

LMK 351

Screw-in Transmitter

Ceramic Sensor

accuracy according to IEC 60770:
standard: 0.35% FSO
option: 0.25% FSO



Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 bar

Output signal

2-wire: 4 ... 20 mA

3-wire: 0 ... 20 mA / 0 ... 10 V

others on request

Product characteristics

- ▶ pressure port PVDF-version for aggressive media
- ▶ pressure port G 1 1/2" for pasty and polluted media



Optional versions

- ▶ IS-version
Ex ia = intrinsically safe for gases and dusts
- ▶ diaphragm 99.9 % Al₂O₃
- ▶ customer specific versions



The screw-in transmitter LMK 351 has been designed for measuring small system pressure and level measurement in container. The LMK 351 is based on an own-developed capacitive ceramic sensor element. Usage in viscous and pasty media is possible because of the flush mounted sensor.

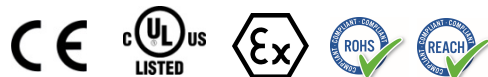
For the usage in aggressive media a pressure port in PVDF and the diaphragm in Al₂O₃ 99.9 % is available. An intrinsically safe version complete the range of possibilities.

Preferred areas of use are

-  Plant and Machine Engineering
-  Environmental Engineering
(water – sewage – recycling)

Preferred used for

-  Fuel and Oil
-  Viscous and Pasty Media



Pressure ranges																
Nominal pressure	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Low pressure	[bar]	-0.2		-0.3		-0.5							-1			

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V _S = 9 ... 32 V _{DC}
Option Ex-version	2-wire: 4 ... 20 mA / V _S = 14 ... 28 V _{DC}
Option 3-wire	3-wire: 0 ... 10 V / V _S = 12.5 ... 32 V _{DC}

Performance	
Accuracy ¹	standard: ≤ ± 0.35 % FSO option: ≤ ± 0.25 % 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
Turn-on time	700 msec
Mean measuring time	5/sec
Response time	mean response time: ≤ 200 msec max. response time: 380 msec

¹ accuracy according to IEC 60770 - limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (Offset and Span) / -Permissible temperatures			
Tolerance band	≤ ± 0.1 % FSO / 10 K	in compensated range - 20 ... 80 °C	
Permissible temperatures ²	medium: -40 ... 125 °C	electronics / environment: -40 ... 85 °C	storage: -40 ... 100 °C

² for pressure port of PVDF the minimum permissible temperature is -30 °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 (20 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 1 msec according to DIN EN 60068-2-27

Materials (media wetted)	
Pressure port	standard: stainless steel 1.4404 (316L), PVC option: PVDF
Housing	standard: stainless steel 1.4404 (316L) option: PVDF
Option compact field housing	Stainless steel 1.4301 (304); cable gland M12x 1.5, brass, nickel plated (clamping range 2...8 mm)
Seals	FKM -40 ... 125 °C FFKM -15 ... 125 °C EPDM -40 ... 125 °C
Diaphragm	standard: ceramics Al ₂ O ₃ 96 % options: ceramics Al ₂ O ₃ 99.9 %
Media wetted parts	pressure port, seals, diaphragm

IS-protection (only for 4 ... 20 mA / 2-wire)	
Approval DX4-LMK 351	IBExU05ATEX1069 X stainless steel-pressure port with male (connector): zone 0: II 1 G Ex ia IIC T4 Ga zone 20: II 1 D Ex iaD T 85 °C Da stainless steel-pressure port with cable: zone 0: II 1 G Ex ia IIB T4 Ga zone 20: II 1 D Ex iaD T 85 °C Da plastic-pressure port with male (connector): zone 0/1 ³ : II 1/2 G Ex ia IIC T4 Ga/Gb zone 20/21 ³ : II 1 D Ex iaD T 85 °C Da/Db plastic-pressure port with cable: zone 0/1 ³ : II 1/2 G Ex ia IIB T4 Ga/Gb zone 20/21 ³ : II 1 D Ex iaD T 85 °C Da/Db
Safety technical maximum values	U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 27 nF, L _i = 5 μH
Max. permissible temperature for environment	in zone 0: -20 ... 60 °C for p _{atm} 0.8 bar up to 1.1 bar zone 1 and higher: -25 ... 70 °C
Connecting cables (by factory)	capacity: signal line / shield also signal line / signal line: 160 pF/m inductance: signal line / shield also signal line / signal line: 1 μH/m

³ The designation depends on the used pressure range. With nominal pressure ranges ≤ 60 mbar the designation is „2G“. With nominal pressure ranges > 60 mbar and < 10 bar (see item 17 of the type-examination certificate) must be attended!

Miscellaneous	
Current consumption	signal output current: max. 21 mA signal output voltage: max. 5 mA
Weight	approx. 200 g
Installation position	any
Operational life	> 100 x 10 ⁶ loading cycles
CE-conformity	EMV-directive: 2014/30/EU

ATEX Directive		2014/34/EU									
Wiring diagram											
2-wire-system (current)			3-wire-system (current/voltage)								
Pin configuration											
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	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	5	4		gn/ye (green/yellow)						
Electrical connections (dimensions in mm)											
standard		option									
ISO 4400 (IP 65)		Binder Series 723 5-pin (IP 67)		M12x1 4-pin (IP 67)							
		cable outlet with PVC cable (IP 67) ⁴		compact field housing (IP 67)							
				cable outlet, cable with ventilation tube (IP 68) ⁵							
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											
Dimensions (in mm)											
<p>G1 1/2" flush (DIN 3852) stainless steel</p>			<p>G1 1/2" flush (DIN 3852) PVDF⁶</p>								
<table border="1"> <thead> <tr> <th>material</th> <th>A</th> </tr> </thead> <tbody> <tr> <td>stainless steel</td> <td>approx. 3</td> </tr> <tr> <td>PVDF</td> <td>approx. 6</td> </tr> </tbody> </table>		material	A	stainless steel	approx. 3	PVDF	approx. 6				
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PVDF	approx. 6										
⁶ not possible in combination with compact field housing											

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