

# Submersible Liquid Level Transmitter Model LS-10, LH-10

WIKA Datasheet LS\_LH-10



## Applications

- Level measurement in water and wastewater treatment plants, wells, holding tanks, wet wells, rivers

## Special Features

- Ranges from 50INWC to 400PSI
- Rated IP 68 for permanent submersion
- Hastelloy case available for aggressive media
- 4-20 mA 2-wire output signal, others available
- Lightning protection available
- Cable supports over 220 pounds of strain

## Description

The LS-10 liquid level transmitter is designed for economical and reliable performance in a wide variety of level measurement applications. The LS-10 provides a signal output of 4-20mA and an accuracy of 0.25% of span. Standard stocked pressure ranges are assembled with any length cable for fast delivery.

The high performance Model LH-10 provides 0.125% accuracy and is available with many custom features for special requirements. LH-10 options include lightning protection, temperature measurement, special output signals, plus FEP cable and Hastelloy construction for aggressive media.

The LH-10 is available with a low power 0.5-2.5V output signal and 5VDC supply voltage. This is ideal for solar or battery powered installations.

The LH-10 includes a dual cable entry design that prevents ingress of moisture into the electronics even if the cable is damaged. Both models feature watertight vented cable that can withstand over 220 pounds of strain. This allows the transmitter to be supported without any additional cabling.

Compensation for atmospheric pressure changes is accomplished through a vent tube in the cable. Many accessories, including cable clamps, desiccant drying cartridges, additional weights, and junction boxes are available for specific installation requirements. Both models can be equipped with the LevelGuard™ attachment for protection in difficult environments.



Left: LS-10 level transmitter  
Center: LH-10 high performance level transmitter  
Right: LH-10 with optional Hastelloy case and FEP cable



Optional WIKA LevelGuard™ Anti-clog attachment for submersible level transmitters. For use in lift stations, wet wells and other difficult level applications. For more information request bulletin LG-1.

# Specifications

# Model LS-10 / LH-10

## Pressure ranges

LS-10 or LH-10 pressure ranges	100INWC	150INWC	250INWC	400INWC	5PSI	10PSI	15PSI	25PSI	30PSI	50PSI	100PSI
Maximum pressure*	30PSI	30PSI	60PSI	72PSI	30PSI	60PSI	72PSI	145PSI	145PSI	240PSI	500PSI
Burst pressure**	35PSI	35PSI	70PSI	87PSI	35PSI	70PSI	87PSI	170PSI	170PSI	290PSI	600PSI
LH-10 pressure ranges <sup>1)</sup>	50INWC	160PSI	200PSI	250PSI	300PSI	400PSI					
Maximum pressure*	14PSI	1160PSI	1160PSI	1160PSI	1160PSI	1160PSI					
Burst pressure**	29PSI	1390PSI	1390PSI	1390PSI	1390PSI	1390PSI					

<sup>1)</sup> Maximum range for LH-10 with FEP cable is 100PSI

		Model LS-10	Model LH-10
Materials			
■ Body		Stainless steel	Stainless steel {Hastelloy}
■ Pressure connection and diaphragm		Stainless steel	Stainless steel {Hastelloy}
■ Protective cap		PA	PA {Stainless steel} {Hastelloy}
■ Cable		PUR (polyurethane)	PUR {FEP, to 100 PSI maximum}
Power supply $U_B$	DC V	$10 < U_B \leq 30$	$10 < U_B \leq 30$ (14 ... 30 with 0 ... 10 V output signal) (5 ... 30 for battery powered operation, output signal 0.5 ... 2.5 V) <sup>2)</sup>
Output signal		4 ... 20 mA, 2-wire	4 ... 20 mA, 2-wire 0 ... 20 mA, 3-wire {0 ... 5 V, 3-wire} {0 ... 10 V, 3-wire} {0.5 ... 2.5 V, 3-wire for battery powered operation} <sup>3)</sup> {Pt 100, 4-wire; IEC 60751} {Other signal outputs on request}
		<sup>2)</sup> Power supply 5 ... 10 VDC with optional lightning protection	
		<sup>3)</sup> Available with pressure ranges $\geq 0$ 100INWC	
Pt 100 RTD temperature sensor			
■ I max	mA	Not available	3
■ I mess	mA	Not available	1
Maximum load $R_A$		$R_A < (U_B - 10V) / 0.02A - (0.043 \text{ Ohm} \times \text{cable length in feet})$ ( $R_A$ in Ohms and $U_B$ in VDC)	$R_A > 100 \text{ kOhm}$
■ Current output signal		-	
■ Voltage output signal			
Response time (10 ... 90 %)	ms	$\leq 1$	$\leq 1$
Isolation voltage	DC V	500 <sup>4)</sup>	500 <sup>4)</sup>
		<sup>4)</sup> NEC Class 02 power supply (low voltage and low current max. 100 VA even in fault conditions)	
Accuracy <sup>5)</sup>	% of span	$\leq 0.25$ (BFSL)	$\leq 0.125$ <sup>6)</sup> (BFSL)
	% of span	$\leq 0.5$ (limit point calibration)	$\leq 0.25$ <sup>6)</sup> (limit point calibration)
		<sup>5)</sup> Including linearity, hysteresis and repeatability. Limit point calibration method performed in vertical mounting position with pressure connection facing down.	
		<sup>6)</sup> For pressure ranges $< 0 \dots 100$ INWC accuracy $\leq 0.25\%$ of span (BFSL) $\leq 0.5\%$ of span (limit point calibration)	
Non-repeatability	% of span	$\leq 0.05$	$\leq 0.05$
1-year stability	% of span	$\leq 0.2$ (at reference conditions)	$\leq 0.2$ (at reference conditions)
Permissible temperature of			
■ Medium <sup>7)</sup>		+14 ... +122 °F   -10 ... +50 °C	+14 ... +122 °F   -10 ... +50 °C {+14 ... +185 °F (-10 ... +85 °C) with FEP-cable option}
■ Storage <sup>7)</sup>		-22 ... +176 °F   -30 ... +80 °C	-22 ... +176 °F   -30 ... +80 °C
		<sup>7)</sup> Also complies with EN 50178, Tab. 7, Type C, Class 4KH Operation, 1K4 Storage, 1K3 Transport	
Compensated temperature range		0 ... +50 °C   +32 ... +122 °F	0 ... +50 °C   +32 ... +122 °F
Temperature coefficients (TC) within compensated temperature range:			
■ Mean TC of zero	% of span	$\leq 0.2 / 10 \text{ K} (< 0.4 \text{ for } 0.50 \text{ INWC})$	
■ Mean TC of range	% of span	$\leq 0.2 / 10 \text{ K}$	

# Specifications

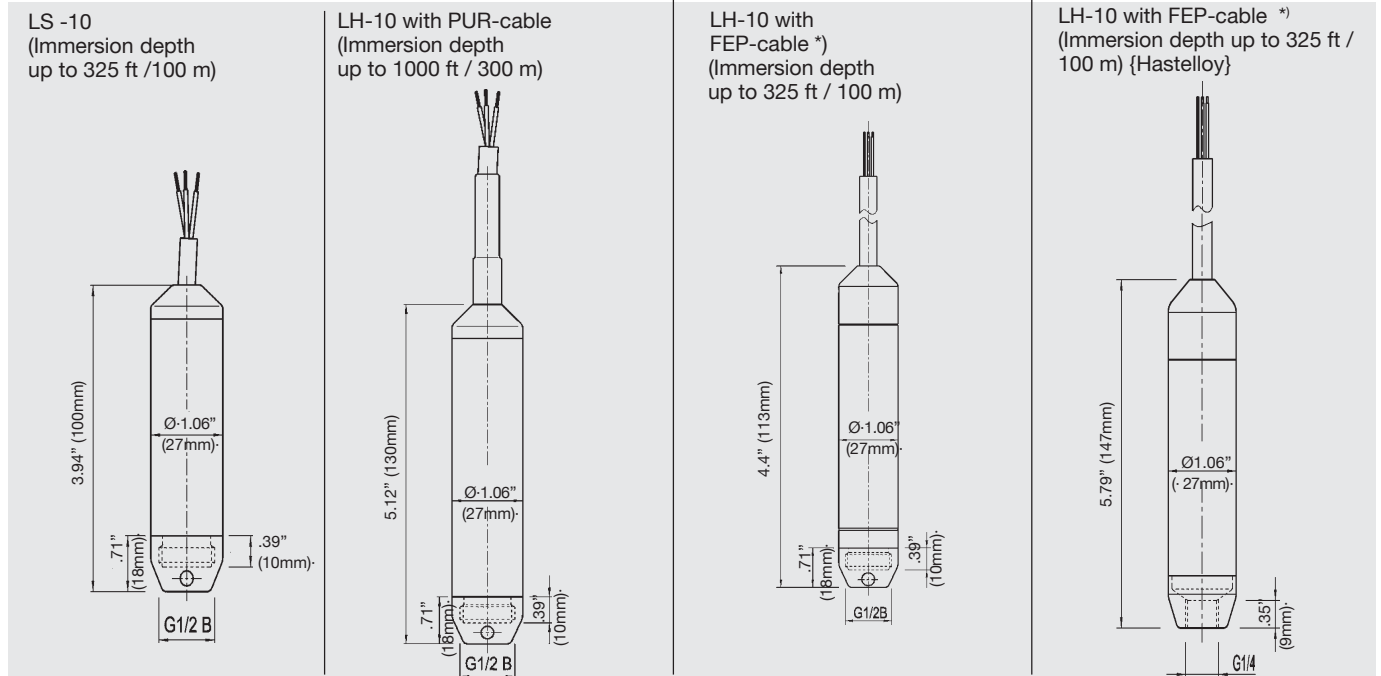
# Model LS-10 / LH-10

CE-conformity		89/336/EWG interference emission and immunity see EN 61 326
		Interference emission limit class A and B
Wiring protection		Protected against reverse polarity, overvoltage and short circuiting on the instrument side
		{Lightning protection EN 61000-4-5; 1,2J}
Weight		
■ Level Transmitter	lb	Approx. 0.4
■ Cable	oz per foot	Approx. 1.0
■ Additional weight	lb	Approx. 1.1

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

## Dimensions in inches (mm)

Ingress Protection NEMA 6P ( IP 68 per IEC 60 529)



No additional support is required for installation as the cable can withstand over 220 lbs of strain (110 lbs for FEP cable)

\*) FEP-cable and lightning protection EN 61000-4-5; 1,2J on request

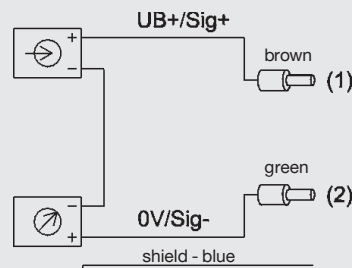
100 mm = 3.937 inches

## Wiring

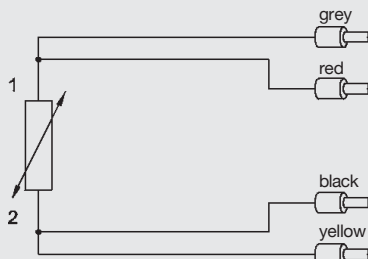
Vented PUR-cable  
tensile strength 220 Lbs  
(110 LBS with FEP-cable)

Pt 100 RTD temperature  
sensor

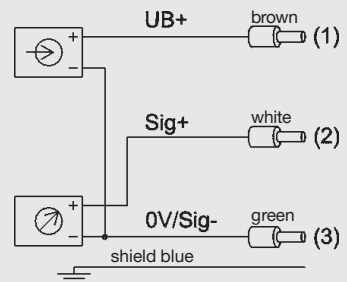
### 2-wire



### 4-wire



### 3-wire



### Legend:

	power supply	Sig+ output signal positive
	UB+ power supply positive	UB+ power supply positive
	0V power supply negative	0V power supply negative
	Sig- output signal negative	Sig- output signal negative

## Accessories

### Dimensions in inches (mm)

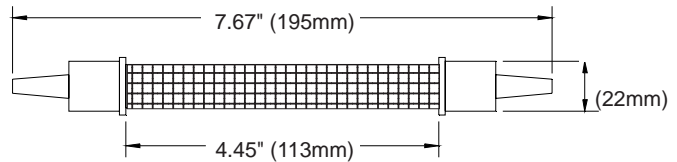
**Vent tube filter** Part# 7193131  
The optional Teflon vent tube filter protects the vent opening and protects against the entry of dirt and moisture.

**Cable junction box** Part# 2459686  
The cable junction box is rated NEMA 4 / IP 67 and is suitable for mounting outside tanks or shafts or inside dry control boxes. Can be wall or DIN rail mounted.

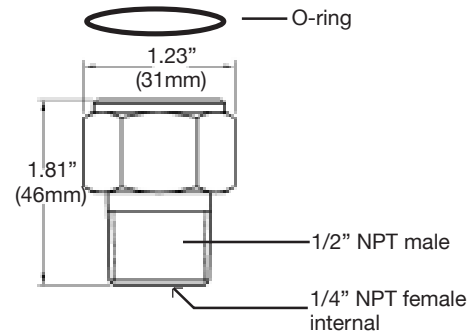
**Cable clamp** Part# 2074257  
The cable clamp secures the cable without bending or kinking that can damage the cable vent tube or outer jacket.

**Additional weight** Part# 1524399  
The additional weight replaces the protective cap and helps to stabilize the transmitter in turbulent conditions. Weight: approximately 1.1 lb, 316ss.

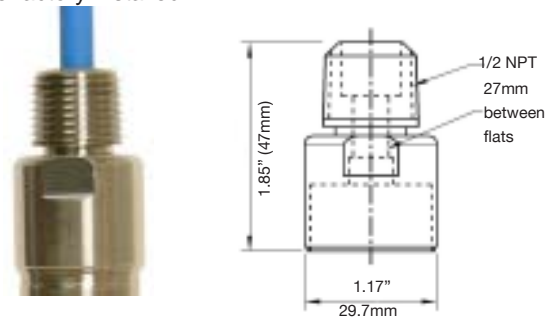
**Desiccant drying cartridge** part # 9836700  
The desiccant drying cartridge helps prevent moisture buildup inside the vent tube.



**NPT adapter** Part# 1631322  
The 316 ss G1/2 adapter replaces the removable protective cap and converts the threads to 1/2" NPT male external, 1/4" female internal threads. Includes O-ring.



**Conduit adapter** Part# 2289718  
316 ss 1/2" NPT male cable conduit adapter. Must be factory installed.



**LevelGuard™ Anti-clog attachment** Part # 50077091



The stainless steel LevelGuard™ attachment must be factory installed and calibrated.

Specifications and dimensions given in this data sheet 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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