



## MONITOR CTD+



The **MONITOR CTD+** utilises the same accurate, robust sensors and synchronised sampling techniques as the **MIDAS** range, but packaged as a smaller, lightweight unit to suit small boat or shallow water applications. The addition of an extra sensor makes the **MONITOR CTD+** a versatile and cost effective tool for gathering profiles of CTD and one other parameter of either Turbidity, Dissolved Oxygen or Chlorophyll.

### Sensors

The **MONITOR CTD+** is fitted with Valeport's low external field conductivity sensor, a fast response PRT temperature sensor, and strain gauge pressure transducer plus one additional sensor, chosen from a Turbidity sensor, Dissolved Oxygen Sensor or Chlorophyll sensor extends the capability of the **MONITOR CTD+**

Sensor	Type	Range	Accuracy	Resolution
Conductivity	Inductive Cell	0 – 80mS/cm	+/-0.01mS/cm	0.002mS/cm
Temperature	PRT	-5 - +35°C	+/-0.005°C	0.01°C
Pressure	Strain Gauge	50Bar	+/-0.1%	0.005%
Turbidity	Seapoint STM	0 – 2000FTU	+/-2%	0.002%
DO	Clark Cell	0 – 16ml/l	+/-0.07ml/l	0.017ml/l
Chlorophyll	Fluorometer	0 - 150µg/l	±0.03µg/l	0.005%

### Data Acquisition

The **MONITOR CTD+** uses the concept of distributed processing, where each sensor has its own microprocessor controlling sampling and calibration of readings. Each of these is then controlled by a central processor, which issues global commands and handles all the data. This means that all data is sampled at precisely the same instant, giving superior quality profile data.

### Sampling Modes

<i>Continuous:</i>	Regular output from all sensors at 1, 2, 4 or 8Hz.
<i>Burst:</i>	Regular sampling pattern, where instrument takes a number of readings, then sleeps for a defined time.
<i>Trip/Profile:</i>	Data is output as a chosen parameter changes by a set value, usually Pressure for profiling.
<i>Conditional:</i>	Instrument sleeps until a selected parameter reaches a set value.
<i>Delay:</i>	Instrument sleeps until predefined start time

### Communications

The instrument will operate autonomously, with setup and data extraction performed by direct communications with PC before and after deployment. It also operates in real time, with a choice of communication protocols for a variety of cable lengths, all fitted as standard and selected by pin choice on the output connector:

### Standard

<i>RS232</i>	Up to 200m cable, direct to serial port via USB adaptor
<i>RS485</i>	Up to 1000m cable, addressable half duplex comms

<i>Baud Rate:</i>	2400 - 115200 ( USB 460800)
<i>Protocol:</i>	8 data bits, 1 stop bit, No parity, No flow control

### Memory

The **MONITOR CTD+** is fitted with 16Mb solid state non-volatile FLASH memory. Total capacity depends on sampling mode; continuous & burst modes have a single time stamp at the start of the file, trip mode (profiling) stores a time stamp with each reading. A single line of data uses 8 bytes, and a time stamp uses 7 bytes.

<i>Continuous:</i>	>2,750,000 data points
<i>Profile:</i>	>1,200,000 data points (>600 profiles to 500m).



### Electrical

<i>Internal:</i>	8 x D cells, 1.5v alkaline or 3.6v lithium
<i>External:</i>	9 - 30vDC
<i>Power:</i>	0.6W (sampling), <1mW (sleeping)
<i>Battery Life:</i>	<100 hours operation (alkaline) <250 hours operation (lithium)

<i>Connector:</i>	Subconn MCBH10F
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### Physical

<i>Materials:</i>	Acetal housing, polyurethane and titanium sensor components, stainless steel (316) cage
<i>Depth Rating:</i>	500m
<i>Instrument Size:</i>	Ø88mm x 562mm long
<i>Cage Size:</i>	640 x 140 x 120mm
<i>Weight (in cage):</i>	7.5kg (in air), 4.5kg (in water)
<i>Shipping:</i>	74 x 35 x 27cm, 17kg

### Software

System is supplied with DataLog Express Windows based PC software, for instrument setup, control, data extraction and display. DataLog Express is licence free.

### Ordering

0606004	MONITOR CTD+ Profiler supplied with deployment cage, Subcon switch plug, 3m communications lead, USB adaptor, DataLog Express software, manual, tool kit and transit case.
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### Options

0400021	Turbidity sensor
0400017	DO Sensor
0400023	Chlorophyll Fluorometer
0400EA9	RS485 communications adaptor
0400EA6	Advanced Y lead for RS485 operation

Datasheet Reference: MONITOR CTD+ version 2A, Feb 2011