

AARONIA RF

COMMAND CENTER

9 KHz TO 20 GHz

The most powerful SPECTRAN V5 – Two 4K screens, up to 40 TB SSD



Highlights:

- The ultimate RF battle station
- Real-time bandwidth of up to 700 MHz
- Up to 4x internal V5 receivers

**AARONIA AG**
WWW.AARONIA.DE



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

Highlights

- ✓ Scans 20 GHz in less than 20 ms (= 1000 GHz/second)
- ✓ Fully customizable and cascadable system (providing up to four independent analyzers)
- ✓ Real-time capture bandwidth of up to 700 MHz
- ✓ $POI \leq 1 \mu s$
- ✓ Virtually unlimited recording time
- ✓ Ultra-wide measuring range of up to 20 GHz
- ✓ Sample rate: > 50 million/second
- ✓ 500 MSPS (14-bit dual 256 MSPS IQ)
- ✓ Ultra-fast SSD recording storage of up to 40 TB
- ✓ Intel® i7 with 16 GB RAM, powered by Nvidia graphics (gapless streaming and playback)
- ✓ Two 4K widescreen displays with a combined resolution of 3840 x 4320
- ✓ 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

Pure RF performance

The SPECTRAN V5 RF Command Center is the culmination of Aaronia's efforts in building the epitome of a Spectrum Analyzer Battleship: It scans 20 GHz in less than 20 milliseconds, equaling an astonishing speed of 1000 GHz per second.

This high-end spectrum analyzer offers all the RF performance you need, and provides every measurement detail necessary at the same time.

Perfect for any RF Problem

The setup is completely customizable, and – thanks to its cascadable system – can be combined with up to four independent analyzers.

Two 24" full HD widescreen displays capture and visualize a bandwidth of up to 175 MHz in real-time (or 700 MHz with four internal analyzers), with a remarkable $POI \leq 1\mu s$. Moreover, with up to 40 TB of ultra-fast SSD hard drives, you have virtually unlimited recording time.

Hardware

Our Command Center has a wide measuring range of up to 20 GHz, with over five million samples / second. The 14-bit dual 256 MSPS I/Q generates 500 MSPS.

In terms of hardware, the computer features the best components available. The SPECTRAN V5 RF Command Center runs on the latest i7 generation of Intel processors, with 16 GB DDR4 RAM and an Nvidia GeForce 1060 GTX graphics card allowing for gapless streaming and playback.

Made in Germany

Last but certainly not least, our Command Center is made in Germany, ensuring highest quality standards throughout the entire value chain.



The Command Center in action.

Hardware

Ultra-wide measurement range from 9 kHz to 20 GHz

24" widescreen 4K displays (sunlight readable)

Expandable hard disk (up to 40 TB)

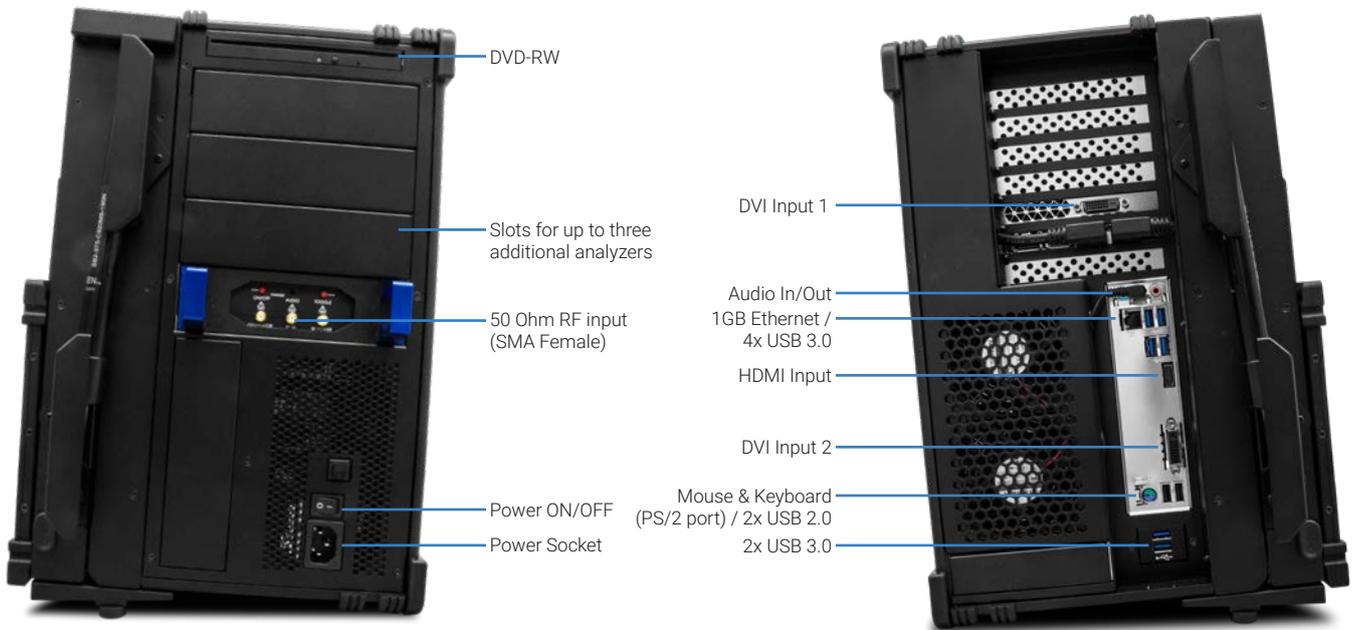


◆ Rolling rack case included

◆ All-in-one solution: Fully featured PC and Spectrum Analyzer

◆ 50 Ohm RF input

◆ Intel® i7 processor, 16 GB DDR4 RAM, and 2 TB HDD



DVD-RW

Slots for up to three additional analyzers

50 Ohm RF input (SMA Female)

Power ON/OFF

Power Socket

DVI Input 1

Audio In/Out

1GB Ethernet / 4x USB 3.0

HDMI Input

DVI Input 2

Mouse & Keyboard (PS/2 port) / 2x USB 2.0

2x USB 3.0

RF Measurements

The RF Command Center offers a multitude of helpful functions for spectrum analysis

Peak Performance Measuring

- Various trigger functions and unlimited number of markers
- Different views: Spectrum / Persistence Spectrum, Spectrogram / Waterfall, 3D Waterfall, Histogram
- Multi-window feature supports several simultaneous views, e.g. Spectrum & Waterfall & Histogram
- Virtually unlimited storage of measuring data (HDD can be expanded to up to 40 TB for gap-less recording)
- Comfortable reference level and color settings
- Reporting and recording functions
- Storage of personal sessions

and much more ...

Applications

- Technical surveillance countermeasures (TSCM)
- Security surveys for detecting and preventing eavesdropping
- Interference hunting
- Spectrum monitoring and enforcement
- Maintenance, installation and repair both in the factory and in the field
- VIP monitoring
- Conference monitoring
- EMC / EMI testing
- Detection of weak signals masked by stronger ones
- Detection of rare, short-duration events
- Capturing spread-spectrum and frequency-hopping signals
- Investigating abuse of crowded RF spectrums

Customization

The RF Command Center comes with an extensive scope of options from which to choose. Catering to individual user needs, the delivery can be extended to include various additional products:

- RF Command Center including Option 020 (internal 20 dB preamp)
- Padded rolling case to move RF Command Center with ease
- OmniLOG 70600 omni-directional antenna (700 MHz to 6 GHz)
- Pre-installed spectrum analysis software RTSA Suite PRO
- 850 W, 100 - 240 V, 50 - 60 Hz power supply

Option 002: 5 ppb (0,005 ppm) OCXO Time Base

Our highly precise OCXO time base, especially developed for and adjusted to the SPECTRAN® series, offers significantly reduced phase noise (jitter). This allows for the use of far narrower filters, which in turn vastly enhances sensitivity. In order to use maximum sensitivity, then, this is an indispensable option. Furthermore, the OCXO time base allows far more accurate frequency measurements and displays.

Option 160: 160 MHz Real-Time Bandwidth (175 MHz available for EU countries)

This additional feature expands the real-time bandwidth from 88 MHz to 160 MHz (or 175 MHz in EU countries).

RTSA Suite Pro

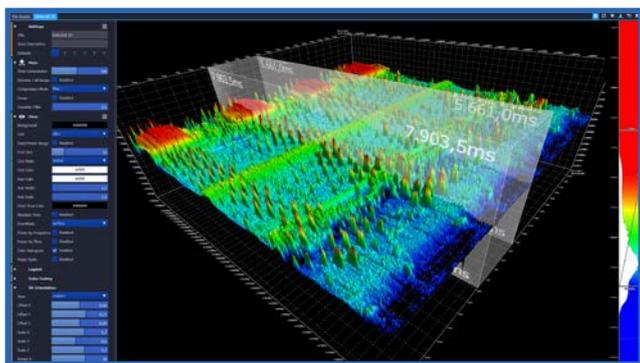
The world's fastest real-time analyzer software

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



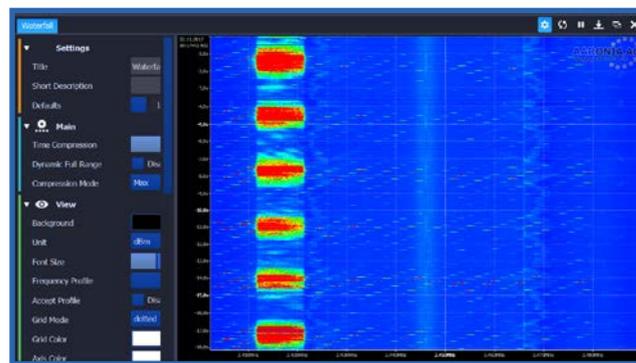
- ◆ High-resolution persistence spectrum display of the current sweep, average, min / max, peak, RMS etc.
- ◆ Marker function with unlimited number of different markers (min, max, delta, AVG, OBW.)
- ◆ Intuitive drag and drop zoom, shortcuts etc.

3D View and Histogram View



- ◆ The RF Command Center is able to display several views at once (Spectrum, 3D Waterfall, Histogram etc.)
- ◆ The window size can be adjusted freely, therefore tapping the potential of each full HD display

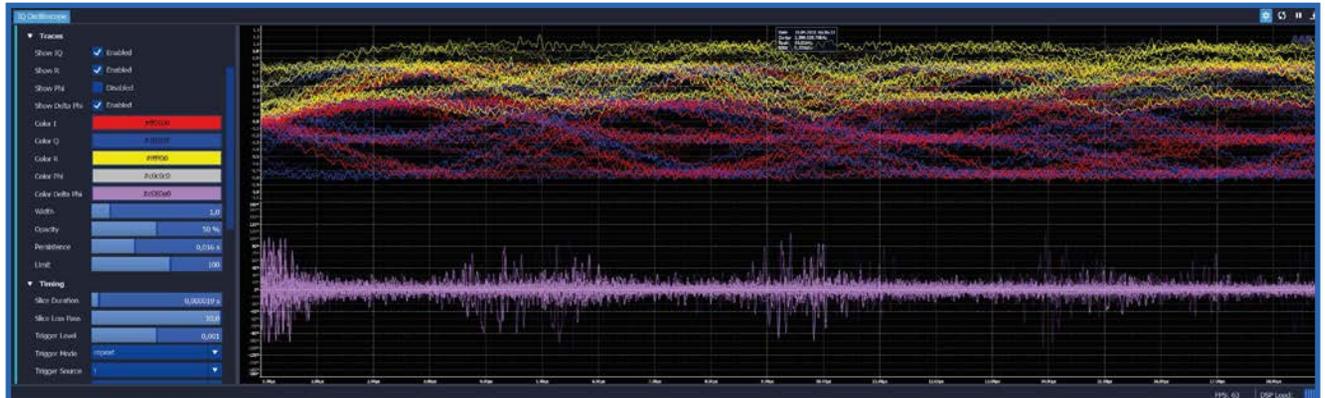
Waterfall View



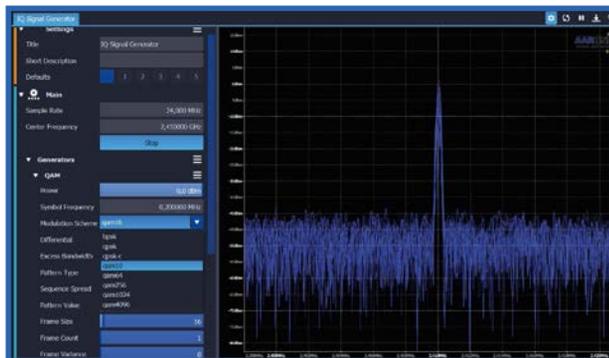
- ◆ Spectrogram / Waterfall view for the identification of frequency hops, measuring of pulse rate, analysis of time-variant spectra and the tuning of a VCO

RTSA Suite Pro

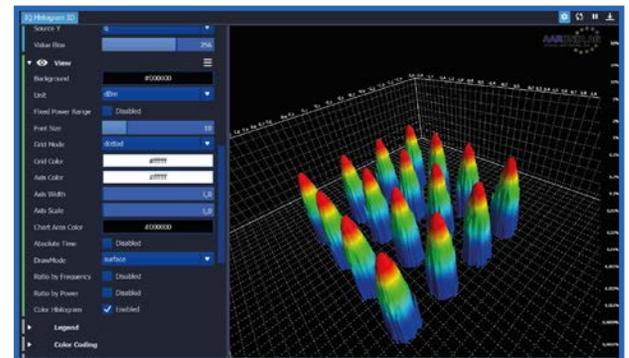
IQ Oscilloscope



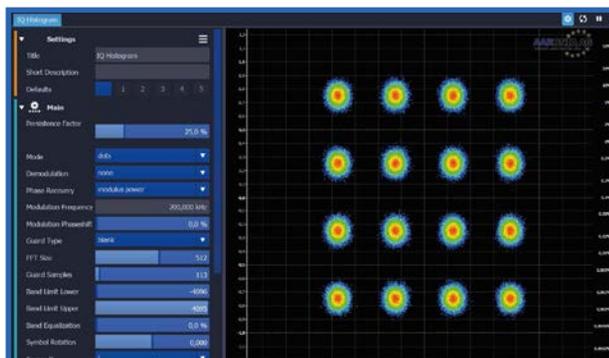
IQ Signal Generator



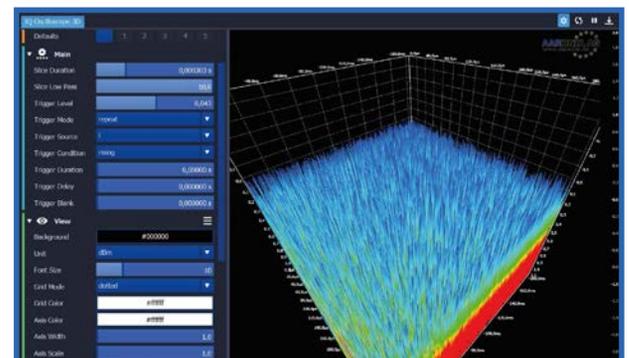
IQ Histogram 3D



IQ Histogram



IQ Oscilloscope 3D



Specifications (Analyzer)

Main Specifications	
Frequency Range	9 kHz to 20 GHz
Real-time Bandwidth	88 MHz (Optional: 160 / 175 MHz) Up to 700 MHz with up to 4 receivers
Min. Event Duration	< 1 μ S
Max. Power at RF Input	+20 dBm (+33 dBm)
Displayed Average Noise Level (Internal Pre-Amp On)	typ. -150 dBm / Hz
Displayed Average Noise Level (With External Pre-Amp)	max. -170 dBm / Hz
Amplitude Accuracy	typ. +/- 1,5 dB
RF Input	50 Ohm (SMA connector)
Frequency Reference Accuracy	0,5 ppm (optional 5 ppb with Option 002)
RBW (Resolution Bandwidth)	1 Hz to 3 MHz
VBW (Video Bandwidth)	1 Hz to 3 MHz
Demodulator	AM, FM
Measurement Units	dBm, dB μ V, V/m, A/m, W/m ² , dB μ V/m, W/cm ²
Detector	45 dB (0,5 dB steps)
Traces	ACT, AVG, MAX, MIN
Reference range	-200 dBm to 100 dBm
Measurement Modes	IQ, Power / Frequency Data
ADC	500 MSPS 14-bit
GPS	Built-in
FPGA	240 K ECP3
DSP	600 MHz

Specifications (PC)

Main Specifications	
CPU	Newest Gen. Intel i7
RAM	16 GB DDR4
HDD	120 GB SSD (OS), 2 TB HDD (storage), optional expandable
Operating System	Windows 10 PRO
Display	2x 4K (2x 3840 x 2160 px) sunlight readable, anti reflection tempered strengthen glass
Graphics Card	Nvidia 1060 GTX
Speaker	Built-in, 2x 3 W speakers
Keypad	104-key industrial keyboard with integrated numeric keypad and touchpad
Connectors	2x USB 3.0, 2x USB 2.0, Mouse, Keypad, DVI, VGA, HDMI, Power socket
Mainboard	Name-Brand ATX Mainboard
Case	Padded Carrying case with wheels
Case Weight	7 kg
Operating Temperature	0 °C to 50 °C
Storage Temperature	-20 °C to +60 °C
Dimensions	620 x 270 x 400 mm
Weight	22 kg
Relative Humidity	10% - 90%
Power Supply	850 W, 100 - 240 V, 50 - 60 Hz
Power Consumption	typ. < 110 W
Country of Origin	Germany

REFERENCES



Selected List of Aaronia Clients

Government, Military, Aero- and Astronautic

- NATO, Belgium
- Department of Defense (DoD), USA
- Department of Defence, Australia
- Airbus, Germany
- Boeing, USA
- German Armed Forces, Germany
- NASA, USA
- Lockheed Martin, USA
- Lufthansa, Germany
- German Aerospace Center (DLR), Germany
- Eurocontrol, Belgium
- EADS, Germany
- Drug Enforcement Administration (DEA), USA
- Federal Bureau of Investigation (FBI), USA
- Federal Criminal Police Office (BKA), Germany
- Federal Police, Germany
- Ministry of Defence, Netherlands

Research/Development, Science and Universities

- MIT - Physics Department, USA
- California State University, USA
- Indonesian Institute of Science (LIPI), Indonesia
- Los Alamos National Laboratory (LANL), 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 (Energie Baden-Württemberg), Germany
- CNN, USA
- Duracell, USA
- German Telekom, Germany
- Bank of Canada, Canada
- NBC News, USA
- Sony, Germany
- Anritsu, Germany
- Hewlett-Packard, Germany
- 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, DE-54597 Strickscheid, Germany
Phone: +49(0)6556-9019-355 | Fax: +49(0)6556-93034
Email: mail@aaronia.de | URL: www.aaronia.com