

# LMK 358



## Detachable Stainless Steel Probe

Ceramic Sensor

accuracy according to EN IEC 62828-2:  
standard: 0.35 % span  
option: 0.25 % span

### 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 detachable
- ▶ diameter 39.5 mm
- ▶ especially for sewage, viscous and pasty media

### Optional versions

- ▶ IS-version  
Ex ia = intrinsically safe for gas and dust
- ▶ diaphragm 99.9 % Al<sub>2</sub>O<sub>3</sub>
- ▶ different kinds of cable
- ▶ different kinds of elastomers

The detachable 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
max. ambient pressure (housing)		40 bar												

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 % span option: ≤ ± 0.25 % span
Permissible load	$R_{max} = [(V_S - V_{S min}) / 0.02 A] \square \Omega$
Influence effects	supply: 0.05 % span / 10 V load: 0.05 % span / kΩ
Long term stability	≤ ± 0.1 % span / year
Turn-on time	700 msec
Mean response time	< 200 msec
Max. response time	380 msec
	measuring rate 5/sec

<sup>1</sup> accuracy according to EN IEC 62828-2 – limit point adjustment (non-linearity, hysteresis, repeatability)

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

Permissible temperatures	
Permissible temperatures	Medium/ electronics/ environment/ storage: -20 ... 125 °C *

\*If the cable is intended for use in a smaller temperature range, the use of the probe is limited by this range.

Electrical protection <sup>2</sup>	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Lightning protection	2-wire: integrated 3-wire: without
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 (-25 ... 70 °C in fixed condition) Ø 7,4 mm PUR (-25 ... 80 °C) black (with drinking water certificate) Ø 7,4 mm FEP <sup>4</sup> (-25 ... 75 °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

<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 %
Cable sheath	PVC, PUR, FEP, TPE-U
Protection cap	POM-C

Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approval DX4-LMK 358	IBExU05ATEX1069 X Zone 0 <sup>5</sup> : II 1G Ex ia IIB T4 Ga Zone 20: II 1D Ex iaD 20 T 110°C
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> = 14 nF, L <sub>i</sub> = negligible
Permissible temperature	in zone 0: -20 ... 60 °C with patm 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: 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. 650 g (without cable)
Ingress protection	IP 68
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

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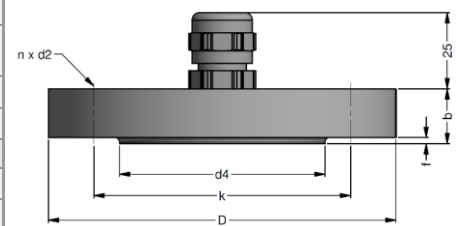
Stainless Steel Probe

Technical Data

Wiring diagram			
<p>2-wire-system (current)</p>	<p>3-wire-system (voltage)</p>	<p>connector</p>	
Pin configuration			
Electrical connection	Binder series 723 <sup>6</sup> (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)
<sup>6</sup> in detached version			
Dimensions (mm / in)			
<p><b>standard:</b></p>			
protection cap removable		detached version	

### 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)	Weight
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
Ordering type		Ordering code
DN25 / PN40 with cable gland brass, nickel plated		5000275
DN50 / PN40 with cable gland brass, nickel plated		5000278
DN80 / PN16 with cable gland brass, nickel plated		5000279



### 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		1003440
Terminal clamp, stainless steel 1.4301 (304)		1000278



### 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**  
Multichannel process display with graphics-capable TFT monitor, touchscreen and contacts
- PA 440**  
Field display with 4-digit LC display

For further informations please contact our sales department or visit our homepage: <http://www.bdsensors.com>



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

Ordering code LMK 358

23.08.2024

LMK 358

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<b>Pressure</b>																	
in bar	4	4	5														
in m H <sub>2</sub> O	4	4	6														
<b>Input</b>																	
	[mH <sub>2</sub> O]	[bar]															
	0 ... 0.4	0 ... 0,04	0	4	0	0											
	0 ... 0.6	0 ... 0,06	0	6	0	0											
	0 ... 1	0 ... 0,1	1	0	0	0											
	0 ... 1.6	0 ... 0,16	1	6	0	0											
	0 ... 2.5	0 ... 0,25	2	5	0	0											
	0 ... 4	0 ... 0,4	4	0	0	0											
	0 ... 6	0 ... 0,6	6	0	0	0											
	0 ... 10	0 ... 1	1	0	0	1											
	0 ... 16	0 ... 1,6	1	6	0	1											
	0 ... 25	0 ... 2,5	2	5	0	1											
	0 ... 40	0 ... 4	4	0	0	1											
	0 ... 60	0 ... 6	6	0	0	1											
	0 ... 100	0 ... 10	1	0	0	2											
<b>Customer</b>																	
			9	9	9	9											
<b>Housing material</b>																	
Stainless steel 1.4404 (316 L)																	1
Customer																	9
<b>Diaphragm material</b>																	
Ceramic Al <sub>2</sub> O <sub>3</sub> 96 %																	2
Ceramic Al <sub>2</sub> O <sub>3</sub> 99,9 %																	C
Customer																	9
<b>Output</b>																	
4 ... 20 mA / 2-wire																	1
0 ... 10 V / 3-wire <sup>2</sup>																	3
Intrinsic safety Ex ia 4 ... 20 mA / 2-wire																	E
Customer																	9
<b>Seals</b>																	
Viton (FKM)																	1
EPDM																	3
FFKM																	7
Customer																	9
<b>Electrical connection</b>																	
Without cable part																	0
PVC - cable (grey, Ø 7,4 mm, price for 1 m) <sup>1</sup>																	1
PUR - cable (black, Ø 7,4 mm, price for 1 m) <sup>1</sup>																	2
FEP - cable with PTFE sheath (black, Ø 7,4 mm, price for 1 m) <sup>1</sup>																	3
TPE-U - cable, up to 125 °C (blue, Ø 7.4 mm, price for 1 m) <sup>1</sup>																	4
Customer																	9
<b>Accuracy</b>																	
0,35 % (standard)																	3
0,25 %																	2
0,35 % including Calibration Certificate																	S
Table of measured values for accuracy 0,35 %																	M
Customer																	9
<b>Cable length</b>																	
in m																	9 9 9
<b>Special version</b>																	
Standard																	0 0 0
Temperature sensor PT100																	0 1 3
Temperature compensation 0 ... 100 °C																	8 4 8
+ stainless steel hose / 1 m																	
Customer																	9 9 9
<b>Accessories for submersible transmitter</b>																	
Cabel part + price for cabel in m																	5000722
Terminal clamp - zinc plated																	1003440
Terminal clamp - Stainless Steel 1.4301																	1000278
Mounting screw PG16 - plastic																	5002200

0,-...without additional charge



BD SENSORS s.r.o.  
Hradištská 817  
CZ – 687 08 Buchovice

Tel.: +420 572 411 011

www.bdsensors.cz  
info@bdsensors.cz



The company BD SENSORS s.r.o. is certified by Bureau Veritas Czech according to the standard ISO 9001.

On request ... in accordance with the producer

Surcharges for calibration are not subject to any discounts. Subject to change.

This document contains the specification for ordering the product; detailed technical parameters of the product and its possible variants are given in the data sheet.

BD SENSORS reserves the right to change sensor specifications without further notice.

1 shielded cable with integrated ventilation tube for atmospheric pressure reference

2 maximum length of PVC cable – 25 m, PUR, FEP, TPE – 40 m



BD SENSORS s.r.o.  
Hradištská 817  
CZ – 687 08 Buchlovice

Tel.: +420 572 411 011

[www.bdsensors.cz](http://www.bdsensors.cz)  
[info@bdsensors.cz](mailto:info@bdsensors.cz)

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