

LMP 308i



Detachable Stainless Steel Probe Precision

Stainless Steel Sensor

accuracy according to IEC 60770:
0.1 % span

Nominal pressure

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

Output signals

2-wire: 4 ... 20 mA

3-wire: 0 ... 10 V, others on request

Special characteristics

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

Optional versions

- ▶ IS-version Ex ia= intrinsically safe for water and dust
- ▶ mounting accessories as cable gland and terminal clamp in stainless steel
- ▶ different kinds of cables
- ▶ different kinds of seal materials

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 analog digital converter. Consequently it is possible to conduct an active compensation of sensor intrinsic deviations from normal conditions like nonlinearity and thermal error.

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

Preferred areas of use are

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 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 (housing)		40 bar					
¹ On customer request we adjust the device within the turn-down-possibility by software on the required pressure range.							
Output signal / Supply							
Standard	2-wire: 4 ... 20 mA / V _S = 12 ... 36 V _{DC} with RS-232 communication interface						
Option IS-protection	2-wire: 4 ... 20 mA / V _S = 14 ... 28 V _{DC}						
Options	2-wire: 4 ... 20 mA / V _S = 12 ... 36 V _{DC} with communication interface						
	3-wire: 0 ... 10 V / V _S = 14 ... 36 V _{DC}						
0 ... 10 V / V _S = 14 ... 36 V _{DC} with communication interface							
Performance							
Accuracy	IEC 60770 ² : ≤ ± 0.1 % span						
Performance after turn-down (TD)	no change of accuracy ³						
- TD ≤ 5:1	formula for accuracy calculating (for nominal pressure gauge ≤ 0.40 bar see note 3):						
- TD > 5:1	≤ ± [0.1 + 0.015 x turn-down] % span						
	with turn-down = nominal pressure range / adjusted range						
	e.g. following accuracy can be calculated for turn-down 10:1:						
	≤ ± (0.1 + 0.015 x 10) % span viz. the accuracy is ≤ ± 0.25 % span						
Permissible load	current 2-wire: R _{max} = [(V _S - V _{Smin}) / 0.02 A] Ω / voltage 3-wire: R _{min} = 10 kΩ						
Influence effects	supply: 0.05 % span / 10 V load: 0.05 % span / kΩ						
Long term stability	≤ ± (0.1 x turn-down) % span / year / Response time: ca. 200 msec						
Adjustability	following parameters can be adjusted (interface / software needed ⁴) electronic damping: 0 ... 100 sec offset: 0 ... 90 % span turn-down of span: max. 10:1						
² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)							
³ nominal pressure gauges ≤ 0,40 bar are excluded; for these the calculation of accuracy is as follows:							
≤ ± (0.1 + 0.02 x turn-down) % span e.g. turn-down 3:1: ≤ ± (0.1 + 0.02 x 3) % span viz. the accuracy is ≤ ± 0.16 % span							
⁴ software, interface and cable must separate be ordered (software is compatible with Windows® 95, 98, 2000, NT from version 4.0 or higher and XP)							
Thermal effects (Offset and Span)							
Tolerance band	[% span]	≤ ± (0.2 x turn-down) in compensated range -20 ... 70 °C					
TC	[% span / 10 K]	± (0.2 x turn-down) in compensated range -20 ... 70 °C					
Permissible temperatures	Medium/ electronics/ environment/ storage: -20 ... 80 °C *						
*If the cable is intended for use in a smaller temperature range, the use of the probe is limited by this range.							
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						
⁵ 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 ⁶	PVC	(-5 ... 70 °C)	grey	(-25 ... 70 °C in fixed condition)	Ø 7,4 mm		
	PUR	(-25 ... 80 °C)	black	(with drinking water certificate)	Ø 7,4 mm		
	FEP ⁷	(-25 ... 75 °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 air tube for atmospheric pressure reference							
⁷ do not use freely suspended probes with an FEP cable if effects due to highly charging processes are expected							
Materials (media wetted)							
Housing	stainless steel 1.4404 (316L)						
Seals	FKM, EPDM, others on request						
Diaphragm	stainless steel 1.4435 (316L)						
Cable sheath / Protection cap	PVC, PUR, FEP, others on request / POM-C						
Explosion protection (only for 4 ... 20 mA / 2-wire)							
Approvals	IBExU10ATEX1122 X						
DX9-LMP 308	zone 0: II 1G Ex ia IIC T4 Ga			zone 20: II 1D Ex ia IIIC T 135°C Da			
Safety technical maximum values	U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i ≈ 0 nF, L _i ≈ 0 μH, the supply connections have an inner capacity of max. 27 nF to the housing						
Ambient temperature range	in zone 0: -20 ... 60 °C with p _{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -20 ... 65 °C						
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1μH/m						
Miscellaneous							
Current consumption	signal output current: max. 25 mA						
Weight	approx. 250 g (without cable)						

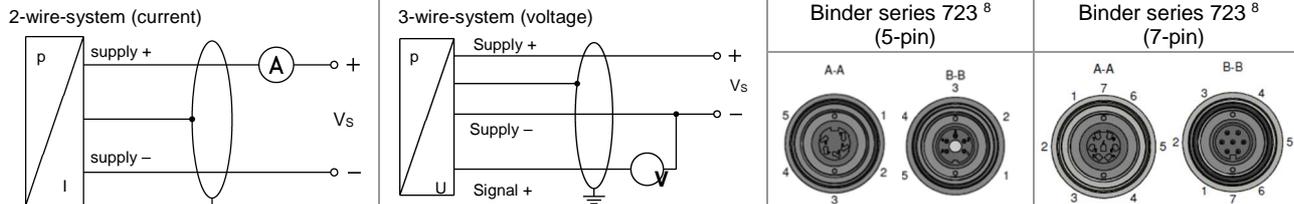
LMP 308i

Precision Stainless Steel Probe

Technical Data

Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

Wiring diagram / connector



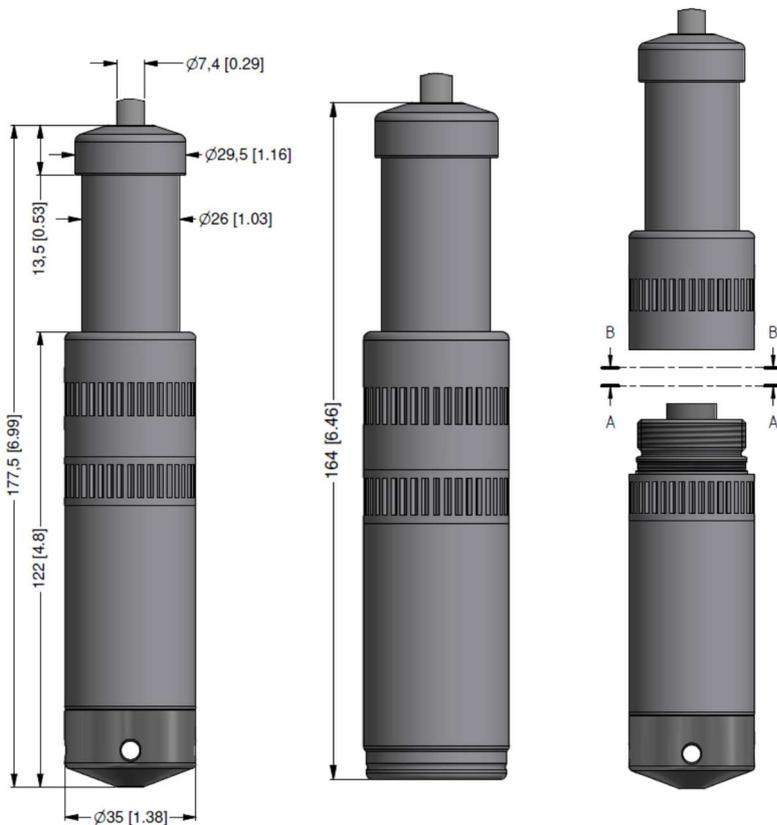
Pin configuration

Electrical connection	Binder series 723 ⁸ (5-pin) / 2-wire	Binder series 723 ⁸ (5-pin) / 3-wire	Binder series 723 ⁸ (7-pin) / 2-wire with communication interface	cable colours (DIN 47100)
Supply +	3	3	3 / wh (white)	wh (white)
Supply -	1	4	1 / bn (brown)	bn (brown)
Signal + (for 3-wire)	-	1	6 / gn (green)	gn (green)
RxD	-	-	4 / ye (yellow)	-
TxD	-	-	5 / gr (gray)	-
GND	-	-	7 / gn (green)	-
Shield	5	5	2 / gn/ye (green / yellow)	gn/ye (green / yellow)

⁸ in detached version

Dimensions (mm / in)

standard



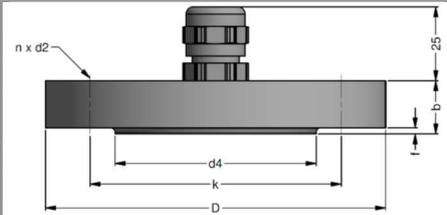
protection cap removable

detached probe head

Mounting flange with cable gland

Technical data

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



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

Ordering type

Ordering code

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

Terminal clamp

Technical data

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



Ordering type

Ordering code

Terminal clamp, steel, zinc plated	1003440
Terminal clamp, stainless steel 1.4301 (304)	1000278

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



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1.3.2021

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Pressure									
in bar	4	4	0						
in m H ₂ O	4	4	1						
Input									
[mH ₂ O]	0 ... 4	[bar]	0 ... 0,4	4	0	0	0		
	0 ... 10		0 ... 1	1	0	0	1		
	0 ... 20		0 ... 2	2	0	0	1		
	0 ... 40		0 ... 4	4	0	0	1		
	0 ... 100		0 ... 10	1	0	0	2		
	0 ... 200		0 ... 20	2	0	0	2		
Customer									
				9	9	9	9		
Housing material									
Stainless steel 1.4404 (316 L)							1		
Diaphragm material									
Stainless steel 1.4435 (316 L)							1		
Output signal									
4 ... 20 mA / 2-wire							1		
0 ... 10 V / 3-wire ⁴							3		
Intrinsic safety Ex ia 4 ... 20 mA / 2-wire							E		
Intrinsic safety M1 Ex ia 4 ... 20 mA / 2-wire (for mines)							F		
Customer							9		
Seals									
Viton (FKM)							1		
EPDM							3		
Customer							9		
Electrical connection									
Without cable part							0		
PVC - cable (grey, Ø 7,4 mm, price for 1 m) ¹							1		
PUR - cable (black, Ø 7,4 mm, price for 1 m) ¹							2		
FEP - cable with PTFE sheath (black, Ø 7,4 mm, price for 1 m) ¹							3		
TPE-U - cable, up to 125°C (blue, Ø 7,4 mm, price for 1 m)							4		
Customer							9		
Accuracy									
0,1 % - standard range ²							1		
0,1 % - standard range including Calibration Certificate							P		
0,1 % - customer range							I		
0,1 % - customer range including Calibration Certificate							H		
0,2 % (P _N < 0,1 bar)							B		
Customer							9		
Cable length									
in m							9	9	9
Special versions									
Standard							1	1	1
Interface RS 232 (communication port inside the probe) ³							1	2	1
Interface RS 232 (communication via cable, max. length 20 m)							6	3	0
Reduced power supply 9 ... 36 V DC							0	2	8
Version with temperature sensor PT100							6	1	7
Customer							9	9	9
Accessories for submersible transmitter									
Cabel part + price for cabel in m									5000722
Terminal clamp - zinc plated									1003440
Terminal clamp - stainless steel 1.4301									1000278
Mounting screw PG16 - plastic									5002200



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The company BD SENSORS s.r.o. is certified by TÜV SÜD Czech according to the standard ISO 9001.



0,- ... without additional charge On request ... in accordance with the producer

Surcharges for calibration are not subject to any discounts. Subject to change. □

This document contains the specification for ordering the product; detailed technical parameters of the product and its possible variants are given in the data sheet. BD SENSORS reserves the right to change sensor specifications without further notice.

1 cable with integrated ventilation tube for atmospheric pressure reference

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

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

4 maximum length of PVC cable – 25 m, PUR, FEP, TPE – 40 m



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