

Magmeter MF300B+

A robust magnetic flux meter for industry

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www.diverse-technologies.net

Applications

- Magnetic test bench
- Provides quantitative measurement of the magnetic flux inside steel
- Measures flux density in any direction



Features

- Measures peak magnetic flux density
- Measures AC peak flux density
- Uses unique Magnetic Flux probe
- Auto zero before every reading
- Rugged stainless steel probe
- Continuous bar graph display of progress
- Auto power off
- Supplied with a protective carrying case and full user instructions
- Used by NDT and welding shops worldwide
- Meets ISO 9000 quality assurance requirements.
- Fully calibrated with mild steel and delivered with certification

Overview

The Diverse MF300B+ hand held, battery operated Magnetic Flux Meter with its rugged stainless steel probe is suitable for laboratory and workshop use.

The meter uses a membrane key pad and a digital display which makes it simple to operate.

The MF300B+, is a novel search coil based instrument that steals flux from the ferrous material under test (MUT) to assess the level of magnetic flux inside the MUT. By integrating the change in magnetic flux lines between a position in air and on the surface of the MUT the flux in the material can be estimated. There are a wide range of applications for the instrument but it has found important application in NDT allowing material magnetization to be assessed for MPI inspection.

The measurement is a two step process; firstly, with the probe away from the MUT the instrument is zeroed, then during the measurement phase the probe is brought into the MUT and integration of the signal is completed over 10 seconds.

Magnetic inspection often calls for the use of a specified level of magnetic flux within steel components. If the magnetic flux level is too low, then defects may be overlooked: if too high then spurious indications may occur. The MF300B+ has been produced to measure the magnetic flux density just below the surface.

The magnetic flux is measured simply by placing the probe on the surface of interest. The monitor will measure static magnetic flux in the material, the magnetic flux which can be produced by permanent magnets, electromagnets or AC/DC electric currents.

Measurements of magnetic flux, both integrated and peak magnetic flux in milli Tesla are displayed on the instrument. The results can be viewed on screen or optionally downloaded via the serial RS232/USB interface. Software for use with the meter is provided with the serial option which enables data to be saved and entered in spreadsheets.

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About Magmeter MF300B+

The original MF300B was developed several years ago and was one of the first to use a microprocessor to control the data collection and display. It has become popular with engineers and technicians around the world. One of the reasons for its success is its novel magnetic capture and tough stainless steel probe which makes measurement simple and reliable.

The MF300B+ builds on the success of the original instrument keeping its the simple to use features.

All the features of the MF300B+ are built into its microprocessor allowing it not only do the measurements but also track the instrument performance. The calibration of the instrument is carried out with NPL traceable standards.

The Software provided with the MF300B+ Magnetic Field Meter allows readings to be collected and recorded on a PC. The software will run on Windows XP or Vista and the data can be further processed using standard spreadsheets.

Standard flux indicators only provide a qualitative idea of magnetic flux levels which may not be sufficient to guarantee the optimum conditions for carrying out magnetic inspection.

Most magnetic field meters and gaussmeters only measure the level of magnetism outside components under inspection. Yet it is the value of the magnetic flux density within components which determine whether or not Magnetic Particle Inspection can be successfully carried out.

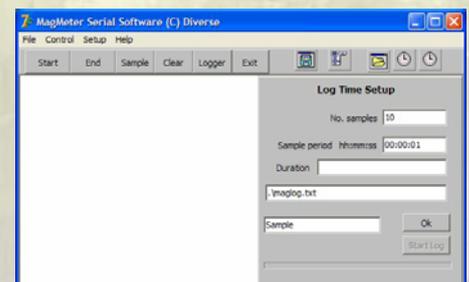
The MF300B+ Magnetic flux meter provides a quantitative measurement of the magnetic flux inside steel. The unique probe extracts a sample of flux from the surface under inspection and displays the peak flux in mT.

The probe of the MF300B+ can be placed on the required surface to measure the flux density in any direction.

The optional serial software provided with the MF300B+ provides USB and RS232 interface allowing readings to be read and recorded on a PC. The software will run on Windows XP /Vista/7. The data is saved in CSV format for import to standard spreadsheets.

In logging mode, controlled from the PC, magnetic field measurements are recorded together with the time and date. Readings can be requested by pressing a key on the meter or directly from the computer keyboard. Alternatively, readings can be taken automatically at regular time intervals.

It is sometimes useful to track magnetic fields over time. The MF300B+ can do this using the logging facilities in the serial software option to collect essentially unlimited samples which are stored immediately on the PC.



Magmeter MF300B+ Specification

Manual Ranges: (Full scale)	0 to 1999 milli Tesla
Technique	Can be used with all magnetisation techniques including permanent magnets, AC magnets, current cables, current probes
Units:	Milli Tesla
Measurements modes	Integrated flux, Peak integrated flux AC peak magnetic flux
Display	4 lines of 16 characters Shows value, units, mode, range and progress bar
Internal data sample rate	500 per second
Accuracy	3% full scale at 20C
Probe size	20mm x10mm, 50mm long
Detection	Detects the peak value of the magnetic flux density inside materials Indicates the direction in which the magnetic flux is measured
Logging:	Via optional PC serial/USB interface
Bar graph	Shows flux integration progress over the 10 seconds of collection
Zeroing	System zero before every measurement. Continuous re-zero while not measuring.
Probe cable length	1.5m typical
Calibration:	Calibrated by Diverse to NPL traceable standard. 12 month recalibration required for ISO9000 quality standard.
Power:	4 standard AA cells , typical lifetime 12 months. Continuous use 30 hours
Low battery:	Automatically detects and warns user
Instrument size:	165 x 100 x 50mm
Weight in case:	1.1kg
Environmental:	10 - 40C operating, 0 - 80C storage
Humidity	0-90% non condensing
Display update rate:	0.3 seconds
Warranty	12 months

