



TRS-3D

Naval 3D Multi-Mode Surveillance and Target Acquisition Radar

TRS-3D is a modular, highly reliable, countermeasure-resistant, medium-range air and surface surveillance system.

It is a fully coherent multi-mode phased array C band radar capable of fully automatic detection, track initiation, and classification of various types of targets. Even under severe clutter conditions encountered in the littoral, it detects and tracks with a particular emphasis on small, fast and low-flying aircraft, missiles, hovering helicopters and asymmetric threats. This ensures minimal operator workload and maximises operational effectiveness.

Latest solid state transmitter technology offers graceful degradation and high operational availability, especially for the benefit of extended missions. Depending on the activated radar mode, the detection range of the radar

covers up to 200 km and the corresponding update times between 1 and 6 seconds.

TRS-3D supports the full operational capabilities of several self-defence missile systems, and can serve as a standalone radar for the surveillance and self-defence requirements of single-radar ships operating in littoral waters, or as the self-defence radar on large frigates and multi-radar ships.

For weapon support and target assignment, TRS-3D supplies reliable target data instantaneously. It features the high tracking accuracy to permit deployment of different types of missiles against aircraft and anti-ship missiles. Thanks to the accuracy of the gun fire support mode, a dedicated fire control system for surface targets is not required.

TRS-3D operating in NATO G band is the best compromise for long-range detection performance, short reaction times, and the required accuracy for cueing weapon systems and dedicated fire control sensors.

The lightweight primary antenna is fitted with an integrated Mode 5/S-capable IFF antenna.

The radar system is able to correlate the primary and secondary radar plots/tracks within its own radar tracker to provide even higher quality data to the combat management system.

The multiple combat proven TRS-3D Naval Radar system is continuously improved to meet all current and future mission requirements while keeping its advantages in modularity, easy integratability and solidity.

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TRS-3D
Electronic
cabinets

More than 60

systems delivered to leading navies around the world

Surveillance

- Especially designed for littoral operations avoiding blind sectors over land
- Reliable automatic track initiation and operation independent of clutter situation for surface and air targets
- Handling of more than 750 tracks per 360° independent of air and surface target mix
- Full MTD operation for complete instrumented range in all modes
- Use of digital geographical charts and adaptive clutter maps to optimise situational awareness

Self-Defence

- Fully automatic detection, track initiation and tracking of all sea and air targets, as well as jammer avoidance/cancellation
- Target classification of sea targets such as small, medium and large ships, air targets such as helicopter and fixed-wing aircraft, as well as highly threatening targets such as sea skimmer missiles and high divers
- Rapid reaction time (fast alert)
- Low operator workloads

Gun Fire Support

- The dual target gun fire support mode allows the use of medium-calibre guns without the need for an electro-optical or radar tracker
- A fast 1s-update rate for the detection of high-explosive projectile splashes with tailored waveforms
- Adapted signal and data processing to detect sea targets and shell splashes

Functional capabilities

- 3D air volume surveillance with fast target alert
- High-resolution surface surveillance
- Small target detection capability
- Target designation to CMS for AAW and ASuW
- Surface gun fire support with splash detection
- Support of Ship-Controlled Helicopter Approach (SCA)
- Support of helicopter control
- High-performance ECCM functions
- High resistance to EMI/ECM
- Jammer suppression
- Suppression of environmental clutter
- Support for target classification
- IFF interrogation support
- Support of various combat management systems

Performance Data

- Maximum instrumented range: 200 km
- Minimum range: 200 m
- Elevation coverage: -2°...50° (70°)
- Azimuth coverage: 360°
- Tracking 3D capacity: > 750 targets
- Gun fire support: 2 windows

- Track range performance:
 - Low altitude target: 11.3 nmi
- Accuracy:
 - Elevation: ≤ 1.3°
 - Bearing: ≤ 0.24°
 - Range: ≤ 20 m

Antenna

- Planar phased array, electronically stabilised
- Electronic scan in elevation
- Integrated IFF antenna (Mode S, Mode 5)

- Integrated SLB/CSLC antenna
- Update rate: 6 s / 3.5 s / 3 s / 1 s
- Low weight (including pedestal): ≤ 575 kg

Transmitter

- C Band (Nato G Band)
- Solid-state Tx modules in gallium nitride technology

- Highly stable coherent transmitter
- Graceful degradation

Processing

- Flexible waveforms for 3D scanning

- Coherent Doppler processing

Low Life-Cycle Costs

- High LRU reliability and operational system availability

- MTTR / MTBCF: ≤ 0.5 h / >3000 h