

SPECTRAN

# V5 RSA / Remote (9kHz to 20GHz)

Remote controllable real-time RF/EMF data-logger with a powerful integrated PC



Remote controllable from anywhere

Real-time bandwidth of up to 175MHz

Including spectrum analysis software

# Highlights

- ✓ Continuously streaming and storing from any spectrum of interest
- ✓ Allows the monitoring of multiple sites from one centralized location
- ✓ Eliminates trips to difficult locations
- ✓ Data transfer via TCP / IP
- ✓ Up to 24TB data storage inside the remote unit
- ✓ Customizable Alarm-, Trigger- and Limits-Function
- ✓ Real-time capture bandwidth up to 175MHz
- ✓ POI below 1QS
- ✓ Unlimited recording time
- ✓ Wide measuring range up to 20GHz
- ✓ Sample rate / second: > 5 million
- ✓ 500 MSPS (14 Bit Dual 256MSPS I/Q)
- ✓ Real-time I/Q streaming via USB
- ✓ Including the "RTSA Suite Pro" spectrum analysis software
- ✓ Made in Germany



Gewerbegebiet Aaronia AG II , DE-54597 Strickscheid  
Tel.: +49(0)6556-9019-355 Fax: +49(0)6556-93034  
www.aaronia.com E-Mail: mail@aaronia.de



**MADE IN GERMANY**

# Introduction

## Remotely controllable, fast and interconnected

Aaronia presents the SPECTRAN V5 RSA, a remote-controlled real-time spectrum analyzer designed to capture even shortest signal transmissions. Its scanning speed and recording time are without competition. The analyzer scans 20GHz in less than 20mS making it world's fastest remote controllable spectrum analyzer.

## Perfect for any RF-Problem

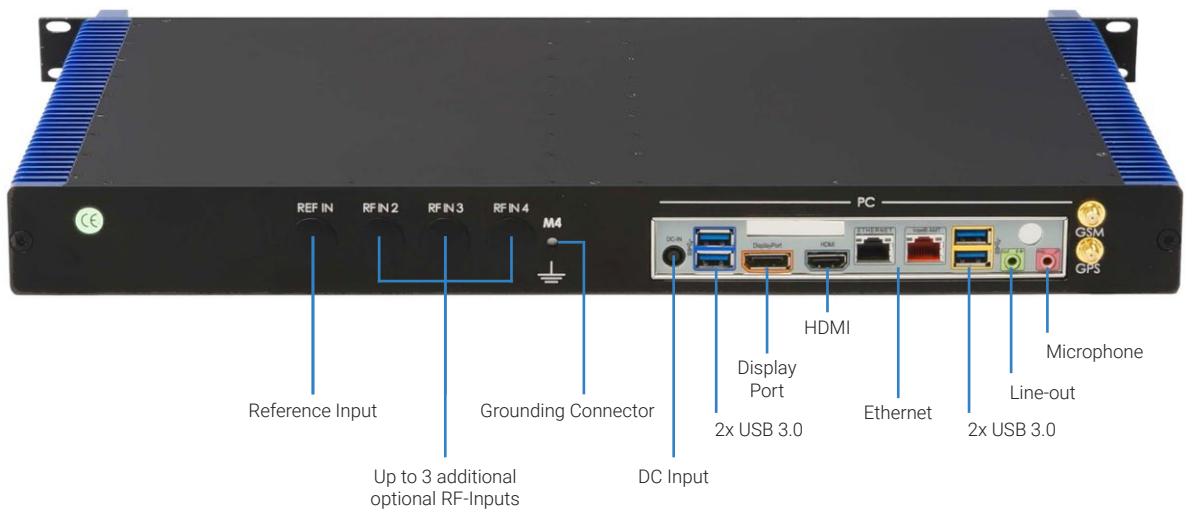
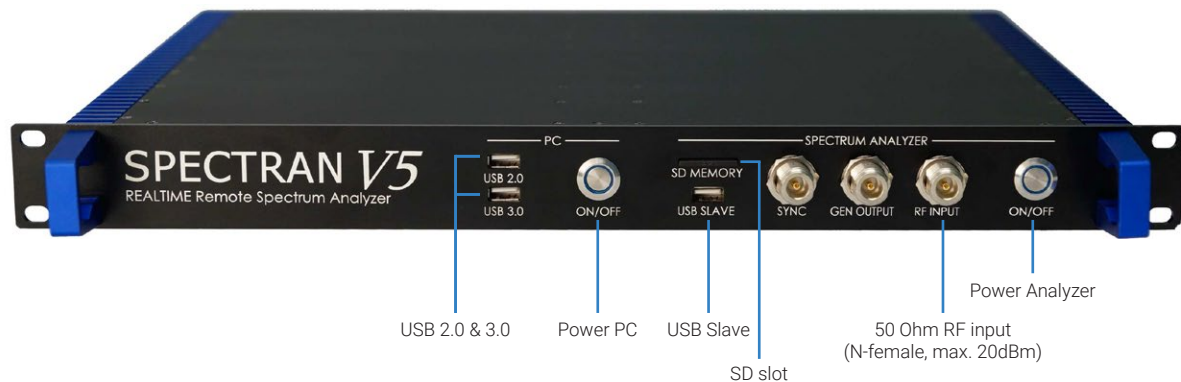
With this spectrum analyzer you can master any challenge. Whether it is for spectrum monitoring, RF and microwave measurements, Interference hunting, EMC testing or Wi-Fi and wireless network measurements, the SPECTRAN V5 RSA is the ideal spectrum analyzer for making reliable and fast measurements.

## Benchtop Analyzer

The included PC analysis software "RTSA Suite Pro" transforms the SPECTRAN V5 RSA into a fully-featured benchtop spectrum analyzer (see page 5). The V5 X offers a solution for almost every application.

## Made in Germany

Like all devices of the SPECTRAN series, the SPECTRAN V5 X spectrum analyzer is developed and assembled in Germany, guaranteeing the highest quality standard.



# Technology

## Remote Controllable Spectrum Analysis

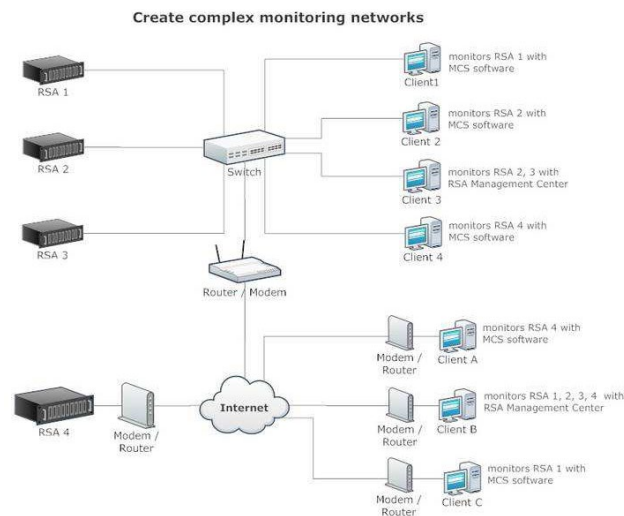
The SPECTRAN RSA Spectrum Analyzer Series offers an incredible performance at an unbeatable price-performance ratio in a noble 19 inch rack-housing.

Each RSA unit can be mounted into a common 19" instrument rack and requires one height unit (1U) only. Thus the RSA is perfectly suitable for stationary use in laboratories as well as, thanks to the low power consumption, for mobile use in measuring vehicles or satellite broadcasting vans.

The Analyzer is remote controllable through the USB interface or Lan/Ethernet, allowing a continuous logging and streaming of any frequency range and direct access to the Analyzer through each PC connected to the Internet.

## Solutions for every application

The SPECTRAN V5 series is available in different versions, each specially equipped for a specific application. Besides the handheld version, Aronia offers the USB (X & OEM) series, remote-controlled analyzers (19" RSA and Outdoor-Box) and military grade Countersurveillance Receivers (XFR V5 PRO).



## Options

Optional modifications to the V5 X:

**Option 002:** 5ppb (0,005ppm) OCXO Timebase  
This highly precise OCXO timebase, which has been especially developed for the SPECTRAN®, offers significantly reduced phase noise (jitter). This will allow the use of far narrower filters, which will in turn vastly enhance sensitivity. To fully exploit the maximum sensitivity this option is indispensable! Furthermore, the OCXO timebase allows far more accurate frequency measurement and display.

**Option 160:** Expands the real-time Bandwidth from 88MHz to 160 or 175MHz.



# RTSA Suite Pro

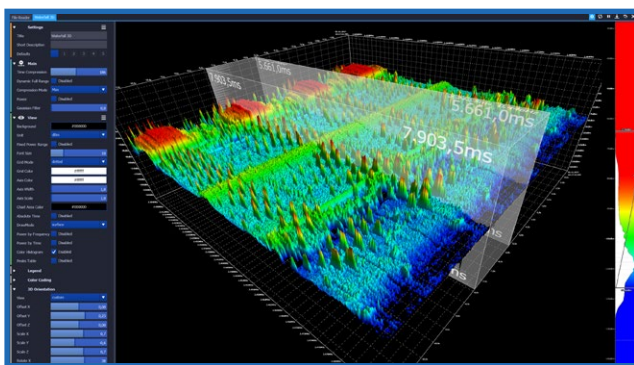
The world's fastest real-time analyzer software.

Aaronia's "RTSA Suite Pro" is an extremely powerful and flexible software, with an intuitive and highly customizable user interface. The node-based software allows the user to identify, capture, demodulate and track any signal, and offers a multitude of ways to graphically display the signal detection.



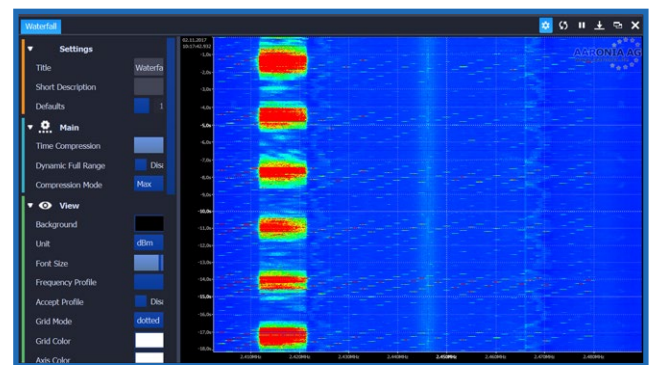
- ◆ High-resolution persistence spectrum display of the current sweep, Average, Min / Max, peak, RMS etc.
- ◆ Marker function with unlimited number of different markers (min, max, delta, AVG, OBW.)
- ◆ Intuitive drag and drop zoom, shortcuts etc.

## 3D View and Histogramm View



- ◆ The V5 RSA offers several different views - Spectrum, 3D Waterfall, Histogram and more
- ◆ The different views are fully customizable and can be easily arranged with the drag-and-drop system

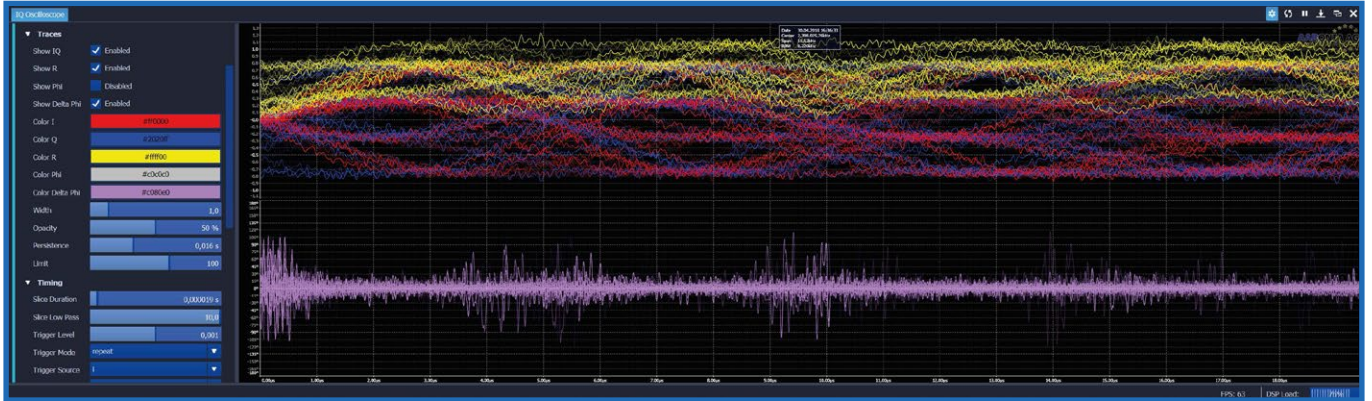
## Waterfall View



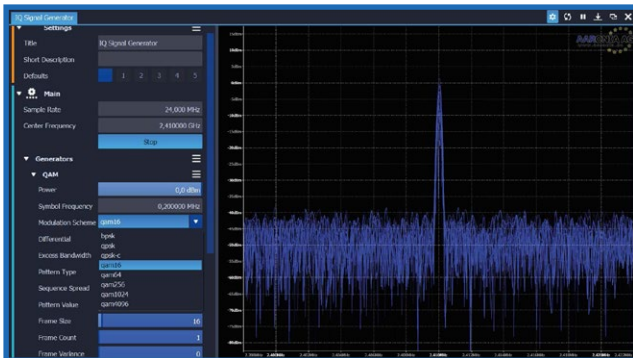
- ◆ Spectrogram / Waterfall View for the identification of frequency hops, measurements of pulse rate, analysis of time variant spectra and the tuning of a VCO

# RTSA Suite Pro

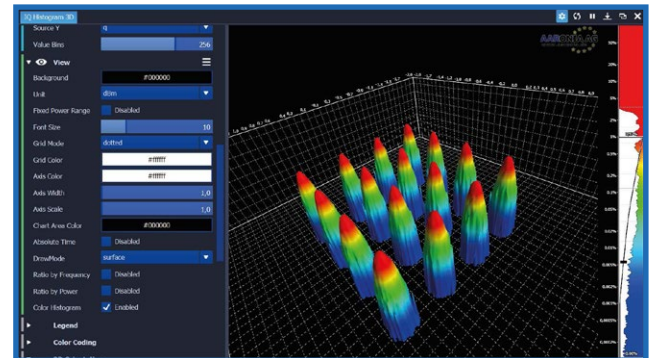
## IQ Oscilloscope



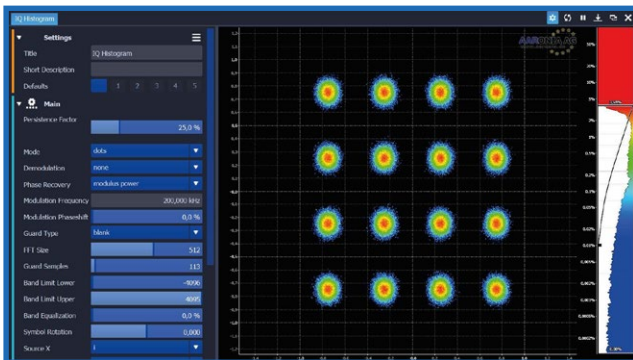
## IQ Signal Generator



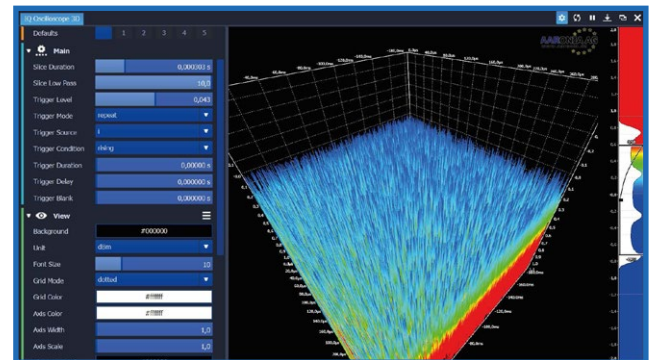
## IQ Histogram 3D



## IQ Histogram



## IQ Oscilloscope 3D



# Analyzer Specifications

Specifications	V5 RSA 80200
Frequency Range	9kHz to 20GHz
Real-Time Bandwidth	88MHz (Optional: 160/175MHz)
Min. Event Duration	<1µS
Max. Power at RF input	+20dBm (+33dBm*)
Displayed Average Noise Level (internal pre-amp on)	typ. -150dBm/Hz
Displayed Average Noise Level (with external pre-amp)	max. -170dBm/Hz
Amplitude accuracy (typ.)	typ. +/- 1,5dB
RF Input	N female
Frequency reference accuracy	0,5ppm (optional 5ppb with Option 002)
RBW (resolution bandwidth)	1Hz to 3MHz
VBW (video bandwidth)	1Hz to 3MHz
Demodulator	AM, FM
Measurement Units	dBm, dBµV, V/m, A/m, W/m <sup>2</sup> , dBµV/m, W/cm <sup>2</sup>
Detector	45dB (0,5dB steps)
Traces	ACT, AVG, MAX, MIN
Reference range	-200dBm to 100dBm
Measurement modes	I/Q, Power/Frequency Data
ADC	500MSPS 14Bit
GPS	Support via external GPS Logger
FPGA	240K ECP3
DSP	600MHz
Temperature Range (Operation)	0 °C to +50 °C
Temperature Range (Storage)	-20 °C to +60 °C
Dimensions	480 x 370 x 44mm
Weight	4,8kg
Power Supply	AC Input: 100-240V, 50-60Hz - DC Output: 5,6V, 5A max.
Power Consumption	<35W
Country of Origin	Germany
Recommended Calibration Interval	2 years

# Accessories

## IsoLOG 3D (9kHz - 40GHz)

3D directional finding antenna Array. Perfect for Spectrum monitoring and signal tracking. Comes with specified control software for RF Command Center.



## PowerLOG Antennas

Directional, Broadband Horn Antennas with very wide frequency range from 700MHz to 18GHz. Very high gain up to 18dBi.



## Biconical Antennas (20MHz - 3GHz)

Broadband Biconical Antennas for EMC Pre-compliance Tests. Perfect for in-house compliance testing of various EMC standards. High bandwidth and gain up to 41dBi (active).



## HyperLOG Antennas

Directional, Ultra Broadband Antennas with extremely wide frequency range from 380MHz to 35GHz. High and constant gain of typ. 5dBi (active up to 45dBi).



## External Pre-Amplifier

External Battery-Powered Preamplifier with full range of 1Hz to 30GHz & up to 40dB gain. Perfect to reach extremely high sensitivity up to -170dBm/Hz.



## Near field probe set (DC to 9GHz)

Passive or active Near-Field Probeset PBS1 or PBS2. Consisting of 5 Probes (4xH-Field, 1xE-Field), 40dB Preamplifier (only PBS2). Perfect for EMC near field tests.



## MDF Antennas (9kHz - 400MHz)

Magnetic Tracking Antennas for the low frequency range of the Analyzer. Covers 9kHz to 400MHz. Active and Passive Antennas with high sensitivity.



## IsoLOG 3D Mobile (9kHz - 6GHz)

Very light and small isotropic antenna which is compatible to any spectrum analyzer.



## 1m / 5m / 10m SMA-Cable

High quality SMA cable for connecting any HyperLOG or MDF Antenna with the Analyzer. Available as 1m, 5m and 10m Cable. All versions: SMA plug (male) / SMA plug (male).





# References



## Cross-Section of Aaronia Clients

### Government, Military, Aeronautic, Astronautic

- NATO, Belgium
- Department of Defense, USA
- Department of Defense, Australia
- Airbus, Germany
- Boeing, USA
- Bundeswehr, Germany
- NASA, USA
- Lockheed Martin, USA
- Lufthansa, Germany
- DLR, Germany
- Eurocontrol, Belgium
- EADS, Germany
- DEA, USA
- FBI, USA
- BKA, Germany
- Federal Police, Germany
- Ministry of Defense, Netherlands

### Research/Development, Science and Universities

- MIT - Physics Department, USA
- California State University, USA
- Indonesien Institute of Science, Indonesia
- Los Alamos National Laboratory, USA
- University of Bahrain, Bahrain
- University of Florida, USA
- University of Victoria, Canada
- University of Newcastle, United Kingdom
- University of Durham, United Kingdom
- University Strasbourg, France
- University of Sydney, Australia
- University of Athen, Greece
- University of Munich, Germany
- Technical University of Hamburg, Germany
- Max-Planck Inst. for Radio Astronomy, Germany
- Max-Planck-Inst. for Nuclear Physics, Germany
- Research Centre Karlsruhe, Germany

### Industry

- IBM, Switzerland
- Intel, Germany
- Shell Oil Company, USA
- ATI, USA
- Microsoft, USA
- Motorola, Brazil
- Audi, Germany
- BMW, Germany
- Daimler, Germany
- Volkswagen, Germany
- BASF, Germany
- Siemens AG, Germany
- Rohde & Schwarz, Germany
- Infineon, Austria
- Philips, Germany
- ThyssenKrupp, Germany
- EnBW, Germany
- CNN, USA
- Duracell, USA
- German Telekom, Germany
- Bank of Canada, Canada
- NBC News, USA
- Sony, Germany
- Anritsu, Germany
- Hewlett Packard, Germany
- Robert Bosch, Germany
- Mercedes Benz, Austria
- Osram, Germany
- DEKRA, Germany
- AMD, Germany
- Keysight, China
- Infineon Technologies, Germany
- Philips Semiconductors, Germany
- Hyundai Europe, Germany
- VIAVI, Korea
- Wilkinson Sword, Germany
- IBM Deutschland, Germany
- Nokia-Siemens Networks, Germany



Aaronia AG, Gewerbegebiet Aaronia AG II (Dorfstraße 10a), DE-54597 Strickscheid, Germany  
Phone: +49(0)6556-9019-355 | Fax: +49(0)6556-93034  
Email: mail@aaronia.de | URL: www.aaronia.com

06.11.2018, Revision 1.72