

LVL Hydrostatic level transmitter

STAINLESS STEEL – SUBMERSIBLE TRANSMITTER
WITH STAINLESS STEEL OR CERAMIC – PRESSURE SENSOR



DIAMETER

- ▶ 25 mm

NOMINAL PRESSURE RANGES

Stainless steel	0 - 0.5mWG up to 0 – 5mWG
Ceramic	0 - 5mWG up to 0 - 200mWG

The LVL hydrostatic level transmitters are designed for continuous level measurement of rivers, reservoirs or tank level measurement of water, fuels or oils. Alternative high grade stainless steel materials can be used for other media such as seawater.

Different cable and seal materials are available in order to achieve maximum media compatibility. The LVL is fully submersible probes can be supplied in gauge or absolute format and is vented via the vent tube in the cable via a unique sealing method (atmospheric pressure is deducted).

Typical applications of the submersible level transmitters are:

- ▶ Environmental engineering: sewage and water treatment plants
- ▶ Depth or level measurement in wells and open waters
- ▶ Ground water level measurement
- ▶ Level measurement in open tanks, also in most of aggressive media

CHARACTERISTICS

- ▶ Wide range of use
- ▶ Easy installation
- ▶ Excellent linearity
- ▶ Very good long term stability
- ▶ Options for accuracy: $\pm 0.25\% \text{ Span}$
BFSL $\pm 0.1\% \text{ Span}$ BFSL $\pm 0.05\% \text{ Span}$ BFSL (ceramic version only)
- ▶ Customer specific versions:
 - Special pressure ranges
 - Other versions on request

Input pressure range ¹		Stainless Steel			↔		Ceramic						
Nominal pressure gauge	[bar]	0.05	0.1	0.25	0.5	1	2	2.5	5	7.5	10	15	20
Level	[mWC]	0.5	1	2.5	5	10	20	25	50	75	100	150	200
Permissible overpressure	[bar]	0.075	0.525	0.525	1.5	1.5	3	7.5	7.5	15	15	30	30

Output signal / Supply			
Standard	2-wire:	4 - 20 mA	Supply: 9 - 32 V _{DC}
Options	3-wire:	1 - 5 V	Supply: 9 - 32 V _{DC}
		0 - 10 V	Supply: 13 - 32 V _{DC}
Options	4-wire:	mV/V	Supply: 3 - 32 V _{DC}
		2mV/V	Supply: 3 - 15 V _{DC}
		10mV/V	Supply: 3 - 15 V _{DC}

Performance	
Accuracy	Option 1: $\leq \pm 0.25$ % Span (BFSL) Option 2: $\leq \pm 0.1$ % Span (BFSL) Option 3: $\leq \pm 0.05$ % Span (BFSL) (ceramic sensors only)
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S,min}) / 0.02] \Omega$ Passive millivolt 4-wire: $R_{min} = 11 \text{ k} \Omega$
Influence effects	supply: 0.005 % FSO / 10 V load: 0.005 % FSO / k Ω
Response time	Passive mV output = <1 mS, Amplified devices < 10 mS

Thermal effects	
Thermal error for offset and span	Option 1: $< \pm 0.04$ % Span / °C Option 2: $< \pm 0.02$ % Span / °C Option 3: $< \pm 0.01$ % Span / °C
Compensated range	-10 ... 80 °C

Electrical protection ²	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but will not function
EMC Immunity	EN50082-1
Lightning Protection Class	EN61000-4-5

Permissible temperatures	
Medium	-10 ... 80 °C
Storage	-25 ... 80 °C

Electrical connection	
Cable with sheath material ³	PUR black (others on request)

¹ Stainless steel sensor from 0.5mWG up to 5mWG; Ceramic sensor from 5mWG up to 200mWG

² additional external overvoltage protection unit in terminal box KL 1 or KL 2 with atmospheric pressure reference available on request

³ cable with integrated air tube for atmospheric pressure reference

Materials	
Housing	Stainless Steel 316L (optional high grade stainless steel UNS 31803)
Seals	Viton (FKM) / EPDM / NBR
Diaphragm	Stainless Steel 316L / Ceramic Al ₂ O ₃ 96 %
Cable sheath	PUR (others on request)

Miscellaneous	
Current consumption	signal output current: max. 29 mA signal output voltage: max. 5 mA
Weight	approx. 250 g (without cable)

Pin configuration		
Electrical connection		cable colours
2-wire-system	Supply +	Red
	Supply -	Blue
	Ground	Green
3-wire-system	Supply +	Red
	Supply -	Blue
	Output +	Green
4-wire-system	Supply +	Red
	Supply -	Blue
	Output +	Green
	Output -	Yellow