LMP 331i

Precision
Screw-in Transmitter

Stainless Steel Sensor

accuracy according to IEC 61298-2:
0.1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 40 bar

Output signal

2-wire: 4 ... 20 mA
3-wire: 0 … 10 V
others on request

Product characteristics

- thermal error in compensated range
  -20 ... 80 °C: 0.2 % FSO
  TC 0.02 % FSO / 10K

Optional versions

- IS-versions
  Ex ia = intrinsically safe
  for gases and dusts

The precision screw-in transmitter LMP 331i demonstrate the further development of our industrial pressure transmitters.

The signal processing of sensor signal is done by digital electronics with 16-bit analogue digital converter. Consequently, it is possible to conduct an active compensation and the transmitters with excellent measurements and exceptionally attractive price to offer on the market.

Preferred areas of use are

- Chemical / petrochemical industry
- Environmental engineering
  (water / sewage / recycling)

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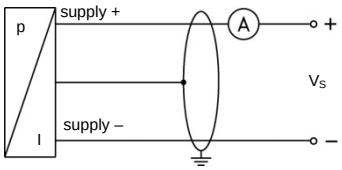
Pressure ranges								
Nominal pressure gauge	[bar]	0.4	1	2	4	10	20	40
Level gauge	[mH_2O]	4	10	20	40	100	200	400
Overpressure	[bar]	2	5	10	20	40	80	105
Burst pressure ≥	[bar]	3	7.5	15	25	50	120	210

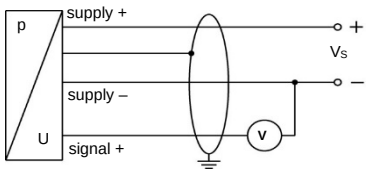
Output signal / Supply			
Standard	2-wire: 4 ... 20 mA / V_S = 12 ... 36 V_{DC}		
Option IS-version	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}		
Options analogue signal	3-wire: 0 ... 10 V / VS = 14 ... 36 V_{DC}		
Performance			
Accuracy [1]	≤ ± 0.1 % FSO		
Permissible load	current 2-wire: R_{max} = [(V_S – V_S min) / 0.02 A] 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	approx. 5 msec		
[1] accuracy according to IEC 61298-2 – limit point adjustment (non-linearity, hysteresis, repeatability)			
Thermal effects (offset and span) / Permissible temperatures			
Tolerance band [% FSO]	≤ ± 0.2	in compensated range	-20 ... 80 °C
TC, average [% FSO / 10 K]	± 0.02	in compensated range	-20 ... 80 °C
Permissible temperatures	medium: -25 ... 125 °C electronics / environment: -25 ... 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		
Materials			
Pressure port	stainless steel 1.4404 (316 L)		
Housing	stainless steel 1.4404 (316 L)		
Option compact field housing	stainless steel 1.4301 (304) cable gland M12x1.5, brass, nickel plated (clamping range 2 … 8 mm)		
Seals	FKM others on request		
Diaphragm	stainless steel 1.4435 (316L)		
Media wetted parts	pressure port, seals, diaphragm		
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 DX19-LMP 331i	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 T135 °C Da		
Safety technical max. values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0 nF, L_i ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF to the housing		
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 ... 65 °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		
Miscellaneous			
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA		
Weight	approx. 200 g		
Installation position	any [2]		
Operational life	100 million load cycles		
CE-conformity	EMC Directive: 2014/30/EU		
ATEX Directive	2014/34/EU		
[2] Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges p_N ≤ 1 bar.			

Wiring diagrams

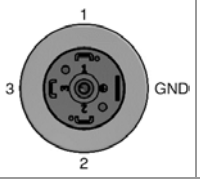
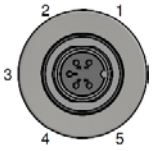
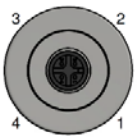
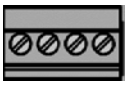
2-wire-system (current)



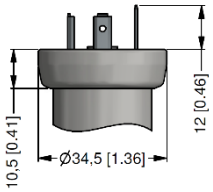
3-wire-system (voltage)



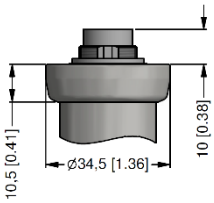
Pin configuration

Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1/ metal (4-pin)	compact field housing	cable colours (IEC 60757)
				 V_{S+} V_{S-} S+ GND	
supply + supply – signal + (only for 3-wire)	1 2 3	3 4 1	1 2 3	IN + IN – OUT +	WH (white) BN (brown) GN (green)
shield	ground pin ⏚	5	4	⏚	GNYE (green-yellow)

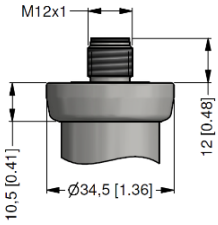
Electrical connections (dimensions mm / in)



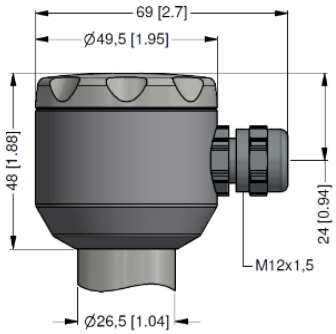
ISO 4400
(IP 65)



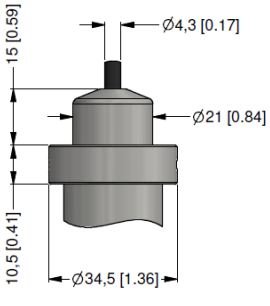
Binder series 723, 5-pin
(IP 67)



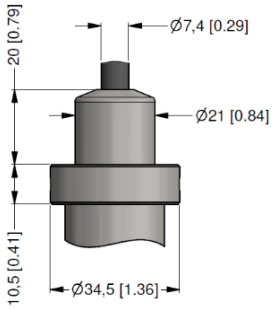
M12x1, 4-pin
(IP 67)



compact field housing
(IP 67)



cable outlet,
with PVC cable (IP 67) [3]

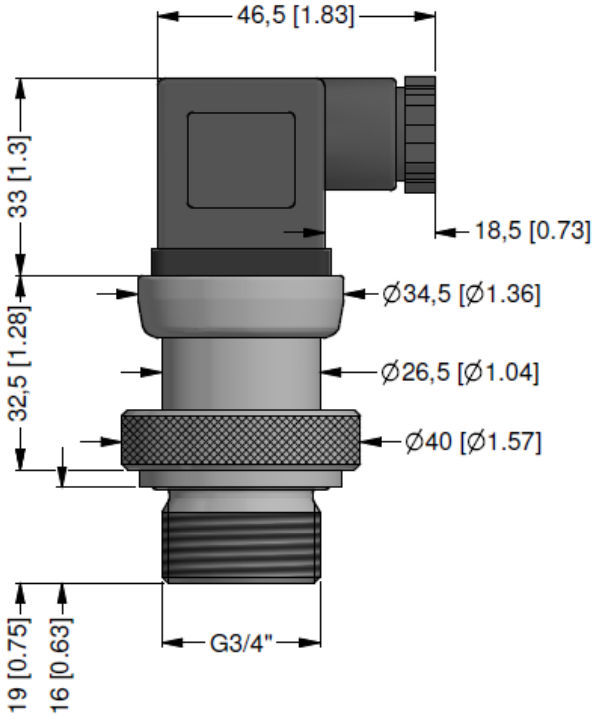


cable outlet,
cable withventilation tube (IP 68) [4]

⇨ **universal field housing stainless steel 316L with cable gland M20x1.5 (ordering code 880) and other versions on request**

[3] *standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)*
[4] *different cable types and lengths available, permissible temperature depends on kind of cable*

Mechanical connection (dimensions mm / in)



G3/4" DIN 3852 with flush sensor

⇨ **metric threads andother versions onrequest**

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BD|SENSORS pressure measurement

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Ordering code LMP 331i

LMP 331i ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Pressure			
in bar		4 3 0	
in mH_2O		4 3 1	
Input [mH_2O]	[bar]		
4	0.4	4 0 0 0	
10	1.0	1 0 0 1	
20	2.0	2 0 0 1	
40	4.0	4 0 0 1	
100	10	1 0 0 2	
200	20	2 0 0 2	
400	40	4 0 0 2	
customer		9 9 9 9	consult
Output			
4 … 20 mA / 2-wire		1	
intrinsic safety 4 … 20 mA / 2-wire		E	
0 … 10 V / 3-wire		3	
customer		9	consult
Accuracy (at nominal pressure)			
0.1 % FSO		1	
customer		9	consult
Electrical connection			
male and female plug ISO 4400		1 0 0	
male plug Binder series 723 (5-pin)		2 0 0	
male plug M12x1 (4-pin) / metal		M 1 0	
cable outlet with PVC cable (IP67) [1]		T A 0	
cable outlet, cable with ventilation tube (IP68) [2]		T R 0	
compact field housing stainless steel 1.4301 (304)		8 5 0	
customer		9 9 9	consult
Mechanical connection			
G3/4" DIN 3852 with flush sensor		K 0 0	
customer		9 9 9	consult
Seal			
FKM		1	
customer		9	consult
Special version			
standard		1 1 1	
customer		9 9 9	consult

[1] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request
[2] code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

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