



List-Magnetik

Manual

MP-80

OPERATION MANUAL

RESIDUAL MAGNETIC FIELD METER MP-80

2022-03



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OPERATION MANUAL

MP-80 (2022-03)

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WELCOME

The small, compact residual magnetic field meter **List-Magnetik MP-80** works just as precisely as the big ones. It is easy to operate and precisely measures DC fields in the range of up to 100 A/cm. The device has different measuring ranges and units of measurement such as A/cm, Gauss/Oersted and (milli)Tesla so that you can carry out your measuring task.

You will receive the practical one-handed device with an axial probe. The axial field probe measures the field in the direction of the probe axis at an exact distance of 2.0 mm.

We have taken great care to ensure that these operating instructions are as clear and concise as possible.

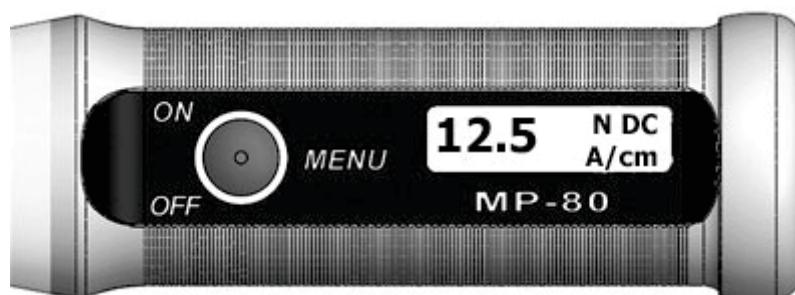
However, if you still have questions about the operation, please contact our competent service technicians who are always at the ready. They will be delighted to help you further.

SHORT USER GUIDE

You can measure magnetic fields with the device immediately and do not need to carry out any manual adjustments.

Simply switch the device on with the red button. After being switched on, the device zeros itself automatically. Whilst it is doing so the sensor must not be in a magnetic field.

That's all, and you're ready to take the first measurement.



The display shows the measured value, the polarity (N/S for north/south), the type of measurement (DC for constant field measurement or P for peak value measurement in constant field) and the set measuring unit.

The measuring unit can be switched between A/cm - kA/m - Gauss (Oersted) - Tesla.
Unit conversion rule:

1 A/cm = 0.1 kA/m = 1.256 Gauss = 1.256 Oersted = 0.1256 mT
(or, as ball park figure: 4 A/cm = 5 Gauss)

MEASUREMENT RANGE

You can use the residual magnetic field meter **MP-80** to measure magnetic fields up to 100 A/cm.

In the other measurement units, this range represents:

0.01 to 10 **kA/m**

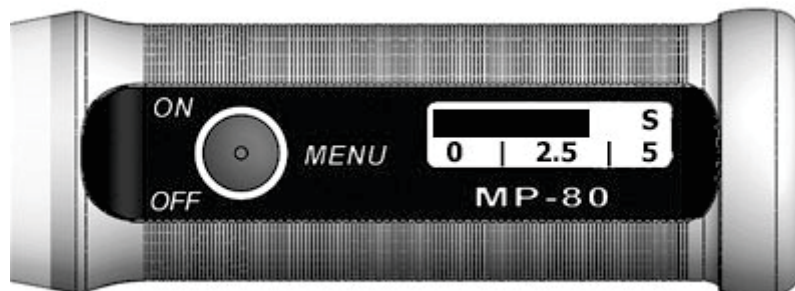
0.1 to 125 **Gauss** (Oersted)

0.01 to 12.5 **mT**

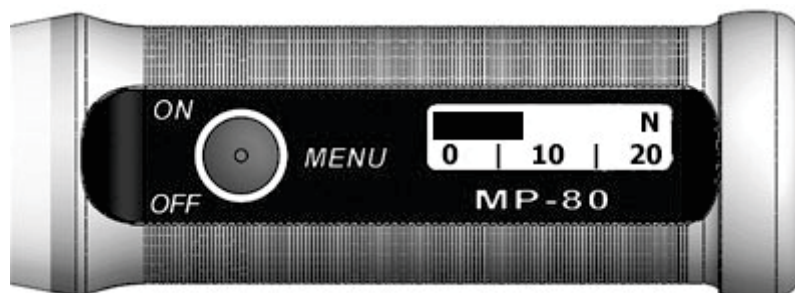
ANALOG DISPLAY

Instead of the digital display of the measured value with polarity, measurement type and measurement unit, you can also switch the device to an analog display (see the Settings / Display menu). The unit of this display corresponds to the set unit. At kA/m and mT the scale value is displayed with a comma (.5 = 0.5).

The zero point is on the left. If 5 is exceeded, the scale changes to 20 and further to 80. If this is also exceeded, an overflow is displayed with ">>". The polarity is displayed on the top right (N/S).



Example of an analog display in the 5 A/cm range. The reading is about -3 A/cm.



Example of an analog display in the 20 A/cm range. The reading is about +8 A/cm.

WARNINGS AND HAZARD INFORMATION

List-Magnetik expressly advises that the MP-80 magnetic field measurement device may only be used for its proper intended purpose, the measurement of magnetic fields. Any other use is impermissible and involves the deliberate involvement of incalculable risks for the device and the operator.



The device operating company must ensure that it is only used by personnel who have access to these operating instructions and who have read and understood them.



The device and the sensor must not be brought into contact with electrical power sources that are not adequately insulated, under any circumstances. Disregard of this warning can result in a fatal hazard for the operator.



Although the device is splash-proof, it is not waterproof. The device must not be submerged in water or other liquids or cleaned with water. If the device comes into contact with a liquid medium, it must be switched off immediately.



Do not use the device in a potentially explosive environment (smoke, gases).
The use of any electrical device, even this battery-operated measurement device, can result in an explosion.



The device must only be opened to replace the battery. Do not carry out any repairs to the electrics yourself. Instead, send the device to us for diagnostics in the event of a fault

OPERATION OF THE DEVICE VIA THE RED MENU BUTTON

SWITCHING ON AND OFF

With a long push of the button (long signal tone), the device is switched on or switched off manually.

If the button is held for an extended period of time longer than 3 seconds after it is switched off, the program version will also be displayed.

The factory setting for the automatic switch-off is set to 1 minute and can be changed in the Settings menu item.

SHORT OR LONG BUTTON PRESS

You can scroll through the menu functions with a short button press, or activate the desired menu function (acknowledged with a long signal tone) or enter the next deepest menu level with a longer press.

BACK is displayed at the end of each menu to enable you to exit the menu.

CHECKING WITH CALIBRATION STANDARD

A calibration of the device is not required, it is pre-calibrated at the factory.

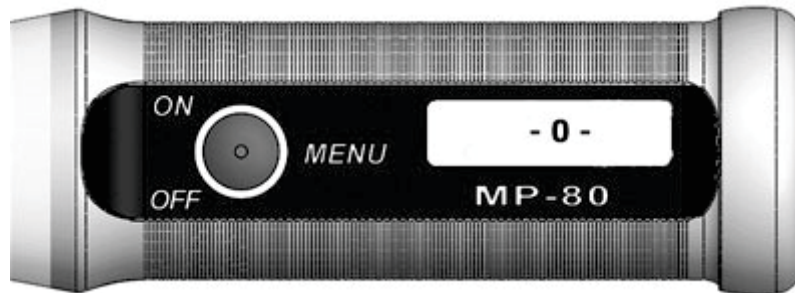
A calibration standard with **5 A/cm** is supplied in a case with the device in order to be able to check the device.

If a deviation is detected when checking with the calibration standard, we advise you to send the device in for factory calibration.

Place the probe perpendicular to the red circle of the calibration standard and turn the device until the maximum value is displayed. Compare the displayed value with the value of the calibration standard.

FUNCTION MENU

a. -0- (ZEROING)

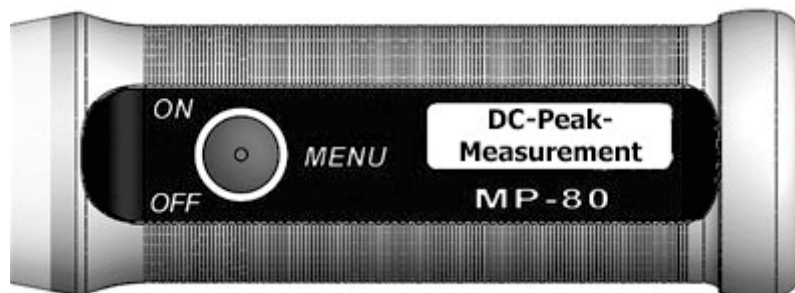


A long press of the button zeros the device. Whilst it is doing so the measurement probe must not be in a magnetic field. After the device is zeroed, a display value of ± 0.2 is generally displayed due to the influence of the earth's magnetic field when moving the measurement probe.

To eliminate as much as possible the effects of the earth's magnetic field and the ambient magnetic field during a residual field measurement, it is necessary to perform a zero adjustment before each measurement. The instrument must be pointed exactly in the direction in which the measurement is to be made.

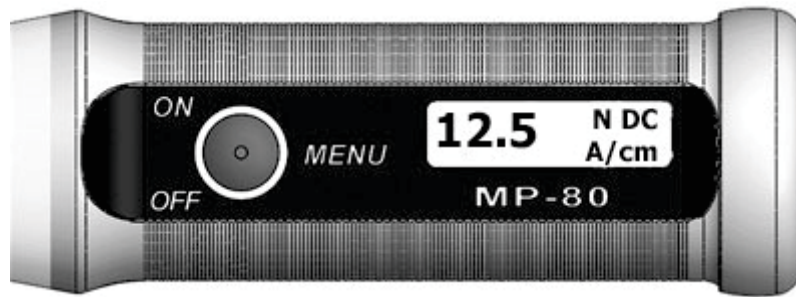
After zeroing, the instrument must not be rotated in space, otherwise external magnetic fields will cause the zero point to drift.

b. DC-PEAK-MEASUREMENT

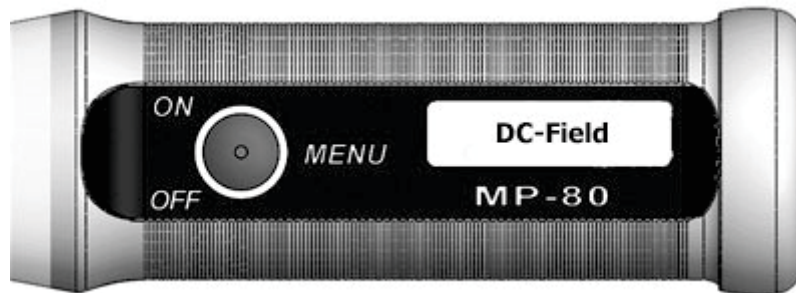


With the peak function it is possible to determine the peak value of a field. If there is already a measured value in the peak value memory and a higher measured value is registered, the old measured value will be overwritten by the new one. A short acoustic signal sounds when the measured value is overwritten.

You can see which type of measurement (DC, peak) you have currently selected at the top right next to the measured value

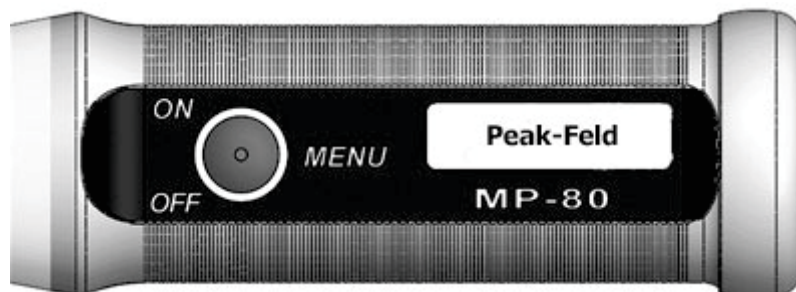


DC-FIELD



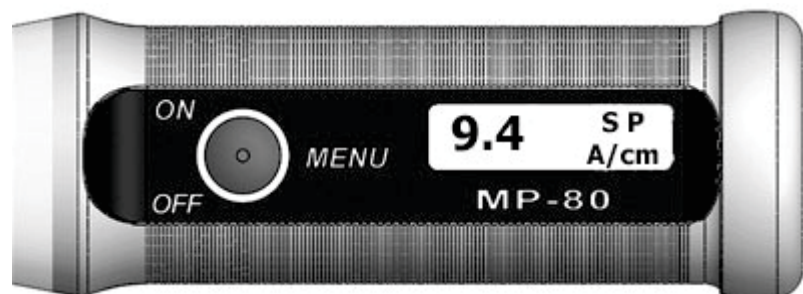
Activates constant (DC) field measurement.

PEAK-FIELD



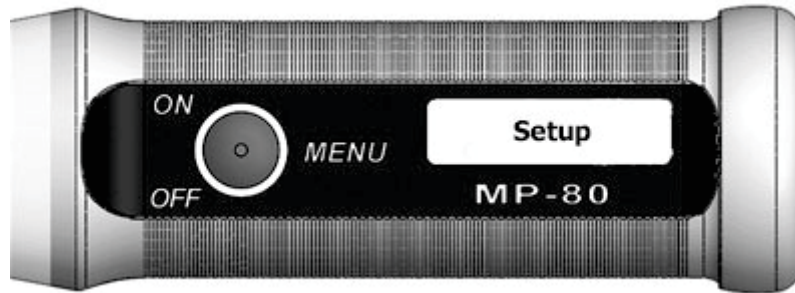
Activate the peak measurement.

So, the display shows **P**:



C. SETUP

Menu for displaying and setting the device parameters.

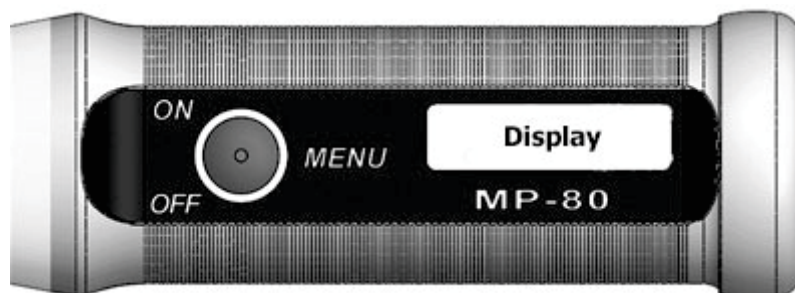


LANGUAGE



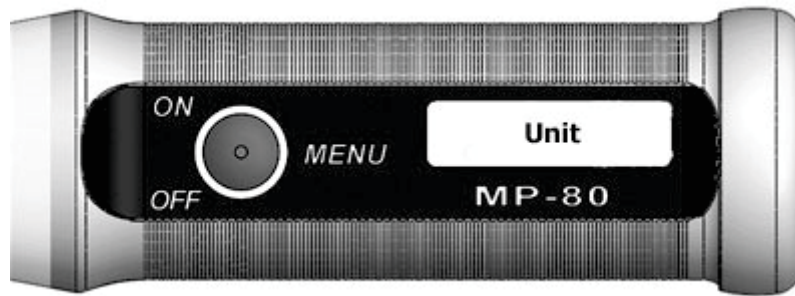
German and English are available as languages. The device is preset to the customer's desired language before shipping.

DISPLAY



You can choose between the digital display (measured value, unit, polarity) and an analogue display. With the analog display, the measured value is shown in a bar graph.

UNIT



You can select between these measurement units:

A/cm	Amperes per centimeter. Most common unit for magnetic fields
kA/m	Kiloamperes per meter. 1 kA/m = 10 A/cm
G [Oe]	Gauss is the unit for magnetic flux density and represents the amount in Oersted in air. 1 G = 1 Oe = ca. 0.796 A/cm Oersted is the unit for magnetic field strength in the CGS unit system.
mT	Tesla is the SI unit for magnetic flux density. 1 mT = 10 Gauss (and so 1 mT = 7.96 A/cm)

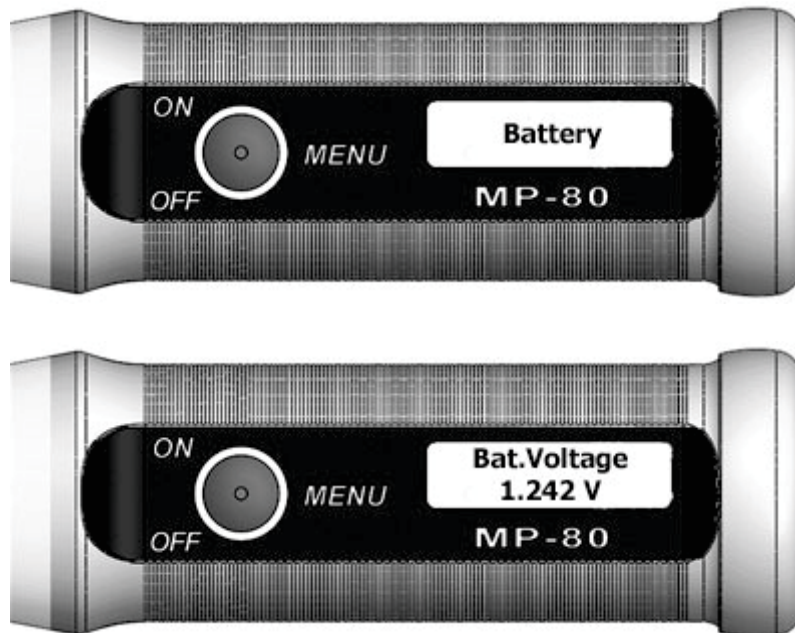
The device is set to the A/cm measurement units as standard. If the measurement units are changed, this selection is retained after the device is switched off. The unit currently selected is displayed at the bottom right beside the measured value.

Conversion of the units:

1 A/cm = 0.1 kA/m = 1,256 Gauss = 1,256 Oersted = 0,1256 mT
(or, as ball park figure: 5 A/cm = 4 Gauss)

BATTERY

Displays the current battery voltage.



If the battery voltage drops below 1.0V, the device switches off automatically.

TURN-OFF TIME



The factory setting for the automatic switch-off is set to 1 minute.

If the switch-off time is changed to 5 minutes. or 30 minutes, this selection is retained after the device is switched off. 30 minutes should only be selected in special cases as this will significantly shorten the battery life.

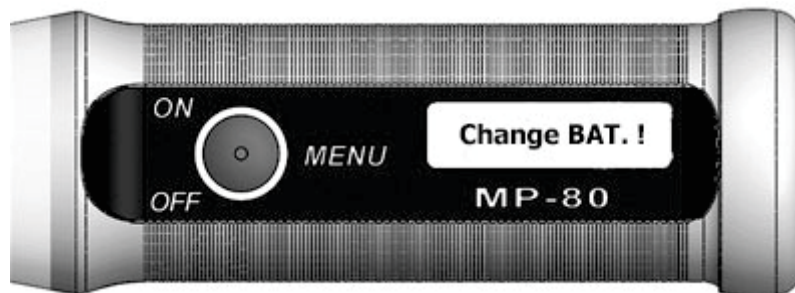
INSTRUMENT RESET



Instrument reset returns all of the device settings to the factory defaults. So, this function should only be used if settings have changed and the device is not working properly (severely fluctuating measured values) or if the probe calibration is not working properly.

REPLACING THE BATTERY

As soon as the warning **Change BAT.!** appears with the device switched on, the battery must be replaced.



Please use only leak-proof batteries!

TECHNICAL DATA

	MP-80
Measuring units:	A/cm – kA/m - Gauss (Oersted) – Tesla switchable (1 A/cm = 0.1 kA/m = 1.256 Gauss = 1.256 Oersted = 0.1256 mT)
Measuring probe:	integrated axial field probe, \varnothing 8mm with defined measuring distance of 2.0 mm
Measuring range DC:	0-100 A/cm
Accuracy:	in the homogeneous field $\pm 0,3$ A/cm up to 10 A/cm, $\pm 3\%$ of measured value from 10 A/cm
Resolution:	0.1 A/cm or 0.01 mT
Peak Hold:	Recording rate approx. 10 readings / second
Display:	OLED Graphic Display illuminated
Analog display:	bar graph
Multilingual menu navigation:	German / English
Power supply:	1x 1.5 V AA Mignon
Operating time:	approx. 40 hours
Dimensions:	\varnothing 28 x 103 mm
Weight:	70 g with battery
Warranty:	24 months on the device, 3 months on the probe

We supply:

- Coating Thickness Meters
- Magnetic Field Meters
- Magnetic Permeability Meters
- Magnetizing and Demagnetizing Equipment

We advise and provide tailor-made solutions for your specialized requirements in magnetizing, demagnetizing and measuring

Fast calibration and repair service



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