

OPERATION MANUAL

MAGNETIC FIELD METER
MP-80 V2

Revision number 1.185.0 and up

2025-03

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

QM-System
ISO
9001:2015
zertifiziert

CONTENT

1 Welcome 2
2 Short User Guide 2
2.1 Measurement Range 2
2.2 Warnings and Hazard Information 3
2.3 Checking with Calibration Standard 4
3 Measurement Display 4
4 Operating the device with the red button 5
5 Menu functions 5
5.1 Switch off 5
5.2 Calibration 6
5.3 Probe mode (DC/Peak) 6
5.3.1 DC 7
5.3.2 Peak value measurement 7
5.4 Memory 8
5.4.1 Delete last value 8
5.4.2 Disable Memory 9
5.4.3 Memory batch M1 / M2 / M3 etc. 9
5.4.4 New memory batch 13
5.4.5 Delete all batches 13
5.5 Settings 14
5.5.1 Language 14
5.5.2 Unit 14
5.5.3 Switch-off time 15
5.5.4 Beep Volume 16
5.5.5 Display 16
5.5.6 Contrast 17
5.6 System 17
6 Battery replacement 18
6.1 Using a rechargeable battery 18
7 Technical Data 19
8 Available applications 20
8.1.1 Lima Connect for Windows 20
8.1.2 Lima Connect App for Android and iOS 21

1 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.

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

2.1 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**

2.2 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

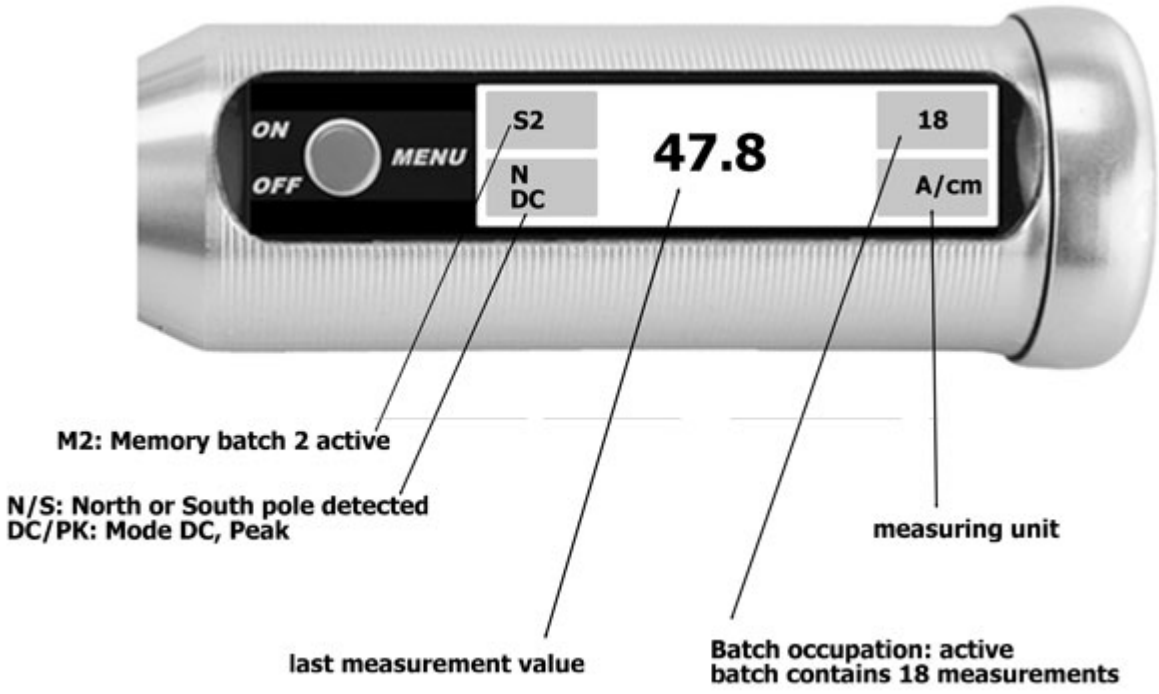
.

2.3 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.

3 MEASUREMENT DISPLAY



The measurement display shows the most recent measurement and its unit at a glance. At the bottom left, the type of measurement (DC/PK=Peak) and the polarity (N=North/S=South) are displayed.

In addition, the used memory and its current allocation with measured values are displayed.

4 OPERATING THE DEVICE WITH THE RED BUTTON

Press the key briefly to scroll through the menu functions, press and hold the key (with signal tone) to activate the desired menu function.

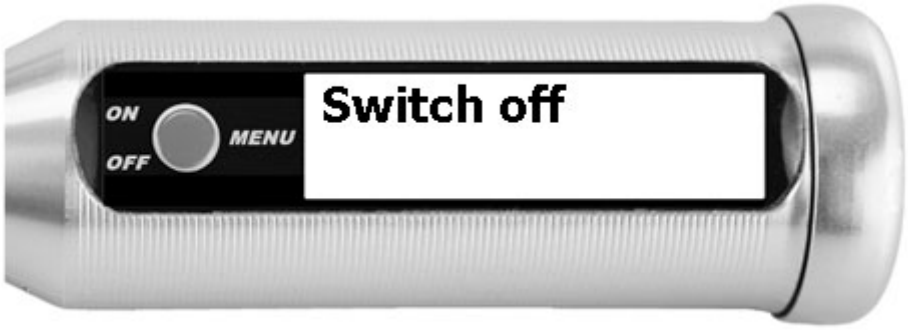
At the end of each submenu there is a display **< back** that allows you to exit the submenu and return to the next higher level.

After 10 seconds of inactivity without pressing any key, the device always returns to the measurement display.

In the delivery state, English is preselected as the language.

5 MENU FUNCTIONS

5.1 SWITCH OFF



By pressing the key for a long time (long signal tone), the device is switched off manually.

The automatic turnoff time is 30 minutes in the delivery state and can be changed under the menu item **Setup / Switch Off Time**.

5.2 CALIBRATION



To adjust the zero point, press and hold the red button.

The probe must not be in a magnetic field. After zeroing, a reading of ± 0.2 will usually appear due to the influence of the earth's magnetic field when the probe is moved.

5.3 PROBE MODE (DC/PEAK)



With the MP-80 you can measure direct fields.

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

The currently selected measurement type (DC, Peak) is displayed in the lower left corner next to the measurement value.

The active probe mode is indicated by an asterisk (✱) behind the entry.

5.3.1 DC



Enable direct field (DC) measurement.

For DC fields, the north polarity is indicated by an **N** and the south polarity is indicated by an **S** to the left of the reading.

5.3.2 PEAK VALUE MEASUREMENT



Enable Peak Value Measurement (PK).
The measured value is only updated if it is higher than the previous maximum value.
The polarity is irrelevant.

To reset the peak value, select **Reset Peak**, a menu item that only appears in Peak mode.

5.4 MEMORY

The storage of the measured values is switched on when either a new memory batch is created or an existing one is activated.

A maximum of 9 memory batches are possible, which can be filled almost arbitrarily (approx. 4000 measured values). If the total possible memory space is exceeded, a warning message is issued that no more values can be stored.

To indicate that the memory is switched on, the symbol **M** appears at the top left of the measurement display followed by the number of the active memory batch, for example **M2** for memory batch number 2.

Switching the device off and on does not change the setting, the status of whether and which memory batch is active, is retained.

With the **Disable Mem** function, you can switch off the storage again.



Under the word **Memory** the number of currently available memory batches is displayed - here: 2 memory batches are created.

5.4.1 DELETE LAST VALUE



Deleting the last stored measurement value:

Example: You have performed an incorrect measurement and want to remove it from your measurement series immediately. The function can be repeated and then deletes the second to last value, the third to last value and so on.
Deletion is only possible for values of the current memory batch (here: batch 2).

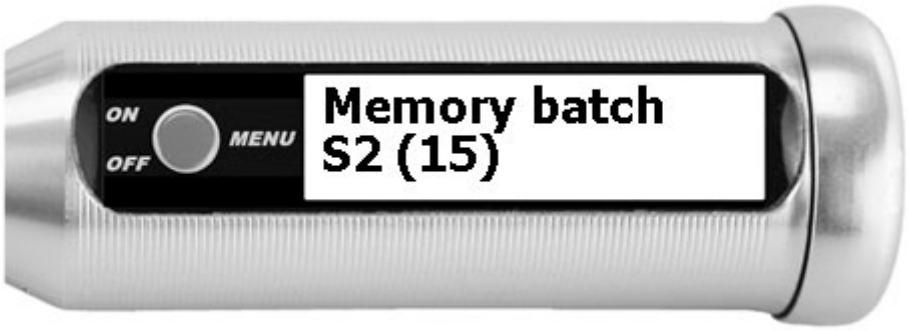
5.4.2 DISABLE MEMORY



With the **Disable memory** function, you can explicitly switch off the storing of measurement values.

The memory function is then automatically switched on again when either a new memory is created or an existing one is activated.

5.4.3 MEMORY BATCH M1 / M2 / M3 ETC.



The created memory batches are listed one after the other in the menu.

The number of the batch (here: batch number 2) and the number of the values contained in it (here: 15) are displayed in the bottom line in a slightly smaller size.

To view and manage the memory batch in detail, press the red button long.

To jump to the next memory batch, press the red button briefly.

5.4.3.1 Activate



With activation, all measurements are written to this memory batch from now on. All other batches remain unchanged.

This memory batch is active until the storage is generally terminated (disable memory), another batch is activated, or the batch is deleted.

5.4.3.2 Statistics



The display of the statistics shows successively by keystroke these values in the selected batch:

Count	– number of stored measurement values *
Minimum	– smallest stored measurement value
Maximum	– biggest stored measurement value
Mean	– average value
Std.Dev	– standard deviation (corrected sample variance)

* A displayed **Count 15 (13)** means that there are two crossed-out but not yet optimized (and so finally deleted) values in the batch. Only the 13 values that are active are taken into account in the statistics (see chapter: Optimize).

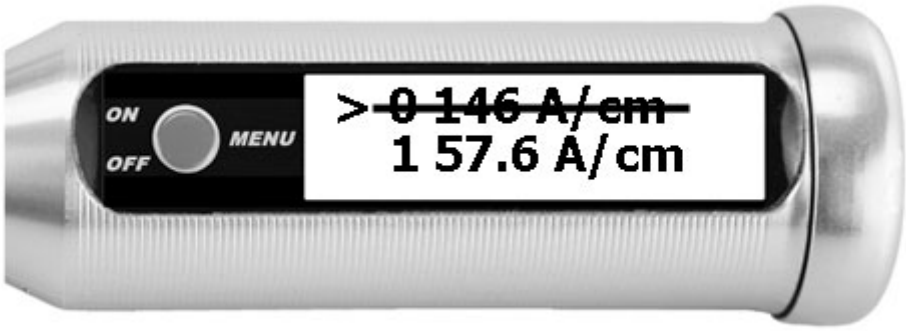
5.4.3.3 Browse



In the browse function, all measurement values of the batch are displayed.
Always 2 values are displayed and by pressing the key it is scrolled by one value. The upper line is marked with a triangle on the left.



This measurement value marked with the triangle can be deleted by a long keystroke. It is then displayed crossed out. A crossed-out / inactive value is no longer included in the statistics and is no longer transferred to the PC or mobile app.



A deleted value can be reactivated by pressing and holding the key again.
The crossed-out value is only finally deleted by **Optimize**.

To exit the function, please wait until the display returns to the menu after a few seconds.

5.4.3.4 Optimize



The memory batch is cleaned up. Deleted measurement values are removed and are no longer visible when scrolling. The numbering of the measurement values is now again ascending without gaps from number 1.

5.4.3.5 Clear values



The memory batch is emptied. All measurement values are removed. However, the memory remains and is not deleted. If the memory was last active, it remains active and is filled again from the next measurement.

5.4.3.6 Delete



The memory batch is deleted. The batch number (here number 2) can be reused later by creating a new memory batch.

5.4.4 NEW MEMORY BATCH



A new memory batch is created.

It is assigned the lowest free number (1-9) and is empty at the beginning.
This new memory batch is activated automatically: the next following measurement is written into this batch.

If the maximum 9 batches have already been created, this menu item is not displayed.

5.4.5 DELETE ALL BATCHES



All memory batches are deleted.
The storage is switched off.

The next memory batch that is newly created is again assigned the number 1.

5.5 SETTINGS



In the settings menu, you can set the language, measuring unit, switch-off time, volume and contrast for your device. These settings are retained even after the device is switched off. These settings are deleted during a factory device reset.

5.5.1 LANGUAGE



English, German, French, Italian, Spanish, Hungarian, Polish and Dutch are available on the device.

5.5.2 UNIT



The unit is set to A/cm by default. If the unit is changed, the new unit will remain in effect even after the instrument is turned off.

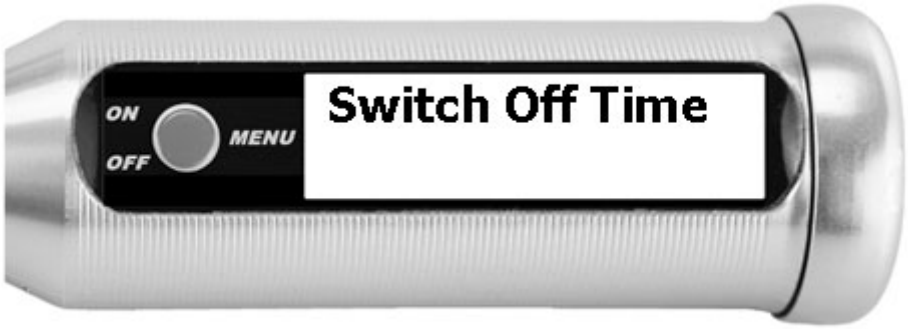
You can see which unit is currently active at the bottom right next to the measured value.

You can choose between these units:

A/cm	Amperes per centimeter. The most common unit of measurement for magnetic fields.
kA/m	Kiloamperes per meter. 1 kA/m = 10 A/cm
G	Gauss is the unit of magnetic flux density and is proportional to A/cm in air. 1 G = about 0.796 A/cm
Oe	Oersted is the unit of magnetic field strength in the CGS system of units and is equal in magnitude to the unit gauss.
mT	Tesla is the SI unit of magnetic flux density.

Conversion rule for units:
1 A/cm = 0.1 kA/m = 1.256 Gauss = 1.256 Oersted = 0.1256 mT
(or as a rule of thumb: 4 A/cm = 5 Gauss)

5.5.3 SWITCH-OFF TIME



Selection of the automatic switch-off time of the device (5 minutes / 10 minutes / 30 minutes / off = the device is always switched on). **Off** should only be selected in special cases, as this can greatly increase the power consumption.
The active switch-off time is displayed with an asterisk (✱) after the entry.

5.5.4 BEEP VOLUME

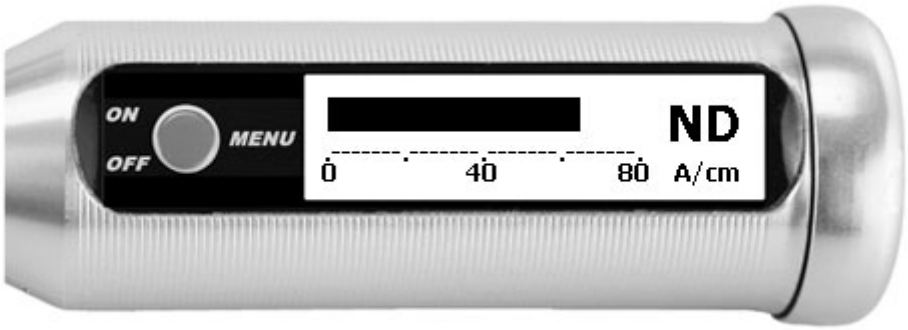


Selection of the volume of the signal tone (off / 20% / 40% / 60% / 80% / 100%). The active beep volume is displayed with an asterisk (✱) behind the entry.

5.5.5 DISPLAY

Instead of the digital display of the measured value with polarity, measurement type and unit, you can also switch the instrument to an analog display. The unit of this display is always A/cm.

The zero point is on the left. If 5 is exceeded, the scale changes to 20 and then to 80. If this is also exceeded, an overflow is displayed with ">>". The polarity (N/S) and the type of measurement (D=DC / P=Peak) are displayed at the top right.



5.5.6 CONTRAST



The contrast of the display font can be set on a scale from 0 (low contrast, dark) to 4 (high contrast, bright).
The active contrast is displayed with an asterisk (✱) behind the entry.

5.6 SYSTEM



The system menu displays values that are important for information or diagnostics, but cannot be changed. Resetting the device to factory settings is also possible here. The information provided is:

- Revision number of the firmware version. This information could be requested from you by our technicians when searching for an error
- Date and time. The values cannot be changed in the device itself, but they can be changed via the List-Magnetik apps for Windows, Android and iOS.
- Battery voltage: If the value is below 1.2 volt, you should change the battery. If the value falls below approx. 1.15 volts, a warning message is also displayed regularly. Below 1.1 volts, the device will no longer work.
- Factory device reset: the measurement parameters set at the time of factory delivery are restored as they may have been destroyed by an error. The measurement batches and settings are completely deleted. The instrument switches off.
- Serial no: The serial number of your MP-810 is written on the cap of the housing. It was also entered here when the device was set up.
- MAC address: The MAC address is a unique identification of the device and its wireless component. When searching for the device in the **Lima Connect** application, this unique identifier is displayed, so you can distinguish several devices within range.

6 BATTERY REPLACEMENT

As soon as the battery voltage warning („▲ Voltage 1,15V ") appears when the device is switched on, the battery should be replaced.

The device switches off automatically when the battery voltage is less than 1.1 V.

If the display is unclear when the device is switched on, or if an error message **Error-202** is displayed and then the device switches off, the battery is too weak.

Please use only leak-proof batteries.

6.1 USING A RECHARGEABLE BATTERY

If you want to use a rechargeable battery instead of a 1.5V AA battery, do not use a NiMH battery. The output voltage of 1.2V is too low. Voltage fluctuations may even alter the memory in the device.

We have had good experience with rechargeable Li-ion batteries that can be charged via USB cable and have an output power of 1.5V.

7 TECHNICAL DATA

	MP-80 V2
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, ø 8mm with defined measuring distance of 2.0 mm
Measuring range DC:	0-100 A/cm
Accuracy:	in the homogeneous field ± 0,3 A/cm up to 10 A/cm, ± 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
Menu navigation:	English, German, French, Italian, Spanish, Hungarian, Polish, Dutch
Data logger:	4000 measured values flexibly divisible
Statistics:	count / maximum / minimum / average / standard deviation
Interface:	wireless interface for communication with Android, iOS and Windows
App for Android, iOS, Windows:	free of charge via Google Play Store, Apple App Store, List-Magnetik website
Power supply:	1x 1.5V AA Mignon
Operating time:	approx. 40 hours
Dimensions:	Ø 28 x 103 mm
Weight:	70 g with battery

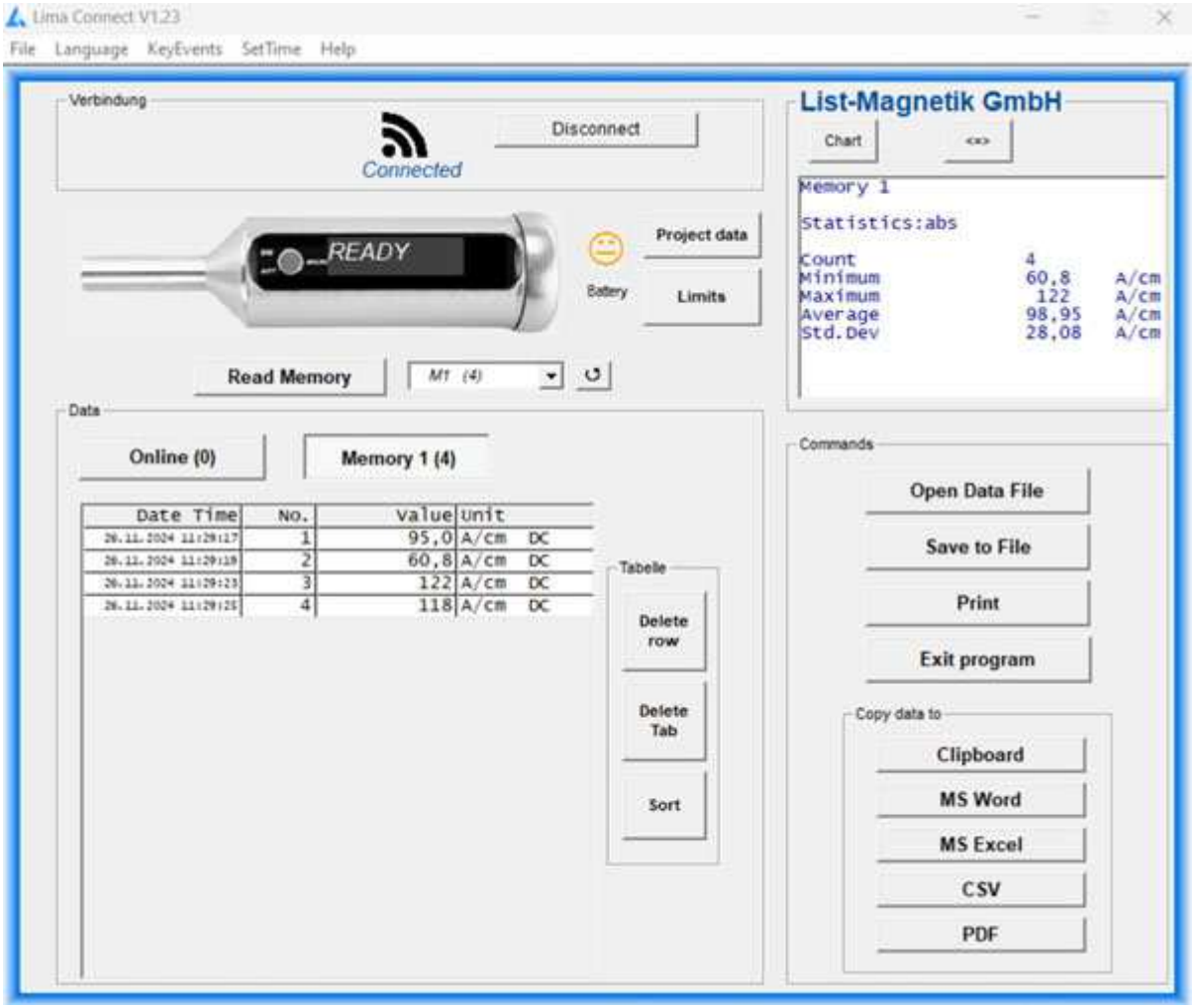
8 AVAILABLE APPLICATIONS

8.1.1 LIMA CONNECT FOR WINDOWS

On https://www.list-magnetik.com/en/lima-connect**,** you may obtain the free of charge data transfer application **Lima Connect**, to transfer measurement data to your PC.

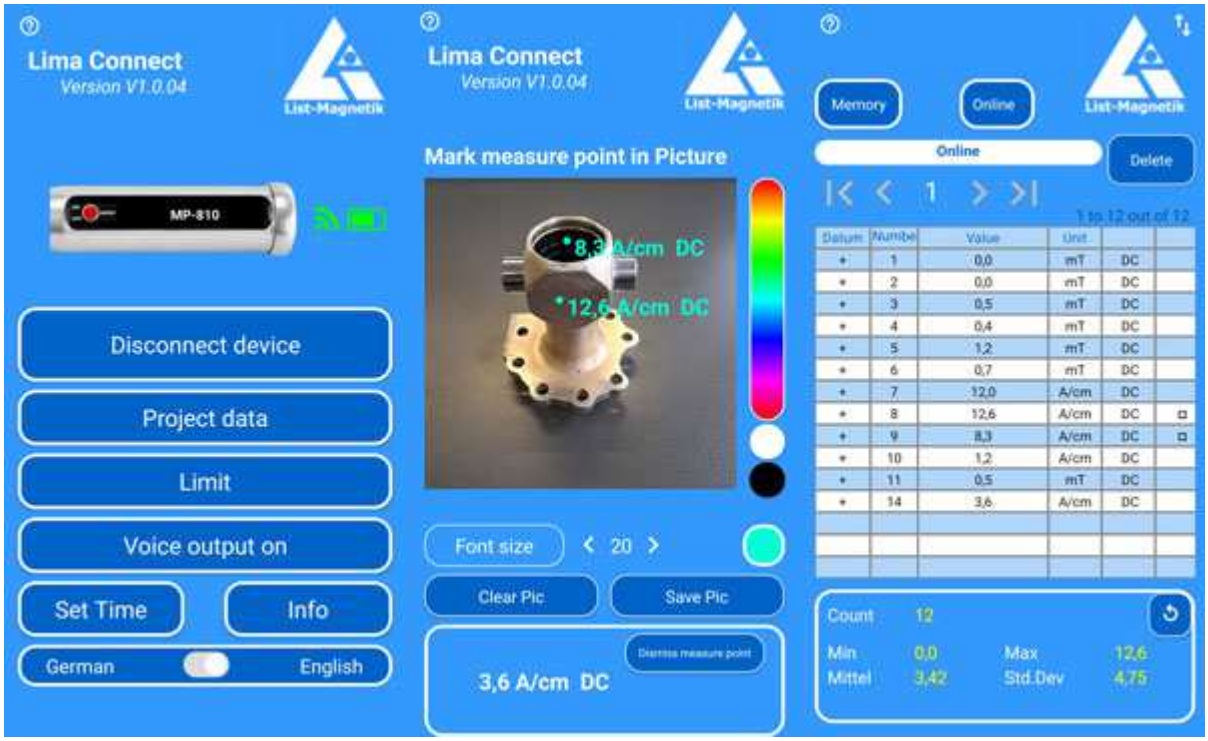
With **Lima Connect**, you can measure online or read the device's memory, you can evaluate the data statistically or visualize as chart. You can print the results or hand over the data to applications like Microsoft Word and Microsoft Excel.

You can also use it to set the time on your device that will be used during data transfer (Menu „Set Time")



8.1.2 LIMA CONNECT APP FOR ANDROID AND IOS

To further process your measurement data, you can pair your TOP-CHECK with mobile Android and iOS devices. This is made possible by wireless technology. With the **Lima Connect** app you can manage projects and assign the measuring points on a photo. The measurement results can be statistically evaluated and graphically displayed. The app for Android, iOS and Windows is free of charge.



Android	iOS

We supply:

- Coating Thickness Meters
- Magnetic Field Meters
- Devices for Materials Testing
  (Permeability and Ferrite content)

We provide expert advice and design metrology solutions tailored to your specific needs.

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

QM-System
ISO 9001:2015 zertifiziert