

# FREQUENCY SEPARATION AC/DC INPUT FA1

## *For an in-depth analysis of Dirty Power*

### **Preliminary note for the understanding of the new feature:**

A significant capability of the NFA is the analysis of an electric or magnetic field by recording the 3D value in meaningful frequency components.

In parallel, an additional parameter WITHOUT frequency information can be recorded through the AC/DC input ("CH4"). This is very useful in order to connect an RF analyzer for recording  $\mu\text{W}/\text{m}^2$  or to record the DC output of a current clamp. In the case of the current clamp, however, only the separation of its AC output signal into the meaningful frequency components (analogous to the field strength measurement in 16.7 Hz / 50 Hz / 100 Hz / 150 Hz / remainder <2 kHz /> 2 kHz) provides the decisive information for the mitigation of dirty power. This frequency separation was previously not provided in the firmware of the NFA and is only possible with the FA1 together with the enhanced firmware (Rev. 84 or higher).

### **What exactly is the subject of the frequency separation FA1?**

Using this feature, the input signal at the AC/DC socket (1 V RMS) is separated into the meaningful frequency components, in this case the output signal of a suitable current clamp.

The data obtained can be analyzed with our free evaluation software NFAsoft in the established depth, without the need for any software enhancements or other measures.

### **Practical utilization**

The user can switch between this new and the usual functionality: If the device-specific activation code "settings.txt" (do not rename!) is present on the SD card used, FA1 is activated, without this code the device behaves as usual. It has proven practical to have two SD cards (max. 16 GB) ready, one for the current clamp, one for the usual use. Simultaneous 3D field strength and "current clamp recording" is not possible.

### **What does Gigahertz Solutions deliver and what needs to be provided by the customer?**

Gigahertz Solutions provides a tiny text file with a custom code that activates the feature in the associated NFA as soon as it is on the SD card used. The – actually quite high – development effort has long been provided, implementing this "App" into the firmware rev. 84. This is why the upgrade of the NFA to this revision or higher is essential for using the new feature FA1.

The customer needs to supply a clamp / current probe, which offers a sufficiently high sensitivity and a correspondingly large frequency range. Research works of Dr. Ing. Martin Virnich have proven that the CA Miniflex MA200 by Chauvin Arnoux very well meets these requirements. The Miniflex is already equipped with a permanently attached power cable, which is typically connectable via two inexpensive adapters to the AC/DC input of the NFA (BNC female to 3.5mm AND 3.5mm to 2.5mm mono, easy to find in any search engine).

### **How is the feature provided by us?**

There are two ways to deploy / activate: With and without sending in your NFA.

- If we provide the activation here at the factory, a qualitative functional test is obligatory, so that we can guarantee a reliable function of the device. The costs of this test depend on the device type and age. An overview of the costs can be found on our website under "Service".
- Sequence of activation WITHOUT sending in the device:  
Please note: firmware rev. 84 or higher is required to be active. Log for some seconds and send us the logfile via email. From this we can determine the hardware revision status of your device as well as the internal serial number of the processor which we need in order to send you the appropriate activation file.