Type IL-10 Intrinsically Safe Submersible Liquid Level Transmitter for Hazardous Environments

Applications

- Level measurement in hazardous areas
- 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 50 InWC to 400 psi
- Ex- protection EEx ia I/II C T6 according to ATEX
- Applicable in all hazardous environments:
  Gases and vapor: Zone 0, Zone 1 and Zone 2
  Dusts: Zone 20, Zone 21 and Zone 22
- Cable supports over 220 pounds of strain
- Ingress protection IP 68 for submersion to 1000 feet

Fig. Intrinsically safe IL-10 level transmitter

Description

The IL-10 intrinsically safe level transmitter is designed for use in a wide variety of level measurement applications. The IL-10 provides a BFSL accuracy better than 0.25% of span and an output signal of 4-20mA.

The IL-10 has FM, ATEX and CSA approvals for installation in hazardous areas when used with the appropriate intrinsically safe zener barrier. The cable can withstand up to 220 pounds of strain, also, no additional cable support is required.

The IL-10 includes a dual cable entry design that prevents ingress of moisture into the electronics even if the cable's outer jacket is damaged. Compensation for changes in barometric pressure is accomplished through a vent tube in the cable. Many accessories, including cable clamps, drying cartridges and junction boxes are available for specific installation requirements.

Optional WIKA LevelGuard Anti-clog attachment for submersible level transmitters. For use in lift stations, wet wells and other difficult level applications.

Specifications — Type IL-10

Pressure ranges	100 InWC	150 InWC	250 InWC	400 InWC	5 psi	10 psi	15 psi	25 psi	30 psi	50 psi	100 psi
Over-pressure safety	30 psi	30 psi	60 psi	72 psi	30 psi	60 psi	72 psi	145 psi	145 psi	240 psi	500 psi
Burst pressure	35 psi	35 psi	70 psi	87 psi	35 psi	70 psi	87 psi	170 psi	170 psi	290 psi	600 psi
Materials											
■ Wetted part											
» Cable		PUR {FEP up to 10 bar}									
» Protection cap		Stainless steel {Hastelloy®}									
■ Case		Stainless steel {Hastelloy®}									
■ Internal transmission fluid		Synthetic oil									
Power supply UB	UB in VDC	10 ... 30									
Signal output and		4 ... 20 mA, 2-wire									
maximum ohmic load R_A	R_A in Ohm	$R_A \leq$ (UB – 10 V) / 0.02 A - (0.043Ω x cable length in feet)									
Dielectric strength		Insulation complies with EN 50020, 6.4, 12									
Accuracy	% of span	≤ 0.25 {0.125} [1] (BFSL)									
	% of span	≤ 0.5 [2] {0.25} [1] [2]									
	[1] Accuracy { } for pressure ranges ≥ 0.25 bar										
	[2] Including non-linearity, hysteresis, zero point and full scale error (corresponds to error of measurement per IEC 61298-2)										
	Adjusted in vertical mounting position with lower pressure connection										
Non-linearity	% of span	≤ 0.2 (BFSL) according to IEC 61298-2									
Non-repeatability	% of span	≤ 0.1									
1-year stability	% of span	≤ 0.2 (at reference conditions)									
Permissible temperature of											
■ Medium [3] [4] [5]		-14 ... +140 °F									-10 ... +60 °C
		{-14 ... +185 °F with FEP-cable}									{-10 ... +85 °C with FEP-cable}
■ Storage [3]		-14 ... +140 °F									-10 ... +60 °C
	[3] Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3										
	[4] Other temperature ranges are possible, depending on the electrical connection; see EC-type examination certificate and table page 4.										
Compensated temp. range		32 ... +122 °F									0 ... +50 °C
Temperature coefficients within compensated temp range											
■ Mean TC of zero	% of span	≤ 0.2 / 10 K (< 0.4 for pressure ranges ≤ 50 InWC)									
■ Mean TC of range	% of span	≤ 0.2 / 10 K									
CE-conformity											
■ EMC directive		2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and Immunity (industrial locations)									
■ ATEX-Directive ATEX of equipment intended for use in potentially explosive atmospheres		94/9/EC									
Ex-protection	ATEX	Category [5] 1G (IIA), 1/2G, 2G (IIA), 1D, 1/2D, 2D, M1, M2									
Ignition protection type		EEx ia I/II C T4, EEx ia I/II C T5, EEx ia I/II C T6									
	[5] **Read** the operating conditions and **safety-relevant data in** the **EC-type examination certificate in any case** (DMT 00 ATEX E 045 X)										
Ex-protection	FM, CSA	Class I, II and III									
Ignition protection type		Intrinsic safe Class I, II, III Division 1, Group A, B, C, D, E, F, G and Class I, Zone 0 AEx ia II C									
Approval German Lloyd GL		Environmental Category C, F, EMC 1									
HF-immunity	V/m	10									
BURST	KV	4									
Wiring protection											
■ Short-circuit proofness		Sig+ towards UB-									
■ Reverse polarity protection		UB+ towards UB-									
Weight	lb	Approx. 0.1									
» Cable	oz. per ft.	Approx. 1.0									

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

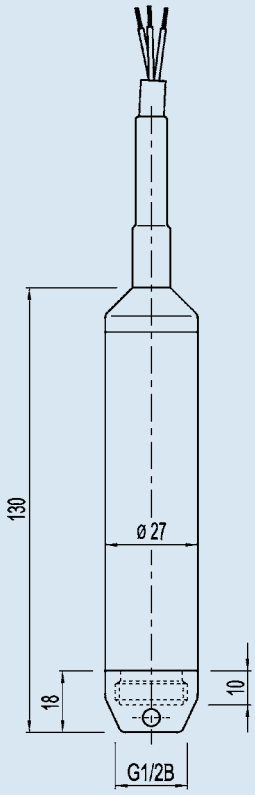
Dimensions in mm

Ingress Protection IP 68 per IEC 60529.

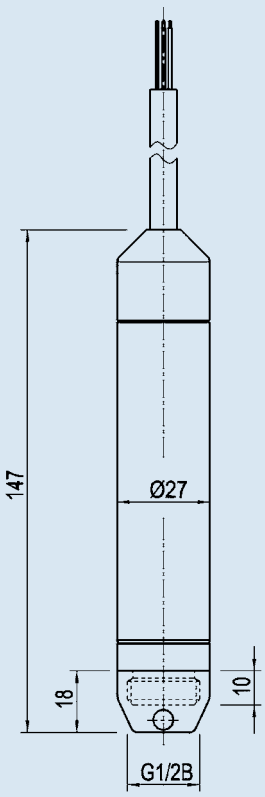
Permissible temperature ranges depending on electrical connections; see table page 4.

Electrical connections

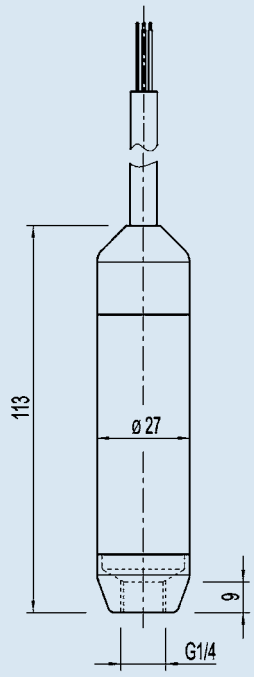
Vented PUR-cable,
max tensile strength of 1000 N
(immersion depth up to 300 m)



FEP-cable
max tensile strength of 500 N
(immersion depth up to 100 m)



FEP-cable
max tensile strength of 500 N
(immersion depth up to 100 m),
{Hastelloy®}



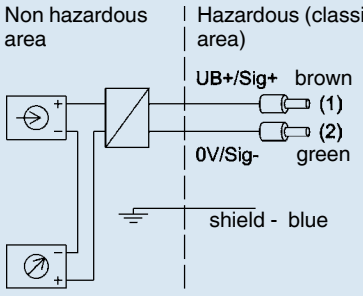
When mounting, no additional strain relief is required.

For installation and safety instructions see the operating instructions for this product.

Wiring details

2-wire

Vented cable
conductor cross section 0.25 mm ², AWG 24 with end splices,
conductor outer diameter 7.5 mm



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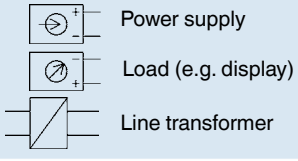

Permissible temperature ranges depending on electrical connections

Electrical connections	Category	Medium and Ambient temperature range	
PUR-cable	1 G (IIA), 2 G (IIA), M1, 1 D, 2 D	14 ... +140 °F	-10 ... +60 °C
FEP-cable	1 G (IIA)	-22 ... +140 °F	-30 ... +60 °C
	2 G (IIA), M1	-22 ... +221 °F	-30 ... +105 °C
	1 D, 2 D	-22 ... +176 °F	-30 ... +80 °C

Type IL-10 Intrinsically Safe Submersible Liquid Level Transmitter for Hazardous Environments

Standard Features

- **Signal output:** 4-20 mA 2-wire
- **Supply voltage:** 10-30 VDC
- **Process connection:** G 1/2 B

FM APPROVED

IL-10 Smart Codes for Custom Order Configurations

Field no.	Code	Feature
		Unit
	P	psi
	N	InWC
1	?	Other - please specify
		Pressure range
	GG	0 inWC ... 50 InWC
	GU	0 inWC ... 100 InWC
	GV	0 InWC ... 150 InWC
	GW	0 InWC ... 250 InWC
	GX	0 InWC ... 400 InWC
	CN	0 psi ... 5 psi
	CP	0 psi ... 10 psi
	BC	0 psi ... 15 psi
	CQ	0 psi ... 25 psi
	BD	0 psi ... 30 psi
	BE	0 psi ... 60 psi
	BF	0 psi ... 100 psi
	BG	0 psi ... 160 psi
	BH	0 psi ... 200 psi
	BI	0 psi ... 300 psi
	BK	0 psi ... 400 psi
2	??	Other - please specify
		Process connection
	GD	G 1/2 B
3	??	Other - please specify

IL-10 Smart Codes for Custom Order Configurations (cont'd)

Field no.	Code	Feature
		Special design features
	Z	Without
	2	Hastelloy® C4
	K	FEP cable [1]
4	?	Other - please specify
		Accuracy
	G	+/- 0.25% B.F.S.L.
5	K	+/- 0.125% B.F.S.L. [2]
		Cable length
	Y	5 feet
	1	10 feet
	2	20 feet
	3	30 feet
	4	40 feet
	5	50 feet
6	?	Other
		Approvals
	2	EEx IP6X 1D, 1G, M1 per ATEX incl. FM and CSA
	U	EEx IP6X 1D, 1G, M1 per ATEX incl. FM, CSA and ship approval GL
7	?	Other - please specify
		Quality certificates
	Z	Without
8	1	Other - please specify
		Digital display
9	Z	Without
		Additional order details
	Z	Without
10	T	Additional order details

1) FEP (Fluorinated Ethylene Propylene), also known by the Dupont trade name of Teflon®
2) Must use G 1/4 B Female process connection

Order Code: 1 2 3 4 5 6 7 8 9 *10

IL-10 - A - [ ][ ] - [ ] - [ ][ ][ ][ ] - [ ][ ][ ]

*Additional order details _____

Type MH-2 Special Purpose Pressure Transmitters for Mobile Hydraulic Applications

Applications

- Mobile hydraulic systems
- Load monitoring

Special Features

- Pressure ranges from 100 psi to 8,000 psi
- 4-20 mA, 1-5V, 0-10V, 0.5-4.5V ratiometric outputs available
- Durable thin film sensor technology
- CDS system for protection from pressure spikes and cavitation
- IP 69K high pressure steam wash-down protection available
- MTTF values > 100 years

MH-2 pressure transmitters

Description

MH-2 pressure transmitters are precision engineered for off road and mobile hydraulic applications where performance and durability are critical. Extreme shock and vibration resistance, available high pressure steam wash-down protection and the WIKA CDS system (cavitation dampening system) provide one of the most rugged pressure transmitters available today. Pressure ranges from 1,000 psi to 8,000 psi meet all standard mobile hydraulic pressure applications.

The all-welded thin film measuring cell eliminates the need for additional soft sealing materials that may deteriorate over time. The thin film sensor uses sputtered technology that provides excellent long-term stability in applications producing frequent pressure cycles. The rugged glass reinforced PBT plastic case has been used in under hood automotive applications for many years.

A metal sleeve inside the case provides excellent EMI protection to 100v/m. Several NEMA 4 / IP 67 electrical connections are available. The cable version provides environmental protection to IP 69K for resistance to high-pressure steam wash-down cleaning procedures.

The MH-2 is specifically designed for OEM applications in the mobile hydraulics and automotive industry. It is manufactured on a fully automated production line to provide large quantities of transmitters with consistent quality and highly competitive pricing.

Custom modifications are available for large quantity requirements.