INTERNATIONAL ARMOUR

PROFESSIONAL
DETECT & DEFEND
DRONE/UAV SYSTEM

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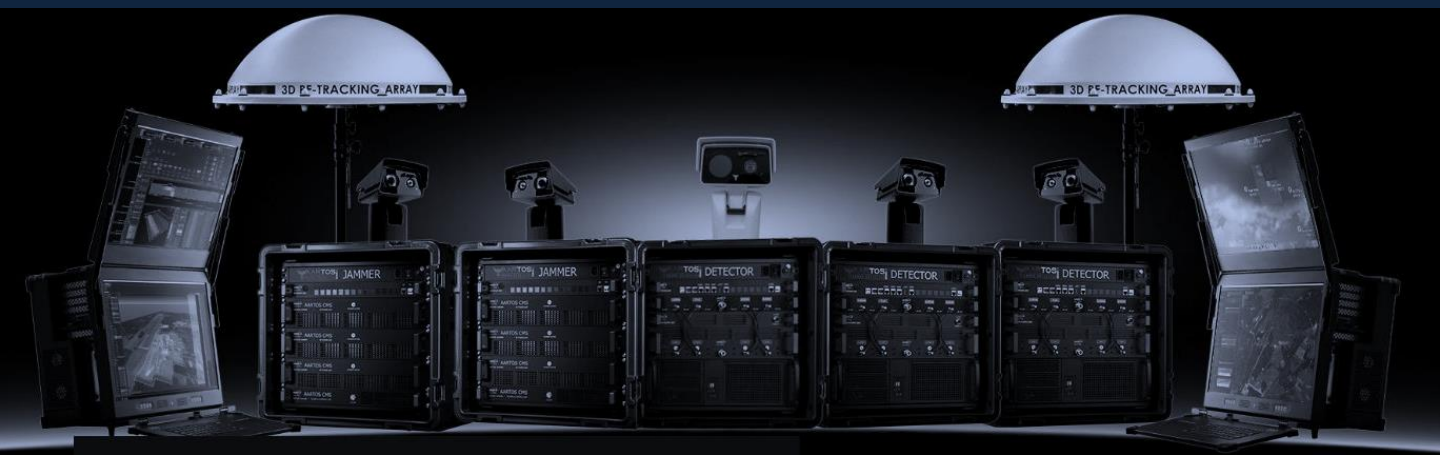
PROFESSIONAL DETECT & DEFEND DRONES SYSTEM

System Designed to detect intruding drones, the system is based on real-time directional measurements of a drone's electromagnetic emissions (including its remote control).

The users receive accurate warnings and alerts about incoming drones.

PREVENT & PROTECT

- Real-time decoding of many drone protocols (DJI Ocusync, DJI WiFi, Mavlink, Yuneec etc.)
- Unique technology: real-time frequency monitoring (NO bands)
- Real-time 3D DF frequency monitoring for all frequencies and directions Up to 8 THz/s sweep speed
- Tracks 3G, 4G and 5G drones Up to 50 km detection range
- Latest AI-based multi-target image and RF pattern recognition Ultra-wide frequency range (20 MHz to 8 GHz)
- Multi-frequency, multi-directional swarm attack detection Able to detect pre-programmed drones
- Can be switched to a fully automatic mode (no operator required)
- 360° azimuth and full 90° elevation gapless full dome coverage with high tracking accuracy Provides real-time measuring of the RF emissions from drones/UAVs, jammers, phones, etc. Tracks and locates the operator(s) controlling the drone(s)
- Identifies the drone manufacturer and model / protocol
- Enables 24/7 seamless recording (tracking and/or raw data) and monitoring 3D DF measurement accuracy up to ITU class A
- Scalable for huge sites (airports, cities, borders, even countrywide installations) Tested and running under most adverse weather conditions (night, fog, rain, etc.) Enhanced temperature range (desert installations)
- All-in-one solution (RF, radar, camera, jammer and software) Setup and ready to use within a minute (portable version) Powerful mobile app with automatic multi-level threat alerts and threat map display
- Hardware and software made in Germany



Drones – more than just a nuisance

Increasingly easy access to mini and micro UAVs makes them a growing potential threat to national and commercial security.

Easy to produce, cheap to buy, simple to fly, and hard to detect, these drones are available commercially and non-commercially and are among the most quickly developing technological threats to military and civilian interests.

Early detection

The system triggers an alarm as soon as an operator starts sending signals to a drone , even before it is actually airborne.

Allowing countermeasures to be initiated before a potential threat even arises.

Ready for action when you need it

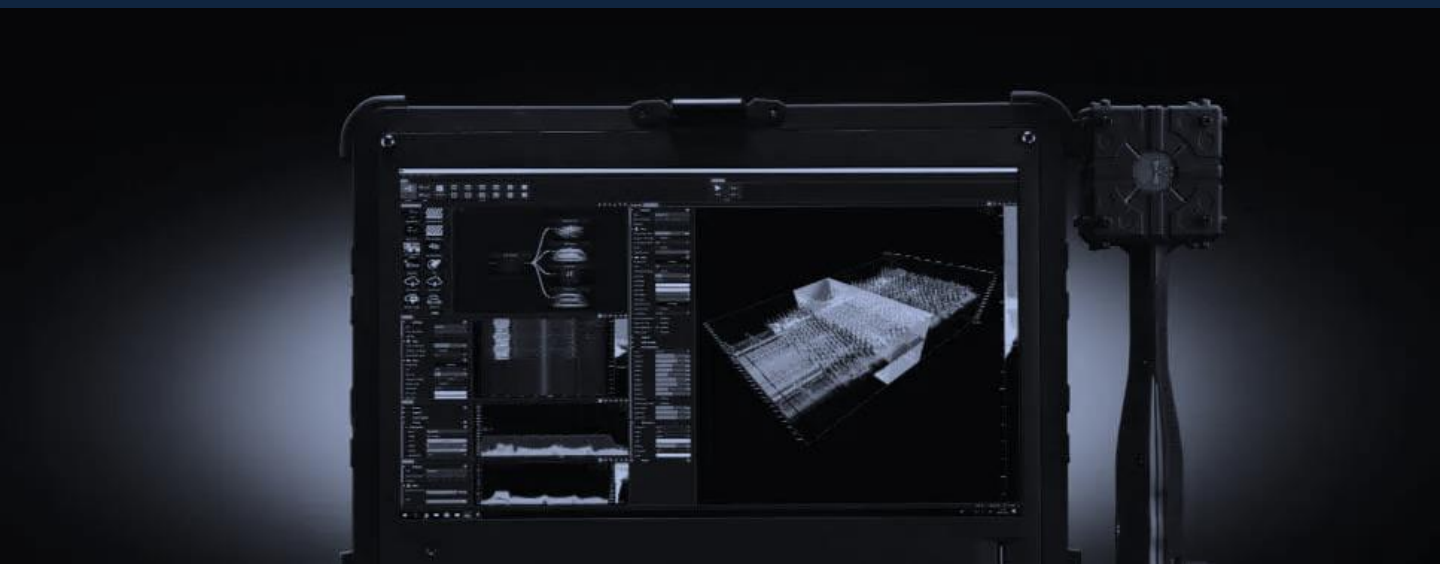
The drone detection system can be used virtually anywhere.
The system has proven itself in protection of borders, sports events or concerts, residential areas, government facilities as well as commercial or industrial sites such as nuclear plants. Available as a single-site or multiple-site solution, the system can be adjusted to the characteristics of the respective terrain to be monitored.

Hardware

System it is based on our IsoLOG® 3D DF antenna, real-time spectrum analyzers and a special software plug-in for the RTSA-Suite PRO software.
Combining all these elements allows for 24/7 monitoring, recording, and uninterrupted data streaming. The system is also both compact and flexible, allowing it to be set up in virtually any environment it is needed.

Detection range

Our system's detection range far exceeds that of its targets. Under normal circumstances, the detection range is equal to (or longer than) the maximum distance between the operator and the drone, depending on the transmitter power of the drone and/or its operator.
Taking into account factors such as drone type and topography, the range of the AARTOS™ DDS can reach 50 km or more.



Countermeasures

The system can be extended to include an automated, fully integrated jammer, which effectively prevents any drone in the area from receiving RF signals, thus activating its fail- safe mode and forcing it to either hover and land or return to its point of origin.

Of course, 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.

Advantages of a radio communication solution

RF detection of drone signals has significant advantages compared to other methods such as radar, optical and acoustic detection:

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 Drone Detector 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 DDS system 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.

Made in Germany

The system is developed, designed, individually assembled, and calibrated in Germany.
This guarantees the highest production and quality standards.

COMMAND and CONTROL Software

Simultaneous 2D Top-Down & 3D View

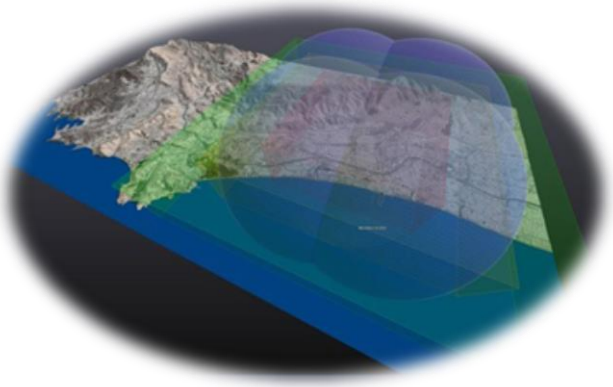
A top-down 2D perspective is the most commonly used visualization technique in drone detection. The program is easy to understand and navigate due to its similarity to common satellite-image-based map solutions.

The 3D view expands our capabilities by adding the drones altitude information (this requires multiple drone detection systems), and making it easier to evaluate distances between different objects on the map.

Operators can zoom and move the map in real time

3D Topographic View

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.



Operators can zoom and move the map in real time

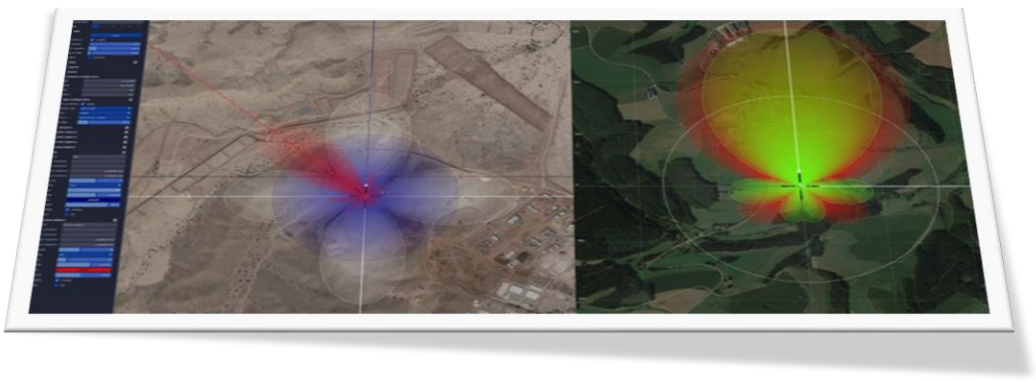
JAMMER Integration

Mobile Handheld Jammer / Fixed Band Jammer / Programmable Sector Jammer

Mobile
Handheld Jammer
Directional antenna, covers a total of 4 bands, 40 W (up to 2 km range)

Fixed Bands Jammer
(180°/360°)
2/4 sectors with 2/4 antennas, covers up to 15 bands, 180 W/360 W (up to 3 km range) or 650 W/1300 W (up to 8 km range)

Programmable
Sector Jammer
8 sectors with 8 antennas, covers all bands up to 6 GHz, 240 W (up to 4 km range) or 800 W (up to 10 km range)



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

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

EO/IR Camera Integration

Additional protection through visual detection (optional)

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

General technical specifications

- Operating temperature: -40° C to 65° C
- Operating humidity: 10 - 100% RH
- Power: 24 V/AC, 120 W
- Lightning protection and more

PTZ (movement range and speed)

- Pan: 360º continuous rotation
- Tilt: From -90º to +45º (auto flip)
- Pan speed: configurable, from 0.05º/s to 120º/s
- Tilt speed: configurable, from 0.05º/s to 65º/s

Features

- Thermal camera for 24/7 protection
- Sophisticated tracking and analysis algorithm
- Max. camera resolution of 1920 × 1080 px (full HD)
- Max. thermal module resolution of 640 × 480 px (scaled up to 800 × 600 px)
- 30x optical zoom
- 12x digital zoom
- IP66-certified protection

RADAR Integration

More than just drone detection

Using an (optional), sophisticated radar system, the 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.

Customer Hardware Integration

Because software is the key

The required equipment for DDS system 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.

Portable solution, omnidirectional, typical range: ~ 1 - 5 km
The portable and quick-to-use DD SX2 systsm is a decoding system that exactly shows the position of DJI drones and drone pilots and even their home position. Alternatively, it is also available as a purely stationary system with a range of up to 30km.

Portable solution, omnidirectional, typical range: 500 m - 2 km
Designed to be used as a concealed and portable drone and jammer detection device, the DDS X3 Laptop is lightweight and offers a battery life of 1.5 hours. On top of being easy to operate and carry, the system is ready to use within half a minute.

Portable solution, typical range: ~ 1 - 2 km
The DDS X5 base system consists of one analyzer (V6 MIL) and one IsoLOG 3D® DF antenna array with 8 sectors. It is a highly cost-effective solution that can be used to cover medium sized areas.

Portable and stationary solution, scalable, typical range: ~ 2 - 5 km
The highest-precision drone detection combined with an extremely large detection range.
The DDS X7 consists of a 16 sector IsoLOG® 3D DF antenna array and a spectrum analyzer (V6 Command Center or 19” rack). Perfect for both single-system and multi-grid system setups.

Portable and stationary solution, scalable, typical range: ~ 5 - 14 km
The DDS X9 combines highest precision and ultra-wideband monitoring for instant, real-time detection over multiple bands.
The system consists of an IsoLOG® 3D DF antenna array with 16 sectors and the Command Center or 19” rack, perfect for ultra-high-range drone detection grids.

Customer Hardware Integration

Because software is the key

	X2	X3	X5	X7	X9
Typical range	1km- 5km	500m- 2km	1km- 2km	2km- 5km	5km-14 km
Sectors	Omnidirectional	Omnidirectional	8	16	16
Typ. tracking accuracy (line of sight)*	GPS accuracy	Omnidirectional	4° to 6°	2° to 4°	1° to 3°
Multi frequency swarm attack	No	No	No	Limited	Yes
ITU class for tracking accuracy	-	-	B	A	A
Amplifier stages	2	2	2	3	3
Simultaneous band coverage	Hopping	Hopping	Hopping	Hopping	Stitching /Hopping
Sweep/scan speed	500 GHz/s	500 GHz/s	1 THz/s	2 THz/s	4THz/s - 8THz/s
Real-time 3D triangulation (in preparation)	No	No	No	No	Yes
Receivers	1	1	1	2	4 **(*)**
Scalable	No **(**)**	No	No	Yes	
Max. recommended grid distance	-	-	-	2 km	3 km
Automatic jamming option	No	No	No	Yes	Yes
Radar Option	No	No	No	Yes	Yes
PTZ Support	No	No	No	Multi	Multi

(*) *Up to 8 optionally*
(**) *Yes with stationary versions*