



Technology Solutions

TEK-SUB 4800D

Wastewater Submersible Level Transmitter



LEVEL



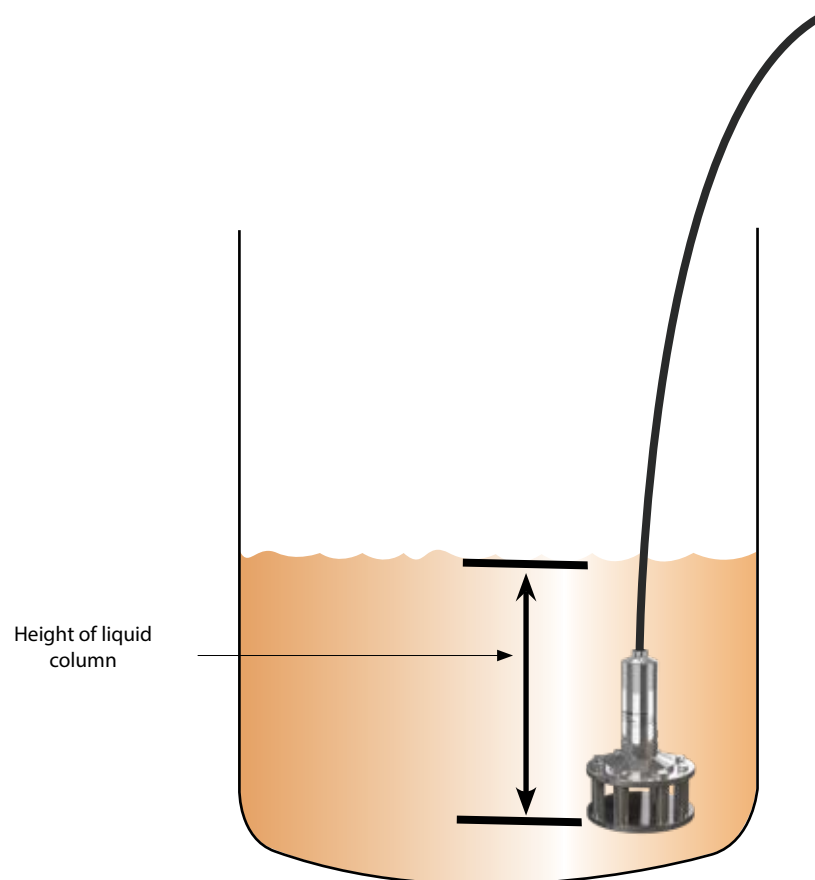
Introduction

The Tek-Sub 4800D Wastewater Submersible Level Transmitter is exclusively designed for slurry and wastewater applications. Manufactured for precise level measurement, its clog-free silicon piezoresistive sensor determines liquid level without being affected by debris. Packaged in a stainless steel housing, the waterproof cable makes it ideal for long-term trouble-free service. The Tek-Sub 4800D is capable of real-time level measurement with several standard output signal options. The instantaneous level output is used for pump control to maintain the level or report the real-time level status.

This high-performance level measurement device is available with several level ranges, custom cable lengths and materials, ensuring an ideal match for the application requirement.

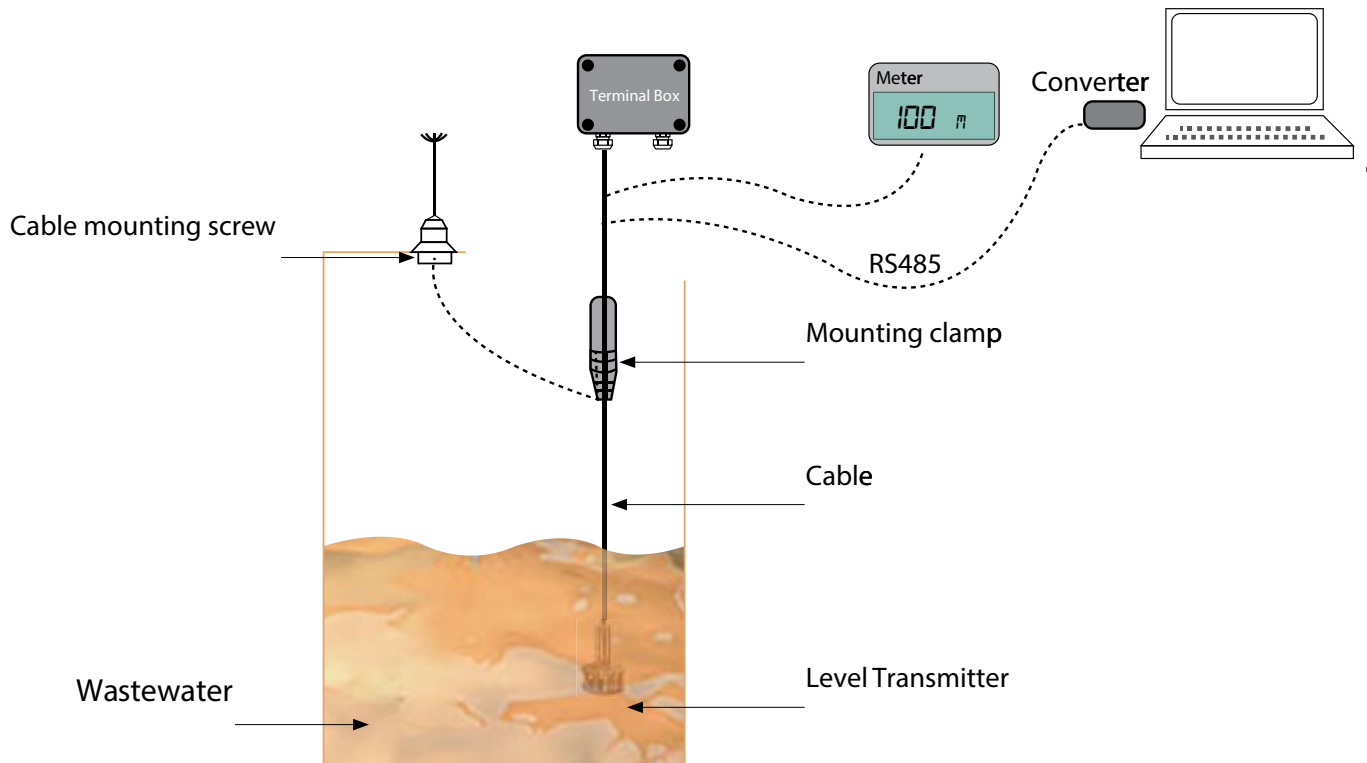
Measuring Principle

The Tek-Sub 4800D Wastewater Submersible Level Transmitter has 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 medium. Hydrostatic pressure (or head pressure) is the pressure exerted by the liquid in the tank or well. Two parameters determine the hydrostatic pressure measured by the sensor: the density and height of the liquid. With liquid density remaining constant, changes in hydrostatic pressure necessarily reflect a difference in the liquid level.



Operation

Typical Tek-Sub 4800D Wastewater Submersible Level Transmitter application,



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 the water column. In a water column, hydrostatic pressure of 27.7" w.c. is approximately equivalent to 1 PSI. The volume of water or shape of the tank or vessel does not affect the hydrostatic head pressure, as the height of water 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.

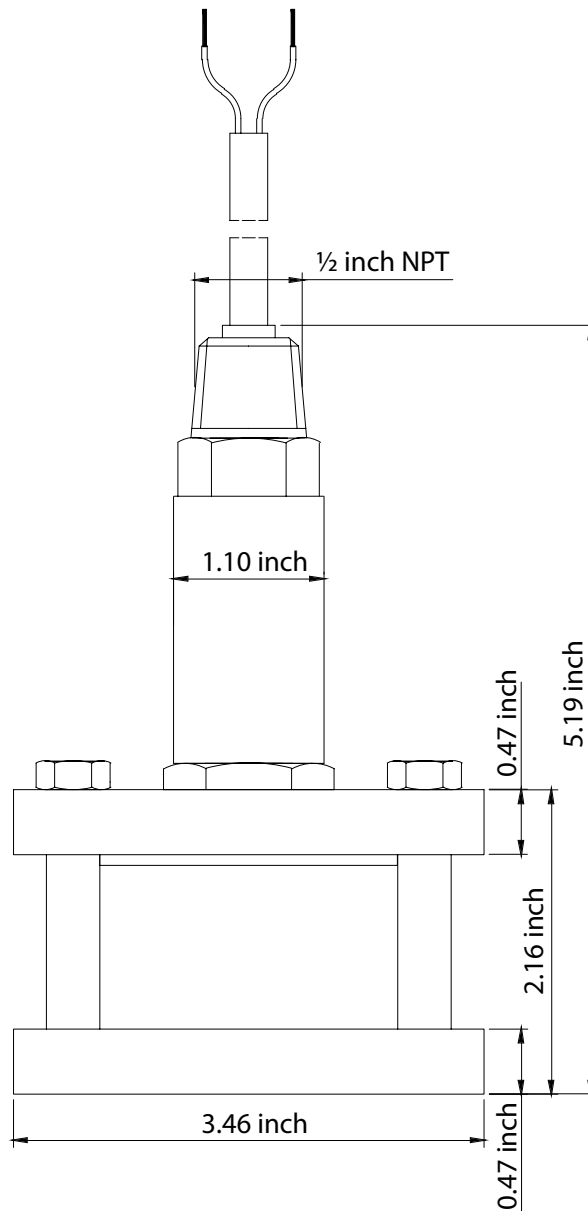
Features

- Compact design
- Shielded cable with vent tube
- Completely sealed, stainless steel transmitter
- Temperature compensated
- No need for external adjustment and calibration
- Low maintenance, no moving parts
- Standard Output 4-20 mA, RS-485, 0.5-4.5 VDC
- Accuracy: 0.5% FS
- Durable protective sensor cage

Applications

- Wastewater treatment plants
- Surface and run-off water level measurement
- Sewage lift systems
- Oil tank level measurement
- Muddy liquid and thick slurries level measurement
- Hydraulic monitoring in seas and rivers
- Sludge pits

Dimensional Drawing



Accessories



Lighting Surge Protection box

Specifications

Pressure range	5 psig to 20 psig (3.5 mH ₂ O to 14 mH ₂ O), Optional ranges available
Pressure type	Gauge (vented)
Over pressure	150% FS
Accuracy	0.5% 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)	$R_L < (V_s - 12) / 0.02A$
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	-4 °F to 158 °F (-20 °C to 70 °C)
Storage temperature range	-40 °F to 257 °F (-40 °C to 125 °C)

Media compatibility	All media compatible with 316 SS
Housing	304 SS
Cable	PTFE or Polyurethane
Diaphragm	316 SS
Oil filling	Silicone oil
Net weight	8.8 lb (4000 g)

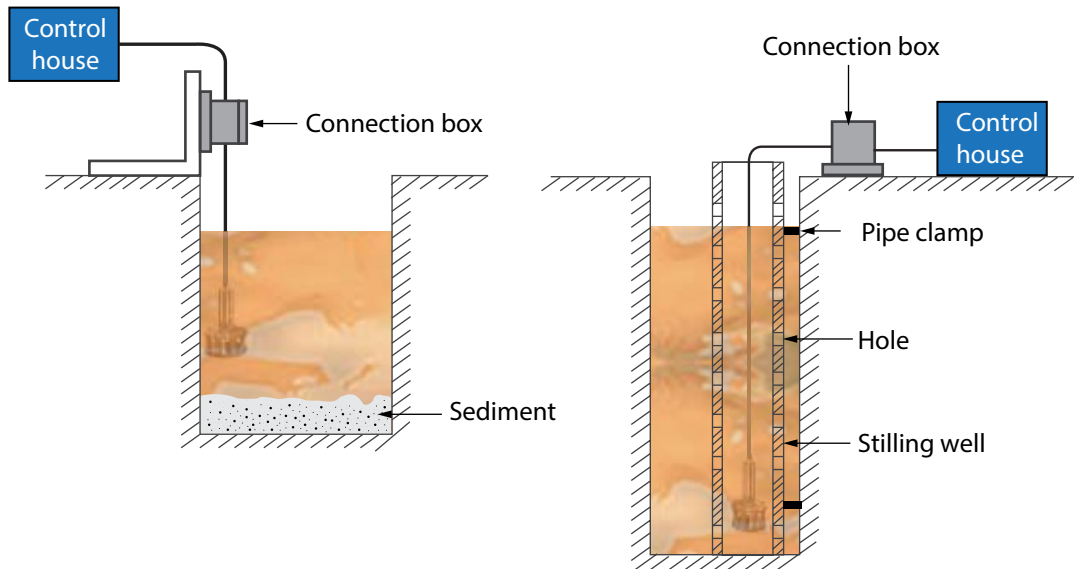
Installation

The Tek-Sub 4800D Wastewater 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 fluid is compatible with the transmitter's construction material
- Insert the transmitter vertically down in the measurement tank or vessel
- Ensure that the transmitter is completely immersed in the processing fluid for the maximum accuracy
- Avoid areas subject to electrical noise, excessive vibrations and radiant heat while mounting the transmitter

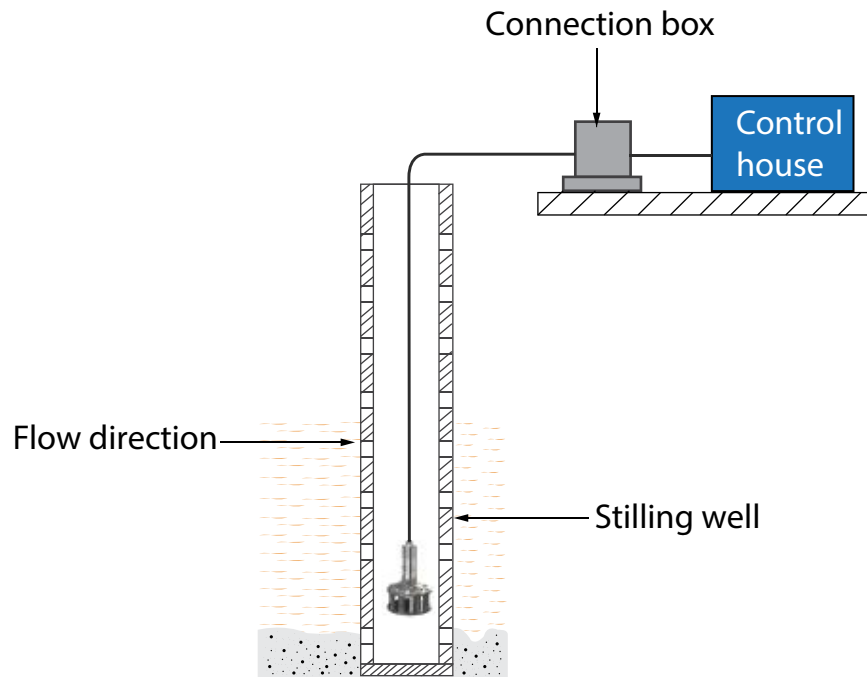
Static Fluid

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



Flowing Fluid

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.



Model Chart

Example	Tek-Sub 4800D	05	42	05	P14	#	Tek-Sub 4800D-05-42-05-P14
Series	Tek-Sub 4800D						Wastewater Submersible Level Transmitter
Range		05 10 15 20					5 psig (3.5 meters H ₂ O) 10 psig (7 meters H ₂ O) 15 psig (10.5 meters H ₂ O) 20 psig (14 meters H ₂ O)
Output			42 43 45 48 49				4-20mA 4-20mA, HART 0.5 - 4.5VDC Low-Voltage Modbus (5 VDC) Modbus RS-485
Accuracy				05			0.5% FS
Cable Length and Type					P14 P20 P34 T14 T20 T34		40 Feet of Polyurethane Cable 60 Feet of Polyurethane Cable 100 Feet of Polyurethane Cable 40 Feet of PTFE Cable 60 Feet of PTFE Cable 100 Feet of PTFE Cable
Option						LP	Lighting Surge Protection box

Popular Models

Model Number	Description
4800D-05-42-05-P14	Wastewater Submersible Level Transmitter, Range 5 psig, 40 Feet Polyurethane Cable
4800D-10-42-05-P14	Wastewater Submersible Level Transmitter, Range 10 psig, 40 Feet Polyurethane Cable
4800D-15-42-05-P20	Wastewater Submersible Level Transmitter, Range 15 psig, 60 Feet Polyurethane Cable
4800D-20-42-05-P20	Wastewater Submersible Level Transmitter, Range 20 psig, 60 Feet Polyurethane Cable
4800D-15-42-05-P34	Wastewater Submersible Level Transmitter, Range 15 psig, 100 Feet Polyurethane Cable
4800D-05-42-05-T14	Wastewater Submersible Level Transmitter, Range 5 psig, 40 Feet PTFE Cable
4800D-10-42-05-T14	Wastewater Submersible Level Transmitter, Range 10 psig, 40 Feet PTFE Cable
4800D-15-42-05-T20	Wastewater Submersible Level Transmitter, Range 15 psig, 60 Feet PTFE Cable
4800D-20-42-05-T20	Wastewater Submersible Level Transmitter, Range 20 psig, 60 Feet PTFE Cable

Accessories

Model Number	Description
4800-LP	Lighting Surge Protection box
4800-HANGER	Submersible Cable Hanger

Cable Hanger

