



## MIDAS ECM Electromagnetic Current Meter



The MIDAS ECM is a highly versatile point current meter, designed with durability and ease of deployment in mind. Valeport's latest electronics architecture allows multiple additional sensors, and a variety of communications options, making it one of the few multi-parameter current meters that allows real time operations over several thousand metres of cable, as well as autonomous deployments. A choice of titanium or acetal housing gives depth rating up to 5000m.



### Sensors

| Sensor       | Type            | Range        | Accuracy      | Resolution |
|--------------|-----------------|--------------|---------------|------------|
| Current      | Valeport EM     | 0 – 5m/s     | +/-1% reading | 0.001m/s   |
| Direction    | Fluxgate        | 0 – 360°     | +/-<1°        | 0.001°     |
| Pressure     | Piezo-Resistive | Up to 500Bar | +/-0.01%      | 0.001%     |
| Temperature  | PRT             | -5 - +35°C   | +/-0.005°C    | 0.002°C    |
| Conductivity | Inductive Cell  | 0 – 80mS/cm  | +/-0.01mS/cm  | 0.002mS/cm |
| Turbidity    | Seapoint STM    | 0 – 2000FTU  | +/-2%         | 0.002%     |

### Data Acquisition

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

|       |   |
|-------|---|
| RS232 | Up to 200m cable, direct to serial port via USB adaptor |
| RS485 | Up to 1000m cable, addressable half duplex comms        |

#### Options

|            |  |
|------------|--|
| FSK        | 2 wire power & comms up to 6000m cable (cable dependant) |
| Baud Rate: | 2400 - 115200 (FSK fixed at 19200, USB 460800)           |
| Protocol:  | 8 data bits, 1 stop bit, No parity, No flow control      |

### Memory

The MIDAS ECM 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 current data uses 10bytes, with each additional parameter taking 2bytes and a time stamp uses 7 bytes. The examples are for an instrument measuring speed, direction and CTD.

|             |   |
|-------------|---|
| Continuous: | >520,000 data points                          |
| Profile:    | >360,000 data points (>15 profiles to 5000m). |

### Electrical

|               |   |
|---------------|---|
| Internal:     | 8 x D cells, 1.5v alkaline or 3.6v lithium                        |
| External:     | 9 - 30vDC   |
| Power:        | 1.7W (sampling), <1mW (sleeping)                                  |
| Battery Life: | >100 hours operation (alkaline)<br>>250 hours operation (lithium) |
| Connector:    | Subconn MCBH10F   |

### Physical

|                   |  |
|-------------------|--|
| Materials:        | Titanium housing, polyurethane sensor components, stainless steel (316) cage |
| Depth Rating:     | 5000m (titanium), 500m (acetal)  |
| Instrument Size:  | 150mmØ x 700mm long  |
| Cage Size:        | 210mm Ø x 732mm long   |
| Weight (in cage): | 20kg (titanium), 12kg (acetal)   |
| Shipping:         | 130 x 37 x 32cm, 38kg (titanium), 34Kg (acetal)                              |

### Software

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

### Ordering

|           |  |
|-----------|--|
| 0808007   | MIDAS ECM Current Meter (titanium), measuring speed and direction. Supplied with deployment cage, Subconn switch plug, 3m communications lead, USB adaptor, DataLog Express software, manual, tool kit and transit case. |
| 0808008   | MIDAS ECM Current Meter (acetal), measuring speed and direction. Supplied with deployment cage, Subconn switch plug, 3m communications lead, USB adaptor, DataLog Express software, manual, tool kit and transit case.   |
| 04000565  | Pressure sensor (specify range)  |
| 0400012   | PRT Temperature sensor   |
| 0400011   | Conductivity sensor  |
| 0400021   | Turbidity sensor   |
| 0400002   | 16 Mbyte memory upgrade (max 64 Mbyte)   |
| 0400EA5   | FSK modem adaptor  |
| TB0400FSK | Probe board set required for FSK operation   |

Datasheet Reference: MIDAS ECM version 2c, June 2013

As part of our policy of continuing development, we reserve the right to alter at any time, without notice, all specifications, designs, prices and conditions of supply of all equipment

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