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
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. It’s 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). Available in 4 different versions (see page 4) 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, Aaronia offers the USB (X & OEM) series, remote-controled 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, shortkeys 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

<table>
<thead>
<tr>
<th>Specifications</th>
<th>V5 RSA 80120</th>
<th>V5 RSA 80160</th>
<th>V5 RSA 80200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>9kHz to 12GHz</td>
<td>9kHz to 16GHz</td>
<td>9kHz to 20GHz</td>
</tr>
<tr>
<td>Real-Time Bandwidth</td>
<td>88MHz (Optional: 160/175MHz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Event Duration</td>
<td>&lt;1µS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Power at RF input</td>
<td>+20dBm (+33dBm*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Displayed Average Noise Level (internal pre-amp on)</td>
<td>typ. -150dBm/Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Displayed Average Noise Level (with external pre-amp)</td>
<td>max. -170dBm/Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amplitude accuracy (typ.)</td>
<td>typ. +/- 1,5dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF input</td>
<td>N female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency reference accuracy</td>
<td>0,5ppm (optional 5ppb with Option 002)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RBW (resolution bandwidth)</td>
<td>1Hz to 3MHz</td>
<td></td>
<td></td>
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<tr>
<td>VBW (video bandwidth)</td>
<td>1Hz to 3MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demodulator</td>
<td>AM, FM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement Units</td>
<td>dBm, dBuV, V/m, A/m, W/m², dBuV/m, W/cm²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detector</td>
<td>45dB (0,5dB steps)</td>
<td></td>
<td></td>
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<tr>
<td>Traces</td>
<td>ACT, AVG, MAX, MIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference range</td>
<td>-200dBm to 100dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement modes</td>
<td>I/Q, Power/Frequency Data</td>
<td></td>
<td></td>
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<tr>
<td>ADC</td>
<td>500MSPS 14Bit</td>
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<td></td>
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<tr>
<td>GPS</td>
<td>Support via external GPS Logger</td>
<td></td>
<td></td>
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<tr>
<td>FPGA</td>
<td>240K ECP3</td>
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<td></td>
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<tr>
<td>DSP</td>
<td>600MHz</td>
<td></td>
<td></td>
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<tr>
<td>Temperature Range (Operation)</td>
<td>0 °C to +50 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Range (Storage)</td>
<td>-20 °C to +60 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>480 x 370 x 44mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>4,8kg</td>
<td></td>
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<tr>
<td>Power Supply</td>
<td>AC Input: 100-240V, 50-60Hz - DC Output: 5,6V, 5A max.</td>
<td></td>
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</tr>
<tr>
<td>Power Consumption</td>
<td>&lt;35W</td>
<td></td>
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<tr>
<td>Country of Origin</td>
<td>Germany</td>
<td></td>
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<tr>
<td>Recommended Calibration Interval</td>
<td>2 years</td>
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</tr>
</tbody>
</table>
## Accessories

<table>
<thead>
<tr>
<th><strong>IsoLOG 3D (9kHz - 40GHz)</strong></th>
<th><strong>PowerLOG Antennas</strong></th>
<th><strong>Biconical Antennas (20MHz - 3GHz)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>3D directional finding antenna Array. Perfect for Spectrum monitoring and signal tracking. Comes with specified control software for RF Command Center.</td>
<td>Directional, Broadband Horn Antennas with very wide frequency range from 700MHz to 18GHz. Very high gain up to 18dBi.</td>
<td>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).</td>
</tr>
<tr>
<td><strong>HyperLOG Antennas</strong></td>
<td><strong>External Pre-Amplifier</strong></td>
<td><strong>Near field probe set (DC to 9GHz)</strong></td>
</tr>
<tr>
<td>Directional, Ultra Broadband Antennas with extremely wide frequency range from 380MHz to 35GHz. High and constant gain of typ. 5dBi (active up to 45dBi).</td>
<td>External Battery-Powered Preamplifier with full range of 1Hz to 30GHz &amp; up to 40dB gain. Perfect to reach extremely high sensitivity up to -170dBm/Hz.</td>
<td>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.</td>
</tr>
<tr>
<td><strong>MDF Antennas (9kHz - 400MHz)</strong></td>
<td><strong>IsoLOG 3D Mobile (9kHz - 6GHz)</strong></td>
<td><strong>1m / 5m / 10m SMA-Cable</strong></td>
</tr>
<tr>
<td>Magnetic Tracking Antennas for the low frequency range of the Analyzer. Covers 9kHz to 400MHz. Active and Passive Antennas with high sensitivity.</td>
<td>Very light and small isotropic antenna which is compatible to any spectrum analyzer.</td>
<td>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).</td>
</tr>
</tbody>
</table>
# 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

### Industry
- APPLE, USA
- 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

### Research/Development, Science and Universities
- MIT - Physics Department, USA
- California State University, USA
- Indonesien Institute of Sience, 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