

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 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)



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 % FSO nominal pressure ≥ 0.4 bar: ≤ ± 0.35 % FSO option 1: nominal pressure ≥ 0.4 bar: ≤ ± 0.25 % FSO option 2: for all nominal pressures: ≤ ± 0.1 % FSO														
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 % FSO / 10 V load: 0.05 % FSO / kΩ														
Long term stability		≤ ± 0.1 % FSO / year at reference conditions														
Response time ²		2-Leiter: ≤ 10 msec 3-Leiter: ≤ 3 msec														
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)																
² with optional accuracy 0,1 % FSO the response time is 200 msec																
Thermal effects (Offset and Span)																
Nominal pressure P _N	[bar]	≤ 0.40									> 0.40					
Tolerance band	[% FSO]	≤ ± 1									≤ ± 0.75					
in compensated range	[°C]	0 ... 70									-20 ... 85					
Permissible temperatures																
Permissible temperatures		medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C														
Electrical protection																
Short-circuit protection		permanent														
Reverse polarity protection		no damage, but also no function														
Electromagnetic compatibility		emission and immunity according to EN 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 DX19-LMP 331		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 T 85°C Da														
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														
Permissible temperature for medium		in zone 0: -20 ... 60 °C with p _{atm} 0.8 bar bis 1.1 bar in zone 1 or higher: -20 ... 70 °C														
Conneting 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)														
Seals		standard: FKM option: EPDM others on request														
Diaphragm		stainless steel 1.4435 (316L)														
Media wetted parts		pressure port, seals, diaphragm														

Miscellaneous					
Optionally SIL 2 application	according to IEC 61508 / IEC 61511				
Current consumption	signal output current: max. 25 mA		signal output voltage: max. 7 mA		
Weight	approx. 200 g				
Installation position	any ³				
Operational life	> 100 x 10 ⁶ cycles				
CE-conformity	EMC Directive: 2004/108/EC				
ATEX Directive	94/9/EG				
³ 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 $P_N \leq 1$ bar.					
Pin configuration					
Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (IEC 60575)
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	⊥	gnye (green-yellow)
Wiring diagrams					
<p>2-wire-system (current)</p>			<p>3-wire-system (current/voltage)</p>		
Electrical connections (dimensions in mm)					
<p>standard</p> <p>ISO 4400 (IP 65)</p> <p>Binder Series 723 5-pin (IP 67)</p>		<p>option</p> <p>M12x1 4-pin (IP 67)</p> <p>cable outlet with PVC cable (IP 67)⁴</p>		<p>compact field housing (IP 67)</p> <p>cable outlet, cable with ventilation tube (IP 68)⁵</p>	
⁴ standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)					
⁵ different cable types and lengths available, permissible temperature depends on kind of cable					
Mechanical connection (dimensions in mm)					
<p>standard</p> <p>G3/4" flush (DIN 3852) with ISO 4400</p>			<p>standard for SIL- and SIL-Ex-version⁶</p> <p>G3/4" flush (DIN 3852) with ISO 4400</p>		
⁶ not in combination with the accuracy 0.1%					

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Ordering code LMP 331

LMP 331

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Pressure																				
	in bar	4	3	0																
	in mH ₂ O	4	3	1																
Input	[mH ₂ O]	[bar]																		
	1	0.10				1	0	0	0											
	1.6	0.16				1	6	0	0											
	2.5	0.25				2	5	0	0											
	4	0.40				4	0	0	0											
	6	0.60				6	0	0	0											
	10	1.0				1	0	0	1											
	16	1.6				1	6	0	1											
	25	2.5				2	5	0	1											
	40	4.0				4	0	0	1											
	60	6.0				6	0	0	1											
	100	10				1	0	0	2											
	160	16				1	6	0	2											
	250	25				2	5	0	2											
	400	40				4	0	0	2											
	customer					9	9	9	9											consult
Pressure port																				
	Stainless steel 1.4404 (316L)					1														
	customer					9														consult
Diaphragm																				
	Stainless steel 1.4435 (316L)					1														
	customer					9														consult
Output																				
	4 ... 20 mA / 2-wire								1											
	0 ... 20 mA / 3-wire								2											
	0 ... 10 V / 3-wire								3											
	Intrinsic safety 4 ... 20 mA / 2-wire								E											
	SIL2 4 ... 20 mA / 2-wire								1S											
	SIL2 with Intrinsic safety								ES											
	4 ... 20 mA / 2-wire								9											consult
	customer								9											consult
Seals																				
	FKM								1											
	EPDM								3											
	customer								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 ¹								T	A	0									
	Cable outlet ²								T	R	0									
	Male plug M12x1 (4-pin) / metal								M	1	0									
	Compact field housing								8	5	0									
	stainless steel 1.4305								9	9	9									consult
	customer								9	9	9									consult
Accuracy																				
	standard for P _N ≥ 0.4 bar	0.35 %									3									
	standard for P _N < 0.4 bar	0.5 %									5									
	option 1 for P _N ≥ 0.4 bar	0.25 %									2									
	option 2	0.1 % ³									1									
	customer										9									consult
Special version																				
	standard										0	0	0							
	customer										9	9	9							consult

Prices EXW Thierstein, excluding package

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), others on request
² cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable
³ not in combination with SIL

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

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