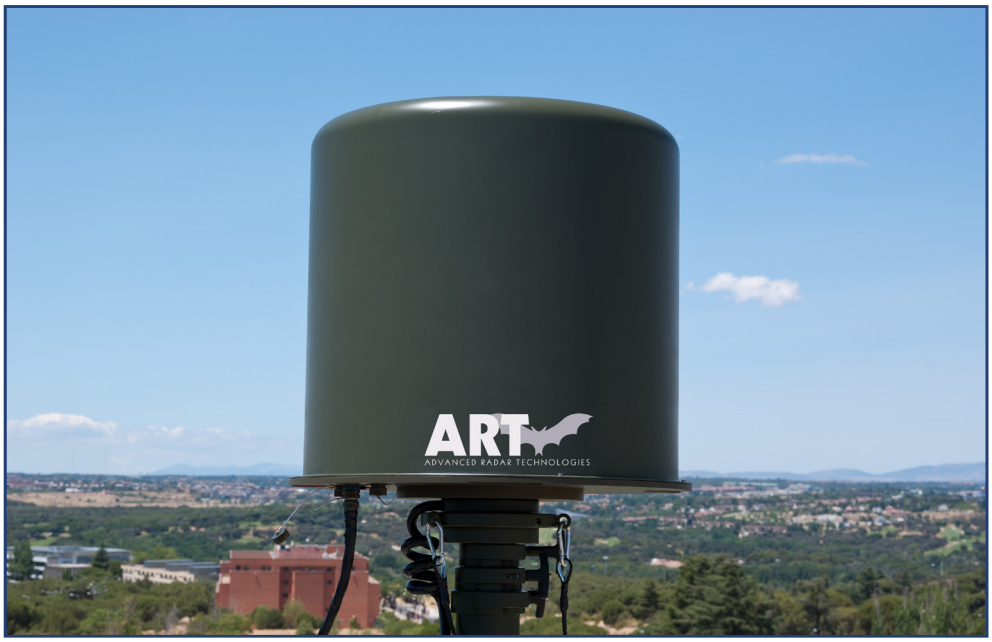
ART Midrange Product Brief

ART Midrange
High Resolution Surveillance Radar



ART Midrange High-Resolution Ground Surveillance Radar

ART Midrange is a high-resolution radar system designed to address the demands of the Security and Defense market in two key applications: unregulated border surveillance and critical infrastructure protection.

With an instrumental detection range of 5000 meters, ART Midrange provides constant 24/7 wide area surveillance (78 km2) thus becoming a key element for modern sensor networks.

ART Midrange detects and tracks individuals and vehicles before, during and eventually after the trespassing of land borders or during their approach to security perimeter fences, walls or protection zones of critical infrastructure installations. The system maintains a high probability of detection for demanding targets such as individuals or low-profile vehicles while keeping an overall low false alarm rate.

ART Midrange adaptive detection algorithms provide outstanding performance regardless of the characteristics of a specific deployment scenario: i.e. landscape (plain, rough, presence of rivers, bays or lakes) or vegetation and for all-weather conditions (fog, snow, rain...).

The use of external sources of knowledge across all the levels of the system (geographic information, historic intrusion data) guarantees a high detection probability and false alarm rejection even in strong ground clutter environments (knowledge-aided sensor signal processing).

The ease of integration is another key benefit of ART Midrange. An internal Gigabit Ethernet Switch, external camera/unattended ground sensors interfaces or an XML-based protocol are some of the characteristics that allow a straightforward integration of the radar within a sensor network or preexisting security infrastructure.

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

Applications
- Border surveillance
- Critical infrastructure protection
- Military crisis deployments

Highlights
- Wide area surveillance
- Fast scan rate
- Early warning of intruders
- Low false alarm rate
- Automatic target detection
- Network enabled
- Single unit: weather sealed, compact and lightweight
- Fast deployment
- Cost effective

Technology
- Broadband FMCW waveform
- Coherent Doppler processing
- Knowledge-based radar signal processing
- State-of-the-art adaptive detection algorithms
- Software defined radar architecture: field upgradable

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ART Midrange Datasheet

GENERAL SPECIFICATIONS

Type	Wideband coherent Doppler CWLFM Low Probability of Interception (LPI)
Frequency Band	Ku
Bandwidth	1 GHz
Elevation Control	+/- 5 degrees
Input Power	24 VDC (other options available)
RF Transmission Masking	Configurable azimuthal no RF transmission sectors
Size	70 cm (diameter) x 70 cm (height) (complete system: sensor, processor and comms)
Weight	40 Kg
Environmental	Extended temperature range of operation (-25ºC to +50ºC) - Standard (-50ºC to +60ºC) - Upon request Weather resistant sealing

NOMINAL OPERATION MODE

Instrumental Detection Range	5000 meters
Coverage Area	78 km2
Azimuth Coverage	360 degrees
Target Types	Personnel and vehicles, static or moving
Detection Range (pedestrian)	Up to 4500 meters
Detection Range (vehicle)	5000 meters
Scan Rate	60 rpm (configurable)
Range Resolution	1 meter – 0.2 meter (configurable)
Range Accuracy	0.25 meter – 0.05 meter
Processing	• Coherent integration - Doppler processing • Frequency agility • Knowledge-based radar signal processing • Adaptive clutter map • Track-before-detect

SENSOR NETWORK INTEGRATION

C3	Fully remote operation, configuration and management. Extended built-in-test data.
Communications	TCP/IP over Ethernet Internal industrial grade Gigabit Ethernet switch
Protocol	XML-based or NMEA0183. Easy integration into existing security infrastructure.
Output Data	Intruder location, intruder type, intruder bearing
External connectors (MIL DTL-38999)	1x operation (VDC, Ethernet, RS-232) 2x camera / external sensor integration (VDC output, Ethernet)

OTHER FEATURES

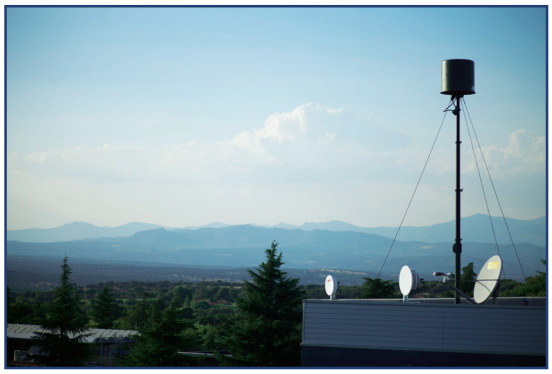
Alternative operation modes	Inverse Synthetic Aperture Radar (ISAR) imaging Doppler signature extraction Long range operation (10000 meters) Digital raw radar video streaming
Customization options	External connectors Radome color (Additional options upon customer request)

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.



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