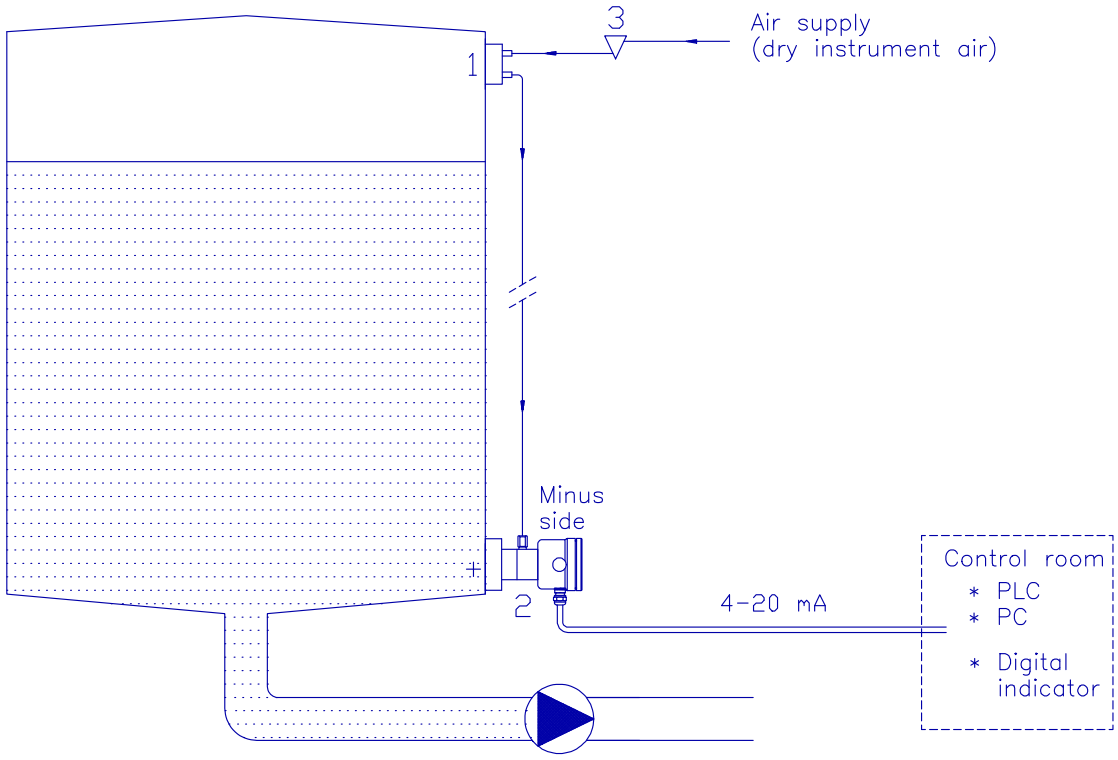
KLAY-INSTRUMENTS

INSTRUCTION MANUAL

DIFFERENTIAL LEVEL TRANSMITTER D-8000-SAN IN COMBINATION WITH A LT-SAN IN A PRESSURIZED TANK

**** WARNING ****
Read this manual before working with the products. For personal and system safety, and for optimum product performance, make sure you thoroughly understand the contents before installing, using, or maintaining the SERIES D-8000-SAN in combination with the LT-SAN.
For general information like dimensional drawings, welding instructions and wiring of the transmitters the standard manuals must be used.
For the series D-8000-SAN, see instruction manual with reference H/E/8000.
For the series LT-SAN, see instruction manual with reference H/E/LT-SAN/PR.



1 = Pneumatic 1:1 pressure transmitter, type LT-SAN
2 = Electronic differential transmitter, type D-8000-SAN
3 = Filter reducer combination, type FR 10 D

MANUFACTURER:

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DESCRIPTION:

The electronic differential transmitter (2 = D-8000-SAN) at the bottom has a sanitary process connection and measures the level in the tank including the pressure above the liquid.
The pneumatic 1:1 pressure transmitter (1 = LT-SAN) at the top measures the pressure above the liquid.
The output of the 1:1 transmitter is connected to the minus side of the differential level transmitter.
The pressure above the level will be directly substracted 1n to the differential pressure transmitter.
The differential level transmitter gives an output of 4-20 mA, which corresponds exactly to the level in the tank. Advantage: Low span for the differential level transmitter.

Example: Pressure above the level is: 2 bar
Level in the tank is: 6 mWC
The differential transmitter measures 2,6 bar. The 1:1 pressure transmitter measures 2 bar.
The output signal from the 1:1 pressure transmitter (2 bar) is connected to the minus side of the differential transmitter (2), which converts this signal and gives an output of 4-20 mA equals 0 - 6 mWC.
In this example, the Span of the D-8000-SAN must be calibrated at: 0 - 6 mWC = 4-20 mA.

INSTALLATION:

The installation sequence must be as follows:

NOTE:

The description is based on the fact that there is no liquid in the tank and there will be no pressure applied on the tank.
All figures are based on the example as described above.

1 The transmitters must be mounted according to the drawing on page1. The D-8000-SAN must be mounted in the bottom of the tank. The LT-SAN must be mounted in the top of the tank.

Installation of the transmitters must be done in a proper way. For general information like dimensional drawings, welding instructions and wiring of the transmitters the standard manuals must be used.
For the series D-8000-SAN, see instruction manual with reference H/E/8000-HART.
For the series LT-SAN, see instruction manual with reference H/E/LT-SAN/PR.

2 The supply of the LT-SAN must be connected to the air supply. This air supply must be dry filtered air.

3 The output (Gauge) of the 1:1 transmitter (LT-SAN) must be connected on the minus side (-) of the electronic differential transmitter (D-8000-SAN).

4 Put pressure on the air supply of the LT-SAN (= 2,7 bar). This must be dry filtered air. The minimum air supply for the LT-SAN must be: highest process pressure + 0,7 Bar (10 PSI).
Note: The LT-SAN has a zero deviation of ±0.02 Bar. This deviation has to be eliminated by means of the D-8000-SAN. (point 7).

5 Check the air tubing on **leakages**. Especially the one between the output of the LT-SAN and the minus side of the D-8000-SAN. Any small leakage will have a big influence on the level measurement. It is extremely important to prevent leakages.

6 The power supply (24 Vdc) must be connected to the D-8000-SAN.

7 The zero deviation, which occurs due to the LT-SAN, has to be eliminated. The adjustment of the D-8000-SAN must be so, that the zero deviation is no longer present.
The output of the transmitter must be set at 4.00 mA (Zero-potentiometer).

8 Put some pressure on the tank, for example 0,5 bar, to check if the system is functioning.
The output of the transmitter (D-8000-SAN) must remain 4.00 mA.
If there is a leakage in the air tubing the output will be higher than 4.00 mA (e.g. 4.2 mA).

CALIBRATION:

The D-8000-SAN must be calibrated on the exact level in the tank.
All transmitters are fully calibrated at the factory, to the conditions stipulated in users order.
It may be advisable to recalibrate the transmitter after shipment.

The calibration sequence is as follows:
1 The output of the transmitter must be set at 4 mA Zero-potentiometer).
2 Air pressure in accordance with the process pressure must be put on the test nipple.
3 The output of the transmitter must be set at 20 mA (Span-potentiometer)
4 Remove the air pressure
5 Check if the output of the transmitter is 4 mA. (Otherwise repeat steps 1 till 4)
6 Install the transmitter.
7 The output must be set at 4 mA. (Dependable of mounting position.)

- ***WARNING:***
  PROTECT THE DIAPHRAGM UNTIL INSTALLATION TAKES PLACE.
  DO NOT DAMAGE THE DIAPHRAGM.

- **WARRANTY**: The warranty is 1 year from purchase date.
  Klay Instruments B.V. does not accept liability for consequential damage of any kind due to use or misuse of the SERIES 8000 or SERIES 8000-SAN. Warranty will be given, to be decided by the manufacturer. Transmitter must be shipped prepaid to the factory on manufacturer's authorization.

- **NOTE:** Klay Instruments B.V. reserves the right to change its specifications at any time, without notice. Klay Instruments B.V. is not an expert in the customer's process (technical field) and therefore does not warrant the suitability of its product for the application selected by the customer.

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