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- Submarine Systems
- Surface Ship Systems
- Airborne Systems
- Mine Warfare Systems
- Customer Support
- Seismic Systems



Thales Underwater Systems is a member of the Thales Group. With over 50 years experience in undersea warfare, we are a world leader in supplying sonar and associated systems for navies and air forces as well as civil seismic applications.

Thales Underwater Systems has operating units in the United Kingdom, France and Australia; we supply equipment, know-how and support to more than 50 nations worldwide.



SPHERION Mk 3 (UMS 4131)

Hull Mounted Sonar



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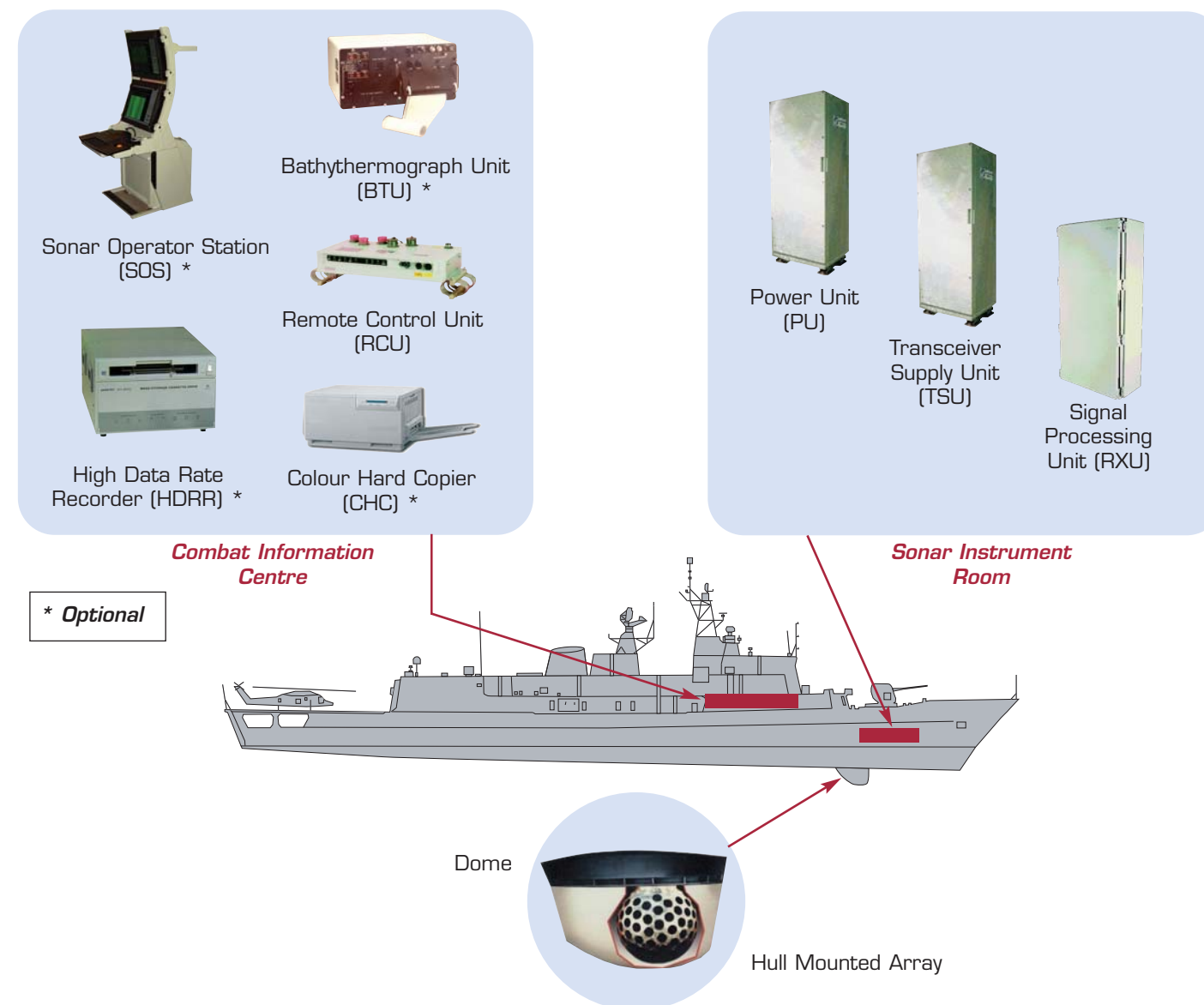
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Unique Underwater Warfare Capability for Surface Ships

The Spherion is a highly versatile medium frequency Hull Mounted Sonar for Corvettes, Frigates and Destroyers. The use of a spherical array gives Spherion unrivalled electronic beam stabilisation and tilt capabilities that when fully exploited can give the operator a significant active ASW performance advantage over similar products in its class. Spherion is in service with many navies throughout the world and a number of repeat orders for the latest versions are being progressed. Spherion Mk 3 now satisfies the multi mission, surface combatant requirement for a traditional ASW capability in deep ocean and equally effective small, slow target detection and tracking in littoral waters. It also has a potent self defence capability against torpedoes and buoyant mines. Spherion Mk 3 has the following key features:

- **Multi-mode Operation:** Active omni, sectorial, TRDT or directional (search light) transmission modes. Up to 30° of beam tilt during transmission allows for optimum configuration based on performance of the day calculations. Concurrent passive or listening only detection and tracking.
- **Performance Optimised for all Operating Conditions:** Continuous 3D electronic array stabilisation and a comprehensive choice of beamforming, pulse type, pulse length and gain configurations. Built in system configuration support allows for performance optimisation in all deep and shallow waters operations.
- **Pulse Length and Bandwidth:** Stabilised transmission and reception permits the use of long (4 sec) pulses for long range detection. Wideband active transmissions deliver good shallow water and obstacle avoidance performance. Three octave passive bandwidth for covert surveillance and torpedo detection.
- **Concurrent Processing:** Parallel CW active, FM active and passive processing chains providing simultaneous ASW surveillance and protection from attack by torpedo. Full passive surveillance capability in listening only mode.
- **Automatic Detection and Tracking:** In active and passive. Up to 100 active and 12 Automatically Initiated passive tracks maintained. The last 8 pings of active track data and 10 minutes of passive history can be displayed.
- **Torpedo Warning:** Panoramic listening for early detection and a neural net classification scheme designed to give the Command confidence in detection, a low false alarm rate and the maximum reaction time for countermeasures.
- **Obstacle Avoidance:** The capability to detect mine-like objects in the near-surface region of the water column.
- **Performance of the Day (POD):** Operator assistance in the selection of the best system configuration is provided by a POD prediction facility that is based on sound velocity profile and local environmental data.
- **On Board Trainer:** Fully integrated simulation capability for operator training in harbour and at sea. At sea training scenarios can be overlaid over real sea data for the maximum training authenticity.



Technical Characteristics

| | |
|---------------------------|-------------------------------------|
| Centre Frequencies (kHz): | 5.5, 6.5, 7.5 |
| Pulse Lengths (ms): | 60, 120, 250, 500, 1000, 2000, 4000 |
| Transmission Modes: | OMNI, MOA ±60 about ship's head |
| Pulse Types: | LPFM, CW, COMBO (FM & CW) |
| FM Pulse Bandwidths: | 500, 2000 Hz |
| Range Scales (km): | 1, 2, 4, 8, 12, 16, 24, 32, 64 |
| Stabilisation/Tilt: | +20° / -30° |
| Concurrent Rx Channels: | 2 x Active, 1 x Passive |
| CW Doppler Band: | ±30 kts |

Physical Characteristics

| Module | Height (mm) | Width (mm) | Depth (mm) | Weight (kg) |
|------------------|-------------|------------|------------|-------------|
| PU | 1710 | 630 | 780 | 465 |
| TSCU | 1710 | 630 | 780 | 380 |
| SPU | 1350 | 635 | 510 | 380 |
| RCU | 90 | 440 | 230 | <10 |
| Array | 1420 | ∅1160 | - | 1900 |
| Dome | 1500 | 1450 | 3500 | 650 |
| Optional: | | | | |
| SOS | 1489 | 600 | 1157 | 324 |
| BTU | 312 | 530 | 455 | 34 |
| HRRR | 240 | 315 | 507 | 18 |
| CHC | 193 | 424 | 518 | 19 |