AARTOS™

AARONIA

DRONE DETECTION X9

EXTREME RANGE BROADBAND UAV
DETECTION AND DIRECTION FINDING

AARTOS™
AARONIA
DRONE DETECTION

(•) DETECT   LOCALIZE   COUNTER

(•) DETECT

Detection range up to 40 km (consumer UAV) / 80 km (MIL UAV)

· Real-time drone protocol decoding
   and RF signal detection
· Real-time RF frequency monitoring
   400MHz to 6GHz, extendable to 10MHz
   to 8GHz
· Portable and stationary variants
· Powerful software
· Made in Germany

⊕ LOCALIZE

Locates drones, pilots and homepoints up to 8 GHz

· 16 sector antenna with a high tracking
   accuracy of 1° to 3°
· Detects and tracks pre-programmed
   drones with high accuracy
· 360° azimuth and full 180° elevation
   coverage
· Fully automatic mode possible
· Optional with radars and cameras

COUNTER

Optional jamming systems with up to 10 km jamming range

· Full integration into the AARTOS™
   Drone Detection System
· Seamless frequency range, selectively
   from 400 MHz to 6 GHz
· IP65 weather protection, operating
   temperature -20°C to +60°C
· Portable or stationary

Portable AARTOS™ DDS X9

· Command Center with two
   4K high contrast monitors
· IsoLOG® 3D DF antenna
   with extendable tripod

Stationary AARTOS™ DDS X9

· Rack mounted hardware packed
   in a sturdy water-resistant case
· Truss mounted IsoLOG® 3D DF
   antenna

Ultra-long detection range

The AARTOS™ X9 operates with higher precision compared to the X7 and additionally offers seamless ultra-wideband monitoring with 4+ independent receivers and an optimized amplifier group. The X9 scans the entire frequency range more than 1000! times per second. With an enormous range of up to 80 km (or more by scaling multiple AARTOS™ X9 systems), the AARTOS™ X9 is perfect for the monitoring of large areas. The X9 system is combat proven and has been successfully deployed in dozens of different use cases worldwide.

Stationary AARTOS™ X9
multi-site solution

Multi-Site solution

The multi-site solution consists of several antennas (IsoLOG® 3D DF) and analyzers (19″ Outdoor Rack) that feed to a central monitoring PC which manages all systems simultaneously. The unique advantage of our multi-site solution lies in its ability to triangulate signals with very high accuracy.

Due to its ability to combine a high number of receivers, the multi-site solution is best suited for the protection of very large areas such as industrial plants, stadiums and government buildings.

Integrated AARTOS™ X9
with long range extension

3D drone position finding

Our patented 3D RF Tracking Antenna IsoLOG® 3D DF is the first and only DF antenna also offering the elevation and altitude of any RF source.
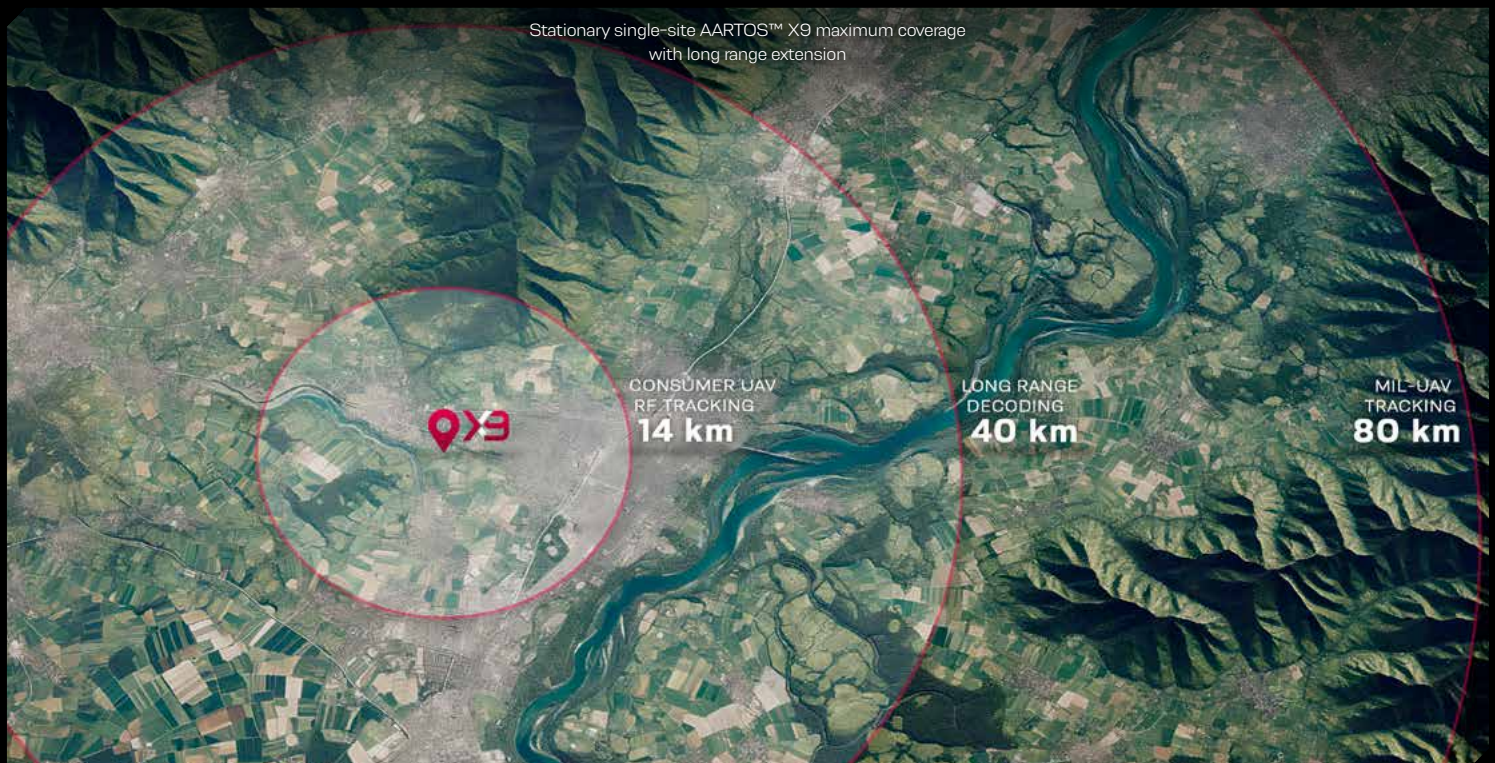
This makes it the perfect choice for tracking flying transmitters e.g. drones or airplanes. In addition the IsoLOG® 3D DF offers the by far fastest tracking speed on the market of down to 8µs per sector resulting in unique real time monitoring/tracking for ALL RF transmitters (all directions, altitude and frequencies at the same time).

Stationary single-site AARTOS™ X9 maximum coverage
with long range extension

CONSUMER UAV
RF TRACKING
14 km

LONG RANGE
DECODING
40 km

MIL-UAV
TRACKING
80 km

• Safe detection – no false alarms
Our system does not mistake UAVs for other flying objects such as birds, balloons or kites. Saving time and resources for real threats.

• Early detection
The AARTOS™ Drone Detection System triggers an alarm as soon as a remote control sends its first signal, even before the actual drone is airborne. Allowing countermeasures to be launched at an early stage.

• Tracking the drone operator
Since the AARTOS™ DDS detects both the drone (from downlink signals) and its corresponding remote control, the movement of both can be tracked in real-time. If two or more DDS systems are deployed, triangulation can then determine the exact position.

A top-down 2D perspective is the most commonly used visualization technique in drone detection. The program is easy to understand and navigate due to its similarity to common satellite-image-based map solutions.

The 3D view expands our capabilities by adding the drone's altitude information (this requires multiple drone detection systems), and making it easier to evaluate distances between different objects on the map.
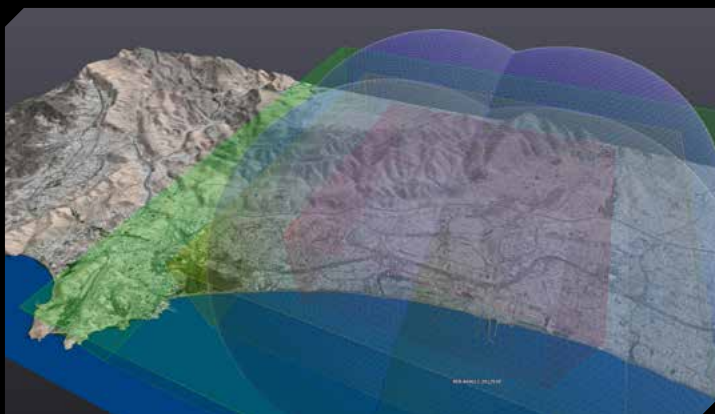
The topographic mode displays the surrounding terrain's surface, depicting hills, mountains, peaks and valleys.

Combined with our 3D, man-made structures system building system, the topographic view creates the most accurate representation of the surrounding area: AARTOS™ is also able to integrate 3D models of complex areas (e.g. cities, airports, etc.) into its 3D view, improving usability for end users.

Versatile, powerful and easy to use - the RTSA Suite PRO block graph editor lets you create, manage and customize your DDS missions.

Technical Specifications

The highest-precision drone detection combined with an extremely large detection range. **The AARTOS™ X9** consists of a 16 sector IsoLOG® 3D DF antenna array and a spectrum analyzer (Command Center or 19" rack). Perfect for **single-system and multi-grid system** setups.

Spectrum Analyzer Specifications

The **AARTOS™ X9** features up to 6 inbuilt real-time spectrum analyzers with a total instantaneous IQ capture bandwidth of 1.470 MHz and a frequency range of 10 MHz to 6 GHz (optionally 8 GHz). It is capable of scanning 6 GHz in less than 1 millisecond with a sweep speed of up to 6 THz/s.

IsoLOG® 3D DF Antenna Specifications

The **tracking antenna** includes a high density, customizable array of 32 tracking-antennas.

Each **IsoLOG® 3D DF** ships complete with a robust radome designed for the most hostile conditions and can be customized with RAL colors.

Typical range	Standard: max. 14 km Long range: max. 40 km MIL-UAV: max. 80 km		**Analyzer units**	4 (optionally 5-6)		**Frequency range**	400 MHz to 8 GHz
Usage	Mobile & stationary		**Frequency range**	10 MHz to 6 GHz (optionally 8 GHz)		**Coverage**	360°
Frequency coverage	400 MHz to 6 GHz (opt. 10 MHz to 8 GHz)		**Real-time bandwidth**	Up to 1.470 MHz (with 6 inbuilt analyzers)		**Tracking speed**	Up to 8 microseconds (with real-time DF option)
Detection type	Protocol decoding & RF Signal detection		**POI**	97 ns (FFT-based), 10 ns (direct I/Q-based)		**Tracking accuracy**	Typically 1° to 3°
Tracking type	GPS & RF signal triangulation		**DANL (internal preamp on)**	Typ. -170 dBm/Hz		**GPS receiver**	included
Antenna sectors	16		**Sweep speed**	Up to 6 THz/s		**Internal low-noise pre-amplifiers**	included
Typ. tracking accuracy*	1° to 3°		**RF connectors**	Up to 6x Rx SMA 1x Rx N		**Operating temperature**	-30° to +60°C (-22° to 140° F)
Multi frequency swarm attack	Yes		**Frequency reference accuracy**	0,5 ppm		**Storage temperature**	-40° to 70°C (-40° to 158° F)
Scalable	Yes		**RBW (resolution bw)**	62 mHz to 57 MHz		**Dimensions W x H x D**	960 x 960 x 380 mm
Recommended grid distance	3 km		**Attenuator range**	50 dB / 70 dB (0,5 dB steps)		**Weight**	approx. 25 kg
Optional radar and camera	Yes		**ADC**	Up to 12 x 2GSPS 16 Bit		**Certificates**	IP65 (waterproof)
Optional jamming systems	Yes		**DAC**	Up to 6 x 2GSPS 14-Bit			

* Reference target at 2,4GHz with line of sight (hovering drone), 1,5km distance (FCC)

FJ SERIES

Fixed Bands Sector Jammers

By extending the AARTOS™ DDS to include our "FJ series" stationary jammer with a jamming range of up to 8 km, it creates a system that can reliably and quickly locate and neutralize threats.

With its directional and omnidirectional antennas and a maximum output power of 1300W the jammer is capable of countering drones within the most common frequency bands (430 MHz, 1.6 GHz, 2.4 GHz and 5.8 GHz).

As with all of our jammers, the interference created is extremely selective, in order to make sure other RF channels are not impaired. In addition, the jammer is directional, and will only jam signals in the direction of the incoming UAV.

SJ SERIES

Programmable Smart Sector Jammer

Our AARTOS™ DDS "SJ series" programmable jammer delivers a gapless coverage from 400 MHz to 6 GHz with an effective jamming range of 10 km.

With its directional antennas it is able to cover all commercial and military drones up to 6 GHz and can counter them with a freely adjustable output power of 30W per sector (upgradable to 100W).

The AARTOS™ CMS (Countermeasure Solutions) can only be sold to entities with proper government approval for the deployment of jammers.
For more information, contact us at mail@aaronia.de.

|	SJ 240 SJ 800	FJ 360	MJ 170	MJ 40
	Seemless frequency jamming from 400 MHz to 6 GHz with a 360° coverage and the highest range in our lineup.	The stationary FJ series cover 360° with a range of up to 3 km and up to 15 frequency bands.	The mobile 6-band jammer is based on the MJ-40 with extended range and output power including a remote control and customizable bands.	This handheld UAV jammer is a potent and portable drone jamming system with 2h battery life and customizable frequency bands.
Typ. Range ▸	4 km / 10 km	3 km	3-4 km	2 km
Antenna(s) ▸	8 directional	2/4 directional	1 directional	1 directional
Sectors ▸	8	2/4	1	1
Bands ▸	All bands up to 6 GHz	Up to 15	6	4
Output Power ▸	240W / 800W	180W / 360W	170W	40W

Optical & Thermal PTZ Cameras · XCAM SERIES

Among the latest additions is the Visual Detection System, a fully integrated optical and thermal drone detection solution that is perfectly matched to the detection mechanisms of the AARTOS™ DDS.

This option enables the user to spot detected drones, even from afar, and identify potentially dangerous payloads attached to the drone, such as explosives.

Automated AI tracking will continue even if a drone enters autonomous flying mode while it is being tracked by the Visual Detection System.

- Thermal and optical camera for 24/7 protection
- Sophisticated tracking and analysis AI
- Max. camera resolution of 1920×1080 px (full HD)
- Max. thermal module resolution of 1280 x 720 px
- Optical: 13 mm to 261.5 mm focal length
- Thermal: 72 mm to 900 mm focal length
- IP67-certified protection
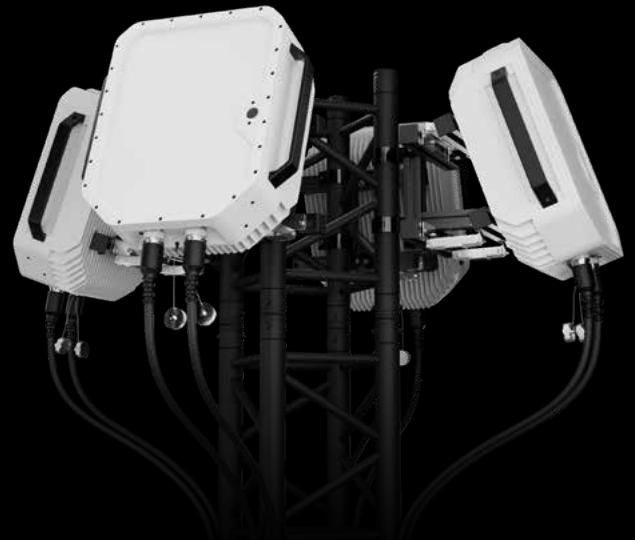
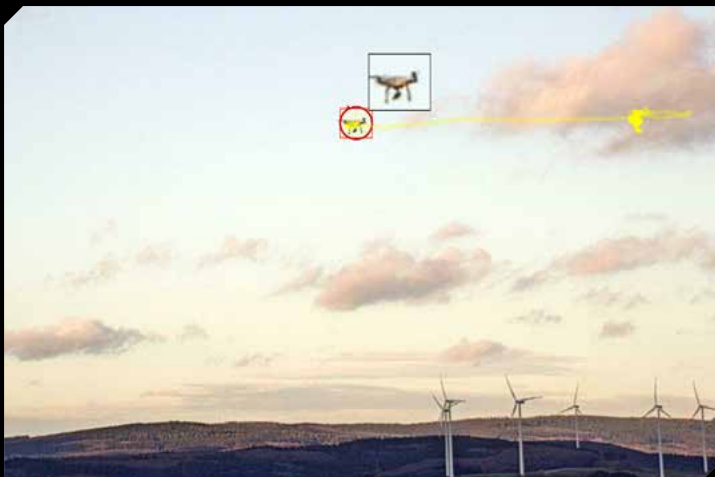## Fully Integrated Modular Radar Capabilities · RD SERIES

Using an (optional), sophisticated radar system, the AARTOS™ DDS can automatically determine and display the exact position, flight direction, altitude, speed and classification of an inbound drone. The trajectory of the flight can also be tracked in real-time as a 3D model.

The system distinguishes between birds, fixed-wing drones and propeller drones. When a UAV enters the designated no-fly zone, a multi-alarm can be configured.

Complete Customization

The required equipment for AARTOS™ can be configured to match detailed customer requirements. End customers will receive hardware that is tailored to their specific needs, with all components chosen individually. This guarantees optimal drone detection performance in any given terrain or area.
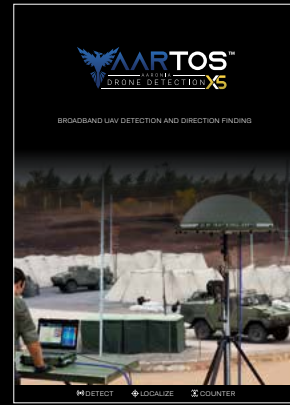

Specifications as of 04.12.2023. Subject to modifications and errors.
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For detailed specifications of our products please visit
www.aartos-dds.com or use the dedicated QR-Code:
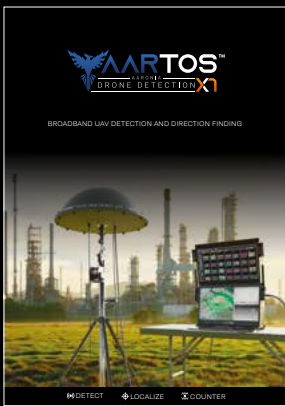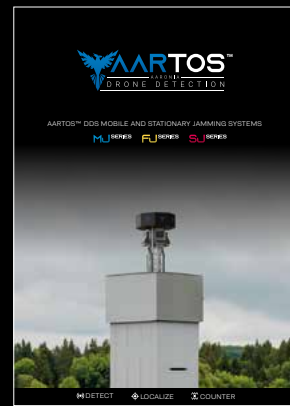

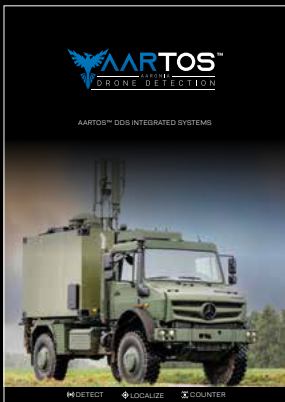AARTOS™ Overview
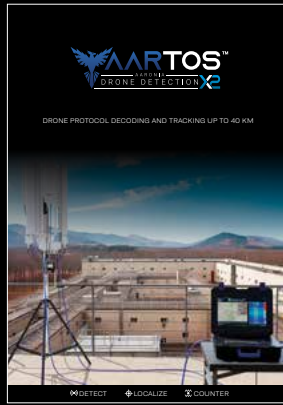
AARTOS™ X2

AARTOS™ X5

AARTOS™ X7

AARTOS™ X9

AARTOS™ Counter UAV Systems

AARTOS™ System Integrations

AARTOS™ Catalog

AARONIA AG
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MADE IN GERMANY