

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	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

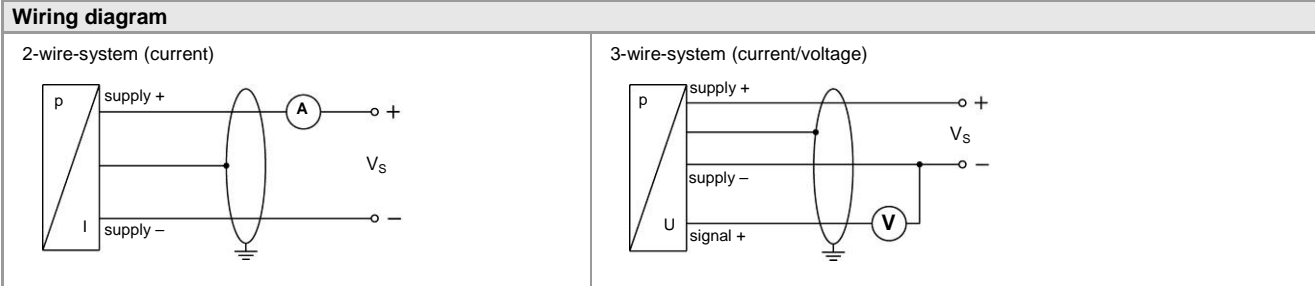
Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 1 msec according to DIN EN 60068-2-27

Materials (media wetted)	
Pressure port	standard: stainless steel 1.4404 (316L) option: PVDF
Housing	standard: stainless steel 1.4404 (316L) option: PVDF
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 DX14-LMK 351	IBExU05ATEX1070 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 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 plastic-pressure port with male (connector): zone 0/1 ² : II 1/2 G Ex ia IIC T4 Ga/Gb zone 20/21 ³ : II 1 D Ex iaD T 85 °C plastic-pressure port with cable: zone 0/1 ² : II 1/2 G Ex ia IIB T4 Ga/Gb zone 20/21 ³ : II 1 D Ex iaD T 85 °C
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

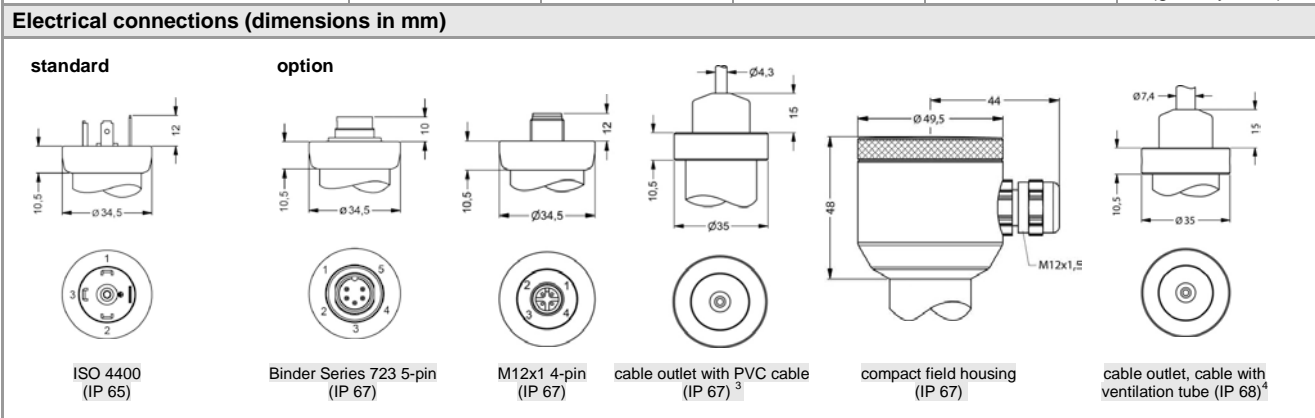
² The designation depends on the used pressure range. With nominal pressure ranges ≤ 60 mbar the designation is „2G“. With nominal pressure ranges > 60 mbar and < 10 bar (see item 17 of the type-examination certificate) must be attended!

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: 2004/108/EC
ATEX Directive	94/9/EC

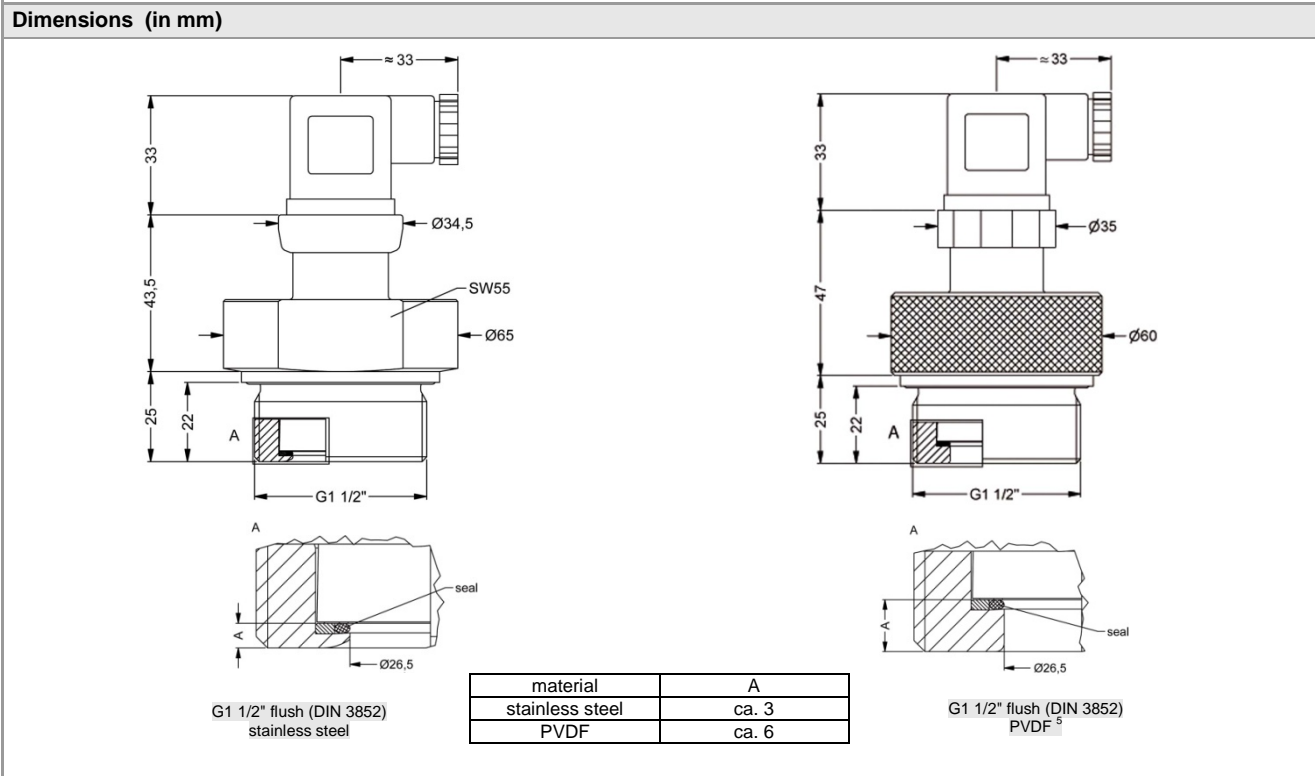


Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	field housing	cable colours (DIN 47100)
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)



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



⁵ not possible in combination with compact field housing

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

Ordering code LMK 351

LMK 351

Pressure									
	in bar	4	7	0					
	in mH ₂ O	4	7	1					
Input									
	[mH ₂ O]	[bar]							
	0.4	0.04	0	4	0	0			
	0.6	0.06	0	6	0	0			
	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			
	200	20	2	0	0	2			
	customer		9	9	9	9			consult
Output									
	4 ... 20 mA / 2-wire								1
	0 ... 10 V / 3-wire								3
	Intrinsic safety 4 ... 20 mA / 2-wire								E
	customer								9
									consult
Accuracy									
	standard	0.35 %							3
	option	0.25 %							2
	customer								9
									consult
Electrical connection									
	Male and female plug ISO 4400								1
	Male plug Binder series 723 (5-pin)								2
	Cable outlet with PVC- cable ¹								T
	Cable outlet ²								A
	Male plug M12x1 (4-pin) / metal								0
	compact field housing								8
	customer								5
									0
									9
									9
									consult
Mechanical connection									
	G1 1/2" DIN 3852 with								M
	flush sensor								0
	customer								0
									9
									9
									consult
Seals									
	FKM								1
	EPDM								3
	FFKM								7
	customer								9
									consult
Pressure port									
	Stainless steel 1.4404 (316L)								1
	PVDF ³								B
	customer								9
									consult
Diaphragm									
	Ceramics Al ₂ O ₃ 96%								2
	Ceramics Al ₂ O ₃ 99.9%								C
	customer								9
									consult
Special version									
	standard								0
	customer								0
									0
									9
									9
									9
									consult

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
² cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable
³ not possible in combination with compact field housing

