
PSU1 Power Supply Unit

The PSU1 is a self-contained, portable power supply for most Bartington Instruments magnetic field sensors, for use in any situation requiring the simple measurement of a magnetic field. It is also a simple AC filter for the sensor's XYZ outputs.



Features

- Converts the analogue outputs of Bartington balanced (differential) sensors into unbalanced (single-ended) signals
- Low-pass filtering (9.5kHz) applied to all sensor outputs
- High-pass filter (0.1Hz) selectable via front panel switch
- Powered by internal rechargeable batteries
- Supplied with mains AC charging adaptor to allow continuous operation

Typical Application

- Basic power supply for magnetic field sensors

PSU1 Specifications

Performance	
Number of input channels	Three
Voltage input range	$\pm 10\text{V}$
Frequency response (-3dB)	DC to 9.5kHz (DC coupling); 0.1Hz to 9.5kHz (AC coupling)
Frequency response error	DC to 6.5kHz $\pm 2\%$
Internal measurement noise floor	<2pT/VHz at 1Hz (battery powered); <5pT/VHz at 1Hz (with mains charger connected)
Linearity error	1%
Offset error	0.5% full scale

Environmental	
Operating temperature range	-20°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	
Enclosure material	Extruded aluminium
Dimensions (W x H x D)	106 x 65 x 148mm
Weight	615g (battery included)
Connectors: sensor input	Hirose RM15TRD10P
analogue outputs	3 BNC connectors (X, Y and Z)
battery charger inlet	2.1mm socket

Electrical	
Analogue output voltage	$\pm 10\text{V}$
Battery	5 x AA NiMH 2400mAh (nominal) Duracell rechargeable batteries
Battery life	8 hours (typical)
Battery charging time	~3 hours for full charge
Power output to sensor	$\pm 12\text{V}$; $\pm 90\text{mA}$
Sensor input	Balanced/unbalanced
Maximum load (all outputs)	50k Ω per channel

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	•	•	•	•