



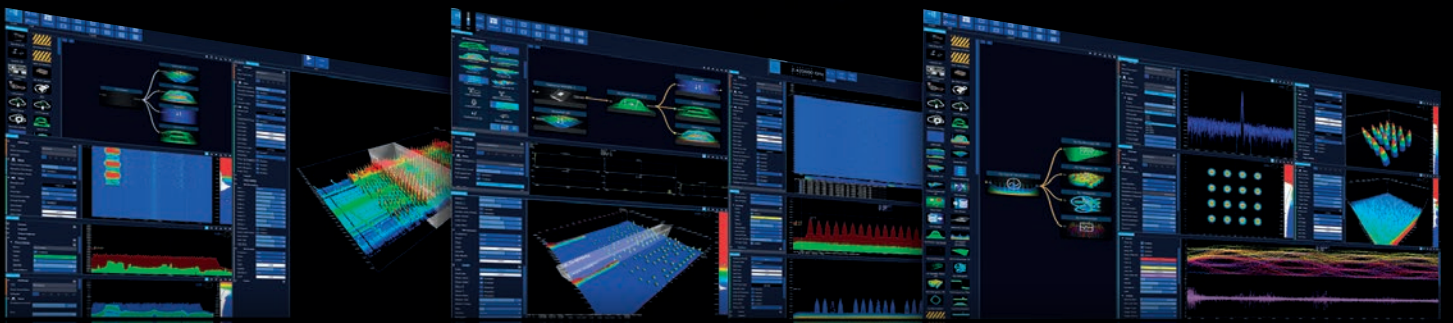
# SPECTRAN<sup>®</sup>V6

BEYOND REALTIME

REALTIME SPECTRUM ANALYZER **PLUS**



## 8 GHz USB Real-Time Spectrum Analyzer & Vector Signal Generator



- ✓ RF Frequency range of 10 MHz to 6 | 8 GHz
- ✓ Continuous 245 MHz true I/Q streaming
- ✓ Simultaneous measurement of multiple bands
- ✓ Dual USB 3.0 streaming
- ✓ RTSA-Suite PRO software
- ✓ 245 MHz vector signal generator



# Highlights

- ✓ Radio Frequency range of **10 MHz to 6 | 8 GHz**
- ✓ World's first, dual USB true I/Q streaming spectrum analyzer – **up to 784 MBytes/s**
- ✓ Scans 6 GHz in less than 5 ms (1 THz/s)
- ✓ Unlimited, continuous, true I/Q streaming over dual USB 3.0
- ✓ Instantaneous bandwidth (complex I/Q) of up to 245MHz
- ✓ I/Q vector signal generator bandwidth of up to 245 MHz
- ✓ FFT-based POI up to 97 ns
- ✓ I/Q-based POI up to 10 ns
- ✓ Extraordinary dynamic range with a 16-Bit ADC at 2GSPS
- ✓ Sample rate of 500 MSPS (16 Bit Dual 256 MSPS I/Q-Data)
- ✓ FPGA: 930 GMAC/s
- ✓ FFT rate: 960 Million FFT-points/s (120 Million FFTs/s)
- ✓ Full MATLAB support
- ✓ Fully automatic pulse classification (decodes Wifi, BT, GSM, DECT, QPSK, QAM etc.)
- ✓ Stackable accessories
- ✓ Compact and lightweight
- ✓ Includes “RTSA-Suite PRO” spectrum analysis software with regular updates
- ✓ Made in Germany



# Introduction

Fast, compact and powerful

Aaronia presents the SPECTRAN® V6 PLUS, a real-time, high-performance, spectrum analyzer and monitoring receiver designed to capture even the shortest signal transmissions. Its scanning speed and recording time are unrivaled. The analyzer scans 6 GHz in less than 5 ms, making it the world's fastest USB spectrum analyzer.

## Perfect for any RF problem

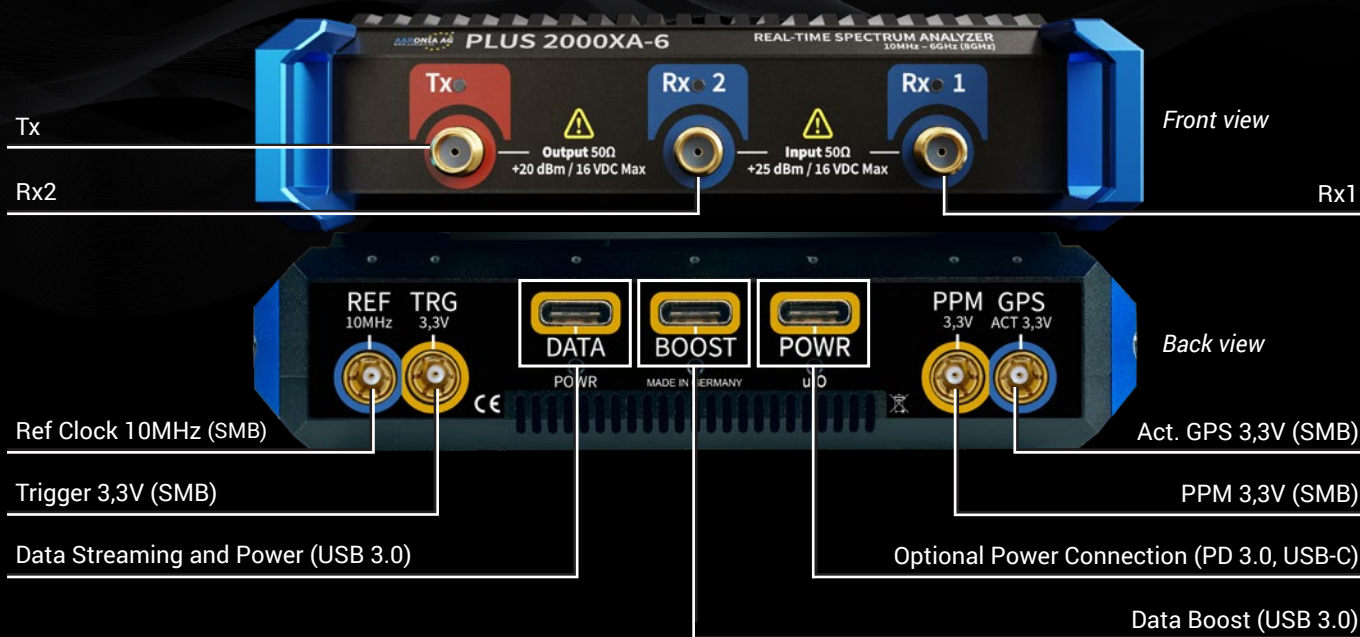
This spectrum analyzer enables you to conquer almost any challenge. Whether it's spectrum monitoring, RF and microwave measurements, Interference hunting, EMC testing or Wi-Fi and wireless network measurements, the SPECTRAN® V6 PLUS is the ideal spectrum analyzer for making reliable and fast measurements.

## Compact and lightweight

With a weight of only 850g, the V6 is ideal for measurements in both the field and in the lab. The included analysis software, RTSuite PRO, transforms the V6 PLUS into a fully-featured benchtop spectrum analyzer. The V6 PLUS offers a solution for almost every application.

## Made in Germany

The SPECTRAN® V6 PLUS spectrum analyzer and vector signal generator is designed and assembled in Germany, guaranteeing the highest quality standards.

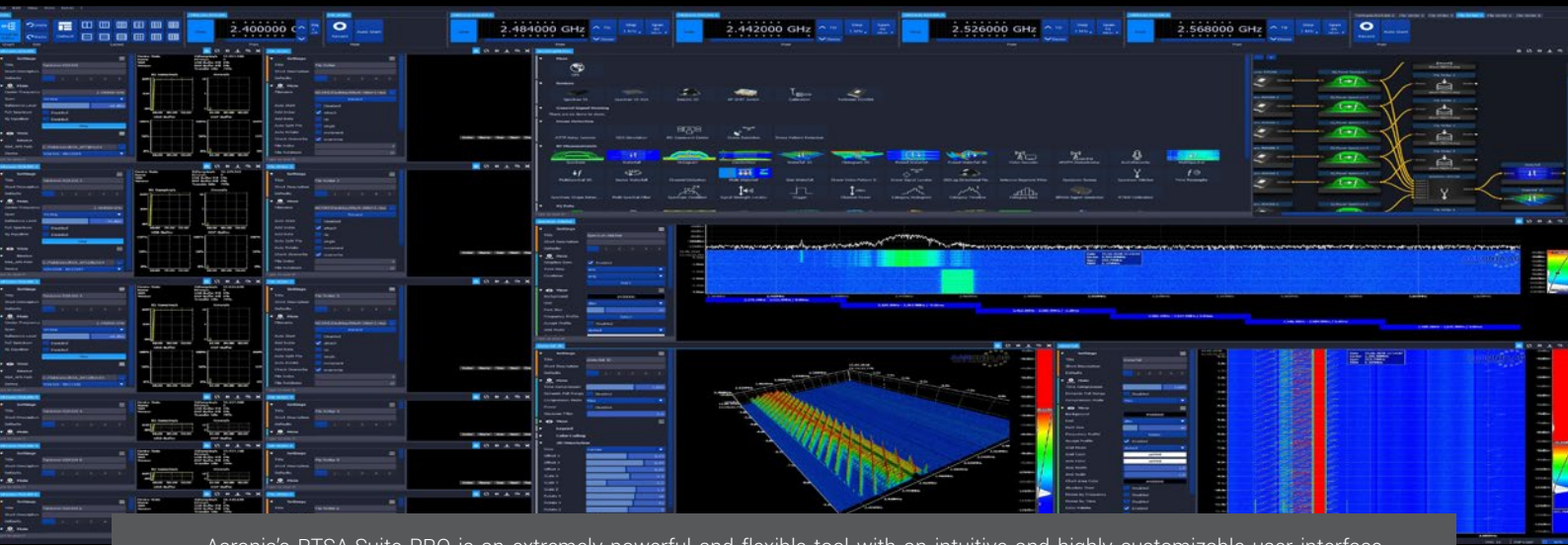


- ✓ Real-time USB IQ-streaming
- ✓ Ultrawide frequency range from 10 MHz up to 8 GHz
- ✓ Compact size: 210 x 115 x 30 mm
- ✓ Weighs only 850 g
- ✓ Included PC software
- ✓ Tough, high quality aluminum case
- ✓ 50 Ohm RF input and output (SMA)
- ✓ Stackable



# RTSA-Suite PRO

World's most powerful RTSA software with endless possibilities!



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

## RTSA-Suite PRO — Layout

An amazing block solution offers a convenient configuration to match any requirement!



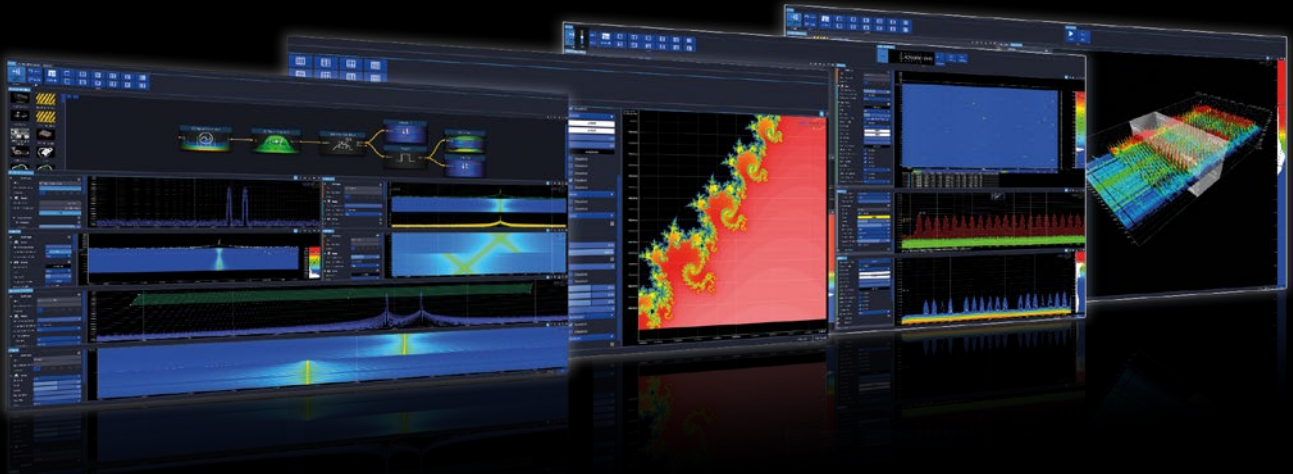
# Multiple 2D/3D Spectrum Analysis

Trigger Block

Powerful Script Block

Various Demodulations

3D/4D Waterfall



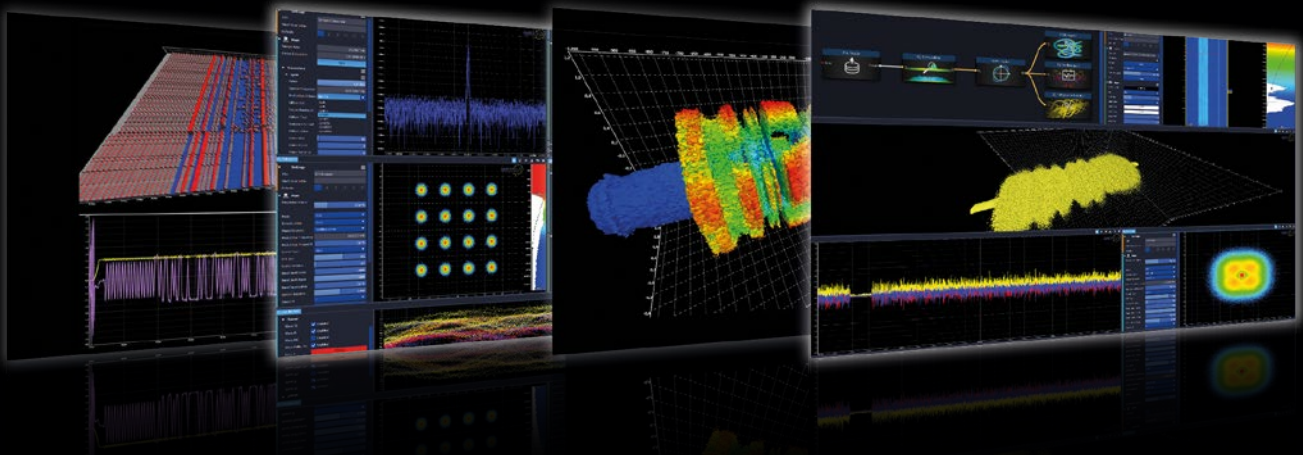
# 2D/3D IQ Streaming and Decoding

DECT Decoding

Software IQ Generator

3D IQ Display

DAB IQ Demodulation



# Multi Unit Stitching and Multi Frequency Monitoring

Multi Frequency Monitoring

Multi Waterfall

V6 full Frequency Monitoring

Multi-Unit Stitching



# WORLD of SPECTRAN® V6 PLUS

| Model             | RTBW                         | Speed          | I/Os             |
|-------------------|------------------------------|----------------|------------------|
| V6 PLUS 250XA-6*  | 80 MHz (opt. 120 MHz) I/Q    | 300/440 GHz/s  | 1 Rx (opt. 1 Tx) |
| V6 PLUS 500XA-6*  | 80 MHz (opt. 120 MHz) I/Q    | 300/440 GHz/s  | 1 Rx & 1 Tx      |
| V6 PLUS 2000XA-6* | 160 MHz (opt. 245 MHz**) I/Q | 730/1100 GHz/s | 2 Rx & 1 Tx      |

\* All models are available in OEM versions with e.g. reduced size and weight

| Options                | Comment                                                           |
|------------------------|-------------------------------------------------------------------|
| 120 MHz I/Q RTBW       | V6 PLUS 250XA-6 & V6 PLUS 500XA-6 only                            |
| 245 MHz I/Q RTBW**     | V6 PLUS 2000XA-6 only                                             |
| 120 MHz Tx             | V6 PLUS 250XA-6                                                   |
| WiFi6E Extension 8 GHz | Extended frequency band including WiFi6E                          |
| Ultra Low Noise Preamp | <b>Additional 20 dB of gain</b> (Add 2 for V6 PLUS 2000XA-6)      |
| OCXO Timebase          | <b>5 ppb</b> , ultra high vibration resistance ( $\pm 0.1$ ppb/g) |
| Internal GPS           | Incl. spoofing detection and active GPS antenna with SMB cable    |

\*\* There are export restrictions for spectrum analyzers from 160MHz real-time bandwidth.

## Accessories

### RF over Fiber (Rx/Tx) Set

Converts an RF signal into a laser signal for lossless streaming of data over long distances through a fiber optic cable.



### HyperLOG PRO Antennas

Directional measuring and direction finding antennas with a wide frequency range of 380 MHz to 40 GHz. Active and passive versions available.



### Splitter/Combiner

External, 4 or 6-way, low-loss, splitter/combiner can stitch multiple V6 units together to expand its real-time bandwidth.



### BicoLOG Antennas (20MHz – 3GHz)

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



### 26800 mAh Power Pack

External Power Pack with 26800 mAh capacity. Extends the battery runtime by up to 4-5 hours. Strongly recommended for outdoor operation. Stackable.



### IsoLOG 3D Mobile (9 kHz – 8 GHz)

Compact and lightweight, battery-powered 3 axis antenna with isotropic reception behaviour. Contains loop and dipole antenna elements and multiple amplifier stages.



# Analyzer Specifications

| Specifications                     | SPECTRAN® V6 PLUS                                                                 |
|------------------------------------|-----------------------------------------------------------------------------------|
| Frequency range                    | 10 MHz to 6   8 GHz                                                               |
| Real-time bandwidth Rx             | Up to 245 MHz I/Q – via 2 x USB                                                   |
| Real-time bandwidth Tx             | 120 MHz I/Q                                                                       |
| POI                                | Up to 97 ns (FFT-based), 10ns (direct I/Q-based)                                  |
| Max. power Rx                      | +23 dBm                                                                           |
| Max. power Tx                      | +20 dBm                                                                           |
| DANL (internal pre-amp on)         | Typ. -170 dBm/Hz                                                                  |
| Amplitude accuracy (typ.)          | Typ. +/- 0,5 dB (compensated by FIR filter)                                       |
| USB streaming connection           | One or two USB 3.0 (USB 3.1 Gen1; USB 3.2 Gen1)                                   |
| USB bandwidth (2 x USB 3.0)        | Up to 784 MBytes/s sustained throughput to PC                                     |
| Frequency reference accuracy       | 0,5 ppm (5 ppb via OCXO option)                                                   |
| RBW (resolution bandwidth)         | 62 mHz to 200 MHz                                                                 |
| Measurement units                  | Over 20 (e.g. dBm, dBµV, V/m, A/m, W/m <sup>2</sup> , dBµV/m, W/cm <sup>2</sup> ) |
| Detector                           | Min, Max, AVG, Peak, QPeak                                                        |
| Attenuator range                   | 50 dB / 70 dB (0,5 dB steps)                                                      |
| Traces                             | Over 20 (e.g. ACT, AVG, MAX, MIN, QPEAK)                                          |
| Measurement modes                  | True IQ or Power/Frequency data                                                   |
| Trigger                            | Cursor, Measurement, Density                                                      |
| ADC                                | Dual 2GSPS 16 Bit                                                                 |
| DAC                                | 2GSPS 14-Bit                                                                      |
| GPS                                | GPS/QZSS, GLONASS, BeiDou and Galileo (concurrent reception)                      |
| GPS synchronisation                | +/- 10ns timestamping in each data packet                                         |
| External frequency reference input | typ. 10MHz, 3,5VRMS into 50 Ohm (SMB-connector)                                   |
| FPGA                               | XC7A200T-2                                                                        |
| DSP processing                     | 930 GMACs                                                                         |
| SDRAM                              | 2 GB                                                                              |
| Temperature range (operation)      | 0 °C to +50 °C (extended -40 to +75 °C)                                           |
| Dimensions                         | 210 x 115 x 30 mm                                                                 |
| Weight                             | 850 g                                                                             |
| Power                              | USB 3.2 Gen 1 Type-C PD 3.0                                                       |
| Power consumption                  | Typical 15 W                                                                      |
| Country of origin                  | Germany                                                                           |
| Recommended calibration interval   | 2 years                                                                           |



# REFERENCES



## Selected 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
- Indonesian Institute of Sciences, 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 Athens, 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

