

LMK 331



Screw-In Transmitter

Ceramic Sensor

accuracy according to EN IEC 62828-2:
0.5 % span

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 impure 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.

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



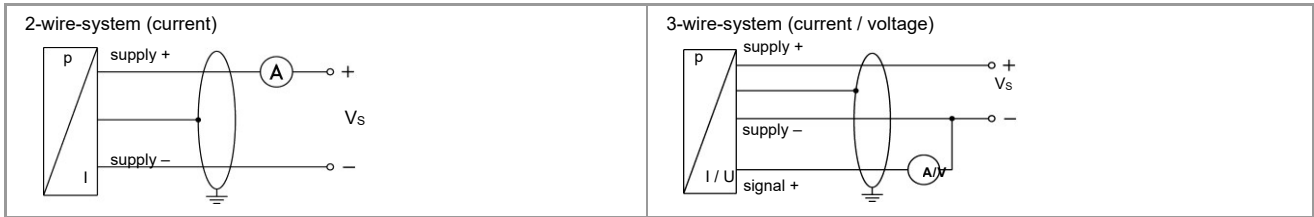
Environmental Engineering
(water – sewage – recycling)



Medical Technology



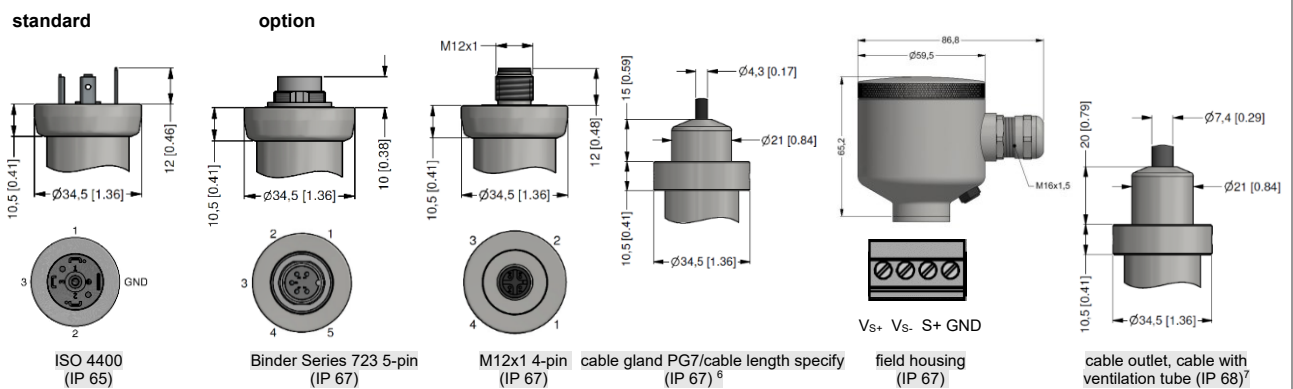
Input pressure range															
Nominal pressure gauge	[bar]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60		
Level	[mH ₂ O]	4	6	10	16	25	40	60	100	160	250	400	600		
Overpressure	[bar]	1	2	2	4	4	10	20	20	40	100	100	200		
Burst pressure	[bar]	2	4	4	5	5	12	25	25	50	120	120	250		
Vacuum resistance	[bar]	P _N ≥ 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-protection		2-wire: 4 ... 20 mA / V _S = 10 ... 28 V _{DC}						SIL-version: V _S = 14 ... 28 V _{DC}							
Option 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		≤ ± 0.5 % span													
Permissible load		current 2-wire: R _{max} = [(V _S - V _{Smin}) / 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													
Response time		2-wire: ≤ 10 msec 3-wire: ≤ 3 msec													
¹ accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability)															
Thermal effects (Offset and Span) / Permissible Temperatures															
Thermal error		≤ ± 0.2 % span / 10 K													
in compensated range		-25 ... 85 °C													
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							
Materials															
Pressure port / housing		standard:						pressure port			housing				
		options for P _N ≤ 25 bar:						stainless steel 1.4404 (316L)			stainless steel 1.4404 (316L)				
Option field housing		stainless steel 1.4301 (304); cable gland M16x1.5, brass nickel plated (clamping range 2...8 mm)													
Seals		standard: FKM options: EPDM, NBR, others on request													
Diaphragm		ceramics Al ₂ O ₃ 96 %													
Media wetted parts		pressure port, seals, diaphragm													
Explosion protection (only for 4 ... 20 mA / 2-wire)															
Approval DX9-LMK 331 only for stainless steel pressure port		IBExU10ATEX1122 X 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 ≈ 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: -40/-20 ... 70 °C (lower temperature limit depends on the type of cable used)													
Connecting cables (by factory)		cable capacitance: signal line/shield also signal line / signal line: 160 pF/m cable inductance: signal line /shield also signal line / signal line: 1 μH/m													
Miscellaneous															
Option SIL ² 2 application		according to IEC 61508 / IEC 61511													
Current consumption		signal output current: max. 25 mA						signal output voltage: max. 5 mA							
Weight		approx. 150 g													
Installation position		any													
Operational life		> 100 x 10 ⁶ pressure cycles													
CE-conformity		EMC Directive: 2014/30/EU													
ATEX Directive		2014/34/EU													
² only for 4...20mA / 2-wire															
Wiring diagrams															



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 contact	5	4		gn/ye (green / yellow)

Electrical connections (dimensions in mm)

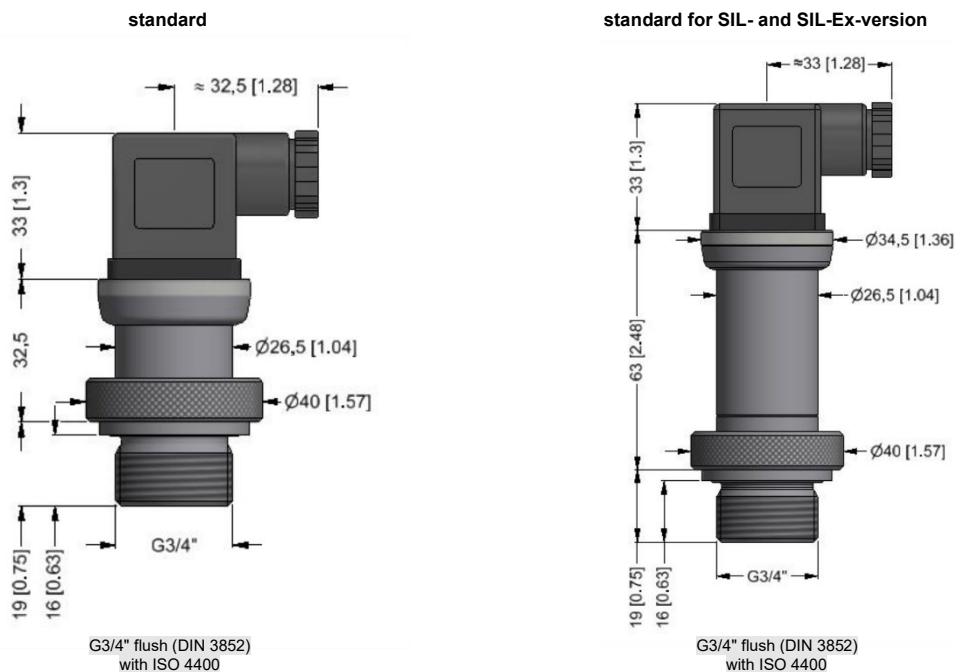


⇒ universal stainless steel housing 1.4404 with cable gland M20x1.5 (ordering code 880) and other versions on request

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

Mechanical connection (dimensions in mm)



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

Ordering code LMK 331

05.02.2024

LMK 331

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Pressure																						
in bar	4	6	0																			
in m H ₂ O	4	6	1																			
Input	[mH ₂ O]	[bar]																				
	0 ... 4	0 ... 0,4	4	0	0	0																
	0 ... 6	0 ... 0,6	6	0	0	0																
	0 ... 10	0 ... 1	1	0	0	1																
	0 ... 16	0 ... 1,6	1	6	0	1																
	0 ... 25	0 ... 2,5	2	5	0	1																
	0 ... 40	0 ... 4	4	0	0	1																
	0 ... 60	0 ... 6	6	0	0	1																
	0 ... 100	0 ... 10	1	0	0	2																
	0 ... 160	0 ... 16	1	6	0	2																
	0 ... 250	0 ... 25	2	5	0	2																
	0 ... 400	0 ... 40	4	0	0	2																
	0 ... 600	0 ... 60	6	0	0	2																
Customer			9	9	9	9																
Analogue output																						
4...20 mA / 2-wire																				1		
0 ... 20 mA / 3-wire																				2		
0...10 V / 3-wire																				3		
Intrinsic safety Ex ia 4 ... 20 mA / 2-wire																				E		
SIL2, 4 ... 20 mA / 2-wire																				1S		
SIL2, Intrinsic safety 4 ... 20 mA / 2-wire																				ES		
Ex nA "n" 4 ... 20 mA / 2-wire (connector 105)																				N		
Customer																				9		
Accuracy																						
1 %																				8		
0,5 %																				5		
1 % including Calibration Certificate																				U		
0,5 % including Calibration Certificate																				T		
Table of measured values for accuracy 0,5 %																				N		
Customer																				9		
Electrical connection																						
Connector DIN 43650 (ISO 4400) (IP 65)																				1	0	0
Connector ISO 4400 (IP 65) + silicone seals for Ex nA																				1	0	5
Connector Binder Serie 723 5-pin (IP 67)																				2	0	0
Cable gland PG7 / cable length specify (IP 67)																				4	0	0
+ PVC cable / 1 m																						
Connector Buccaneer (IP 68)																				5	0	0
Field housing stainless steel, cable gland M 16 x 1,5 (IP 67)																				8	0	0
Field housing stainless steel, cable gland M 20 x 1,5 (IP 67)																				8	8	0
Connector DIN 43650 (ISO 4400) - Potting compound inside (IP 67)																				E	0	0
Connector M12 x 1, 4-pin (IP 67)																				M	0	0
Connector M12 x 1, 4-pin (IP 67) - metal																				M	1	0
Cable outlet, cable with ventilation tube (IP 68) ¹																				T	R	0
+ PVC cable / 1 m																						
Customer																				9	9	9
Mechanical connection																						
G 3/4" (DIN 3852) - flush																				K	0	0
Customer																				9	9	9
Seals																						
Viton (FKM)																				1		
EPDM																				3		
NBR																				5		



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

Customer	9					
Housing						
Stainless steel 1.4404 (316 L)	1					
Diaphragm						
Ceramic Al ₂ O ₃ 96 %		2				
Ceramic Al ₂ O ₃ 96 % with PTFE foil (accuracy ≥ 1%)- not possible used for underpressure		3				
Customer		9				
Special version						
Standard			0	0	0	
Customer			9	9	9	

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

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



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