



Fluxgate Magnetometer FLUXMASTER

Measurement range 0.1 nT to 200 μ T, DC to 1 kHz



Features

- Resolution 0.1 nT
- Three full scale ranges:
 $\pm 2 \mu$ T, $\pm 20 \mu$ T und $\pm 200 \mu$ T
- Accuracy 0.5 %
- Offset <5 nT
- 4¹/₂ digit LC-display
- Analog output for strip chart recorder, oscilloscope, etc.
- Waterproof case (protection IP65)
- Selectable automatic ambient field cancelling $\pm 60 \mu$ T

Applications

- Measurement of the Earth's field vector components
- Monitoring stray magnetic fields near power cables, transformers, etc.
- Palaeomagnetic investigations: Measurement of weak fields in rocks
- Calibration of Helmholtz coils
- Package inspection
- Residual field measurements (shielding effectiveness)
- Magnetic field control and compensation via analog output

General description

The teslameter FLUXMASTER is a very compact hand-held instrument which has been designed for accurate measurements of weak magnetic fields from 0.1 nT (nanotesla) to 200 μT . The instrument operates on the fluxgate principle. It consists of a cylindrical sensor which is connected with the electronics unit via a 1.5 m cable. The magnetometer is optimized for low offset, low noise and high stability. The magnitude of the measured magnetic field component can be read in μT from from a $4^{1/2}$ digit LC-display. Three full scale ranges are selectable.

With the FLUXMASTER one can measure DC fields (e. g. the Earth's field) and AC magnetic fields (e. g. powerline fields). For AC-field measurements an AC-voltmeter or an oscilloscope may be connected to the analog output. The voltage at the analog output follows magnetic fields up to a frequency of more than 1 kHz. Dynamic or servo-controlled shielding solutions can be easily realized by using the analog output.

The automatic neutralization circuitry permits the user to cancel out the local ambient magnetic field by just pressing a switch. This simplifies the measurement of small variations about the ambient magnetic field. As a special feature the FLUXMASTER is provided with a robust waterproof case (protection IP65) and is therefore well suited to outdoor applications.

Specifications

Range switch	$\pm 2 \mu\text{T}$, $\pm 20 \mu\text{T}$, $\pm 200 \mu\text{T}$
Highest resolution	0.1 nT
Accuracy at 20 °C	0.5 % $\pm 5 \text{ nT} \pm 1 \text{ Digit}$
Temperature range	0 to 50 °C
Zero drift	<0.1 nT/K
Analog output	0.01 V/ μT , 0.1 V/ μT , 1 V/ μT dep. on pos. of range switch, BNC-socket
Bandwidth	0 to 1 kHz (-3 dB)
Noise	<0.7 nT RMS (0.1 Hz < f < 200 Hz), typ. 20 pT/ $\sqrt{\text{Hz}}$ at f = 1 Hz
Battery	9 V (PP3, Alkaline)
Continuous operation with one battery	~20 h
Automatic neutralization	$\pm 60 \mu\text{T}$, selectable
Size of electronics unit	151 mm \times 82 mm \times 33 mm
Protection	IP65
Size of sensor	diam. 10 mm \times 30 mm
Length of connecting cable	1.5 m
Weight of complete device	380 g

Subject to alterations.