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Датчики гидростатического давления серии TPSM

TECFLUID

TPSM Series Submersible Hydrostatic Level Sensor

The TP series level sensors have been designed to meet most industrial applications for use on liquids or gases, including aggressive fluids.
The piezoresistive technique used consists of the deformation of a diaphragm according to the pressure on which appear four resistors forming a Weaston bridge. The deformation of the diaphragm under the effect of the pressure, unbalances the high precision electronic circuit which generates a 4-20 mA signal proportional to the pressure that the ceramic cell supports.

Materials in contact

Body: AISI316L STAINLESS STEEL
Aluminum oxide ceramic membrane (AL2O3 96%) O-ring: Viton.
On request: NBR, EPDM, PTFE...
Protection cone: PVC
Protective gasket: Polyolefin
Cable: Acrylic PVC
Polyethylene

Characteristics of the cell under load

Characteristics of the cell under load	Minimum	Standard	Maximum
Overall error (linearity, reproducibility hysteresis) % (FE)	0.2	0.3	0.4
Sensitivity (span) mV/V (FE)	2.0	-	3.2
Resolution % (FE)	0.06	-	0.1
Working temperature °C	- 25	-	+ 125
Response time		< 10ms	
Insulation voltage between the capsule and a terminal		> 2KV	

Technical data

Pressure:Relative
Measuring range: from 0..0.250 Bar to 0..20 Bar for the TPSM 41/50/51 from 0..0.250 bar to 0.40 bar for the TPSM 40 from 0..0.250 Bar to 0..10 Bar for the TPSM 55 / 75 (Other ranges on request)
Sensor resolution: from 0.01 to 0.014% EF
from 0.012 to 0.018% FE for the TPSM 51
Combined probe error:<0.3% FE (Linearity, with hysteresis and repeatability)
for TPSM 51 < 0.2% EF (Hysteresis). < 2.5% FE (Linearity)
Response time: **standard** Less than 1 msec.
output signal: For the 4-20 mA Vcc, Linear 4..20
TPSM 50: **Supply voltage**: mAVDC: 2 wires - Linear
15..35 VDC
Electrical protection:Yes. Reverse polarity and short circuits.

Diaphragm type:Ceramic
Protection:IP68 With permanent seal. Supports continuous immersion **Electrical connection**:By special cable (3x0.34 mm2), with double chamber, seal and reference tube to balance the external atmospheric pressure

Working temperature:-5°C to +70°C (environment) and -10..+80 ºC (storage)

Probe outer diameter:23 mm / 18 mm for the TPSM 41 / 40 mm for the TPSM50 / 51 / TPSM 55 / TPSM 60/ TPSM 61 / TPSM 75

Weight:<1300 g. with 10 m of cable for the TPSM 40 / < 1175 gr. for the TPSM 41 / < 1600 gr. for the TPSM 50 / < 725 gr. for the TPSM 51/ < 1200 gr. for the TPSM 55 and 75 / < 1475 gr. for the TPSM 60 / < 1500 gr. for the TPSM 61

Working scale (bar)

Beach	0.25	0.30	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.50	4.00	6.00	10.0	16.0	25.0	40.0
Pressure max	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	5.00	5.00	5.00	10.0	20.0	20.0	50.0	50.0
Pressure a break	2.00	2.00	2.00	2.00	5.00	5.00	5.00	5.00	12.0	12.0	12.0	20.0	50.0	50.0	120	120

10m cable. (other lengths on request)

Compliance : RoHS: Or**I**
CE: 97/23/EG and 89/336/EC (EN61326)

Cable characteristics

The cable consists of three tinned copper conductors, a nylon tube and a flexible steel cable, the assembly is shielded with aluminum-polyester tape and a braid of copper wires with an outer PVC sheath, immersible in water, even salt water. Cable without hazardous products.

Outdoor section (approx.):9mm **Outer sheath color:**Blue - Ral: 5015
Cover material: Acrylic PVC TM5 as standard UNE 21031/13 **Atm compensation tube. :**nylon 1x2 **Electrical conductors:**3x0.34 mm2 (UNE 21064) **Steel carrying cable:**1mm **Tensile strength :**110 Kg. **Approximate weight:**100 g/m

Electrical resistance of the conductor at 20°C:59 u/Km
Color code : Red, yellow and blue **Process temperature**:-5..+70ºC

Cable handling:

The cable is a fundamental element for the proper functioning of the submersible level sensor, therefore special precautions must be taken when handling it and during installation avoid any cuts or tears in the external protection, so as to prevent liquid from penetrates inside the cable, which will completely damage the level sensor.
If the cable must be connected with another conductor, its connection will be made via a junction box located outside the measurement installation (therefore discard any connection inside the measurement) .

The plastic tube inside the cable must not be deformed, as it is the atmospheric pressure reference for the level sensor. It is therefore necessary to pay attention to it because it cannot enter humidity or liquid of any kind, this would have the effect of seriously damaging the level sensor.

Protections

If the hydrostatic level sensors are accidentally subjected to damage caused by the environment (lightning...), it is recommended to place protective elements.

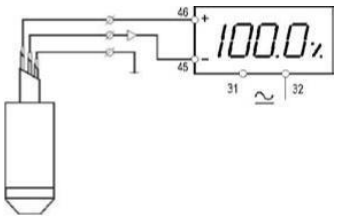
General installation conditions

Before installing the sensor, it must be verified that all the materials which will be in contact with the process are compatible.
The presence of air bubbles between the sensor and the process in application with the fluid causes malfunction of the transmitter (non-linearity, erroneous readings, etc.).
To extend the cable outside, it is necessary to use a two-conductor cable, avoiding placing it in places where there are inductive dispersions, since their effects can damage the electronic elements of the sensor. In some cases, it is advisable to use a shielded cable with a braid connected to the ground.

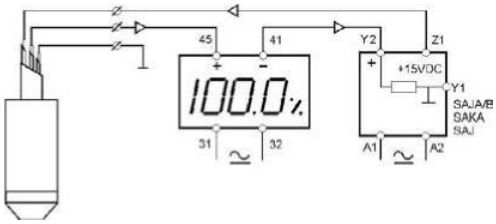
The ceramic sensor of the transmitter must be handled with care because it is very fragile. It must never be subjected to a higher pressure than that determined in its characteristics otherwise the ceramic sensor risks deteriorating (water hammer, point overpressures by undesirable effects, etc.).

Connection and application examples

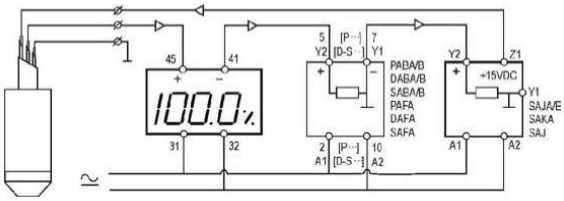
Display only



Sensor supply and 1 or 2 setpoints



Sensor supply and use of different models



Electronics for level sensors with 4-20 mA loop:SAKA, SAJA and SAJ relays

	SAKA	SAJA	SAJ
			
Function	Relay for 4-20 mA current loop.	Relay for 4-20 mA current loop.	Relay for 4-20 mA current loop.
Work mode	2 lockers adjustable detection independently.	1 set of detection.	2 independently adjustable detection setpoints. Display of the amplitude associated with the current loop.
4-20mA loop	15 VDC	15 VDC	15 VDC
Timeout	-	-	Adjustable 0.01s..999.9h

Electronic converter MT-03L Fully programmable, graphic LCD display 5-digit level indication
96 x 96 x 78 mm (panel) 2 configurable relay outputs
4-20 mA output
Resistance or current input 4-20 mA Loop supply: 16..25 VDC / 4..20 mA

PS-4 surge protector
It is designed for the protection of electronic elements that are powered by a maximum voltage of 35 VDC and subjected to the effects of lightning, overvoltage, etc.

Adapter for the installation of any type of TPSM TB sensor Process connection: Threaded connection. All measurements from 1/2" G.
AISI316 stainless steel or PVC.
Connection box in PBT IP67.
Cable length on request

По вопросам продаж и поддержки обращайтесь:

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