

# Intrinsically Safe Level Probe for applications in hazardous environments, Model IL-10, standard version

WIKA Data Sheet PE 81.23



## Applications

Level measurement in hazardous environments

- Refineries
- Distilling equipment
- Painting plants
- Filling equipment for combustible gases
- Overfilling systems on tank vehicles, bore holes, waste water plants (biogases from sewage), etc.

## Special Features

- Pressure ranges from 0 ... 100 mbar to 0 ... 25 bar
- Ex- protection EEx ia I/II C T6 according to ATEX
- Applicable in all hazardous environments:
 

Gases and vapour:	Connection in Zone 0 Zone 1 and Zone 2
Dusts:	Connection in Zone 20 Zone 21 and Zone 22
- Maximum tensile strength of the cable 1000N
- Ingress protection IP 68 (up to 300 m immersion depth)

## Description

### Hazardous environments

The intrinsically safe level probes have been specially designed to comply with the most difficult requirements of industrial applications. Due to their high grade of accuracy, reliability and excellent compatibility with most media these instruments represent an ideal solution for almost any task in hazardous environments.

The most important features are the wide ranging certifications for hazardous applications (CENELEC certificate according to ATEX). Furthermore the IL-10 has also FM (USA) and CSA (Canada) approvals.



Fig. Intrinsically Safe Level Probe IL-10

### Structure

Due to a hermetically sealed, durable stainless steel case with IP 68 ingress protection the probe can be immersed to a max. depth of 300 m.

The transmitters are supplied via appropriate intrinsically safe line transformer, or via typical zener diode barrier with an input power of 10 ... 30 V. The output signal is 4 ... 20 mA, 2-wire.

## Specifications

## Model IL-10

Pressure ranges	bar <sup>1)</sup>	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5
Over pressure safety	bar <sup>1)</sup>	1	1.5	2	2	4	5	10	10
Burst pressure	bar <sup>1)</sup>	2	2	2.4	2.4	4.8	6	12	12
Pressure ranges	bar <sup>1)</sup>	4	6	10	16	25			
Over pressure safety	bar <sup>1)</sup>	17	35	35	80	80			
Burst pressure	bar <sup>1)</sup>	20.5	42	42	96	96			
Materials									
■ Wetted parts			CrNi-Steel						
Cabel			PUR {FEP up to 10 bar}						
Protection cap			CrNi- Steel						
■ Case			CrNi- Steel						
Power supply U <sub>B</sub>	DC V	10 < U <sub>B</sub> ≤ 30							
Signal output and		4 ... 20 mA, 2-wire							
Maximum load R <sub>A</sub>		R <sub>A</sub> ≤ (U <sub>B</sub> - 10 V) / 0.02 A - (0.14 Ohm x cable in m) with R <sub>A</sub> in Ohm and U <sub>B</sub> in Volt							
Response time (10 ... 90 %)	ms	≤ 1							
Accuracy <sup>1)</sup>	% of span	≤ 0.5 {0.25} <sup>2)</sup>			(limit point calibration)				
	% of span	≤ 0.25 {0.125} <sup>2)</sup>			(BFSL)				
Hysteresis	% of span	≤ 0.1							
Repeatability	% of span	≤ 0.05							
1-year stability	% of span	≤ 0.2			(at reference conditions)				
Permissible temperature of									
■ Medium <sup>3)</sup>		-10 ... +60°C {-10°C ... +85°C}				-14 ... +140°F {-14°F... +185°F}			
		{with FEP-cable}							
■ Ambient <sup>3)</sup>		-10 ... +60°C				-14 ... +140°F			
■ Storage		-10 ... +60°C				-14 ... +140°F			
■ Compensated		0 ... +50°C				32 ... +122°F			
Temperature coefficients in compensated temp range									
■ Mean TC of zero	% of span	≤ 0.2 / 10 K (< 0.4 for pressure range ≤ 250 mbar)							
■ Mean TC of range	% of span	≤ 0.2 / 10 K							
(Ex)- protection		Categories <sup>3)</sup> 2G {1G, 1D, 2D, M1, M2}							
Signal Output		4 ... 20 mA, 2-wire							
Ignition protection type		EEx ia I/II C T6 (DMT 00 ATEX E 045 X) <sup>3)</sup>							
Conformity specifications									
■ Power supply U <sub>i</sub>	DC V	< 30							
■ Short circuit rating I <sub>i</sub>	mA	100							
■ Power limitation P <sub>i</sub>	W	1							
■ Medium temperature <sup>3)</sup>		-10 ... +60°C				-14 ... +140°F			
■ Ambient temperature <sup>3)</sup>		-10 ... +60°C				-14 ... +140°F			
■ Storage temperature		-10 ... +60°C				-14 ... +140°F			
■ Internal capacity C <sub>i</sub>	nF	≤ 22 + 0,2 per m Kabel							
■ Internal inductivity L <sub>i</sub>	μH	0 + 2 per m Kabel							
		For further safety information please see the EC-type test certificate (DMT 00 ATEX E 045 X)							
CE- conformity		89/336/EEG interference emission and immunity see EN 61 326 EN 50 014 (general part), EN 50 020 (intrinsic safety), {EN 50 284 (Zone 0)}, {EN 50 281-1 (dust-Ex)}, {EN 50 303 (mining industry)}							
HF-immunity	V/m	10 {30}							
BURST	KV	4							
Wiring protection		Protected against reverse polarity, overvoltage and short circuiting							
Ingress protection per		IEC 60 529 / EN 60 529, see page 3							
Weight									
■ Level probe	kg	Approx. 0.2							
■ Cable	kg	Approx. 0.08 per m cable							

1) 1 bar = 10,2 mWs.

2) Accuracy 0.25 %: for pressure ranges beyond 0 ... 0.25 bar.

3) See list of EC-type test certificate.

\* Including linearity, hysteresis and reproducibility.

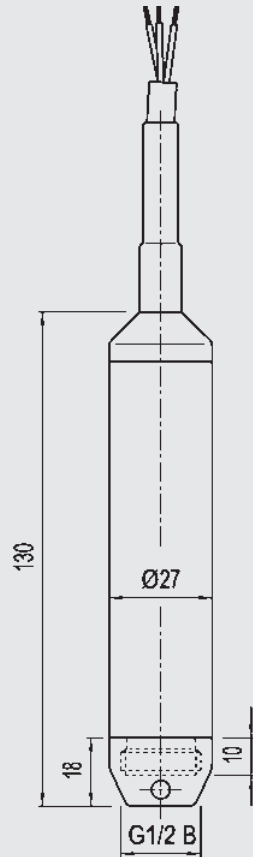
Limit point Calibration in vertical mounting position with lower pressure connection.

{ } Items in curved brackets are optional extras for additional price.

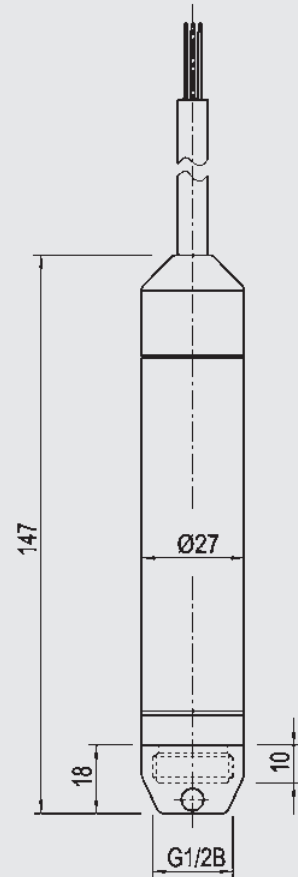
## Dimensions in mm

When mounting, no additional strain relief is required.

vented PUR-cable, max tensile strength of 1000 N  
(immersion depth up to 300 m)  
IP 68  
Order code:  
GD



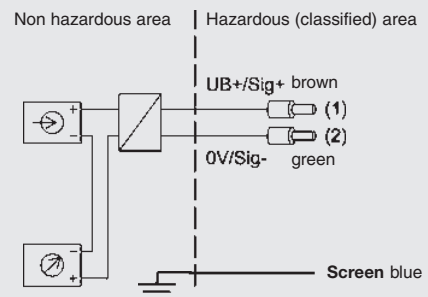
FEP-cable, max tensile strength of 500 N  
(immersion depth up to 100m)  
IP 68  
Order code:  
GD



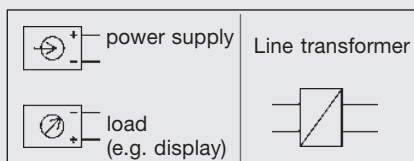
## Wiring

### 2-wire

Flying leads with 1,5 m of vented cable



### Legend



## Hazardous areas (zone classification according to ATEX)

**Group II: Electrical equipment for use in all areas (except mines) which are endangered by an explosive atmosphere.**

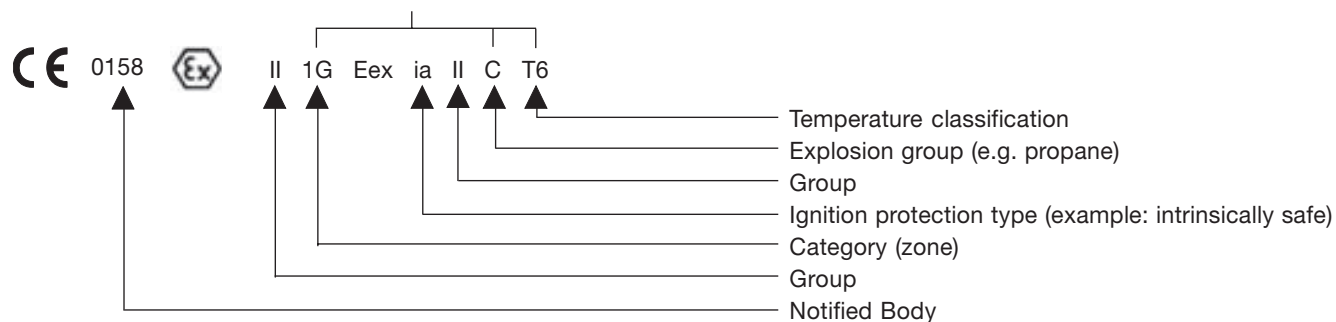
Zone	Category	Occurrence of explosive atmosphere
Zone 0	Category 1G (gas)	Continuous
Mounting to zone 0	Category 1/2 G	
Zone 20	Category 1D (dust)	
Mounting to zone 20	Category 1/2 D	
Zone 1	Category 2G	Intermittent
Zone 21	Category 2D	
Zone 2	Category 3G	Hazard under abnormal conditions
Zone 22	Category 3D	

**Group I: Electrical equipment for use in mines (hazard due to mine gas)**

Zone	Category	Occurrence of explosive atmosphere
	Category M1	Existing (methane, dust)
	Category M2	In high probability (methane, dust)

The new ATEX marking (example):

This marking applies for all zones, categories and temperature classes.



### Further informations

You can obtain further information (data sheets, instructions, etc.) via Internet address [www.wika.de](http://www.wika.de)



Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing. Modifications may take place and materials specified may be replaced by others without prior notice.



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