

Affordable & Easy-to-Use Current Meter for Deep Water



| Feature | Benefit |
|---------------------|--|
| Low Cost | – Water velocity measurements for a fraction of the cost of an acoustic meter |
| 4500m Depth Rating | – Operate off the continental shelf |
| Rugged Construction | – Titanium pressure housing with toughened syntactic foam flotation |
| Small and Light | – Easy to deploy with small ROVs |
| Long Battery Life | – 1-minute velocity sampling for more than 1 year |
| Large Memory | – microSD memory card virtually eliminates memory concerns |
| Temperature Sensor | – Includes an internal thermistor accurate to <0.1 °C with resolution of < 0.01 °C |
| USB 2.0 Interface | – Connect with standard USB cables |

Description

The TCM-3 Tilt Current Meter records water velocity in an affordable, easy-to-use package. The meter designed for use beyond the edge of the continental shelf up to 4500 meters depth. It is easy to deploy with a simple ground anchor from a remotely operated vehicle.

Tilt Current Meters measure current using the *drag-tilt principle*. The physical design is simple; the meter is buoyant and is secured by a flexible tether to a fixed anchor 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 meter's electronics are housed in a titanium pressure case with no external sensors. The flotation is derived from toughened syntactic foam. 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-3 for deployment and to process data.

The TCM-3 is available at a fraction of the cost of acoustic meters and is simple to setup and deploy. The low total cost permits multiple current meters to be deployed in many locations simultaneously, thereby increasing spatial data density and reducing uncertainty.

Specifications

| | Range | Accuracy | Resolution |
|---------------------------|-----------------------|------------------------|-------------------|
| Speed (Recommended Range) | 0-80 cm/s | 3 cm/s + 3% of reading | 0.1 cm/s |
| Speed (Maximum Range) | 0-120 cm/s | Not Specified | 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 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 Temperature: 1 Hz to 1 sample per hour |

Mechanical

| | |
|--------------|---|
| Depth Rating | 4500 m (14760 ft), tested to 6000m (19700 ft) |
| Dimensions | Flotation Diameter: 5.08 cm (2.00") Pressure Housing Diameter: 2.54 cm (1.00") Overall Length: 77.6 cm (30.6") Flotation Length: 60.9 cm (24.0") |
| Weight | 1.29 Kg (2.84 lb) |
| Construction | Flotation: Toughened Syntactic Foam with Titanium pressure housing and Buna 90 Durometer O-ring |

Software

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

