

Synapsis Command Bridge

Scalable Solution For Navigation And Command & Control



Synapsis Command Bridge

Employing the open architecture of the Synapsis navigation bridge and based on over 100 years of competence as a manufacturer of maritime navigation and surveillance systems, Raytheon Anschütz has now developed an innovative new solution for naval integrated bridge systems.

The Synapsis Command Bridge features a functional integration of navigation system, tactical situation display, electro optical sensors and optional defense systems, and is optimally suited to address the varied current and future requirements (e.g. civil and police duties and military tasks).

With the new system, capabilities of OPV's, fast attack crafts and smaller naval vessels without requirements for a dedicated combat management system and combat information center can be easily enhanced to handle a variety of threat scenarios and missions efficiently and effectively.



SYNAPSIS COMMAND BRIDGE

The Synapsis Command Bridge combines the Synapsis bridge for commercial and military navigation and the Smartblue Command & Control for surveillance applications to a fully integrated navigation and command & control solution. Thereby, the Synapsis Command Bridge comes as a scalable "off-the-shelf" solution which is standardized to save unnecessary non-recurring engineering costs whilst at the same time remaining flexible enough to accommodate different sensors and weapons systems appropriate for different missions.

Typical applications are:

- Integrated navigation system with radar, (W)ECDIS and conning, autopilot and sensors
- Tactical situation awareness display / C2 with integrated EOS and weapon control
- Integrated alert and data management
- Optionally interfacing with integrated platform management system (IPMS)

Your Benefit[®]

- IMO-compliant bridge and navigation system based on affordable COTS technology
- INS type approval according to MSC.252(83) on request
- Fully integrated C2 system with EOS can be controlled from any workstation
- Manual and automatic "slew to cue" of EOS and/or weapon to a system track
- Scalable system structure based on open systems and modular design
- Optional enhancements like small target trackers or ship/shore communication links
- High flexibility for future extensions and adaptations
- Less consoles contribute to a space-saving bridge design and reduced manning
- Standardized HMI contributes to a simplified intuitive operating philosophy
- Reduced needs for training and higher flexibility for changing crews
- Only one responsible contact for supply, documentation and technical service

The Command Bridge Concept

The Synapsis Command Bridge concept is a network based solution that incorporates core ship electronics systems in a standardized but flexible manner that allows for quick adaptation to customer requirements. The entire system is built upon the same Raytheon Anschutz OASIS (Open Architecture Software for Integrated Systems) framework to provide the customer with a homogeneous solution.

The navigation system is based on Raytheon Anschutz IMO-compliant Synapsis Integrated Navigation System (INS). Central parts of the INS are multifunctional workstations for radar, ECDIS and conning.

The Synapsis Command Bridge aims to provide a solution that not only provides the Synapsis Integrated Navigation capabilities but also transfers enhanced situational awareness capabilities from the Raytheon Anschutz' Smartblue surveillance system to a new sea-based application. Therefore, within the command bridge configuration, the multifunctional can also be enhanced with a tactical situation awareness display / C2 capability.

System Extensions

The level of flexibility offered with the Synapsis Command Bridge architecture provides significant advantages over less integrated approaches, which often only interface separate, non-integrated systems without using consistent and unified system architecture. The starting point is a basic configuration which enhances the bridge navigation system with the C2 system.

The common OASIS framework allows rapid integration of sensor data. Individual sub-systems and components - such as small target trackers, 2D radars, ESMs or sonars - can be added, replaced or removed to create customer-specific solutions or to adapt system configuration with changing operational need.



Tactical Situation Awareness Display (C2)

As the tactical situation awareness display, the command and control (C2) solution developed by Raytheon Anschutz provides the operator with advanced situational awareness and capabilities for detection, identification and tracking of targets of any size and speed in the vessels environment. The C2 features a geo-referenced workspace that brings together a combination of sensors and effectors.

Depending on system configuration, the C2 features:

- Freely movable sea chart representation
- Track representation and classification according to MIL-STD-2525
- Track list which can be called up with additional information such as track history, pictures
- Track filtering controls (type, zone, speed, affiliation, source, alarm state)
- Tactical heading-/speed recommendation (e.g. dynamic intercept course and speed)
- Alarm zones, safety areas
- Integrated database (overlays, track data, ships data)
- Intelligent alarm management
- Freely configurable window display
- Land maps (geotiff)

The C2 includes a track management and correlation capability that can offer a common operating picture (CoP) to all connected workstations onboard. In addition, the system can be configured to include data links with ship-to-ship and ship-to-shore communications to combine operational data such as tracks, overlays, screenshots, video or mission data from various sources to a total CoP through all involved authorities.

Integration Of Electro Optics

The C2 integrates marine-specific surveillance electro optics (EOS: HDTV daylight camera, IR-night sight, laser range finder, thermal imagers) to further enhance detection and identification capabilities. The C2 display features a separate window to show the video of the EO system. The camera position, field of view is shown on the map. Based on selected track, alarming track or selected position, the C2 system allows automatic slewing of the camera. Alternatively manual control of the EO systems is possible.

Integration Of Weapon Control

The C2 can offer integration with small to medium weapon stations for small combatants and OPV's. The C2 display can be configured to include a visualization of the gun and ammunition status, gun direction, weapon arcs and effective range. Depending upon requirements either the EO system or the track source can provide the gun with target indication. Pedal and joystick controls for the guns can also be integrated into the console.

Maritime Domain Awareness

Maritime domain awareness (MDA) is to monitor, control and protect the maritime assets of a nation up to 200 nautical miles from shore. A MDA system typically integrates capabilities from shore-based surveillance sites with those of sea-based surveillance platforms.

Synopsis Command Bridge helps smaller naval and coast guard vessels such as OPVs being the appropriate response to terrorism, piracy, smuggling, illegal immigration and more. With their Smartblue Command & Control (C2) solution for land-based maritime surveillance, Raytheon Anschutz additionally offers a commercial off-the-shelf solution for the complete maritime domain.

The Smartblue C2 gathers all available sensor data, fuses intelligent information and distributes the data via network, VHF and satellite data communication to provide a common operational picture (COP) to all involved shore and offshore participants.

