



Lowell Instruments MAT-1 Data Logger - incl. Magnetometer, Accelerometer & Thermistor

Product Images



Short Description

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.

Description

The Lowell Instruments MAT-1 Data Logger contains an integrated 3-axis magnetometer, 3-axis accelerometer and a precision temperature sensor.

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Key Features

3-axis Accelerometer	Resolve static orientation to 1° Record dynamic acceleration at 64 Hz
3-axis Magnetometer	+/- 5° 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	8 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 cables

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.

Additional Information

Country of Manufacture	United States		
	Applications <ul style="list-style-type: none"> • Oceanographic Tilt Current Meter • Underwater Vehicle Heading • Equipment Monitoring • Vibration Analysis • Animal Tagging • Vehicle Dynamics • Shipping Monitoring • Mooring Orientation & Tilt 		
	<p>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.</p>		
		Magnetometer	Accelerometer
	Type	3-axis magneto-resistive sensor with 12-bit A/D Converter	3-axis MEMS Accelerometer with 12-bit A/D Converter
	Filtering	None	1600 Hz averaging: up to 32 values per measurement
	Range	+/- 1.2 Gauss standard Custom range on request	+/- 2 g standard +/- 4 g optional
	Accuracy	+/- 5° compass bearing typical	0.01 g
	Resolution	<0.001 Gauss	<0.001 g
	Maximum Rate	64 Hz	64 Hz
			Thermistor
	Type		NTC Thermistor with 16-bit A/D Converter
	Filtering		Hardware: low-pass filter
	Range		-20 to 50 °C
	Accuracy		+/-0.1 °C (-5 to 30 °C) +/-0.2 °C (-20 to -5, 30 to 50°C)
	Resolution		<0.01 °C
	Maximum Rate		1 Hz
	Environmental		
	Operating Temperature	-20 to 50 °C	
	Depth Rating	PVC: 300 m	Titanium: 4500 m
	Electronics		
	Memory	8 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		
	Recording 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	PVC: 27 mm (1.05") diameter x 213 mm (8.39") length	Titanium: 25.4 mm (1.00") diameter x 223 mm (8.78") length
	Weight	PVC: 143 g (5.1 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	
Contents	<ul style="list-style-type: none"> • MAT-1 Data Logger (PVC or Titanium) • 8 GB microSD Card (installed in logger) • Lithium Battery (installed in logger) • 3 ft USB A to micro-B Cable • Spare O-ring with Lubricant 		
Brand	Lowell Instruments		
Typical applications	Datalogging		
Measurements	Tilt		