

ART Drone Sentinel 360° Fast Scan Anti Drone & UAVs Surveillance System

Applications

- Critical infrastructure protection
- Defense & force protection
- Border surveillance

Highlights / Key Facts

- Micro/nano drone & UAV detection, tracking and classification
- Single unit with 360 degrees coverage
- Wide area surveillance (>78km²)
- Single mast solution: radar + optronics
- Fast radar scan rate (60 rpm)
- Day and night camera system
- Automatic target detection, tracking and camera-radar integration (slew-to-cue)
- Custom multi-sensor command and control software

Technology

- High resolution FMCW waveform
- True LPI (virtually undetectable)
- Simultaneous Doppler and clutter map processing
- State-of-the-art automatic adaptive detection algorithms
- Built-in multi-target tracker
- Un-cooled low maintenance thermal imager

ART Drone Sentinel Product Brief



ART Drone Sentinel – 360° Fast Scan Anti Drone & UAVs Surveillance System

ART Drone Sentinel is a high performance anti drone and small unmanned aerial vehicle integrated surveillance system. ART Midrange, a field proven state-of-the-art radar sensor, has been optimized for very low radar cross section airborne threat detection and tracking. The early detection, warning and tracking functionality provided by the radar is complemented by an optronic platform that features day & night classification capabilities. Both sensors are integrated in the same physical assembly that can be fast and conveniently deployed using a single mast. ART Drone Sentinel also includes an intuitive GIS-powered multi-sensor command and control software suite that provides a common operative picture for unsurpassed airspace situational awareness.

The widespread availability of low cost fully automatic micro drones has redefined the security risks of critical infrastructures, national borders and military bases. The detection, tracking and classification of small and low flying airborne threats has become a key operational requirement that can only be properly addressed by the

deployment of high performance radar sensors tightly integrated with day & night electro-optical systems. ART Drone Sentinel is the answer to these needs: a single mast solution that provides round the clock, 360 degrees anti-drone surveillance with the fastest update rate in the market (1 Hz).

ART Drone Sentinel performance has been experimentally validated with representative targets under the supervision of a key European end-user. ART Drone Sentinel detects, tracks and classifies micro quadcopters and micro fixed-wing UAVs with radar cross sections below 0.005 m² at 2000 meter range. In addition, the system can provide simultaneous ground based target detection & tracking.

Designed to improve the efficiency of its end users (Border Guards/CIP Security Services/Public Law Enforcement Services), ART Drone Sentinel features fully automatic operation (suitable for non-trained operators), remote management and is cost effective both for large and small scale deployments.

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ART Drone Sentinel Datasheet

RADAR

Type	Wideband coherent Doppler CWLFM Low Probability of Interception (LPI)
Frequency Band	Ku
Transmitted Power	2 W (Safe for human exposure)
Bandwidth	1 GHz
Instrumental Detection Range	5, 7, 10 Km
Azimuthal Coverage	360 degree
Scan Rate	60 rpm
Target Types	Low radar cross section airborne threats: micro drones, UAVs, paragliders... Ground based targets: personnel and vehicles, static or moving.
Minimum target size (RCS)	0.005 m ²
Detection Range (Micro Drone)	2000 meter
Detection Range (Drone)	4000 meter
Detection Range (Small Aircraft)	Up to instrumental range
Processing	Coherent integration - Doppler processing Frequency agility Knowledge-based radar signal processing Adaptive clutter map Track-before-detect

OPTRONICS

Color Camera	CMOS 3,2 Mpixel 30x zoom
	CCD 8 Mpixel 10x zoom (100-1000mm)
Thermal Sensor	Un-cooled micro bolometer 640x480
Thermal Camera Lenses	Fixed 100mm
	Double Field of View 60/180 mm Continuous 28/225 mm zoom
Pan & Tilt	Azimuth: 360 degrees (continuous)
	Elevation: +20 to -30 degrees
	Max speed: 60 degrees per second

SOFTWARE

Geographic Information System (GIS)
Multi-sensor fusion
Radar, thermal/daylight camera and underground sensor integration (slew-to-cue)
User definable areas / virtual fences with automatic associated custom behaviors

Company Information

ADVANCED RADAR TECHNOLOGIES S.A - ART is the leading Spanish technology company in high performance ground surveillance radars, integrated multisensor surveillance and command & control systems for critical infrastructure protection and border surveillance.

ART business model is based on more than 20 years of innovation in radar, millimeter-wave technology and systems engineering. The core research and development team of the company comes from the Microwave and Radar Research Group of the Polytechnic University of Madrid (UPM), with extensive experience developing radar and microwave solutions in close cooperation with key players in the Spanish and European Defense & Aerospace Industry. The systems engineering team of ART offers an experience of fifteen years working in the development and deployment of the pioneer Spanish Maritime Border Surveillance System (SIVE) and several other surveillance systems in Eastern Europe.



ART has developed the Integrated Surveillance System Solution (IS₃), as the key component to build Critical Infrastructure Protection Systems and Border Surveillance Systems. IS₃ is an integrated multi-sensor system that combines three types of sensors: high resolution ground surveillance radars, plus an optronic (IIR+CCD) platform and networks of Unattended Ground Sensors.

ART's offering is based on integrated solutions (IS₃) addressed to Security System Integrators. However individual radar, UGS and optronic sensors are also available for Integrators willing to use their own system solutions. ART products are easily integrated into preexisting sensor networks or security infrastructures.

