

Level transmitters shall be provided for non-contact continuously measuring of liquid levels. Maximum measuring range shall be suitable max. 30 m. Measuring principle shall be operating based on the time-of-flight method. The sensor shall be suitable for installation in wastewater/sludge and the sensor house shall be made of 316 L or similar material. The housing shall be in protection class IP68. Common communication protocols and interfaces, such as 0/4...20 mA and Ethernet or 0/4...20mA/HART shall be integrated. The compensation shall be electronic. The accuracy of the level measuring system shall, as a minimum be 2 mm of the full scale. The full scale shall be selected according to the location of the level measuring. Device shall have an integrated overvoltage protection. Detector will be appropriate to be mounted in an open or covered tank and completely covered and protected against water that may reach on itself, IP68 rate protected from environmental effects. Control units must have independent balancing features between zero and certain interval and its output must be between (4-20 mA) as proportional with the level. General accuracy of the measurement device, must not be higher than (± 2 mm) of the measurement device level indicator. The connection between the detector and control units must be shielded type cable that is available in the market and equipment must be able to operate with cables up to 60 meters. Material process connection shall be PVDF. Antenna diameter shall be in 40 mm and its shape shall be horn antenna.

8.8.12 Hydrostatic Level Measurement

Level transmitters shall be provided for continuously measuring of water levels and for control of the machinery.

Analogue level measuring shall be based on the hydrostatic measuring principle based on the pressure generated by the height of a liquid column. The pressure acting on the pressure-measuring cell built-in the sensor shall be converted into a level-proportional electrical signal. The sensor shall be suitable for installation in wastewater/sludge and the sensor house shall be made of 316 L or similar material. The housing shall be in protection class IP68. The level transmitter shall provide the PLC with a 4-20 mA level proportional signal and additionally provide the sensor with the necessary power supply. The transmitter shall automatically compensate for the atmospheric pressure. The compensation shall be electronic. The accuracy of the level measuring system shall as a minimum be ($\pm 0.2\%$) of the full scale. The full scale shall be selected according to the location of the level measuring. The linearity shall be better than 1%. It shall be possible to change the full scale for the sensor by using a special programming device connected to the sensor. Device shall have an integral overvoltage protection. Alternatively, level measurement, will be performed by contact free, echo time measurement device that operates at ultrasonic frequency at locations where required.

Equipment will transmit the vibration that is reflected to the detector from the surface of the liquid that is being measured. Equipment will be consisted of separate control system and a detector that has transmitter and receiver.

Equipment will be provided with automatic temperature balancing mechanism and will comply with the approved design for operation under defined weather conditions.