

# 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)



# LMP 331

Stainless Steel Screw-In Transmitter

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>															
Option IS-version		2-wire: 4 ... 20 mA / V <sub>S</sub> = 10 ... 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>S min</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		2-Leiter: ≤ 10 msec 3-Leiter: ≤ 3 msec															
<sup>1</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)																	
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 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 <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															
Permissible temperature for medium		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															
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, NBR										others on request					
Diaphragm		stainless steel 1.4435 (316L)															
Media wetted parts		pressure port, seals, diaphragm															
Miscellaneous																	
Optionally SIL <sup>2</sup> 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 <sup>3</sup>															
Operational life		> 100 x 10 <sup>6</sup> cycles															
CE-conformity		EMC Directive: 2004/108/EC															
ATEX Directive		94/4/EG															
<sup>2</sup> only for 4...20mA / 2-wire, not in combination with the accuracy 0.1%																	
<sup>3</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.																	

# LMP 331

Stainless Steel Screw-In Transmitter

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>ISO 4400 (IP 65)</p>	<p><b>option</b></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>4</sup></p>	<p>compact field housing (IP 67)</p>	<p>cable outlet, cable with ventilation tube (IP 68)<sup>5</sup></p>
<p><sup>4</sup> standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)</p> <p><sup>5</sup> different cable types and lengths available, permissible temperature depends on kind of cable</p>					

  

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

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

## Ordering code LMP 331

LMP 331

□	□	□	-	□	□	□	□	-	□	-	□	-	□	□	□	-	□	□	□
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

<b>Pressure</b>																			
	in bar	4	3	0															
	in mH <sub>2</sub> O	4	3	1															
<b>Input</b>	[mH <sub>2</sub> 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
<b>Pressure port</b>																			
	Stainless steel 1.4404 (316L)				1														
	customer				9														consult
<b>Diaphragm</b>																			
	Stainless steel 1.4435 (316L)				1														
	customer				9														consult
<b>Output</b>																			
	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 4 ... 20 mA / 2-wire							ES											
	customer							9											consult
<b>Seals</b>																			
	FKM							1											
	EPDM							3											
	NBR							5											
	customer							9											consult
<b>Electrical connection</b>																			
	Male and female plug ISO 4400							1	0	0									
	Male plug Binder series 723 (5-pin)							2	0	0									
	Cable outlet with PVC cable <sup>1</sup>							T	A	0									
	Cable outlet <sup>2</sup>							T	R	0									
	Male plug M12x1 (4-pin) / metal							M	1	0									
	Compact field housing stainless steel 1.4305							8	5	0									
	customer							9	9	9									consult
<b>Accuracy</b>																			
	standard for P <sub>N</sub> ≥ 0.4 bar	0.35 %																	3
	standard for P <sub>N</sub> < 0.4 bar	0.5 %																	5
	option 1 for P <sub>N</sub> ≥ 0.4 bar	0.25 %																	2
	option 2	0.1 % <sup>3</sup>																	1
	customer																		9
<b>Special version</b>																			
	standard																		0 0 0
	customer																		9 9 9

<sup>1</sup> standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), others on request

<sup>2</sup> cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

<sup>3</sup> not in combination with SIL

