Product Datasheet - Technical Specifications

More information in our Web-Shop at ▶ **www.meilhaus.com**

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360° TRACKING ANTENNA ARRAY

ISOLOG® 3D DF

(400 MHz – 18 GHz)

3D Ultra-Wideband Direction Finding Antenna for Real-Time Spectrum Monitoring

3D RF-TRACKING-ARRAY

Highlights:

- High tracking accuracy
- Extremely fast tracking speed (up to 8 µs)
- Including control software

MADE IN GERMANY

Highlights

✔ World's first 400 MHz* to 18 GHz 3D direction finding antenna array

✔ Extremely high tracking accuracy (up to 2° if used with Aaronia spectrum analyzers)

✔ Provides 360° coverage without mechanical rotation

✔ Superfast tracking speed (up to 8 μs)**

✔ Very high third-order intercept point (IP3) of 40 dBm (with pre-amp in bypass mode)

✔ Digital RF switches – high-end, glitch-free, no mechanical parts

✔ Ideal for ultra-wideband, real-time spectrum monitoring

✔ Can be used as stand-alone or multi-device / grid system

✔ Real-time clock and optional GPS

✔ Fully customizable and cascadable system (8 to 32 independent antennas)

✔ Suitable for harsh environments (-30° C to +60° C)

✔ Waterproof (IP65 certified)

✔ Perfect for vehicle mounting

✔ Easy to use PC control software (via ethernet) included

✔ Plug and Play: Cable included with all parts

✔ Made in Germany

* Directional from 700 MHz
** For this option, a SPECTRAN® V6 device and the RTSA-Suite PRO software with specific keys are also required.

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Aaronia IsoLOG® 3D DF

Wide-area, multi-direction finding and RF tracking antenna

Aaronia's IsoLGO® 3D DF provides cost-effective high performance real-time signals monitoring, direction finding and geolocation for spectrum-critical areas. The 3D RF Tracking Antenna includes a high density, customizable antenna array. A total of at least 16 and up to 32 tracking-antennas, for horizontal and for vertical polarization, can be integrated. Additionally 8 or 16 specialized low frequency antennas can be added to extend the frequency range down to 400 MHz*.

The Industry Standard in Accuracy and Speed

Both the antenna and its electronics are protected by a radome (included), available in any RAL color and with optional prints (standard shipping color is black). The radome is waterproof, shock- and heat-proof – in other words, it is extremely durable and reliable even in the most adverse conditions.

The IsoLOG® 3D DF is thus the perfect solution for countersurveillance measurements as well as the detection of drones or UAVs (unmanned aerial vehicles). The wide frequency range makes multiple antenna setups obsolete, therefore saving space and system costs at the same time. Having just one antenna also makes the IsoLOG® 3D DF ideal for vehicle mounting (e.g. automotive prototypes etc.) and for hidden operations. In addition, as the antenna resembles a satellite dish for camping vans, it is hardly recognizable as special equipment, let alone a tracking device.

The IsoLOG® 3D DF is sensitive to the majority of incoming signal polarizations, including all linear polarizations. This allows for highly reliable signal detection – even those invisible to most DF systems that consist of vertically polarized antennas only.

Software

A powerful control software for operation on Windows systems is included for free. The software offers various tracking and selection setups, e.g. sweep all antennas horizontal and/or vertical, switch all in one sector, and a powerful high-speed „chopper mode". All of this makes it the perfect tool for instantaneous signal tracking.

Modular and Flexible Deployment

Each IsoLOG® 3D DF ships complete with a robust radome designed for the most hostile conditions. Close coupling of the IsoLOG® and antenna modules reduces both cable run and cable loss, and significantly improves performance at higher frequencies. Various directional antenna options are available from 400 MHz* to 18 GHz.
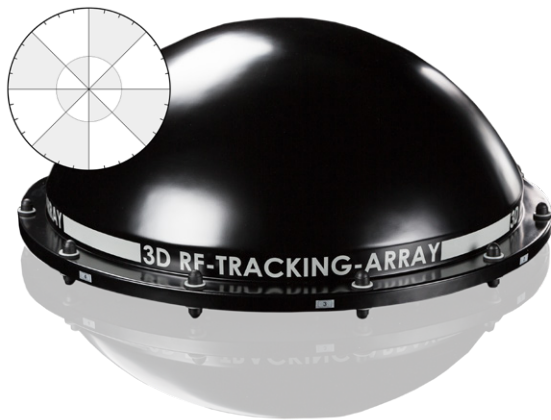
Over large distances, arrays can form a network as part of a wider monitoring network with other IsoLOG® antennas. It can be set up anywhere, be it on paved roads or dirt tracks.

* Directional from 700 MHz

Antenna Versions

IsoLOG® 3D DF 80

8 sectors with 16 antennas
Frequency range: 400 MHz* to **8 GHz**
Tracking accuracy (line of sight): **4 to 6°**

Frequency Range	
Standard	400 MHz* to 8 GHz

Additional Options	
Internal GPS Receiver	Yes
Internal Low-Noise Pre-Amplifiers	Yes (included)
Customized Color (RAL Table)	Yes (standard - white)

Measurements & Operating Specifications	
Operating Temperature	-30° to +60° C (-22° to 140° F)
Storage Temperature	-40° to 70° C (-40° to 158° F)
Dimensions [W x H x D]	960 x 960 x 380 mm
Weight	approx. 22 kg
RF Output	N (50 Ohm)
Certificates	IP65 (waterproof)

IsoLOG® 3D DF 160

16 sectors with 32 antennas
Frequency range: 400 MHz* to **8 GHz**
Tracking accuracy (line of sight): **1 to 3°**

Frequency Range	
Standard	400 MHz* to 8 GHz

| Additional Options	
Internal GPS Receiver	Yes
Internal Low-Noise Pre-Amplifiers	Yes (included)
Customized Color (RAL Table)	Yes (standard - white)

Measurements & Operating Specifications	
Operating Temperature	-30° to +60° C (-22° to 140° F)
Storage Temperature	-40° to 70° C (-40° to 158° F)
Dimensions [W x H x D]	960 x 960 x 380 mm
Weight	approx. 25 kg
RF Output	N (50 Ohm)
Certificates	IP65 (waterproof)

* Directional from 700 MHz

IsoLOG® 3D DF 80-SHF
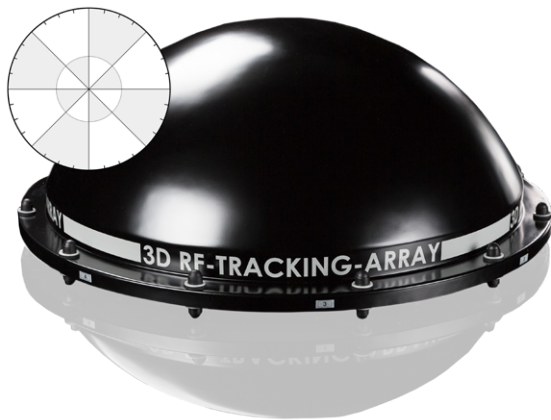
8 sectors with 16 antennas
Frequency range: 400 MHz* to **18 GHz**
Tracking accuracy (line of sight): **4 to 6°**

Frequency Range	
Standard	400 MHz* to 18 GHz

Additional Options	
Internal GPS Receiver	Yes
Internal Low-Noise Pre-Amplifiers	Yes (included)
Customized Color (RAL Table)	Yes (standard - white)

Measurements & Operating Specifications	
Operating Temperature	-30° to +60° C (-22° to 140° F)
Storage Temperature	-40° to 70° C (-40° to 158° F)
Dimensions [W x H x D]	960 x 960 x 380 mm
Weight	approx. 22 kg
RF Output	N (50 Ohm)
Certificates	IP65 (waterproof)

IsoLOG® 3D DF 160-SHF

16 sectors with 32 antennas
Frequency range: 400* MHz to **18 GHz**
Tracking accuracy (line of sight): **1 to 3°**

Frequency Range	
Standard	400 MHz* to 18 GHz

| Additional Options	
Internal GPS Receiver	Yes
Internal Low-Noise Pre-Amplifiers	Yes (included)
Customized Color (RAL Table)	Yes (standard - white)

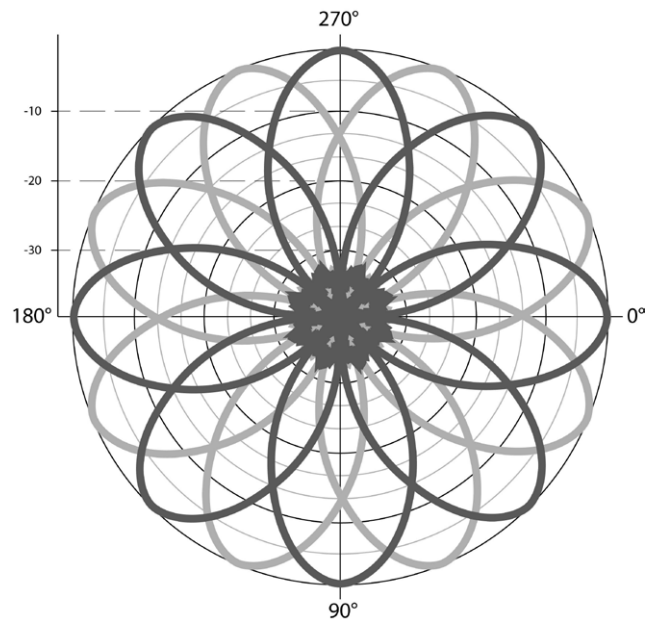| Measurements & Operating Specifications	
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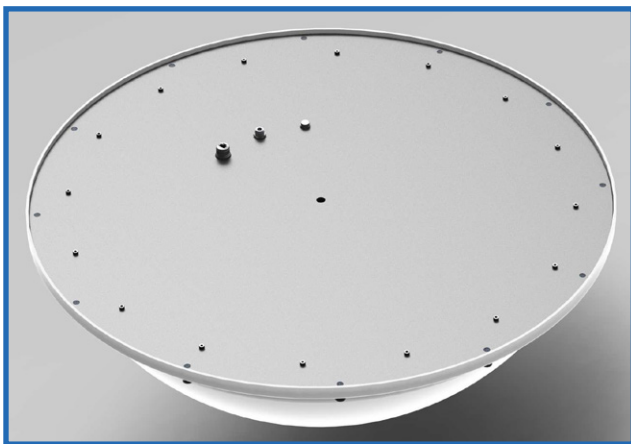
Typical Antenna Pattern

IsoLOG® 3D DF 80 & 80-SHF
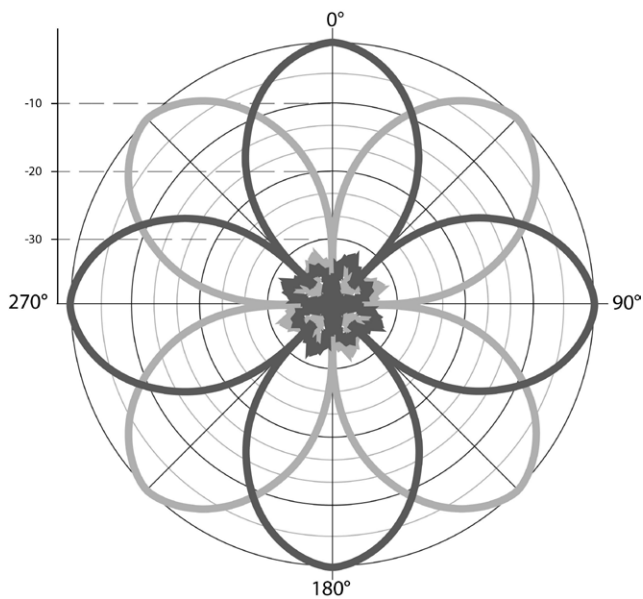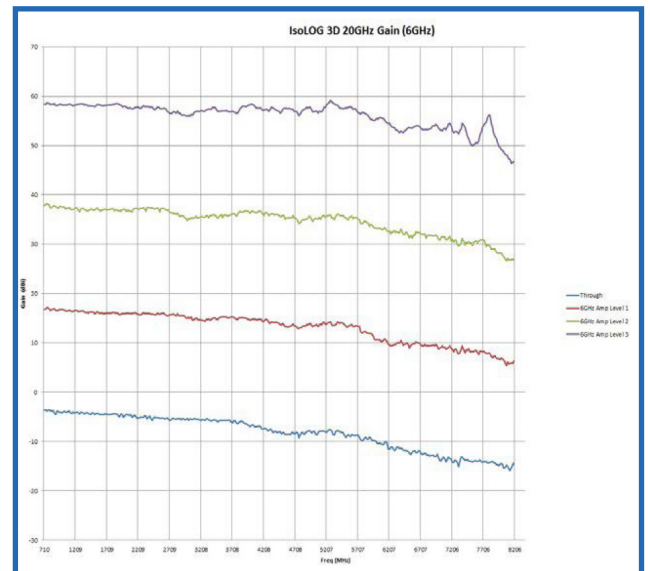

IsoLOG® 3D DF 160 & 160-SHF

Connectors and Gain
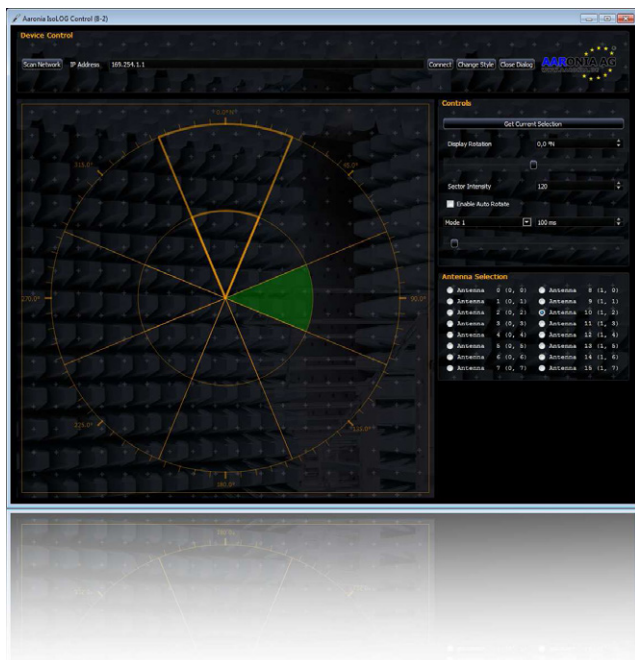

Mounting Plate & Connectors

The picture above shows the standard positions of the RF output, the Ethernet connector and mounting holes. The design of the antenna's mounting plate can be changed according to customers' needs. Please contact us at **mail@aaronia.de** for further details.

Typical Gain

The above diagram shows the typical gain of the IsoLOG® 3D DF 80, with and without activated internal pre-amplifiers.

Control Software

Free Software Included

The powerful software allows you to manually switch between each antenna and / or sector (i.e. manual RF tracking). The software also includes a programmable sector / antenna auto-rotate, and an ultra-fast „chopper mode" for real-time and simultaneous isotropic measurements across all antennas / sectors. Thanks to the freely adjustable switching speed, even slower receivers can be used with the IsoLOG® 3D DF.

Nevertheless, because of the high switching speed possible, we recommend the use of a real-time spectrum analyzer such as Aaronia's SPECTRAN® series.

- Auto-rotate with adjustable speed and ultra-fast "chopper mode" (i.e. "omnidirectional" measuring)
- Fast and easy antenna / sector selection for manual RF tracking
- Virtually real-time switching between all sectors (vertical, horizontal, all)
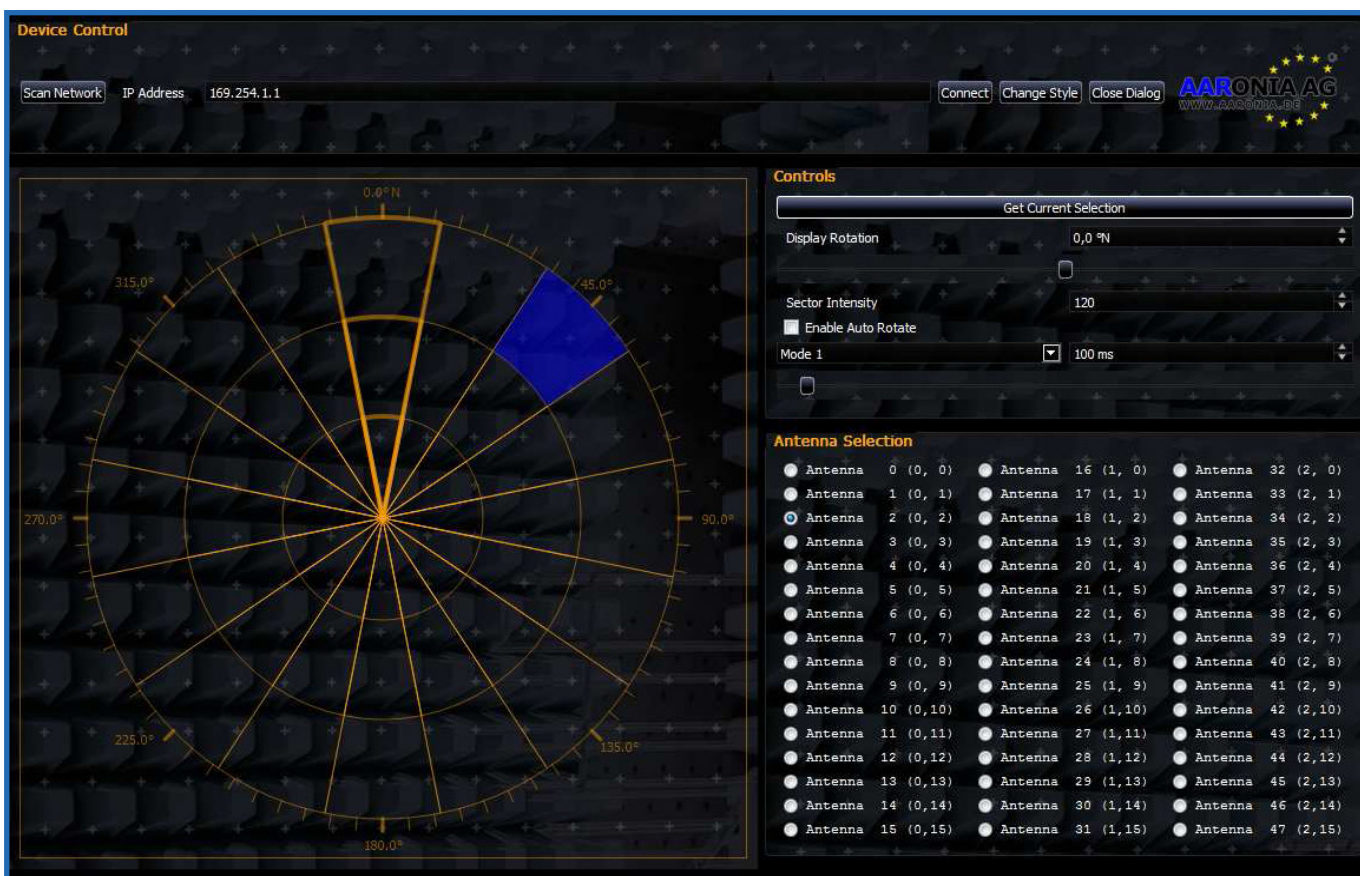- Pre-saved and adjustable profiles for specific measurement modes

The Remote Control Software included in the shipment is easy to use, and lets you control the tracking array via any Windows PC with Ethernet connector.

REFERENCES

Selected Aaronia Clients

Government, Military, Aeronautic, 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 Sience (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

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