# DST CTD

Salinity, Temperature, Depth CTD

## Overview

**Dimensions** (diameter x length): 15mm x 46mm
**Sensors**: Conductivity (salinity), temperature, pressure (depth)
**Standard temperature range**: -1°C to +40°C
**Temperature accuracy**: +/-0.1°C
**Depth ranges**: 1 m to 100 m, 5 m to 500 m, 5 m to 1200 m, 10 m to 2000 m
**Depth accuracy**: +/-0.4% of selected range for 100m and 500m range, +/-0.6% of selected range for 1200m and 2000m range
**Conductivity ranges**: 3 to 37 mS/cm, 13 to 50 mS/cm or 0.2 to 6 mS/cm
**Salinity accuracy**: +/-1 PSU
**Memory size**: 87,217 measurements per sensor
**Battery life**: 4 years
**Housing material**: Alumina (ceramic material)

## Description

DST CTD is the smallest salinity logger on the market that measures and records conductivity (salinity), temperature and pressure (depth). Recorded data is stored in the logger's internal memory with a real-time clock reference for each measurement.

The DST CTD is supported by the SeaStar software and the Communication Box which serves as an interface between the logger and a PC. Communication between the logger and the Communication Box is wireless.

In SeaStar, the user sets the start time, start date and sampling interval before starting the recorder. Up to seven different intervals can be set for the same measurement sequence. This is especially useful when more frequent measurements are needed at a certain time period. One interval for the whole measurement sequence is more commonly used though.

After recovering the DST data logger, recorded data is uploaded to SeaStar where results are displayed both in graphic and tabular form. After retrieving the data, the logger can be re-programmed and reused as long as the battery lasts.

A set of Communication Box and SeaStar software needs to be purchased with the first order.

Star-Oddi offers a plastic protective housing for use under harsh environmental conditions and for mounting to buoys, deploymnet lines, moorings or underwater gear. For fish tagging projects Star-Oddi can provide a special tag holder kit for fastening the DST externally on fish.

For more information about accessories please click here.

## Features on Request

**Logic Feature**
The optional logic feature allows users to choose a depth limit where the logger starts and stops recording. The logger is not storing measurements while outside the predetermined depth, saving memory and battery life. The user can choose in the SeaStar software at what depth limit the recordings should start at. This can be especially useful when used on fishing gear, or on animals that spend their time both in and out of water.

**Temperature Calibration Outside Standard Range**
Temperature calibration outside standard ranges or for smaller ranges is available for all products on request.

## Examples of Application

The DST CTD is suitable for studies in e.g.:

- Fish and marine animal tagging (externally)
- Oceanography
- Fisheries research
- Marine biology
- Ichthyology
- Hydrology
- Ecosystems research
- Freshwater pollution
- Any other field where conductivity, temperature (and depth) recordings are required.

You can read more about research studies and scientific papers here.

**Conductivity ranges**

We offer three conductivity ranges, type I (3 to 37 mS/cm), type II (13 to 50 mS/cm) and type L (0.5 to 6 mS/cm). You can calculate the correct conductivity range with our conductivity calculator

Conductivity is a combination of salinity and temperature. The DST CTD is basically a conductivity recorder from which the salinity is calculated. To view the graphical display of the connection between conductivity, salinity and temperature for each conductivity

type, click on the type names above.

For sensor types I and II the conductivity accuracy is defined as 4% Full Scale (FS) and precision as 1%FS. The low conductivity sensor, type-L, has conductivity accuracy defined as 6% FS and precision as 2% FS. Salinity is a calculated value where the dominating accuracy parameter is the conductivity, thus the salinity accuracy and precision follows the conductivity, i.e. 4% FS / 2% FS for sensor types I and II, and 6% FS / 2% FS for type-L. As the salinity range varies with temperature so does the accuracy and precision unit values (psu). The variation of salinity range and accuracy unit value with temperature can be seen for type I, type II and type L.

**Note**

Please note that the conductivity sensors are sensitive and measurement accuracy can be affected by biofouling. The warranty does not cover issues concerning biofouling causing offset in salinity measurents, if not traceable to a production fault. In the SeaStar software it is possible to put in an offset value for salinity sensor, correcting salinity offsets.

To read more about possible reasons for biofouling and other causes please click FAQ > Aquatic and Fisheries research.

## Technical Specifications

| | |
|---|---|
| **Sensors** | Conductivity (salinity), temperature, pressure |
| **Size (diameter x length)** | 15mm x 46mm |
| **Housing material** | Alumina (Ceramic) |
| **Weight (in air/in water)** | in air: 21g in water: 13g |
| **Memory type** | Non-volatile EEPROM |
| **Memory capacity** | 87,217 measurements per sensor |
| **Memory capacity bytes** | 392,478 bytes / conductivity-temperature-depth 4.5 bytes |
| **Memory management** | Custom programming |
| **Data resolution** | 12 bits |
| **Temperature resolution** | 0.032°C (0.058°F) |
| **Temperature accuracy** | +/-0.1°C (0.18°F) |
| **Temperature range** | -1°C to +40°C (30°F to 104°F) |
| **Temperature response time** | Time constant (63%) reached in 20 sec. |
| **Standard depth ranges** | 1m-100m , 5m-500m , 5m-1200m, 10m-2000m |
| **Depth resolution** | 0.03% of selected range |
| **Depth accuracy** | +/-0.4% of selected range for 100m to 500m range, +/-0.6% of selected range for 1200m to 2000m range |
| **Depth response time** | Immediate |
| **Conductivity ranges** | Available ranges (customer specified): 1) 3 to 37 mS/cm 2) 13 to 50 mS/cm 3) 0.2 to 6 mS/cm |
| **Conductivity resolution** | 0.01 mS/cm (average) |
| **Conductivity accuracy** | +/-1.5 mS/cm |
| **Salinity range** | Depends on conductivity and temperature range |
| **Salinity resolution** | 0.02 PSU (average) |
| **Salinity accuracy** | +/-1 (PSU)* |
| **Data retention** | 25 years |
| **Clock** | Real time clock Accuracy +/-1 min/month |
| **Sampling interval** | In second(s), minute(s) or hour(s) |
| **Number of different sampling intervals** | 1 to 7 within same measurement sequence |

| | |
|---|---|
| **Communications** | Communication Box, RS-232C 9 pin serial or USB |
| **Attachment hole** | 0.9 mm (in diameter) |
| **Battery life** | 4 years** |

* Based on conductivity full scale accuracy at 24°C ** For sampling interval of 10 minutes; salinity, temperature and pressure recorded simultaneously. Specifications may change without notice.