

NESIS 4000

Naval Electronically Steered IFF System

Next generation electrically steered IFF antenna system designed to overcome restrictions of mechanically turning antenna and deliver real-time Lock-on track operation.

Improving on today's limitations



High performance and optimal system integration for multi-application and multi-mode **land and sea operations.**

The NESIS 4000 system features a fully active transmit/receive circular monopulse antenna array that achieves line of sight range coverage of up to 200NM, with zero compromise between range coverage and antenna turn time.



Improved performance

The direction of the beam (interrogation) can be controlled by the system in any direction at any time and with a faster antenna turning, down to milliseconds. Target updates times are improved with the additional possibility to lock onto targets independently.



Improved installation

The circular antenna design enables a 360° coverage fully integrated mast concept with an installation position placed in-line with other sensor systems on the mast. The interface between antenna and MSSR 2000 ID is reduced to a minimum of 3 RF and one fibre optical control and monitoring cable.



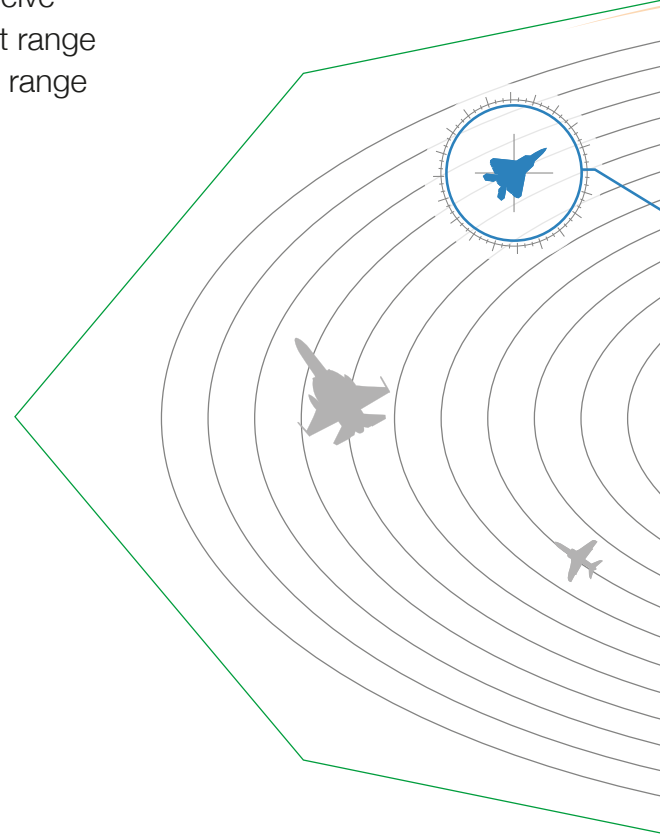
Improved in-service support

With the electrical beam steering technology maintenance issues and ISS costs resulting from reliance on moving parts can be significantly reduced.



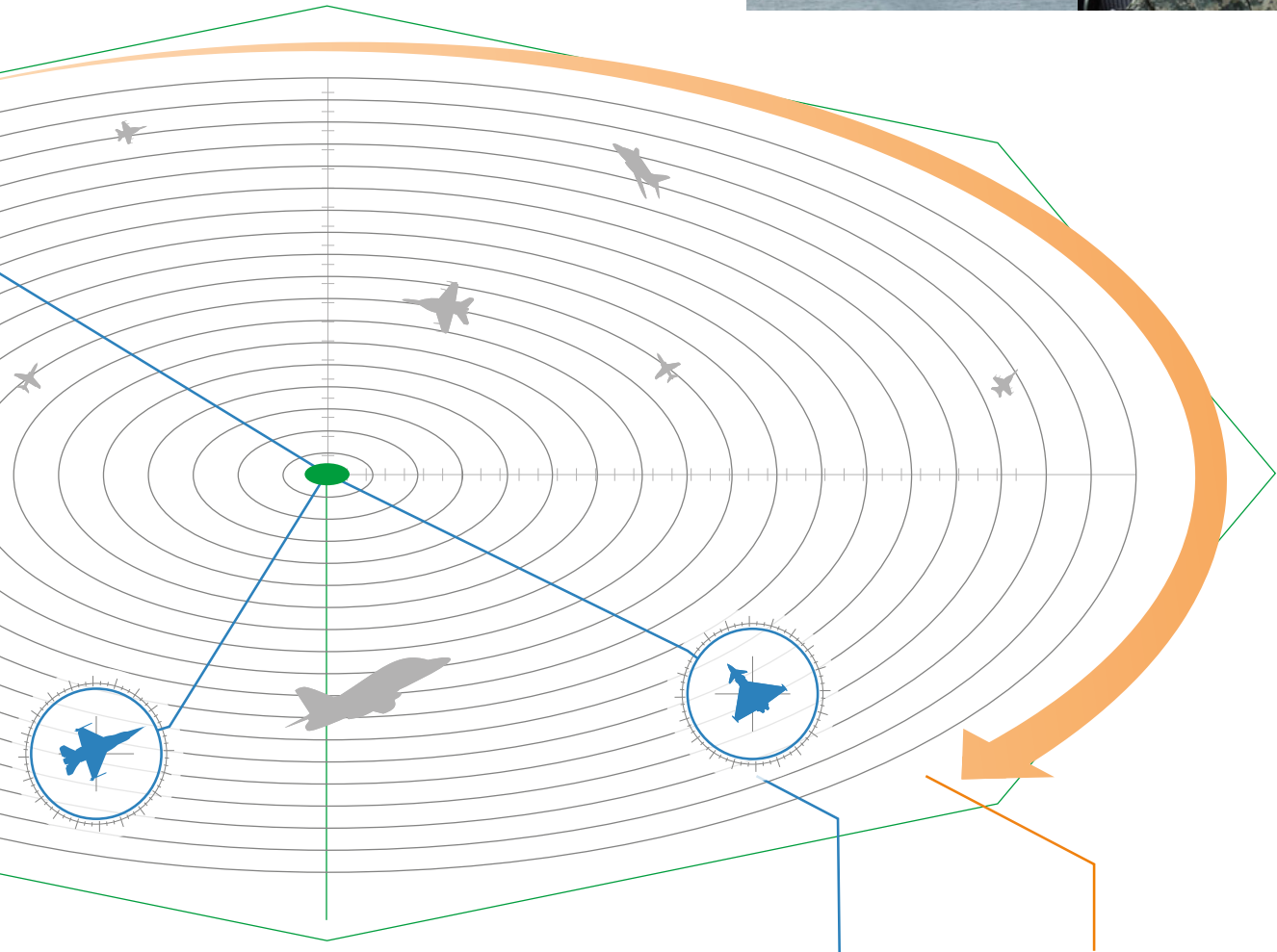
Improved passive performance

NESIS 4000 system reduces the ships Radar Cross Section (RCS) by design and avoidance of mechanical rotating parts. Additional Lock-on track mode allows LPI operation. Fully passive operational mode on the basis of ADS-B and Mode 5 Level 2 reception and tracking only.



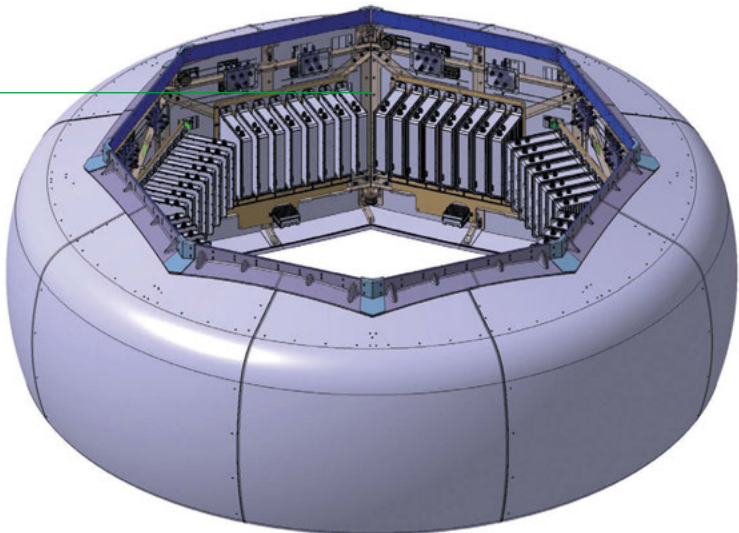
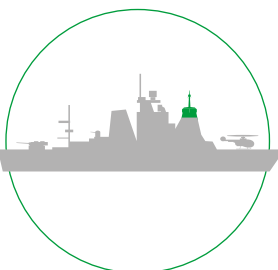
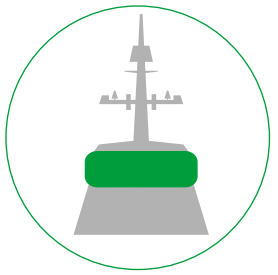
The NESIS 4000 system achieves **line of sight range coverage of up to 200NM**

The STANAG compliant and AIMS certified LTR 400 transponder and MSSR 2000 ID are an integral part of the NESIS 4000 system providing field proving platform motion compensation, interrogation control, tracking capabilities, interface to various crypto devices and standardized external interface. The interrogator includes the beam steering function and monitoring of the antenna. No additional beam steering unit is required.



Lock-on Track Operations
Interrogates targets of interests with higher rates with a "jumping" antenna beam

Surveillance Mode (eRotating)
Surveillance coverage in rotating modes



NESIS 4000

Electronically Steered Non-Rotating Antenna System

Technical data

Parameter	Value
Standard Compliance	AIMS 03-1000B/C; STANAG 4193 ED3; ICAO Annex 10 Vol IV
Standard Compliance	MIL 461G; MIL 810G
RF Channel	3 channel monopulse system
Output Power	up to 3.8 kW Sum Beam
Interrogation Modes	Mode 1, 2, 3/A, C, S, 5 Level 1, 5 Level 2 and Supermodes
Parallel Asynchronous or Passive Reception	ADS-B and Mode 5 Level 2 Squitter
Data Interface	Ethernet LAN (electrically and optically); TCP/IP; UDP EUROCONTROL ASTERIX
Navigation Data Interface	Motion Compensation

Performance data

Max Range	> 220 NM
Target Load Capacity (equally distr.)	2000 targets in 360° 400 targets in 45° 110 targets in 3.5°
Azimuth Accuracy	≤ 0.9°
Range Accuracy (mainly due to transponder errors)	$\sigma \leq 30\text{m}$ for SSR $\sigma \leq 15\text{m}$ Mode S
Probability of detection	≥ 99 %
Antenna Turn Rate	Variable ≥ 1 second

Environmental Conditions (AESA System)

Operational Temperature	-30°C to +50°C
Shock	acc. To MIL 901D
Vibration	acc. to MIL 167-1
Sea State Survive	Sea State 9
Rain	Driving Rain up to 100 mm/h
Sand and Dust	Dust/soot deposits: 0-3 mg/m ² h
Salt Atmosphere	Salt mist in air: 0,5-1,0 mg/m ³
Snow and Ice Load	up to 100 mm radial thickness (survive) ; 22 kg/m ² (operating)

Physical Characteristics

Size	Diameter of 3.5 m Height 1.4 m
Weight	Appr. 700 kg for active antenna