CTD90M

Online and memory probe

Sea & Sun Technology

Main features

- depth range up to 6000 m
- low weight
- easy handling
- non-corrosive titanium housing
- max. 16 channels
- up to 9 sensors on the bottom cap
- data acquisition software for various versions of Microsoft Windows
- calculations according to UNESCO formulas
- control and operation of water samplers and plankton nets

sensors: max. 9
on the bottom cap

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

additional sensors:
- Oxygen
- Turbidity
- pH (also H_2S resistant)
- Redox (ORP) also H_2S resistant
- Fluorometer
- Light irradiance (PAR)
- Currentmeter (with compass)
- Altimeter
- Transmissometer

The CTD90M is a high quality, high accuracy multiparameter probe with max. 9 sensors of the bottom cap for oceanographic and limnological measurement of physical, chemical and optical parameters for depth up to 6000 m.

The multiparameter probe CTD90M is designed for many different applications. In the limnic field it is used for controlling and monitoring dams, lakes and rivers plus ground water monitoring. In the oceanographic application it is used for profiling and monitoring stations.
The probe is able to carry all necessary oceanographic parameters needed for scientific work and governmental tasks.

The probe can be equipped with a maximum of nine sensors mounted on the bottom cap. Those 9 channels can be extended to max. 16 channels when combined with external sensors.

Software:

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

The "SST-SDA" calculates the physical values from the raw values supplied by the probe and the associated calibration coefficients. Salinity, density, sound velocity and depth will be calculated by using the UNESCO formulae.
The "SST-SDA" is a part of our shipment.

Memory:

Data are stored in a standard flash memory card with a capacity limited to 128 Mbytes by the internal firmware. Up to 3 000 000 CTD data sets can be recorded on this memory. The actual number depends on the selected storage options and the number of sensors adapted to the probe.

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.
- Online mode (RS-232).

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: 9…15V DC
- Power consumption: app. 0.5 W (sensor-dependent)
- Serial port: RS-232 (optional FSK)
- Data sampling rate: 5 CTD sets/s
- Connector: SUBCONN MCBH8M Ti

Mechanical specifications:

Materials:
Housing: titanium, grade 2 (up to 2000 m), titanium, grade 5 (up to 6000 m)
Connector: titanium, neoprene

Dimensions and weights:
Length (housing):
- 410 mm (probes up to 2000 m)
- 430 mm (probes up to 6000 m)
Length (protection frame): 294 mm
Length (overall, with connector):
- approx. 600 mm (probes up to 2000 m)
- approx. 620 mm (probes up to 6000 m)
Diameter (housing): 90 mm
Weight (in air): approx. 6 kg

PC requirements:

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

All calculations correspond to the current UNESCO formulas.

The system is able to control and operate motor driven water-sampler rosettes (e.g. from Hydro-Bios).

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

Equipment

1. Sea & Sun DataWatch
2. Bluetooth® Cable Drum
3. Cable Drum
4. FSK-Interface
5. Winch
6. Cable

Ordering:

00001993	CTD90M up to 2000 m
30500011+	
30500018	CTD90 up to 6000 m

sensors and equipment available on request



Photo: Northern Water Problems Institute Karelian Research Centre Russian Academy of Sciences Laboratory of Hydrophysics

Standard sensors:

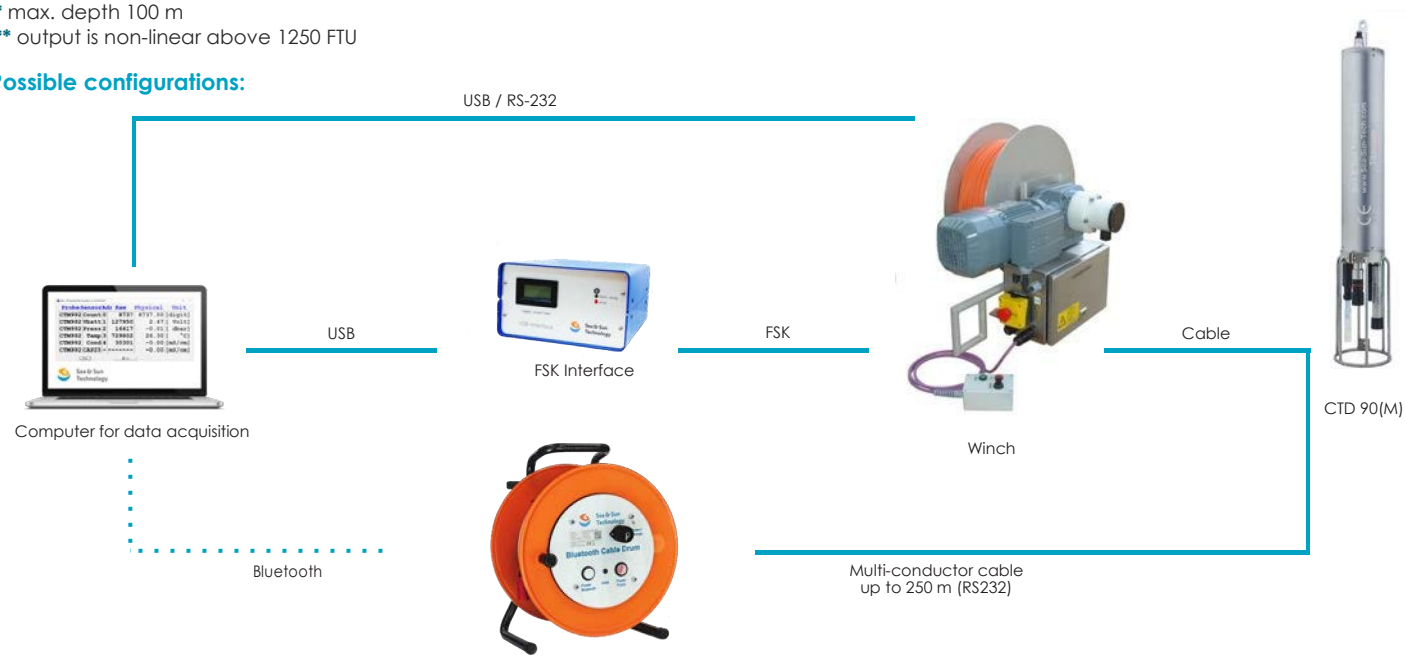
Sensor	Principle	Range	Accuracy	Resolution	Response time
Pressure (depth)	piezo resistive	5, 10, 20, 50, 100, 200, 400, 600 bar	up to 0,05 % full scale in the range of –5...35°C	0,002 % full scale	150 ms
Temperature	Pt 100 4-pole	-2 – 36 °C -2 – 60 °C	± 0.002 °C ± 0.005 °C	0.0005 °C 0.0005 °C	150 ms 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

Additional sensors:

Sensor	Principle	Range	Accuracy	Resolution	Response time
pH (standard or H_2S resistant)	combined electrode	4 – 10 pH 0 – 14 pH	± 0.02 pH	0.0002 pH	1 s
Redox (standard or H_2S resistant)	combined elec-trode	± 2 Volt	± 20 mV	1.0 mV	1 s
Oxygen (SST-DO)	optical	0 – 250 % sat. 0 – 20 mg/l	± 2 % sat. ± 2 % sat.	0.01 % sat. 0.01 % sat.	2 s
Oxygen	clarc electrode	0 – 250 %	± 3 % sat.	0.1 % sat.	3 s (63 %) 10 s (90 %)
Fast Oxygen*	clarc electrode	0 – 150 %	± 2 % sat.	0.1 % sat.	200 ms (90%)
Turbidity	90 ° back scatter	0 – 25 FTU 0 – 125 FTU 0 – 500 FTU 0 – 4000 FTU **		0.1 FTU / NTU	100 ms
Light irradiance (PAR)	spherical quantum sensor	400 – 700 nm			10 ms
Currentmeter with compass	inductive	± 2,00 m/sec			
Fluorometer	CDOM / FDOM, Chlorophyll A, Fluorescein Dye, Oil-Crude, Oil-Fine, Optical Brighteners, Phycocyanin, Phycoerythrin, PTSA Dye, Rhodamine Dye, Tryptophan				

* max. depth 100 m
** output is non-linear above 1250 FTU

Possible configurations:



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Delivery

The CTD90M will be delivered in a compact, robust and water resistant transport case including cables, connection plugs, instruction manual, USB stick with software, etc.