TRS-4D® Fixed Panel

Multi-functional surveillance and target acquisition radar

Step into the next dimension
The TRS-4D is HENSOLDT's newest sensor in the C-Band (NATO G) naval radar family. It is available with a single face rotating antenna and also in a configuration with four fixed panels.

TRS-4D uses the most advanced AESA (Active Electronically Scanned Array) technology based on GaN (gallium-nitride) solid state transmitters. With multiple, digitally formed beams and innovative electronic scanning, the TRS-4D family allows unprecedented quick and full 3D surveillance for AAW and ASuW. The AESA's inherent graceful degradation and the focus on reliable components guarantee long service life with high operational availability.

Fast
For threatening targets, the TRS-4D initiates a track within a single scan using its electronic scanning capability. This results in a reliable, immediate target alert. The system automatically classifies targets as high priority threats and allocates additional radar illumination (cued track). This higher track update rate rapidly increases the track quality thus allowing target engagement with a minimum number of scans. This reduction of the functional chains duration leads to a quick overall system reaction.

Accurate
The auto-calibration of all antenna components in combination with the given antenna aperture in G-Band yields highly accurate tracks even for the smallest air and surface threats, whether symmetric or asymmetric. Assisted by the radar's high priority tracking, the combat management system (CMS) uses these tracks to directly cue the effectors, significantly reducing the response time.

Resilient
The allocation of radar resources to different scan types provides a versatile combination of volume search, surface search and high-priority tracking. This combination of measurements results in robust tracking and reliable target classification, especially with manoeuvring threats. Modern Electronic Counter-Counter-Measure (ECCM) features and the high saturation level of the tracker ensure the performance even under adverse jamming or interference. The radar has sufficient capacity to uphold all functions simultaneously even in stressing situations with high target density and challenging littoral and coastal clutter environments. This ensures platform survivability and mission success.

Sustainable
The modular architecture across the TRS-4D family permits customization and incremental capability enhancements, ensuring the radar system is up-to-date throughout its life and set up for the challenges of the future.

HENSOLDT
Detect and Protect.

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Key Features

- C-Band (NATO G-Band)
- Active Electronically Scanned Array (AESA)
- Solid-state gallium nitride (GaN) transmitter
- Single Mode operation
- Volume search with fast target alert
- Surface surveillance
- Advanced Build In Test Features
- Jammer detection, tracking and suppression
- Own-weapon Tracking
- Helicopter approach support
- Surface gun fire control with splash detection
- Overflight tracking
- Target classification
- High-priority target tracking with extra illuminations and excellent track update rate (cued track)
- Kill Indication
- Emission control sectors

Key Performance

Instrumented range	300 km
Minimum range	< 200 m
Elevation search coverage / tracking coverage	-2° ...70° / -2° ...90°
Target detection capability	RCS < 0.01 m^2
3D tracking capacity	> 1,500 targets
Gun fire support	4 fire control windows
Confirmed Track range - Small surface target - Fighter Aircraft - Sea skimmers	 > 14 km >110 km up to radar horizon
Track accuracy - Elevation - Bearing - Range	 < 0.4° < 0.2° < 15 m

Low Life-Cycle Costs – High reliability and operational system availability

Availability	> 99%
MTBCF MTTR	> 1,000 hours < 0.5 hours

Installation and Maintenance

The TRS-4D Fixed Panel configuration is designed for installation on one or two mast ships. It includes own mechanical shock mounts for all segments, thus significantly reducing the requirements on the mechanical mast structures.

The upper deck segment (frontend) and lower deck segment (cabinets) can be installed at a distance up to 50 m apart and thereof 30 m in vertical distance.

For TRS-4D, the radome is fixed to the mast with a flexible seal. This provides the flexibiliy of removing the radome from the antenna from inside for maintenance purposes.

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