

LMK 358

Separable Stainless Steel Probe

Ceramic Sensor

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



Nominal pressure

from 0 ... 40 cmH₂O up to 0 ... 100 mH₂O

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 ... 10 V
others on request

Special characteristics

- ▶ cable and probe separable
- ▶ diameter 39.5 mm
- ▶ especially for sewage, viscous and pasty media

Optional versions

- ▶ IS-protection zone 0
- ▶ cable protection via corrugated pipe
- ▶ diaphragm 99.9 % Al₂O₃
- ▶ different kinds of cable
- ▶ different kinds of elastomers

The separable stainless steel probe LMK 358 has been designed for level measurement in waste water, waste and higher viscosity media. Basic element is a capacitive ceramic sensor.

In order to facilitate stock-keeping and maintenance the transmitter head is plugged to the cable assembly with a connector and can be changed easily.

Preferred areas of use are



Water

ground water level measurement
rain spillway basin



Sewage

waste water treatment
water recycling



Fuel / Oil

level monitoring in open tanks
with low filling heights
fuel storage
tank farms / biogas plants



Input pressure range														
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V _S = 9 ... 32 V _{DC}
Option IS-protection	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	$R_{max} = [(V_S - V_{Smin}) / 0.02 A] \Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k Ω
Long term stability	≤ ± 0.1 % FSO / year
Turn-on time	700 msec
Mean response time	< 200 msec
Max. response time	380 msec
	measuring rate 5/sec

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

Thermal effects (Offset and Span)	
Thermal error	≤ ± 0.1 % FSO / 10 K in compensated range 0 ... 70 °C

Permissible temperatures	
Permissible temperatures	medium: -25 ... 125 °C electronic / environment: -25 ... 125 °C storage: -40 ... 125 °C

Electrical protection ²	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

² additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request

Electrical connection	
Cable with sheath material ³	PVC (-5 ... 70 °C) grey PUR (-25 ... 70 °C) black FEP (-25 ... 70 °C) black TPE (-25 ... 125 °C) blue

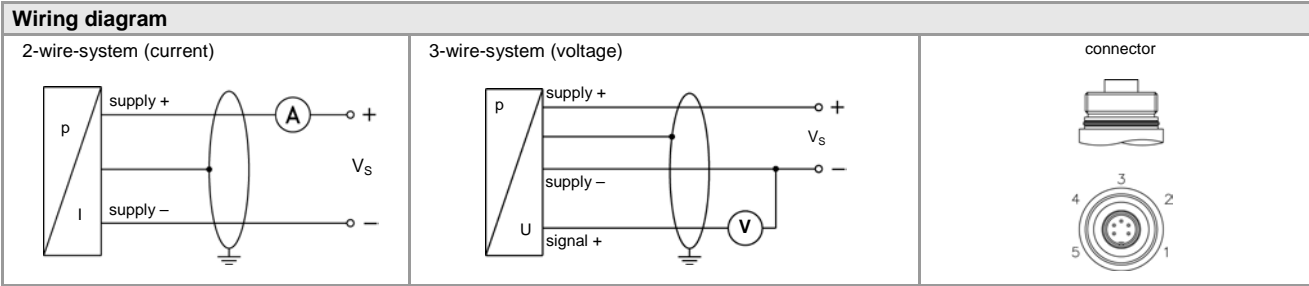
³ shielded cable with integrated air tube for atmospheric pressure reference

Materials (media wetted)	
Housing	stainless steel 1.4404 (316L)
Seals	FKM EPDM others on request
Diaphragm	standard: ceramics Al ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 99.9 %
Nose cone	POM

Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approval DX14-LMK 358	IBExU05ATEX1070 X Zone 0 ⁴ : II 1G Ex ia IIB T4 Ga Zone 20: II 1D Ex iaD 20 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
Permissible temperature	-25 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 100 pF/m cable inductance: signal line/shield also signal line/signal line: 1 μH/m

⁴ for optional stainless steel pipe following designation is valid: "II 1G Ex ia IIC T4 Ga" (zone 0)

Miscellaneous	
Current consumption	max. 21 mA
Weight	approx. 650 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2004/108/EC



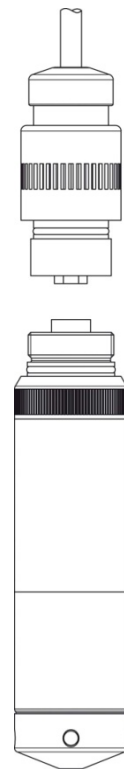
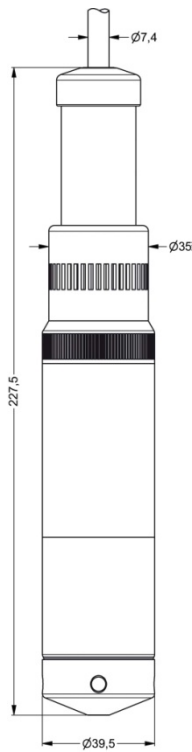
Pin configuration

Electrical connection	Binder series 723 ⁵ (5-pin)		cable colours (DIN 47100)
	2 - wire	3 - wire	
Supply +	3	3	wh (white)
Supply -	1	4	bn (brown)
Signal + (only for 3-wire)	-	1	gn (green)
Shield	5	5	gn/ ye (green / yellow)

⁵ in separated version

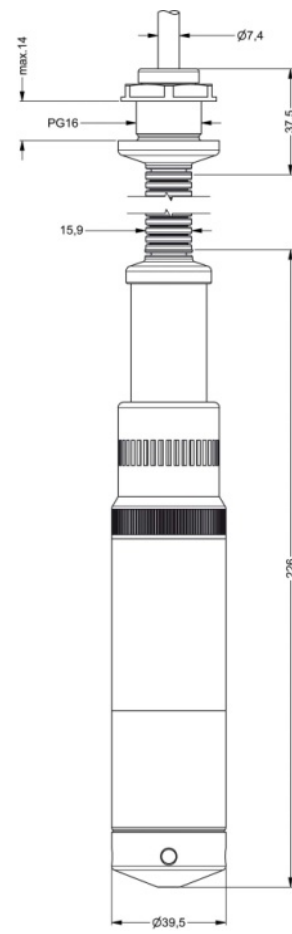
Dimensions (in mm)

standard:



separated version

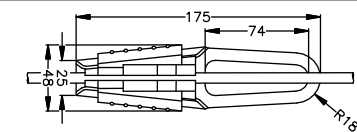
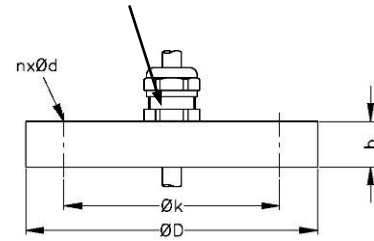
optional:



with
corrugated pipe

Mounting flange with cable gland	
Technical data	
Suitable for	all probes
Flange material	stainless steel 1.4404 (316L)
Material of cable gland	standard: brass, nickel plated on request: stainless steel 1.4305 (303); plastic
Seal insert	material: TPE (ingress protection IP 68)
Hole pattern	according to DIN 2507
Version	Size (in mm)
DN25 / PN40	D = 115, k = 85, b = 18, n = 4, d = 14
DN50 / PN40	D = 165, k = 125, b = 20, n = 4, d = 18
DN80 / PN16	D = 200, k = 160, b = 20, n = 8, d = 18
Weight	
DN25 / PN40	1.4 kg
DN50 / PN40	3.2 kg
DN80 / PN16	4.8 kg
Ordering type	Ordering code
DN25 / PN40 with cable gland brass, nickel plated	ZMF2540
DN50 / PN40 with cable gland brass, nickel plated	ZMF5040
DN80 / PN16 with cable gland brass, nickel plated	ZMF8016
Terminal clamp	
Technical Data	
Suitable for	all probes with cable \varnothing 5.5 ... 10.5 mm
Material	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)
Weight	approx. 160 g
Ordering type	Ordering code
Terminal clamp, steel, zinc plated	Z100528
Terminal clamp, stainless steel 1.4301 (304)	Z100527
Display program	
<p>CIT 200 Process display with LED display</p> <p>CIT 250 Process display with LED display and contacts</p> <p>CIT 300 Process display with LED display, contacts and analogue output</p> <p>CIT 350 Process display with LED display, bargraph, contacts and analogue output</p> <p>CIT 400 Process display with LED display, contacts, analogue output and Ex-approval</p> <p>CIT 600 Multichannel process display with graphics-capable LC display</p> <p>CIT 650 Multichannel process display with graphics-capable LC display and datalogger</p> <p>CIT 700 Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts</p> <p>PA 440 Field display with 4-digit LC display</p>	
<p>For further informations please contact our sales department or visit our homepage: http://www.bdsensors.com</p>	

cable gland M16x1.5 with seal insert (for cable- \varnothing 4 ... 11 mm)



Ordering code LMK 358

LMK 358

□ □ □ - □ □ □ □ - □ - □ - □ - □ - □ - □ □ □ □ - □ □ □ □ - □ □ □ □

Pressure		in bar		4	4	5															
		in mH ₂ O		4	4	6															
Input	[mH ₂ O]	[bar]																			
	0.40	0.04		0	4	0	0														
	0.60	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															
	customer		9	9	9	9														consult	
Housing																					
	Stainless steel 1.4404 (316L)																				1
	customer																				9
Diaphragm																					
	Ceramics Al ₂ O ₃ 96%																				2
	Ceramics Al ₂ O ₃ 99.9%																				C
	customer																				9
Output																					
	4 ... 20 mA / 2-wire																				1
	0 ... 10 V / 3-wire																				3
	Intrinsic safety 4 ... 20 mA / 2-wire																				E
	customer																				9
Seals																					
	FKM																				1
	EPDM																				3
	customer																				9
Electrical connection																					
	PVC-cable ¹																				1
	PUR-cable ¹																				2
	FEP-cable ¹																				3
	TPE-cable ¹																				4
	customer																				9
Accuracy																					
standard		0.35 %																			3
option		0.25 %																			2
	customer																				9
Cable length																					
	in m																				9 9 9
Special version																					
	standard																				0 0 0
	prepared for mounting ²																				1 0 6
	with stainless steel pipe																				1 0 3
	cable protection with																				9 9 9
	stainless steel corrugated pipe																				consult
	with pipe length in m																				consult
	customer																				9 9 9

¹ cable with integrated air tube for atmospheric pressure reference
² stainless steel pipe is not part of the supply

This price list contains product specification; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

