



LMK 351

Screw-in Transmitter

Ceramic Sensor

accuracy according to IEC 61298-2:
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
others on request

Product characteristics

- ▶ pressure port PVDF or PP-HT for aggressive media
- ▶ pressure port G 1 1/2" for pasty and polluted media
- ▶ diaphragm ceramics Al₂O₃ 99.9 %

Optional versions

- ▶ IS-version
Ex ia = intrinsically safe for gases and dust
- ▶ 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 is available. An intrinsically safe version completes the range of possibilities.

Preferred areas of use are



Plant and machine engineering



Environmental engineering
(water – sewage – recycling)

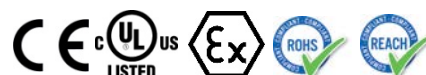
Preferred used for



Fuel and oil

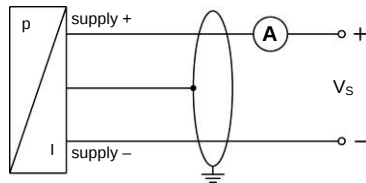


Viscous and pasty media



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
Permissible vacuum	[bar]	-0.2		-0.3		-0.5				-1						
Output signal / Supply																
Standard	2-wire: 4 ... 20 mA / V _S = 9 ... 32 V _{DC}															
Option IS-version	2-wire: 4 ... 20 mA / V _S = 14 ... 28 V _{DC}															
Performance																
Accuracy ¹	standard: ≤ ± 0.35 % FSO option for p _N ≥ 0.6 bar: ≤ ± 0.25 % FSO															
Permissible load	R _{max} = [(V _S – V _{S min}) / 0.02 A] Ω															
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ															
Long term stability	≤ ± 0.1 % FSO / year at reference conditions															
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 61298-2 - limit point adjustment (non-linearity, hysteresis, repeatability)																
Thermal effects (offset and span)																
Tolerance band	≤ ± 1 % FSO															
In compensated range	-20 ... 80 °C															
Permissible temperatures																
Permissible temperatures ²	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C															
² for pressure port in PVDF the operation medium temperature is -30 ... 60 °C and in PP-HT 0 ... 60 °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	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															
Materials (media wetted)																
Pressure port / housing	standard: stainless steel 1.4404 (316L) option: PVDF (p _{max} = 20 bar @ t _{max} = 60 °C) PP-HT (p _{max} = 10 bar @ t _{max} = 60 °C)															
Option compact field housing	stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 ... 8 mm)															
Seals	FKM -40 ... 125 °C FFKM -15 ... 125 °C EPDM -40 ... 125 °C															
Diaphragm	ceramics Al ₂ O ₃ 99.9 %															
Media wetted parts	pressure port, seals, diaphragm															
Explosion protection																
Approval DX14-LMK 351	IBExU05ATEX1070 X stainless steel-pressure port with connector/cable outlet: zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T110 °C Da plastic-pressure port with connector/cable outlet: zone 0/1: II 1/2G Ex ia IIC T4 Ga/Gb zone 20/21: II 1/2D Ex ia IIIC T110 °C Da/Db															
Safety technical maximum values	U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 14 nF, L _i ≈ 0 μH, C _{gnd} = 27 nF															
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)	cable capacity: signal line / shield also signal line / signal line: 220 pF/m cable inductance: signal line / shield also signal line / signal line: 1.5 μH/m															
Miscellaneous																
Current consumption	max. 21 mA															
Weight	approx. 200 g															
Installation position	any															
Operational life	100 million load cycles															
CE-conformity	EMV-directive: 2014/30/EU															
ATEX Directive	2014/34/EU															
Wiring diagrams																

2-wire-system (current)

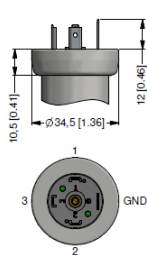


Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	compact field housing	cable colours (IEC 60757)
Supply +	1	3	1	IN +	WH (white)
Supply -	2	4	2	IN -	BN (brown)
Shield	ground pin $\oplus$	5	4	$\oplus$	GNYE (green-yellow)

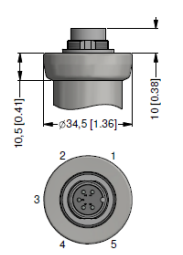
Electrical connections (dimensions in mm)

standard

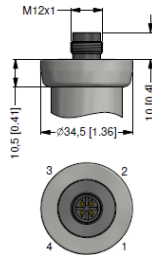


ISO 4400
(IP 65)

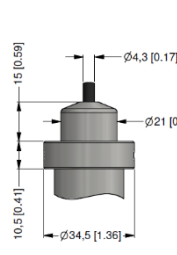
options



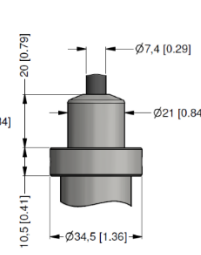
Binder series 723 5-pin
(IP 67)



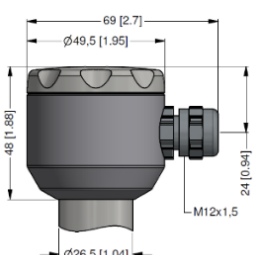
M12x1 4-pin
(IP 67)



cable outlet with
PVC cable
(IP 67) ³



cable outlet, cable with
ventilation tube
(IP 68) ⁴



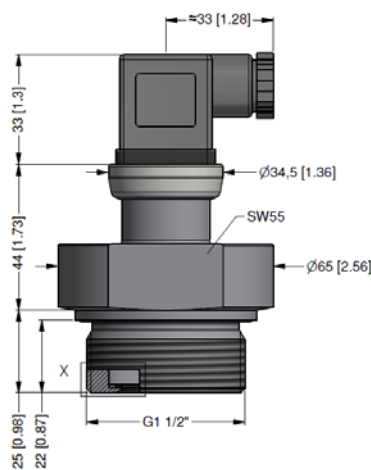
compact field housing
(IP 67) ⁵

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

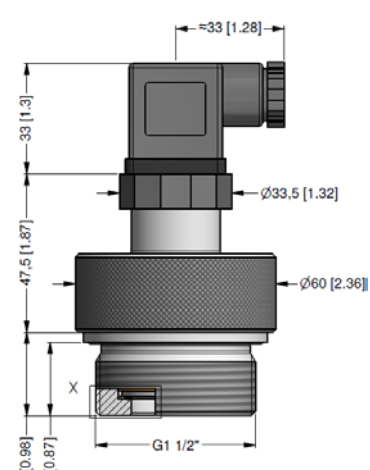
⁴ different cable types and lengths available, permissible temperature depends on kind of cable

⁵ not possible in combination with pressure port made of PVDF or PP-HT

Dimensions (mm / in)



G1 1/2" flush (DIN 3852)
stainless steel



G1 1/2" flush (DIN 3852)
PVDF / PP-HT ⁶

⁶ not possible in combination with compact field housing

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Ordering code LMK 351

LMK 351

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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						
	intrinsic safety 4 ... 20 mA / 2-wire		E						
	customer		9						consult
Accuracy									
	standard:	0.35 % FSO	3						
	option for p _N ≥ 0.6 bar:	0.25 % FSO	2						
	customer		9						consult
Electrical connection									
	male and female plug ISO 4400		1	0	0				
	male plug Binder series 723 (5-pin)		2	0	0				
	cable outlet with PVC cable (IP67) ¹		T	A	0				
	cable outlet, cable with ventilation tube (IP68) ²		T	R	0				
	male plug M12x1 (4-pin) / metal compact field housing		M	1	0				
	stainless steel 1.4301 (304) ³		8	5	0				
	customer		9	9	9				consult
Mechanical connection									
	G1 1/2" DIN 3852 with flush sensor		M	0	0				
	customer		9	9	9				consult
Seal									
	FKM		1						
	EPDM		3						
	FFKM		7						
	customer		9						consult
Pressure port									
	stainless steel 1.4404 (316L)		1						
	PVDF (p _{max} = 20 bar) ⁴		B						
	PP-HT (p _{max} = 10 bar) ⁴		R						
	customer		9						consult
Diaphragm									
	ceramics Al ₂ O ₃ 99.9 %		C						
	customer		9						consult
Special version									
	standard		0	0	0				
	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 not possible in combination with pressure port made of PVDF or PP-HT

⁴ not possible in combination with compact field housing; for pressure port in PVDF the operation medium temperature is -30 ... 60 °C and in PP-HT 0 ... 60 °C