Product Data Sheet

MAT-1 Data Logger

Magnetometer - Accelerometer - Thermistor

Applications

- Oceanographic Tilt Current Meter
- Underwater Vehicle Heading
- Equipment Monitoring
- Vibration Analysis
- Animal Tagging
- Vehicle Dynamics
- Shipping Monitoring
- Mooring Orientation & Tilt

Feature	Benefit`
3-axis Accelerometer	- Resolve static orientation to 1° - Record dynamic acceleration at 64 Hz
3-axis Magnetometer	- +/- 2° nominal compass bearing accuracy - Temperature compensated
Precision Temperature	- Accurate to +/-0.1 °C from -5 to 30 °C - Accurate to +/-0.2 °C from -20 to -5, 30 to 50 °C
Large Memory	- 4 GB microSD flash card, upgradable to 32 GB
Long Battery Life	- Hundreds of millions of records over a year+
Rugged Housing	- O-ring sealed PVC or Titanium housing
USB 2.0 Interface	- Connect with standard USB cable

Description

The MAT-1 Data Logger contains an integrated 3-axis magnetometer, 3-axis accelerometer and a precision temperature sensor. The logger includes a microSD flash memory card, a long-life lithium battery, an O-ring sealed waterproof housing and a USB communication interface. The logger is capable of recording hundreds of millions of magnetometer and accelerometer records at up to 64 Hz as well as temperature records at 1 Hz.

The MAT-1 is ideal for determining the static orientation of vehicles, packages and assets. The MAT-1 can also be used for vibration analysis and motion studies. The internal thermistor provides a detailed record of temperature in the target environment. The logger's large memory, high recording rate, long battery life and rugged design make it suitable for a wide range of applications.

The MAT-1 Data Logger includes Windows® software to configure the logger for deployment. After the deployment is complete, the data file is transferred from the memory card via USB cable or SD card reader and the data are post-processed for filtering, plotting and analysis.

Specifications

Sensors

	Magnetometer	Accelerometer	Thermistor
Type	3-axis magnetoresistive sensor with 12-bit A/D Converter	3-axis MEMS Accelerometer with 12-bit A/D Converter	NTC Thermistor with 16-bit A/D Converter
Filtering	None	1600 Hz averaging: up to 32 values per measurement	Hardware: low-pass filter
Range	+/- 10 Gauss	+/- 2 g standard +/- 4 g optional	-20 to 50 °C
Accuracy	+/- 2° compass bearing typical	0.01 g	+/-0.1 °C (-5 to 30 °C) +/-0.2 °C (-20 to -5, 30 to 50°C)
Resolution	<0.001 Gauss	<0.001 g	<0.01 °C
Maximum Rate	64 Hz	64 Hz	1 Hz

Logger

Environmental

Operating Temperature	-20 to 50 °C
Depth Rating	PVC: 300 m, Titanium: 4500 m

Electronics

Memory	4 GB microSDHC flash card (upgradable to 32GB)
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 operating mode
Internal Clock	1 minute per month

Operating Modes

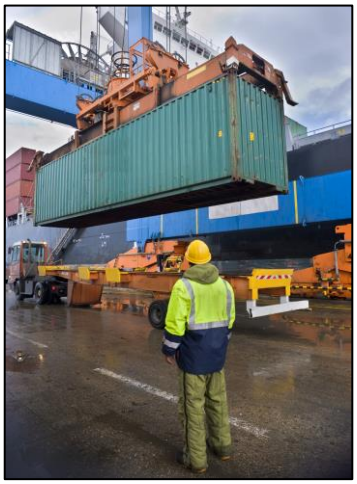
Recoding Rates	Accelerometer and Magnetometer to 64 Hz Temperature to 1 Hz
Start and Stop	Start and Stop at user defined times
Burst Mode	Variable rate logging at user defined interval

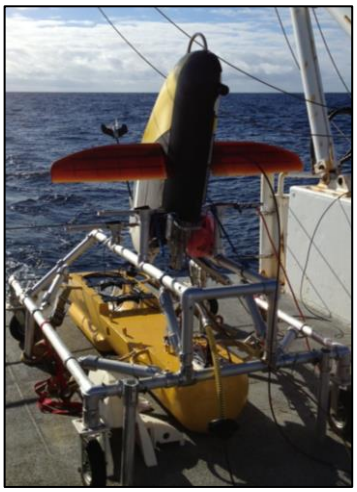
Mechanical

Dimensions	27 mm (1.05”) diameter x 213 mm (8.39”) length
Weight	PVC 150 g (5.3 oz), Titanium 225g (8.39 oz)
Construction	Housing: Grey PVC or Titanium O-ring: EPDM (PVC) Buna (Titanium)

Other

Software	Free Windows® Compatible Software
USB	USB 2.0 compliant MSC and CDC Classes
Firmware	Field upgradable via USB cable





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