



LMK 331

Screw-In Transmitter

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 60 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 for pasty and impuritied media
- pressure port PVDF for aggressive media

Optional versions

- IS-version (only for 4 ... 20mA / 2-wire): Ex ia = intrinsically safe for gases and dusts
- SIL 2 application according to IEC 61508 / IEC 61511
- customer specific versions

The screw-in transmitter LMK 331 has been especially designed for level and process measurement and is suitable for pressure measurement of liquids, oils and gases. Usage in more viscous or polluted media is possible because of the semi-flush pressure sensor.

For the usage in aggressive media we recommended the version with PVDF pressure port. Additional features like e.g. an intrinsically safe version or a functionally safe version (SIL 2) complete the range of possibilities.

Preferred areas of use are



Plant and Machine Engineering



Energy Industry



Environmental Engineering (water - sewage - recycling)



Medical Technology











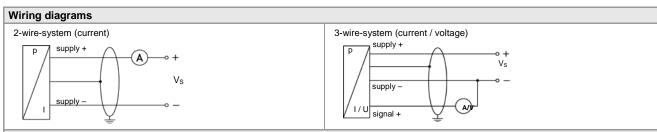




Input pressure range													
Nominal pressure gauge	[bar]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40 ¹	60 ¹
Level	[mH ₂ O]	4	6	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	1	2	2	4	4	10	20	20	40	100	100	200
Burst pressure	[bar]	2	4	4	5	5	12	25	25	50	120	120	250
Vacuum resistance	[bar]	P _N ≥ 1	bar: unli	mited va	cuum res	istance							
		$P_{N} < 1$	bar: on	request									
¹ only possible with stainless steel pressure port													

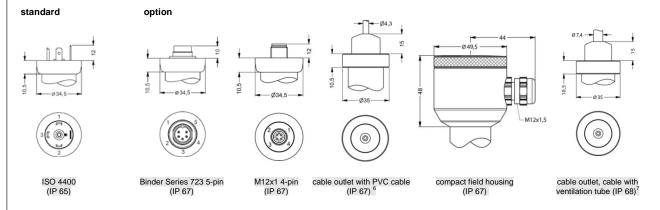
Output signal / Supply											
Standard	2-wire: 4 20 mA / V _S	= 8 32 V _{DC}									
Option IS-protection ²	2-wire: 4 20 mA / Vs										
Optionen 3-wire	3-wire: 0 20 mA / V _s										
	0 10 V / V _s										
² IS-protection not possible with plastic											
Performance											
Accuracy 3	≤ ± 0.5 % FSO										
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega$										
	current 3-wire: $R_{max} = 500 \Omega$										
	voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$										
Influence effects	supply: 0.05 % FSO / 10 V										
	load: 0.05% FSO / $k\Omega$										
Response time	2-wire: ≤ 10 msec										
·	3-wire: ≤ 3 msec										
³ accuracy according to IEC 60770 – lii	mit point adjustment (non-linearity	/, hysteresis, repeatability)									
Thermal effects (Offset and Spa	n) / Permissible Temperatu	ires									
Thermal error	≤ ± 0.2 % FSO / 10 K										
in compensated range	-25 85 °C										
Permissible temperatures 4	medium: -40 125 °C storage: -40 100 °C	electronics / en	vironment: -40 85 °C								
⁴ for pressure port of PVDF the minimu) °C									
Electrical protection	,	•									
Short-circuit protection	permanent										
Reverse polarity protection	no damage, but also no fur	oction									
Electromagnetic compatibility	emission and immunity acc										
Mechanical stability	Tomicolori and immunity dec	ioraling to Err 01020									
Vibration	10 a PMS (25 2000 Hz)	according to DIN EN 60069 2 6									
	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									
Materials											
Pressure port / housing		pressure port	housing								
	standard:	stainless steel 1.4404 (316L)	stainless steel 1.4404 (316L)								
Onting a series of field become	options for P _N ≤ 25 bar:	PVDF	PVDF								
Option compact field housing	stainless steel 1.4305 with cable gland brass nickel plated others on request										
Seals	standard: FKM										
Diaphragm	options: EPDM, NBR, others on request ceramics Al ₂ O ₃ 96 %										
Media wetted parts	pressure port, seals, diaphi	raum									
Explosion protection (only for 4		i dgiii									
Approval DX19-LMK 331 only for	IBExU 10 ATEX 1068 X /	IECE, IBE 42 0027V									
stainless steel pressure port	zone 0: II 1G Ex ia II										
stainless steel pressure port		IC T 85°C Da									
Safety technical maximum values		$660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$									
,	1	ve an inner capacity of max. 27 nF to	the housing								
Permissible temperatures for	117	60 °C with p _{atm} 0.8 bar up to 1.1 ba									
environment .	in Zone 1 or higher: -25 70 °C										
Connecting cables	cable capacitance: signal	line/shield also signal line / signal line	e: 160 pF/m								
(by factory)	cable inductance: signal	line /shield also signal line / signal lin	ne: 1 μH/m								
Miscellaneous											
Option SIL ⁵ 2 application	according to IEC 61508 / IE	EC 61511									
Current consumption	-	ax. 25 mA signal output vo	ltage: max. 7 mA								
Weight	approx. 150 g	y '	•								
Installation position	any										
Operational life	> 100 x 10 ⁶ pressure cycles	S									
CE-conformity	EMC Directive: 2004/108/E	C									
ATEX Directive	94/4/EG										
⁵ only for 420mA / 2-wire		<u> </u>									

Screw-In Transmitter



Pin configuration						
Electrical connections	ISO 4400	Binder 723	M12x1 / metal	cable colours		
	130 4400	(5-pin)	(4-pin)	(DIN 47100)		
Supply +	1	3	1	wh (white)		
Supply –	2	4	2	bn (brown)		
Signal + (only for 3-wire)	3	1	3	gn (green)		
Shield	ground contact	5	4	gn/ye (green / yellow)		

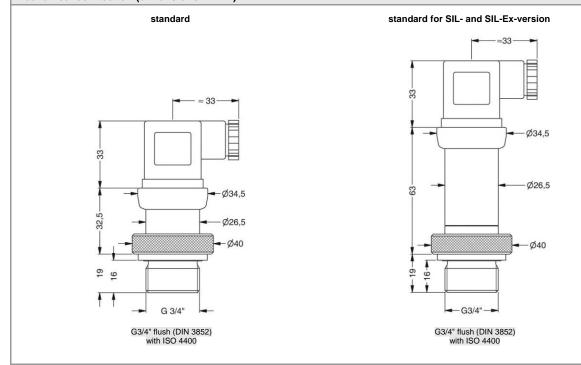
Electrical connections (dimensions in mm)



⇒universal stainless steel housing 1.4404 with cable gland M20x1.5 (ordering code 880) and other versions on request

 6 standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 ... 70°C) 7 different cable types and length available, permissible temperature depends on kind of cable

Mechanical connection (dimensions in mm)





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LMK 331	Щ]-[]-[]-[-]-[П]-[]-[]- <u></u>	- 🔲			
ressure gauge in bar	4 6 0															
gauge in mH ₂ O put [mH ₂ O] [bar]	4 6 1															
4.0 0.40 6.0 0.60 10 1.0		4 (6 (1 (0 0 0)												
16 1.6 25 2.5		1 6	6 0 1													
40 4.0 60 6.0			0 0 1													
100 10 160 16		1 (0 0 2	2												
250 25 400 40	1	2 5	0 0 2	2					Н							
600 60 customer		6 (0 0 2	9					ш							consult
4 20 mA / 2-wire 0 20 mA / 3-wire				1					П					T		
0 10 V / 3-wire Intrinsic safety 4 20 mA / 2-wire	2			3 E												
SIL2 4 20 mA / 2-wire SIL2 with Intrinsic safety				15 ES	3											
4 20 mA / 2-wire customer				9												consult
0.5 %					5											
ectrical connection Male and female plug ISO 4400					9	1	0 (consult
Male plug Binder series 723 (5-pin) Cable outlet with PVC cable	3					2 T	0 (A ()	Н							
Cable outlet with cable Male plug M12x1 (4-pin) / metal						T M	R ()	Н							
compact field housing stainless steel 1.4305							5 ()								
customer echanical connection						9	9 9)								consult
G3/4" DIN 3852 with flush sensor customer								ŀ	9 9							consult
eals FKM									7 3	1						Consuit
NBR EPDM										5	5					
customer ressure port										9						consult
Stainless steel 1.4404 (316L) r $P_N \le 25$ bar PVDF	4										1 B					
customer iaphragm Ceramics Al ₂ O ₃ 96%											9	2				consult
customer		_	_	_	_	_	_	_	_	_	_	9			-	consult
													0	0	0	a a manula
pecial version standard customer													9	9	9	consult

 $^{^1}$ only possible for pressure port of stainless steel 2 Ex-protection not possible with plastic pressure port 3 standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C) 4 min. permissible temperature -30 °C