

LMP 331

Screw-In Transmitter

Stainless Steel Sensor

accuracy according to EN IEC 62828-2:
standard: 0.35 % span
option: 0.25 % span



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% span 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 and a robust construction. The modular construction allows the user the highest possible flexibility in the adaption of LMP 331.

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

Preferred areas of use are



Plant and Machine Engineering



Energy Industry



Environmental Engineering
(water – sewage – recycling)



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Technical Data

Input pressure range																	
Nominal pressure gauge	[bar]	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	10	16	25	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: unlimited vacuum resistance P _N < 1 bar: on request															
Output signal / Supply																	
Standard		2-wire: 4 ... 20 mA / V _S = 8 ... 32 V _{DC}									SIL-version: V _S = 14 ... 28 V _{DC}						
Option IS-version		2-wire: 4 ... 20 mA / V _S = 10 ... 28 V _{DC}									SIL-version: V _S = 14 ... 28 V _{DC}						
Options 3-wire		3-wire: 0 ... 20 mA / V _S = 14 ... 30 V _{DC}									0 ... 10 V / V _S = 14 ... 30 V _{DC}						
Performance																	
Accuracy ¹		standard: nominal pressure < 0.4 bar: ≤ ± 0.5 % span nominal pressure ≥ 0.4 bar: ≤ ± 0.35 % span option 1: nominal pressure ≥ 0.4 bar: ≤ ± 0.25 % span															
Permissible load		current 2-wire: R _{max} = [(V _S - V _{S min}) / 0.02 A] Ω current 3-wire: R _{max} = 500 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 % span / year															
Response time ²		2-Leiter: ≤ 10 msec 3-Leiter: ≤ 3 msec															
¹ accuracy according to EN IEC 62828-2– limit point adjustment (non-linearity, hysteresis, repeatability)																	
² with optional accuracy 0.1 % span the response time is 200 msec																	
Thermal effects (Offset and Span)																	
Nominal pressure P _N	[bar]	≤ 0.40									> 0.40						
Tolerance band	[% span]	≤ ± 1									≤ ± 0.75						
in compensated range	[°C]	0 ... 70									-20 ... 85						
Permissible temperatures																	
Permissible temperatures		medium: -40 ... 125 °C				electronics / environment: -40 ... 85 °C				storage: -40 ... 100 °C							
Electrical protection																	
Short-circuit protection		permanent															
Reverse polarity protection		no damage, but also no function															
Electromagnetic compatibility		emission and immunity according to EN 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								
Explosion protection (only for 4 ... 20 mA / 2-wire)																	
Approvals DX9-LMP 331		IBExU10ATEX1122 X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T 135°C Da															
Certificate BDS 02/2024 X		zone 2: II 3G Ex ec IIC T4 Gc, -20°C < Ta < 70°C															
Safety technical maximum values		U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i ≈ 0nF, L _i ≈ 0 μH the supply connections have an inner capacity of max. 27 nF opposite the housing															
Ambient temperature range		in zone 0: -20 ... 60 °C with p _{atm} 0.8 bar bis 1.1 bar in zone 1 or higher: -20 ... 70 °C															
Connecting cables (by factory)		cable capacitance: signal line/shield also signal line / signal line: 160 pF/m										cable inductance: signal line /shield also signal line / signal line: 1 μH/m					
Materials																	
Pressure port		stainless steel 1.4404 (316L)															
Housing		stainless steel 1.4404 (316L)															
Option field housing		Stainless steel 1.4301 (304); cable gland M16x 1.5, brass, nickel plated (clamping range 2...8 mm)															
Seals		standard: FKM option: EPDM, NBR others on request															
Diaphragm		stainless steel 1.4435 (316L)															
Media wetted parts		pressure port, seals, diaphragm															
Miscellaneous																	
Optionally SIL ³ 2 application		according to IEC 61508 / IEC 61511															
Current consumption		signal output current: max. 25 mA									signal output voltage: max. 5 mA						
Weight		approx. 200 g															
Installation position		any ⁴															
Operational life		> 100 x 10 ⁶ cycles															
CE-conformity		EMC Directive: 2014/30/EU															
ATEX Directive		2014/34/EU															
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.																	

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Technical Data

Pin configuration					
Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply -	2	4	2	IN -	bn (brown)
Signal + (only for 3-wire)	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4		ye/gn(yellow/green)

Wiring diagrams	
<p>2-wire-system (current)</p>	<p>3-wire-system (current/voltage)</p>

Electrical connections (dimensions in mm)					
<p>00 standard</p> <p>ISO 4400 (IP 65)</p>	<p>option</p> <p>Binder Series 723 5-pin (IP 67)</p>	<p>M12x1</p> <p>M12x1 4-pin (IP 67)</p>	<p>gland PG7/cable length specify</p> <p>gland PG7/cable length specify (IP 67)⁵</p>	<p>field housing</p> <p>field housing (IP 67)</p>	<p>cable outlet, cable with ventilation tube</p> <p>cable outlet, cable with ventilation tube (IP 68)⁶</p>

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

Mechanical connection (dimensions in mm)	
<p>standard for 0.5 % / 0.35 %</p> <p>G3/4" flush (DIN 3852) with ISO 4400</p>	<p>standard for 0.25 % SIL- and SIL-Ex-version ⁷</p> <p>G3/4" flush (DIN 3852) with ISO 4400</p>

⁷ not in combination with the accuracy 0.1%

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

Temperature compensation -20...+50 °C

0 | 0 | 6
9 | 9 | 9

Customer

0,-...without additional charge

On request...in accordance with the producer

Surcharges for calibration and temperature compensation 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 code TR0 = PVC cable, cable with ventilation tube available in different types and lengths; cable not included in the price

2 not in combination with SIL

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

