Fill level measuring and level monitoring

Calculation of fill level:

$$h = \Delta p / (\rho * g)$$

h	= Fill level
Δp	= Differential pressure
ρ	= Density
g	= Acceleration of gravity

❶ Sensor Profibus Module 9221-IP65
❷ E.g. pressure difference transducer model 8310
❸ Measurement data
❹ Control cabinet
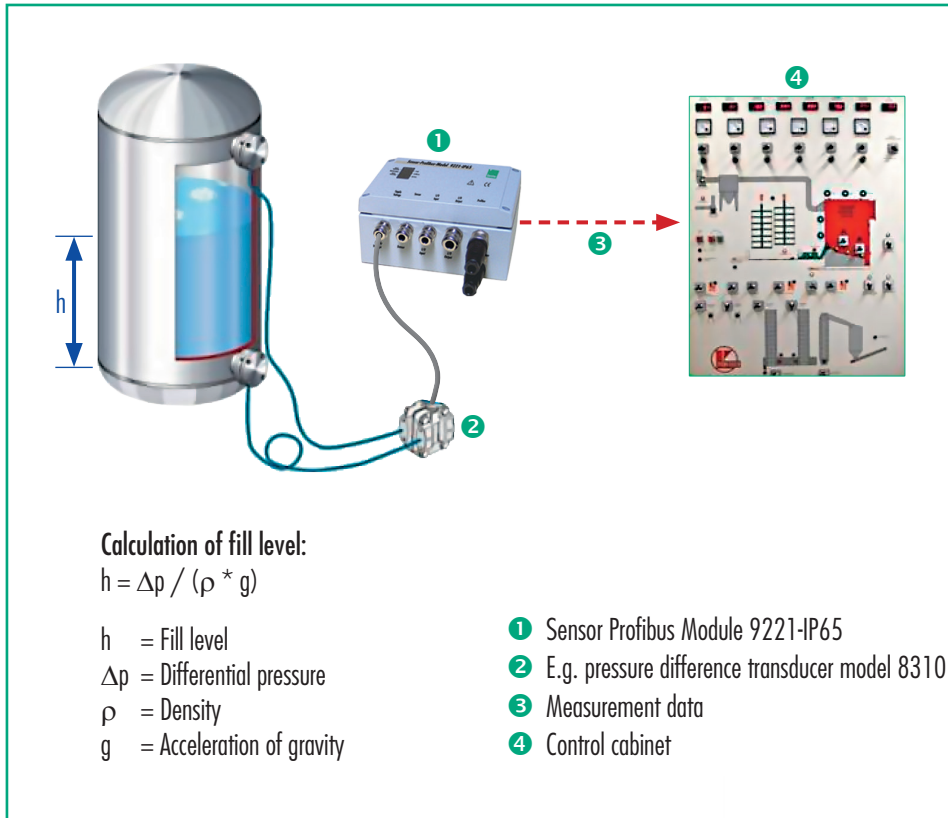
Contact

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Sector

■ Industry, agriculture

Product name

■ Pressure difference transducer
■ Sensor Profibus Module

Features

■ High accuracy

■ Can be used in harsh industrial environment

■ Configuration via PROFIBUS is possible

Task

Trust is good, control is better. Therefore the fill level control in a completed system should be realized with a 24 h level monitoring. This control is achieved when the measurement data should be transferred via PROFIBUS with a transfer speed of 1,5 MBaud to a PC and stored.

Specific Requirement

Simplest installation work as well as a precise and durably reliable measurement values recording should be realized. It must be guaranteed that even in rough environment conditions the electronics are protected from exposure to water. Additionally, extensive diagnosis functionalities and long-range online-alterations should be supported with current control.

Solution

For the pressure recording a pressure difference transmitter model 8310 is used. It transfers the pressure difference signal 24 hours online to the waterproof Sensor Profibus Module 9221-IP65. The interface developed for highest precision claims records and monitors the measurement data accordingly. Afterwards the module transfers the measurement values obtained with a speed of 1,5 MBaud to the control cabinet with Profibus connection. The module supports the protocol PROFIBUS DPV1, allowing central alterations to diagnosis criterion, which can be made during operation, both possible and easy. The adjusted calibration and configuration data (zero voltage protected) is deposited in an EEPROM, avoiding the need for reprogramming module, in the event of a power surge or disconnect.