

# 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)



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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 <sub>2</sub> 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 <sub>N</sub> ≥ 1 bar: unlimited vacuum resistance P <sub>N</sub> < 1 bar: on request															
Output signal / Supply																	
Standard		2-wire: 4 ... 20 mA / V <sub>S</sub> = 8 ... 32 V <sub>DC</sub>						SIL-version: V <sub>S</sub> = 14 ... 28 V <sub>DC</sub>									
Option IS-version		2-wire: 4 ... 20 mA / V <sub>S</sub> = 10 ... 28 V <sub>DC</sub>						SIL-version: V <sub>S</sub> = 14 ... 28 V <sub>DC</sub>									
Options 3-wire		3-wire: 0 ... 20 mA / V <sub>S</sub> = 14 ... 30 V <sub>DC</sub>						0 ... 10 V / V <sub>S</sub> = 14 ... 30 V <sub>DC</sub>									
Performance																	
Accuracy <sup>1</sup>		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 <sub>max</sub> = [(V <sub>S</sub> - V <sub>Smin</sub> ) / 0.02 A] Ω current 3-wire: R <sub>max</sub> = 500 Ω voltage 3-wire: R <sub>min</sub> = 10 kΩ															
Influence effects		supply: 0.05 % FSO / 10 V						load: 0.05 % FSO / kΩ									
Long term stability		≤ ± 0.1 % FSO / year															
Response time <sup>2</sup>		2-Leiter: ≤ 10 msec 3-Leiter: ≤ 3 msec															
<sup>1</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)																	
<sup>2</sup> with optional accuracy 0,1 % FSO the response time is 200 msec																	
Thermal effects (Offset and Span)																	
Nominal pressure P <sub>N</sub>	[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 DX9-LMP 331		<b>IBExU10ATEX1122 X</b> 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 <sub>i</sub> = 28 V, I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> ≈ 0nF, L <sub>i</sub> ≈ 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 <sub>atm</sub> 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 compact field housing		Stainless steel 1.4301 (304); cable gland M12x 1.5, brass, nickel plated (clamping range 2...8 mm)															
Seals		standard: FKM						option: EPDM, NBR									
Diaphragm		stainless steel 1.4435 (316L)															
Media wetted parts		pressure port, seals, diaphragm															
Miscellaneous																	
Optionally SIL <sup>3</sup> 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 <sup>4</sup>															
Operational life		> 100 x 10 <sup>6</sup> cycles															
CE-conformity		EMC Directive: 2014/30/EU															
ATEX Directive		2014/34/EU															
<sup>3</sup> only for 4...20mA / 2-wire, not in combination with the accuracy 0.1%																	
<sup>4</sup> 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 <sub>N</sub> ≤ 1 bar.																	

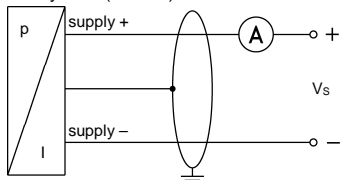
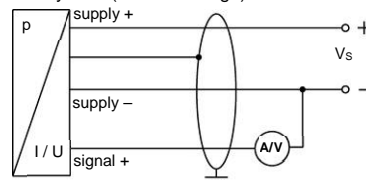
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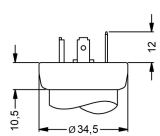
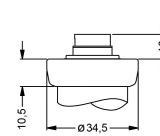
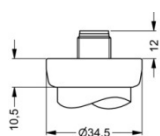
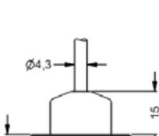
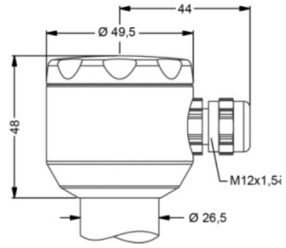
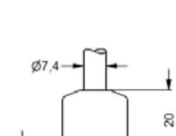



Technical Data

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)

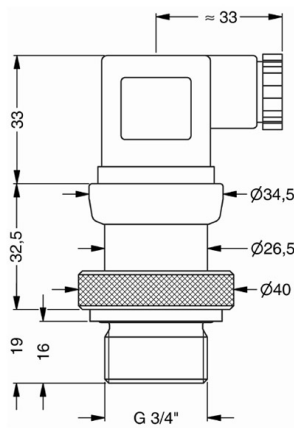
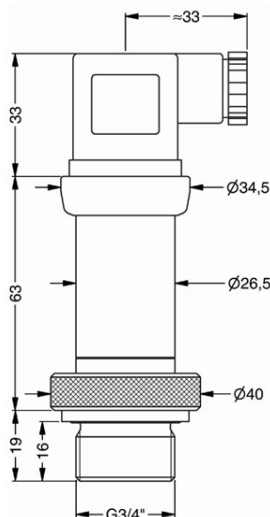
Wiring diagrams	
<p>2-wire-system (current)</p> 	<p>3-wire-system (current/voltage)</p> 

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

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

Mechanical connection (dimensions in mm)	
<p><b>standard for 0.5 % / 0.35 %</b></p>  <p>G3/4" flush (DIN 3852) with ISO 4400</p>	<p><b>standard for 0.25 % / 0.1 % SIL- and SIL-Ex-version <sup>7</sup></b></p>  <p>G3/4" flush (DIN 3852) with ISO 4400</p>

<sup>7</sup> not in combination with the accuracy 0.1%

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

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