

# NFA 30M

**3D LF Magnetic  
Field Analyzer  
with Data Logger**



# NFAsoft

**Analysis and  
Configuration  
Software**



# Operating Manual

Version 7.2

## Thank you!

We thank you for the confidence you have shown by buying this product. It allows for a professional analysis of AC electric and AC magnetic fields according to internationally recognized guidelines and the recommendations of the building biology.

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This manual is based on the firmware version 67 and NFAsoft version 169.

The firmware and software of the NFA will be continuously improved and made available via e-mail or download from our homepage.

# 1 Quick Start Guide

The instructions below refer to the factory default settings. These settings can easily be customized with the help of the supplied software „NFAsoft“.

When you switch on the instrument the LCD will briefly show “batt” and the remaining operation time with the current capacity of the batteries (you may need to switch off the NFA after a couple of minutes and on again in order to update the information).

“Signal” -> default setting is tRMS

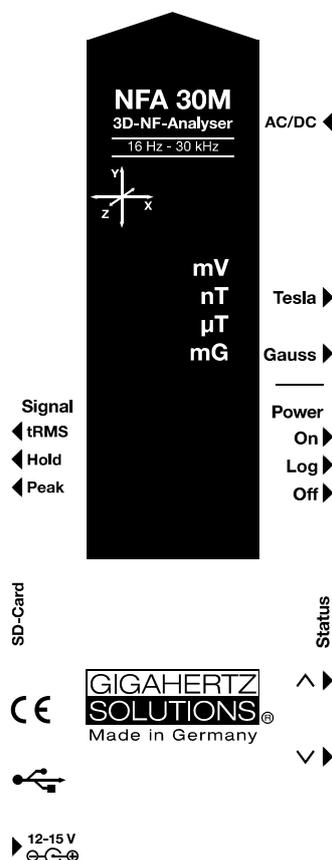
“On” = Measurement in process

“Log” = Long term recording in process

Double-click NFAsoft and follow your intuition for an evaluation of the data recorded on the SD-card.

Should the meter not do what you expect, please turn to the chapter on frequently asked questions at the end of this manual (Chapter 9)!

## 2 Overview: Front Cover



## 3 Display



In general, the display will show the three dimensional (“resulting”) magnetic field. There is no need for a conversion: Simply read the measurement value on the display and the unit on the LEDs. The signal of an AC/DC input possibly connected to the device will be shown in millivolt. Use the key “^” to switch from one display mode to the other.

### Special LCD Display Messages

“**Low Batt**“: The rechargeable battery is low – please charge the battery

“**Err.**“: Short for ‘Error’. Indicates an erroneous configuration.

„----“: No reliable values to be shown – either due to the instrument’s transient effect, or the value is within the range of the instrument’s residual noise.

„**CHAR**“: Instrument is being charged.

(For technical reasons the display will show “FULL” prior to loading, which is to be ignored)

„**FULL**“: During the charging process, with the mains adaptor connected, this indication means: charging completed, battery loaded. During normal operation, however, “FULL” means the SD memory card is full.

„**nbAt**“: The processor cannot recognize the battery (see the note below)

The time indications are set up as follows:

„**XXXd**“: XXX days or

„**Xd.XX**“: X days and XX hours or

„**XX.XX**“: XX hours and XX minutes

„**XX.XX**“: (with blinking dot): XX minutes and XX seconds.

Elapsed time will be shown when switching on and while logging.

**Please note:** when switched on, the NFA will normally show the remaining battery life. However certain events may cause wrong times, “00:00” or “nbAt” to be displayed. In that case please leave the meter switched on for a few minutes to perform its calibration algorithm, then switch off and back on to display the updated battery life for the “Log” mode. If case the false readings persist, please check chapter 9 for further information.

## 4 Switches / Push-Buttons / Connector

### 4.1 On / Off switch (“Power“)

“ON” = Measurement in process. When measuring, logging is not automatically activated. Briefly press “Log” until the status LED turns green to activate parallel logging. You can switch back to "On" without interrupting the logging process.

“Log” = Logging / long term recording.

### 4.2 Tesla/Gauss Switch

This switch allows to select the display unit for the magnetic field – the selection is indicated by the LEDs.

The isotropic point of the magnetic field measurement is underneath the „Y“ of the coordinate system printed on the meter faceplate. Value recordings will be axis specific.



### 4.3 AC/DC-input

#### AC/DC = combined AC/DC-input

As soon as an external sensor is connected to the device, its signal is automatically displayed in mV and recorded, if required.

**AC:** A displayed value of 2000 corresponds to “1V<sub>peak-peak</sub>”<sup>1</sup>.

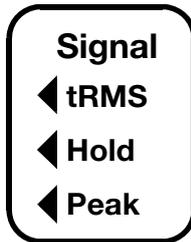
**DC:** +/- 0.1 to 1500 mV, i.e. with an HF59B connected and in the coarse measuring range (scaled to 1V), the device logs measurement values from 1 to 30,000  $\mu\text{W}/\text{m}^2$ ; the display shows mV.<sup>2</sup>

For logging high frequencies please make sure to remember the settings of the connected HF-Analyser, as they will not be registered by the NFA.

<sup>1</sup> Note: The information produced by the frequency decomposition of a demodulated pulsed HF signal will, of course, not provide any really useful data.

<sup>2</sup> For all measurement ranges, even when using an attenuator or amplifier, NFAssoft offers a comfortable conversion tool. The random noise will make it impossible to properly display or record measurement values below  $0.1\mu\text{W}/\text{m}^2$ , though.

## 4.4 Evaluation of Signal



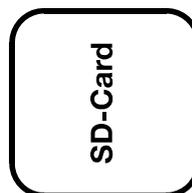
**tRMS** = “true Root Mean Square”. The values displayed and recorded can be compared directly to classifications recommended by building biologists.

This is the correct standard setting of the NFA, even for logging the peak values of a connected HF-Analyser.

**Peak** = Real peak value measurement: With this setting the meter measures the highest culminating point of the wave<sup>3</sup>. A new, still experimental measurement feature for building biologists which allows for a more detailed analysis of the LF world in a way which has long since been considered essential in the analysis of high frequencies. This option supplies important information for the evaluation of “Dirty Power” (E-field > 2 kHz).

**Hold** = Hold maximum value (“Max hold”). Retains „tRMS“ or „Peak“ of the signal, depending on the switch position from which „Hold“ was chosen. When the signal switch is set to „Hold“ only the reading on the display is held, the real time value is still recorded on the SD card, if recording.

## 4.5 SD Memory Card



This is the slot for the SD card. Insert until it snaps (use fingernail or pencil, if necessary). To withdraw, press again to undo the snap mechanism.

The high-speed SD memory card (4 GB, SDHC) supplied with the instrument contains the current version of the NFAsoft software and enough memory for several 36h recordings. Important: Please make sure to only use SANDISK cards! We have had a lot of bad experiences with other manufacturers.

Your PC will recognize the SD card as an external device when connected by USB cable or inserted into a card reading device. It can then be processed with the standard functionality of your operating system. Inserting the SD memory card directly into the card reader of the PC will result in a 40 times faster data transfer than if using the USB cable<sup>4</sup>.

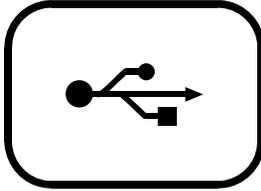
**Please note: Do not remove the SD memory while the NFA is running!**

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<sup>3</sup> The resolution of the frequencies during the analysis of the (actually by their nature broadbanded) peak values does not consider phase information that is being a worst-case consideration. Tolerances are much higher than using the tRMS analysis.

<sup>4</sup> In order to make use of this speed advantage, your SD card reader needs to be specified „SDHC“ which is standard for units built 2008 or later. For older units inexpensive adaptors are available.

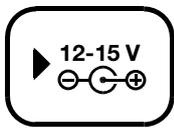
## 4.6 Charging Socket



Computer interface connection: Used for meter configuration with NFAssoft. (USB 1.0) Please connect and disconnect the USB-cable only while the NFA is switched off!

Please note: for the time being the USB connection works for windows and Linux only!

## 4.7 Charging Socket



For the connection of external DC sources:

External supply: 12 V battery or 12 V DC power supply unit is sufficient to keep the instrument operational for long term data logging, but will not recharge the battery.

Charging: 15 to 18 V DC battery or AC adaptor is required to charge the instrument. Measurements or recordings parallel to the charging procedure are technically possible, but not specified, therefore not to be recommended.

## 4.8 “^” and “v” buttons

These buttons are at present only needed for a firmware update.

# 5 How to Measure and Data-Log

## 5.1 “Live”-Measurement

You have the choice of two basic measurement modes: You can either apply the conventional method which involves switching the unit on and reading the display. Or you prefer to have the measurement values of all four channels (those of the three field axis plus one further measured variable) logged onto the SD-card. To activate this function, please switch the Power-button to “Log” for a short time until the status-LED turns green. Then switch it back to “On”.

## 5.2 Long Term Data Logging

The recording interval of the NFA is set to 10 data sets/sec.

### Initiating Long Term Logging of the Meter

For a long-term recording of several hours or days, set the “Power” switch to “Log”. (The status LED will turn green and long-term recording will start off after a few seconds. In this mode the LEDs and the sound are turned off to extend the battery life, after a while also the green status LED.). The display will show the logfile number (“L...”), the elapsed time of recording as well as the remaining time of use in an infinite loop until the battery is empty or the SD-card full. For information on the display format please see chapter 3. When switching back to “On”, recording will be continued without interruption.

The instrument records all data corresponding to its field selection switch. When an HF Analyser is connected to the AC/DC socket, it will automatically be recorded as channel 4.

### “Locking” of the Instrument

„Locking“ ensures that the instrument exclusively executes the predefined tasks when left at the customer's place for long-term recordings. To lock, remove the SD memory card from the instrument after predefining the measurement settings, set its micro switch on the top left of the SD-card to „lock“ or „write protect“ and reinsert it. Note: The data will still be recorded!

**IMPORTANT: Don't forget to unlock the SD memory card afterwards!**

## 6 Power Supply

### 6.1 Internal Rechargeable Battery

The instrument features high performance Lithium Ion rechargeable batteries (2 x 3.7 V). When fully charged, they will allow for more than 48 hours of continuous data logging<sup>5</sup>.

A vital factor for the durability of Lithium Ion rechargeable batteries is to absolutely avoid a deep discharge. The NFA setting will prevent a deep discharge in operation, however, in view of the inevitable self-discharge, the meter should not be kept with “almost empty” batteries for longer than a few weeks only.

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<sup>5</sup> Please note that Li-Ion batteries, even when treated with care, will lose some of their original capacity within one or two years and their typical life expectancy is 250-500 complete charge cycles. In this case please always replace both batteries. Please see chapter 9 for information on the initialization of the capacity display.

## 6.2 Charging

To charge the batteries use the **15 V** AC adaptor. If the device is switched off while charging, the display will show “CHAr” and the potential runtime of the instrument with the current capacity status in an infinite loop. Measurements or recordings during the charging process are technically possible, but not specified, and therefore not recommendable.

Thanks to a sophisticated algorithm, the NFA charging process will start off extremely quickly, but will slow down towards the end in order to achieve maximum loading capacity. Due to the large variation in the Lithium Ion batteries supplied by their manufacturer, the maximum capacity as well as the charging time are subject to fluctuations. The specified battery running time is mostly reached after a charging period of approx. 8-12 hours. A (significantly) longer charging period, as well as a recalibration of the capacity display (see Chapter 9) may considerably extend the battery running time.

The capacity display can only be considered an estimate. A reliable information can be obtained by logging until auto-power-off, and by verification with NFAsoft.

## 6.3 External Power Supply

For logging with external power supply use the 12 V AC adaptor. After a logging time of more than the typical 24 to 48 hours the probability of an unwanted shut-down due to unexpected operating situations increases significantly. Longer logging times can therefore not be guaranteed.

Longterm recordings of the 3D magnetic field and the AC entry can also be done using external power from an AC adapter. In this case, the adapter should be placed as far as possible from the instrument and turned in such a way that the resulting magnetic field is as low as possible, as it can influence the readings.<sup>6</sup>

## 6.4 Battery Change

For safety reasons, please only use original battery packs classified by us (integrated protection circuit). The two battery cells fit tightly, but can easily be removed for the purpose of battery change. In no case untighten the screws of the meter! Putting the meter together is very complicated, and therefore subject to a fee if it needs to be done by one of our technicians.

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<sup>6</sup> To determine the emission created by the AC adapter at the location of the NFA, proceed as follows:

- Place the instrument and adaptor into their measurement location
- Plug the AC adapter into the wall and to the NFA. Wait until the readings on the display stabilize.
- Disconnect the adapter from the NFA without changing its position and orientation; wait for the display to stabilize.

This procedure will also be logged and is available when evaluating the logged data on the PC. Now potential disturbances can be noted on each axis and corrections be made, if necessary.

## 7 „NFAsoft“

The provided software allows ...

- for the analysis of the data logged by the NFA
- for the configuration of the NFA according to your preferences and habits.



A double-click on the program-icon  opens the window shown on the left. Here you can chose between the tool for the analysis of the data  and the tool for the user-specific configuration of your NFA .

The software is subject to continuous upgrade. The most current revision can always be found for download on our homepage.

### System requirements

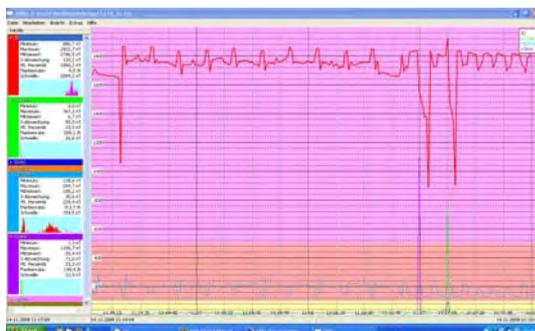
NFAsoft is made for Windows (98 and up higher). Linux and Mac versions are provided “as is”. **NFAsoft requires no installation** – just double-click and start!

**In some cases, it might be necessary to temporarily disable your anti-virus software.** Anti-virus software may interpret NFAsoft as a threat and hence might disable or even erase it. It may be necessary to repeat this when a upgraded version of NFAsoft is loaded. NFAsoft can be loaded and executed directly from the SD memory card through a card reader or through the USB interface cable. The NFA is supplied with a „Class 6 SDHC“-SD memory card (appropriate readers have been available since 2008, adapters are available for older computers).



### 7.1 Data Analysis

Double click the appropriate log file for analysis and the following window will open:



- The far left column labelled “Channels” shows statistic evaluations of the different frequencies or frequency ranges.
- The large area on the right shows the plot of the collected data over the time.
- The values on the left are always the real-time values of the timeline selected in the plot.

## Plotted Data Window

Units of measurement appear on the corresponding channel window on the left and are not indicated on the y-axis. The different plots are colour coded. This allows for different channels to be shown simultaneously.

The x-axis indicates the time span. The figures at the left and the right end of the grey status line show the times of start and end of the logging period.

If the status line is mouse clicked, the window on the right will appear. Here one can enter a preferred time span to view. The time span can also be selected in the “View” menu.



The colouring scheme of the plot corresponds to the standards for building biology measurements (SBM2015): Green for “no concern”. Yellow for “slight concern”. Red for “severe concern”. Purple for “extreme concern”.

If you select two channels with different units, the SBM colour scheme of the plot’s background will be the one corresponding to the unit of the selected (= bold) channel. It will be bold for the one and regular for the other, equalling the markings in the “Statistics/Channels” window.

## Navigation within the Plotted Data

Navigation within the plotted data can easily done with a mouse and its scroll wheel. Move the mouse pointer into the data plot. The scale of the x-axis will be

- zoomed in when scrolling up or by using the „Up Arrow“, zoomed out when scrolling down or by using the „Down Arrow“
- centered around the clock time indicated by the position of the mouse

The data area can be repositioned on the x-axis by a left mouse click hold and drag left or right. One can also use the “right” and “left” arrows of the keyboard. Zooming of the time on the x-axis can also be achieved via the View Menu.

Scaling of the y-axis is done automatically by default but can be adjusted manually if desired through the View menu under “Y-Scale”. You can also adapt the scaling of the y-axis manually via the menu (under “View / Scale”).

## Insert Comments directly into the Diagram

Areas of special interest can be commented directly in the plotted data. Simply position your mouse, right click and enter your comments in the comment window.

When you click Ok, the comment will be embedded into the data, marking an event or section of interest.

## Program Window “Statistics Channels”

To display the data of a particular channel, click the triangle to the left of the channel.

If multiple channels are open, an additional click on the channel information will bold the channels plotted data and its statistical data.

The top five values are standard **statistical values**<sup>7</sup>. The numerical value “Edges per hour” is used to analyse the number of steeply rising edges, spikes, peaks, pulses, sharp bursts or high frequency transients of the field. The edge thresholds can be defined in the Channel menu under Set edge criteria. This is an experimental function. PLEASE NOTE: If the 50 Hz high pass filter has been set with the help of the configuration part of NFAsoft (maybe even as pre-setting), this only applies to the channels “All3D”, “AllX”, “AllY”, and “AllZ”. Nevertheless, possible frequency components at 16.7 Hz will also be recorded in the correspondent channel. In this case the sum of the frequency specific channels may well be higher than that of “All3D”.

The light-blue field underneath the statistical channel data represents the frequency distribution of the measured intensities of the specific channel („Histogram“). It is self-scaling and can be interpreted as follows:

- On the left side of the x-axis a formula calculates and plots how often the minimum value has occurred in a given time interval, and similarly on the right side for the maximum value.
- The higher point marks the measured intensity - found most often. The lower points indicate a specific value measured very seldomly.

## Menu

### Edit

“Copy all“: Copies the plotted data area as well as the drop-down of the “Statistics/Channels“ section into the buffer – from here it can be inserted directly into your measurement protocol at any point of your choice. This is similar to a screen shot.

All other edit options are self explanatory.

## View

### ”Edge Display”

Choose the menu option View/Edge Display to activate the edge display. The edge display option will help find important field strength fluctuations. Steep edges are marked in the diagram in the colour corresponding to each channel – the marked channel will be bolded, the others won’t. This way you will always have an overview of what’s going on in the other channels, even if your focal point is, for instance, the

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<sup>7</sup> The 95th percentile is calculated heuristically. If the possible deviation exceeds 10%, it will be noted in parenthesis after the figure in absolute terms.

3D-value. The threshold value for an edge display can be defined in the menu option “Channel/Set edge criteria”.

### ”Set Times”

Choose the “Set Times“ option to scale the graphic to a defined time segment.

### “Y-Scale“

- Automatic – The y-axis will be scaled automatically to give the best display of the area selected for analysis.
- Manual – The y-axis scaling can be manually controlled in this mode. Allows for and will assist in analyzing small values (e.g. those over 2 kHz) overshadowed by other very strong field intensities.

„All“ – zooms out the x-axis and displays the complete data set on the data plot. The keyboard ”A” keys can alternatively be used.

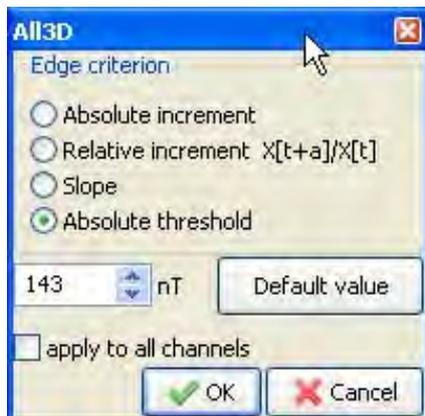
Use the arrow-keys to take over the functions of the mouse.

## Channel

### Set Edge Criteria (experimental!)

This feature is new and its intention is to facilitate professionals the discussion and analysis of “dirty electricity” beyond today’s definition. Activate “Edge Display” in the menu option “View” to use this function.

This function allows you to define a threshold value with which a spike can be marked directly in the “Edge Display” of the plot. This threshold can be selected individually for every channel. Standard values have been pre-selected as defaults.



When clicking „Set edge criteria“ the following window opens. Description:

Absolute increment = Marks a rise of measured field intensity between adjacent points of time by a user defined absolute increment level in V/m, mG or nT

Relative steepness = Marks a rise of measured field intensity between adjacent points in time by a user defined factor or multiple.

Slope = Marks a rise of measured field intensity between adjacent points in time by a user defined slope rate in V/m, mG or nT per second. This is independent of the measuring intervals. A hypothetical interval of 1 second would give that increment. This permits to compare results recorded with different recording intervals.

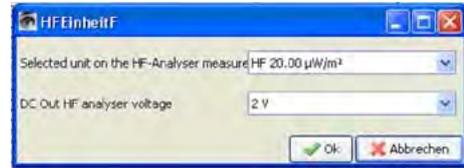
Absolute threshold = Marks a rise of measured field intensity between adjacent points in time by a user defined threshold level in V/m, mG or nT. Any rise beyond this absolute threshold value will be marked.

The selected edge criteria will be graphically displayed on the top of the plotted data section and will appear numerically in the field channel statistical data section under edges per hour for that particular time span. All edge markings displayed appear in real time and allow for a quick visual analysis.

When clicking the „ok“ button, the selected criteria and the set value will be transferred into the statistical values of the channel. When re-accessing the menu option “Set edge criteria”, the pre-set values will again be displayed (under construction).

### Select HF-Unit

This function will only be displayed when selecting „CH 4“ in the „Channels“ window and the data recorded in this channel are those of an external input device such as an HF-Analyser (and are therefore recorded in mV). Upon selection of this point of the menu the following window will open up for a selection of the HF-Analyser settings during the recording period.



### nT <> mG

This function allows to subsequently convert a chosen channel's data from milli-Gauss to nanoTesla and vice versa.

### Convert Units

This function can be used to display whichever values recorded via the AC/DC input port directly in its original unit. This way, an HF-recording can be shown either in  $\mu\text{W}/\text{m}^2$  or  $\text{V}/\text{m}$ . A new channel will automatically be generated, thus avoiding any potential loss of data.

### Rename or Delete Channel

Allows for a renaming or deleting of the marked channel.

### Summarise Channels

The plotted channels (selected on the left) will be added up (“square sum“) and added as a new channel. The sum of 100/120 Hz, 150/180 Hz,  $R < 2\text{kHz}$  and  $> 2\text{kHz}$  are considered to be the relevant parameter for the evaluation of “dirty electricity”.

## Extras

The first two items in the dropdown menu have been explained already.

### Create KML-File

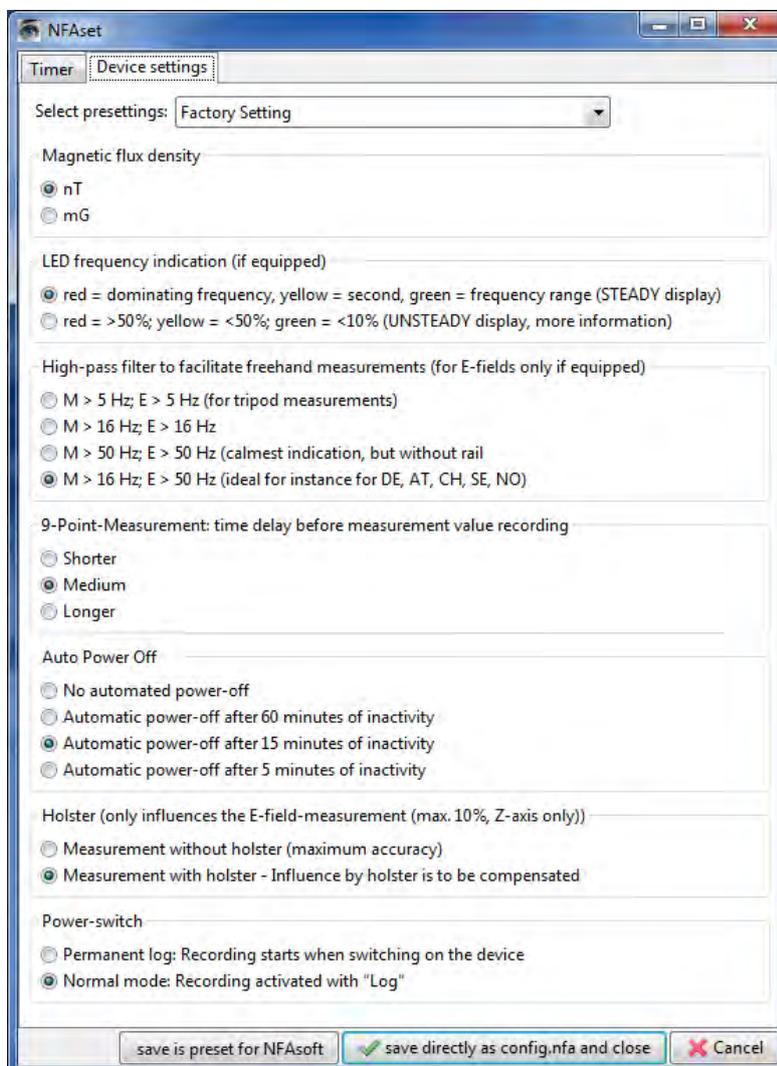
Required as a plugin for the connection of GPS-data, NFA logs and Google Earth (currently in beta level ). Please ask for the current manual by e-mail.



## 7.2 User-specific Configuration of the NFA

This part of NFAsoft allows for a customized user definable configuration of the NFA. The configurations will be made available in the “CONFIG.NFA” file of your NFA. The new settings are automatically loaded by the NFA upon its next start when saved on the SD memory card.

Several customized **pre-settings** for NFAsoft can be defined allowing a quick access. Simply select the settings as required and activate the button “save as pre-setting for NFAsoft”. All pre-settings are stored in the file “NFAsoft.ini” and are available for NFAsoft provided that this file is in the same folder.



For a synchronisation of the time, the SD-card in the meter should be connected to your computer via USB-cable. The synchronisation will either take place automatically once “CONFIG.NFA” is recorded onto the SD-card, or else the manually entered time is applied at that very moment.

If the **high pass** is set at **50 Hz**, this only refers to the broad band reading or recording as it reduces the influence of movement induced field components. For full information, the frequency components of sinusoidal waves at exactly 16.7 Hz are still recorded separately and can be shown with the help of the NFAsoft.

If the filter is set, it is therefore not unusual for the summary indication “All3D”

to be smaller than the indication for 16.7 Hz, as the signal components at 16.7 Hz are not integrated in the total sum of “All3D”. Furthermore, the signals of the different frequencies are added up quadratically, which in turn means that the result of simply adding the individual signals will also differ from the sum of “All3D”.

(For more information on this matter see chapter 9)

## 8 Firmware-Update

The file: “firmware.nfa“ is the meter’s operating system stored in its internal memory<sup>8</sup>. As known from computer programmes, this software is subject to continuous improvements and upgrade, and can be updated as described below. As also known from computer programmes, a new version of an operating system is always intensely tested prior to distribution, but errors may sometimes occur which are only detected in the course of its use. For this reason, there are always two versions of the firmware on the internal memory of the meter. One is revision 058 which has been running without problems for many years, and should therefore be kept on the meter memory for “emergency cases”, the other is the latest revision at the point of purchase, always with the a.m. risk.

### Which firmware is active on your NFA?

If you press the “√”-key while switching on the meter, you will for a short while be shown the currently active firmware version (always with either the prefix “F” or “E”). In order to switch from one version to the other, please press both, the “√”-key as well as the “^”-key at the same time while switching on the meter.

### Procedure for the Update:

First make sure to have firmware version 058 active before starting the update procedure. This way you will always update the other version on your meter.

Copy the new “FIRMWARE.NFA“-file onto your SD memory card without changing it. If need be, overwrite any old versions on the card, as only one “FIRMWARE.NFA“-file should be on the card. It should NOT be renamed. It can be deleted from the card after the update.

Lock your SD memory card with the small switch on the left side of the card. Insert SD card into your powered-off NFA. Switch on your NFA. The display will show “CodE”, the frequency LEDs will gradually change from green to red during the update process. Then all LEDs will turn off except for the status LED. As soon as the status LED turns green, the update process is completed (this will take a few seconds only).

**Do not switch the meter off during the update process!**

**Please remember to unlock the SD-card after applying the new firmware!**

**Recalibration of the battery capacity display** (please see next page: Chapter 9)

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<sup>8</sup>

Please differentiate: With „NFAsoft“ the firmware can be configured and the user settings stored in the file „CONFIG.NFA“. This has nothing to do with the firmware itself.

## 9 What if... (FAQ)

Answers to frequently asked questions regarding the NFA 30M

*Make sure you're always using the most current firmware version!*

**The device does not react** when trying to switch or press a key

*Unlock SD-card! (Push micro switch on the left of the card upwards)*

*Restart: All switches up – switch off – switch on.*

**RESET: Switch off meter, open battery compartment, disconnect the two battery plugs, reconnect the batteries after about one minute and switch the meter back on.**

**Calibration of capacity display** after battery change, firmware update, or if the display shows „nBAT“, „00:00“, or an absurd remaining battery capacity reading.

*If applicable, disconnect external power supply from the meter. Leave the meter switched on for a couple of minutes, so that it can recalibrate itself in the background, then switch off and on again. Now the updated remaining battery life in the log mode will be displayed.*

*For a recalibration, leave the meter running (without the AC adapter) until it automatically switches off. Leave to rest for at least one hour. Switch the meter back on until it again automatically switches off after a couple of minutes. Then charge for at least 14 hours. In some cases, the meter needs to be switched off and back on after having been in use for a couple of minutes, before it displays the current running time.*

**There is no recording** (status LED does not turn green)

*Insert or unlock SD-card!*

*(Push micro switch on the left of the card upwards)*

**No long-term recording over several hours or days possible**

*Solution 1: Update your firmware.*

*Solution 2: There is a file system error on your SD-card. In this case, save the “good” files and re-format your SD-card using the original SD-formatter of the SD Association (to be found*

under the following link:  
<https://www.sdcard.org/downloads/index.html>).

### **The meter turns off after quarter of an hour**

*NFAsoft allows you to change the interval for the auto-power-off feature. (Auto-power-off is deactivated while recording!)*

### **The sum of the frequency specific channels is higher than the value of "All3D"**

*The signals of the different frequencies are added up quadratically (square root out of the sum of squares), which means that a simple addition of the individual signals will result in a higher value than the sum of "All3D".*

*For example, if you take 500 nT at 16.7 Hz plus 1000 nT at 50 Hz, a simple addition will amount to 1500 nT, whereas the quadratical addition (= "All3D") will amount to only 1118 nT.*

### **NFAsoft is showing measurement values at 16.7 Hz in spite of the 50 Hz high pass filter being set and**

### **The sum of the 16.7 Hz channel and the other channels is higher than the value of "All3D"**

*If the 50 Hz high pass filter has been set with the help of the configuration part of NFAsoft (maybe even as pre-setting), this only applies to the channels "All3D", "AllX", "AllY", and "AllZ".*

*Nevertheless, possible frequency components at 16.7 Hz will also be recorded in the correspondent channel. In this case the sum of the frequency specific channels may well be higher than that of "All3D".*

### **The NFA was configured according to customer requirements with NFAsoft, but when restarting, NFAsoft shows the original settings**

*The "CONFIG.NFA" file on the SD-card transfers user-specific configurations to the NFA. NFAsoft can write this file, but not read it. Therefore you cannot use NFAsoft to check the configuration of the NFA, but only to install new configurations.*

*You can save frequently used configurations as presets to a dropdown menu in NFAsoft.*

**What is the purpose of the individual files and where are they saved?**

*“CONFIG.NFA” -> user configurations of the NFA-> SD-card*

*“NFAsoft.ini” -> Presettings for NFAsoft -> same folder as  
NFAsoft*

*“FIRMWARE.NFA” -> operating system of the NFA -> SD-card*

**There are very many small TXT-files on the SD-card?**

*Solution 1: You have activated the function “permanent logging”, which causes the meter to log not only when switched to “Log”. This option will cause a new file to be started each time the meter is switched on, and each time you switch from one mode to the other.*

*Solution 2: There is a file system error on your SD-card. In this case, save the “good” files and re-format your SD-card using the original SD-formatter of the SD Association (to be found under the following link:  
<https://www.sdcard.org/downloads/index.html>).*

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