

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 adaptation 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} = 240 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-wire: ≤ 10 msec								3-wire: ≤ 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		IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X													
DX19-LMP 331		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 up to 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 compact field housing		stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 ... 8 mm)													
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 version ³		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 ⁴													
Operational life		100 million load 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.															

Pin configuration					
Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	cable colours (IEC 60757)
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 \oplus	5	4	\oplus	GYNE (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>options</p> <p>Binder series 723 5-pin (IP 67)</p>	<p>M12x1</p> <p>M12x1 4-pin (IP 67)</p>	<p>cable outlet with PVC cable (IP 67)⁵</p>	<p>cable outlet, cable with ventilation tube (IP 68)⁶</p>	<p>compact field housing (IP 67)</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</p> <p>G3/4" flush (DIN 3852) with ISO 4400</p>	<p>SIL- and SIL-Ex-version</p> <p>G3/4" flush (DIN 3852) with ISO 4400</p>

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