ART EWUSP

Enhanced Wireless Unattended Sensor Platform

Applications

- Border surveillance
- Critical infrastructure protection
- Military crisis deployments

Highlights

- Early warning of intruders
- Gap filling for no radar coverage zones
- Automatic target detection
- Automatic target classification (personnel or vehicles)
- Long life batteries
- Low false alarm rate
- Fast deployment
- Complete concealment (underground, no external antenna)
- Wide range wireless communication
- Cost effective

Technology

- State-of-the-art power optimized signal processor
- Advanced Constant False Alarm Rate algorithm
- Built-in high performance embedded target tracker & classifier

ART Enhanced Wireless Unattended Sensor Platform

ART Enhanced Unattended Sensor Platform is a Wireless Sensor Network (WSN) composed of an arbitrary number of Unattended Ground Sensors (UGS): small, battery-powered devices that cooperatively monitor physical environmental conditions such as temperature, seismic waves and magnetic fields.

Although the key early warning sensor for border surveillance and critical infrastructure protection is the ground surveillance radar, every real deployment scenario presents zones with poor or no radar coverage. The terrain relief very frequently obstructs the radar line-of-sight to a significant percent of the theoretical radar coverage area. In addition, the radar detection probability can be degraded due to the presence of dense vegetation in certain zones.

ART Unattended Ground Sensors address the aforementioned inherent limitations of ground surveillance radars and can be deployed as gap-filling devices within zones with poor coverage where the use of other detection systems is expensive or not viable. ART UGSs have been designed to complement high performance radars, such as ART Midrange or ART Longrange, acting as the early warning sensor where the radar performance is limited.

ART Enhanced Unattended Sensor Platform features high performance seismic sensors that detect the low frequency signal that is generated by targets moving in their proximity and that propagates through the ground. The seismic sensors are complemented by magnetic sensors that can detect the metallic mass of vehicles at up to 10 m.

To avoid the high probability of false alarms produced by installations with single sensor nodes or lines of nodes, ART recommends the deployment of sensor node networks to implement an advanced Constant False Alarm Rate (CFAR) algorithm by computing all the seismic signal information received by all the sensor nodes of the network.

A representative border surveillance deployment configuration is shown in the figure. ART Enhanced Unattended Sensor Platform is cost effective and can be easily integrated within a sensor network or preexisting security infrastructure.

ADVANCED RADAR TECHNOLOGIES S.A.
General Pardiñas 91, 1ºD
28006 Madrid, Spain
+34 918318674
info@advancedradartechnologies.com

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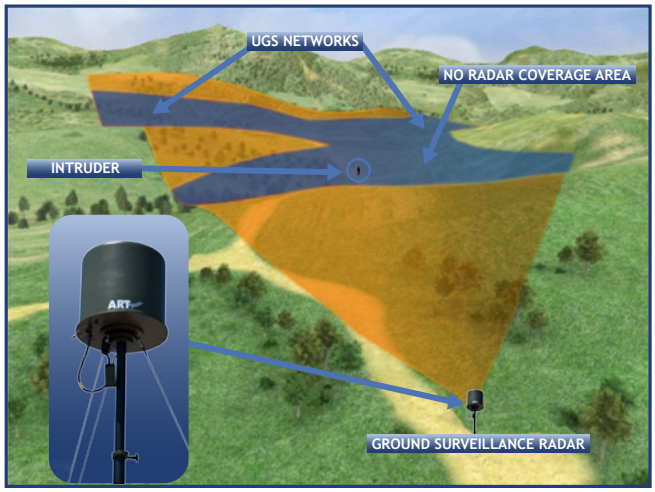
ART EWUSP Product Brief

GENERAL SPECIFICATIONS - SENSOR NODE

Type	Dual Seismic & Magnetic Sensor
Radio Range	• 150 m to the Base Node at 2.4 GHz (internal antenna buried) • 450 m to the Base Node at 868/915 MHz (internal antenna buried) • 1000 m to the Base Node at 2.4 GHz (external camouflaged antenna) • 3000 m to the Base Node at 868/915 MHz (external camouflaged antenna) • Several km using a network of relay nodes
Typical Detection Range	Vehicle: 40-60 meter Personnel: 25-40 meter
Input Power	Long-life batteries (cabled version available)
Battery Life (100 alarms/day)	> 4 years with a 38 Ah battery
Size	190 mm x 45 mm x 45 mm
Environmental	Extended temperature range of operation (-40ºC to +80ºC) Weather resistant sealing (IP67)



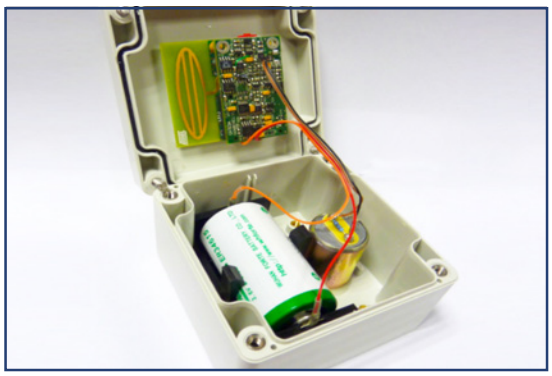
SPECIFICATIONS - BASE/RELAY/ARTWAY NODE

Frequency Band	868/915 Mhz / 2.4 GHz (A cabled version is also available with RS-485 and Ethernet data communications).
Radio Range	Between 1000 and 3000 m, for communications between base-relay nodes.
Alerts	Health status.
Input Power	12 VDC. (Solar panel compatible)
Battery Life (100 alarms/day)	> 4 years with a 38 Ah battery

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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