



List-Magnetik

Manual

MP-800A, 800AL, 800T, 800TL

OPERATION MANUAL

MAGNETIC FIELD METER MP-800A / MP-800T

Firmware-Version 10.1 and up

2023-02



List-Magnetik Dipl.-Ing. Heinrich List GmbH
D-70771 Leinfelden-Echterdingen Max-Lang-Str. 56/2
Fon: + 49 (711) 903631-0 Fax: + 49 (711) 903631-10
Internet: <https://www.list-magnetik.com>
E-mail: info@list-magnetik.de



OPERATION MANUAL

MP-800A / MP-800T (2023-02)

1. Welcome	2
2. Short user guide.....	2
Measurement ranges and types of magnet fields	2
Warnings and hazard information	3
3. Axial and tangential measurement probes	4
Checking with precision calibration standard.....	4
MP-800A with axial field probe	4
MP-800T with tangential field probe.....	4
4. Operation of the device via the red menu button ...	5
Switching on and off	5
Short or long button press.....	5
5. Function menu	6
a. Store value.....	6
b. -0- (zeroing).....	6
c. Memory	7
Delete last value.....	7
Edit Memory.....	8
Delete Memory	8
Auto Store.....	9
d. Print	10
Print Memory.....	10
Online Printing on / off.....	11
e. DC-AC-Peak-Measurement	12
DC-field.....	12
AC-field.....	13
Peak-field < 300 A/cm, < 30 kA/m, < 400 G, < 40 mT	13
Peak-field > 300 A/cm, > 30 kA/m, > 400 G, > 40 mT	14
f. Setup.....	15
Bluetooth	15
Language.....	16
Unit	16
Battery.....	17
Turn-off time.....	18
Instrument reset.....	18
6. Replacing the battery	18
7. Technical Data	19
8. Available Applications.....	20
MP-800 TRANSFER	20
MP-800 App for Android	21
9. Thermal Printer TOP-PRINT4.....	22

1. WELCOME

The smallest and most attractive magnetic field meter: The addition to our series of precise magnetic field measurement devices. **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.

The measurement ranges and different units A/cm, Gauss/Oersted, (Milli-)Tesla fulfill every requirement.

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

The axial field probe measures the field in direction of the probe axis in precise distance of 2.0 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.

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.

2. 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 it! You can now carry out your first measurement in the constant field (DC field) range.

MEASUREMENT RANGES AND TYPES OF MAGNET FIELDS

The **MP-800** field measurement device can be used to measure practically any type of magnetic fields - constant fields (DC) and alternating fields (AC), in the range from 0.1 to 15,000 A/cm.

In the other measurement units, this range represents:

0.01 to 1,500 **kA/m**

0.1 to 20,000 **Gauss** (Oersted)

0.01 to 2,000 **mT** = 2.0 T

WARNINGS AND HAZARD INFORMATION

List-Magnetik expressly advises that the MP-800 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.



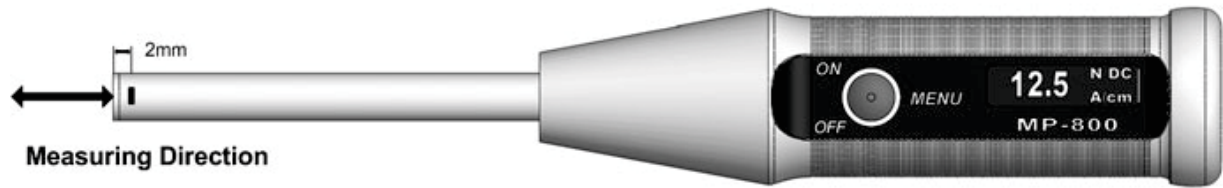
Do not use the device in a potentially explosive environment (smoke, gases). The use of any electrical device, even this battery-operated measurement device, can result in an explosion.



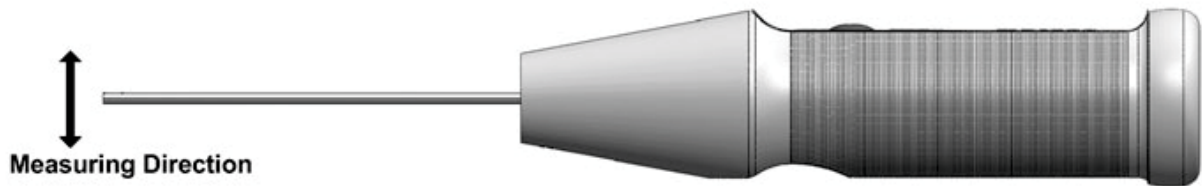
The device must only be opened to replace the battery. Do not carry out any repairs to the electrics yourself. Instead, send the device to us for diagnostics in the event of a fault

3. AXIAL AND TANGENTIAL MEASUREMENT PROBES

MP-800 A (Axial Field Probe)



MP-800 T (Tangential Field Probe)



The axial field sensor measures the field along the longitudinal axis of the device at a precise distance of 2 mm and is suitable for measuring on planar or curved surfaces and particularly in bores.

The tangential field sensor, on the other hand, measures perpendicular to the sensor axis (90°) and is suitable for measuring in air gaps, hollow spaces or on the surface of workpieces (e.g. for crack testing).

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.

MP-800A WITH 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.

MP-800T WITH 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.

4. 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.

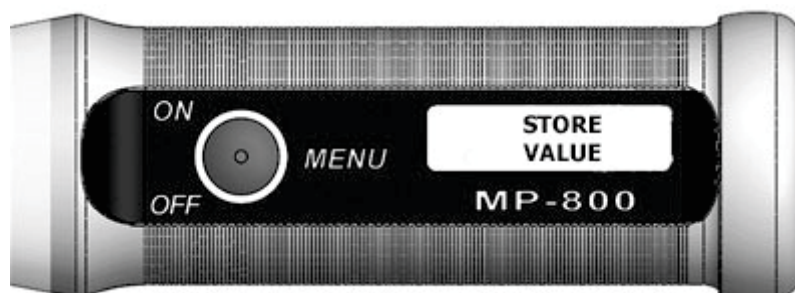
SHORT OR LONG BUTTON PRESS

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.

5. FUNCTION MENU

a. STORE VALUE

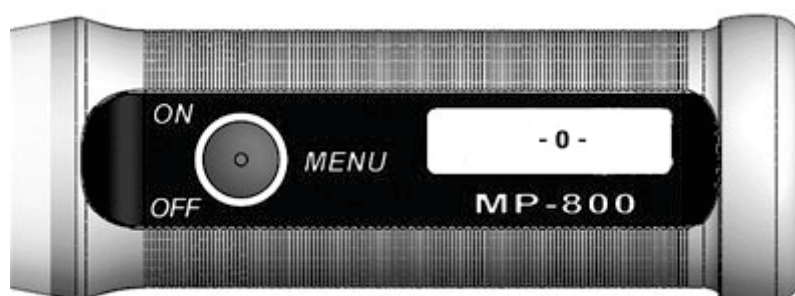


The measured value currently displayed is written into the memory with a long press of the button. The peak value is saved with PEAK measurements.



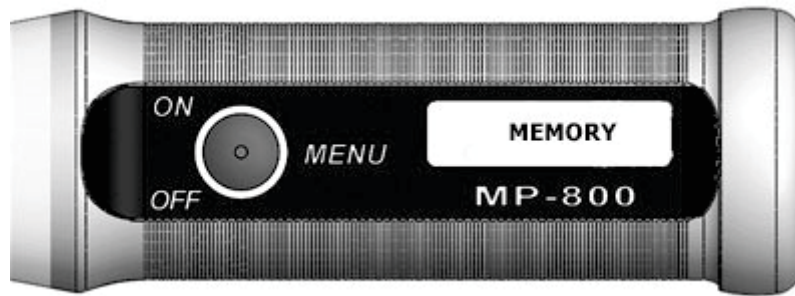
If you plan to store a chain of values, e.g. to detect a maximum, the function **AUTO STORE** may be a good choice. See chapter 5c for details.

b. -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.

C. MEMORY



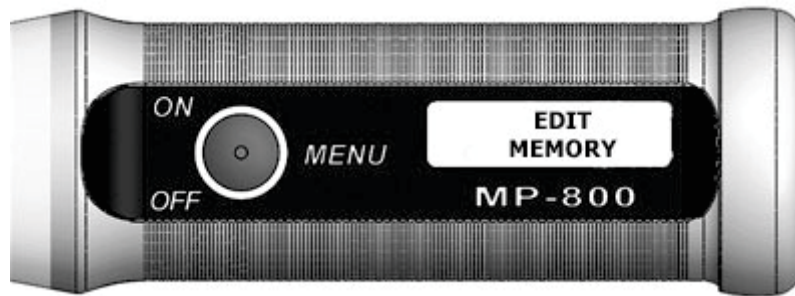
The device has 500 memory spaces for measurements.

DELETE LAST VALUE



The last measurement value is deleted from the memory.

EDIT MEMORY

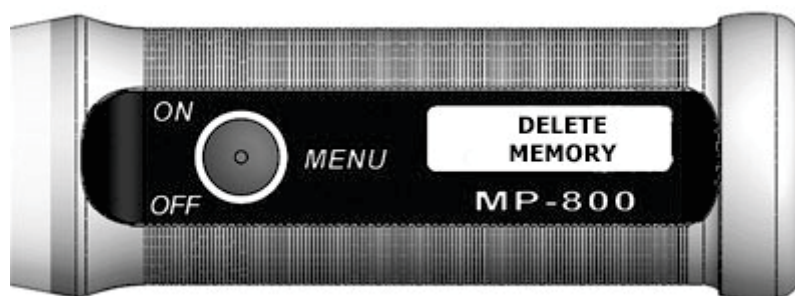


This function allows you to scroll through the memory. The statistical values are displayed initially, and then the individual measured values. Another value display is shown with every press of the button.

Mem. Numbers	Number of saved values
Mem. Min.	Minimum
Mem. Max.	Maximum
Mem. Mean	Average (mean) value
Mem. Std.Dev.	Standard deviation
Mem. No. 1	Measured value no. 1
etc.	Measured value no. xx

A longer press of the button whilst the individual values are being displayed results in the displayed individual value being deleting with confirmation by pressing the menu button again.

DELETE MEMORY



The memory is completely cleared.

AUTO STORE

If you want to record a chain of values, without storing the single values via the red button, you may choose this function.

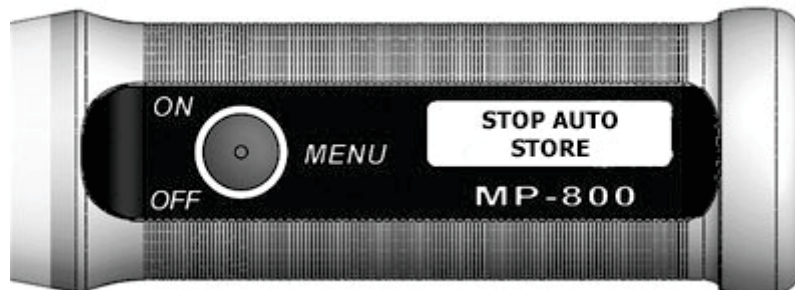


When **Auto Store** is active, every 0.5 seconds (approx.) the current measured value is stored in the memory. To avoid a mass of measurements in air, only values above 1.6 A/cm or 2 Gauss are stored.

The longer the term of measurements, the more values fill your memory. To fill a maximum of 500 values into the memory, it takes around 4 minutes.

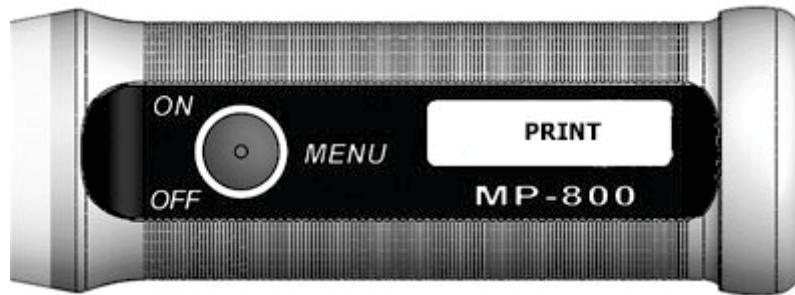
For this, it is useful to delete the memory before starting **Auto Store**.

Please don't forget to switch off the Auto Store mode after your measurement.



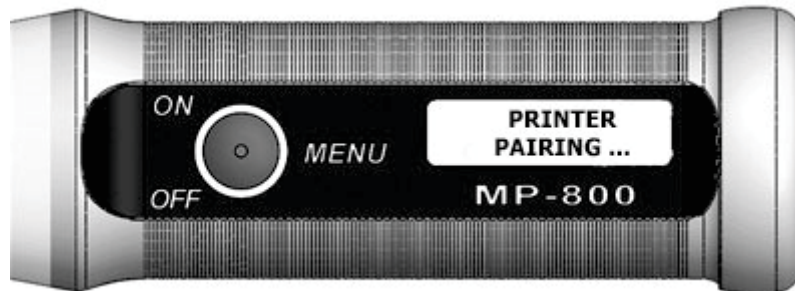
After switching off the device, and switching on again, Auto Store must be activated again if desired.

d. PRINT

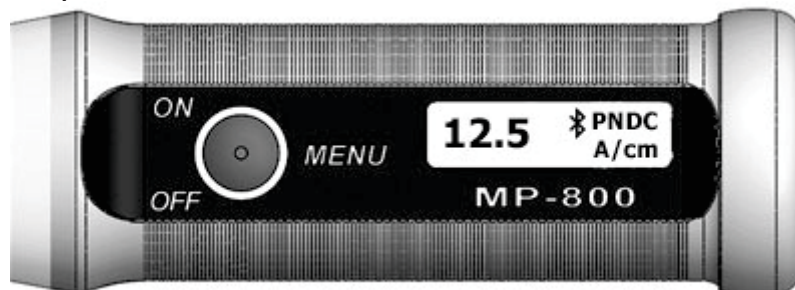


With this function you can transfer data to the printer **TOP-PRINT4**. When selecting a printer function (Print Memory, Online print) first, after switching on the device, the pairing is done automatically and can take up to 40 seconds. First start the process on your MP-800 (Display **Printer pairing ...**), then afterwards turn on the printer.

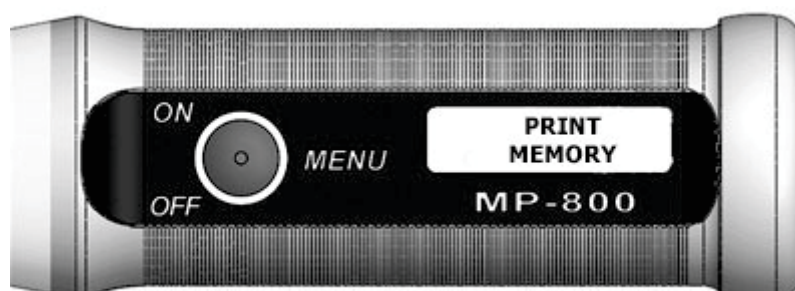
Please hold the device tight to the printer for this pairing process.



To notify about an active printer connection, **P** is displayed on the upper right side next to the polarity.

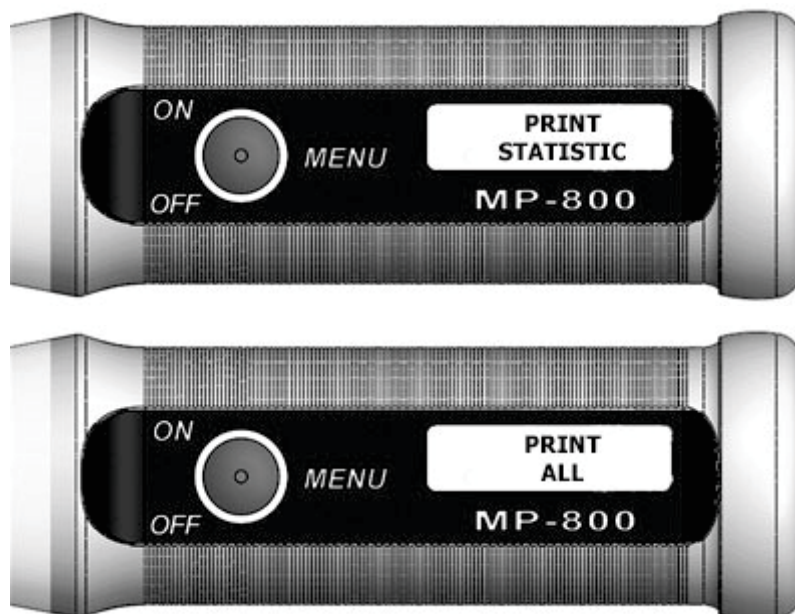


PRINT MEMORY

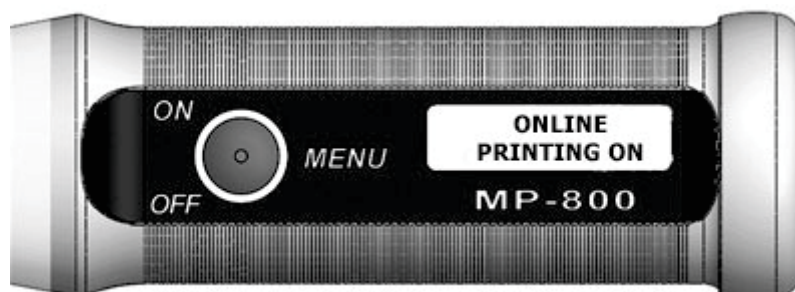


When printing the memory, the shown menu sequence appears.

Here you can select, whether only the statistical values (saves paper if there are a large number of measured values) or both statistic and all measured values should be printed.



ONLINE PRINTING ON / OFF

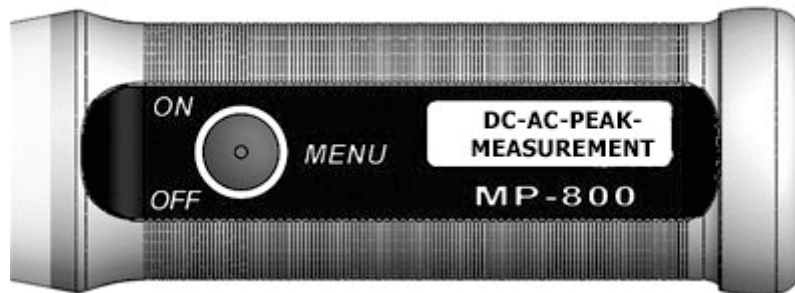


With a long press on the red button, you can change the printing mode to either **printing on**, or **printing off**.

Parallel use of **Online printing** and **Online measuring**, is not possible - if **Online measuring** is selected, it will be automatically switched off here.



e. DC-AC-PEAK-MEASUREMENT



You can measure constant and alternating fields.

With the peak function, it is possible to determine the maximum 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 with the new.

A short acoustic signal is issued when the measured value is overwritten.

When measuring sinusoidal alternating fields in peak value saving mode, the peak value is displayed (rather than the effective value).

The type of field (DC, AC, Peak) currently selected, can be seen at the top right beside the measured value



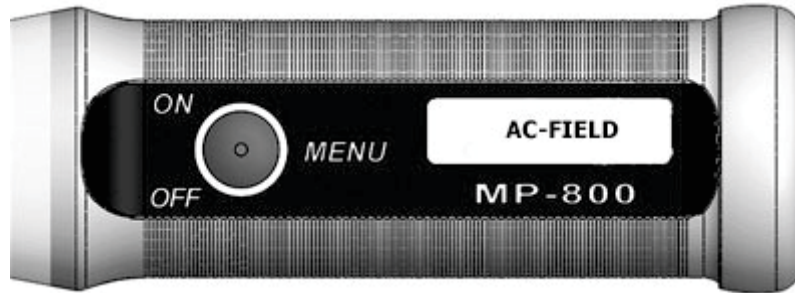
DC-FIELD



Activates constant (DC) field measurement.

With constant fields, north polarity is indicated with an **N** and south polarity with an **S** at the top right beside the measured value.

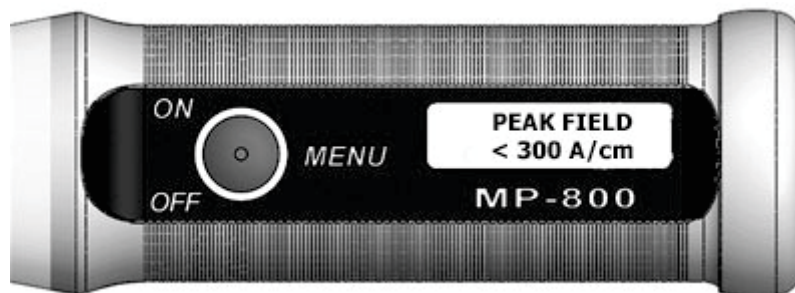
AC-FIELD



Activates alternating (AC) field measurement.

When measuring sinusoidal alternating fields, the respective effective value (true RMS) is displayed. The respective conversion factors for full-wave or half-wave rectification are stipulated in DIN standard 54 131 Part 1.

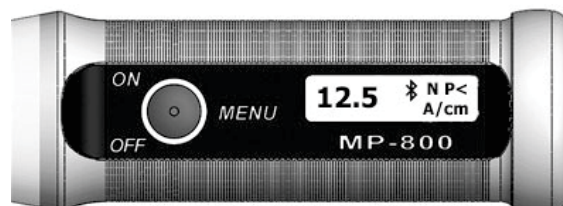
PEAK-FIELD < 300 A/cm, < 30 kA/m, < 400 G, < 40 mT



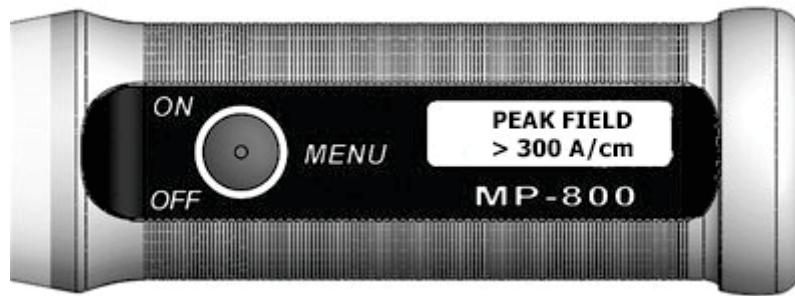
Activate the peak measurement (only DC/constant fields) up to 300 A/cm (or the corresponding value in you currently chosen unit).

If this value is exceeded, the display shows >>>>>. Then change to **Peak-field > 300 A/cm**.

So, the display shows **P<**:

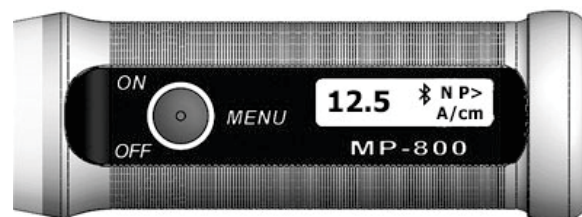


PEAK-FIELD > 300 A/cm, > 30 kA/m, > 400 G, > 40 mT



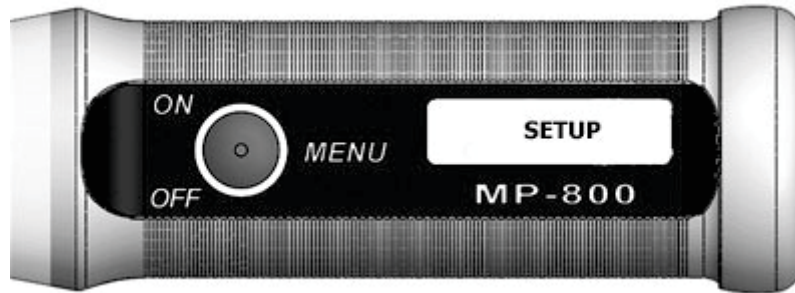
Activate the peak measurement (only DC/constant fields) over 300 A/cm (or the corresponding value in you currently chosen unit).

So, the display shows **P>**:



f. SETUP

Menu for displaying and setting the device parameters.



BLUETOOTH

For transferring data to a Windows PC, we deliver a Bluetooth dongle. Plug it into an unused USB port. The Windows driver is then automatically activated and the associated virtual serial interface is generated.



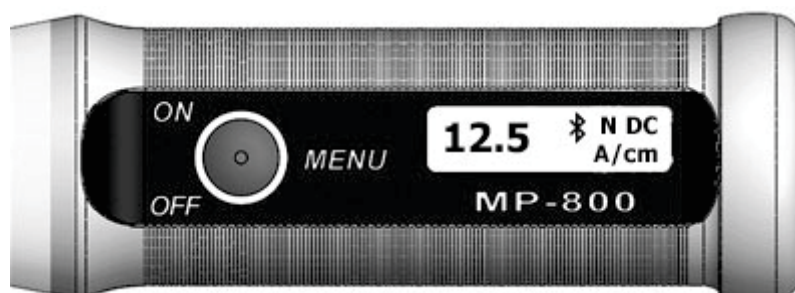
Should you face problems with the automatic installation, please refer to <http://www.list-magnetik.com/en/downloader> for a driver for various Windows releases.

In order to transfer the measured values to a PC or mobile device, MP-800 and PC / mobile device must be paired via Bluetooth. For this, the Bluetooth interface must be switched on in the meter (**SETUP / BLUETOOTH / ON**), and a device scan must be performed on the PC / mobile device in the Bluetooth menu. Then, the identified measuring device must be selected and paired to the PC / mobile device.

MP-800 identifies with its MAC address. This unique device number (a row of numbers and letters) can be displayed in the **SETUP / BLUETOOTH / MAC ADDRESS** menu.

After pairing, the **MP-800 APP** has to be connected via the menu item **Connect Bluetooth**. With the PC software MP-800 TRANSFER the selection of an interface (COM port) is required. The used COM port can be obtained via Windows / system / device manager / Bluetooth.

To indicate that the Bluetooth interface is switched on, the Bluetooth symbol appears on the display in the upper right corner between measured value and polarity N DC A/cm .



As soon as the Bluetooth interface is switched on, MP-800 App and MP-800 TRANSFER can communicate with the MP-800 device, for example transfer the memory, or receive online measurements.

If Bluetooth is activated, the current measured value will be sent twice a second, **if it is more than 0.8 A/cm or 1 Gauss.**

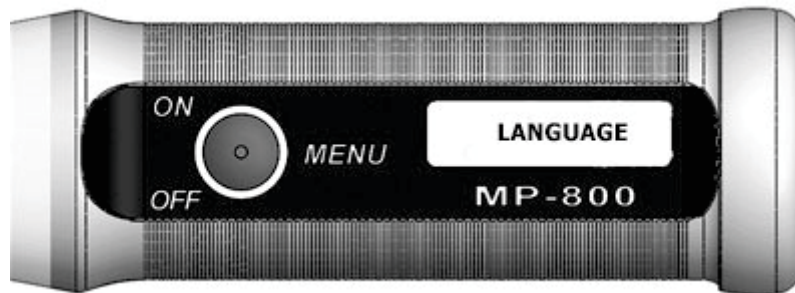
The Bluetooth interface can be switched off and on again, without repeating the pairing process.

SETUP / BLUETOOTH / BLUETOOTH OFF

or

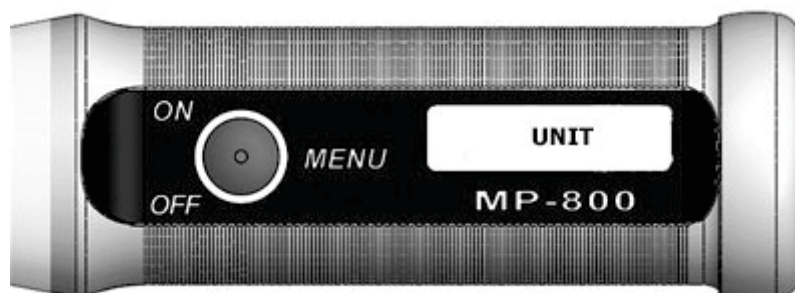
SETUP / BLUETOOTH / BLUETOOTH ON

LANGUAGE



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

UNIT



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.

Important note: When changing the measuring unit, the memory must be deleted beforehand, otherwise there will be conversion errors.

You can select between these measurement units:

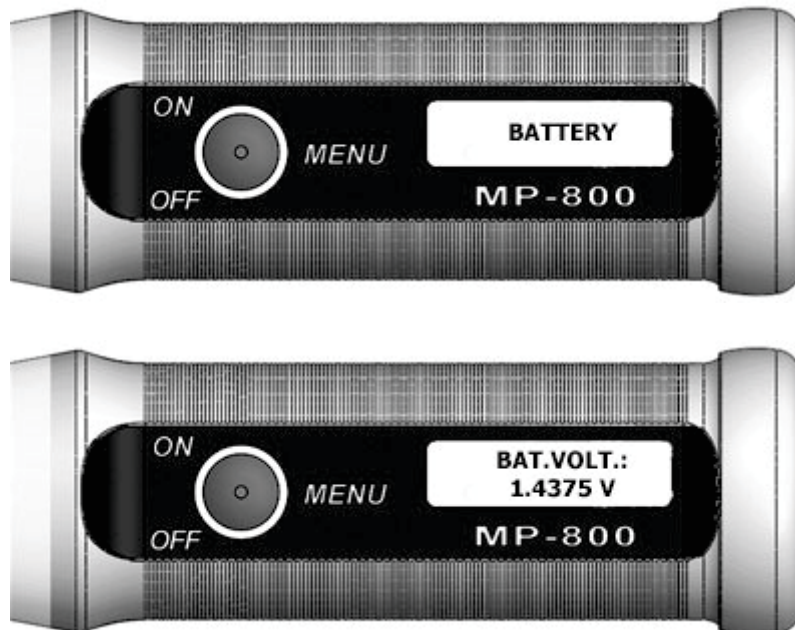
A/cm	Amperes per centimeter. Most common unit for magnetic fields
kA/m	Kiloamperes per meter. $1 \text{ kA/m} = 10 \text{ A/cm}$
G [Oe]	Gauss is the unit for magnetic flux density and represents the amount in Oersted in air. $1 \text{ G} = 1 \text{ Oe} = \text{ca. } 0.796 \text{ A/cm}$ Oersted is the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

Conversion of the units:

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

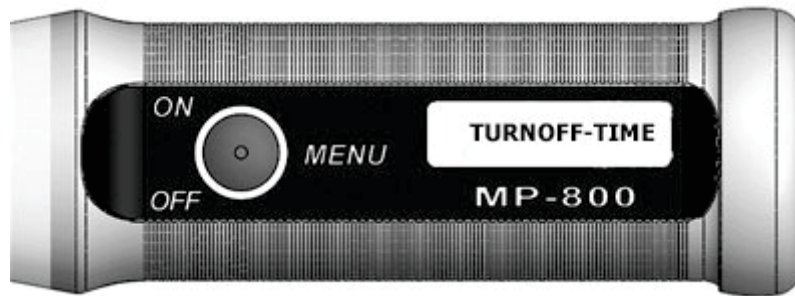
BATTERY

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.

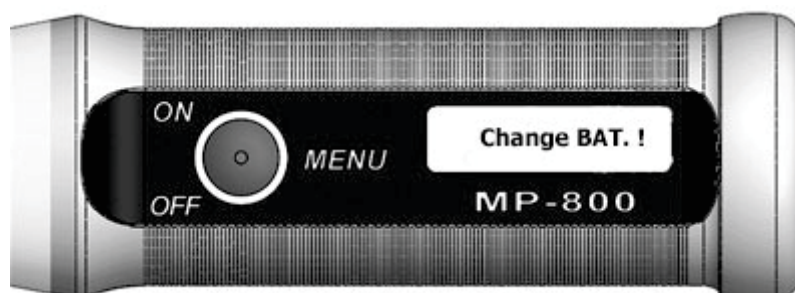
INSTRUMENT RESET



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.

6. 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!

7. TECHNICAL DATA

	MP-800A and MP-800T
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 MP-800A:	Axial field probe \varnothing 8mm with defined measuring distance of 2.0 mm
Measuring probe MP-800T:	Tangential field probe of 1.7 mm thickness with Hall Sensor distance of 0.9 mm
Measuring range DC:	0-15,000 A/cm
Measuring range AC:	20-15,000 A/cm
Accuracy:	in the homogeneous field ± 1 A/cm up to 50 A/cm, ± 2 % of measured value from 50 A/cm
Resolution:	0–200 A/cm: 0.1 A/cm, 200–600 A/cm: 1 A/cm, > 600 A/cm: 10 A/cm
Frequency range AC:	10 Hz - 5 kHz
Peak Hold:	with impulse duration ≥ 0.1 msec
Display:	OLED Graphic Display illuminated
Multilingual menu navigation:	German / English
Data logger:	500 measurements
Statistics:	Count / Maximum / Minimum / Average / Standard deviation
Interface:	Bluetooth interface class 2 for communication with PC, MP-800 App and printer
Power supply:	1x 1.5 V AA Mignon
Operating time:	approx. 30 hours
Dimensions:	\varnothing 28 x 180 mm
Weight:	97 g with battery
Warranty:	24 months on the device, 3 months on the probe

8. AVAILABLE APPLICATIONS

MP-800 TRANSFER

On www.list-magnetik.com, in the category **Applications**, you may obtain the free of charge data transfer application **MP-800 TRANSFER**, to transfer measurement data to your PC.

With MP-800 TRANSFER, you can measure online or read the device's memory, you can evaluate the data statistically or visualize as chart. You can print the results or hand over the data to applications like Microsoft Word and Microsoft Excel.

MP-800 TRANSFER V3.0

Datei Sprache Hilfe

Com-Port(COM5)

Verbunden

ON OFF MENU BEREIT

Speicher einlesen

Projektdaten

> 200,0
< 250,0
= 220,0

List-Magnetik GmbH

Stat +/- <=>

230

186

Mittelwert 215

5

Messwerte

Online Speicher (5)

29.04.2019	Nr.	Messwert	Messeinheit
18:22:21	1	230,0	A/cm
18:22:21	2	221,0	A/cm
18:22:21	3	225,0	A/cm
18:22:21	4	217,0	A/cm
18:22:21	5	186,0	A/cm

Tabelle

Zeile löschen

Tabelle löschen

Sort

Befehle

Datei öffnen

In Datei speichern

Drucken

Programmende

Daten kopieren nach

Clipboard

MS Word

MS Excel

MP-800 APP FOR ANDROID

MP-800 App is running on Android devices and enables you to transfer your measurements to a mobile device or tablet PC, where you may administrate or forward your series of measurements.



Scanning this QR code you will directly be connected to Google Play Store for the installation of MP-800 App.

9. THERMAL PRINTER TOP-PRINT4

Small, battery powered printer for measurement values and statistics.

Technical data

Printing method:	Thermal printer
Characters/line:	32
Transfer speed:	38400 baud
Interface:	Bluetooth class 2 and Serial
Paper:	Thermal paper 57 mm wide – max. 10 m long
Power supply:	Li-Io rechargeable battery (approx. 60 hours of operation)
Dimensions:	100 x 75 x 45 mm
Weight	210 g

Operating instructions

1. Insert paper roll
2. Switch on printer (is it already charged? See below)
3. Switch on the device

Charging the built-in Li-Io rechargeable battery

When delivered new, the Li-Io rechargeable battery in the TOP-PRINT4 must be charged up before first-time use. The rechargeable battery is charged up with the mains charger supplied. The cable from the mains charger is plugged into the connection socket on the right-hand side. **The charging time should be at least 4 hours.** The blue LED blinks during the charging process; it lights steadily when the battery is fully charged. The charger then switches automatically to maintenance charging mode. The capacity of the rechargeable battery is sufficient for approx. 60 hours of operation.

Notes on operation

1. The paper is manually transported using the **Feed** key. After completion of the printout the paper strip is transported out of the housing by pressing this key and can then be cut off cleanly.
2. Faulty printout: The **TOP-PRINT4** must be charged up again if individual lines of the printout are not printed correctly.
3. Inserting a new paper roll: Open the cover, Insert the paper roll, pull out the end of the paper, Close the cover

Installing the Bluetooth USB Dongle



The installation of this software can be necessary for the communication between MP-800 and a Windows PC.

Please try first, if the connection between MP-800 and your PC via Bluetooth is working without software installation, just by plugging in the Bluetooth receiver.

If this does not work immediately, please install the driver software available on <https://www.list-magnetik.com> in the category **Download**.

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



List-Magnetik Dipl.-Ing. Heinrich List GmbH

D-70771 Leinfelden-Echterdingen Max-Lang-Str. 56/2

Fon: + 49 (711) 903631-0 Fax: + 49 (711) 903631-10

Internet: <https://www.list-magnetik.com>

E-mail: info@list-magnetik.de



OPERATION MANUAL

MAGNETIC FIELD METER MP-800AL / MP-800TL

Firmware-Version 10.1 and up

2022-01



List-Magnetik Dipl.-Ing. Heinrich List GmbH
D-70771 Leinfelden-Echterdingen Max-Lang-Str. 56/2
Fon: + 49 (711) 903631-0 Fax: + 49 (711) 903631-10
Internet: <https://www.list-magnetik.com>
E-mail: info@list-magnetik.de



OPERATION MANUAL

MP-800AL / MP-800TL (2022-01)

1. Welcome	2
2. Short user guide.....	2
Measurement ranges and types of magnet fields	2
Warnings and hazard information	3
3. Axial and tangential measurement probes	4
Checking with precision calibration standard.....	4
MP-800AL with axial field probe.....	4
MP-800TL with tangential field probe	4
4. Operation of the device via the red menu button ...	5
Switching on and off	5
Short or long button press.....	5
5. Function menu	6
a. -0- (zeroing).....	6
b. DC-AC-Peak-Measurement	6
DC-field.....	7
AC-field	7
Peak-field < 300 A/cm, < 30 kA/m, < 400 G, < 40 mT	8
Peak-field > 300 A/cm, > 30 kA/m, > 400 G, > 40 mT	8
c. Setup.....	9
Language.....	9
Unit	9
Battery.....	10
Turn-off time.....	11
Instrument reset.....	11
6. Replacing the battery	11
7. Technical Data	12

1. WELCOME

The smallest and most attractive magnetic field meter: The addition to our series of precise magnetic field measurement devices. **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.

The measurement ranges and different units A/cm, Gauss/Oersted, (Milli-)Tesla fulfill every requirement.

MP-800 is available with either a fixed axial (**MP-800AL**) or fixed tangential probe (**MP-800TL**).

The axial field probe measures the field in direction of the probe axis in precise distance of 2.0 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.

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.

2. 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 it! You can now carry out your first measurement in the constant field (DC field) range.

MEASUREMENT RANGES AND TYPES OF MAGNET FIELDS

The **MP-800** field measurement device can be used to measure practically any type of magnetic fields - constant fields (DC) and alternating fields (AC), in the range from 0.1 to 15,000 A/cm.

In the other measurement units, this range represents:

0.01 to 1,500 **kA/m**

0.1 to 20,000 **Gauss** (Oersted)

0.01 to 2,000 **mT** = 2.0 T

WARNINGS AND HAZARD INFORMATION

List-Magnetik expressly advises that the MP-800 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.



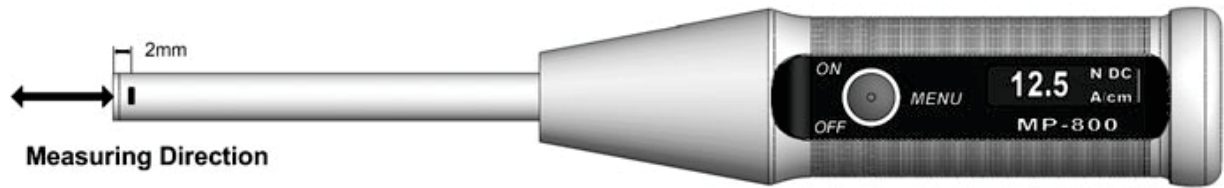
Do not use the device in a potentially explosive environment (smoke, gases). The use of any electrical device, even this battery-operated measurement device, can result in an explosion.



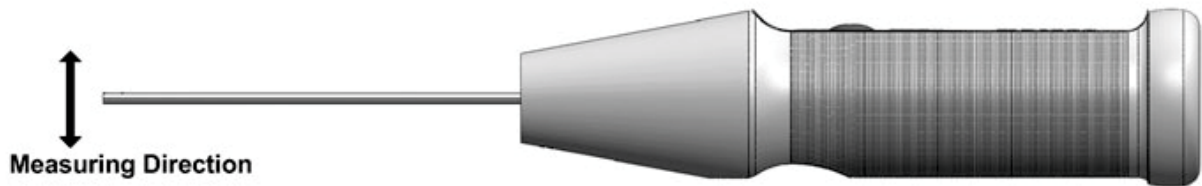
The device must only be opened to replace the battery. Do not carry out any repairs to the electrics yourself. Instead, send the device to us for diagnostics in the event of a fault

3. AXIAL AND TANGENTIAL MEASUREMENT PROBES

MP-800 A (Axial Field Probe)



MP-800 T (Tangential Field Probe)



The axial field sensor measures the field along the longitudinal axis of the device at a precise distance of 2 mm and is suitable for measuring on planar or curved surfaces and particularly in bores.

The tangential field sensor, on the other hand, measures perpendicular to the sensor axis (90°) and is suitable for measuring in air gaps, hollow spaces or on the surface of workpieces (e.g. for crack testing).

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.

MP-800AL WITH 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.

MP-800TL WITH 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.

4. 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.

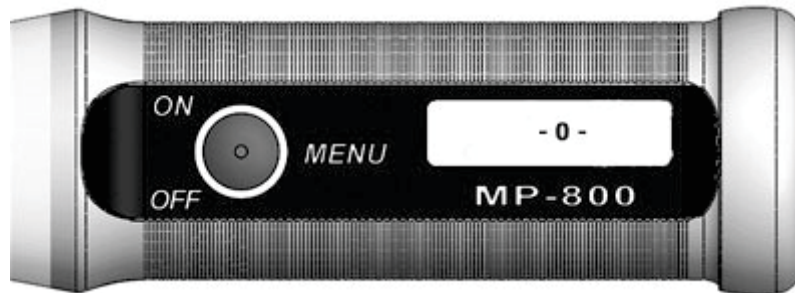
SHORT OR LONG BUTTON PRESS

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.

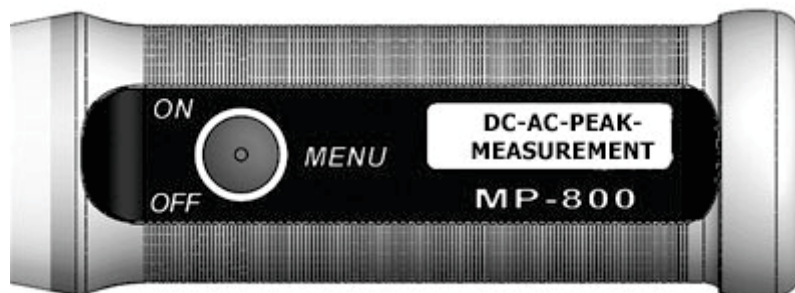
5. FUNCTION MENU

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.

b. DC-AC-PEAK-MEASUREMENT



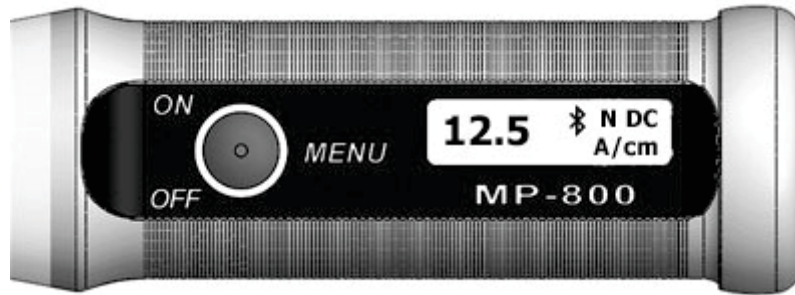
You can measure constant and alternating fields.

With the peak function, it is possible to determine the maximum 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 with the new.

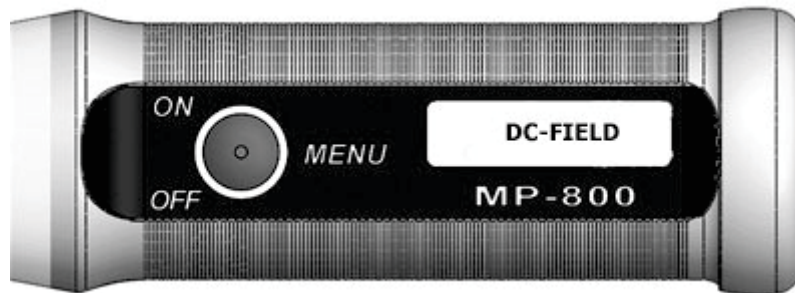
A short acoustic signal is issued when the measured value is overwritten.

When measuring sinusoidal alternating fields in peak value saving mode, the peak value is displayed (rather than the effective value).

The type of field (DC, AC, Peak) currently selected, can be seen at the top right beside the measured value

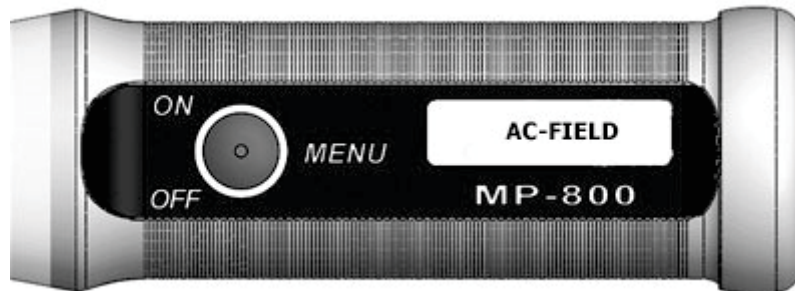


DC-FIELD



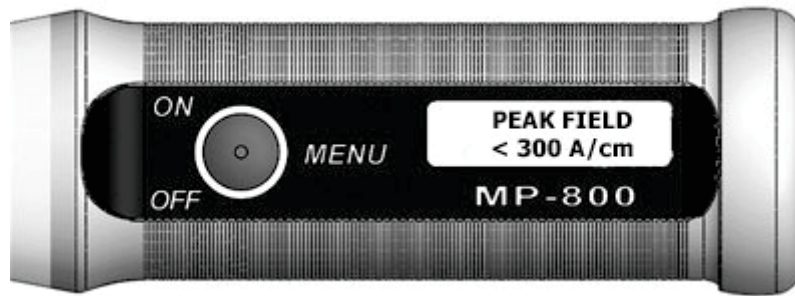
Activates constant (DC) field measurement.
With constant fields, north polarity is indicated with an **N** and south polarity with an **S** at the top right beside the measured value.

AC-FIELD



Activates alternating (AC) field measurement.
When measuring sinusoidal alternating fields, the respective effective value (true RMS) is displayed. The respective conversion factors for full-wave or half-wave rectification are stipulated in DIN standard 54 131 Part 1.

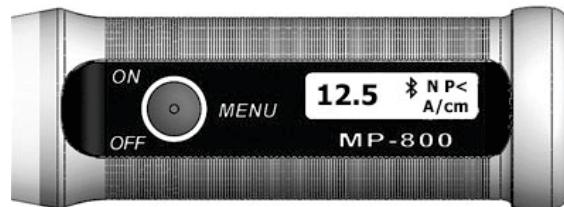
PEAK-FIELD < 300 A/cm, < 30 kA/m, < 400 G, < 40 mT



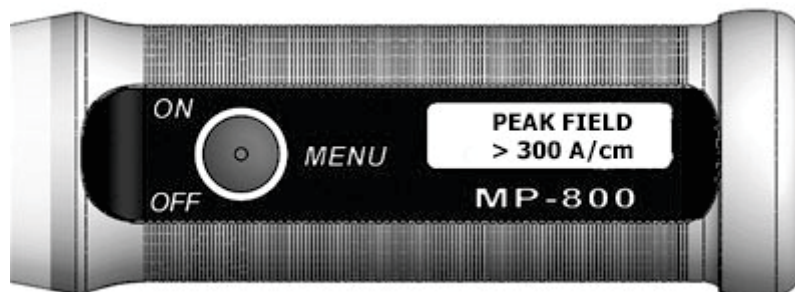
Activate the peak measurement (only DC/constant fields) up to 300 A/cm (or the corresponding value in you currently chosen unit).

If this value is exceeded, the display shows >>>>>. Then change to **Peak-field > 300 A/cm**.

So, the display shows **P<**:

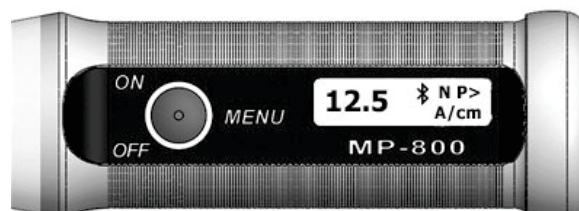


PEAK-FIELD > 300 A/cm, > 30 kA/m, > 400 G, > 40 mT



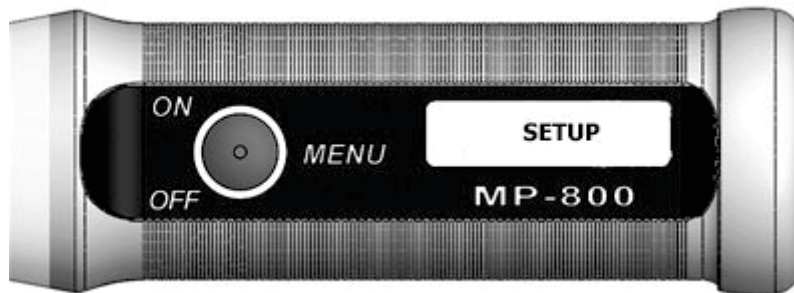
Activate the peak measurement (only DC/constant fields) over 300 A/cm (or the corresponding value in you currently chosen unit).

So, the display shows **P>**:

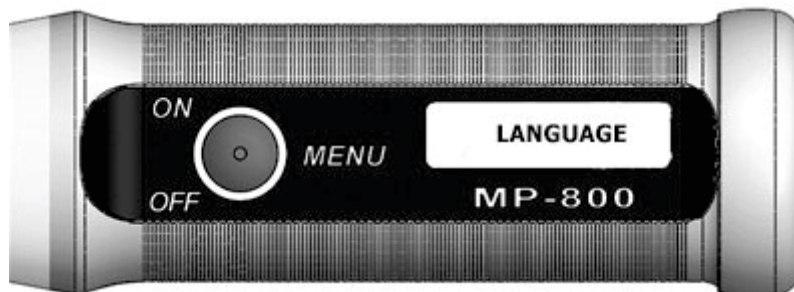


C. SETUP

Menu for displaying and setting the device parameters.

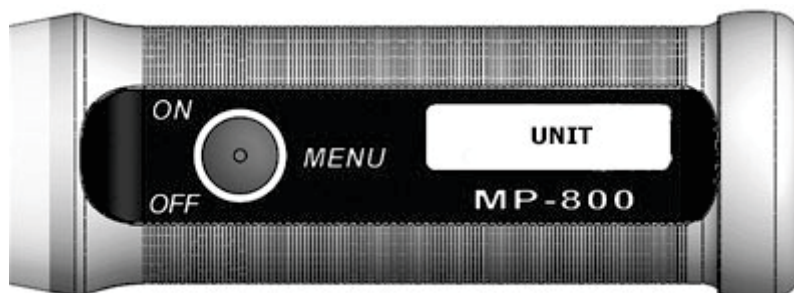


LANGUAGE



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

UNIT



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.

Important note: When changing the measuring unit, the memory must be deleted beforehand, otherwise there will be conversion errors.

You can select between these measurement units:

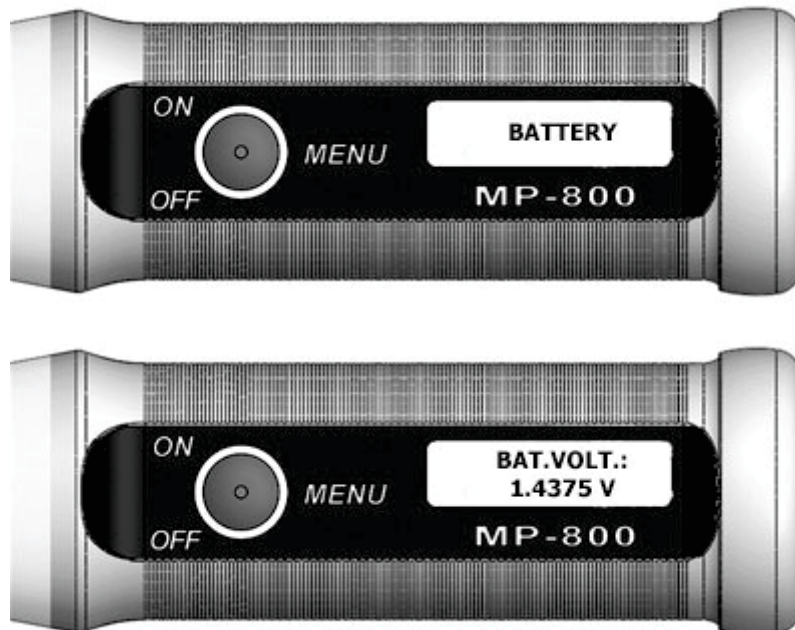
A/cm	Amperes per centimeter. Most common unit for magnetic fields
kA/m	Kiloamperes per meter. $1 \text{ kA/m} = 10 \text{ A/cm}$
G [Oe]	Gauss is the unit for magnetic flux density and represents the amount in Oersted in air. $1 \text{ G} = 1 \text{ Oe} = \text{ca. } 0.796 \text{ A/cm}$ Oersted is the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

Conversion of the units:

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

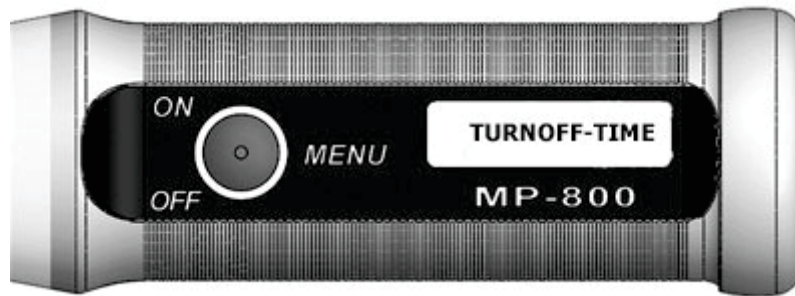
BATTERY

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.

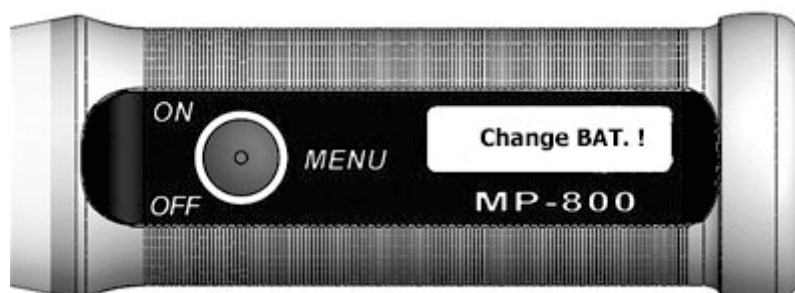
INSTRUMENT RESET



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.

6. 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!

7. TECHNICAL DATA

	MP-800AL and MP-800TL
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 MP-800AL:	Axial field probe \varnothing 8mm with defined measuring distance of 2.0 mm
Measuring probe MP-800TL:	Tangential field probe of 1.7 mm thickness with Hall Sensor distance of 0.9 mm
Measuring range DC:	0-15,000 A/cm
Measuring range AC:	20-15,000 A/cm
Accuracy:	in the homogeneous field ± 1 A/cm up to 50 A/cm, ± 2 % of measured value from 50 A/cm
Resolution:	0–200 A/cm: 0.1 A/cm, 200–600 A/cm: 1 A/cm, > 600 A/cm: 10 A/cm
Frequency range AC:	10 Hz - 5 kHz
Peak Hold:	with impulse duration ≥ 0.1 msec
Display:	OLED Graphic Display illuminated
Multilingual menu navigation:	German / English
Power supply:	1x 1.5 V AA Mignon
Operating time:	approx. 30 hours
Dimensions:	\varnothing 28 x 180 mm
Weight:	97 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



List-Magnetik Dipl.-Ing. Heinrich List GmbH

D-70771 Leinfelden-Echterdingen Max-Lang-Str. 56/2

Fon: + 49 (711) 903631-0 Fax: + 49 (711) 903631-10

Internet: <https://www.list-magnetik.com>

E-mail: info@list-magnetik.de

