

VALEPORT BFM308

SELF RECORDING CURRENT METER



GENERAL DESCRIPTION

Valeport's Impeller based Oceanographic Current Meters have been developed to meet the needs of oceanographers, hydrographers and surveyors who require rugged yet accurate and versatile instruments. Part of the Valeport 300 Series of instruments, the Model 108 MkIII and Model 308 use proven industry standard sensors, and are now manufactured from Titanium and polymers to provide increased depth capability. The Model 108 MkIII is a Direct Reading instrument, measuring Speed & Direction as standard, with optional Conductivity, Temperature & Depth sensors. Sampling set up and data display are achieved either with Valeport's DataLog™ Windows based software, or through the optional Model 8008 Control Display Unit. A variety of communications protocols mean that the instrument can be used with cable lengths up to 3000m. The Model 308 offers all the same features as the Model 108 MkIII, but with the added facility of an internal battery pack and memory, allowing self recording use when a direct reading capability is not required.

FEATURES

- Self Recording and/or Direct Reading Instruments
- Vector Averaged Speed and Direction
- Optional Conductivity, Temperature and Depth
- Titanium housings
- Programmable sampling regime
- Data direct to PC
- Large Memory (Model 308)
- Long cable lengths

APPLICATIONS

- Oceanographic studies
- Hydrographic surveys
- Coastal and Estuary surveys
- Diving and ROV support
- Rig safety
- Marine research



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OCEANSCAN LIMITED

**DENMORE ROAD, BRIDGE OF DON, ABERDEEN,
SCOTLAND, U.K., AB23 8JW**

TEL: +44(0)1224 707000, FAX: +44(0)1224 707001

Email: rental@oceanscan.co.uk, Website: www.oceanscan.co.uk

Accredited to BS EN ISO 9001:2000

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TECHNICAL SPECIFICATIONS

Descriptions are applicable to both Model 108 MkIII and Model 308 Current Meters, unless otherwise indicated.

Main Body

All external metal parts are manufactured from Titanium, providing excellent corrosion resistance and long product life. On the Model 308, the batteries and electronics are in separate housings, to eliminate circuitry exposure during battery changing.

Standard parameters

Speed: The impeller is manufactured from high impact styrene. In water, it is neutrally buoyant and uses a jewelled main thrust bearing and PTFE radial guides. Two magnets are fitted to the impeller and a reed switch fitted inside the pressure housing senses the rotation of the impeller. **Direction:** Direction is sensed using a Valeport two axis, gimballed flux-gate compass.

Optional parameters

Temperature: Uses either a Valeport platinum resistance thermometer or a thermistor, depending on the response and specification required. **Conductivity:** Valeport Inductive coils.

Pressure: Strain gauge transducer.

Derived parameters

Salinity, Speed of Sound and Density are derived from the Conductivity, Temperature and Pressure readings using industry standard equations.

Suspension

Model 308: Integral pitch/roll/yaw/swivel, with maximum pitch/roll angle of 25°. Recommended s.w.l. 1000kg Model 108

MkIII: External pitch/yaw swivel, with maximum pitch angle of 35°. Recommended s.w.l. 100kg

Data acquisition

The vector average is based on a 5 second period during which impeller counts are measured and a single compass reading is made, and the vector average is built up over the averaging period set. Averaging period is any multiple of 5 seconds, up to a maximum of 30 minutes. For the optional parameters, the sample is taken at the end of each 5 second period, and averaged over the averaging period. Real time display and memory (308 only) are updated at the end of each averaging period.

Memory

The Model 308 is fitted with 128Kbyte memory, which will hold over 30,000 speed & direction records, or over 12,000 records if CTD is also fitted. An optional 1Mbyte memory is also available.

Software

Both meters are fully compatible with Valeport's own Windows based DataLog™ software, which allows the user to set up instrument sampling regime, extract data (Model 308 only), and display data. See separate data sheet for further details.

Control Display Unit

Both meters can be used in real time with Valeport's Model 8008 Control Display Unit (CDU). This is sealed to IP67 (10 secs at 0.3m), features an LCD graphics display of all parameters

(including calculated parameters if CTD is fitted), and allows full sampling set up of the instrument. The 8008 CDU also has the option of its own internal memory, which can be downloaded to PC in spreadsheet compatible format. The unit is powered by 8 x 1.5v "C" cells, and can also be used to power the underwater instrument.

Communications

RS232: The instruments communicate directly with PC via RS232 over cable lengths up to 100m. This method can be used for real time data display, or data extraction (Model 308 only). **RS485:** A factory fit option is communication to via RS485, which also requires an external adaptor. This method is suitable for real time communications over cable lengths up to 1500m, and disables RS232 communication. **Digital Current Loop:** This is a 2 wire method suitable for real time communications over cable lengths up to 3000m. Again, an external adaptor is required for PC interface. The Model 8008 CDU always uses this communications method.

Power

The Model 108 MkIII must be supplied with external power, which can be from an independent source, or the Model 8008 CDU. The Model 308 is fitted with 7 x 1.5v "C" cells, which are used for self recording deployments, and will last for over 1 year at 10 minute recording intervals. In real time, power can be taken from these internal cells, or from an external source as with the Model 108 MkIII.

Sensor Specifications

	Type	Range	Accuracy	Resolution
Speed	Impeller [0.27m pitch x 125mm Ø]	0.03 to 5.0 m/s ± 0.004 m/s 0.07 - 0.1m/s, ± 0.003 m/s 0.1 - 0.15m/s, ± 0.002 m/s 0.15 - 5.0 m/s, <1.5% of reading	0.03 - 0.07m/s	0.01m/s
Direction	Flux gate compass [± 25° gimbal]	0 - 360 degrees	± 0.25 degrees	0.25 degrees
Temperature	PRT Thermistor	-5 to 35 deg C -5 to 35 deg C	± 0.02 deg C ± 0.1 deg C	0.002 deg C 0.002 deg C
Conductivity	Inductive coils	0.1 to 60mS/cm	± 0.05 ms/cm	0.003mS/cm
Pressure	Strain gauge Strain gauge	100, 200, 500 or 1000 dBar 100, 200, 500 or 1000 dBar	± 0.5% FS ± 0.1% FS	0.005% FS 0.005% FS

Physical Specifications

	Model 108 MkIII	Model 308
Depth rating	2000m	2000m
Materials	Titanium & Acetal	Titanium & Acetal
Body diameter	76mm	76mm
Overall length	800mm [880 with CTD]	1000mm [1080 with CTD]
Weight in air	11kg	13.5kg
Weight in water	8kg	9.5kg
Shipping sizes	950mm x 430mm x 480mm	1160mm x 320mm x 275mm



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