SPECTRAN

V5 ODB / Outdoor (9kHz to 20GHz)

Remote controllable, outdoor real-time RF/EMF data-logger with an integrated PC

Remote controllable from anywhere
Real-time bandwidth of up to 175MHz
Outdoor capable with an IP68 rating
Highlights

✔ Weatherproof Spectrum Analyzer with IP68 rating
✔ 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 weatherproof

Aaronia presents the SPECTRAN V5 ODB, 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, Anywhere

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 ODB is the ideal spectrum analyzer for making reliable and fast measurements. Supplied in an IP rated, weatherproof housing the Analyzer is ready to be installed wherever necessary.

Benchtop Analyzer

The included PC analysis software "RTSA Suite Pro" transforms the SPECTRAN V5 ODB into a fully-featured remote controllable 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 ODB Spectrum Analyzer Series offers an incredible performance at an unbeatable price-performance ratio in a weatherproof housing.

Each Outdoor-Box unit can be mounted directly on e.g. an antenna mast. Thus the ODB is perfectly suitable for fixed installation at remote locations.

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-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, shortkeys etc.

3D View and Histogramm View
- The V5 ODB 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 ODB 80120</th>
<th>V5 ODB 80160</th>
<th>V5 ODB 80200</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency Range</strong></td>
<td>9kHz to 12GHz</td>
<td>9kHz to 16GHz</td>
<td>9kHz to 20GHz</td>
</tr>
<tr>
<td><strong>Real-Time Bandwidth</strong></td>
<td>88MHz (Optional: 160/175MHz)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Min. Event Duration</strong></td>
<td>&lt;1µS</td>
<td></td>
<td></td>
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<tr>
<td><strong>Max. Power at RF input</strong></td>
<td>+20dBm (+33dBm*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Displayed Average Noise Level</strong></td>
<td></td>
<td>typ. -150dBm/Hz</td>
<td>max. -170dBm/Hz</td>
</tr>
<tr>
<td><strong>(internal pre-amp on)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Displayed Average Noise Level</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>(with external pre-amp)</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>Amplitude accuracy (typ.)</strong></td>
<td>typ. +/- 1.5dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RF Input</strong></td>
<td>N female</td>
<td></td>
<td></td>
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<tr>
<td><strong>Frequency reference accuracy</strong></td>
<td>0.5ppm (optional 5ppb with Option 002)</td>
<td></td>
<td></td>
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<tr>
<td><strong>RBW (resolution bandwidth)</strong></td>
<td>1Hz to 3MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>VBW (video bandwidth)</strong></td>
<td>1Hz to 3MHz</td>
<td></td>
<td></td>
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<tr>
<td><strong>Demodulator</strong></td>
<td>AM, FM</td>
<td></td>
<td></td>
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<tr>
<td><strong>Measurement Units</strong></td>
<td>dBm, dBµV, V/m, A/m, W/m², dBµV/m, W/cm²</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Detector</strong></td>
<td>45dB (0.5dB steps)</td>
<td></td>
<td></td>
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<tr>
<td><strong>Traces</strong></td>
<td>ACT, AVG, MAX, MIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reference range</strong></td>
<td>-200dBm to 100dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measurement modes</strong></td>
<td>I/Q, Power/Frequency Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ADC</strong></td>
<td>500MSPS 14Bit</td>
<td></td>
<td></td>
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<tr>
<td><strong>GPS</strong></td>
<td>Support via external GPS Logger</td>
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<tr>
<td><strong>FPGA</strong></td>
<td>240K ECP3</td>
<td></td>
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<tr>
<td><strong>DSP</strong></td>
<td>600MHz</td>
<td></td>
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<tr>
<td><strong>Temperature Range (Operation)</strong></td>
<td>0 °C to +50 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Temperature Range (Storage)</strong></td>
<td>-20 °C to +60 °C</td>
<td></td>
<td></td>
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<tr>
<td><strong>Dimensions</strong></td>
<td>450x350x80mm</td>
<td></td>
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<tr>
<td><strong>Weight</strong></td>
<td>12kg</td>
<td></td>
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<tr>
<td><strong>Power Supply</strong></td>
<td>AC Input: 100-240V, 50-60Hz - DC Output: 5.6V, 5A max.</td>
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<tr>
<td><strong>Power Consumption</strong></td>
<td>&lt;35W</td>
<td></td>
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<tr>
<td><strong>Country of Origin</strong></td>
<td>Germany</td>
<td></td>
<td></td>
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<tr>
<td><strong>Recommended Calibration Interval</strong></td>
<td>2 years</td>
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</table>

*Note: All specifications are subject to change without notice.*
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.

**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).

**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).

**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.

**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.

**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.

**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 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

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