

Self Recording Current Meter

Model 105 & 106



Lightweight, self recording current meters, designed for use in coastal and other near-shore applications.

FEATURES

- Self Recording/Direct Reading
- Speed and Direction Parameters as standard
- Optional Depth and Temperature Parameters
- Programmable Sampling regime
- Sea Water Switch Operation
- Compatible with DataLog™ Software

APPLICATIONS

- Coastal and Estuarine Flow Patterns
- River Gauging
- Plankton Surveys
- Fisheries Surveys
- ROV Use

INTRODUCTION

The Valeport Model 105 & 106 Self Recording Current Meters are low cost, lightweight alternatives to other larger instruments, ideal for use in applications where the superior depth rating and durability of the larger meters is not necessary. Developed from existing Valeport technology, and using proven sensors, the 105 & 106 feature speed and direction parameters as standard, with further options of temperature and depth.

All data, whether logged or monitored in real time is compatible with Valeport's DataLog software,

which offers tabulated and graphical displays of data.

The 105 & 106 are manufactured from titanium and polymers, giving excellent resistance to corrosion, whilst maintaining a small size and low weight. These features make the Models 105 & 106 the ideal instruments for ROV work, coastal and estuarine applications, and other light duty survey work.

Self Recording Current Meter

Model 105/106

OVERVIEW

The Models 105 & 106 measure Speed and Direction as standard, with optional Temperature and Pressure parameters. The only difference between the two units is the size of the impeller - the larger impeller on the Model 106 gives a lower stall speed and better accuracy for current speed data, but all other specifications are the same. All measured parameters are logged within the unit, and are available for real time display on PC (using Valeport's DataLog™ software) over cable lengths up to 50m, or on the Model 8008 Control Display Unit over longer cable lengths. 12 bit processing gives excellent data resolution and accuracy.

The sampling mode, rate and averaging period are set up using either the customer's PC or the Model 8008 Control Display Unit, and the set up is retained until overwritten. Calibration for all sensors is held within the instrument and data is provided in engineering units. Power may be taken from an internal battery, from a surface battery, or from the Model 8008 CDU if connected. The unit has a 512 Kbyte memory, which is capable of storing over 65,000 full parameter records.

DESCRIPTION

Main Body

All external metal parts are manufactured from titanium, providing excellent corrosion protection and long product life. All other external parts are manufactured from hard wearing polymers.

Data Acquisition

The current meter works on a basic 1 second cycle, during which the impeller counts are taken and a single compass heading reading is made. From this, East and North velocity vectors are calculated, which are then summed over the averaging period. The additional parameters of temperature and pressure (if fitted) are sampled once every sample period, and averaged over the averaging period.

Setting Up

Unit can be set up either by using the Model 8008 Control Display Unit, or by PC using Valeport's DataLog™ software. User controls

sampling rate and averaging period, and, if using a PC, site information data.

Data Recovery

Direct to PC via communications port. Maximum RS232 data rate of 19200 baud.

User Software

DataLog™ Windows™ based PC software for data display, instrument set up, data extraction and tabular and graphical data plots.

Switching On/Off

The meters are switched on and off through software control, either by the DataLog™ software or by using the Model 8008 CDU. However, it is also fitted with a sea switch mechanism, meaning that it will not operate unless submerged. This feature means that memory and power are conserved during periods of non-use, for example during transportation from lab to field site. The switch can be bypassed for setting up and equipment testing.

Memory

512 Kbyte Solid State Memory. Each parameter record uses 2 bytes. As an example, this gives a duration of over 1 week with full parameter sampling every 10 seconds, or 220 days with sampling every 5 minutes.

Power Supply

Internal: 1 x D cell housed in easily accessible compartment. Using a 1.5v alkaline cell, battery life is approximately 30 days at 10 second sample rate, or 56 days at 5 minute sample rate. Using a 3.6v Lithium cell, life is approximately 90 days at 10 second sample rate, or 180 days at 5 minute sample rate.

External: For external supply, 12-20v DC is required. Power can also be taken from the Model 8008 CDU.

Communications

Self Recording Data Extraction: RS232 to PC over cable lengths up to 50m. Digital Current Loop to Model 8008 CDU, or to PC over longer cable lengths (requires additional adaptor).

SPECIFICATION

Speed:

High Impact Styrene Impeller.

Model 105: 50mm diameter by 100mm pitch. Range 0.05 to 5 m/s. Accuracy $\pm 2.5\%$ of reading above 0.4 m/s, ± 0.01 m/s below 0.4 m/s.

Model 106: 125mm diameter by 270mm pitch. Range 0.03 to 5 m/s. Accuracy $\pm 1.5\%$ of reading above 0.15 m/s, ± 0.004 m/s below 0.15 m/s.

Direction:

Flux gate compass: 0 to 360°. Accuracy $\pm 2.5^\circ$, Resolution 0.5°.

Temperature:

Thermistor: -5 to 35°C, Accuracy $\pm 0.2^\circ\text{C}$, Resolution 0.01°C.

Pressure:

Strain Gauge Transducer: 50, 100, 200 or 500 dBar range, Accuracy $\pm 0.2\%$ FS.

Size:

Body: 590mm x 50mm Ø (Model 105)
640mm x 50mm Ø (Model 106)

Tail: 133mm wide x 270mm high.
Weight: 3kg (air), 2kg (water).

Depth Rating:

500m.

Shipping Dimensions (inc CDU +50m cable):

Size: 730mm x 640mm x 370mm (Model 105)
780mm x 640mm x 370mm (Model 106)

Weight: 22kg.

ORDERING

0105001: Model 105 Self Recording/Direct Reading unit, fitted with speed and direction sensors. Supplied with communications lead (3m Y lead), operating manual, software and system transit case.

0106001: Model 106 Self Recording/Direct Reading unit, fitted with speed and direction sensors. Supplied with communications lead (3m Y lead), operating manual, software and system transit case.

0105003: Temperature option.

0105004: Depth option.

0105005: Control Display Unit set, comprising deck lead and Model 8008 CDU.

0105006: 50m cable on hand reel (packed separately).

Valeport manufactures a wide range of oceanographic and hydrometric instruments including self-recording and direct reading multi-parameter current meters, sound velocity probes, CTD probes, wave recorders, tide gauges, open channel flow meters, water and plankton samplers, winches, sinker weights, connectors and accessories.

VALEPORT 

Valeport Limited
Townstal Industrial Estate
Dartmouth, Devon TQ6 9LX
United Kingdom
Tel: +44 (0)1803 834031
Fax: +44 (0)1803 834320
e-mail: sales@valeport.co.uk
Web Site: <http://www.valeport.co.uk>