

# Product Data Sheet

## TCM-1 Tilt Current Meter



Affordable & Easy-to-Use Current Meter



| Feature           | Benefit   |
|-------------------|---|
| Low Cost          | – Water velocity measurements for a fraction of the cost of an acoustic meter |
| Rugged Design     | – Compact, low maintenance instrument   |
| Small and Light   | – Easy to deploy from a small boat or with a diver                            |
| Large Memory      | – 8 GB memory card virtually eliminates memory concerns                       |
| Long Battery Life | – 1-minute velocity sampling for more than 1 year                             |
| Two Flow Ranges   | – Two field selectable ranges in one instrument                               |
| Temperature       | – Internal thermistor accurate to 0.1 °C                                      |
| USB 2.0 Interface | – Connect with standard USB cable   |

### Description

The Tilt Current Meter Model 1 (TCM-1) records water velocity in an affordable, easy-to-use package. The TCM-1 is ideal for measuring water currents in a variety of coastal environments including tidal estuaries and reefs out to the edge of the continental shelf. The low cost of the TCM-1 makes it affordable to deploy meters in many locations simultaneously, thereby increasing spatial data density.

The TCM-1 measures current using the *drag-tilt principle*. The logger is buoyant and is secured by a flexible tether to an anchor, stake or tripod. Moving water tilts the logger in the direction of flow. A 3-axis accelerometer and 3-axis magnetometer determine tilt and bearing. The meter also contains a thermistor for recording temperature.

The TCM-1 is field configurable for either low or high current range. The electronics are housed in a rugged PVC case with no external sensors. The TCM-1 is very easy to deploy and recover, even from small boats. The built-in data logger includes a USB communication interface, a microSD flash memory card, and a long-life lithium battery. Windows® software is used to configure the TCM-1 for deployment and to process data.



## Specifications

|                    | <b>Range</b>          | <b>Accuracy</b>        | <b>Resolution</b> |
|--------------------|-----------------------|------------------------|-------------------|
| Speed (Low Range)  | 0-40 cm/s             | 2 cm/s + 3% of reading | 0.1 cm/s          |
| Speed (High Range) | 0-80 cm/s             | 3 cm/s + 3% of reading | 0.1 cm/s          |
| Direction          | 0-360°                | 5° (for speed >5 cm/s) | 0.1°              |
| Temperature        | -5 to 30 °C           | 0.1 °C                 | <0.005 °C         |
|                    | -20 to -5, 30 to 50°C | 0.2 °C                 | <0.01 °C          |

### Electronics

|                |   |
|----------------|---|
| Memory         | 8 GB microSDHC flash card (standard)                                |
| Communications | Full speed USB micro-B port   |
| Battery Type   | 3.6 V, size "A", user replaceable lithium (from Lowell Instruments) |
| Battery Life   | Months to years depending on recording rates                        |
| Internal Clock | < 1 minute of error per month                                       |

### Operating Modes

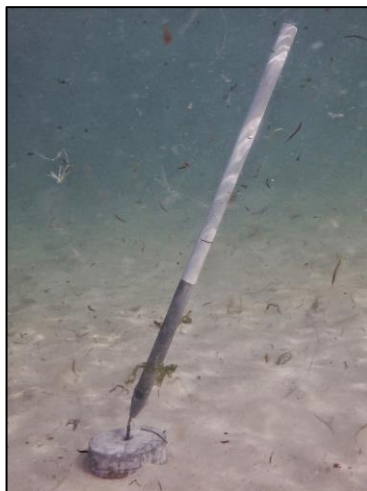
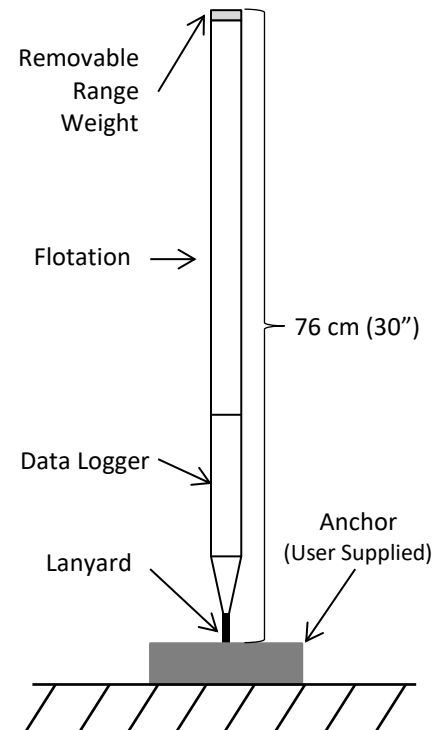
|                |   |
|----------------|---|
| Start and Stop | Start and Stop at user defined times  |
| Burst Mode     | Variable rate logging at user defined interval                                |
| Recording Rate | Current: 64 Hz to 1 sample per hour<br>Temperature: 1 Hz to 1 sample per hour |

### Mechanical

|               |  |
|---------------|--|
| Minimum Depth | 76 cm (30")  |
| Depth Rating  | 300 m (1000 ft)  |
| Dimensions    | Diameter: 2.7 cm (1.05")<br>Length: 73 cm (28.75") not including lanyard |
| Weight        | 340 g (12 oz)  |
| Construction  | Gray PVC housing with EPDM O-ring  |

### Software

|                |                                       |
|----------------|---------------------------------------|
| User Interface | Windows® Compatible Software Download |
| USB            | USB 2.0 compliant MSC and CDC Classes |
| Firmware       | Field upgradable via USB cable        |



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