

# 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 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 % Al<sub>2</sub>O<sub>3</sub>
- ▶ 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 <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-protection	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 <sup>1</sup>	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 $\Omega$													
Long term stability	≤ ± 0.1 % FSO / year at reference conditions													
Turn-on time	700 msec													
Mean response time	< 200 msec													
Max. response time	380 msec													
<sup>1</sup> 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 <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													
<sup>2</sup> 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 <sup>3</sup>	PVC (-5 ... 70 °C) grey PUR (-25 ... 70 °C) black FEP <sup>4</sup> (-25 ... 70 °C) black TPE (-25 ... 125 °C) blue													
<sup>3</sup> shielded cable with integrated air tube for atmospheric pressure reference														
<sup>4</sup> do not use freely suspended probes with 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 %													
Nose cone	POM													
Explosion protection (only for 4 ... 20 mA / 2-wire)														
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 <sub>i</sub> = 28 V, I <sub>i</sub> = 93 mA, P <sub>i</sub> = 660 mW, C <sub>i</sub> = 27 nF, L <sub>i</sub> = 5 μH, C <sub>gnd</sub> = 27 nF													
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													
<sup>5</sup> 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: 2014/30/EU													
ATEX Directive	2014/34/EU													

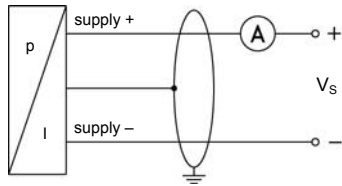
# LMK 358

Stainless Steel Probe

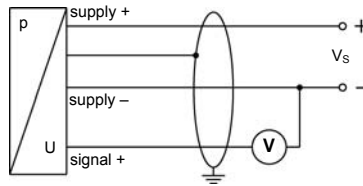
Technical Data

## Wiring diagram

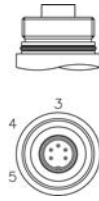
2-wire-system (current)



3-wire-system (voltage)



connector



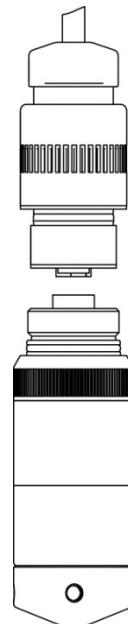
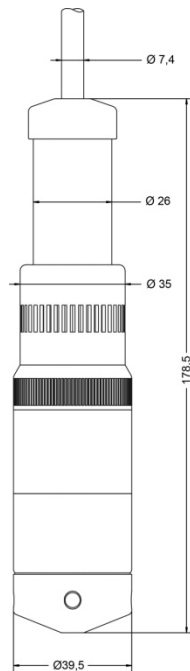
## Pin configuration

Electrical connection	Binder series 723 <sup>6</sup> (5-pin)		cable colours (IEC 60757)
	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	gnye (green-yellow)

<sup>6</sup> in separated version

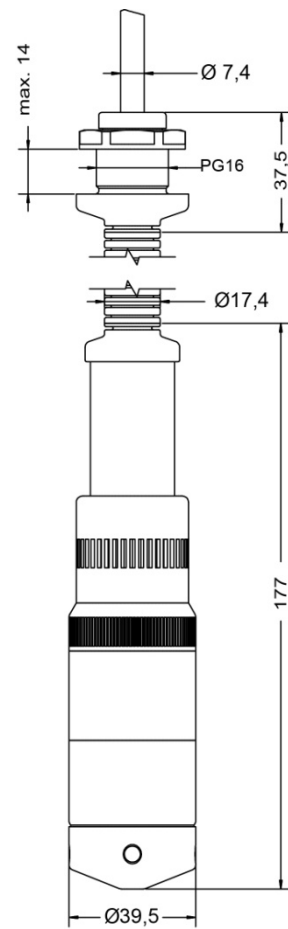
## Dimensions (in mm)

standard:

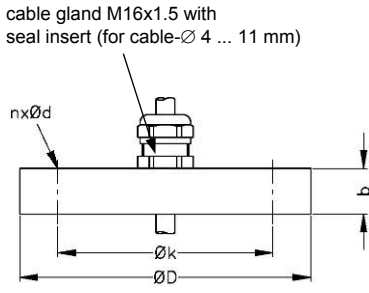
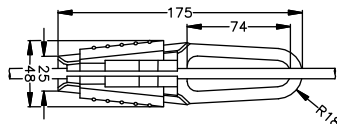



separated version

optional:



with  
corrugated pipe

Mounting flange with cable gland		
<b>Technical data</b>		
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	
<b>Version</b>	<b>Size (in mm)</b>	<b>Weight</b>
DN25 / PN40	D = 115, k = 85, b = 18, n = 4, d = 14	1.4 kg
DN50 / PN40	D = 165, k = 125, b = 20, n = 4, d = 18	3.2 kg
DN80 / PN16	D = 200, k = 160, b = 20, n = 8, d = 18	4.8 kg
<b>Ordering type</b>		<b>Ordering code</b>
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
<b>Terminal clamp</b>		
<b>Technical Data</b>		
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	
<b>Ordering type</b>		<b>Ordering code</b>
Terminal clamp, steel, zinc plated		Z100528
Terminal clamp, stainless steel 1.4301 (304)		Z100527
<b>Display program</b>		
<p><b>CIT 200</b> Process display with LED display</p> <p><b>CIT 250</b> Process display with LED display and contacts</p> <p><b>CIT 300</b> Process display with LED display, contacts and analogue output</p> <p><b>CIT 350</b> Process display with LED display, bargraph, contacts and analogue output</p> <p><b>CIT 400</b> Process display with LED display, contacts, analogue output and Ex-approval</p> <p><b>CIT 600</b> Multichannel process display with graphics-capable LC display</p> <p><b>CIT 650</b> Multichannel process display with graphics-capable LC display and datalogger</p> <p><b>CIT 700</b> Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts</p> <p><b>PA 440</b> Field display with 4-digit LC display</p> <p>For further informations please contact our sales department or visit our homepage: <a href="http://www.bdsensors.com">http://www.bdsensors.com</a></p>		
<p>cable gland M16x1.5 with seal insert (for cable-<math>\varnothing</math> 4 ... 11 mm)</p> 		
		

## Ordering code LMK 358

LMK 358

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

Pressure																				
	in bar	4	4	5																
	in mH <sub>2</sub> O	4	4	6																
Input		[mH <sub>2</sub> 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													
Housing																				
	Stainless steel 1.4404 (316L)							1												
	customer							9												
Diaphragm																				
	Ceramics Al <sub>2</sub> O <sub>3</sub> 96%							2												
	Ceramics Al <sub>2</sub> O <sub>3</sub> 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 <sup>1</sup>									1										
	PUR-cable <sup>1</sup>									2										
	FEP-cable <sup>1</sup>									3										
	TPE-cable <sup>1</sup>									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 <sup>2</sup>										1	0	6							
	with stainless steel pipe																			
	cable protection with																			
	stainless steel corrugated pipe										1	0	3				9	9	9	
	with pipe length in m																			
	customer										9	9	9							

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

© 2019 BDSENSORS GmbH - The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.