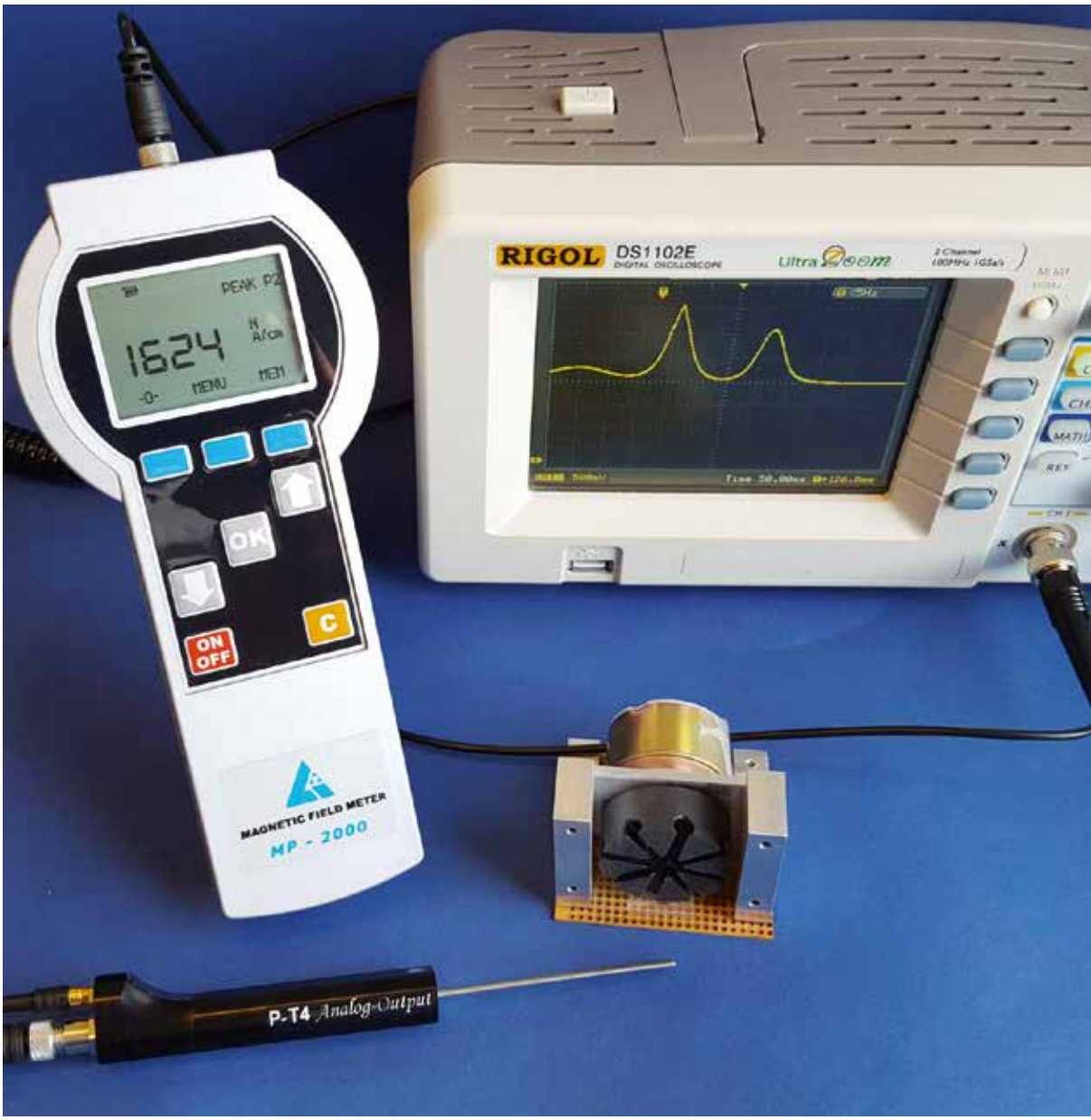
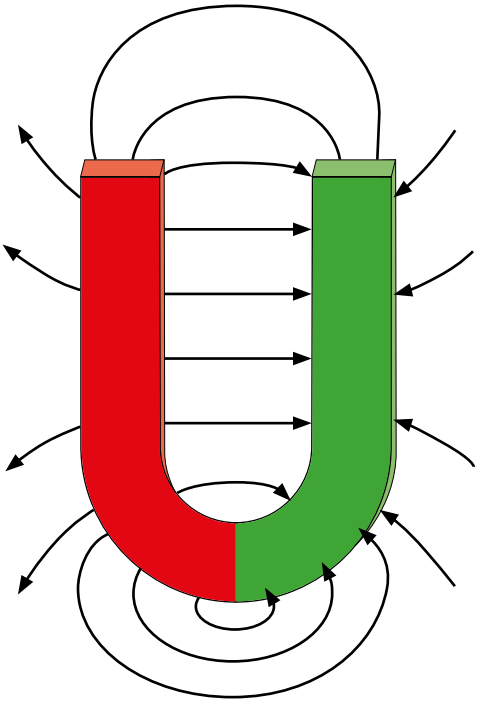
MAGNETIC FIELD MEASURING



INFORMATION
Magnetic Field Measuring



Magnetic fields are invisible. The magnetism of a workpiece can only be recognized by the effect on other steel parts or chips. Often, however, residual magnetism is an undesirable effect, and that is why it is increasingly the subject of quality audits. Magnetism is also an important component of mechanical engineering. Without a magnet, there is no electric motor. The functionality of a magnetic switch depends on the strength of the actual magnet. For the magnetization of ferrite or neodymium materials, strong magnetic fields are required, which must be dynamically measurable during generation.

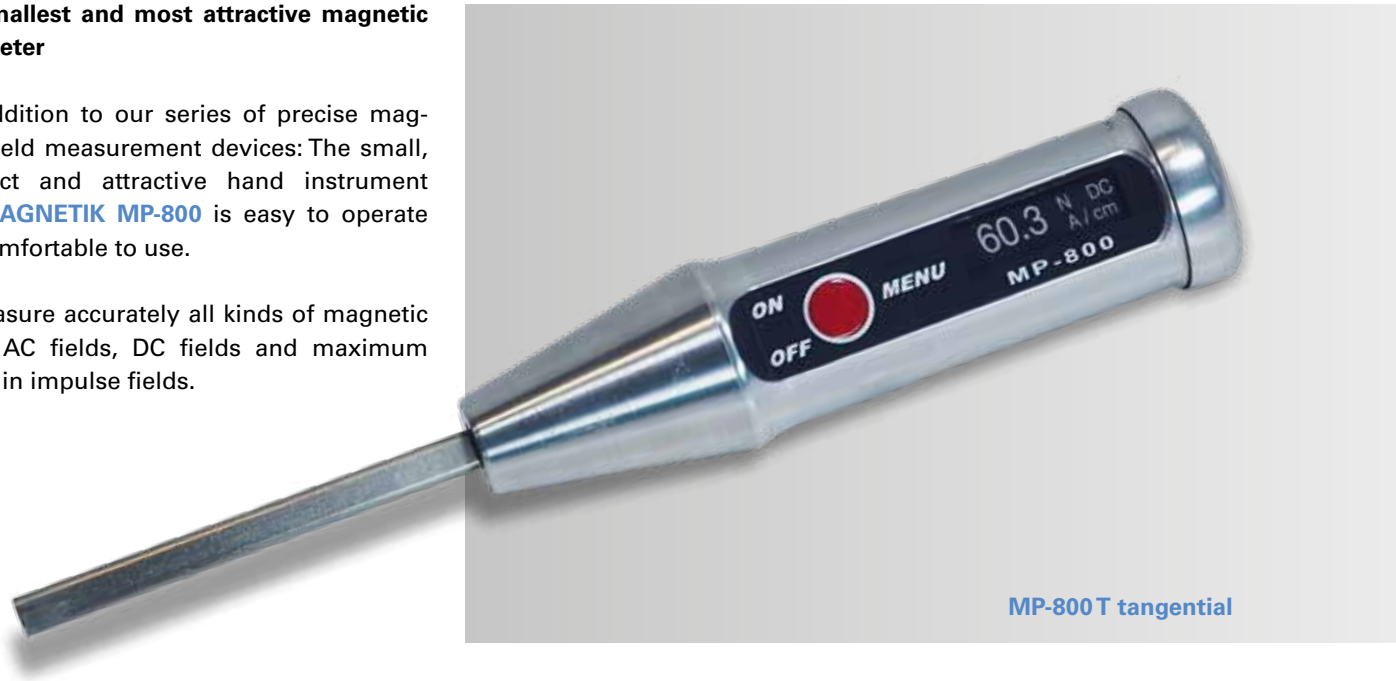
Our company name, "List-Magnetik", speaks for itself. For decades, magnetization and magnetic field measurements have been our core competences. Behind all of our customer-specific magnetizing systems, demagnetizing devices and the serial production of magnetic measuring devices, are our many years of comprehensive experience and well-founded know-how. Our measuring instruments recognize both magnetic fields with the minimum strength of the earth's magnetic field, as well as strong pulse fields, which enables us to meet all of your application requirements. We offer technically advanced solutions "Made in Germany", from the small hand-held compact device to the analog display on the oscilloscope, Special equipment such as flux meters and permeability measuring devices complete our range of services.

MP-800
Magnetic Field Meter

The smallest and most attractive magnetic field meter

The addition to our series of precise magnetic field measurement devices: The small, compact and attractive hand instrument **LIST-MAGNETIK MP-800** is easy to operate and comfortable to use.

To measure accurately all kinds of magnetic fields: AC fields, DC fields and maximum values in impulse fields.



MP-800 T tangential

The measurement ranges and different units A/cm, kA/m, Gauss/Oersted, Tesla fulfill every requirement .

Magnetic field measurement in new design

MP-800 is available
with fixed **axial probe** (MP-800 A) or
with **tangential probe** (MP-800 T).

The axial field probe measures the field in direction of the probe axis in precise distance of 2 mm. It is suitable for measurement on plain surfaces, or specifically in drilled holes.

The tangential field probe measures in 90 degree angle to the probe axis particularly in air gaps, cavities and on the surface of workpieces, suitable for crack detection.

MP-800 A axial

MP-2000
Magnetic Field Meter

With the magnetic field meter **LIST-MAGNETIK MP-2000**, we offer you a first class, high-end product, with externally connectable axial and tangential field probes. With the easy to use device, you can precisely measure magnetic DC and AC fields as well as pulse fields of all kinds. The range of application ranges from the earth's magnetic field to a field strength of 40,000 A/cm, switchable in Gauss/Oersted and Tesla. The built-in data logger, the combined digital and analog display as well as the optional data transfer via USB, allows flexible use.
Especially at high magnetic field strengths, an absolutely interference-free and precise measurement is required. For this reason, a microcontroller digitizes and linearizes the analog measuring signals of the Hall sensor into the probe in the measuring probes of the **MP-2000**.
The fast peak value memory allows measurements in pulse fields from 0.1 m/sec. In addition, an oscilloscope for the representation of dynamic magnetic fields can be connected via the special probe P-T4A with analog output. A further advantage is that the probe cable can be plugged in on both sides connects the display unit and the probe and can be easily replaced in the event of a cable fault.

The universally applicable **MP-2000** tests for residual magnetism, measures magnetic fields of all types and locates stray detectors for crack detection.

MP-1000
Magnetic Field Meter

The **LIST-MAGNETIK MP-1000** magnetic field meter is a handy universal device with externally connectable tangential and axial field probes for the precise measurement of all types of magnetic fields: steady DC fields, alternating AC fields and pulsed fields.

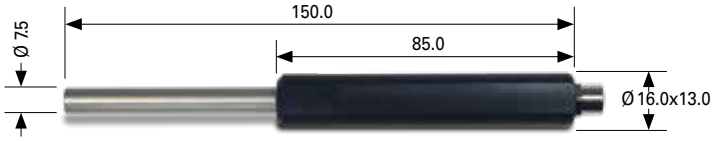
With the easy one-button operation, magnetic field strength can be measured from the weak earth magnetic field up to strong fields of 20,000 A/cm, switchable in Gauss/Oersted.

A separate built-in micro controller in the **MP-1000**'s measuring probes digitizes and linearizes the analog measurement signals of the hall sensor into the probe. This gives an extremely trouble-free and precise measurement, especially at high magnetic field strengths. The probe cable is pluggable at both ends, at the display unit and the probe, which is particularly service-friendly, as the cable can simply be replaced if it becomes faulty. Applications of the **MP-1000** are the test for residual magnetism, the measurement of magnetic fields of all kinds, as well as the localization of stray fields for crack detection.

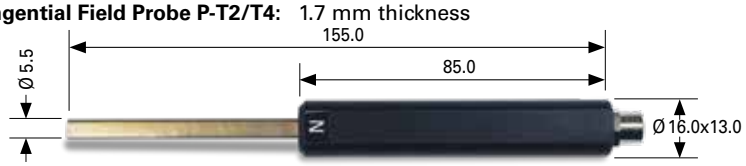
MEASURING PROBES

for Magnetic Field Meters MP-1000 and MP-2000

Axial Field Probe P-A2/A4:



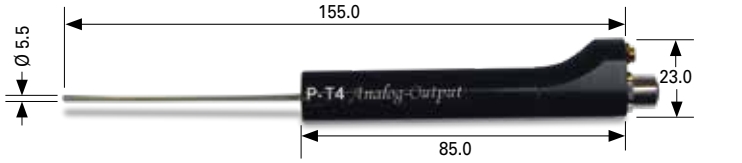
Tangential Field Probe P-T2/T4: 1.7 mm thickness



Flexible Reed Probe P-Z2/P-Z4: 0.9 mm thickness

Angular Axial Probe P-W2:

Tangential Field Probe P-T4A:



For the Field Meters MP-1000 and MP-2000 these axial field, tangential field and flexible reed probes are available.

All probes are of plug-in design.

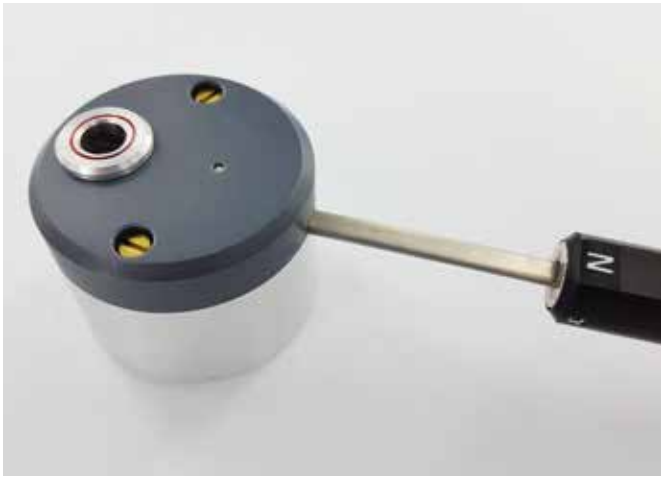
Model	MP-1000	MP-2000
Axial Field Probe P-A2 Measuring range 0–20.000 A/cm	✔	✔
Tangential Field Probe P-T2 Measuring range 0–20.000 A/cm	✔	✔
Flexible Reed Probe P-Z2 Measuring range 0–20.000 A/cm	✔	✔
Angular Axial Probe P-W2 Measuring range 0–20.000 A/cm	✔	✔
Axial Field Probe P-A4 Measuring range 0–40.000 A/cm	–	✔
Tangential Field Probe P-T4 Measuring range 0–40.000 A/cm	–	✔
Flexible Reed Probe P-Z4 Measuring range 0–40.000 A/cm	–	✔
Tangential Field Probe P-T4A Analog Output with BNC cable as output to an oscilloscope Measuring range 0–40.000 A/cm (picture see title page)	–	✔

Checking with Precision Calibration Standard

It is not necessary to calibrate the device - it is pre-calibrated at the factory.

A precision calibration standard with 180 A/cm is available as an option, in order to be able to check the device.

If a deviation is detected when checking with the precision calibration standard, we advise returning the device for recalibration at the factory.



Axial Field Probe

Insert the sensor vertically into the red-bordered cut-out in the calibration standard and turn the device until the max. value is displayed. Compare the value displayed with the value of the calibration standard.

Tangential Field Probe

Insert the probe into the side slot on the calibration standard with the „N“ marking (north pole) upwards, until the probe latches into place at the front. Compare the value displayed with the value of the calibration standard.

MP-1
Residual Magnetic Field Meter

With the handy, battery-powered Residual Magnetic Field Meter **LIST-MAGNETIK MP-1**, you quickly and reliably determine residual magnetism on ferromagnetic iron and steel parts. The measuring device can also be used for checking demagnetized parts.
The two measuring ranges of the analog display of 0-5 A/cm and 0-20 A/cm correspond to the industry standard of the ball bearing industry. The Hall sensor in the axial field probe is located at a defined measuring distance of 2.0 mm from the measuring surface.

M-5
Residual Field Testing Device

The Residual Field Testing Device **M-5** is a simple handy device to roughly determine residual magnetism in ferromagnetic steel parts. It consists of a rotating magnet system which is deflected accordingly under the influence of an external field. The scale with zero point in the middle has a range of 20 units. A full deflection corresponds to 20 Gauss or 16 A/cm.

M-8 Pole Detector

The Magnet Pole Detector **M-8** is a small pocket device in pencil shape for the determination of magnetic polarizations on ferromagnetic parts or on magnets and magnetic circuits. The small magnet, which swivels freely between 4 tips, adjusts even to the slightest external magnetic field (also the earth's magnetic field). The Pole detector can also be used as a compass.

M-9 Pole Detector

The Magnet Pole Detector **M-9** is a small pocket device for the determination of magnetic polarizations on ferromagnetic parts or on magnets and magnetic circuits. The device indicates the polarity of the magnet by showing N = north pole or S = south pole.

FL-3
Fluxmeter

The Fluxmeter **FL-3** is an electronic integrator. It is used to measure the magic flux or flux density of all kind of magnetic systems. The main feature of this instrument is the high sensitivity and simultaneously the minimal drift.
The Fluxmeter **FL-3** includes a two-gang limit value comparator and a RS232 interface, to which the current value is put out.
All kind of coils or coil probes can be connected to the Fluxmeter **FL-3**, which are available on request.
The Fluxmeter has a very high input resistance of 33 kΩ, eliminating any fault when connecting probes with high internal resistance.

Ferromaster
Permeability Meter

With the Magnet permeability meter **Ferromaster** you can easily measure the relative magnetic permeability μr of feebly magnetic materials and workpieces with a permeability between 1.001 and 1.999.
The permeability is measured by touching the workpiece with the probe tip and reading the result from the display.
Typical applications are: non-destructive testing of materials, e. g. quality control of stainless steel, material selection for electron-/ion-beam equipment, detection of material defects induced by mechanical or thermal stress.

Performance table and technical Data

MP-800 · MP-2000 · MP-1000 · MP-1

	MP-800 A	MP-800 T	MP-2000	MP-1000	MP-1
Measuring units:	A/cm – kA/m – Gauss(Oe) – Tesla switchable			A/cm – Gauss(Oe) switchable	A/cm
Measuring probe	Axial field probe ø 8mm with defined measuring distance of 2.0 mm	Tangential field probe of 1.7 mm thickness with Hall Sensor distance of 0.9 mm	Axial probes P-A2, P-W2 and P-A4, Tangential probes P-T2, P-T4, P-Z2, P-Z4 and P-T4A	Axial probes P-A2 and P-W2 Tangential probes P-T2 and P-Z2	Axial field probe ø 8 mm with defined measuring distance of 2.0 mm
Measuring range DC	0–15.000 A/cm		0–40.000 A/cm	0–20.000 A/cm	0–5 A/cm and 0–20 A/cm
Measuring range AC	20–20.000 A/cm				–
Accuracy in the homogeneous field	± 2%		0–20.000 A/cm ± 2%, > 20.000 A/cm ± 3% of the displayed value	± 2% of the displayed value	± 3%
Resolution	0–200 A/cm: 0.1 A/cm, 200–600 A/cm: 1 A/cm, > 600 A/cm: 10 A/cm		0–200 A/cm: 0.1 A/cm, > 200 A/cm: 1 A/cm, > 10.000 A/cm: 10 A/cm	0–100 A/cm: 0.1 A/cm, > 100 A/cm: 1 A/cm, > 10.000 A/cm: 10 A/cm	–
Frequency range AC	10 Hz – 5 kHz				–
Peak hold	Impulse duration > = 0.1 msec.				–
Display	OLED Graphic Display illuminated		Illuminated graphic display with additional analog display of measured values	LCD-Anzeige 3 digit	Analog scale with 2 ranges, colored tolerance ranges
Multilingual menu navigation	German / English		German/English/ Spain/ Dutch	–	–
Data logger	500 measurements		10,000 measurements, divisible into 100 batches	–	–
Statistics	Count / Maximum / Minimum / Average / Standard deviation			–	–
Interface	Bluetooth interface class 2 for communication with PC, MP-800 App and printer		RS232 interface with USB cable for communication with PC and printer	–	–
Power supply	1 x 1.5 V AA Mignon		3 x 1.5 V AA Mignon	2 x 1.5 V AA Mignon	1 x 1,5 V battery (Baby) with battery display
Operating time	approx. 30 hours		approx. 50 hours	approx. 35 hours	approx. 100 hours
Dimensions	Ø 28 x 180 mm		198 x 92 x 35 mm	105 x 65 x 26 mm	83 x 122 x 40 mm
Weight	97 g with battery		265 g with batteries	137 g with batteries	ca. 300 g with probe and battery

1 A/cm = 0.1 kA/m = 1.256 Gauss = 1.256 Oersted = 0.1256 mT (Millitesla)

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