HART level sensor type PT-HL

An intrinsically safe level probe for applications in hazardous environments with HART communication

Applications and chracteristics

- Level measurement in hazardous environments
  - fuel tanks
  - ballast tanks
  - service tanks
  - freight tanks
- Measuring ranges: 0...100 mbar up to 0...10 bar
  Prefered: 0...400 mbar / 0...1000 mbar / 0...2500 mbar
- Output signal: 4...20 mA
  - with superimposed HART communication signal
- Configuration: via HART communication protocol
  - PC with software and HART modem
  - HART communicator
- Adjustment: via HART communication
  - measuring range
  - turn down up to 4 : 1
  - self stability
  - filter / - damping
  - linearization
  - temperature compensation
- Ex-protection: ATEX II 1G Ex ia IIA T4 Ga
- Use: in all hazardous environments
  - with gas and vapour in zones 0, 1 and 2
- Connection cable: FEP, maximum tensile strength 500 N
- Protection: IP 68 (up to 100 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 (certificate according to ATEX), the approval of Germanischer Lloyd for the maritime range and the easy configuration via the HART protocol.

Structure

Due to a hermetically sealed, durable stainless steel case with IP68 ingress protection the probe can be immersed to a maximum depth of 100 m. The 2-wire electronic module of the level probe is supplied via intrinsically safe line transformer (suitable for HART communication) with an input power of 16...30 V and has an output signal of 4...20 mA.

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Technical data

Input ranges (in bar) Please Note: preferred ranges are marked with **

Pressure range	0,1	0,16	0,25	0,4**	0,6	1**	1,6	2,5**	4	6	10
Over pressure safety	1	1,5	2	2	4	5	10	10	17	35	35
Burst pressure	2	2	2,4	2,4	4,8	6	12	12	20,5	42	42

Power supply: U_B = 16...30 VDC (maximum current consumption: <25 mA)
Output signal: 4...20 mA, 2-wire, with superimposed communication signal (HART-protocol)
Load: R = (U_B-16 V) / 0,02 A - (length of cable in m x 0,14 ohms)
(HART communication: a communication resistance of 250 ohms has to be taken into account)

Accuracy: up to 0,25 bar: 0,25% of span, above 0,25 bar: 0,125% of span (according to BFSL)
up to 0,25 bar: 0,5% of span, above 0,25 bar: 0,25% of span*
*including non-linearity, hysteresis, zero point and full scale error
Non-linearity: 0,2% of span (according BFSL)
Non-repeatability: 0,1% of span
1-year stability: 0,2% of span (at reference conditions)
Adjusted in vertical mounting position with lower pressure connection

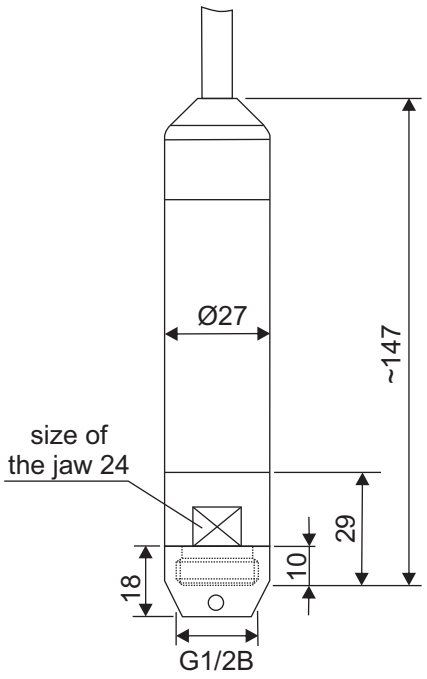
Temperature ranges: operation range HART transmitter and FEP-cable: -10...+85 °C
More details about temperature ranges are included in the EC-type examination certificate
storage range: -10...+60 °C
Compensated temperature range: 0...+50 °C
Temperature coefficient: mean TC of zero: 0,2% of span / 10 °K
mean TC of zero: 0,4% of span / 10 °K (ranges up to 0,25 bar)
mean TC of range: 0,2% of span / 10 °K

CE-conformity: pressure equipment directive: 27/23/EG
EMC directive: 2004/108/EG
ATEX directive: 94/9/EG

Ex-protection: according ATEX (category: II 1G)
Ignition protection type: Ex ia IIA T4 EPL-Level: Ga
- For this take into account the data of the belonging to **EC-type examination certificate**.

Wiring protection: short-circuit protection: permanent
reverse polarity protection: no damage, but no function, too

Dimensions (in mm)



Mechanics

Materials: case, covering cap: CrNi-steel (1.4571)
- option: Hastelloy (HC4)
cable: FEP
internal transmission fluid: syntetic oil

Weight: approx. 200 g
- cable: approx. 80 g per m cable

Covering cap: for transport and storage
- if the sensor is used as an immersion probe: can be removed when medium is dirty or viscous

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