

## Magmeter Power Supply and Display Units

The Magmeter and Magmeter-2 provide filtered readings of a magnetic field sensor's X, Y and Z outputs via three LCD displays, and enables rapid monitoring of magnetic fields. It also provides three BNC low-noise analogue outputs for the display, or the precise acquisition, of magnetic field data using third party equipment. The unit is battery powered to facilitate fieldwork, and reduce electric noise during precision measurements.

Low-pass filtering (9kHz) is applied to all inputs in order to prevent the excitation signal of the fluxgate sensor from affecting the measurement, while a high-pass filter (0.1Hz) is selectable via a front panel switch when AC measurements are preferred. Balanced or unbalanced output magnetic field sensors can be inputted into the unit, making it compatible with most Bartington magnetometers. The battery system includes inbuilt charging circuits with a visual indicator, an audible low battery warning, and a mains adaptor.



## Features

- Magmeter-2: 10nT resolution for ranges up to  $\pm 100\mu\text{T}$ ; 100nT resolution for ranges up to  $\pm 1000\mu\text{T}$
- Low-pass filtering (9.5kHz) applied to all sensor outputs
- High-pass filter (0.1Hz) selectable via a front panel switch
- Powered by internal rechargeable batteries
- Supplied with mains AC charging adaptor to enable continuous operation

## Typical Application

- Quick checks of magnetic field strength

## Magmeter Specifications

Performance	
Number of input channels	Three (X, Y and Z)
Bandwidth (-3dB)	DC to 9.5kHz (DC coupling); 0.1Hz to 9.5kHz (AC coupling)
Frequency response ( $\pm 2\%$ )	DC to 6kHz (DC coupling)
Power output to sensor	$\pm 12\text{V}$ ; $\pm 90\text{mA}$ maximum
Sensor input	Balanced/unbalanced maximum range $\pm 10\text{V}$
Analogue signal output voltage on BNC connectors	$\pm 10\text{V}$ minimum
Measurement noise floor	$< 2\text{pT}/\sqrt{\text{Hz}}$ at 1Hz (battery powered); $< 5\text{pT}/\sqrt{\text{Hz}}$ at 1Hz (with mains charger connected)

## Environmental

Operating temperature range	0°C to +50°C (0°C to +40°C for charging)
Storage temperature range	-20°C to +35°C long term; -20°C to +50°C short term; -20°C to +65°C without batteries
Humidity	0–90% non-condensing

## Mechanical

Dimensions (W x H x D)	106 x 65 x 148mm
Weight	630g (battery included)
Enclosure material	Aluminium
Sensor connector	Hirose RM15TRD10P
Output connectors	3 off BNC connectors (X, Y and Z)
Battery charger inlet	2.1mm socket

## Electrical

Battery	5 x AA NiMH 2400mAh (nominal) Duracell rechargeable batteries
Battery life	8 hours (typical)
Battery charging time	<3 hours for full charge
Maximum load (all outputs)	50kΩ per channel

## Display

Display type Magmeter Magmeter-2	3 x 3½ digit LCD backlit 3 x 4½ digit LCD backlit
Resolution Magmeter Magmeter-2	100nT for ranges up to ±100μT; 1μT for ranges up to ±1000μT 10nT for ranges up to ±100μT; 100nT for ranges up to ±1000μT
Accuracy	±4 counts
Temperature drift	±1 count/°C maximum
Compatible magnetic field sensor ranges	1000μT/10V full scale output 500μT/10V full scale output 300μT/10V full scale output (Magmeter-2 only) 250μT/10V full scale output 100μT/10V full scale output 100μT/3V full scale output 70μT/10V full scale output 60μT/3V full scale output

# Power Supply and Signal Conditioning Units

A wide range of power supply and signal conditioning units are available for our range of single and three-axis magnetic field sensors.

All units accept analogue input from our sensors and output the signal to an analogue-to-digital converter or other separate device. The range includes:

Product	Function
PSU1 Power Supply Unit	Battery powered portable power supply for a single or three-axis magnetic field sensor and AC filtering of the sensor's outputs.
Magmeter Power Supply and Display Unit	A PSU1 with three displays for magnetic field value readings.
SCU1 Signal Conditioning Unit	Mains powered unit providing power supply and output conditioning for three-axis magnetic field sensors.
DecaPSU	Power supply unit and low-noise connection for up to 10 magnetometers at the end of long sensor cables.

Further details of each product, including performance, environmental, mechanical and electrical specifications, are shown on the following pages.

## Product Compatibility

	PSU1	Magmeter	SCU1	DecaPSU
Mag-13	•	•	•	•
Mag-03	•	•	•	•
Mag-03RC	•	•	•	•
Mag639	•	•	•	•
Mag648/649	•	•	•	•
Mag670	•	•	•	•
Mag678/679	•	•	•	•
Mag690	•	•	•	•