

KDLM10

Capacitive Level Meters



OVERVIEW

Operation

The capacitive level meters KDLM10 are intended for continuous level measurement of liquid and bulk solids in tanks, vessels, sumps or silos, hoppers etc. They are comprised of a housing with electronic module and measuring electrodes. The electrodes can be covered by an insulating coating in case level measurement of adhesive, aggressive or electrically conductive media.

Application

- Bulk solids
- Oils, petrol, diesel
- Tanks
- Sand, cement, plastic granulates
- Concrete sumps

Features

- For continuous level measurement of liquid and bulk-solid
- Wide spectrum of use direct mounting into tanks, vessels, sumps or silos and hoppers
- Setting using a magnetic pen without the need for complete emptying of the tank
- Possibility of linear measurements even in non-conductive or variously shaped vessels
- Optional indication of function and status of level meter by two LED's
- Wide selection of electrical connection: connector or cable glands
- Housing, electrodes and reference tubes made from stainless steel
- Variants with coated electrode for aggressive or electrically conductive media



OPERATING DATA

Ambient Temperature

-40...85°C

Connection Temperature

-40...+85°C standard

-40...+200°C for high temperature

Operating Pressure

50 Bar max.

Enclosure

IP67 / IP68

Recommended Cable

PVC 2x0, 75mm²(3x0,5mm²)

Temperature Error

Max. 0,5% / K

Accuracy

1%

Weight

0,3 kg

0,6 kg for high temperature

MEASURING RANGES

Electrode Length

0,1-2m for sen. types 20,21,22,25

0,1-3 m for sensor types 30,31

0,1-1 m for sensor types 40,41

0,1-6 m for sensor types 50

MATERIALS

Housing

AISI304

AISI 316L (For Tri-clamp)

Insulating Bushing

PTFE / PPS + GF40

Electrode

AISI 316L / AISI316

Electrode Coating

FEP / PFA

Weight

AISI 304

Rope Electrode

AISI 316

Reference Tube

AISI 304



CONNECTION

Thread

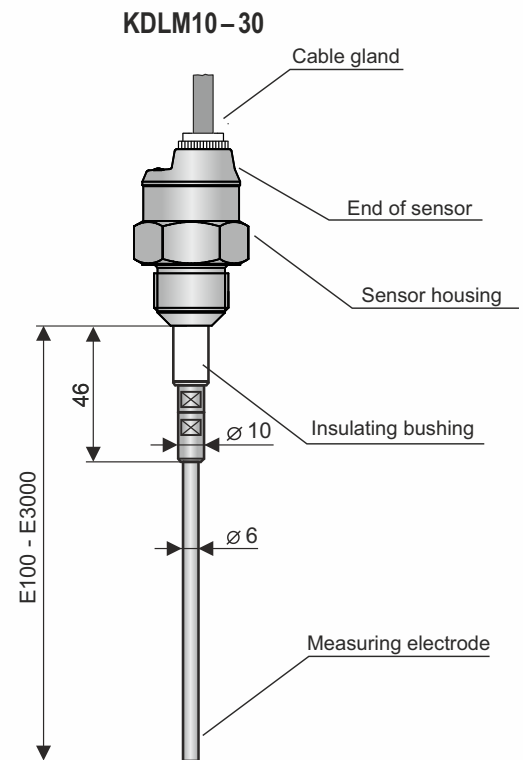
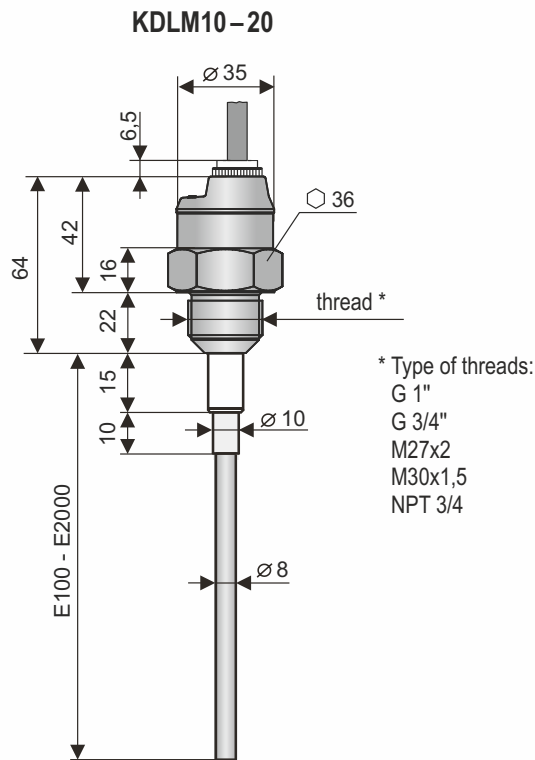
G 1" / G 3/4" / M27x2 / M30x1,5, 3/4" NPT

Tri-Clamp

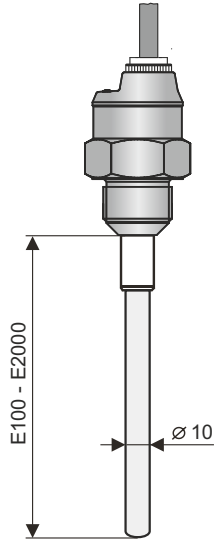
CI34 (Ø34 mm)

CI50 (Ø50,5 mm)

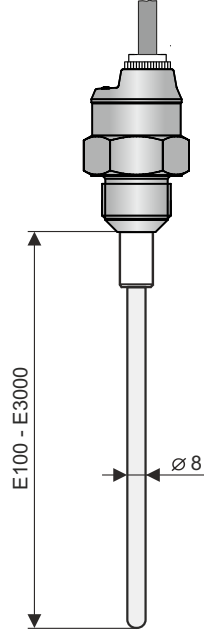
TECHNICAL DRAWINGS AND DIMENSIONS



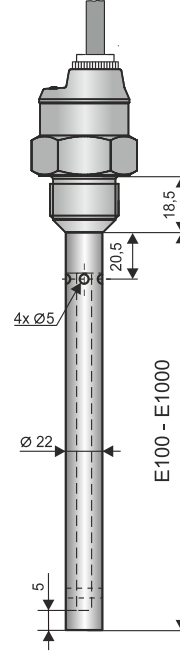
KDLM10-21, 22, 25



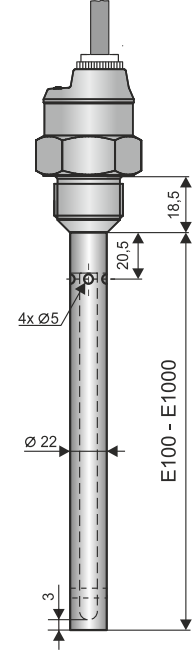
KDLM10-31



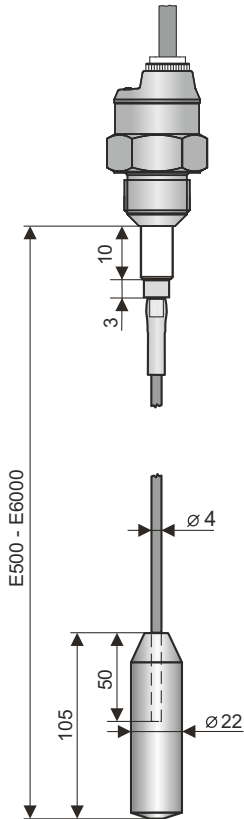
KDLM10-40



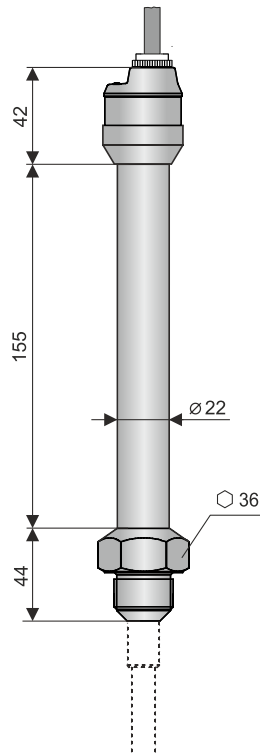
KDLM10-41



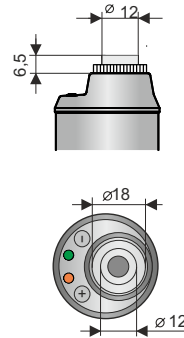
KDLM10-50



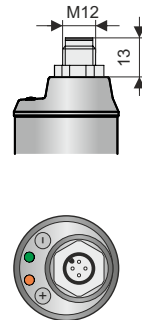
High temperatures variants



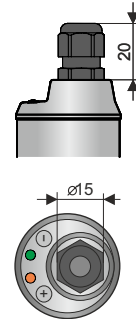
Variant "A" with short stainless steel gland



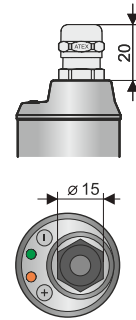
Variant "C" with connector M12



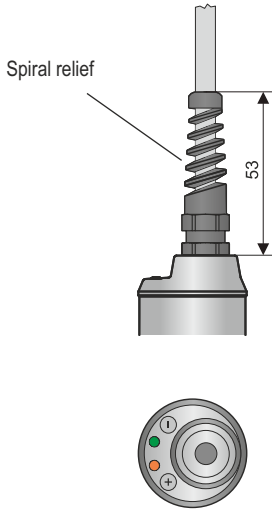
Variant "B" with plastic threaded cable gland



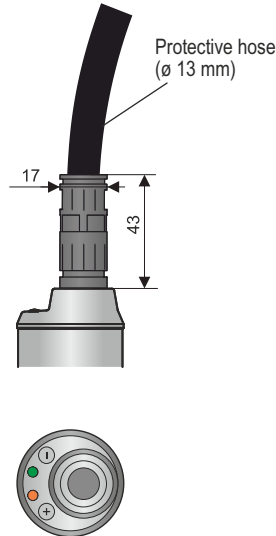
Variant "D" with dustproof cable outlet



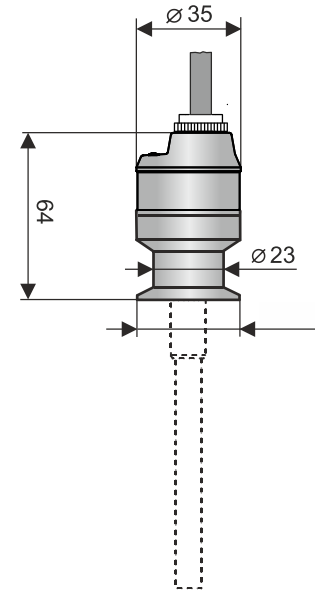
Variant “V” with plastic cable gland with spiral relief - for case of increased mechanical wear on the cable.



Variant “H” with cable gland for protected hoses - for using in an outdoor area or in area with increased moisture.



Process connection Tri-clamp



** D: Tri-Clamp CI34 (ø 34 mm)
Tri-Clamp CI50 (ø 50,5 mm)

All dimensions are in mm

ELECTRICAL DATA

Power Supply

9...34 VDC
9...30 V for Exproof

Current Output

4...20 mA (2-wire) / 0...10 V (3-wire)

Voltage Error

Max. 0.3 μ A/V and 0.1 mV/V

Leakage Resistance

1 M Ω / 200 VDC

Coupling Capacity

50 nF / 350 V AC, 47 nF / 350 V AC for electrode power

Maximal Load (Serial) Resistance (Current)

R_{max} = 700 Ω for 24 V

Max Internal Values

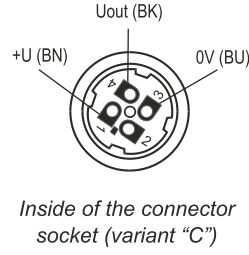
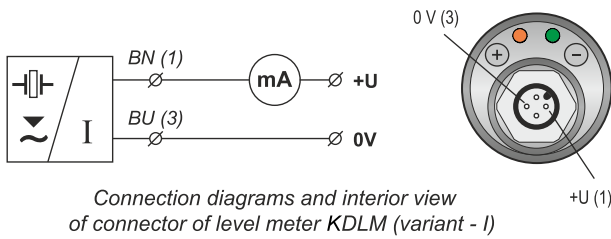
U_i = 30 V DC; I_i = 132 mA; P_i = 0.99 W; C_i = 35 nF; L_i = 10 μ H

Reference Value LC

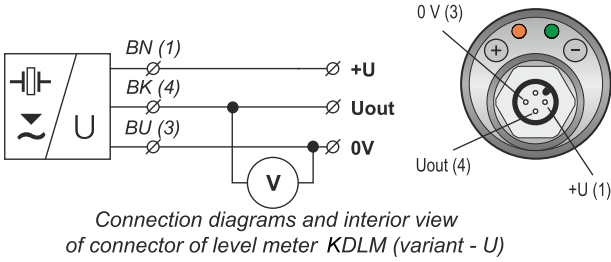
Typical C < 150 pF/m; typical L < 0.8 μ H/m



WIRING



Legend:
(1...) – terminal numbers
connector sockets
BN – brown
BU – blue
BK – black



ORDERING

Model	
KDLM10	Capacitive Level Meters

Hazardous Area	
N	Non-explosive Areas
NT	High Temperature Areas
Xi	Ex-proof for explosive environments
XiM	Ex-proof for mining environments
XiT	Ex-proof for high temperature environments
XiMT	Ex-proof for high temperature mining environments

Hazardous Area	
20	Rod, uncoated, length 0.1 ... 2 m
21	Rod, coated (FEP), length 0.1 ... 2 m
22	Rod, coated (PFA), length 0.1 ... 2 m
25	Like 22, but higher pressure and higher temperatures
30	Rod, uncoated, length 0.1 ... 3 m
31	Rod, coated (FEP), length 0.1 ... 3 m
40	Rod, uncoated with ref. tube, length 0.1 ... 1 m
41	Rod, coated (FEP) with ref. tube, length 0.1 ... 1 m
50	Rope with weight, uncoated, length 1 ... 6 m

Electrode Length	
XX	Electrode length in mm

Connection	
1	G 1" thread
2	G 3/4" thread
3	M27x2 thread
4	M30x1,5 thread
5	3/4" NPT
6	Tri-clamp (Ø34 mm)
7	Tri-clamp (Ø50,5 mm)

Output	
I	4...20mA
U	0...10 V

Electrical Connection	
A	Short stainless steel gland (+ cable length)
B	Plastic threaded cable gland (+ cable length)
C	Connector
D	Metal dust proof terminal (+ cable length)
V	Plastic cable gland with spiral (+ cable length)
H	Plastic cable gland for protective hose (+ cable length)

Cable Length	
XX	Cable length in m

