Datasheet

Real-Time RF Drone and Radar Detection System

Aaronia Drone Detector

Covers a frequency range from 9kHz to 20GHz, captures Drones of any kind

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- Extremely high coverage
- Works at night, fog & bad weather
- High tracking accuracy

Saelig Company, Inc. 71 Perinton Parkway, Fairport, NY 14450 USA 1-585-385-1750
info@saelig.com www.saelig.com

Highlights

- ✓ Real-time measurement of the RF emissions from drones / UAV´s, radar etc.
- ✓ Specialized Drone Detection Software
- ✓ Covers a frequency range from 9kHz to 20GHz
- ✓ Captures drones of any kind
- ✓ Extremely high coverage, depending on drone several kilometres
- ✓ Works at night, fog and bad weather
- ✓ Also works against drones „disguised“ between buildings, plants, trees..
- ✓ Allows a 24/7 monitoring and recording without any gaps
- ✓ High tracking accuracy
- ✓ Ready for use within a minute (portable version)
- ✓ 360° coverage
- ✓ Possibility to track the operator who controls the drone
- ✓ Unlimited in size & numbers of receivers, arbitrary scalable and expandable
- ✓ Made in Germany

Aaronia Drone Detector

Protect your privacy and make sure of your physical security

After 4 years of development Aaronia introduces its new Drone Detection System. The Aaronia Drone Detector is used to detect the incursion of unwanted drones, based on the directional real-time measurement of the electromagnetic emissions of drones. It warns the operator when drones are in the area and send alerts.

The system has no limitation in detection range, usually the detection range is the same as the usable distance from the operator to the drone (or better) so it always depends on the transmitter power of the drone/operator. Depending on the drone type it could be several km / miles without problems.

Aaronia Drone Detector can be used anywhere

The drone detection system can be used virtually anywhere. Typical use scenarios are the protection of residential areas, governmental buildings and commercial / industrial areas like nuclear plants.

Available as single-side or multiple-side solution the system is adjustable to the characteristics of the terrain to be monitored.

Made in Germany

The Aaronia Drone Detector is developed, individually manufactured and calibrated in Germany. This guarantees highest standards.

Hardware

The drone detector is based on the Aaronia IsoLOG 3D antenna, a real-time Spectrum Analyzer (XFR V5 PRO or RF Command Center) and a special software plugin for the RTSA Suite software. All parts combined allow a 24/7 monitoring and recording with a gapless data-streaming (up to 4TB/day). The system saves considerable measurement time and is compact and flexible. It can be set up at any place you need to control.

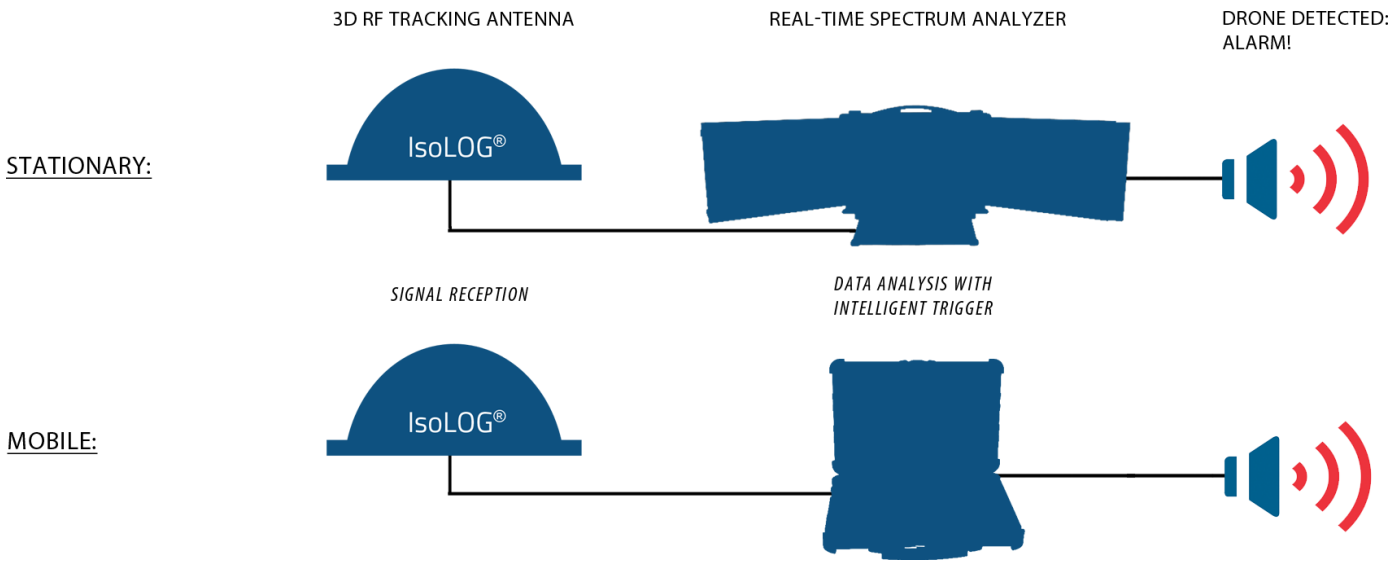
Drones can be more than just an annoyance

The rapid proliferation of micro/mini UAVs is a growing potential threat to national and commercial security. Easy to make, cheap to buy, simple to fly, and hard to detect, commercial and non-commercial available drones are one of the most quickly evolving technological threats to military and civilian interests.

A commercial drone reportedly alarmed the Secret Service in March 2015 when the aircraft flew too close to President Barack Obama during a round of golf in Florida. And a man was detained in May 2015 for trying to fly a drone near the White House.

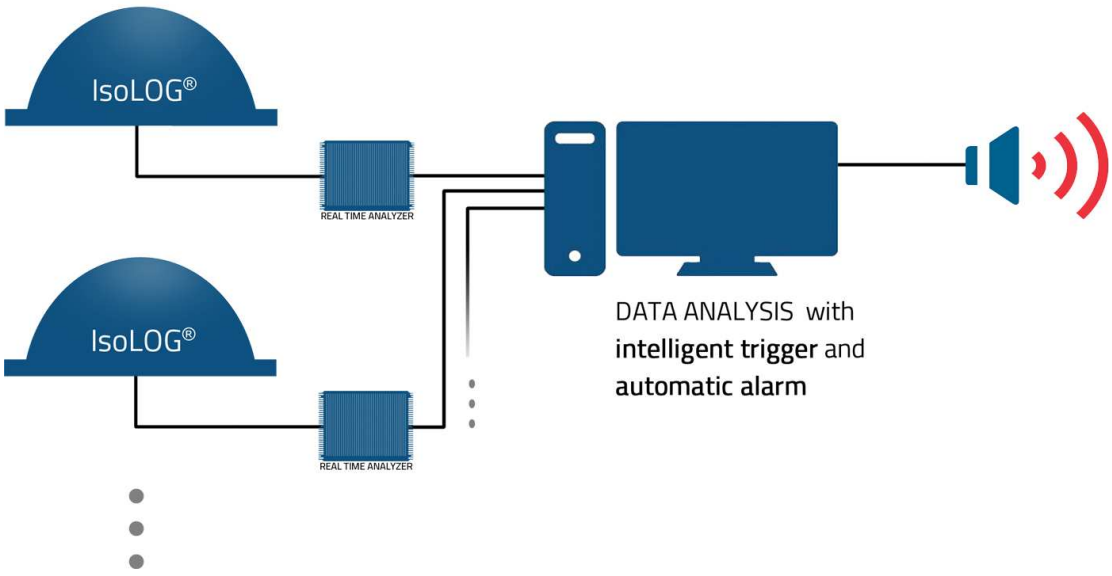
Perhaps most famously, there was the drone which a drunken US government employee plowed into the White House lawn. In Japan, a man landed a small drone on the rooftop of Prime Minister Shinzo Abe's office

Single Side Solution



The single side solution is ready to use within a few minutes only. Based on a stationary or mobile Spectrum Analyzer (see page 6) and the 3D direction finding antenna IsoLOG 3D, this solution is the first choice for surveillance of small areas, e.g. a house.

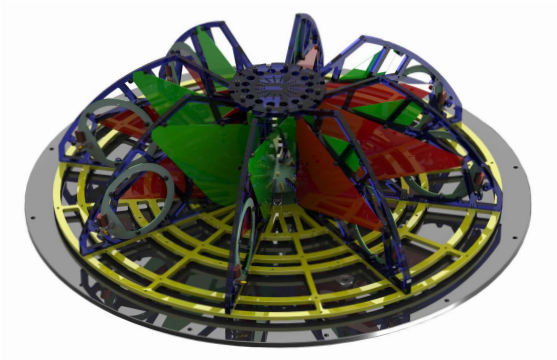
Multiple Sides Solution



The multi solution consists of several antennas and analyzers, coupled together to one centralized monitoring PC which manages all systems simultaneously. The advantage of the multi solution is the possibility to triangulate the readings. This leads to a very high tracking accuracy.
Further the multi solution can combine an unlimited number of receivers, thus it´s suitable to protect very large areas e.g. industry plants, stadiums, government buildings etc.

Hardware Part 1 (Antenna)

IsoLOG 3D 80-UWB



8 sectors with 24 antennas
Frequency range: **9kHz** to **6 / 20 GHz**

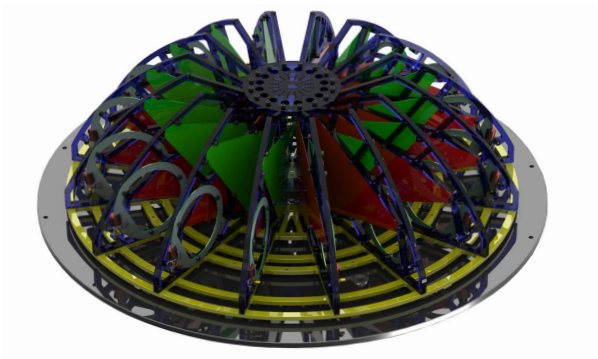
Frequency range	
Standard	9kHz to 6GHz
VLF Extender to 9kHz (option)	Included
SHF Extender to 20GHz (option)	Yes

Additional Options	
Internal GPS receiver	Yes
Internal low noise pre-amplifier	Yes (up to 20dB)
Customized color (RAL table)	Yes
8x horizontal LPDA´s in addition	Yes

Mechanical & environmental	
Power	via included PoE adapter
Operating temperature	-30 to +60°C (-22 to 140°F)
Storage temperature	-40 to +70°C (-40 to 158°F)
Dimensions	950 x 950 x 300mm
Weight	4kg (8kg with mounting plate)
RF Output	N or SMA (50Ohm)
Warranty	10 years

OR

IsoLOG 3D 160-UWB (higher accuracy)



16 sectors with 48 antennas
Frequency range: **9kHz** to **6 / 20 GHz**

Frequency range	
Standard	9kHz to 6GHz
VLF Extender to 9kHz (option)	Included
SHF Extender to 20GHz (option)	Yes

Additional Options	
Internal GPS receiver	Yes
Internal low noise pre-amplifier	Yes (up to 20dB)
Customized color (RAL table)	Yes
8x horizontal LPDA´s in addition	Yes

Mechanical & environmental	
Power	via included PoE adapter
Operating temperature	-30 to +60°C (-22 to 140°F)
Storage temperature	-40 to +70°C (-40 to 158°F)
Dimensions	950 x 950 x 300mm
Weight	5kg (9kg with mounting plate)
RF Output	N or SMA (50Ohm)
Warranty	10 years

Hardware Part 2 (Spectrum Analyzer)

XFR V5 PRO (portable)

Real-Time Outdoor Spectrum Analyzer (IP65 rated) with fully featured PC and Drone Detection Software

Frequency range	
Standard	9kHz to 20GHz

Technical specs	
Real-time bandwidth	80MHz (optionally 175MHz)
Minimum Event Duration for 100% POI	20µs (optionally 1µs)
GPS	Inbuilt
Trigger with automated alarm	Yes

Mechanical & environmental	
Operation mode	via battery or power supply
Operating temperature	-20 to +60°C
Storage temperature	-40 to +70°C
Dimensions	41x32x12cm
Weight	8,5kg
Country of Origin	Germany
Warranty	2 years

OR

RF Command Center (stationary)

Real-Time RF Command Center with fully featured PC and Drone Detection Software

Frequency range	
Standard	9kHz to 20GHz

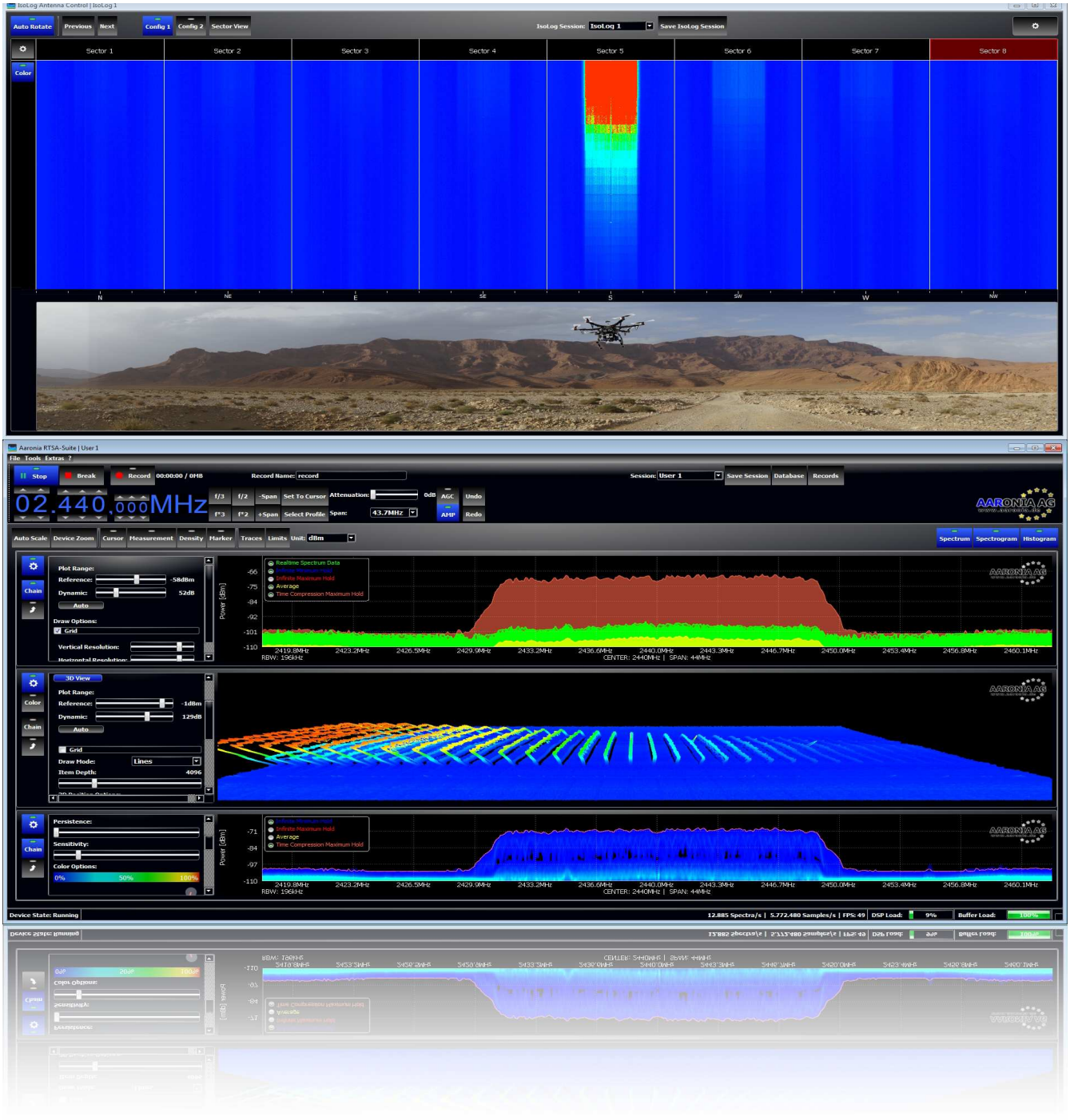
Technical specs	
Real-time bandwidth	80MHz (optionally 175MHz)
Minimum Event Duration for 100% POI	20µs (optionally 1µs)
GPS	Optional
Trigger with automated alarm	Yes

Mechanical & environmental	
Operation mode	via power supply only
Operating temperature	0 to +45°C
Storage temperature	-10 to +60°C
Dimensions	54x28x37cm (monitors closed)
Weight	25kg (34kg with rollcase)
Country of Origin	Germany
Warranty	2 years

Software

RF & Drone Detector Plugin for Aaronia RTSA Suite

The drone detection software offers an intuitive layout combined with powerful tracking, trigger and display options helping to identify, capture and track any RF emissions from drones/UAV´s or other RF sources up to 20GHz. Each sector/antenna gets its own real-time view, which allows to identify the exact direction the drone is coming from. Customizable alarms or pop-ups guarantees an early warning for the operator/user.



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 Labratory, 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 Institute for Radio Astronomy, Germany
- Max-Planck-Institute 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
- JDSU, Korea
- Wilkinson Sword, Germany
- IBM Deutschland, Germany
- Nokia-Siemens Networks, Germany