

TEK-SUB 4800A PTFE Submersible Level Transmitter





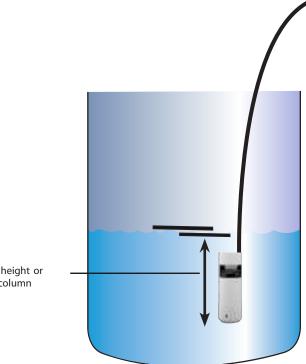
Introduction

Tek-Sub 4800A has high-quality Ceramic pressure sensor design. The pressure sensor is packaged in PTFE housing. The Tek-Sub 4800A is precision engineered to fit most level measurement applications.

The Tek-Sub 4800A features an integrated construction design with standard output signal which enables easy operation and good automatic control. Water-proof cable, sealed housing, and vented tube constructions helps the transmitter to be used in aggressive liquids such as acids, Lye and other fluids.

Measuring Principle

Tek-Sub 4800A is a PTFE Submersible Level sensor based on hydrostatic pressure measurement. This transmitter measures the level or filling height in a tank in accordance with the following principle: A liquid generates, through its specific gravity and the force of gravity, a weight force which increases with the filling height. This weight force, increasing proportionally with the filling height, is called the liquid column. The Tek-Sub 4800A measures the height-dependent weight force of this liquid column, as a hydrostatic pressure. From the measured hydrostatic pressure and the density of the product, one can calculate the filling height of the vessel.



Filling height or liquid column

Benefits

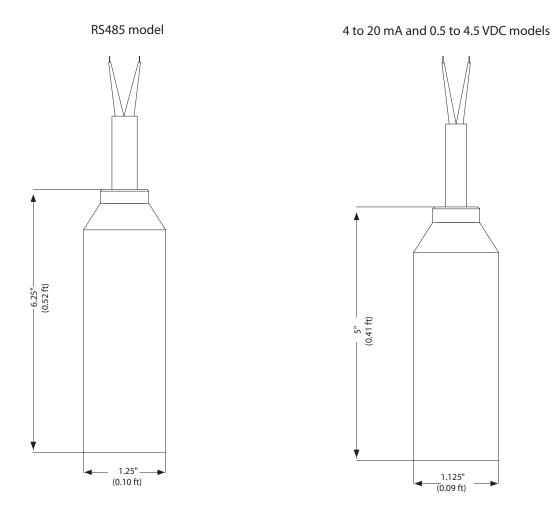
- Measuring Pressure ranges from 2.8 psig to 15 psig (2 mH₂O to 10.5 mH₂O) •
- Accuracy: ±0.5% FS
- Temperature compensated
- Available in PTFE housing ٠
- Ceramic pressure sensor design •
- Variety of Pressure and Electrical connections •
- Output: 4 to 20 mA, 0.5 to 4.5 VDC, RS485 •



Application

Level measurement in open tanks with aggressive liquids as acids and Lye for sewage treatment or level measurement application in chemical industry

Dimensional Drawing



Accessories



Lighting Surge Protection box



Specification

| Pressure TypeGaugeOver pressure150% FSAccuracy±0.5% FS(max.)Temperature coeffitient-zero±0.02% FS/°F (typ.), ±0.03% FS/°F (max.)Temperature coeffitient-span±0.02% FS/°F (typ.), ±0.03% FS/°F (max.)Long term stability±0.2% FS/Year (typ.), ±0.3% FS/year (max.)Output signal4 to 20 mA, RS485, 0.5 to 4.5 VDCPower supply (Vs)12 to 36 VDCLoad resistance(R ₁)For current output: R ₁ ≤(Vs-15)/0.02 ΩMaximum current consumption4 to 20 mA: 22.8 mA0.5 to 4.5 VDC: 2 mAResponse time<10 msVibration10g-force (20-2000 Hz)Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature rangePTFECablePTFE or PolyurethaneDiaphragmCeramic (ALO3, 96%)O-ringFKM (Flourine rubber)ProtectionIP68Net weight0.91lb | Pressure Range | 2.8 psig to 15 psig (2 mH ₂ O to 10.5 mH ₂ O) |
|---|----------------------------------|---|
| Accuracy $\pm 0.5\%$ FS(max.)Temperature coeffitient-zero $\pm 0.02\%$ FS/°F (typ.), $\pm 0.03\%$ FS/°F (max.)Temperature coeffitient-span $\pm 0.02\%$ FS/°F (typ.), $\pm 0.03\%$ FS/°F (max.)Long term stability $\pm 0.2\%$ FS/vear (typ.), $\pm 0.3\%$ FS/year (max.)Output signal 4 to 20 mA, R5485, 0.5 to 4.5 VDCPower supply (Vs)12 to 36 VDCLoad resistance(Rt)For current output: Rt \leq (Vs-15)/0.02 Ω Maximum current consumption 4 to 20 mA: 22.8 mA0.5 to 4.5 VDC: 2 mAResponse time <10 msVibration10g-force (20-2000 Hz)Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al203, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Pressure Type | Gauge |
| Temperature coeffitient-zero $\pm 0.02\%$ FS/°F (typ.), $\pm 0.03\%$ FS/°F (max.)Temperature coeffitient-span $\pm 0.02\%$ FS/°F (typ.), $\pm 0.03\%$ FS/°F (max.)Long term stability $\pm 0.2\%$ FS/year (typ.), $\pm 0.3\%$ FS/year (max.)Output signal4 to 20 mA, RS485, 0.5 to 4.5 VDCPower supply (Vs)12 to 36 VDCLoad resistance(R1)For current output: R1 ≤ (Vs-15)/0.02 \OmegaMaximum current consumption4 to 20 mA: 22.8 mA0.5 to 4.5 VDC: 2 mAResponse time<10 ms | Over pressure | 150% FS |
| Temperature coeffitient-span $\pm 0.02\%$ FS/°F (typ.), $\pm 0.3\%$ FS/°F (max.)Long term stability $\pm 0.2\%$ FS/year (typ.), $\pm 0.3\%$ FS/year (max.)Output signal4 to 20 mA, RS485, 0.5 to 4.5 VDCPower supply (Vs)12 to 36 VDCLoad resistance(RL)For current output: RL ≤(Vs-15)/0.02 \OmegaMaximum current consumption4 to 20 mA: 22.8 mA0.5 to 4.5 VDC: 2 mARS485: 6 mAResponse time<10 ms | Accuracy | ±0.5% FS(max.) |
| Long term stability±0.2% FS/year (typ.), ±0.3%FS/year (max.)Output signal4 to 20 mA, RS485, 0.5 to 4.5 VDCPower supply (Vs)12 to 36 VDCLoad resistance(R1)For current output: R1≤(Vs-15)/0.02 ΩMaximum current consumption4 to 20 mA: 22.8 mA0.5 to 4.5 VDC: 2 mAResponse time≤10 msVibration10g-force (20-2000 Hz)Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al203, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Temperature coeffitient-zero | ±0.02% FS/°F (typ.), ±0.03% FS/°F (max.) |
| Output signal4 to 20 mA, RS485, 0.5 to 4.5 VDCPower supply (Vs)12 to 36 VDCLoad resistance(RL)For current output: RL≤(Vs-15)/0.02 ΩMaximum current consumption4 to 20 mA: 22.8 mA0.5 to 4.5 VDC: 2 mAResponse time<10 ms | Temperature coeffitient-span | ±0.02% FS/°F (typ.), ±0.03% FS/°F (max.) |
| Power supply (Vs)12 to 36 VDCLoad resistance(RL)For current output: RL≤(Vs-15)/0.02 ΩMaximum current consumption4 to 20 mA: 22.8 mA0.5 to 4.5 VDC: 2 mAResponse time≤10 msVibration10g-force (20-2000 Hz)Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature range-40 °F to 257 °F (-40 °C to 125 °C)Storage temperature rangePTFECablePTFE or PolyurethaneDiaphragmCeramic (AlzOa, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Long term stability | ±0.2% FS/year (typ.), ±0.3%FS/year (max.) |
| $\begin{tabular}{ c c } & For current output: R_L \le (Vs-15)/0.02 \Omega \\ \hline For voltage output: R_L \ge 10 k\Omega \\ \hline For voltage output: R_L \ge 10 k\Omega \\ \hline For voltage output: R_L \ge 10 k\Omega \\ \hline A to 20 mA: 22.8 mA \\ \hline 0.5 to 4.5 VDC: 2 mA \\ \hline RS485: 6 mA \\ \hline Response time & $ \le 10 ms \\ \hline Vibration & 10g-force (20-2000 Hz) \\ \hline Shock & 100g-force (10 ms) \\ \hline Insulation resistance & 100 M\Omega/50 VDC \\ \hline Compensated temperature range & PTFE: 32 °F to 140 °F (0 °C to 60 °C) \\ \hline Operating temperature range & PTFE: 32 °F to 160 °F (-29 °C to 71 °C) \\ \hline Storage temperature range & -40 °F to 257 °F (-40 °C to 125 °C) \\ \hline Maximum specific gravity & 2.2 \\ \hline Housing & PTFE or Polyurethane \\ \hline Diaphragm & Ceramic (Al_2O_3, 96%) \\ \hline O-ring & FKM (Flourine rubber) \\ \hline Protection & IP68 \\ \hline \end{tabular}$ | Output signal | 4 to 20 mA, RS485, 0.5 to 4.5 VDC |
| For voltage output: Ri≥10 kΩMaximum current consumption4 to 20 mA: 22.8 mA0.5 to 4.5 VDC: 2 mA0.5 to 4.5 VDC: 2 mARs485: 6 mAResponse time≤10 msVibration10g-force (20-2000 Hz)Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al₂O₃, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Power supply (Vs) | 12 to 36 VDC |
| Maximum current consumption4 to 20 mA: 22.8 mA0.5 to 4.5 VDC: 2 mARs485: 6 mAResponse time≤10 msVibration10g-force (20-2000 Hz)Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFE or PolyurethaneDiaphragmCeramic (Al₂O₃, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Load resistance(R _L) | For current output: $R_{L} \leq (Vs-15)/0.02 \Omega$ |
| 0.5 to 4.5 VDC: 2 mARs485: 6 mAResponse time≤10 msVibration10g-force (20-2000 Hz)Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al₂O₃, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | | For voltage output: $R_L \ge 10 \text{ k}\Omega$ |
| Rs485: 6 mAResponse time≤10 msVibration10g-force (20-2000 Hz)Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFE or PolyurethaneDiaphragmCeramic (Al₂O₃, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Maximum current consumption | 4 to 20 mA: 22.8 mA |
| Response time≤10 msVibration10g-force (20-2000 Hz)Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al₂O₃, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | | 0.5 to 4.5 VDC: 2 mA |
| Vibration10g-force (20-2000 Hz)Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al2O3, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | | RS485: 6 mA |
| Shock100g-force (10 ms)Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al₂O₃, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Response time | ≤10 ms |
| Insulation resistance100 MΩ/50 VDCCompensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al₂O₃, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Vibration | 10g-force (20-2000 Hz) |
| Compensated temperature rangePTFE: 32 °F to 140 °F (0 °C to 60 °C)Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al2O3, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Shock | 100g-force (10 ms) |
| Operating temperature rangePTFE: -20 °F to 160 °F (-29 °C to 71 °C)Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al2O3, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Insulation resistance | 100 MΩ/50 VDC |
| Storage temperature range-40 °F to 257 °F (-40 °C to 125 °C)Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al2O3, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Compensated temperature range | PTFE: 32 °F to 140 °F (0 °C to 60 °C) |
| Maximum specific gravity2.2HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al2O3, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Operating temperature range | PTFE: -20 °F to 160 °F (-29 °C to 71 °C) |
| HousingPTFECablePTFE or PolyurethaneDiaphragmCeramic (Al2O3, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Storage temperature range | -40 °F to 257 °F (-40 °C to 125 °C) |
| CablePTFE or PolyurethaneDiaphragmCeramic (Al2O3, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Maximum specific gravity | 2.2 |
| DiaphragmCeramic (Al2O3, 96%)O-ringFKM (Flourine rubber)ProtectionIP68 | Housing | PTFE |
| O-ring FKM (Flourine rubber) Protection IP68 | Cable | PTFE or Polyurethane |
| Protection IP68 | Diaphragm | Ceramic (Al ₂ O ₃ , 96%) |
| | O-ring | FKM (Flourine rubber) |
| Net weight 0.91lb | Protection | IP68 |
| | Net weight | 0.91lb |



Model Chart

PTFE Submersible Level Transmitter Model Chart

| Example | Tek-Sub 4800A | Т | 2 | 42 | 05 | T 7 | # | Tek-Sub 4800A-T-2-42-05-T7 |
|-----------------------|---------------|---------|---|----|----|------------|----|---|
| Series | Tek-Sub 4800A | | | | | | | PTFE Submersible Level Transmitter |
| Wetted Materials | | T TF | | | | | | PTFE, FKM and Ceramic Wetted Materials PTFE, FFMK and Ceramic Wetted Materials |
| Range | | | 1 | | | | | 2.8 psig (2 meters H ₂ O) |
| | | | 2 | | | | | 5.7 psig (4 meters H ₂ O) |
| | | | 3 | | | | | 10 psig (7 meters H ₂ O) |
| | | | 4 | | | | | 15 psig (10.5 meters H ₂ O) |
| | | | | 42 | | | | 4-20mA |
| Output | | | | 43 | | | | 4-20mA, HART |
| | | | | 45 | | | | 0.5 - 4.5VDC |
| | | | | 48 | | | | Low-Voltage Modbus (5 VDC) |
| | | | | 49 | | | | Modbus RS-485 |
| Accuracy | | | | | 05 | | | 0.5% FS |
| | | | | | | T7 | | 20 Feet of PTFE Cable |
| Cable Length and Type | | | | | | T14 | | 40 Feet of PTFE Cable |
| | | | | | | T34 | | 100 Feet of PTFE Cable |
| | | | | | | P7 | | 20 Feet of Polyurethane Cable |
| | | | | | | P14 | | 40 Feet of Polyurethane Cable |
| | | | | | | P34 | | 100 Feet of Polyurethane Cable |
| Option | | | | | | | LP | Lighting Surge Protection box |

Popular Models

| Model Number | Description |
|---------------------|--|
| 4800A-T-1-42-05-T7 | PTFE, 2.8 psi, 20 Feet PTFE Cable, 4-20 mA |
| 4800A-T-2-42-05-T7 | PTFE, 5.7 psi, 20 Feet PTFE Cable, 4-20 mA |
| 4800A-T-2-42-05-T14 | PTFE, 5.7 psi, 40 Feet PTFE Cable, 4-20 mA |
| 4800A-T-3-42-05-T14 | PTFE, 10 psi, 40 Feet PTFE Cable, 4-20 mA |
| 4800A-T-1-42-05-P7 | PTFE, 2.8 psi, 20 Feet Polyurethane Cable, 4-20 mA |
| 4800A-T-2-42-05-P7 | PTFE, 5.7 psi, 20 Feet Polyurethane Cable, 4-20 mA |
| 4800A-T-2-42-05-P14 | PTFE, 5.7 psi, 40 Feet Polyurethane Cable, 4-20 mA |
| 4800A-T-3-42-05-P14 | PTFE, 10 psi, 40 Feet Polyurethane Cable, 4-20 mA |

Accessories

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