versions e. g. special pressure ranges
- mounting accessories

detachable plastic submersible probe LMK 808 was developed for level measurement in water and wastewater. The basis of the probe is an extremely robust, almost maintenance-free capacitive ceramic sensor.

Since the level probe is used for level measurement i.a. in river courses, on weir systems or in locks, great emphasis was placed on high overvoltage / lightning protection. In addition, the cable can be protected against bites if necessary.

To simplify maintenance work or warehousing, the sensor head can be separated from the cable part and can therefore be replaced if necessary without time-consuming assembly work.

Preferred areas of use



Water

groundwater and level monitoring sea water



Sewage

waste water treatment water recycling





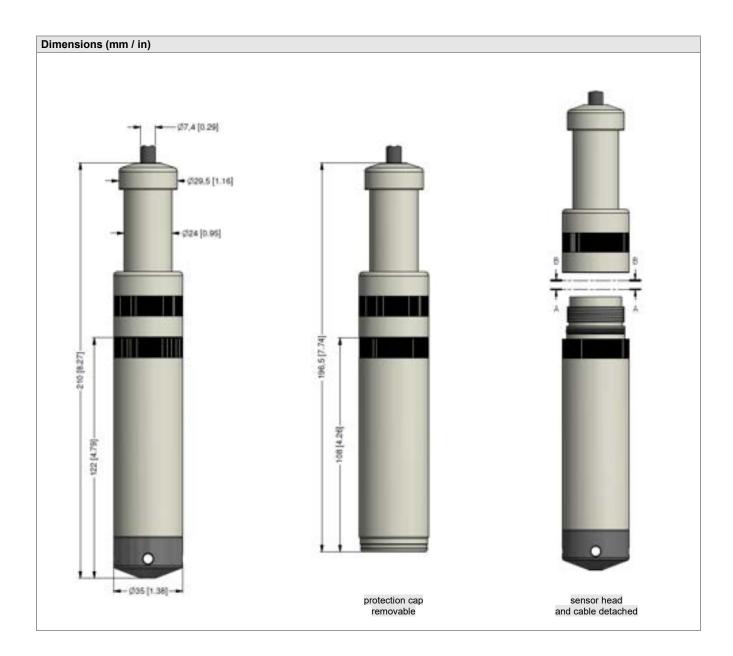




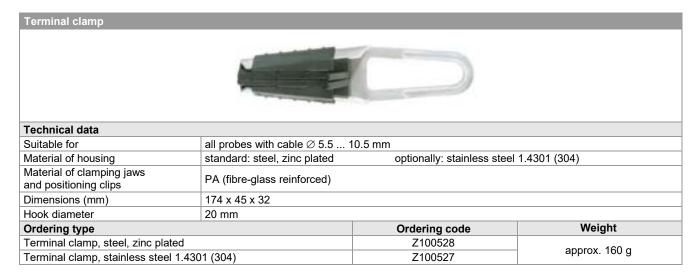
Input pressure "												
Input pressure range	Fla2	0.4	0.40	0.05	0.4	0.0	4	4.0	0.5	4		40
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure	[bar]	_	3 4 5 5 7 7 12 20 20 20									20
Burst pressure ≥	[bar]											30
Permissible vacuum	[bar]	-0.2 -0.3 -0.5 -1										
Max. ambient pressure (h	ousing): 2	20 bar										
Output signal / Supply												
2-wire 4 20 mA / V _S = 13 30 V _{DC}												
Performance												
Accuracy 1		standar	tandard: ≤±0.35 % FSO									
		option:		25 % FS0				others of	n request			
Permissible load		$R_{max} = [$	$(V_S - V_{Sn})$	_{nin}) / 0.02	Α] Ω							
Influence effects				SO / 10 \				load: 0.	05 % FSO /	kΩ		
Long term stability		≤ ± 0.1	% FSO /	year at re	ference o	conditions						
Turn-on time		up to 1.	5 sec									
Mean response time		≤ 20 ms	sec									
Measuring rate		200 Hz										
¹ accuracy according to IEC 6	60770 – limi	it point adju	ustment (ne	on-linearity	, hysteresi	s, repeatab	ility)					
Thermal effects (offset a	and span))										
Tolerance band		≤ ± 1 %	FSO					in comp	ensated rai	nge -20	0° 08	
Permissible temperature	es											
Permissible temperatures		medium	/ electro	nics / env	ironment	/ storage:		0 60	°C			
Electrical protection ²			,									
Short-circuit protection		perman	ent									
Reverse polarity protection	'n	-		also no fu	nction							
Lightning protection	/II	integrate		2130 110 1u	HOUGH							
Electromagnetic compatib	sility			munity oo	oording to	EN 6132	16					
² additional external overvolta								reference a	vailable on re	earrest		
Overvoltage / lightning			Sillilliai DO	X INL I OI IN	L Z WILIT GL	тозрпенс	pressure	reference a	valiable of re	equest		
Series resistance	protootioi	_	r oach ne	ositive and	d nogative	o wiro						
			20 µsec)	ositive and	ı negative	- WIIC						
Max. leakage current Overload				d line con	th) accer	ding to EN	1.64000	1 E				
			ie-iiile aii	u iiiie-eai	iii) accord	uing to Eiv	1 0 1000-	4-0				
Max. rated current		30 mA										
Electrical connection	. 2											
Cable with sheath materia	al °					or drinking			n request			
Cable capacitance						nal line: 1						
Cable inductance						nal line: 1	μH/m					
Bending radius				10-fold		meter		dynamic	c application	n: 20-f	old cable d	iameter
³ shielded cable with integrate		for atmospi	heric press	sure referer	псе							
Materials (media wetted)											
Housing		PP-HT							n request			
Seals (O-rings)		FKM; E						others o	n request			
Diaphragm			s Al ₂ O ₃ 9	9.9%								
Protection cap		POM-C										
Cable sheath		TPE-U										
Miscellaneous												
Current consumption		max. 22	2 mA									
Weight		approx.	300 g (w	ithout cab	ole)							
Ingress protection		IP 68										
CE-conformity		EMC Di	rective: 2	014/30/E	U							
Wiring diagram				Pi	in config	uration						
2-wire-system (current)					ectrical			M12x1 (4	L pip) 6			
p supply + A c + Vs Vs supply - c -					nnection		A	A-A	B-B		cable co (IEC 60	
<u> </u>	<u>♀</u> Supply + 3 WH (w							WH (wh BN (bro				
		210 (2001)										

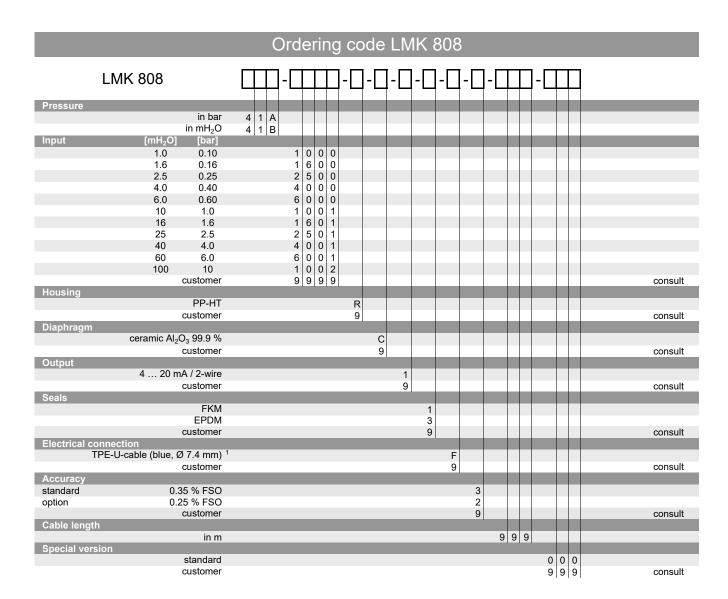
Shield

GNYE (green-yellow)



Accessories





¹ shielded cable, drinking water suitable, with integrated ventilation tube for atmospheric pressure reference



Plastic Probe for Aggressive Media

High Purity Ceramic Sensor

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

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-HT or PVDF

Optional versions

- different kinds of cables and elastomers
- prepared for mounting with pipe

The plastic submersible probe LMK 809 is designed for continuous level measurement in highly polluted and most of aggressive media. Basic element is a capacitive 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



Sewage

waste water treatment water recycling dumpsite



Aggressive media

level measurement in most of acids and lyes





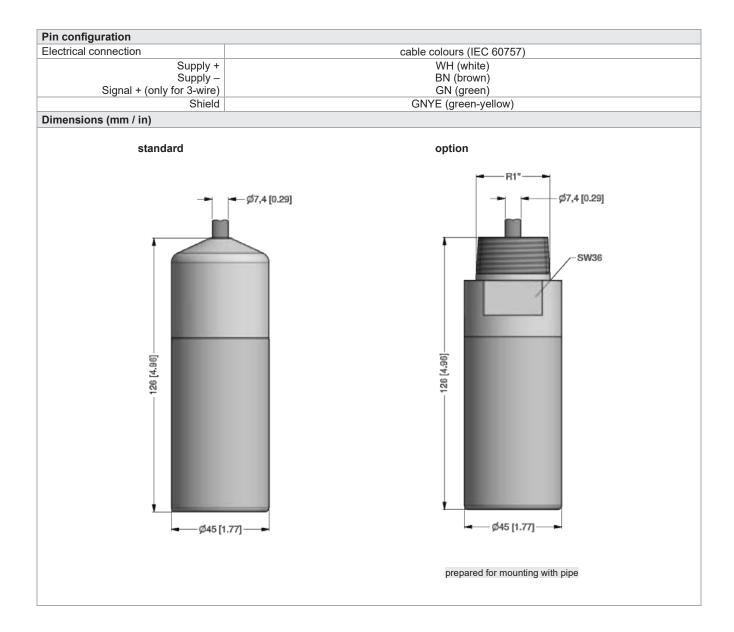




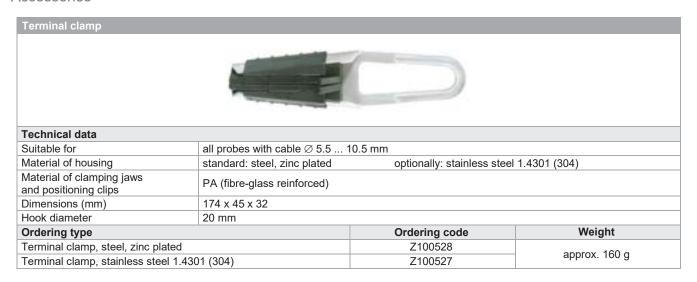
Input pressure range														
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35
Max. ambient pressure (ho	using): 10 I	oar												

Output signal / Supply							
Standard	2-wire: 4 20 mA / V _S = 9 32 V _{DC}						
Option	3-wire: 0 10 V / V _S = 12.5 32 V _{DC}						
Performance							
Accuracy ¹	standard: ≤ ± 0.35 % FSO						
	option: ≤ ± 0.25 % FSO						
Permissible load	$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$						
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ						
Long term stability	≤ ± 0.1 % FSO / year at reference conditions						
Turn-on time	700 msec						
Mean response time	< 200 msec measuring rate: 5/sec						
Max. response time	380 msec						
<u> </u>	imit point adjustment (non-linearity, hysteresis, repeatability)						
Thermal effects (offset and spa	•						
Tolerance band	≤±1% FSO						
In compensated range	-20 80 °C						
Permissible temperatures							
Housing in PVDF	medium / electronic / environment / storage: -30 60 °C						
Housing in PP-HT	medium / electronic / environment / storage: 0 60 °C						
Electrical protection ²							
Short-circuit protection	permanent						
Reverse polarity protection	no damage, but also no function						
Electromagnetic compatibility	emission and immunity according to EN 61326						
² additional external overvoltage prote	ction unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request						
Electrical connection							
Cable with sheath material ³	PUR (-25 70 °C) black Ø 7.4 mm FEP ⁴ (-25 70 °C) black Ø 7.4 mm TPE-U (-25 100 °C) blue Ø 7.4 mm others on request						
Cable capacitance	signal line/shield also signal line/signal line: 160 pF/m						
Cable inductance	signal line/shield also signal line/signal line: 1 µH/m						
Bending radius	static installation: 10-fold cable diameter						
Donaing radias	dynamic application: 20-fold cable diameter						
	tion tube for atmospheric pressure reference						
	with an FEP cable if effects due to highly charging processes are expected						
Materials (media wetted)							
Housing	standard: PP-HT option: PVDF						
Seals	FKM, EPDM, FFKM						
Diaphragm	ceramics Al ₂ O ₃ 99.9 %						
Cable sheath	PUR, FEP, TPE-U						
Miscellaneous	, · , · , · · = ·						
Option cable protection	prepared for mounting with plastic pipe						
Current consumption	max. 21 mA						
Weight	approx. 320 g (without cable)						
Ingress protection	IP 68						
CE-conformity	EMC Directive: 2014/30/EU						
Wiring diagrams							
2-wire-system (current)	3-wire-system (voltage)						
p supply +	p supply + vs						

supply –



Accessories



	Ordering code LMK 809	
LMK 809]
Pressure		
in bar	3 9 5	
in mH ₂ O Input [mH ₂ O] [bar]	3 9 6	
0.4 0.04	0 4 0 0	
0.6 0.06	0 6 0 0	
1.0 0.10	1 0 0 0	
1.6 0.16 2.5 0.25	1 6 0 0 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	4 0 0 1	
60 6.0	6 0 0 1	
100 10	1 0 0 2	
customer	9 9 9 9	consult
Housing PP-HT (0 60 °C)	R	
PVDF (-30 60 °C)	B	
customer	9	consult
Diaphragm		
ceramics Al ₂ O ₃ 99.9 % customer	C 9	consult
Output	3	Consuit
4 20 mA / 2-wire	1	
0 10 V / 3-wire	3	
Seal	9	consult
FKM	1	
EPDM	3	
FFKM	7	
customer	9	consult
Accuracy standard: 0.35 % FSO	3	
option: 0.35 % FSO	2	
customer	9	consult
Electrical connection		
PUR-cable (black, Ø 7.4 mm) ¹ FEP-cable (black, Ø 7.4 mm) ¹	2 3	
TPE-U-cable (blue, Ø 7.4 mm) ¹	4	
customer	9	consult
Cable length		
in m	9 9 9	
Special version standard	0 0 0	
prepared for pipe R1" ²	6 1 0	
customer	9 9	

¹ shielded cable with integrated ventilation tube for atmospheric pressure reference

² pipe is not part of the supply



Detachable Plastic Probe

Ceramic Sensor

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

Nominal pressure

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

Output signals

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

Special characteristics

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

Optional versions

- diaphragm 99.9 % Al₂O₃
- different kinds of cables and elastomers
- cable protection (on request)

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

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

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

Preferred areas of use are



Sewage

waste water treatment, dumpsite, water recycling



Aggressive media

level measurement in most of acids and lyes



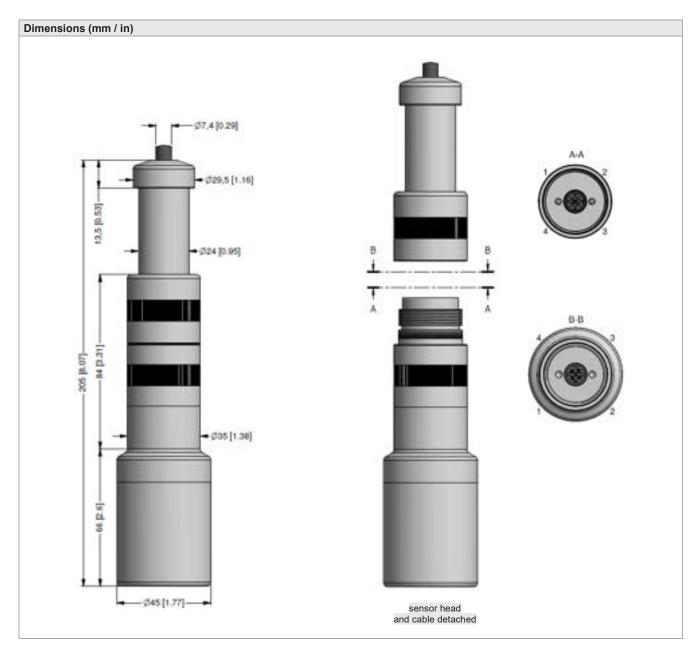






⁵ if detached

Input pressure range														
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH 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
Max. ambient pressure (ho				-	1 4	0	0	0	0	10	23		33	33
	Jusing). I	o bai												
Output signal / Supply														
2-wire		4 20) mA / V	s = 9	$32 V_{DC}$							others o	n reque	est
Performance														
Accuracy ¹		standa	ırd: ≤ ± (0.35 % I	FSO		0	ption: ≤	± 0.25 %	6 FSO				
Permissible load					0.02 A] Ω	2								
Influence effects			: 0.05 %					oad: 0.0	5 % FSC) / kΩ				
Long term stability		≤ ± 0.1	% FSC) / year	at refere	nce con	ditions							
Turn-on time		700 ms	sec											
Mean response time		< 200 ı	msec				n	neasurir	ig rate 5	/sec				
Max. response time		380 ms												
¹ accuracy according to IEC 6			ljustment	(non-line	earity, hys	steresis, r	epeatabi	lity)						
Thermal effects (offset a	nd span)													
Tolerance band		≤±1%												
In compensated range		-20	80°C											
Permissible temperature	S													
Permissible temperatures		mediur	m / elect	tronic / e	environn	nent / sto	orage: 0	60 °	С					
Electrical protection ²														
Short-circuit protection		permai	nent											
Reverse polarity protection	n	no dan	nage, bu	ut also r	no functi	on								
Electromagnetic compatib	ility	emissi	on and i	mmunit	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 _l	oressure	reference	availab	le on req	uest		
Overvoltage / lightning p	orotection	1												
Series resistance		9.4 Ω f	or each	positive	e and ne	gative w	rire							
Max. leakage current		9.4 Ω for each positive and negative wire 8 kA (8/20 µsec)												
Overload		4 kV (line-line and line-earth) according to EN 61000-4-5												
Max. rated current		30 mA												
Electrical connection		00 1117 (
Cable with sheath materia	J 3	PVC	/ 5	70 °C)	grov	071m	m							
Cable with Sheath materia	1	PVC (-5 70 °C) grey Ø 7.4 mm PUR (-25 70 °C) black Ø 7.4 mm FEP 4 (-25 70 °C) black Ø 7.4 mm												
Cable capacitance		signal	line/shie	eld also	signal	line/sign	al line:	160 pF/ı	n					
Cable inductance		signal	line/shie	eld also	signal	line/sign	al line:	1 μH/m						
Bending radius		static i	nstallatio	on: 10-f	old cable	e diamet	er, dyna	amic ap _l	olication	: 20-fold	d cable	diameter	r	
³ shielded cable with integrate ⁴ do not use freely suspended	probes witi						ng proce	sses are	expected	1				
Materials (media wetted)	1	DD UT												
Housing Seals		PP-HT												
		FKM, EPDM, others on request												
Diaphragm		standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 % PVC, PUR, FEP, others on request												
Cable sheath		PVC, F	OR, FE	P, otne	rs on re	quest								
Miscellaneous					55		~ ~ -							
Option cable protection (on request)		prepared for mounting with PP-HT pipe Ø 25 mm; available as compact product (standard: pipe with a total length up to 2 m possible)												
Current consumption		max. 25 mA												
Weight		approx. 400 g (without cable)												
Ingress protection		IP 68 EMC Directive: 2014/30/EU												
CE-conformity	£: (1		rective	: 2014/3	5U/EU									
Wiring diagram / pin con	ifiguration	n					1							
2-wire-system (current)			E	Electrical connection			M1:	2x1 (4-p	in) ⁵	cabl	e colour	s (IEC 6	60757)	
n / supply +	p / supply + A - o +		Supply +				3 WH (whit			1.11				
p supply +	\cup					Su	pply +		3			VVH (wnite)	
p supply +	\cup	Vs					pply +		4			,	wnite) prown)	



Accessories



	Ordering code LMK 858	
LMK 858		
Pressure		
in bar	4 1 5	
in mH ₂ O	4 1 6	
Input [mH ₂ O] [bar]		
0.4 0.04	0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
0.6 0.06 1.0 0.10	0 6 0 0 1 0 0 0	
1.6 0.16	1 6 0 0	
2.5 0.25		
4.0 0.40	2 5 0 0 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 4 0 0 1 6 0 0 1	
40 4.0	4 0 0 1	
60 6.0	6 0 0 1	
100 10 customer	1 0 0 2 9 9 9	consult
Housing	9 9 9 9	Consuit
PP-HT	R	
customer	9	consult
Diaphragm		
ceramics Al ₂ O ₃ 96 %	2	
ceramics Al ₂ O ₃ 99.9 %	C	
customer	9	consult
Output 4 20 mA / 2-wire	1	
4 20 mA / 2-wire customer	1 9	consult
Seal	9	Consult
FKM	1	
EPDM	3	
customer	9	consult
Electrical connection		
PVC-cable (grey, Ø 7.4 mm) ¹	1	
PUR-cable (black, Ø 7.4 mm) ¹	2	
FEP-cable (black, Ø 7.4 mm) ¹ customer	3 9	consult
Accuracy	9	Consuit
standard 0.35 % FSO	3	
option 0.25 % FSO	2	
customer	9	consult
Cable length		
in m		9 9 9
Special version		
standard prepared for pipe mounting 2		0 0 0 1 0 6
prepared for pipe mounting - customer		9 9 9 consult
Gustomer		3 3 3 Consuit

¹ shielded cable with integrated ventilation tube for atmospheric pressure reference

² pipe is not part of the supply





Applications

► level measurement in water and fuel oil tanks

Characteristics

- ▶ piezoresistive stainless steel sensor
- ► accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from 0 ... 1 mH₂O up to 0 ... 10 mH₂O



(100)



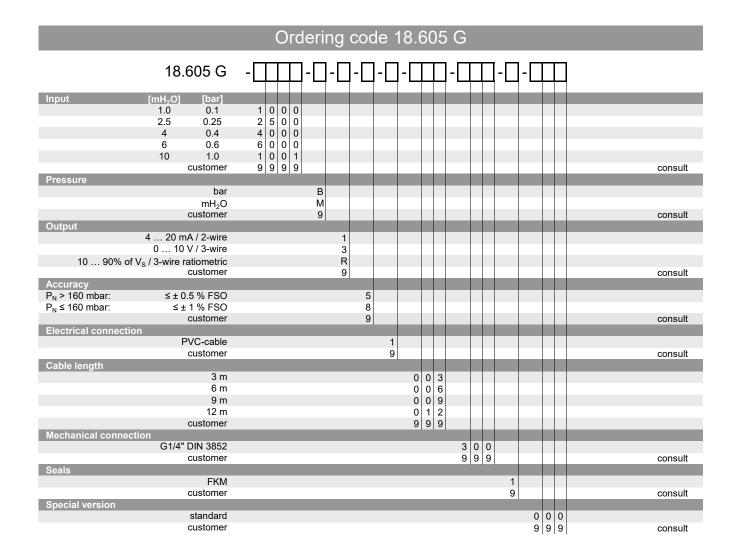


Input pressure range						
Nominal pressure gauge	[bar]	0.1	0.25	0.4	0.6	1
Level	[mH ₂ O]	1	2.5	4	6	10
Overpressure	[bar]	1	1	1	3	3
Burst pressure ≥	[bar]	1.5	1.5	1.5	5	5
Vacuum resistance		unlimited				

Output signal / Supply	
Standard	2-wire: 4 20 mA / V _S = 8 32 V _{DC}
Option 3-wire	3-wire: 0 10 V / V _S = 14 30 V _{DC}
Performance	3-wire ratiometric: $10 \dots 90 \%$ of V_S / $V_S = 2.7 \dots 5 V_{DC}$
Accuracy ¹	$p_N > 160 \text{ mbar}$: $\leq \pm 0.5 \% \text{ FSO}$ $p_N \leq 160 \text{ mbar}$: $\leq \pm 1 \% \text{ FSO}$
Permissible load	2-wire: $R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$
	3-wire: $R_{min} = 10 \text{ k}\Omega$
Influence effects	supply: 0.05 % FSO / 10 V
	load: 0.05% FSO / $k\Omega$
Response time	2-wire: ≤ 10 msec
	3-wire: ≤ 3 msec
Long term stability	≤ ± 0.2 % FSO / year at reference conditions
Measuring range	1 kHz
¹ accuracy according to IEC 60770 – lin	mit point adjustment (non-linearity, hysteresis, repeatability)
Thermal effects (offset and span	n) / Permissible temperatures
Thermal error	≤± 0.3 % FSO / 10 K in compensated range 0 70 °C
Permissible temperatures	medium / electronics / environment / storage: -10 70 °C
Electrical protection	
Short circuit protection	permanent 3-wire ratiometric: none
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

Mechanical stability								
Vibration	10 g, 25 Hz 2 kHz according to DIN EN 60068-2-6							
Shock	100 g / 1 msec according to DIN EN 60068-2-27							
Materials (media wetted)								
Housing	stainless steel 1.4301 (304)							
Seals	FKM							
Diaphragm	stainless steel 1.4435 (316 L)							
Cable sheath	PVC (oil resistant)							
Miscellaneous								
Weight	approx. 120 g (without cable) cable: 25 g / m							
Cable length	3 m, 6 m, 9 m or 12 m; others on request							
Suitable for following media	water, fuel oil							
Current consumption	2-wire: max. 25 mA 3-wire ratiometric: typ. 1.5 mA							
•	3-wire voltage: typ. 5 mA (short circuit current: max. 20 mA)							
Ingress protection	IP 68							
CE-conformity	EMC Directive: 2014/30/EU							
Wiring diagrams								
2-wire-system (current)	3-wire-system (voltage)							
supply –	Vs supply – U signal + V							
Pin configuration								
Electrical connections	cable colours (IEC 60757)							
Supply +	WH (white)							
Supply –	BN (brown)							
Signal + (only for 3-wire)								
Shield Dimensions (mm / in)	GNYE (green-yellow)							
	95 [0.2] 18 [0.2] 18 [0.24] 18 [0.24] 18 [0.24] 18 [0.24] 18 [0.24] 18 [0.24]							
	G1/4" DIN 3852 with PVC cable (with ventilation tube)							

Ordering code





LMP 331i

Precision Screw-in Transmitter

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 40 bar

Output signal

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

Product characteristics

thermal error in compensated range -20 ... 80 °C: 0.2 % FSO TC 0.02 % FSO / 10K

Optional versions

IS-versions Ex ia = intrinsically safe for gases and dusts

The precision screw-in transmitter LMP 331i demonstrate the further development of our industrial pressure transmitters.

The signal processing of sensor signal is done by digital electronics with 16-bit analogue digital converter. Consequently, it is possible to conduct an active compensation and the transmitters with excellent measurements and exceptionally attractive price to offer on the market.

Preferred areas of use are



Chemical / petrochemical industry



Environmental engineering (water / sewage / recycling)











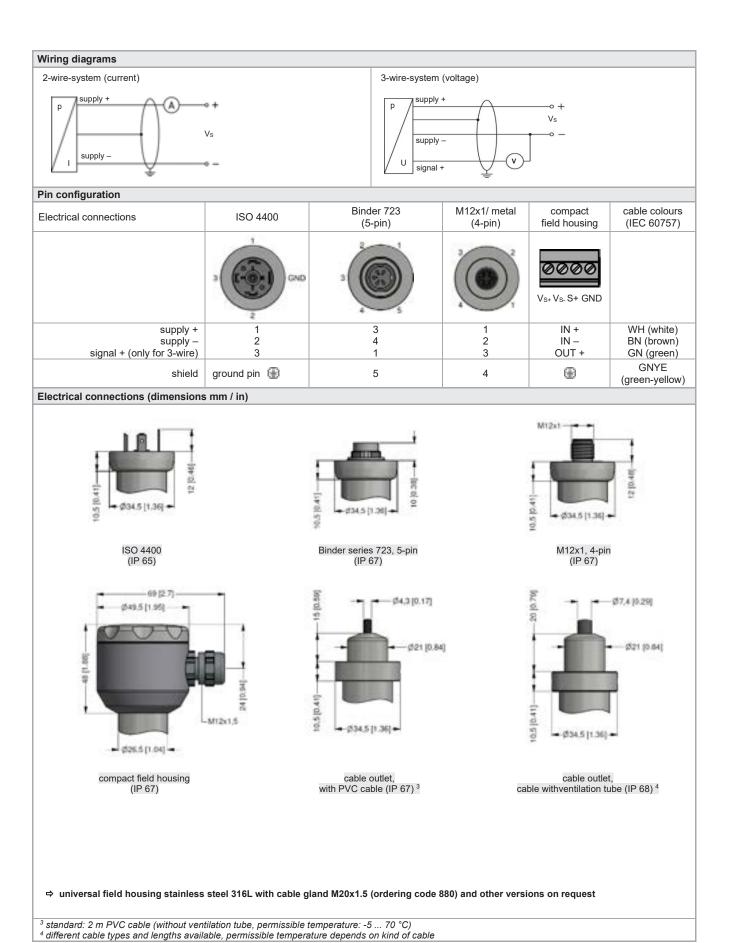




Pressure ranges								
Nominal pressure gauge	[bar]	0.4	1	2	4	10	20	40
Level gauge	[mH ₂ O]	4	10	20	40	100	200	400
Overpressure	[bar]	2	5	10	20	40	80	105
Burst pressure ≥	[bar]	3	7.5	15	25	50	120	210

Output signal / Supply								
Standard	2-wire: 4 20 mA / V _S = 12 36 V _{DC}							
Option IS-version	2-wire: 4 20 mA / V _S = 14 28 V _{DC}							
Options analogue signal	3-wire: 0 10 V / VS = 14 36 V _{DC}							
Performance	Thinks: Thin							
Accuracy ¹	≤±0.1 % FSO							
Permissible load	current 2-wire: $R_{max} = [(V_S - V_S min) / 0.02 A] \Omega$							
	voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$							
Influence effects	supply: 0.05 % FSO / 10 V bad: 0.05 % FSO / kΩ							
Long term stability	≤ ± 0.1 % FSO / year at reference conditions							
Response time	approx. 5 msec							
	t point adjustment (non-linearity, hysteresis, repeatability)							
Thermal effects (offset and span)								
Tolerance band [% FSO]	·							
TC, average [% FSO / 10 K]	· •							
Permissible temperatures	medium: -25 125 °C electronics / environment: -25 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 61326							
Materials	<u> </u>							
Pressure port	stainless steel 1.4404 (316 L)							
Housing	stainless steel 1.4404 (316 L)							
Option compact field housing	stainless steel 1.4301 (304) cable gland M12x1.5, brass, nickel plated (clamping range 2 8 mm)							
Seals	FKM others on request							
Diaphragm	stainless steel 1.4435 (316L)							
Media wetted parts	pressure port, seals, diaphragm							
Mechanical stability								
Vibration	10 g RMS (20 2000 Hz) according to DIN EN 60068-2-6							
Shock	100 g / 11 msec. according to DIN EN 60068-2-27							
Explosion protection (only for 4	. 20 mA / 2-wire)							
Approvals DX19-LMP 331i	IBEXU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da							
Safety technical max. values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$ the supply connections have an inner capacity of max. 27 nF to the housing							
Permissible temperatures for environment	in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 65 °C							
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 μH/m							
Miscellaneous								
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA							
Weight	approx. 200 g							
Installation position	any ²							
Operational life	100 million load cycles							
CE-conformity	EMC Directive: 2014/30/EU							
ATEX Directive	2014/34/EU							
² Pressure transmitters are calibrated in a deviations in the zero point for pressure	a vertical position with the pressure connection down. If this position is changed on installation there can be slight ranges $p_N \le 1$ bar.							

LMP 331i



Mechanical connection (dimensions mm / in) 46.5 [1.83] 46.5 [1.83] 46.5 [0.73] 46.5 [0.73] 46.5 [0.73] 46.5 [0.73] 46.5 [0.73] 46.5 [0.73] 46.5 [0.73] 46.5 [0.73]

G3/4" DIN 3852 with flush sensor

⇒ metric threads andother versions onrequest

		Orde	erir	ıg (COC	de L	_MI)	33	31i							
LMP 331i		<u> </u>		∏.	-]-[- [Ш	-[□-	- 🗌	-			
Pressure																	
	in bar	4 3 0		П							П	т					
	in mH₂O	4 3 1															
Input [mH ₂																	
4	0.4		0 0														
10	1.0	1	0 0														
20	2.0		0 0														
40 100	4.0 10	4	0 0														
200			0 0														
400			0 0														
100	customer		9 9														consult
Output																	99.184.1
	mA / 2-wire				1			П									
intrinsic safety 4 20) mA / 2-wire				Е												
0	10 V / 3-wire				3												
	customer				9												consult
Accuracy (at nominal press																	
	0.1 % FSO					1											
	customer					9											consult
Electrical connection	100 4400																
male and female pl								0									
male plug Binder serie								0									
male plug M12x1 (4								1									
cable outlet with PVC	cable (IP67)							Α									
cable with ventilation							Т	R	0								
	field housing																
stainless steel							8	5	0								
Stanness steel	customer						9	9	9								consult
Mechanical connection									Ü								55.10dit
	/4" DIN 3852									17		0					
with	flush sensor									K	0	U					
	customer									9	9	9					consult
Seal																	
	FKM												1				
	customer												9				consult
Special version																	
	standard														1		
	customer													9	9	9	consult

 $^{^{1}}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request 2 code TR0 = PVC cable, cable with ventilation tube available in different types and lengths



LMP 331

Screw-In Transmitter

Stainless Steel Sensor

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

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

The screw-in transmitter LMP 331 has been designed for continuous level measurement and is characterized by an excellent performance robust construction. The а 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



Plant and machine engineering



Energy industry



Environmental engineering (water - sewage - recycling)











Nominal pressure gauge	[bar]	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	10	16	25	40
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	0.5	1	1	2	5	5	10	10	20	40	40	80	80	105
Burst pressure ≥	[bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120	210
Vacuum resistance		p _N ≥ 1	bar: un	limited	vacuun	n resista	ance			p _N < 1	bar: on	request	<u> </u>		
Output signal / Supply															
Standard		2-wire:	1	20 m	Δ / \/	'a = 8	32 \/			SII -Ve	rsion: \	/ _S = 14	28 \/.		
Option IS-version		2-wire:		20 m								_s = 14 _s = 14			
Options 3-wire		3-wire:		20 m								s = 14			
Performance		O-WIIC.		20 111	, v	S - 1 -1	50 V	DC		0 10	· V / V	<u>s – 14</u>	. 50 VD	C	
Accuracy1		standa	rd· n	ominal	nressiii	~ < 0 A	har:	< + (0.5 % F	SO					
, toouraby r		option	n 1: n	ominal ominal or all no	pressui pressui	re ≥ 0.4 re ≥ 0.4	bar: bar:	≤ ± (≤ ± (0.35 % 0.25 % 0.1 % F	FSO FSO					
Permissible load			t 2-wire			- V _{S mi}			J. 1 /0 I	30					
T emissible load		curren	t 3-wire e 3-wire	: R _{ma}	_{ax} = [(v s _{ax} = 240 _n = 10 k	Ω	n) / U.U.	2 A] 32							
Influence effects		supply	: 0.05	% FSO						load: (0.05 %	FSO / k	Ω		
Long term stability		≤ ± 0.1	% FS0) / year	at refe	rence c	onditio	าร							
Response time ²			≤ 10 m							3-wire	: ≤ 3 m	sec			
¹ accuracy according to IEC 6 ² with optional accuracy 0,1 %						hysteres	is, repea	atability)							
Thermal effects (offset a			unie is	200 IIISE	U										
Nominal pressure p _N	[bar]				≤ 0.40							> 0.40			
<u> </u>	[% FSO]				≤ ± 1							± 0.75			
in compensated range	[°C]) 70							20 85			
Permissible temperature								<u> </u>							
Permissible temperatures		mediu	m· -40	125 °	C	electro	nice / e	nvironm	nent: -4	n 85	5 °C	etor	aue4	0 100) °C
Electrical protection		media	111. 40	120		CICCLIC	11100 / 0	TIVITOTIII	TOTIC. ¬	0 00	, 0	31011	ugo. ¬	0 100	,
Short-circuit protection		perma	nent												
Reverse polarity protection	n			ut also	no fund	ction									
Electromagnetic compatib		no dan	nago, z			,									
	ollitv	emissi	on and	immun	itv acco	rdina ta	FN 61	326							
	ollity	emissi	on and	immun	ity acco	ording to	EN 61	326							
Mechanical stability	ollity					ording to	EN 61	326		accord	ling to	DIN FN	60068-	-2-6	
Mechanical stability Vibration	ollity	10 g R	MS (25	200		ording to	EN 61	326				DIN EN			
Mechanical stability Vibration Shock		10 g R 500 g	MS (25 / 1 mse	200		ording to	EN 61	326				DIN EN			
Mechanical stability Vibration Shock Explosion protection (or Approvals		10 g R 500 g 20 m IBExU	MS (25 / 1 mse A / 2-w i J 10 AT D: II	i 200 ire) EX 106 1G Ex	0 Hz) 8 X / ia IIC T	IECEx 4 Ga	IBE 12	326 2.0027X							
Mechanical stability Vibration Shock Explosion protection (or Approvals	nly for 4 .	10 g R 500 g 20 m IBExU zone 2 zone 2 U _i = 2	MS (25 / 1 mse A / 2-w J 10 AT D: II 20: II 8 V, I _i =	ire) EX 106 1G Ex 1G Ex 1D Ex	0 Hz) 8 X / ia IIC T ia IIIC T	IECEx 4 Ga Γ135 °C	: IBE 12 : Da , C _i ≈ 0i	2.0027X nF, L _i ≈	0 μΗ,	accord	ding to		60068-		
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature fidium	nly for 4 .	10 g R 500 g 20 m IBEXU zone 2 zone 2 the su in zon in zon	MS (25/1 mse A / 2-wi J 10 AT D: II 20: II 8 V, I _i = ppply co e 0: e 1 or h	i 200 ire) EX 106 1G Ex 1D Ex 93 mAnnection	8 X / ia IIC T ia IIIC T in, P _i = 6 ons hav -20 6 -40/-20	IECEx 74 Ga 7135 °C 60 mW e an inr 60 °C w 70 °	Da Colar Colar Co	2.0027X nF, L _i ≈ acity of 0.8 bar	0 μH, max. 2 up to 1	accord 7 nF op .1 bar	ding to	DIN EN	60068-		
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory)	nly for 4 .	10 g R 500 g 20 m/ IBExL zone 2 zone 2 the su in zon in zon cable	MS (25/1 mse A / 2-wi J 10 AT D: II 20: II 8 V, I _i = ppply co e 0: e 1 or h	i 200 ire) EX 106 1G Ex 1D Ex 93 mA onnectionigher:	8 X / ia IIC T ia IIIC T ia IIIC T ia IIIC T ia Hav -20 6-40/-20 signal I	IECEx '4 Ga Γ135 °C 60 mW e an inr 60 °C w 70 ° ine/shie	Da Ci ≈ 0i Patricapi Cith patric Celd also	2.0027X nF, L _i ≈ acity of	0 μH, max. 2 up to 1 ine / siç	accord 7 nF op .1 bar	posite t	the hous	60068-		
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials	nly for 4 .	10 g R 500 g 20 m. IBEXL zone (zone : U _i = 2 the su in zon in zon cable	MS (25/1 mse A / 2-w J 10 AT D: II 20: II 8 V, I _i = ppply co e 0: e 1 or h capacit inducta	ire) EX 106 1G Ex 1D Ex 93 mA nnnection	8 X / ia IIC T ia IIIC T i	IECEx 4 Ga F135°C 60 mW e an inr 60°C w 70° ine/shie	Da Ci ≈ 0i Patricapi Cith patric Celd also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I	0 μH, max. 2 up to 1 ine / siç	accord 7 nF op .1 bar	posite t	the hous	60068-		
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port	nly for 4 .	10 g R 500 g 20 m IBEXL zone 2 the su in zon in zon cable cable	MS (25/1 mse A / 2-wi J 10 AT D: II 20: III 8 V, I _i = spply co e 0: e 1 or I capacit inducta	i 200 ire) EX 106 EX 1G EX 1D EX 93 mA onnection higher: rance:	8 X / ia IIC T ia IIIC T i	IECEx '4 Ga F135°C 60 mW e an inr 60°C w 70° ine/shie ine /shi	Da Ci ≈ 0i Patricapi Cith patric Celd also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I	0 μH, max. 2 up to 1 ine / siç	accord 7 nF op .1 bar	posite t	the hous	60068-		
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone : U _i = 2 the su in zon in zon cable cable stainle	MS (25/1 mse A / 2-wi J 10 AT D: II 20: III 8 V, I _i = apply co e 0: e 1 or I capacit inducta	ince:	8 X / ia IIC T ia IIIC T i	IECEx '4 Ga F135°C 60 mW e an inr 60°C w 70° ine/shie ine /shi	BE 12 C Da , C _i ≈ 0i ner capi ith p _{atm} C eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF op 1 bar gnal line	posite t : 160 e: 1 μl	he hous	60068- ing	2-27	
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing Option compact field house	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone : U _i = 2 the su in zon in zon cable cable stainle stainle	MS (25 / 1 mse A / 2-wi J 10 AT D: II 20: III 8 V, I _i = apply co e 0: e 1 or h capacit inducta ss stee ss stee ss stee	ince: ire) EX 106 EX 106 EX 10 EX	8 X / ia IIC T ia IIIC T i	IECEx '4 Ga F135°C 60 mW e an inr 60°C w 70° ine/shie ine /shi	BE 12 C Da , C _i ≈ 0i ner capi ith p _{atm} C eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF op 1 bar gnal line	posite t : 160 e: 1 μl	the hous	60068- ing	2-27	3 mm
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone 2 the su in zon in zon cable cable stainle stainle standa	MS (25 / 1 mse A / 2-wi J 10 AT D: II 20: III 8 V, I _i = ipply co e 0: e 1 or i capacit inducta ss stee ss stee ss stee ard: FK	ince: ire) EX 106 1G EX 1D EX 1D EX 10 EX 11 EX 13 EX 14 EX 15 EX 16 EX 17 EX 17 EX 18	8 X / ia IIC T ia IIIC T i	IECEx '4 Ga F135°C 60 mW e an inr 60°C w 70° ine/shie ine /shi	BE 12 C Da , C _i ≈ 0i ner capi ith p _{atm} C eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF opp. 1 bar gnal line gnal line	posite t	he hous pF/m H/m	60068- ing	2-27	3 mm)
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing Option compact field hous Seals	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone 0 zone 0 in zon in zon cable cable stainle stainle standa option	MS (25 / 1 mse A / 2-wi J 10 AT J 10 AT J 10 AT September 10: B V, I;	i 200 ire) EX 106 1G Ex 1D Ex 93 mA innection inigher: ince: ince: ince: ince: ince: ince: ince:	8 X / ia IIC T ia IIIC T i	IECEx '4 Ga F135°C 60 mW e an inr 60°C w 70° ine/shie ine /shi)	BE 12 C Da , C _i ≈ 0i ner capi ith p _{atm} C eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF opp. 1 bar gnal line gnal line	posite t : 160 e: 1 μl	he hous pF/m H/m	60068- ing	2-27	3 mm)
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing Option compact field hous Seals Diaphragm	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone (zo	MS (25 / 1 mse A / 2-wi J 10 AT D: II 20: II 8 V, I _i = ppply co e 0: e 1 or I capacit inducta ss stee ss stee ss stee drd: FK EP ss stee	ince: ire) EX 106 1G EX 1D EX 1D EX 10 EX 11 EX 13 EX 14 EX 15 EX 16 EX 17 EX 17 EX 18	8 X / ia IIC T ia IIIC T i	IECEx '4 Ga F135°C 60 mW e an inr 60°C w 70° ine/shie ine /shi)) cable	BE 12 C Da , C _i ≈ 0i ner capi ith p _{atm} C eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF opp. 1 bar gnal line gnal line	posite t	he hous pF/m H/m	60068- ing	2-27	3 mm)
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing Option compact field house	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone (zo	MS (25 / 1 mse A / 2-wi J 10 AT D: II 20: II 8 V, I _i = ppply co e 0: e 1 or I capacit inducta ss stee ss stee ss stee drd: FK EP ss stee	ince: ire) EX 106 IG EX 10 EX 10 EX 10 EX 10 EX 11 EX 12 EX 13 EX 14 EX 15 EX 16 EX 17 EX 17 EX 18	8 X / ia IIC T ia IIIC T i	IECEx '4 Ga F135°C 60 mW e an inr 60°C w 70° ine/shie ine /shi)) cable	BE 12 C Da , C _i ≈ 0i ner capi ith p _{atm} C eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF opp. 1 bar gnal line gnal line	posite t	he hous pF/m H/m	60068- ing	2-27	3 mm)
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing Option compact field hous Seals Diaphragm Media wetted parts	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone : U _i = 2 the su in zon in zon cable cable stainle stainle stainle stainle stainle pressu	MS (25 / 1 mse A / 2-wi J 10 AT D: II 8 V, I _i = ipply co e 0: e 1 or icapacit inducta ss stee ss stee ss stee rd: FK EP ss stee ire port	ince: ire) EX 106 IG EX 10 EX 10 EX 10 EX 10 EX 11 EX 12 EX 13 EX 14 EX 15 EX 16 EX 17 EX 17 EX 18	8 X / ia IIC T ia IIIC T i	IECEx 4 Ga F135 °C 60 mW e an inr 60 °C w 70 ° ine/shie ine /shi)) cable	BE 12 C Da C i ≈ 0i her capi ith p _{atm} C eld also eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF opp. 1 bar gnal line gnal line	posite t	he hous pF/m H/m	60068- ing	2-27	3 mm
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing Option compact field hous Seals Diaphragm Media wetted parts Miscellaneous Optionally SIL 2 version 3	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone : U _i = 2 the su in zon in zon cable cable stainle stainle stainle stainle pressu accord	MS (25 / 1 mse A / 2-wi J 10 AT D: II 20: III 8 V, I _i = apply co e 0: e 1 or h capacit inducta ss stee ss stee ss stee rd: FK EP ss stee ure port	ince: Ince:	8 X / ia IIC T ia IIIC T i	IECEx 4 Ga F135 °C 60 mW e an inr 60 °C w 70 ° ine/shie ine /shi)) cable	BE 12 C Da C i ≈ 0i her capi ith p _{atm} C eld also eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF opp 1 bar gnal line gnal line , nickel	posite t 160 e: 160 plated s on rec	he hous pF/m H/m	ing	2-27	3 mm
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing Option compact field hous Seals Diaphragm Media wetted parts Miscellaneous Optionally SIL 2 version 3 Current consumption	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone : U _i = 2 the su in zon in zon cable cable stainle stainle stainle stainle pressu accord signal	MS (25 / 1 mse A / 2-wi J 10 AT D: III 20: III 8 V, I _i = apply co e 0: e 1 or h capacit inducta ss stee ss stee ss stee rd: FK EP ss stee ire port	ince:	8 X / ia IIC T ia IIIC T i	IECEx 4 Ga F135 °C 60 mW e an inr 60 °C w 70 ° ine/shie ine /shi)) cable	BE 12 C Da C i ≈ 0i her capi ith p _{atm} C eld also eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF opp 1 bar gnal line gnal line , nickel	posite t 160 e: 160 plated s on rec	he hous pF/m -l/m (clampir	ing	2-27	3 mm
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing Option compact field hous Seals Diaphragm Media wetted parts Miscellaneous	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone : U _i = 2 the su in zon in zon cable cable stainle stainle stainle stainle pressu accord signal	MS (25 / 1 mse A / 2-wi J 10 AT D: II 20: III 8 V, I _i = apply co e 0: e 1 or h capacit inducta ss stee ss stee ss stee rd: FK EP ss stee ure port	ince:	8 X / ia IIC T ia IIIC T i	IECEx 4 Ga F135 °C 60 mW e an inr 60 °C w 70 ° ine/shie ine /shi)) cable	BE 12 C Da C i ≈ 0i her capi ith p _{atm} C eld also eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF opp 1 bar gnal line gnal line , nickel	posite t 160 e: 160 plated s on rec	he hous pF/m -l/m (clampir	ing	2-27	3 mm
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing Option compact field hous Seals Diaphragm Media wetted parts Miscellaneous Optionally SIL 2 version 3 Current consumption	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone (2) the su in zon in zon cable cable stainle stainle stainle stainle pressu accord signal approx any 4	MS (25 / 1 mse A / 2-wi J 10 AT D: II 20: II 8 V, I _i = apply co e 0: e 1 or h capacit inducta ss stee ss stee ss stee rd: FK EP ss stee ire port diing to I output x. 200 g	ince:	8 X / ia IIC T ia IIIC T i	IECEx 4 Ga F135 °C 60 mW e an inr 60 °C w 70 ° ine/shie ine /shi)) cable	BE 12 C Da C i ≈ 0i her capi ith p _{atm} C eld also eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF opp 1 bar gnal line gnal line , nickel	posite t 160 e: 160 plated s on rec	he hous pF/m -l/m (clampir	ing	2-27	3 mm
Mechanical stability Vibration Shock Explosion protection (or Approvals DX19-LMP 331 Safety technical maximum Permissible temperature f dium Connecting cables (by factory) Materials Pressure port Housing Option compact field hous Seals Diaphragm Media wetted parts Miscellaneous Optionally SIL 2 version 3 Current consumption Weight Installation position	nly for 4 . n values for me-	10 g R 500 g 20 m IBEXL zone (2) the su in zon in zon cable cable stainle stainle stainle stainle pressu accord signal approx any 4 100 m	MS (25 / 1 mse A / 2-wi J 10 AT D: II 20: II 8 V, I _i = apply co e 0: e 1 or h capacit inducta ss stee ss stee ss stee rd: FK EP ss stee ire port ling to I output (. 200 g	ince:	8 X / ia IIC T ia IIIC T i	IECEx 4 Ga F135 °C 60 mW e an inr 60 °C w 70 ° ine/shie ine /shi)) cable	BE 12 C Da C i ≈ 0i her capi ith p _{atm} C eld also eld also	2.0027X nF, L _i ≈ acity of 0.8 bar signal I o signal	0 μH, max. 2' up to 1 ine / sig line / si	7 nF opp 1 bar gnal line gnal line , nickel	posite t 160 e: 160 plated s on rec	he hous pF/m -l/m (clampir	ing	2-27	3 mm

³ only for 4...20mA / 2-wire; not in combination with the accuracy 0.1%
⁴ Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviation in the zero point for pressure ranges p_N ≤ 1 bar.

Pin configuration					
Electrical connections	ISO 4400	Binder 723	M12x1 / metal	compact	cable colours
Supply +	1	(5-pin) 3	(4-pin) 1	field housing IN +	(IEC 60757) WH (white)
Supply –	2	4	2	IN –	BN (brown)
Signal + (only for 3-wire)	3	1	3	OUT +	GN (green) GNYE
Shield	ground pin	5	4	⊕	(green-yellow)
Wiring diagrams		1			
2-wire-system (current) p supply + Vs Electrical connections (dimensio	ns in mm)	3-wire-	system (current / voltag	e) + Vs - AAV	
standard option			2 2 2		0 40.5 W15
ISO 4400 Binder series 7 (IP 65) (IP 67)	(IP)	67) PVC (IP 6	cable ventilati 67) ⁵ (IP 6	c, cable with compa on tube 68) ⁶	ct field housing (IP 67)
⁶ different cable types and lengths avail. Mechanical connection (dimension) standard		erature depends on kind	SIL- and SIL	-Ex-version	
2 2	# g504,5 # g508,5 # g540		19 19 19 19 19 19 19 19 19 19 19 19 19 1	#34.5 #326.5	
G3/4" flush (D with ISO	IN 3852) 4400		G3/4" flush	n (DIN 3852) SO 4400	

	Ordering code LMP 331	
LMP 331	ш-ш]-[
Pressure		
in ba in mH ₂ C	4 3 0 4 3 1	
Input [mH ₂ O] [bar]	4 3 1	
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 10 1.0	6 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 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 10 160 16	1 0 0 2	
160 16 250 25	2 5 0 2	
400 40	4 0 0 2	
customer	1 6 0 2 2 5 0 2 4 0 0 2 9 9 9 9	consult
Pressure port		
stainless steel 1.4404 (316L	1	
Diaphragm custome	9	consult
stainless steel 1.4435 (316L	1	
custome	9	consult
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	S E	
SIL2 4 20 mA / 2-wire	15	
SIL2 with intrinsic safety	ES	
4 20 mA / 2-wire		
Seal	9	consult
FKN	1	
EPDN	3	
custome	9	consult
Electrical connection		
male and female plug ISO 4400 male plug Binder series 723 (5-pin	1 0 0 2 0 0	
cable outlet with PVC cable (IP67		
cable outlet	T D 0	
cable with ventilation tube (IP68	2 T R 0	
male plug M12x1 (4-pin) / meta	M 1 0	
compact field housing stainless steel 1.4301 (304	8 5 0	
stainless steel 1.4301 (304 custome	9 9 9	consult
Accuracy	3 3 3	Consult
standard for $p_N \ge 0.4$ bar: 0.35 % FSC	3	3
standard for p _N < 0.4 bar: 0.50 % FSC	5	5
option 1 for $p_N \ge 0.4$ bar: 0.25 % FSC option 2: 0.10 % FSC	3	
option 2: 0.10 % FSC custome	3 9	
Special version		
standard		0 0 0 9 9 9 consult
custome		9 9 9 consult

 $^{^1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 \dots 70 °C), others on request

² code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

³ not in combination with SIL



LMK 331

Screw-In Transmitter

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

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 impurity 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

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



Plant and machine engineering



Energy industry



Environmental engineering (water - sewage - recycling)



Medical technology











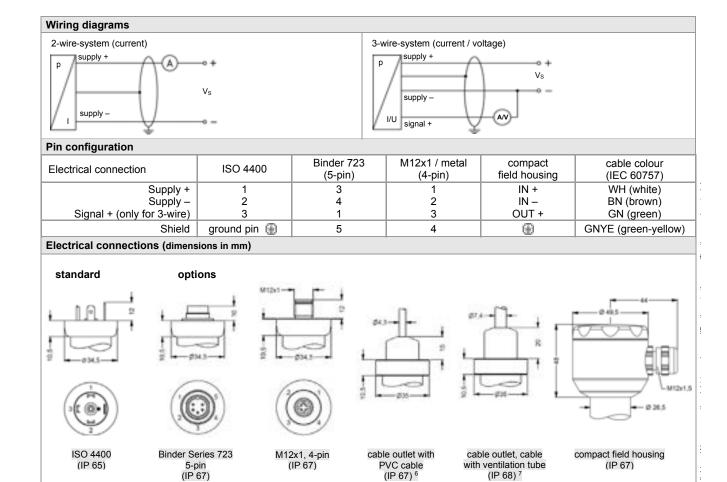






Input pressure range													
Nominal pressure gauge	[bar]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40 ¹	60 ¹
Level	[mH ₂ O]	4	6	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	1	2	2	4	4	10	20	20	40	40	100	200
Burst pressure	[bar]	2	4	4	5	7,5	12	25	30	50	50	120	250
Vacuum resistance	[bar]	p _N ≥ 1	bar: unlir	nited vac	cuum res	istance							
		$p_{N} < 1$	bar: on r	equest									
¹ only possible with stainless steel pressure port													

Output signal / Supply				
Output signal / Supply		0.001	011	
Standard	2-wire: 4 20 mA / V _S =			/ _S = 14 28 V _{DC}
Option IS-version ²	2-wire: 4 20 mA / V _s :		SIL-version: V	/ _S = 14 28 V _{DC}
Options 3-wire	3-wire: 0 20 mA / V _S = 0 10 V / V _S =			
² IS-version not possible with plastic pre	essure port			
Performance	·			
Accuracy ³	≤ ± 0.5 % FSO			
Permissible load		$V_{\rm S} - V_{\rm S min}$ / 0.02 A] Ω		
T chinosible load	current 3-wire: $R_{max} = 500$			
	voltage 3-wire: $R_{min} = 10$			
Influence effects	supply: 0.05 % FSO / 10 V			
illidende enede	load: 0.05% FSO / $k\Omega$			
Response time	2-wire: ≤ 10 msec			
response time	3-wire: ≤ 3 msec			
Long term stability	≤ ± 0,3 % FSO / year at refe	erence conditions		
³ accuracy according to IEC 60770 – lin	·		<u> </u>	
Thermal effects (Offset and Spa				
Thermal error	≤ ± 0.2 % FSO / 10 K			
in compensated range Permissible temperatures ⁴	0 85 °C medium: -40 125 °C	electronics / enviror	amont: 40	05 °C storage: 40 400 °C
•		electronics / enviror	iment: -40 8	85 °C storage: -40 100 °C
4 for pressure port in PVDF the medium	i temperature is -30 60 °C			
Electrical protection				
Short-circuit protection	permanent			
Reverse polarity protection	no damage, but also no fund			
Electromagnetic compatibility	emission and immunity acco	rding to EN 61326		
Mechanical stability				
Vibration	10 g RMS (25 2000 Hz)	according to DIN EN	60068-2-6	
Shock	500 g / 1 msec	according to DIN EN	60068-2-27	
Materials	g			
Pressure port / housing		pressure port		housing
ressure port / riousing	standard:	stainless steel 1.440	4 (2161)	stainless steel 1.4404 (316L)
	options for p _N ≤ 25 bar:	PVDF	4 (3 IOL)	PVDF
Ontion compact field bousing			hrana niaka	I plated (clamping range 2 8 mm)
Option compact field housing Seals	standard: FKM	cable gland M12X1.	o, brass, flicke	i plateu (clamping range 2 6 mm)
Seals	options: EPDM			others on request
Diaphragm	ceramics Al ₂ O ₃ 96 %			
Media wetted parts	pressure port, seals, diaphra	agm		
Explosion protection (only for 4	20 mA / 2-wire)			
Approval DX19-LMK 331 only for	IBExU 10 ATEX 1068 X /	IECEx IBE 12.0027X		
stainless steel pressure port	zone 0: II 1G Ex ia IIC T4			
	zone 20: II 1D Ex ia IIIC T1			
Safety technical maximum values			0 μΗ,	
	the supply connections have			the housing
Permissible temperatures for		60 °C with p _{atm} 0.8 bar		
environment	in Zone 1 or higher: -40/-20	70 °C		
Connecting cables	cable capacitance: signal I	ine/shield also signal	line / signal lin	e: 160 pF/m
(by factory)	cable inductance: signal I	ine /shield also signal	line / signal lin	ne: 1 μH/m
Miscellaneous				
Option SIL 2 version 5	according to IEC 61508 / IEC	C 61511		
Current consumption	signal output current: max. 2	25 mA		signal output voltage: max. 7 mA
Weight	approx. 150 g			<u> </u>
Installation position	any			
Operational life	100 million load cycles			
CE-conformity	EMC Directive: 2014/30/EU			
ATEX Directive	2014/34/EU			
⁵ only for 420mA / 2-wire	1			
5, 101 12011#17 E WIII 0				



⇒ universal field housing stainless steel 1.4404 with cable gland M20x1.5 (ordering code 880) and other versions on request

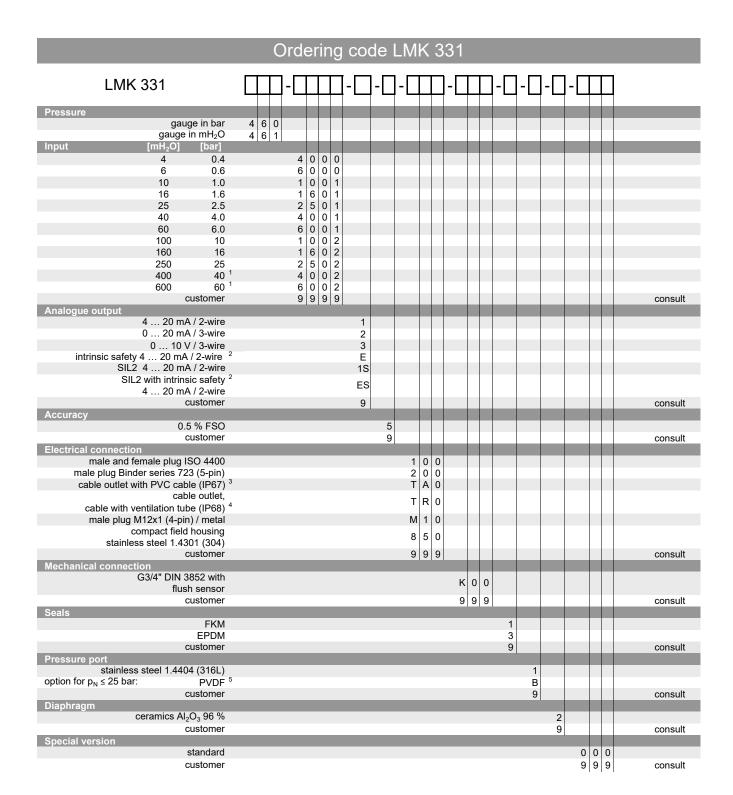
Mechanical connection (dimensions in mm)

standard for SIL- and SIL-Ex-version standard @34.5 Ø26.5 @34.5 \$ 9 G 3/4" -G3/4" G3/4" flush (DIN 3852) with ISO 4400 G3/4" flush (DIN 3852) with ISO 4400

(IP 67) 6

(IP 68) 7

 $^{^6}$ standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 ... 70°C) 7 different cable types and length available, permissible temperature depends on kind of cable



¹ only possible for pressure port of stainless steel

² intrinsic safety not possible with plastic pressure port

 $^{^3}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request

⁴ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

 $^{^{\}rm 5}$ permissible medium temperature: -30 ... 60 °C



LMK 351

Screw-in Transmitter

Ceramic Sensor

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

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 1/2" for pasty and polluted media

Optional versions

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

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 Al₂O₃ 99.9 % is available. An intrinsically safe version completes 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





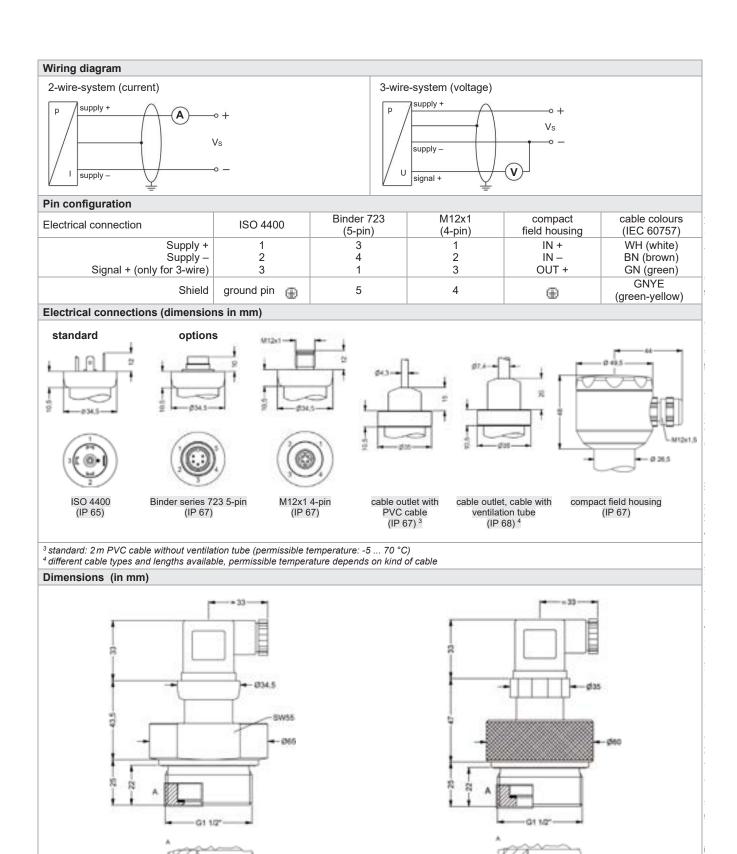




ATEX Directive

2014/34/EU

Pressure ranges																
	[har]	0.04	0.00	0.4	0.40	0.05	0.4	0.0	4	4.0	2.5	1		10	16	20
Nominal pressure Level	[bar] [mH₂O]	0.04	0.06	0.1	0.16	0.25 2.5	0.4	0.6 6	10	1.6	2.5	40	60	100	16 160	20
				1	1.6	_		_	_						45	200
Overpressure Permissible vacuum	[bar]	2	.2	4) 4).3	6	6	8	8	15	25	25	35 -1	35	45	45
Permissible vacuum	[bar]	-0	.∠	-(J.3		-(1.5					-1			
Output signal / Supply																
Standard		2-wire	e: 4	20	mA / '	V _s = 9	32	V _{DC}								
Option IS-version		2-wire				V _s = 14										
Option 3-wire		3-wire				V _S = 12										
Performance																
Accuracy 1		stand	ard: <	+ 0.35	5 % FS	0			or	otion fo	r p _N ≥ (0.6 bar	: < + 0	.25 % F	SO	
Permissible load						s — Vs m	nin) / 0.0	2 A1 Ω			3-wire:					
Influence effects					O / 10						05 % F					
Long term stability						eferenc	e cond	itions								
Turn-on time		700 n														
Mean measuring time		5/sec														
Response time		mean	respor	nse tim	ne: < 20	00 msed			m	nax. res	sponse	time: 3	380 ms	ec		
¹ accuracy according to IEC	60770 - limi							peatabili								
Thermal effects (offset			,	. ,	- 3()	, , , 5.01			,,							
Tolerance band			% FSC)												
In compensated range		_	. 80 °C													
Permissible temperatu	res															
Permissible temperature	s ²	mediu	ım:			-40	125 °	С								
•		electr	onics /	enviro	nment:	-40 .	85 °C)								
		storaç				-40 .	100 °	С								
² for pressure port in PVDF	the medium	tempera	ture is -	-30 6	60 °C											
Electrical protection																
Short-circuit protection		perma	anent													
Reverse polarity protect	on	no da	mage,	but als	so no fu	ınction										
Electromagnetic compat	ibility	emiss	ion an	d immı	unity ac	cording	g to EN	61326	6							
Mechanical stability																
Vibration		10 g l	RMS (2	20 20	000 Hz)			a	ccordir	ng to DI	N EN 6	30068-	2-6		
Shock		100 g	/ 1 ms	ec					a	ccordir	ng to DI	N EN 6	30068-	2-27		
Materials (media wette	d)															
Pressure port		stand	ard: s	tainles	s steel	1.4404	1 (316L)	O	ption:	PVDF					
Housing						1.4404				ption:						
Option compact field hou	ısing	stainle	ess ste	el 1.43	301 (30	4); cab	ole glar	d M12	x1.5, b	rass, n	ickel pl	ated (c	lampin	g range	e 2 8	3 mm)
Seals		FKM FFKM	1 -	40 1 15 1	125 °C											
Diambras		EPDN		40 1		00.0/				4!		.: Al	0 00 (2.0/		
Diaphragm Media wetted parts					cs Al ₂ O				0	puons:	ceram	IICS Al ₂	U₃ 99.§	<i>y</i> %		
Media wetted parts	anly far f	<u> </u>	<u> </u>		ls, diap	ıııaym										
Explosion protection (d		_			0 V											
Approval DX14-LMK 35 ²	ı	stainle	J05ATI ess ste cone 0: cone 20	el-pres	ssure p	ort with Ex ia II Ex ia II	IC T4 (S a		tlet:						
		, z	one 0/ one 20	1:)/21:	II 1/2 II 1/2	connec G Ex ia D Ex ia	IIC T4	Ga/Gl	o Da/Db							
Safety technical maximu				= 93 m		660 m\						nF				
Max. permissible temper for environment	ature		1 and h		-25	. 60 °C . 70 °C										
Connecting cables (by factory)		1	capac induct	-		Il line / s Il line / s										
Miscellaneous																
Current consumption		signa signa	l outpu l outpu	t curre t volta	nt: ge:	max.	21 mA 5 mA									
Weight		appro	x. 200	g												
Installation position		any														
		any 100 n	nillion le	oad cy	cles 14/30/E											



material stainless steel

PVDF

approx. 3

approx. 6

G1 1/2" flush (DIN 3852)

PVDF 5

G1 1/2" flush (DIN 3852)

stainless steel

⁵ not possible in combination with compact field housing

	Ordering code LMK 351											
LMK 351]-[[
Pressure												
in bar in mH ₂ O	4 7 0 4 7 1											
Input [mH ₂ O] [bar]												
0.4 0.04 0.6 0.06	0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0											
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 0.40	4 0 0 0											
6.0 0.60	6 0 0 0											
10 1.0 16 1.6	1 0 0 1 1 1 6 0 1											
25 2.5	2 5 0 1											
40 4.0	4 0 0 1											
60 6.0 100 10	6 0 0 1 1 1 0 0 2											
160 16	1 6 0 2											
200 20 customer	2 0 0 2 9 9 9 9	consult										
Output	9 9 9 9	Consuit										
4 20 mA / 2-wire	1											
0 10 V / 3-wire intrinsic safety 4 20 mA / 2-wire	3 E											
customer	9	consult										
Accuracy												
standard: $0.35 \% FSO$ option for $p_N \ge 0.6$ bar: $0.25 \% FSO$	3 2											
customer	2 9	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 (IP67) 1	T A 0											
cable outlet, cable with ventilation tube (IP68) ²	T R 0											
male plug M12x1 (4-pin) / metal	M 1 0											
compact field housing stainless steel 1.4301 (304)	8 5 0											
customer	9 9 9	consult										
Mechanical connection G1 1/2" DIN 3852 with												
flush sensor	M 0 0											
customer	9 9 9	consult										
Seals FKM	1											
EPDM												
FFKM customer	3 7 9											
Pressure port	9	consult										
stainless steel 1.4404 (316L)	1											
PVDF ³ customer	B 9	consult										
Diaphragm	9	Consult										
ceramics Al ₂ O ₃ 96 % ceramics Al ₂ O ₃ 99.9 %	2											
ceramics Ai ₂ O ₃ 99.9 % customer	C 9											
Special version												
standard		0 0 0 9 9 9 consult										
customer		9 9 9 consult										

 $^{^1}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request 2 code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

 $^{^3}$ not possible in combination with compact field housing; permissible medium temperature: -30 \dots 60 $^{\circ}$ C



EP 500

Pressure Transmitter

Special Application: Level Measurement via Air Bubbling

Characteristics:

- capacitive ceramic sensor
- nominal pressure ranges from 0 ... 60 mbar up to 0 ... 20 bar
- ▶ output signal
- hat rail housing
- programming via integrated interface











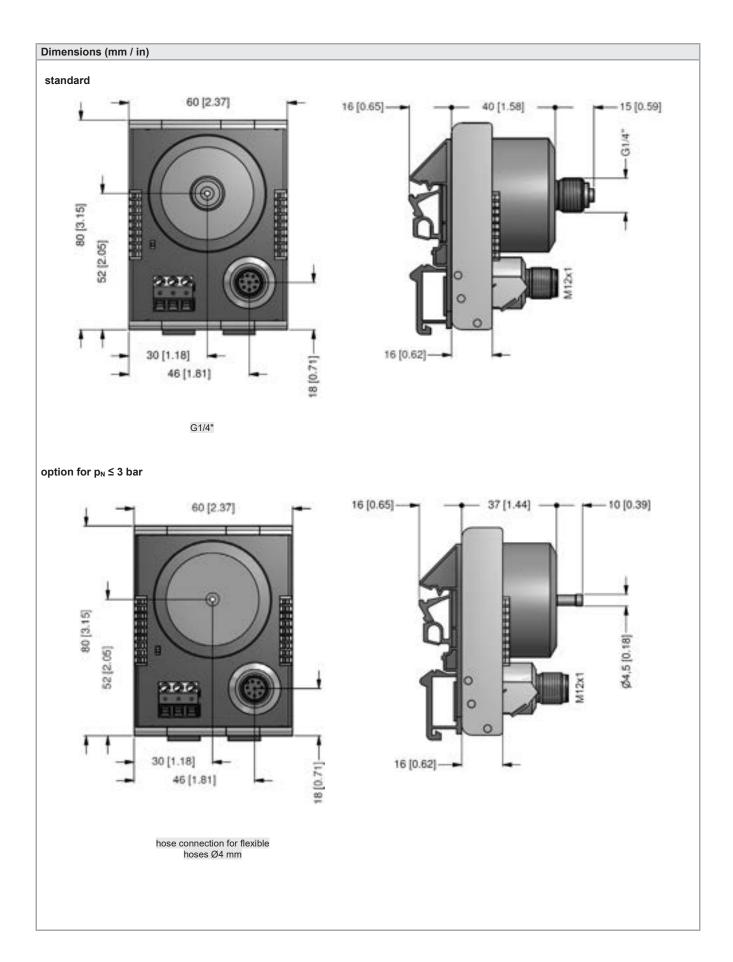


Input pressure range									
Nominal pressure p _N gauge	[bar]	0.06	0.16	0.4	1	2	5	10	20
Nominal pressure p _N absolute	[bar]				on re	quest			
Permissible overpressure	[bar]	2	4	6	8	15	25	35	40
Permissible vacuum for p _N gauge	[bar]	-0.2	-0.3	-0	.5		-	1	

Output signal / Supply	
Standard	2-wire: 4 20 mA / V _S = 12 32 V _{DC} ; V _{S Nom.} = 24 V _{DC}
Current consumption	max. 21 mA
Performance	
Accuracy ¹	IEC 60770 ² : ≤± 0.2 % FSO BFSL: ≤± 0.1 % FSO
Turn-on time	700 msec
Permissible load	$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Response time (10 90 %)	120 msec – without consideration of electronic damping
Measuring rate	8/sec
	ccuracy is calculated as follows: ≤ ± [0.2 + 0.04 x (nominal pressure range / adjusted range)] % FSO interpretability)
Thermal effects (offset and span)	
Tolerance band	≤±1% FSO
In compensated range	-20 80 °C
Permissible temperatures	
medium	-40 125°C
electronics / environment / storage	-40 85°C

supply -

Electrical protection		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Electrical connection	,	
Input	terminal clamps (3-pin)	
Communication connector	M12x1 (8-pin), metal	
Materials	M12X1 (o pin), motor	
	stainless steel 1 1201	
Pressure port	stainless steel 1.4301	
Housing Seals (media wetted)	PA6 (housing foot: PA66)	
` '	FKM	
Diaphragm Media wetted parts	ceramic Al ₂ O ₃ 96 %	
<u> </u>	pressure port, seals of sensor, diaphra	gm
Category of the environment	I	
Lloyd's Register (LR)	EMV1, EMV2, EMV3	number of certificate: 13/20056
Det Norske Veritas (DNV)	temperature: B	number of certificate: TAA00001GM
	humidity: B	
	vibration: A	
	electromagnetic compatibility: B	
	enclosure: -	
Miscellaneous		
Ingress protection	IP00	
Function display	green SMD-LED - lights by information	flow through the transmitter
Installation position	any	
Operational life	100 million load cycles	
Weight	approx. 200 g	
Adjustability	- electronic damping: 0 100 sec - offset: 0 67 % FSO - turn down of span: max. 1:20 - configuration of pressure unit - calibration via connected pressure	
	tely (software appropriate for Windows®95, 98	2, 2000, NT Version 4.0 or higher, and XP)
Pin configuration		
Electrical connections	terminal clamps	M12x1 (8-pin), metal
	1 2 3	5 6 7 1
Supply +1	1	-
Supply +2	-	4
Supply –	2	2
Tx	_	5
Rx	_	6
GND	-	7
NC	_	1
Shield	3	3
Wiring diagram		
2-wire-system (current) P supply + A)—∘+	



Ordering code EP 500										
EP 500	Ш-Ш	∏-□-□]-[- 🗆 - 🗆	- 🗆				
Pressure gauge absolute	U P 5 U P 6							consult		
Input [bar]	O F O							Consuit		
0.06	0 6 0	0 0								
0.16	1 6 0	0 0								
0.4	4 0 0	0 0								
1.0	1 0 0	0 1								
2.0 5.0	2 0 0 5 0 0	0 1								
5.0 10	1 0 0	0 1 2								
20	2 0 0	0 2								
customer	2 0 0 9 9 9	9 9						consult		
Output										
4 20 mA / 2-wire		1								
customer		9						consult		
Accuracy										
0.2 % FSO customer		B 9						consult		
Mechanical connection	_	9						Consuit		
hose connection Ø 4.5 mm ¹			Y 0 2	,						
G1/4" EN 837			Y 0 2 4 0 0							
customer			9 9 9)				consult		
Seal										
FKM				1						
customer				9				consult		
Pressure port stainless steel 1.4301 (304)					2					
customer					9			consult		
Diaphragm								33.73411		
ceramics Al ₂ O ₃ 96%					2					
customer					9			consult		
Special version										
standard						0 0	0 9			
customer						9 9	9	consult		

¹ hose connection only up to 3 bar



KL 1

Terminal Box

Aluminium

Product characteristics

- aluminium die cast case
- for connecting 2-wire submersible transmitters
- integrated pressure balance item
- overvoltage protection with nominal discharge current of 10 kA

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

It offers integrated atmospheric pressure compensation also overvoltage protection and can be used for BD|SENSORS transmitters.

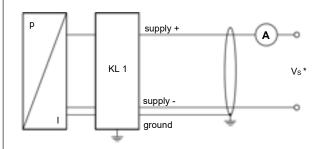
The terminal box KL 1 is equipped with a pressure balance item for equalization of atmospheric reference, therefore a cable without ventilation tube can be used on the supply side.

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



General specifications	
Number of signal lines	2-wire: 4 20 mA
Housing	aluminium die cast case, grey powder-coating
Ingress protection	IP 66
Cable entries	cable gland: M16x1.5 Polyamide, seal NBR, IP 68, diameter range: standard Ø 5 10 mm (others on request)
Atmospheric pressure compensation	pressure balance item with PTFE filter
Terminal clamps	vertical clamps for stranded and solid wires up to 2.5 mm ²
Weight	approx. 550 g
Overvoltage protection	
Series resistance	10 Ω for each wire
Nominal discharge current	20 kA (8/20 μs)
Max. rated current	30 mA

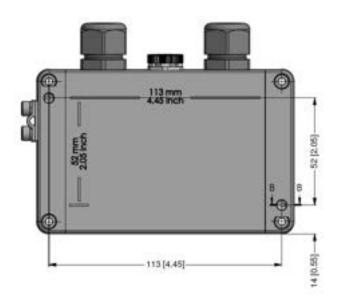
Wiring diagram

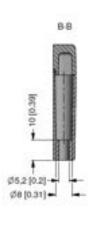


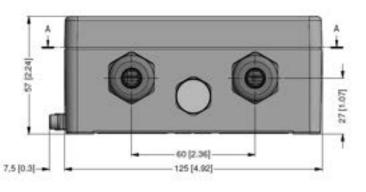
The ground wires of all components have to be connected!

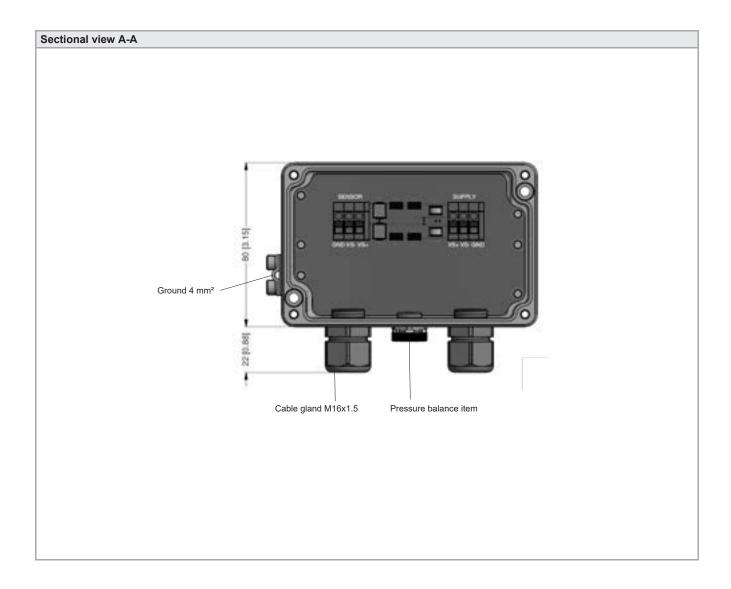
 * The supply $V_{\rm S}$ has to be chosen according to needs of the used transmitter.

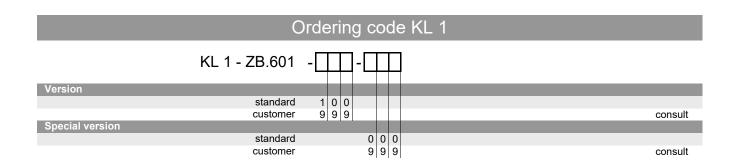
Dimensions (mm / in)













KL 2

Terminal Box

Plastics

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

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 of atmospheric compensation pressure variations. On the supply side a cable without ventilation tube can be used.

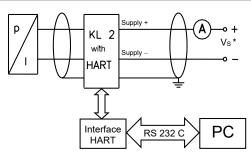
Vertical terminal clamps enable easy connection of cables inside the case.

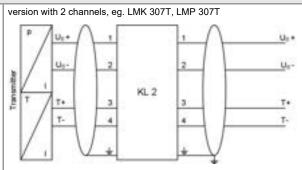
The KL 2 with optional overvoltage protection is additionally equipped with surge arresters with a nominal discharge current of 10 kA.

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



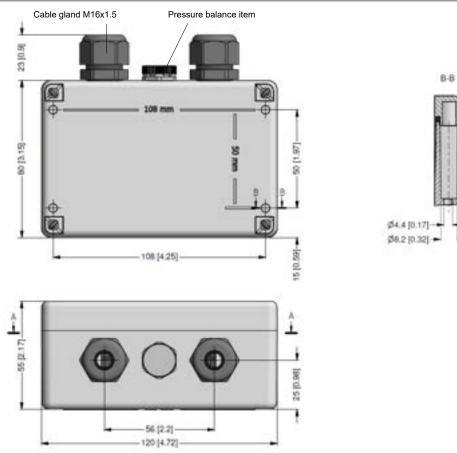
General specifications		
Number of signal lines	2-wire (4 20 mA)	
Housing material	plastic ABS, grey	
Ingress protection	IP 66	
Cable entries	cable gland M16x1.5 Polyamid diameter range: standard 5 others on rec	. 10 mm
Atmospheric pressure compensation	pressure balance item with PTf	
Terminal clamps	vertical clamps for stranded an	d solid wires up to 2.5 mm ²
Weight	approx. 220 g	
Optional overvoltage protecti	on	
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 diagrams	·	
•		version with 2 channels, eg. LMK 307T, LMP 307T





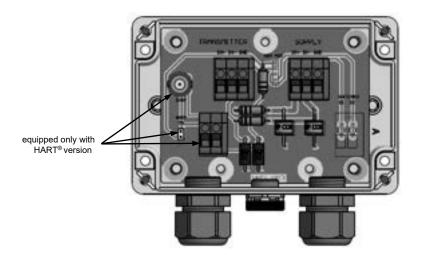
 * The supply V_S has to be chosen according to needs of the used transmitter. The ground wires of all components have to be connected!

Dimensions (mm / in)

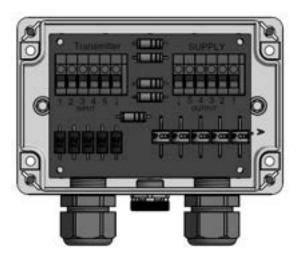


Sectional view A-A

standard



version with 2 channels



Version for two independent 2 wire circuits and over voltage protection, e.g. for LMK 307T, LMP 307T

HART® is a registered trade mark of HART Communication Foundation

Ordering code KL 2							
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 2	1				
HART® communication interface		2 H	0				
HART [®] communication interface and over voltage protection		2 H	1 1				
Special version							
standard					0	0 (0
customer						9 !	9

¹ version for 2 independent 2 wire circuits

HART® is a registered trade mark of HART Communication Foundation

COMPETENCE

pressure transmitters, electronic pressure switches or hydrostatic level probes

- OEM or high-end products
- standard products or customized solutions

BDISENSORS has the right pressure measuring device at the right price.

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

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observance of deadlines

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BDISENSORS reduces the level of your stock-keeping and increases your profitability.

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energy industry



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semiconducter industry / cleanroom technology



HVAC



hydraulics



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pharmaceutical industry



marine / shipbuilding / offshore



heavy industry



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aggressive media



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gases



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DISTRIBUTION EASTERN EUROPE

BD | SENSORS s.r.o. Hradištská 817 68708 Buchlovice CZECH REPUBLIC

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