

## TRS-4D<sup>®</sup> Rotator

### Multi-function surveillance and target acquisition radar

#### Step into the next dimension

TRS-4D is HENSOLDT Sensors' latest member of the C-Band (NATO G-Band) naval radar family. It is available with a single face rotating antenna and also as a four fixed-panel configuration.

Based on the most advanced Gallium Nitride Active Electronically Scanned Array (AESA) sensor technology with multiple digitally formed beams, the new generation TRS-4D opens a new dimension for maritime missions.

It is fully flexible, using an innovative and unique combination of electronic scanning technology and mechanical rotation.

This allows for unprecedented surveillance and unmatched threat detection and tracking performance to extend mission success and platform survivability. TRS-4D supports the countering of conventional and asymmetric threats.

To ensure that current and emerging operational needs are covered, the new radar offers the following capabilities:

- **Outstanding reaction time and survivability**

Fast track initiation and confirmation. Superior detection of low-signature air and surface targets. Evaluation of threats based on unique classification strategies.

- **Advanced high-priority targeting**

Accurate tracking of small, fast-moving targets and countering of asymmetric threats. Intensified threat surveillance for high-priority areas.

- **Network enabled capabilities**

Delivery of new capabilities for co-operative operations, such as unprecedented cued search and cued track.

- **New dimension of situational awareness**

High track update rates for effective self-defence and area defence.

- **High operational availability in extended missions**

Use of highly reliable technology, designed for graceful degradation.

- **Designed for today. And tomorrow.**

Flexible software-defined radar management. Adaptable for emerging mission needs.

**TRS-4D protects ship and crew in highly dangerous, target-dense blue waters and littoral environments.**

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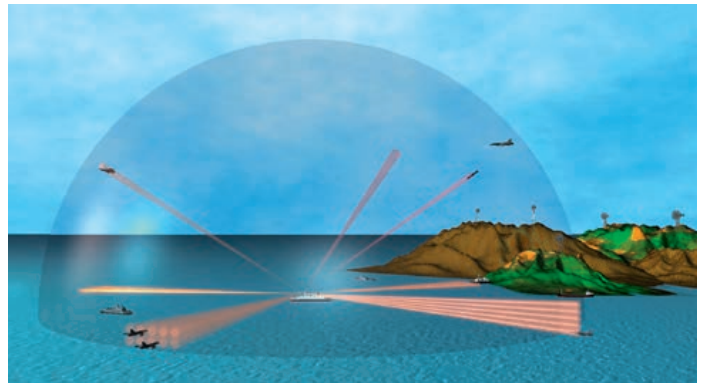
## Multi-function surveillance and target acquisition radar

### Key features

- 3D air volume surveillance with fast target alert
- High range resolution surface surveillance
- Target designation to combat management system for AAW and ASuW
- Surface gun fire control with splash detection
- Ship-controlled helicopter approach (SCA) support
- Jammer detection, tracking and suppression
- Combination of electrical scan in azimuth and mechanical rotation
- Cued search with enhanced detection performance for a dedicated sector
- Cued track with high-priority target tracking for missile guidance
- Sector scanning during rotation
- Target classification
- Integrated IFF

### Integration advantages

- Easy integration – mechanically and electronically
- Risk minimization due to long time experience in combat management systems interfacing
- Low system integrator efforts



Example scenario showing multiple tracked threats



Antenna with pedestal



Below deck system

### Performance Data

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| <ul style="list-style-type: none"> <li>• Maximum instrumented range: up to 250 km</li> <li>• Minimum range: &lt; 100 m</li> <li>• Elevation coverage: -2° ... 70°</li> <li>• Azimuth coverage:           <ul style="list-style-type: none"> <li>- Rotating: 360°</li> <li>- Single panel: -50° ..+50° (rel. to bore sight)</li> </ul> </li> <li>• Target detection capability: RCS 0.01 m<sup>2</sup></li> <li>• Tracking 3D capacity: &gt; 1,000 targets</li> <li>• Gun fire support: 4 windows</li> </ul> | <ul style="list-style-type: none"> <li>• Track range performance:           <ul style="list-style-type: none"> <li>- Small surface target: &gt; 14 km</li> <li>- Maritime patrol aircraft: &gt; 100 km</li> <li>- Supersonic sea skimmers: limited by horizon</li> </ul> </li> <li>• Track accuracy*:           <ul style="list-style-type: none"> <li>- Elevation: &lt; 8.0 mrad / 0.5°</li> <li>- Bearing: &lt; 3.3 mrad / 0.2°</li> <li>- Range: &lt; 15 m</li> </ul> </li> <li>• Track update rate: &lt; 1 s</li> </ul> <p>* Performance figures for Cued Search / Cued Track on request only</p> |
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### Antenna

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| <ul style="list-style-type: none"> <li>• Active Electronically Scanned Array (AESA)</li> <li>• Electronically stabilised</li> <li>• Integrated IFF antenna (three channels)</li> </ul> | <ul style="list-style-type: none"> <li>• Mechanical rotation rate: 30 / 15 rpm</li> <li>• Weight: &lt; 900 kg</li> <li>• Very low sidelobes</li> </ul> |
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### Transmitter

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|--|---|
| <ul style="list-style-type: none"> <li>• C-Band (NATO G-Band)</li> <li>• Solid-state Tx modules in Gallium Nitride (GaN) technology</li> </ul> | <ul style="list-style-type: none"> <li>• Graceful degradation</li> <li>• Adaptable transmitter power</li> </ul> |
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### Processing

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| <ul style="list-style-type: none"> <li>• Digital beam forming</li> <li>• Pulse Doppler processing in all beams</li> <li>• Dedicated high range resolution surface channel process</li> </ul> | <ul style="list-style-type: none"> <li>• Sophisticated classification algorithms</li> <li>• Areas of interest (cued search)</li> <li>• High-priority target tracking (cued track)</li> </ul> |
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### Low Life-Cycle Costs

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| <ul style="list-style-type: none"> <li>• High LRU reliability and operational system availability</li> <li>• Probability of maintenance-free 3 months mission &gt; 99%</li> <li>• Advanced BIT</li> </ul> | <ul style="list-style-type: none"> <li>• MTBCF &gt; 3,000 hours</li> <li>• MTTR &lt; 0.5 hours</li> <li>• Customised in-service support</li> </ul> |
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