

# CTD60Mc - ultra deep sea

Online and Memory Probe up to 11000 m.



Sea & Sun  
Technology

The CTD60Mc - ultra deep sea is a high quality, high accuracy memory probe for oceanographic measurement of conductivity, temperature, ambient pressure at depths up to 11000 m (12000 bar).

The CTD60Mc - ultra deep sea is specifically designed for direct output of physical and calculated data such as salinity, sound velocity and density.



## Main Features

- depth range up to 11000 m
- low weight
- easy handling
- non-corrosive titanium housing
- up to 3 sensors on the bottom cap
- calibration coefficients stored inside the probe
- output of calculated / physical data
- online measurement or memory mode
- rechargeable batteries
- data acquisition software for various versions of Microsoft Windows
- calculations according to UNESCO formulae

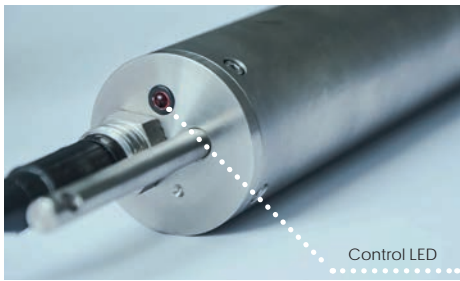


sensors: max. 3  
on the bottom cap

standard sensors:  
- Conductivity (C)  
- Temperature (T)  
- Pressure (D)



Sea & Sun Technology GmbH  
Arndtstrasse 9-13  
24610 Trappenkamp Germany  
+49 4323 91 09 13  
+49 4323 91 09 15  
sales@sea-sun-tech.com  
www.sea-sun-tech.com



Control LED



Titanium protection cage



Temperature sensor

The CTD60Mc - ultra deep sea probe is a very small and handy microprocessor controlled multiparameter online and memory probe up to 11000 m.

Data are stored in a standard flash memory card with a capacity of 128 Mbytes. Up to 5,5 million CTD data sets can be recorded on this memory.

The CTD60Mc- ultra deep sea allows operation in different modes:

**I. Online operation:**

This mode is possible up to 350 m via RS-232 Interface, but is not recommended for this model. Only for testing.

**II. Memory operation:**

**Recording modes**

- Continuous mode: each data set is stored.
- Time mode: data sets are only stored at programmable intervals with several selectable schemes.
- Increment mode: data sets are stored at programmable depth stamps.

The CTD60Mc - ultra deep sea is equipped with a 4 channel data acquisition system with 20 bit resolution. A high long-term stability and automatic self-calibration of the analogue digital converter guarantees stable and precise CTD measurements for many years.

The supplied Standard Data Acquisition Software package "SST-SDA" includes the handling of the logging process and the display of online or recorded data with a shared graphic user interface. The "SST-SDA" is a part of our shipment.

**Data Transfer:**

The probe can be operated in two different data-transmission modes.

**I. Online operation:**

In this data transmission mode, the probe continuously determines the measured values of the individual sensors through an analog-to-digital conversion. The probe stores the data as the readings of the analog-to-digital conversions. The probe continuously generates raw data sets from the counter readings of the analog-digital conversions and some internal management data. The probe transmits the raw data sets over a binary data protocol to a unit for data display or data storage. The transformation of raw data into physical quantities is carried out in the software application "SDA" after they have been transferred.

**II. Physical data mode**

In this data transmission mode, the CTD60Mc - ultra deep sea determines the measured values of the individual sensors through an analog-to-digital conversion. The probe stores the readings as a binary result of the analog-to-digital conversions. The probe receives the calibration coefficients before the actual measurement. The probe calculates the physical quantities from results of the analog-to-digital conversion and the associated calibration coefficients. The probe transmits the physical quantities via an ASCII protocol according to the NMEA standard to a unit for data display or data storage. The protocol to NMEA requires that the physical units are fixed.

The probe power supply is activated by touching a reed contact with a magnetic rod. LED displays power supply status and optical control of memory access.

**Electrical specifications:**

- Supply voltage: 7...15V DC
- Power consumption: approx. 0,3 W
- Serial port: USB / RS-232
- Data sampling rate: 5 datasets/s
- Connector: SUBCONN MCBH8M Ti

**Mechanical specifications:**

**Materials:**

Housing: titanium, grade 5  
Connector: titanium, neoprene

**Dimensions and weights:**

Length (housing): 370 mm  
Length (protection frame): 125 mm  
Length (overall with connector): approx. 575 mm  
Diameter (housing): 60 mm  
Weight (in air): approx. 3 kg

All calculations correspond to the current UNESCO formulas.

**PC requirements:**

- Operating system: Microsoft Windows (all versions)
- Interface: USB or RS-232

We would be pleased to make an offer according to your requests and requirements.

**Ordering:**

00003076 CTD60Mc - ultra deep sea sensors and equipment available on request

**Sensors:**

Sensor	Principle	Range	Accuracy	Resolution	Response time
Pressure (depth)	piezo resistive	5, 10, 20, 50, 100, 200 bar	up to 0.05 % full scale in the range of -5...35°C	0.002 % full scale	150 ms
Temperature	Pt 100 4 pole	-2 – 36 °C -2 – 60 °C	± 0.002 °C ± 0.005 °C	0.0005 °C 0.0005 °C	150 ms 150 ms
Conductivity	7-pole-cell	0 – 1 mS/cm 0 – 6 mS/cm 0 – 10 mS/cm 0 – 70 mS/cm	± 0.002 mS/cm	0.0005 mS/cm	150 ms
		0 – 200 mS/cm 0 – 300 mS/cm	± 0.010 mS/cm	0.005 mS/cm	150 ms