ECSI International

RS-400 Datasheet

Safety & Security Solutions

Automatic Wide Area Protection All Weather - Day or Night - 24Hr iPad/iPhone Command/Control/View Interfaces to Central Station Monitor Low Power for Remote Installations

Elegant Installation & Operation

Illuminate Stranded for Rescue
Repel Intruders and Trespassers
Outdoor Tracking During Accidents Remote Monitoring of Daily Activity

Features

Up to 2.7Km (1.7Mi) Line-of-Sight Operation Multiple Wavelength Detection Multiple Wavelength Deterrence Sensor Fusion Processor 60W Detection, 52W Illumination 20' Mast, Integrated Lowering System IP Ethernet Communication

Radar Elements

ChaseX1

Detection - Tracking - Deterrence
Dual FMCW Pulse-Doppler Radar
Ranges, 280m to 900m
LWIR/NIR/VIS Cameras
* Precision Stacking Pan/Tilt CL3500™
* Illuminator & Deterrent
* Software
* EDGE Processor
* Ethernet - PoE 802.3af*

Platform

20' Sensor Platform w/ Lowering System Integrated PoE Radio
2 Man Installation, 1 Man Maintenance
Burial or Non-Penetrating Base

Cortex™ Site Correlation Software
Geo-Sensor FOV Alignment
Geo-Zones & Defined Rules
Action Processor & DVR

ECSI International Presents

ART SYS 360°
Advanced Radar Technologies

RS-400 Radar Datasheet

Product Description

The Radar system is designed for detection and tracking of vehicles, human and drones in ranges of up to 900[m], 500[m] and 300[m] respectively. The radar system provides continuous coverage of 360° over azimuth and up to ±45° over elevation.

The Radar incorporates the patented technology of ART*SYS360°* namely the direction-of-arrival is obtained by incorporating Multimodal and Interferometry techniques.

The Radar also incorporates multimode operation namely Pulse-Doppler and FMCW techniques to obtain the range of the received object.

The RS-400 system is perfectly suited for commercial-civilian markets.

The operating frequency band is 5.5-5.9GHz and the system is designed to meet FCC Part-18, requirements.

Technical Specifications

Property	*Value*
Frequency	5.5-5.9 [GHz]
Radar Type	Dual mode: 1. Pulse-Doppler 2. FMCW
Receiver Bandwidth	40 [MHz]
Minimum Detection Range	5 [m]
Maximum Detection Range	Vehicles 900[m] Human 500[m] Drones 280[m]
Range Resolution	1. Pulse-Doppler: 3.75 [m] 2. FMCW: 1.8 [m]
DOA Method	Multimodal and Interferometry
Antenna Topology	Continuous Aperture
Azimuth Coverage - Transmit mode	Full 360° and Sectorial mode

Azimuth Coverage - Receive mode	Full 360° and Sectorial mode
Azimuth Accuracy	±1.5°
Elevation Coverage	±45°
Elevation Accuracy	±1.5°
Nominal Target Cross Section (RCS)	Vehicles: +7 [dBsm] Human: -3 [dBsm] Drones: -25 [dBsm]
Minimum Target Velocity	0.5 [m/sec]
Maximum Target Velocity	25 [m/sec]
Clutter Rejection	60 [dB]
Number of simultaneous targets handling and tracking	>8
Power Source	1. Electric Power Grid 2. Solar Panels – OPT. 3. Battery – OPT.
Operating Voltage	14.8 [V]
Built-in-Tests	Online continuous BIT
Remote control	1. Remote zones configuration settings: Set Dead-Zones, High-Priority Zones, etc.) 2. Remote Software Upgrades 3. Remote Reset 4. Remote Power Up 5. Power Down 6. System Hibernate
Voltage Sensing	Voltage monitoring sensors
Temperature Sensing	Temperature sensor

Localization and Stabilization	1. GPS Receiver with external antenna – L1 band 2. 9-Axis Gyro
Interface: Two way, Half Duplex Communication	1. Ethernet 2. USB 3. RS-485 4. WiFi 5. Bluetooth 6. 2G, 3G, LTE
Interface: Logs	Via "Two way, Half Duplex Communication"
Interface: Target Report Block	Via "Two way, Half Duplex Communication"
Interface: Peripherals	1. PTZ Cameras – TCP-IP/UDP and "*Pelco-D*" 2. GPIOs and Dry Contact

Table 1. System Requirements.

Environmental Specification

The system is designed to meet the standard requirements common in the *Physical-Intrusion-Detection* market.

Property	*Value*
Operating Temperature – Industrial	-40°C - +85°C
Rugged/waterproof	IP67/NEMA 6P Compliant

Table 2. Environmental Specifications.

Mechanical Specification

Property	*Value*
RADOME Top	ABS
Case Material	Aluminum
Confining Dimensions Dia.xH	35x40[cm]
Weight	App. 3.5[Kg]

Table 3. Mechanical Specifications.

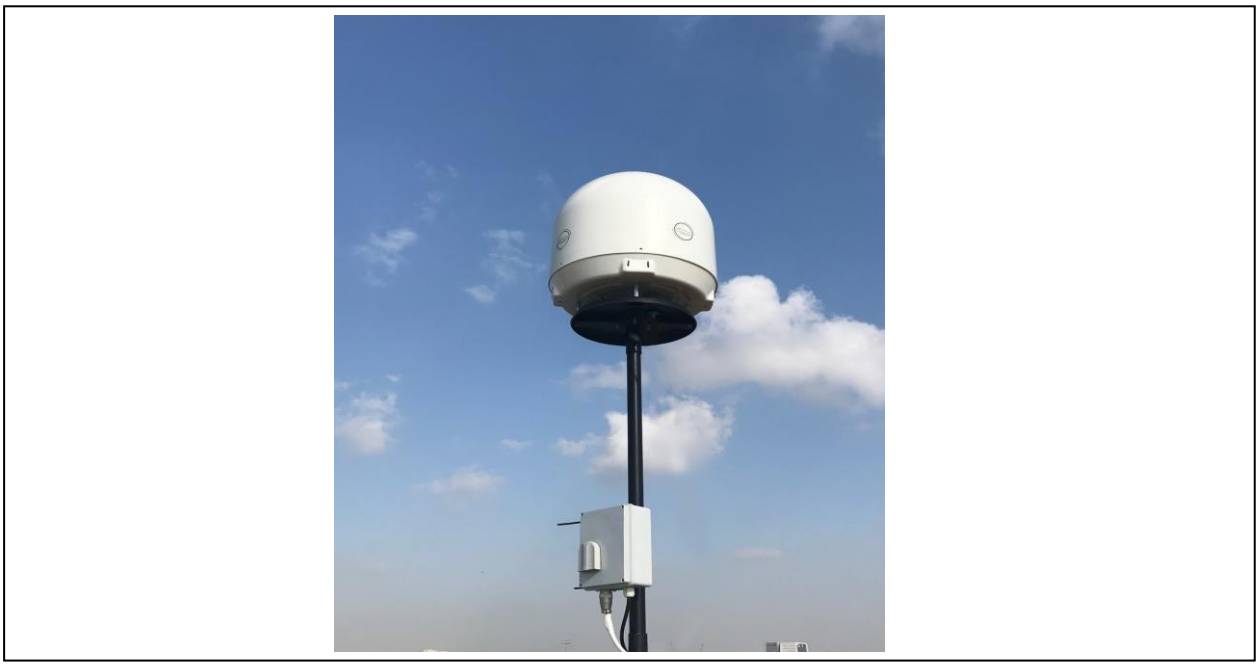

Figure 1. Dimensions.

System Support Package – SSP

In the system allows easy integration with other sensor and C4I systems

* ***Interface: Logs***

The system will save log files every pre-determined period of time or pre-determined events in a format seen below.

Log Format:

790 Power Up Time
791 Voltage
792 Temperature
793 GPS Position
794 Gyro readings
795 Power Source (Electric Power Grid, Solar Panels or Battery)
796 Battery Charge Level
797 Reset events
798 DSP Status (Power Up, Power Down, Sleep)
799 Ethernet Adapter Status
800 WiFi Module status
801 Bluetooth Status
802 Cellular Engine Status (2G, 3G and LTE)

The *Logs* can be reported by any of the *two-way half duplex* communication protocols.

- ***Interface: Target Report Block***

The system reports detected targets in a "*Targets Report Block*" in a format seen below.

Target Report Block format:
- System Time Tag
- Operating Mode (Search or Track)
- Pulse Transmit Time Tag (in Search Mode)
- Pulse Receive Time Tag (in Search Mode)
- Pulse Number (in Search Mode)
- Correlated Pulse-Target I.D.
- Range
- Transmitting Sector
- Azimuth
- Elevation
- Range-Rate and Velocity
- RCS
- SNR
- Target or Non-Target Indicator (True or False)

The *Target Report Blocks* can be reported by any of the *two-way half duplex* communication protocols.

- ***Interface: Peripherals***

The system allows interfacing additional security measures such as PTZ cameras through TCP-IP/UDP and "*Pelco-D*" protocol output.

In addition, GPIOs and Dry Contacts are available to be connected to other equipment through relays such as siren, lamps and lighting posts and so forth.