TEKTROL
Technology Solutions

TEK-SUB 4800C

Borehole Submersible Level Transmitter

LEVEL

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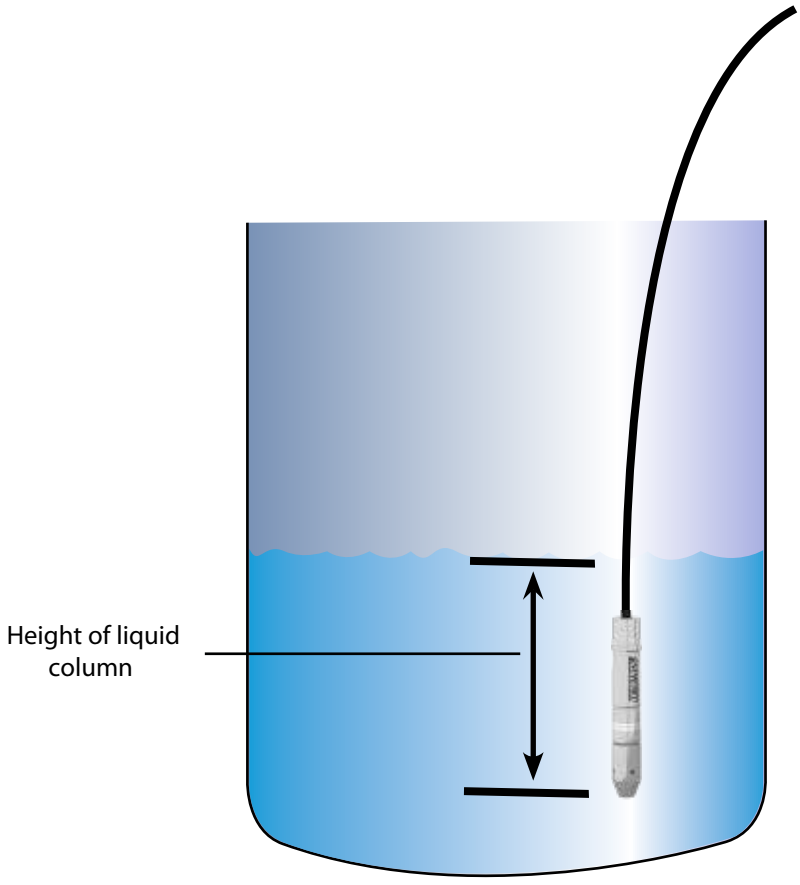
Flow | Level | Temperature | Pressure | Valves | Analyzers | Accessories | TekValSys

Introduction

The Tek-Sub 4800C Borehole Submersible Level Transmitter is only 0.75" in diameter making it ideal for level monitoring in well and borehole applications. Constructed for years of trouble-free service, the Tek-Sub 4800C has welded stainless steel body and nose cap. Featured in Tek-Sub 4800C is a precision ±0.25% of full scale accuracy piezoelectric sensor. Tek-Sub 4800C comes with a choice of polyurethane or PTFE cable materials and is vented for barometric pressure compensation.The vent is covered with a maintenance-free filter, which prevents particulate or water droplets from entering the transmitter.

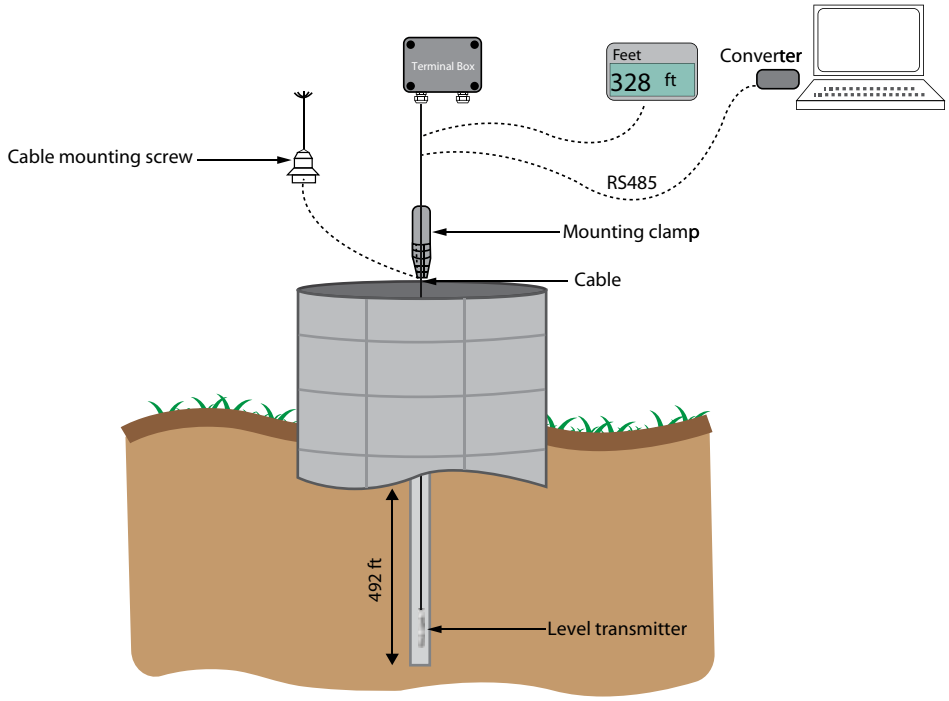
Measuring Principle

The Tek-Sub 4800C Borehole Submersible Level Transmitter consists of a sensor attached to a long cable, which is lowered to the bottom of the liquid container. The sensor operates by measuring the hydrostatic pressure of the liquid medium. Hydrostatic pressure (or head pressure) is the pressure exerted by the liquid in the vessel. 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.



Operation

Typical Tek-Sub 4800C 19mm Borehole Submersible Level Transmitter application is shown in the following figure.



The pressure at the bottom of the tank or body of liquid 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 at 100 °F. The volume of water or the shape of the tank does not affect the hydrostatic head pressure; it is the 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 HMI's can calculate the liquid level of a tank by entering the geometry of the tank and the specific gravity of the liquid.

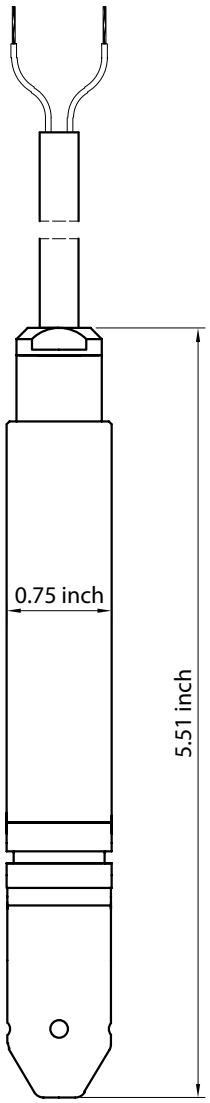
Features

- Rugged, compact design for bore holes
- Stainless steel diaphragm and housing for excellent environmental protection
- Factory calibrated, easy to install and use
- Temperature compensated
- Corrosion-proof and moisture protected sensor body
- Surge and lightning protection
- Long lasting service with virtually no maintenance
- Standard Output 4-20 mA, RS-485, 0.5-4.5 VDC
- Accuracy: ±0.25% FS

Applications

- Water level measurement in wells, borewells, ponds, reservoirs, weirs, and dams
- Ground water monitoring
- Drinking water systems
- Water diversion plants

Dimensional Drawing



Specifications

Pressure range	10 psig to 50 psig (7 mH_2O to 35 mH_2O), Optional ranges available
Pressure type	Gauge (Vented)
Over pressure	150% FS
Accuracy	0.25% FS
Temperature coefficient-zero	±0.75% FS (typ.), ±1.5% FS (max.) overcompensated temperature range
Temperature coefficient-span	±0.75% FS (typ.), ±1.5% FS (max.) overcompensated temperature range
Long term stability	±0.2% FS/year (typ.), ±0.3% FS/year (max.)
Output signal	4-20 mA, RS-485, 0.5-4.5 VDC
Power supply (Vs)	12 to 36 VDC
Load resistance (R_L)	For current output: R_L<(Vs-12)/0.02A
	For voltage output: R_L>10 kΩ
Vibration	10g-force (20-2000 Hz)
Shock	100g-force (10 ms)
Cycles	$10x10^6$ cycles
Insulation resistance	100 MΩ/50 VDC
Compensated temperature range	32 °F to 140 °F (0 °C to 60 °C)
Operating temperature range	32 °F to 160 °F (0 °C to 70 °C)
Storage temperature range	-40 °F to 257 °F (-40 °C to 125 °C)
Housing	304 SS
Cable	PTFE or Polyurethane
Diaphragm	316L SS
Seal ring	Viton
Oil filling	Silicone oil
Net weight	0.49 lb (225 g)

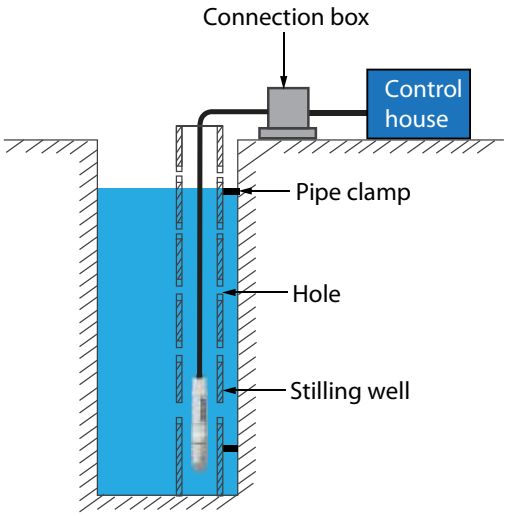
Installation

The Tek-Sub 4800C Borehole Submersible Level Transmitter is suitable for static, as well as flowing liquid level measurement applications. The transmitter is factory calibrated and ready for operation without adjustment.

- Ensure that the measuring liquid is compatible with the transmitter's construction material
- Insert the transmitter vertically down in the measurement pipeline
- Ensure that the transmitter is completely immersed in the liquid for maximum accuracy
- Avoid areas subject to electrical noise, excessive vibrations and radiant heat while mounting the transmitter

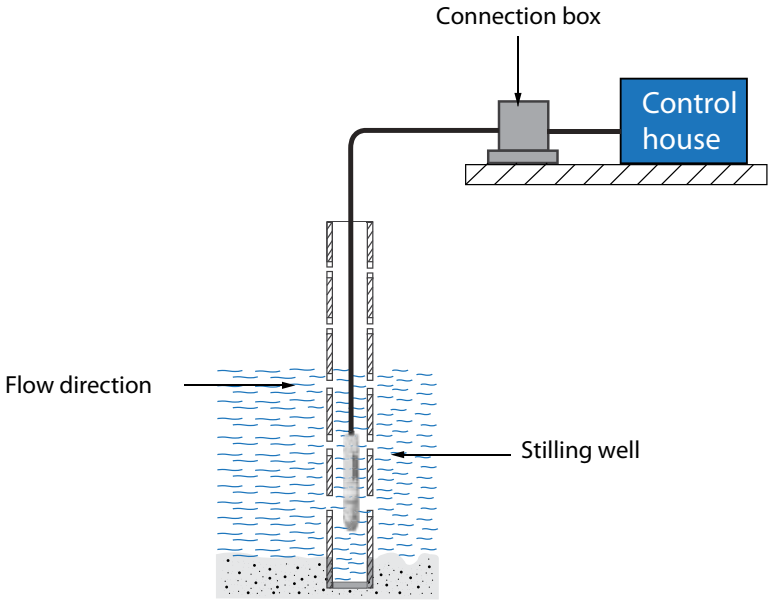
Static Fluid

Place the transmitter away from liquid resource to avoid effects of vibration and pressure influence.



Flowing Fluid

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



Model Chart

Example	Tek-Sub 4800C	10	42	25	P25	Tek-Sub 4800C-10-42-25-P25
Series	Tek-Sub 4800C					19 mm Borehole Submersible Level Transmitter
Range Options		10 15 25 50				10 psig (7 mH_2O) 15 psig (10.5 mH_2O) 25 psig (17.5 mH_2O) 50 psig (35 mH_2O)
Output			42 45 49			4-20 mA 0.5-4.5 VDC RS485
Accuracy				25		0.25% FS

Popular Models

Model Number	Description
4800C-10-42-25-P25	0.062 ft Borehole Submersible Level Transmitter, Range 10 psig, 75' Polyurethane Cable
4800C-15-42-25-P34	0.062 ft Borehole Submersible Level Transmitter, Range 15 psig, 100' Polyurethane Cable

Cable Hanger

Customer Service & Support

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