Pressure Sensors

General description:
The process pressure / hydrostatic pressure sensors are based on the principle of a transducer with a pre-set pressure range and adjustable output. The sensors can be installed “dry” outside the tank, or “submerged” in medium inside the tank.

In both cases, the sensor should be installed approx. 10cm above the lowest bottom area of the tank.

Applications:
- Ballast water tanks
- Fresh water tanks
- Grey water tanks
- Black water tanks
- AluTanks
- RFO Storage tanks
- RFO Settling tanks
- RFO Service tanks
- Black water tanks
- Cooling water tanks
- Draft

Visualization of tank levels:
The visualization of tank and draught levels is realized on an existing control panel of the RCV remote controlled valve system, ballast system, ship automation / alarm system, or as a stand-alone solution on a colour touch panel display. The panels are available from 10.4” up to 19”.

The TLG system can be used as a stand-alone application or as an integrated solution in the RCV system. The interface to the Alarm & Monitoring System (AMS) and/or ship management system is via RS485 or Ethernet. Both interface types are most common and, furthermore, are highly reliable and flexible.

SENSE FEATURES FOR PRESSURE TRANSUCERS: A

- Principle: process pressure/hydrostatic pressure
- Exactitude: better ±0.5 %
- Overpressure: at least 25 bar overpressure-safe
- Temperatures: body -10 .. +100 °C
- Materials: monotexis rubber + ceramic, body 1.4466, sealings EN1404 double sealing

Protection:
- D: IP67 / IP68, or request ATEX II 3C Exd iIC T6
- Power supply: 24 V DC, 11 .. 25V, output analogica 4 – 20 mA
- Electrical connection: via screwed junction box with
- Approvals: GL, LR, ABS, CCS, MFA, DNV

Examples of possible sensor installations

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REFERENCES
Partnership in Flow Management

We associate with nearly all major shipyards worldwide. Until this moment, more than 4000 ships and offshore facilities have been equipped with BESI systems. To get a complete reference list, please get in contact with us.
The measuring cell of grove ring Ballast water tanks, fresh water tanks, grey water tanks, sludge storage tanks, INFO Storage tanks, INFO Settlement tanks, INFO Service (day) tanks, MDO tanks - Lube-oil, cooling water - Draft

Special features and adjustments

The throttle valve induces the airflow to the tank or draft measuring point to approx. 10 – 20 l/s. The non-return valve - assembled with the gauge head - insures the air-circuit and the pressure-transmitter against tank fluid flowing back into the pneumatic circuit in case there is a breakdown in air supply.

The signal pick off is rendered by an electronic pressure transducer with a ceramic sensor cell containing high purity aluminium membrane providing analogue signal 4 – 20mA which corresponds with the air pressure in the measuring pipe. The sensors are pre-calibrated and available in almost every range, with standard types for 4/8, 10/16 or 20mC Lapid cylindrical.

Design benefits

The PESS sensor system consists of a ready-assembled and pre-adjusted sensor box with an air-throttle valve, a non-return valve, an electronic pressure transmitter, a stop-clock and a test connection for testing the sensor even when the tank is empty.

Based on the principle of an air purge system (or “bubble system”), the measuring cell of the pressure sensor never makes contact with the liquids to be measured. The permanent air flow (bubbles) keeps the measuring tube permanently free from fluid and protects the pressure sensor against dirt and heat. This means that the PESS sensor will never be damaged or influenced by adherent sediments.

Another important design benefit of the proximity measuring principle is that the medium temperature is totally irrelevant. Service to the system can be done from outside the tank.

Installation

The versitale PESS sensor system provides measurement access from the top or from the side of the tank. It can be mounted close to or distant from the measuring point. The sensor is connected to the tank via a measuring pipe which is guided into the corresponding tank to a level of approx. 30mm above tank bottom. Approved by Germanischer Lloyd (GL) and ABS, the tank sounding pipes can be used as PESS measuring pipes as well if they are closed airtight to prevent any leakage.

For detailed information about the components shown please refer to the specific documentation.