

# Submersible Liquid Level Transmitters

## LS-10, 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 WIKAI 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.

**Datasheet: LS-10 / LH-10**

**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

		<b>Model LS-10</b>	<b>Model LH-10</b>
<b>Materials</b>			
■ 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 $R_A$			
■ Current output signal		$R_A < (U_B - 10V) / 0.02A - (0.043 \text{ Ohm} \times \text{cable length in feet})$ ( $R_A$ in Ohms and $U_B$ in VDC)	
■ Voltage output signal		-	$R_A > 100 \text{ kOhm}$
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 $< 0$ ... 100inWC accuracy $\leq 0.25\%$ of span (BFSL) $\leq 0.5\%$ of span (limit point calibration)	
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	$\leq 0.2 / 10 \text{ K}$	$\leq 0.2 / 10 \text{ K}$

## Specifications

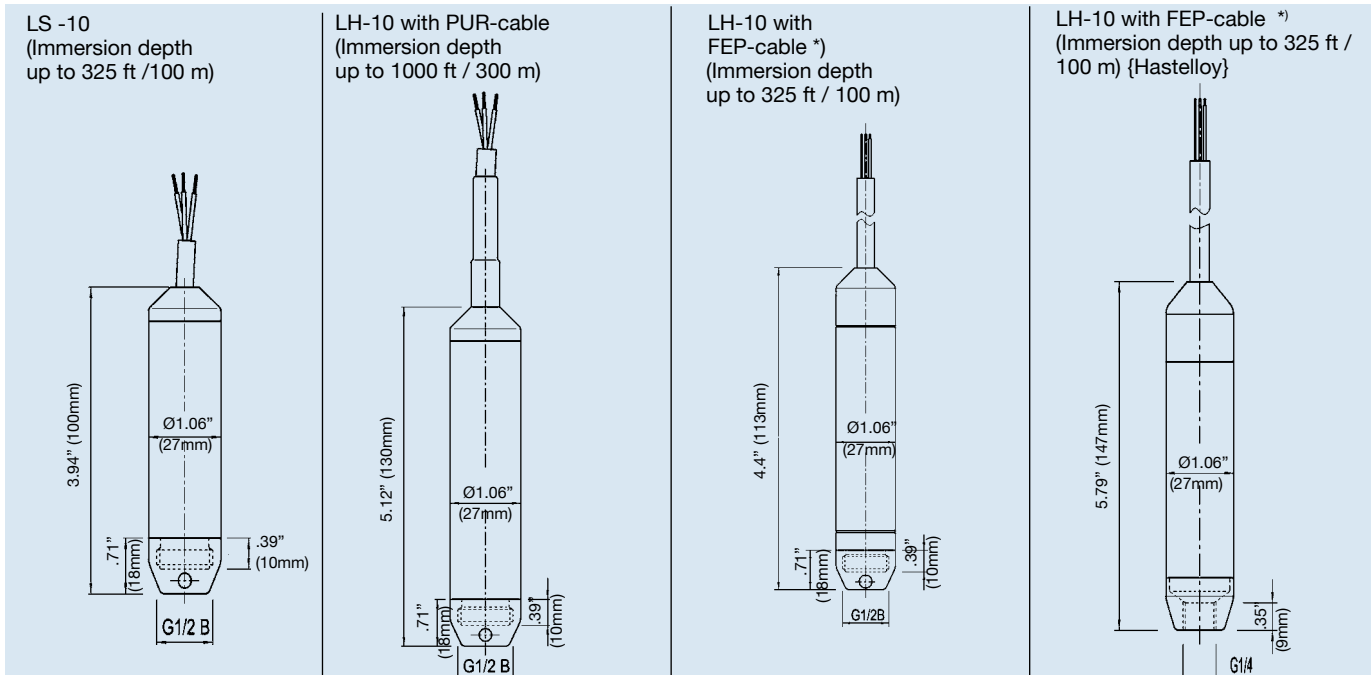
## Model LS-10 / LH-10

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

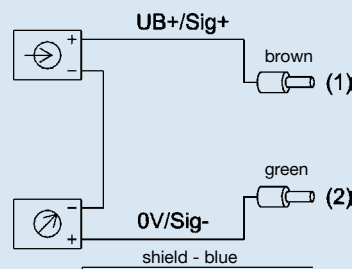
100 mm = 3.937 inches

## Wiring

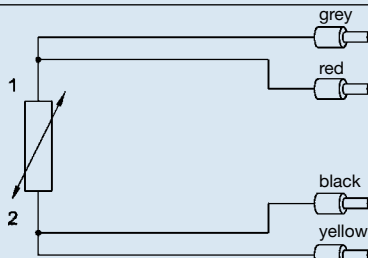
Vented PUR-cable  
tensile strength 220 Lbs  
(110 lbs with FEP-cable)

Pt 100 RTD temperature  
sensor

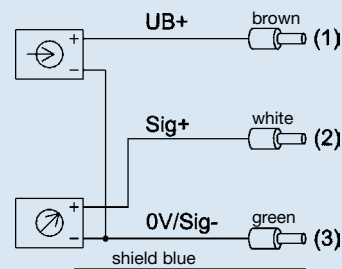
2-wire



4-wire



3-wire

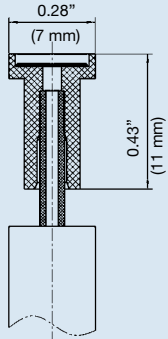


Legend:

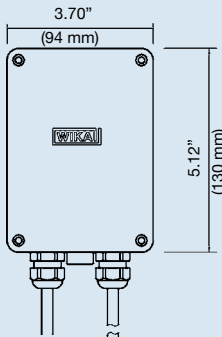
	power supply	Sig+	output signal positive
	load (e.g. display)	UB+	power supply positive
		0V	power supply negative
		Sig-	output signal negative

## Accessories

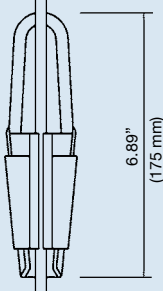
Dimensions in inches (mm)



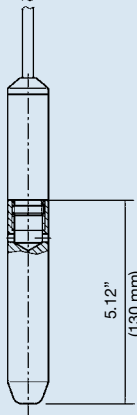
**Vent tube filter** Part# 7193131  
The optional Teflon vent tube filter protects the vent opening and protects against the entry of dirt and moisture.



**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.

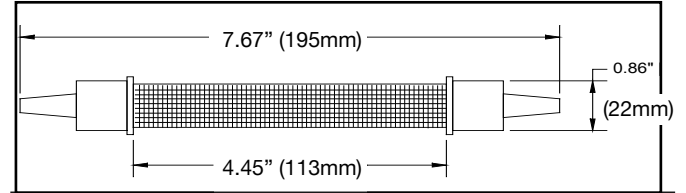


**Additional weight** Part# 1524399  
The additional weight replaces the protective cap and helps to stabilize the transmitter in turbulent conditions. Weight: approximately 1.1 lb, 316ss.

### Desiccant drying cartridge

part # 9836700

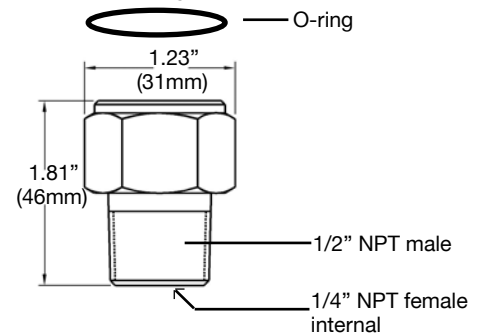
The desiccant drying cartridge helps prevent moisture buildup inside the vent tube.



### NPT adapter

Part# 1631322

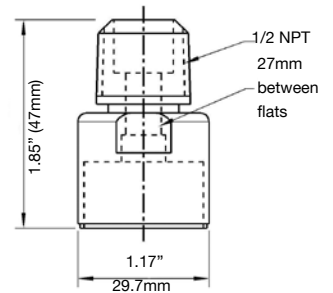
The 316 ss G1/2 adapter replaces the removable protective cap and converts the threads to 1/2" NPT male external, 1/4" female internal threads. Includes O-ring.



### 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.

# LS-10 Submersible Liquid Level Transmitter - 100 inWC to 100 psi



### Standard Features

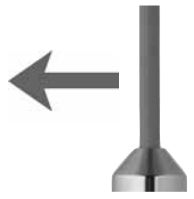
- **Signal Output:** 4-20 mA 2-wire
- **Supply Voltage:** 10-30 VDC
- **Process Connection:** G1/2B with removable protective cap
- **Electrical Connection:** Vented polyurethane cable (must specify length)

**Important Ordering Instructions:** Specify the level transmitter part number and cable length part number corresponding to the total required cable length. For example, a 100 inWC level transmitter with 40 feet of cable should be ordered as 4262761/4347931 with a list price of \$436.50

**Pressure Range Part Number AND Cable Length Part Number must be specified on every order!**

### Cable Length Part Numbers

CABLE LENGTH SELECTOR					
Length	Part#	Length	Part #	Length	Part #
5 feet	4347868	60 feet	4347974	130 feet	4348075
10 feet	4347876	65 feet	4347982	140 feet	4348083
15 feet	4347885	70 feet	4347990	150 feet	4348091
20 feet	4347893	75 feet	4348006	160 feet	4348105
25 feet	4347906	80 feet	4348016	170 feet	4348113
30 feet	4347915	85 feet	4348024	180 feet	4348121
35 feet	4347923	90 feet	4348032	190 feet	4348139
40 feet	4347931	95 feet	4360903	200 feet	4348147
45 feet	4347949	100 feet	4348040	250 feet	4364479
50 feet	4347957	110 feet	4348058	300 feet	4366340
55 feet	4347966	120 feet	4348066	Contact factory for lengths over 300 feet	



### LS-10 standard ranges

Gauge Ranges	
Description	
Range	Part #
0-100 inWC	<b>4262761</b>
0-150 inWC	<b>4262779</b>
0-250 inWC	<b>4262787</b>
0-400 inWC	<b>4262795</b>
0-5 psi	<b>4262809</b>
0-10 psi	<b>4262817</b>
0-15 psi	<b>4262825</b>
0-25 psi	<b>4262833</b>
0-30 psi	<b>4262841</b>
0-50 psi	<b>4262850</b>
0-100 psi	<b>4262868</b>

NOTE: Ready-to-ship part numbers shown in **bold, blue** print.

Ready-to-ship part numbers are available from stock (subject to prior sale). Items without part numbers are available on special order.



**NOTE:** LS-10 "Ready-to-Ship" submersible transmitters require assembly from factory stocked components and usually ship in three days or less.

# LH-10 Submersible High Performance Liquid Level Transmitter - 50 inWC to 400 psi



## Standard Features

- **Signal Output:** 4-20 mA 2-wire
- **Supply Voltage:** 10-30 VDC
- **Process Connection:** G1/2B with removable protective cap
- **Electrical Connection:** 40 ft. vented polyurethane cable

Gauge Ranges	
Description	
Range	Part #
0-50 inWC	<b>9699703</b>
0-100 inWC	<b>9699711</b>
0-150 inWC	<b>9699729</b>
0-250 inWC	9699737
0-400 inWC	9699745
0-5 psi	<b>8371846</b>
0-10 psi	<b>9699754</b>
0-15 psi	9736225
0-25 psi	9699762
0-50 psi	9699770
0-100 psi	9699788

NOTE: Ready-to-ship part numbers shown in **bold, blue** print.

Ready-to-ship part numbers are available from stock (subject to prior sale). Items without part numbers are available on special order.

## LH-10 Option List

Feature
Signal Output
4... 20 mA, 2-wire
0... 20 mA, 3-wire
0... 10 V, 3-wire
0... 5 V, 3-wire
0.5 ... 2.5 V, 3-wire
On inquiry
Unit
psi
InWC
psi absolute
On inquiry
Pressure Range
0 InWC ... 50 InWC
0 InWC ... 100 InWC
0 InWC ... 150 InWC
0 InWC ... 250 InWC
0 InWC ... 400 InWC
0 psi ... 5 psi
0 psi ... 10 psi
0 psi ... 15 psi
0 psi ... 25 psi
0 psi ... 50 psi
0 psi ... 100 psi
0 psi ... 160 psi
0 psi ... 200 psi
0 psi ... 250 psi
0 psi ... 300 psi
0 psi ... 400 psi
On inquiry

Feature
Process Connection
G 1/2 B
On inquiry
Special Design Features
Without
Teflon cable
Lightning protection according to IEC 801-5
Temperature measurement Pt 100, 4-wire
Lightning protection according to IEC 801-5 and temperature measurement Pt 100, 4-wire
Hastelloy C4 (with FEP cable)
On inquiry
Cable Length
5 feet
10 feet
20 feet
30 feet
40 feet
50 feet
On inquiry
Quality Certificates
Without
NIST Certificate of Calibration
Digital Display
Without
Digital display
Additional order details
Without
Additional text

# Submersible Intrinsically Safe Pressure Transmitters

## Type IL-10

WIKA IL-10 intrinsically safe submersible liquid level transmitters are engineered for a wide variety of industrial and municipal liquid level measurement applications, including water and wastewater treatment, well depth measurement, and offshore water depth measurement where performance and intrinsically safe ratings are required. The transmitter features a watertight, vented polyurethane cable that can withstand over 220 pounds of strain. This allows the transmitter to be supported without any additional cabling. The transmitter meets NEMA 6P and IP 68 requirements for submersion up to 900 feet.



Intrinsically safe for Class I, Division I, Groups A, B, C, and D  
Class II, Division I, Groups E, F, and G



**Datasheet: IL-10**  
Available on [www.wika.com](http://www.wika.com)



# Type IL-10

## Intrinsically Safe High Performance Submersible Liquid Level Transmitters 50 inWC to 400 psi



### Standard Features

- **Signal Output:** 4-20 mA 2-wire
- **Supply Voltage:** 10-30 VDC
- **Process Connection:** G 1/2 B

### IL-10 Option List

Feature
<b>Unit</b>
psi
InWC
On inquiry
<b>Pressure Range</b>
0 InWC ... 50 InWC
0 InWC ... 100 InWC
0 InWC ... 150 InWC
0 InWC ... 250 InWC
0 InWC ... 400 InWC
0 psi ... 5 psi
0 psi ... 10 psi
0 psi ... 15 psi
0 psi ... 25 psi
0 psi ... 30 psi
0 psi ... 60 psi
0 psi ... 100 psi
0 psi ... 160 psi
0 psi ... 200 psi
0 psi ... 300 psi
0 psi ... 400 psi
On inquiry
<b>Process Connection</b>
G 1/2 B
On inquiry

Feature
<b>Special Design Features</b>
Without
Hastelloy C4 (with FEP cable)
Teflon cable
On inquiry
<b>Accuracy</b>
+/- 0.25% B.F.S.L.
+/- 0.125% B.F.S.L.
<b>Cable Length</b>
5 feet
10 feet
20 feet
30 feet
40 feet
50 feet
On inquiry
<b>Approvals</b>
EEx ia IP6X 1D, 1G, M1 per ATEX incl. FM and CSA
EEx ia IP6X 1D, 1G, M1 per ATEX incl. FM, CSA and ship approval GL
On inquiry
<b>Quality Certificates</b>
Without
NIST Certificate of Calibration
<b>Digital Display</b>
Without
Digital display
<b>Additional order details</b>
Without
Additional text