

# RS485 Communication. All-in-One Solution. CTD Conductivity, Temperature and Depth Analyzer

■ Conductivity ■ Salinity ■ TDS ■ Resistivity ■ Density ■ Depth ■ Pressure ■ Temperature



The CTD series are compact-sized, simple and cost-effective conductivity, temperature and water level monitoring sonde. It is easy to be deployed in groundwater and surface water to monitor multiple parameters such as conductivity, salinity, TDS, resistivity, density, level, pressure, temperature...etc. With robust IP68 water submersible enclosure, the product is perfectly used in many applications such as groundwater quifer characterization, construction and mine, drilling and well, coastal estuaries and wetlands, lake and reservoir.

### Measurement Method

**Conductivity :** Theoretically, water free of any contaminants will not conduct electricity. The ability to carry on electric current depends on the presence of ions; conductivity increases with increasing ion concentration. Conductance of a solution is calculated by measuring the electrical current between four electrodes set a fixed voltage source and immersed in water sample.

**Temperature :** Pt1000 resistance temperature detectors are used to measure temperature by correlating the resistance of the RTD element with temperature. The RTD element has a predictable change in resistance as the temperature change which is used to determine temperature.

**Hydrostatic Level :** The transmitter is with a small profile, piezoresistive silicon pressure sensor packaged in a Titanium housing. The package utilizes silicon oil to transfer pressure from diaphragm to the sensing element. A ceramic substrate is attached to the package that contains laser-trimmed resistors for temperature compensation and offset correction.

### ► Features

- All-in-One compact Housing, Built-in Transmitter and Sensors
- Rugged sub-1" Design Make it Perfect for Groundwater, Well and Mining Monitoring
- Direct In-Situ, Online Real-time Measurement, No Sampling and Pre-Treatment Device
- Ultra Low Power Consumption, Ideal for Outdoor Applications
- Robust IP68 Submersible Anti-Corrosive Titanium Enclosure, Continuous Submersible to 100 m of Water
- 1500 N Tensile Strength Kevlar Reinforced Cable
- Dynamic Density Compensation to Measure Level in Salinity Environment
- Twist-Lock Connectors for Quick, Reliable Connections
- No Vent Tube to Avoid the Humidity to Damage the Sensor
- Surge Protection for Power and RS485 Communication
- RS485 Digital Communication, Minimize Cabling and Engineering Cost
- Standard Modbus RTU Protocol, Direct Connected with PLC, HMI
- Onboard Memory Allowing Users Easily Calibrate and Configure Sensor at Lab and Distribute to Various Fields Sites
- Software Tool for Data Monitoring, Calibration, Configuration and Diagnosis



Groundwater Aquifer



Construction and Mine



Drilling and Well



Coastal Estuaries and Wetlands



Lake and Reservoir

### ► Specifications

Power	5~12 VDC, 1A
Interface	RS485, 19,200 bps, 8 bits, no parity, 1 stop bit
Operating Temperature	-5 to 60 °C
Protection	IP68, submersion to 100 m depth
Housing Material	Titanium
Dimensions	Φ 23X437 (H) mm
Weight	1.5 Kg

Sensor	Measurement range	Accuracy	Response	Resolution
Level (Depth)	0 ~ 100 m	±0.1 % FS	T63<1 sec	0.01 % FS
Conductivity	0 ~ 500 mS/cm	±2 % measured value ±5 µS/cm	T63<1 sec	0.1 % µS/cm
Temperature	-5~ 60 °C	±0.1 °C	T63<3 secs	0.01 °C

Sensor	Measurement range	Accuracy	Response	Resolution
Salinity (Calculated from Conductivity)	0~ 350 PSU, ppt, g/kg	±2 % measured value	T63<1 sec	0.1 PSU
Total Dissolved Solids (TDS) (Calculated from Conductivity)	0 ~300 ppt	±2 % measured value	T63<1 sec	1 ppm
Specific Conductivity (Calculated from Conductivity)	0~300 mS/cm	±2 % measured value	T63<1 sec	0.001 mS/cm
Resistivity (Calculated from Conductivity)	10~200,000 ohms-cm	±2 % measured value	T63<1 sec	1 ohm-cm
Density (Calculated from Conductivity)	0.98~1.14 g/cm <sup>3</sup>	±2 % measured value	T63<1 sec	0~0.001 g/cm <sup>3</sup>

### Ordering Codes

CTD 1 — 1 —    — 3 — 2 — 0 —

Sensor Depth (0~100 m) \_\_\_\_\_

Cable Length (m)  
10 \_\_\_\_\_ 010  
Custom \_\_\_\_\_ 001~999

Cable Type  
PUR \_\_\_\_\_

Housing  
Titanium \_\_\_\_\_

Wiper  
None \_\_\_\_\_

Wire Connection  
Bare Wire \_\_\_\_\_ 0  
M12 Connector \_\_\_\_\_ 1

