

smartblue

Maritime Safety & Security Solutions

Offshore oil & gas assets

Offshore renewables installations

Ports, harbors &
terminals infrastructure

Vessel protection

Coastal surveillance





Command & control solution

SMARTBLUE is the latest command and control (C2) system, engineered by Raytheon Anschutz. It has been specifically designed for maritime situational awareness, collision avoidance, asset protection and security.

Based on over 20 years' experience of the offshore and maritime surveillance market and the installation of over 50 surveillance systems worldwide, the software utilizes surveillance sensors to provide an early warning and identification of approaching contacts to offshore assets. Requiring no dedicated radar operator



BENEFITS AT A GLANCE

- Reduced risk in offshore and maritime operations
- Environmental monitoring of operations
- Improved safety of offshore personnel
- Increase in operational efficiency
- Coordination of multiple offshore assets
- Easy operation of multiple sensors in multiple sites
- Reduction in operator training
- Fully bespoke to the requirements of the customer
- Commercial off the shelf (COTS) equipment to reduce costs
- Free of any export control restrictions

training or specialized knowledge, SMARTBLUE is built to support operators with automatic identification of potential threats of sabotage or collision thereby allowing them time to react.

SMARTBLUE is based upon open "software architecture". Customers benefit from the flexibility to pick and choose from a broad range of surveillance sensors depending on their specifications and budget. Additional sensors and functions can be integrated to provide a fully comprehensive safety, environmental and security management system which in most cases, exceeds safety and security standards whilst at the same time, improving efficiency, reducing security and environmental risks and insurance premiums.

With Raytheon Anschutz's dedicated in-house consulting and specialist project management teams, SMARTBLUE solutions can be tailored to meet the specific requirements of offshore oil and gas assets, renewable assets such as wind farms and marine turbine installations as well as ports, harbors, terminals and maritime borders.





SMARTBLUE BASIC SOLUTIONS FOR SAFETY & SECURITY

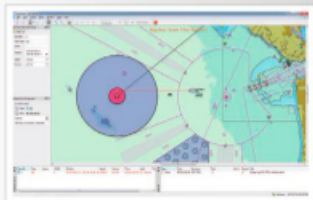
An integrated SMARTBLUE surveillance system provides the operator with maritime situational awareness of the surrounding area. The easy to use SMARTBLUE System, coupled with automatic functionality, significantly reduces workload and allows operators to quickly decipher and understand the maritime picture which is provided through multiple sensor information from radar, AIS and cameras.

The basic system provides a fully automated coverage of stand-alone assets or facilities needing only operator intervention when SMARTBLUE detects an anomaly and the audible alarm is activated. The combination of radar and AIS allows SMARTBLUE to provide an early warning of potential threats whilst cameras provide the means to identify those threats and support incident recording.

This information and the integrated surveillance sensors can be managed and operated locally on the asset or remotely from a shore-based control center depending on the requirements of the customer.

Basic functions of the SMARTBLUE C2 system include:

- The support of a variety of chart formats including ARCS, ENC and Geo TIFF satellite imagery
- Fuses multiple sensor site information (radar, AIS and cameras) into one comprehensive common operating maritime picture
- A range of icons to denote contacts into classifications for easy reference
- Full ARPA and AIS information including CPA/TCPA information on offset locations
- Alarms include collision warning, boundary violation and proximity alerts
- Suppression of alarms on vessels that are members of the maritime area (such as standby vessels, workboats and harbor tugs, patrol and support vessels)
- Creation of boundaries (including harbor limits for port dues and ice monitoring of visiting vessels) and exclusion zones around sensitive operations
- Automatic sensor cue to contacts entering exclusion zones and boundaries
- Easy control and management of sensors integrated within SMARTBLUE including profile based settings to adapt to changing environmental conditions
- Data logging of all data and information received by SMARTBLUE for training and incident investigation
- SMARTBLUE also supports multiple screens, including multiple chart, camera, and radar video windows and dialog boxes within the main viewing area



SMARTBLUE ADVANCED SECURITY, SAFETY & ENVIRONMENTAL MANAGEMENT SYSTEM

On request, SMARTBLUE could be enhanced with additional functionalities such as:



Man overboard alert & tracking (MOB A&T)

SMARTBLUE will alert operators in the event that personnel wearing personal locator beacons (PLB) falling overboard allowing assets to be deployed for personnel recovery. SMARTBLUE can track the person until it has been recovered.



Meteorological sensor monitoring

SMARTBLUE can integrate with any meteorological sensor system thereby displaying valuable environmental conditions. This information includes but must not be limited to: dew point, temperature, humidity, wind speed and wind direction.



Oil spill detection

The integration of a variety of oil spill detection systems allows operators to monitor the integrity of offshore oil and gas systems or of loading/unloading capacities at terminals and respond quickly in the advent of leaks.



Iceberg detection

SMARTBLUE offers the capability of early warning of collision from iceberg in arctic regions to allow operators to task standby icebreakers to intercept.



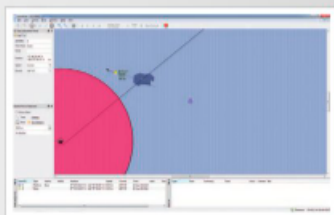
Land perimeter protection

In addition to waterside perimeter protection, SMARTBLUE can be used in conjunction with specialized land surveillance sensors to protect and secure the landside facility of any port or terminal operations.



Fully integrated communications

Through data links SMARTBLUE can provide a common operating picture (COP) across multiple assets including workboats and support vessels in order to coordinate surveillance activities, offshore operations and increase efficiency. The operation can be monitored from SMARTBLUE control centers ashore.





Meteorological forecasts

Forecast meteorological information can be provided allowing operators to manage operational envelopes of FPSO's and FLNG's or of arriving and departing vessels. Forecast meteorological data can also be provided allowing wind farm operators to predict future power supply levels.



Underwater diver detection & acoustic system

Underwater surveillance allows operators to detect approaching contacts underwater and via the underwater acoustic device deter violation of exclusion zones. Additionally marine current turbine operators can monitor the underwater vicinity of their assets for any objects that could be drawn into their turbines.



Remote operation of deterrents

In extreme hostile environments it may be a requirement for offshore assets to defend themselves. SMARTBLUE allows operator to repel attacks in a non-lethal way by remotely operating long range acoustic devices (LRAD), water cannon and laser dazzlers.



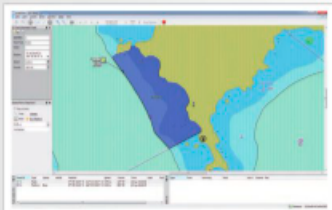
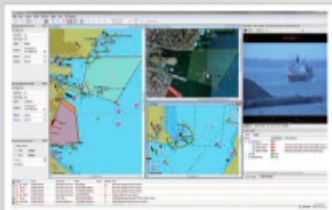
Wave measurement monitoring

SMARTBLUE can integrate with wave measurement systems allowing operators to monitor wave height, wave period, current speed and direction. As an example, this information is valuable for FPSO and FLNG operations where operators need to monitor their operational envelopes. Forecast wave measurement systems can also be provided allowing marine turbine operators to predict future power supply levels.



Integration of RFID

The integration of RFID (Radio Frequency ID) at all access points allows SMARTBLUE operators to track the location of own personnel, whilst providing restrictive access to sensitive areas.



SMARTBLUE APPLICATIONS

Designed to meet the particular needs for affordable and non-restricted maritime safety and security solutions, SMARTBLUE utilizes commercial-off-the-shelf (COTS) hardware. Customers further benefit from reduced costs, high flexibility and availability therefore improving project delivery timescales.

In all configurations SMARTBLUE serves as a dashboard for sensor information integration. Due to its "open software architecture", SMARTBLUE could be easily adapted to customers' individual requirements.

Its system architecture gives SMARTBLUE the edge over the competition in that not only can it provide protection, security and maritime situational awareness through the integration of AIS, radar and cameras but can be extended by advanced functions to provide a one stop emergency response and environmental monitoring system.

SMARTBLUE is continuously evolving with additional integration of different sensor types as requested by customers. Sensors simply "plug in" thereby being added or removed to suit operational requirements. This makes SMARTBLUE extremely versatile and with this capability, allows Raytheon Anschutz to propose affordable bespoke surveillance systems to their customers.

Raytheon Anschutz's offshore surveillance project management team is able to offer SMARTBLUE solutions to meet the requirements of a range of applications including:

- Offshore platforms (oil & gas)
- Floating production storage and offloading units (FPSO's)
- Floating liquid natural gas units (FLNG's)
- Single buoy moorings (SBM's)
- Wind farms
- Marine turbines and other renewables installations
- Ports, harbours and terminal infrastructure
- Coastal surveillance
- Vessel protection



Visit our website to watch a movie about different SMARTBLUE deployment scenarios:
www.raytheon-anschutz.com/smartblue





EX & ZONE RATED OPTIONS AVAILABLE

Raytheon Anschutz understands that space is at a premium on offshore assets and as such its systems and equipment may need to be placed within certified zone areas. Raytheon Anschutz therefore offers its customers, solutions that are certified for zone rated areas including fully pressurized radomes and ATEX approved surveillance sensors.

PROJECT MANAGEMENT

At Raytheon Anschutz, our experienced team has decades of experience in surveillance and security business. Operating from six strategically located offices in Singapore, Rio de Janeiro, San Diego, Shanghai, Kiel and Portsmouth we are able to provide local and comprehensive consulting support for national and international projects.

Raytheon Anschutz offers extensive know-how for surveillance solutions. Our project managers support customers from concept of operation's, project outline and specification of systems through project realization, system in operation and ongoing support. Our customers rely on a dedicated point of contact, reachable all the time through the whole project.

MODULAR DESIGN TO SUIT NEWBUILDS & REFITS

Due to its modular design and build, SMARTBLUE can be installed just as easily on existing platforms undergoing maintenance, upgrade or refit as on new builds. Existing sensors such as radar, AIS and cameras can be integrated into SMARTBLUE thereby providing an enhanced capability at a fraction of the cost. Raytheon Anschutz can also offer the SMARTBLUE surveillance container - integrating C2 and a variety of sensors - as a fully deployable solution for coastal, port and offshore surveillance and security.

Our consultancy services offer guidance on selection of appropriate technology and assist customers in balancing operational requirements with best value for budget. Where appropriate Raytheon Anschutz partner with sensor systems providers and offer customers the best available for the budget.

To prove and test the capabilities of SMARTBLUE we have developed and installed two demonstration facilities in Kiel, Germany and Portsmouth, UK to showcase the benefits and functionality of the SMARTBLUE command and control software.



THROUGH LIFE SUPPORT

Thanks to a network of own subsidiaries and regional offices in Singapore, Rio de Janeiro, San Diego, Portsmouth and Shanghai and more than 200 sales and service partners we can offer round the clock support and site-specific consultancy to customers around the world. This covers:

- Worldwide service with 24/7 local life cycle service and support
- Regional support includes knowledge in practice, language and culture
- Offshore standards and regulations
- Tailored logistic and in-service support solutions as an option
- Continuous improvement and efficient solutions for midlife modernisation

Of course, Raytheon Anschutz has service engineers experienced in offshore processes and procedures with all necessary survival and safety training certificates.

Raytheon Anschutz Singapore Pte. Ltd.

51 Bukit Batok Crescent
407-08 Unity Centre, Singapore 658077
Email sales@raysingapore.com

Raytheon Anschutz Shanghai Representative Office

Room 713, Tomson Commercial Building
710, Dong Fang Road, Pudong, Shanghai, China 200122
Email FZhu@raykiel.com

Raytheon Anschutz Office Portsmouth

Langstone Technology Park, Bldg 4009
Langstone Road, Havant, PO9 1SA, United Kingdom
Email sales-naval@raykiel.com

Raytheon Anschutz US Office

8680 Balboa Ave, San Diego, CA 92123-1502
Email frank_christophersen@raykiel.com

Raytheon Anschutz do Brasil

Sistemas Maritimos Ltda
Avenida das Americas 7899, Sala 508
Barra da Tijuca, CEP 22795-081, Rio de Janeiro, Brasil
Email Paul.Robbe@raykiel.com



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Raytheon Anschutz GmbH

Headquarters
D-24100 Kiel, Germany
Tel. +49(0)431-3019-0
Fax +49(0)431-3019-291
www.raytheon-anschutz.com