

LMK 358



Detachable Stainless Steel Probe

Ceramic Sensor

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

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 detachable
- ▶ diameter 39.5 mm
- ▶ especially 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 % Al₂O₃
- ▶ 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



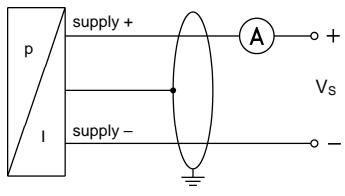
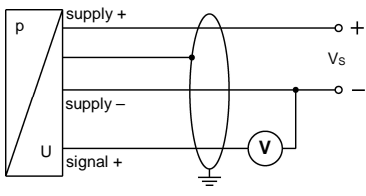
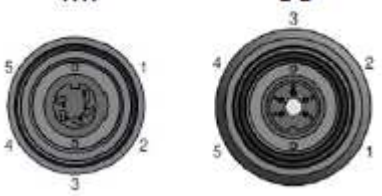
Input pressure range														
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Level	[mH ₂ O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35
max. ambient pressure (housing)		40 bar												
Output signal / Supply														
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 % span option: ≤ ± 0.25 % span												
Permissible load		$R_{max} = [(V_S - V_{Smin}) / 0.02 A] \square \Omega$												
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										measuring rate 5/sec		
Max. response time		380 msec												
¹ accuracy according to IEC 60770 – 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 *												
<i>*If the cable is intended for use in a smaller temperature range, the use of the probe is limited by this range.</i>														
Electrical protection ²														
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												
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	(-25 ... 70 °C in fixed condition)									Ø 7,4 mm	
		PUR (-25 ... 80 °C)	black	(with drinking water certificate)									Ø 7,4 mm	
		FEP ⁴ (-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												
³ shielded cable with integrated air tube for atmospheric pressure reference														
⁴ 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 ₂ O ₃ 96 % option: ceramics Al ₂ O ₃ 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 ⁵ : 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		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: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m												
⁵ 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

<p>2-wire-system (current)</p> 	<p>3-wire-system (voltage)</p> 	<p>connector</p> 
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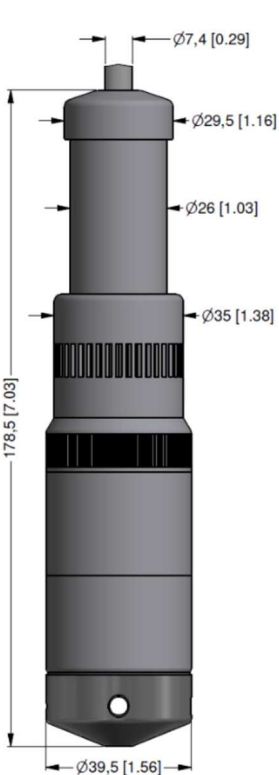
Pin configuration

Electrical connection	Binder series 723 ⁶ (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)

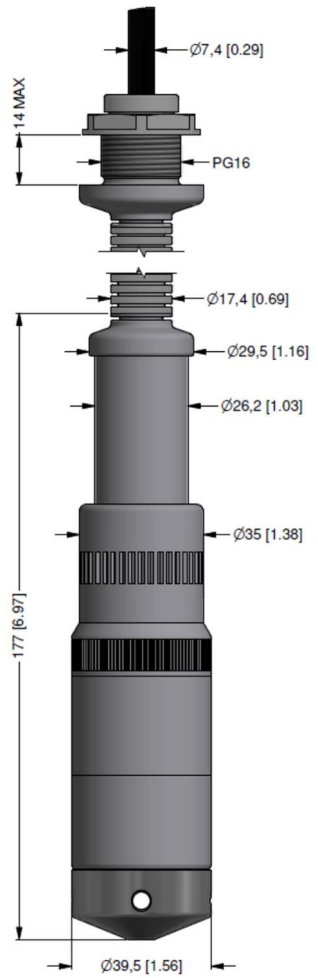
⁶ in detached version

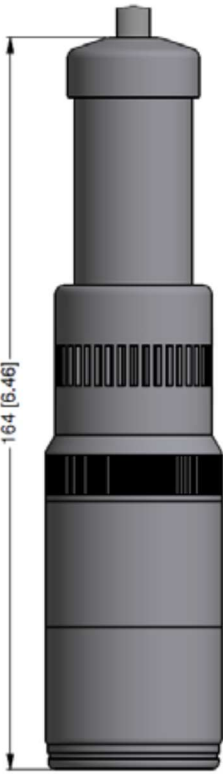
Dimensions (mm / in)

standard:

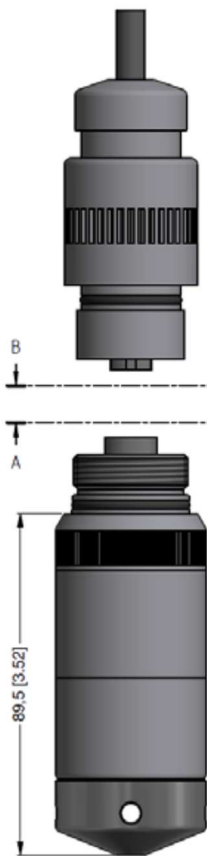


optional:

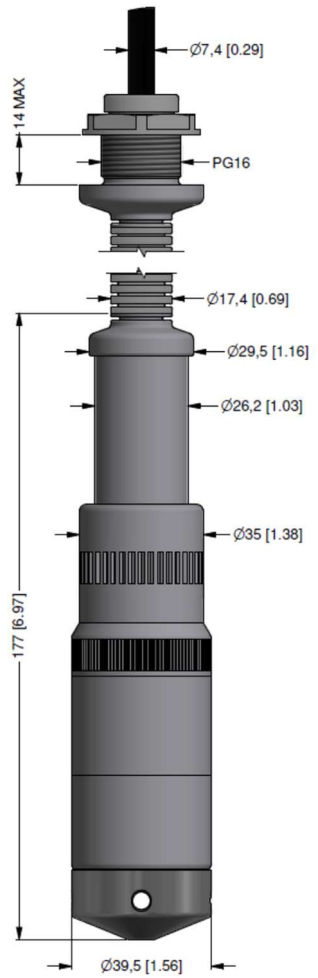




protection cap removable

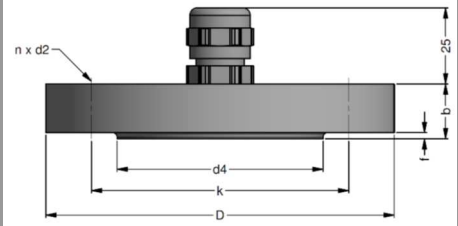


detached version



with
corrugated pipe (max length 20 m)

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.

0,-...without additional charge

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



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

