TEKTROL
Technology Solutions

TEK-SUB 4800E

OEM Submersible Level Transmitter

LEVEL

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Flow | Level | Temperature | Pressure | Valves | Analyzers | Accessories | TekValSys

Introduction

The Tek-Sub 4800E OEM submersible level transmitter is specifically designed for immersion-based hydrostatic level measurement in aggressive field conditions. Featuring a precision of ±0.25% FS, it supports continuous monitoring in depths up to 120 meters H_2O. The device complies with IP68 standards, ensuring long-term operational reliability in fully submerged installations.

Measuring Principle

The Tek-Sub 4800E OEM Submersible Level Transmitter consists of a sensor attached to a long cable, which is lowered to the bottom of a tank or well. The sensor operates by measuring the hydrostatic pressure of the liquid. Hydrostatic pressure (or head pressure) is the pressure exerted by the liquid in the tank or well. The hydrostatic pressure measured by the sensor is determined by two parameters:

The density and height of the liquid. With liquid density remaining constant, changes in hydrostatic pressure necessarily reflect a difference in liquid level.

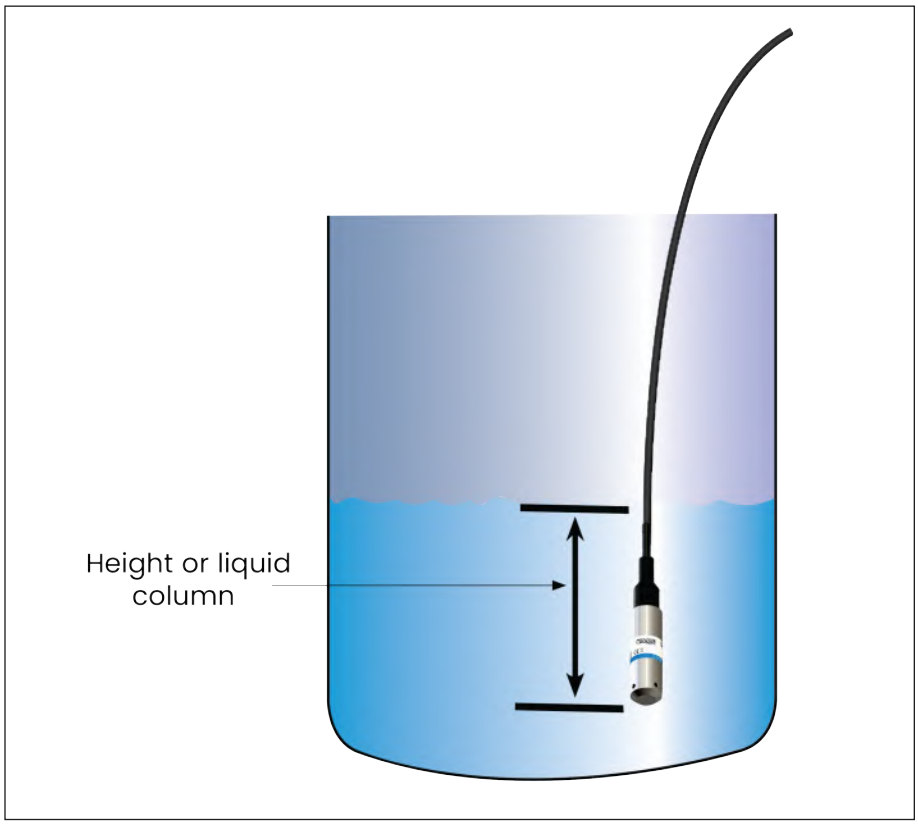


Fig 1. Measuring Principle

Operations

Typical Tek-Sub 4800E OEM Submersible Level Transmitter application.

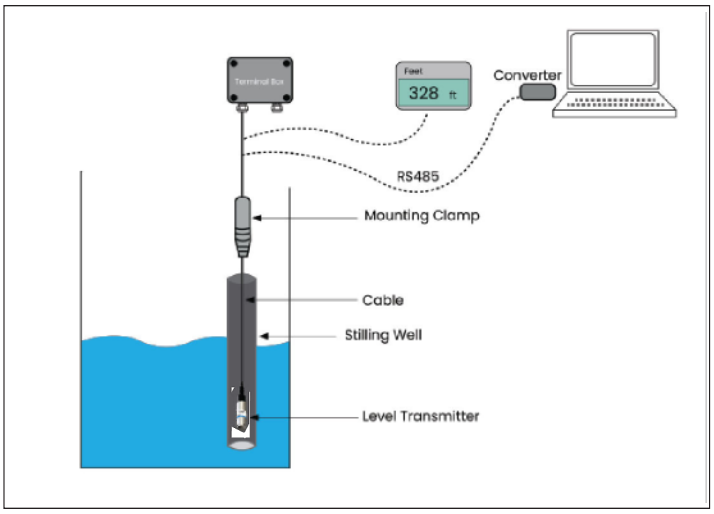


Fig 2. Mounting the Transmitter

The pressure at the bottom of the tank is related to the height of the liquid. This pressure is called hydrostatic pressure or head pressure. Typical units for measurement of hydrostatic pressure are inches, feet, or meters of water column. In a water column, the hydrostatic pressure of 27.7" w.c. is approximately equivalent of 1 PSI. The volume of water or shape of the tank or vessel does not affect the hydrostatic head pressure as it is height of water that affects the pressure. Whether it is in a large water tank or a small bucket of water, the hydrostatic pressure of 27.7" w.c. is the same. Modern PLC's and HMIs can calculate the liquid level of a tank by entering the geometry of the tank and the specific gravity of the liquid.

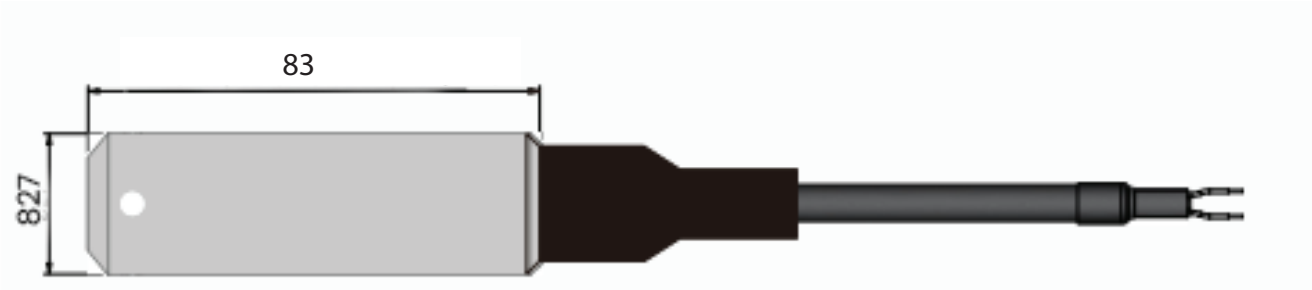
Features

- Measuring ranges from 1 to 30 Psi (0.7 to 21 mH_2O)
- IP68, Submersible level measurement
- Simple Level measurement
- Accuracy: ±0.25% FS (Typ.)
- Calibrated and temperature compensated
- Stainless Steel pressure sensor
- Output 4...20mA, DC1...5V, DC 0.5...4.5V, MODBUS RTU

Applications

- Drinking water systems
- Ground water monitoring
- Rain spillway basin
- Domestic Water Tanks

Dimensional Drawing



Accessories

Cable Strain Relief Camp

Specifications

Nominal Pressure	1 to 30 Psi (0.7 to 21 mH_2O)
Accuracy	0.25%FS@25°C(Typ.)
Operating Temperature	-10 to 50°C
Compensated Temperature Range	-10 to 50°C
Temperature Coefficient - Zero	±0.75 [Typ.], ±1.5 [Max.]
Temperature Coefficient - Span	±0.75 [Typ.], ±1.5 [Max.]
Long Term Stability	0.2% FS / Year
Output Signal	• 4-20MA • DC 1.....5V30VDC • DC 0.5....4.5V • MODBUS RTU
EMC Test	IEC61000-6-2/IEC61000-6-3
Vibration	20g Force (20 to 2000 Hz)
Shock	100g Force (10ms)
Cycles	10x105 Cycles
Insulation Resistance	100 MΩ @ 100VDC
Housing / Diaphragm	316 Stainless Steel
Cable	PUR, PE, PTFE
Oil Filling	Silicone Oil
Protection	IP68
Protection Cap	Stainless Steel
Reverse Polarity Protection	No damage – no function
Weight	-250g (without cable)

Installation

This section covers instructions on installation and commissioning. Installation of the device must be carried out by trained, qualified specialist authorized to perform such work.

- Installation must comply with local installation requirements and local electrical code.
- Do not switch on the power supply to the transmitter while installing it. It may cause injury to the operating personnel.
- Prevent mud and sand from accumulating on the sensor probe. Otherwise, the transmitter would be damaged.

Consideration would be taken before Installation

Before installation make sure that:

- The static pressure produced by the liquid at the installation site does not exceed the transmitter's FS range.
- The measuring liquid is compatible with the transmitter's construction material.
- While mounting the transmitter, avoid areas subject to electrical noise, excessive vibrations and radiant heat.

Installation Method

The Tek-Sub 4800E OEM Submersible Level Transmitter is suitable for static, as well as flowing liquid level measurement applications.

- Ensure that the measuring liquid is compatible with the transmitter's construction material.
- Insert the transmitter vertically down in the measurement container
- Ensure that the transmitter is completely immersed in the liquid for maximum accuracy.
- Ensure the protection cap holes are not blocked due to suspended particles in the measuring liquid.

Installation in the Static Liquid

Place the transmitter away from liquid resource to avoid effects of vibration and pressure influence. A stilling well is recommended for the best result.

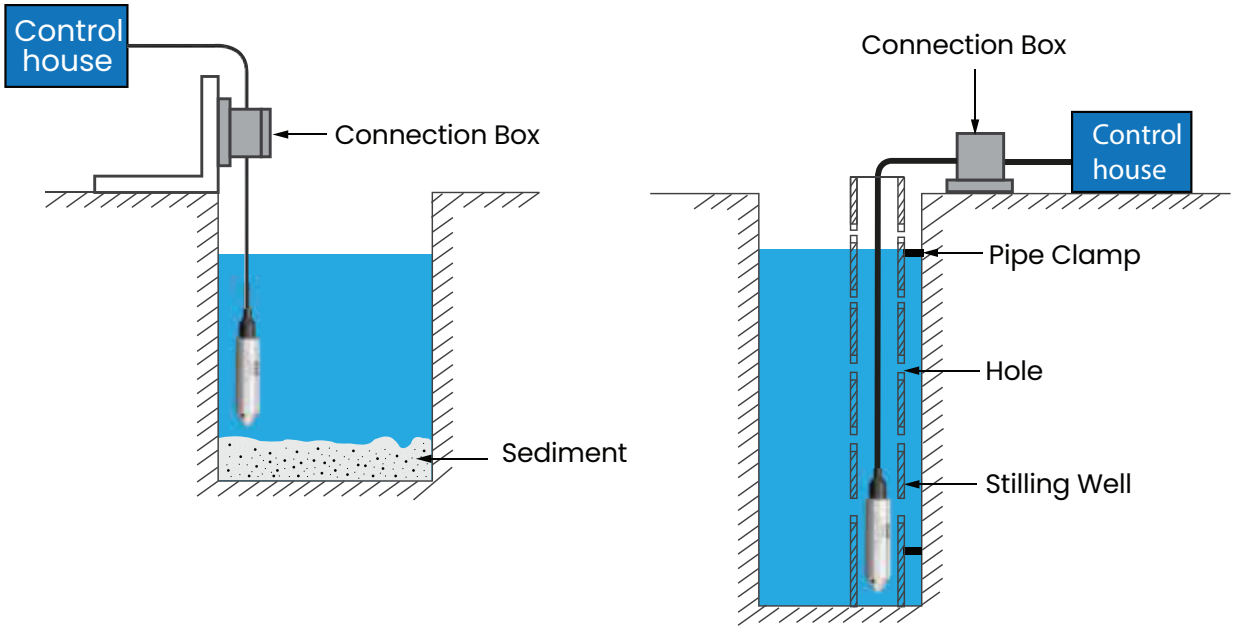


Fig. 3 Installation in the Static Liquid

Installation in a Flowing Liquid

A stilling well is recommended when there is a flowing liquid. A stilling well will dampen disruptions and provide a steady level for an accurate measurement.

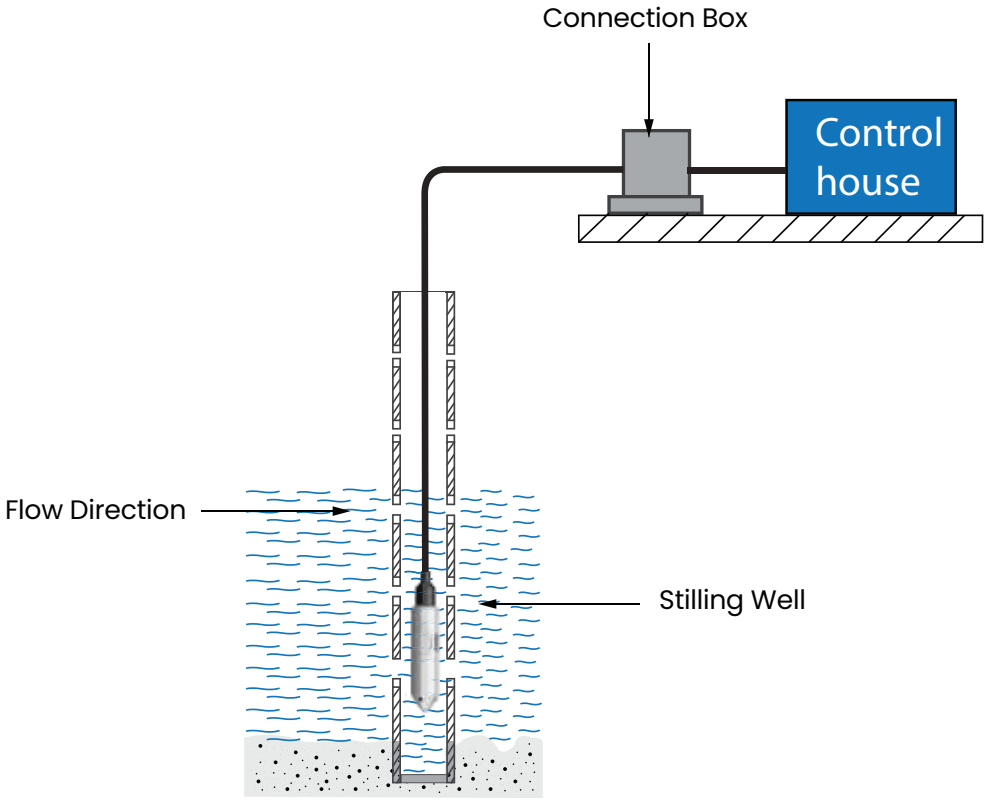


Fig. 4 Installation in a Flowing Liquid

Customer Service & Support

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