



## MULTIFUNCTIONAL RADAR SYSTEM

The KRONOS® GRAND is a highly compact and mobile multifunctional System, designed for Land Based Tactical operations requiring outstanding Air and Coastal Surveillance and Defense against new generation of conventional and asymmetric threats.

The system, fully exploiting the C-band Active Electronic Scanning Antenna (AESA), is able to perform Surveillance, Tracking, Threat Evaluation and Fire Control against multiple threats, at the same time and automatically by scanning the beam both in azimuth and elevation (Multifunctional Capability). It detects and tracks all types of air and maritime threat, such as aircraft, high speed missiles, low level UAVs, hovering helicopters, rockets and artillery blasts, as well as vessels and small, stealth boats.

## THE SOLUTION

KRONOS GRAND is an easily deployable tactical sensor designed to meet the demands of emerging threat scenarios and requirements for military forces to exercise increased security with reduced manpower and improved response time.

This multifunctional capabilities and the high Interoperability in an Air and Missile Defense Network by embedded C4I center allow a single system to be fielded instead of multiple ones (Power of One). It is a member of the KRONOS multifunctional radar family employing the Active Electronic Scanning Array (AESA) technology based on the company's fully-owned GaAs and GaN manufacturing capability (based on a patented technology), developed in our in-house foundry.

### Rapid and easy ENCAMP

Easy and quick deployment from transport conditions to operative conditions from arrival on unprepared site using two operators.

### High interoperability

The three Command and Control modules and the Multiple Data Link Processor (M-DLP®) connectivity enables KRONOS GRAND to be easy integrated in existing an Air and Missile Defense Network in accordance to the operational needs of resource/means planning of the higher Centre of Command & Control and to operate as the coordination centre of one or more Fire Units deployed for point or area defense in a Netted Surveillance Network or defence system.

## Air and coastal surveillance and tracking

Large surveillance coverage (300Km and 70° in elevation) simultaneously performing tracking with update rate up to 1s for most dangerous air or naval threats. Civil and military Air traffic Control supported by new generation IFF (Mode 1, 2, 3/A, C, S, 4 and 5).

## Air defence

Shortest reaction time for track initialization (up to 1s after first detection) confirming the threat in the same scan by scanning back the beam in azimuth. Fundamental capability against pop-up target (i.e., Helo behind a hill).

## Coordination of SAM systems

Already engineered and integrated with both semi-active and active missiles.

## Counter rocket, artillery and mortar (C-RAM)

Fire Finder Capability to detect and locate enemy artillery and Fire Director capability to direct fire from friendly forces, estimating shell launch and impact points.

## High reliability and easy maintainability

Active antenna with graceful degradation and plug-in Transmit/Receive modules (TRM), based on a patented technology.

## High survivability and tactical mobility

Completely contained in two full standard 20-ft ISO containers equipped with autonomous power supplying, can be transported by standard commercial trucks, helicopter, aircraft, ship or train.

## FUNCTIONAL CAPABILITIES

- › 3D wide surveillance coverage
- › Priority evaluation of threats
- › Air engagement on dangerous threat (1s 3D tracking)
- › Naval Engagement on dangerous threat (enhanced Gun Fire Support/Splash Spotting with 1s 2D tracking)
- › Jammer engagement (1s Track on Jammer)
- › Outstanding ECCM capabilities (Wide C-band frequency agility, Side Lobe Blanking, Automatic Least Jammed Frequency Selection, Emission Control)
- › Fire Finder Capability to detect and locate enemy artillery estimating rocket and mortar launch points
- › Fire Director capability to support counter battery fire estimating own shell impact point
- › Integrated new generation IFF with mode 1, 2, 3/A, C, S, 4 and 5 level 1
- › 3 operator multifunctional console for Command & Control and Operators training
- › 4 HF/VHF/UHF radios with operator intercom and VoIP radio gateways
- › Multiple Data Link Processor (M-DLP) for secure network links
- › Integrated IFF transponder.

## TECHNICAL DESCRIPTION

### PERFORMANCE DATA

› Instrumented range	250/300Km	› C-RAM	Dedicated channel for launch and Impact point estimation
› Elevation coverage	90° in tracking 70° in surveillance	› Number of tracks	>500
› Ceiling	30,000m	› Antenna technology	Active full phased array, TX/RX solid state modules
› Update rate	1s for air engaged tracks 4s for air not engaged tracks	› Antenna rotation speed	60rpm
	1s for naval engaged tracks	› Electronic scanning capability	±45° in azimuth ±60° in elevation
	1s for jammers	› Navigation aid	Inertial Navigation System and GPS
› Target detection capability	RCS 0.01m	› Protection	NBC
› Accuracy	Outstanding accuracy for missile guidance <sup>2</sup>	› BITE	Run-time fault identification and Location

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