



LMP 331

Screw-In Transmitter

Stainless Steel Sensor

accuracy according to IEC 61298-2:
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 61298-2
- ▶ 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
- ▶ drinking water certificate
according to DVGW and KTW

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)



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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 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 _{S min}) / 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 61298-2 – 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		20 g RMS / 10 ... 2000 Hz								according to DIN EN 60068-2-6					
Shock		500 g / 1 msec half sine								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 T135 °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: -40/-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 / 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 (without / with drinking water certificate) 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													
Drinking water certificate ⁵		according to DVGW W 270 and UBA KTW													
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															
⁵ only possible with EPDM seal; not possible with IS-version (explosion protection), with order the indication "with drinking water certificate" is necessary															

LMP 331

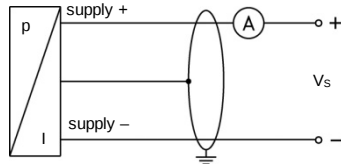
Stainless Steel Screw-In Transmitter

Technical Data

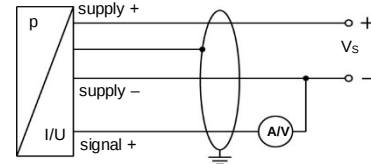
Pin configuration					
Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	cable colours (IEC 60757)
Supply +	1	3	1	IN +	WH (white)
Supply -	2	4	2	IN -	BN (brown)
Signal + (only for 3-wire)	3	1	3	OUT +	GN (green)
Shield	ground pin $\oplus$	5	4	$\oplus$	GNYE (green-yellow)

Wiring diagrams

2-wire-system (current)

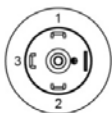
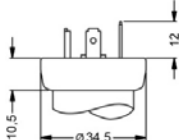


3-wire-system (current / voltage)



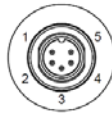
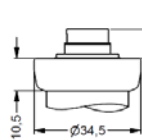
Electrical connections (dimensions in mm)

standard

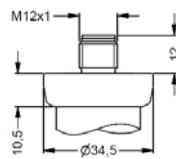


ISO 4400 (IP 65)

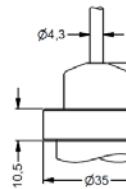
options



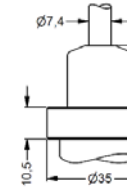
Binder series 723, 5-pin (IP 67)



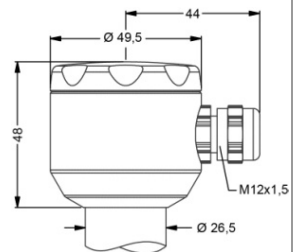
M12x1, 4-pin (IP 67)



cable outlet with PVC cable (IP 67) ⁶



cable outlet, cable with ventilation tube (IP 68) ⁷



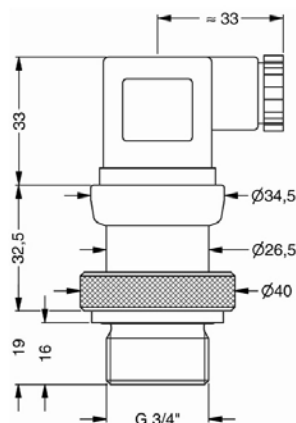
compact field housing (IP 67)

⁶ standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)

⁷ different cable types and lengths available, permissible temperature depends on kind of cable

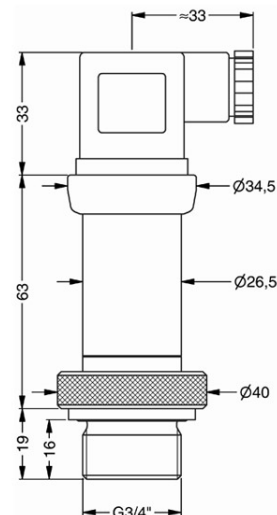
Mechanical connection (dimensions in mm)

standard



G3/4" flush (DIN 3852) with ISO 4400

SIL- and SIL-Ex-version



G3/4" flush (DIN 3852) with ISO 4400

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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	0.10	1	0	0	0			
	1.6	0.16	1	6	0	0			
	2.5	0.25	2	5	0	0			
	4.0	0.40	4	0	0	0			
	6.0	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								
Seal									
	FKM		1						
	EPDM		3						
DVGW/KTW:	EPDM ¹		3T						
	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 (IP67) ²		T	A	0				
	cable outlet,								
	cable with ventilation tube (IP68) ³		T	R	0				
	male plug M12x1 (4-pin) / metal		M	1	0				
	compact field housing		8	5	0				
	stainless steel 1.4301 (304)								
	customer		9	9	9				consult
Accuracy									
	standard for p _N ≥ 0.4 bar:	0.35 % FSO				3			
	standard for p _N < 0.4 bar:	0.50 % FSO				5			
	option 1 for p _N ≥ 0.4 bar:	0.25 % FSO				2			
	option 2:	0.10 % FSO ⁴				1			
	customer		9						consult
Special version									
	standard					0	0	0	
	customer					9	9	9	consult

¹ drinking water certification only possible with EPDM seal (code 3T); not possible with IS version (explosion protection)

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

³ code TR0 = PVC cable, cable with ventilation tube available in different types and lengths; cable not included in the price

⁴ not in combination with SIL