



# **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 cmH<sub>2</sub>O up to 0 ... 100 mH<sub>2</sub>O

#### **Output signals**

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

#### Special characteristics

- cable assembly and probe head separable
- diameter 39.5 mm
- especially suitable for sewage, viscous and pasty media

#### **Optional versions**

- IS-version Ex ia = intrinsically safe for gas and dust
- cable protection with stainless steel corrugated pipe
- diaphragm 99.9 % Al<sub>2</sub>O<sub>3</sub>
- different kinds of cables and 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.

order to facilitate stock-keeping In maintenance the probe 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



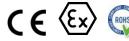
#### Sewage

waste water treatment water recycling

### Fuel and oil



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



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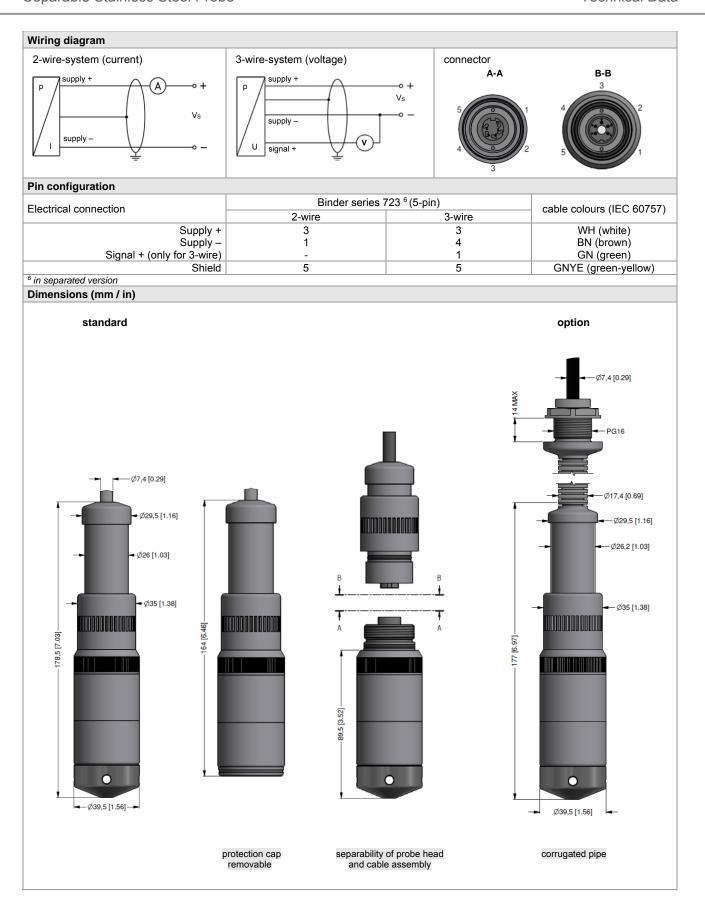


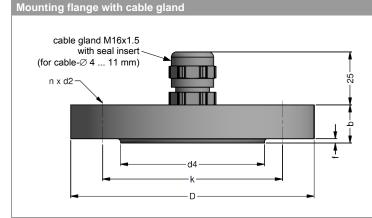
## Separable Stainless Steel Probe

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 <sub>2</sub> 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 <sub>S</sub> = 9 32 V <sub>DC</sub>			
Option IS-version	2-wire: 4 20 mA / V <sub>S</sub> = 14 28 V <sub>DC</sub>			
Option 3-wire	3-wire: 0 10 V / V <sub>S</sub> = 12.5 32 V <sub>DC</sub>			
Performance				
Accuracy 1	standard: ≤± 0.35 % FSO			
	option: ≤ ± 0.25 % FSO			
Permissible load	$R_{\text{max}} = [(V_{\text{S}} - V_{\text{S min}}) / 0.02 \text{ A}] \Omega$			
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 response time	≤ 200 msec measuring rate 5/sec			
Max. response time	380 msec			
<sup>1</sup> accuracy according to IEC 60770 – lim	it 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 /electronic / environment: -25 125 °C			
p	storage: -40 125 °C			
Electrical protection <sup>2</sup>				
Short-circuit protection	permanent			
Reverse polarity protection	no damage, but also no function			
Electromagnetic compatibility	emission and immunity according to EN 61326			
	ion unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request			
Electrical connection	and an analysis of the contract of the contrac			
Cable with sheath material <sup>3</sup>	PVC (-570°C) grey Ø 7.4 mm			
Cable with sheath material	PUR (-25 70 °C) black Ø 7.4 mm FEP 4 (-25 70 °C) black Ø 7.4 mm TPE-U (-25 125 °C) blue Ø 7.4 mm			
Bending radius static installation: 10-fold cable diameter dynamic application: 20-fold cable diameter				
<ul> <li><sup>3</sup> shielded cable with integrated ventilation</li> <li><sup>4</sup> do not use freely suspended probes with</li> </ul>	on tube for atmospheric pressure reference ith an FEP cable if effects due to highly charging processes are expected			
Materials (media wetted)				
Housing	stainless steel 1.4404 (316L)			
Seals	FKM EPDM others on request			
Diaphragm	standard: ceramics Al <sub>2</sub> O <sub>3</sub> 96 %			
	option: ceramics Al <sub>2</sub> O <sub>3</sub> 99.9 %			
Protection cap	POM-C			
Cable sheath	PVC, PUR, FEP, TPE-U			
Explosion protection (only for 4.				
Approval DX14-LMK 358	IBExU05ATEX1070 X  Zone 0 <sup>5</sup> : II 1G Ex ia IIB T4 Ga  Zone 20: II 1D Ex ia IIIC T85 °C Da			
Safety technical maximum values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 27 \text{ nF}, L_i = 5 \mu\text{H}, C_{and} = 27 \text{ nF}$			
Permissible temperature	in zone 0: -20 60 °C with p <sub>atm</sub> 0.8 bar up to 1.1 bar zone 1 or higher: -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			
	pipe following designation is valid: "II 1G Ex ia IIC T4 Ga" (zone 0)			
Miscellaneous	F			
	may 21 mA			
Current consumption	max. 21 mA			
Weight	approx. 650 g (without cable)			
Ingress protection	IP 68			
CE-conformity	EMC Directive: 2014/30/EU			
ATEX Directive	2014/34/EU			







dimensions in mm						
ai=a	DN25 /	DN50 /	DN80 /			
size	PN40	PN40	PN16			
b	18	20	20			
D	115	165	200			
d2	14	18	18			
d4	68	102	138			
f	2	3	3			
k	85	125	160			
n	4	4	8			

Technical data			
Suitable for	all probes		
Flange material	stainless steel 1.4404 (316L)		
Material of cable gland	standard: brass, nickel plated	on request: stainless stee	el 1.4305 (303); plastic
Seal insert	material: TPE (ingress protection I	IP 68)	
Hole pattern	according to DIN 2507		

Hole pattern	according to Dira 2007			
Ordering type		Ordering code	Weight	
DN25 / PN40 with cable gland br	ass, nickel plated	ZMF2540	1.4 kg	
DN50 / PN40 with cable gland brass, nickel plated		ZMF5040	3.2 kg	
DN80 / PN16 with cable gland br	ass, nickel plated	ZMF8016	4.8 kg	

#### Terminal clamp



Technical data	
Suitable for	all probes with cable $\varnothing$ 5.5 10.5 mm
Material of housing	standard: steel, zinc plated optionally: stainless steel 1.4301 (304)
Material of clamping jaws and positioning clips	PA (fibre-glass reinforced)
Dimensions (mm)	174 x 45 x 32
Hook diameter	20 mm

Ordering type		Ordering code	Weight	
Terminal clamp, steel, zinc plated		Z100528	approx 160 a	
Terminal clamp, stainless steel 1.4301 (304)		Z100527	approx. 160 g	

#### Display program

CIT 200 Process display with LED display

CIT 250 Process display with LED display and contacts

CIT 300 Process display with LED display, contacts and analogue output

CIT 350 Process display with LED display, bargraph, contacts and analogue output

CIT 400 Process display with LED display, contacts, analogue output and Ex-approval

CIT 600 Multichannel process display with graphics-capable LC display

CIT 650 Multichannel process display with graphics-capable LC display and datalogger

CIT 700 / CIT 750 Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts

PA 440 Field display with 4-digit LC display

For further information please contact our sales department or visit our homepage: http://www.bdsensors.de



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BD SENSORS
pressure measurement

LMK358\_E\_010420

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#### Ordering code LMK 358 LMK 358 Pressure 4 4 5 4 4 6 in mH<sub>2</sub>O Input [mH<sub>2</sub>O] [bar] 0 4 0 0 0.4 0.04 0.6 0.06 0 6 0 0 1 0 0 0 1.0 0.10 6 0 0 1.6 0.16 2 5 0 4 0 0 0 2.5 0.25 4.0 0.40 0 0 6 0 6.0 0.60 0 10 1.0 1 1 1 1 6 0 2 5 0 4 0 0 6 0 0 1 0 0 9 9 9 16 1.6 25 2.5 40 4.0 1 60 6.0 1 2 100 10 customer consult stainless steel 1.4404 (316L) 1 customer consult Diaphragm ceramics Al<sub>2</sub>O<sub>3</sub> 96 % 2 C ceramics Al<sub>2</sub>O<sub>3</sub> 99.9 % customer consult Output 4 ... 20 mA / 2-wire 1 0 ... 10 V / 3-wire 3 intrinsic safety 4 ... 20 mA / 2-wire Ε customer 9 consult FKM 1 EPDM 9 customer consult Electrical connection PVC-cable (grey, Ø 7.4 mm) PUR-cable (black, Ø 7.4 mm) FEP-cable (black, Ø 7.4 mm) 2 3 TPE-U-cable (blue, Ø 7.4 mm) customer 9 consult Accuracy standard 0.35 % FSO 3 2 option 0.25 % FSO © 2020 BD|SENSORS GmbH - The specifications given in this document represent the state of engineering the time of customer consult Cable length in m 9 9 9 Special version standard 0 0 0 cable protection with stainless steel corrugated pipe 0 3 9 9 9 consult with pipe length in m customer 9 9 9 consult

modifications to the

We reserve the right to make

of publishing.

<sup>&</sup>lt;sup>1</sup> shielded cable with integrated ventilation tube for atmospheric pressure reference