

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

	Range	Accuracy	Resolution
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 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") 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

