



Rev 1.7
02.08.2011

Low cost EMF Spectrum Analyzer Series SPECTRAN® 10xx

Cost-effective, easy-to-use LF measurement unit for the novice



Product of the year 2009

Our 3D magnetic-field measurement coil with homogeneous centre won the **first price** of Europe's biggest electronic newspaper "Elektronik" at the category passive components.

This coil is installed in each NF-Spectran unit.



Made in Germany

Specifications

SPECTRAN® NF-1010 (10Hz to 2kHz)

- ◆ Frequency range: 10Hz to 2kHz*
- ◆ Typ. level range E-Field: 1V/m to 2.000 V/m*
- ◆ Typ. level range H-Field: 10nT to 100.000nT*
- ◆ Typ. precision: 5% *
- ◆ Easy to use
- ◆ Superfast FFT spectrum analysis
- ◆ High-performance DSP (Digital Signal Processor)
- ◆ 3D magnetic field measurement
- ◆ Frequency and signal strength display!
- ◆ High-resolution multi-function display
- ◆ Incl. battery, charger & aluminum transportcase
- ◆ Dimensions (L/W/D): (260x86x23) mm
- ◆ Weight: 420gr
- ◆ **Warranty: 10 years**

SPECTRAN® NF-1010E (10Hz to 10kHz)

- ◆ Frequency range: 10Hz to **10kHz***
- ◆ Typ. level range E-Field: 1V/m to 2.000 V/m*
- ◆ Typ. level range H-Field: 10nT to 100.000nT*
- ◆ Typ. precision: 5% *
- ◆ REALTIME FFT spectrum display
- ◆ High-performance DSP (Digital Signal Processor)
- ◆ 3D magnetic field measurement
- ◆ Frequency and signal strength display!
- ◆ High-resolution multi-function display
- ◆ DIN/VDE 0848 Exposure limit calculation!
- ◆ Internet Flash Software-Updates
- ◆ **USB 2.0 Interface**
- ◆ Simultaneous M-Display X, Y, Z axes
- ◆ Average (AVG) measurement
- ◆ PEAK Hold
- ◆ Incl. battery, charger & aluminum transportcase
- ◆ Dimensions (L/W/D): (260x86x23) mm
- ◆ Weight: 420gr
- ◆ **Warranty: 10 years**

Application Examples Spectran NF-10xx Spectrum Analyzer

Analysis and measurement of:

- ◆ traction power
- ◆ power lines
- ◆ power cables
- ◆ harmonics



Description

CONFORMING TO STANDARDS

Real ANALYSIS:

Measurement of electric and magnetic fields in this price range has never been this PROFESSIONAL.

Find radiation sources in your surroundings. Find their respective frequencies and signal strengths, including direct display of exposure limits. This used to be impossible in this price category, professional units often costing several thousand euros and being excessively complicated in handling.

The highly complex calculations in spectrum analysis incl. exposure limit calculation is being performed, unnoticed in the background, by a high-performance DSP (digital signal processor).

Fast, handy, cost-effective, beautiful exterior and PRECISION - what more could you ask ?



LF spectrum display and automatic multi-marker display on the digital screen of SPECTRAN® (Screenshot)

Spectrum ANALYSIS

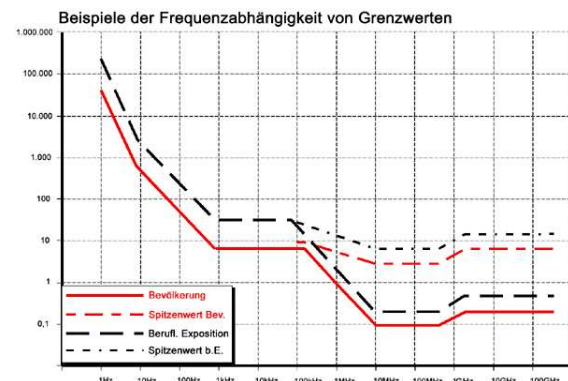
Real ANALYSIS:

Professional EMF measurement devices use a frequency dependant measurement approach, the so-called spectrum analysis. In a certain frequency range, the individuals signals and their respective strengths are being broken down, for example into a "bargraph" display (see SPECTRAN® screenshot on the right). The height of the individual bars represents the corresponding signal strength. For the 3 strongest signal sources, SPECTRAN® can automatically display the frequency and signal level, thanks to its "Auto Marker" feature. Of course, you can also setup the filter width and the frequency range to be analysed as you like.

In the EMF (LF) spectrum shown here, a frequency range of approx. 20Hz to 60Hz from left to right is being analysed. During analysis, the Auto Marker feature has determined - fully automatic - two main signal sources:

Signal#1=30Hz at 45µT

Signal#2=50 (mains power) at 75µT



Graphic display of frequency-dependant exposure limits.

EXPOSURE LIMITS

At the push of a button:

Exposure limit calculation used to be a complex and awkward procedure even for the professional, as most of the time, a chaotic mixture of an abundance of different frequencies, modulations and signal strengths is present.

The indispensable, highly complex calculation of frequency-dependant exposure limits can ONLY be performed CONFORMING TO STANDARDS by a spectrum analyser with high-performance software. Not a problem for SPECTRAN® units: They can calculate even several authoritative exposure limits, precautionary limits and recommendations (simply selectable via a button) and display these as a practical bargraph display (including convergence display in percent!), while the measurement is running.

The attached SPECTRAN® screenshot demonstrates how it works: At the push of a button, the ICNIRP exposure limit has been chosen among the various available exposure limits. SPECTRAN® now automatically calculates convergence or excess of this limit. For achieving this, often thousands of complex calculations have to be performed per second, and a steady scan of the entire frequency range needs to be performed. A true nightmare for every processor. In our test case, the graphic display shows an approximation towards the ICNIRP limit by 6,06%. If you use a NF-5030 you can even cover the total ICNIRP-bandwidth (depending on frequency). Hence, even the novice can perform exposure limit calculations ACCORDING TO STANDARDS without having to use complex tables and calculators.



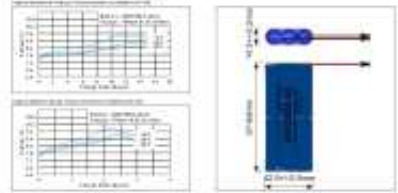
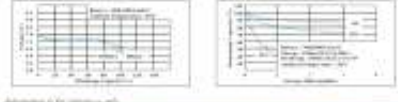
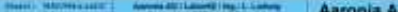
SPECTRAN® displays exposure limits both as percentage as well as a bargraph display.

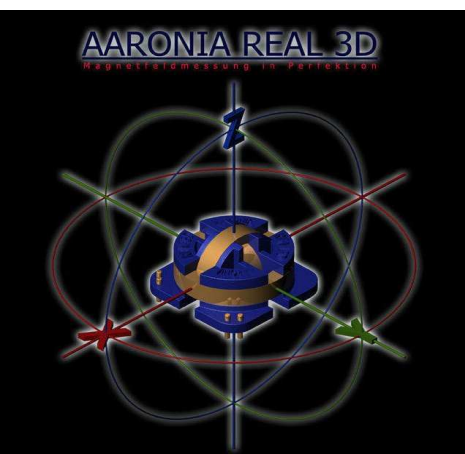
Lots of power: The rechargeable Aaronia NiMH battery

Superlong operating time:

The Aaronia NiMH high-performance battery has been developed specifically for the SPECTRAN® devices and is optimally suited for their requirements. Thanks to NiMH technology, the dreaded "Memory effect" is now a thing of the past, as with this power battery, maximum quality and long life have been our primary goals. Another reason why such a battery technology is necessary is the high power demand of the high-performance DSP used in all SPECTRAN® units, especially in the RF versions, which furthermore include very demanding RF receiving circuitry. Still, it is astounding that even when using the standard version of the Aaronia battery (1300mAh), continuous operation of the SPECTRAN® for approx. 4 hours is possible. The special version with 2200mAh (available at an extra charge) bumps this up to a stunning 7 hours! This is certainly a new all-time record for portable, battery-supplied spectrum analysers, or do you know a portable spectrum analyser which even remotely provides 7 hours of continuous operation with a single battery charge?

Naturally, the necessary battery charger is also included. At the same time, it can be used for operating the SPECTRAN® units with mains power. The battery charger is integrated into all SPECTRAN® units.

NiMH RECHARGEABLE CYLINDRICAL BATTERY	
SPECIFICATIONS	
Model:	AGB 2000 0001
Description:	NiMH rechargable battery, 1.2V, 2000mAh, Recycle
Nominal Voltage:	1.2V
Max. Charge Voltage:	1.4V
Min. Discharge Voltage:	0.9V
Capacity:	2000mAh
Weight:	100g
Dimensions:	30.0 x 14.5 x 44.5 mm
Charger:	AGB 2000 0002
Environment:	Operating Temperature: -20°C to +60°C
Storage:	Storage Temperature: -20°C to +60°C
Material:	NiMH
Notes:	1. Do not short-circuit the terminals. 2. Do not use the battery in a fire or high temperature environment. 3. Do not use the battery in a vacuum. 4. Do not use the battery in a high humidity environment. 5. Do not use the battery in a high pressure environment. 6. Do not use the battery in a high magnetic field environment. 7. Do not use the battery in a high vibration environment. 8. Do not use the battery in a high shock environment. 9. Do not use the battery in a high speed environment. 10. Do not use the battery in a high acceleration environment. 11. Do not use the battery in a high deceleration environment. 12. Do not use the battery in a high frequency environment. 13. Do not use the battery in a high power environment. 14. Do not use the battery in a high current environment. 15. Do not use the battery in a high voltage environment. 16. Do not use the battery in a high energy environment. 17. Do not use the battery in a high radiation environment. 18. Do not use the battery in a high noise environment. 19. Do not use the battery in a high electromagnetic interference environment. 20. Do not use the battery in a high magnetic field environment.
	
	
	



Aaronia REAL-3D magnetic field sensor

The new standard: 3D MEASUREMENT

Mismeasurement caused by wrongly adjusting the measurement device in space or troublesome and complex 3D calculations with a calculator are a problem of the past from now on, thanks to SPECTRAN® EMF (LF) measurement devices. All SPECTRAN® EMF measurement devices can measure magnetic fields directly in 3D! Starting with the SPECTRAN® NF-1010E, field strengths of the individual X, Y and Z axes can even be shown separately. This has become possible thanks to the newest development from the Aaronia laboratories: Our high-tech REAL 3D miniature sensor coil. Consisting of a specially crafted nylon base with 3 independent windings made of ultra-thin, 0,05 mm! wire, it impresses with its extremely high sensitivity. It allows measurement of magnetic fields in all 3 spacial dimensions. The signal processor (DSP) of the SPECTRAN® performs the resulting highly complex calculations. You receive 3D measurement results which can otherwise only be achieved by using highly professional equipment.

INCLUDED WITH DELIVERY

- ◆ LF spectrum analyser SPECTRAN NF-10xx
- ◆ Sturdy aluminum-design carrycase (with custom padding!)
- ◆ 1300mAh Aaronia power battery with charger
- ◆ Exhaustive manual with lots of basic information, hints and exposure limit tables (PDF-document)



Package contents SPECTRAN 10xx devices