



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
- ▶ drinking water certificate
according to DVGW and KTW

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)



Pressure ranges								
Nominal pressure gauge	[bar]	0.4	1	2	4	10	20	40
Level gauge	[mH ₂ O]	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 / V _S = 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, EPDM (without / with drinking water certificate) 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
Drinking water certificate ³	according to DVGW W 270 and UBA KTW

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

³ only possible with EPDM seal; not possible with IS-version (explosion protection), with order the indication "with drinking water certificate" is necessary

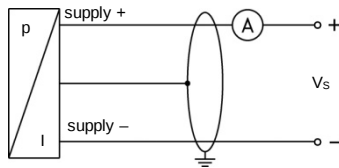
LMP 331i

Precision Screw-in Transmitter

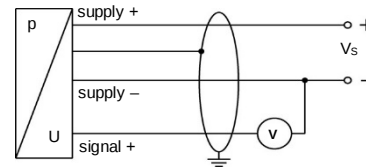
Technical Data

Wiring diagrams

2-wire-system (current)



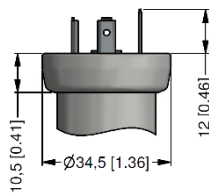
3-wire-system (voltage)



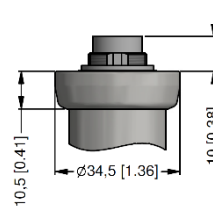
Pin configuration

Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1/ metal (4-pin)	compact field housing	cable colours (IEC 60757)
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)

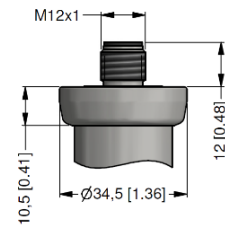
Electrical connections (dimensions mm / in)



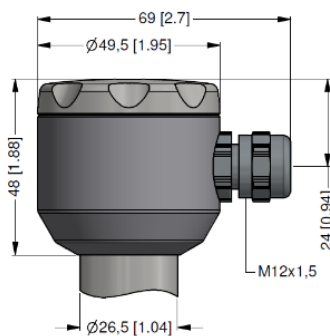
ISO 4400
(IP 65)



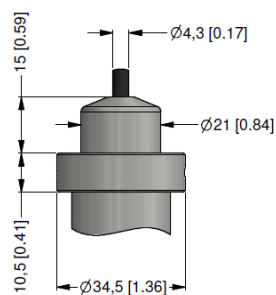
Binder series 723, 5-pin
(IP 67)



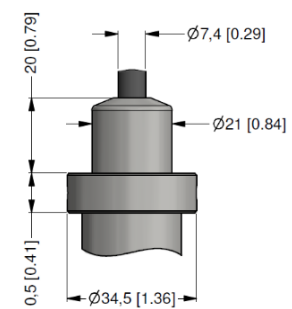
M12x1, 4-pin
(IP 67)



compact field housing
(IP 67)



cable outlet,
with PVC cable (IP 67)⁴



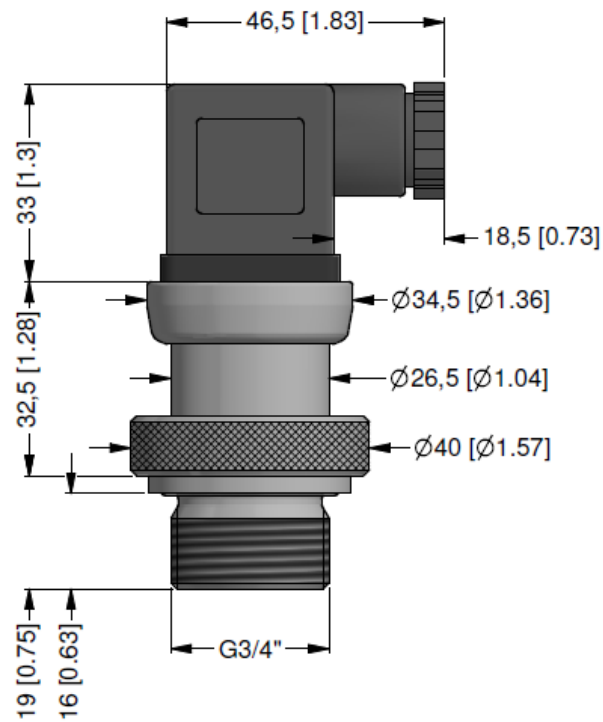
cable outlet,
cable with ventilation tube (IP 68)⁵

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

⁴ standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)

⁵ 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 and other versions on request

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Ordering code LMP 331i

LMP 331i

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Pressure												
			in bar	4	3	0						
			in mH ₂ O	4	3	1						
Input	[mH ₂ O]	[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							8	5	0			
stainless steel 1.4301 (304)												
customer							9	9	9			consult
Mechanical connection												
G3/4" DIN 3852								K	0	0		
with flush sensor												
customer							9	9	9			consult
Seal												
FKM									1			
EPDM									3			
DVGW/KTW:	EPDM ³								3T			
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; cable not included in the price

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