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Stabilized, Cooled IR and Daylight Camera Station With Searchlight

NORBIT APTOMAR | STIKLESTADVEIEN 11 | N-7041 TRONDHEIM | NORWAY | PHONE +47 73 98 25 50 | [aptomar@norbit.com](mailto:aptomar@norbit.com)

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Rev 4.1

AIRBORNE



OFFSHORE






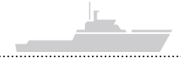
NEAR SHORE

ON SHORE

Unmatched Situational Awareness, in Real-Time, Available at Your Fingertips



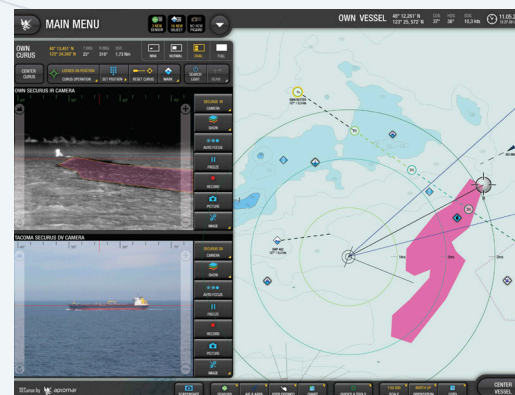
SECurus is usually fitted on the following:

-  → Oil Rig
-  → FPSO
-  → Oil Rig Standby Vessel
-  → Emergency Towing Vessel
-  → Super Yacht
-  → Coast Guard Vessel

# SECurus SYSTEM

NORBIT Aptomar's SECurus sensor station is a high-end EO sensor designed specifically for the maritime environment. It features an HD day- and lowlight video camera, an advanced actively cooled Infrared camera, both with high levels of magnification, and a powerful searchlight.

SECurus is fully stabilized to ensure easy operation in all weather- and light conditions, as well as providing the user with a unique ability to project the geo-referenced video onto the electronic chart.



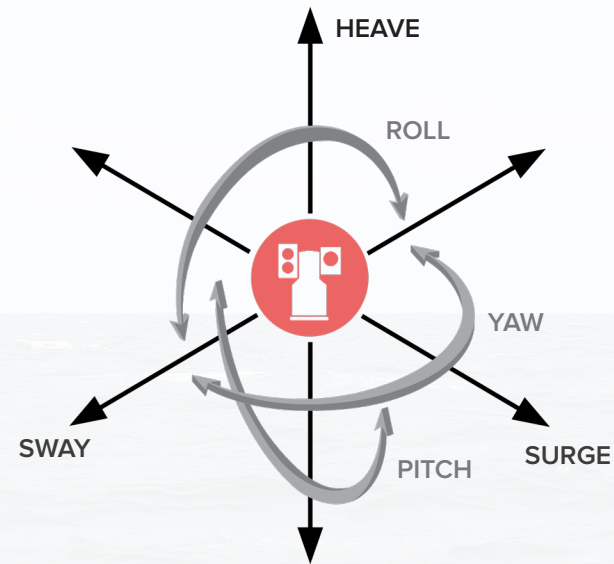
The SECurus is the most important sensor when fighting oil spills, with the ability to estimate relative thickness and volume of an oil slick. Every pixel in the video is geo-referenced.

## SECURUS POINTING UNIT

SECurus Pointing Unit is ruggedized and designed for maritime operations in harsh environmental conditions.

It features:

- HD Day- and Lowlight Camera
- Actively Cooled IR Camera
- Powerful Stabilized Search Light
- High sensitivity stabilisation in 6 degrees of freedom
- Fully integrated in SeaCOP situational awareness system





## ACTIVELY COOLED IR CAMERA

Controlled experiments have shown that while uncooled IR sensors can detect oil on water under favourable conditions, an actively cooled IR sensor has a much broader operational weather window both day and night. It further enables measurement of relative thickness of an oil spill, an uncooled IR sensor is not able to provide this information.

The high-sensitivity actively cooled IR sensor enables:

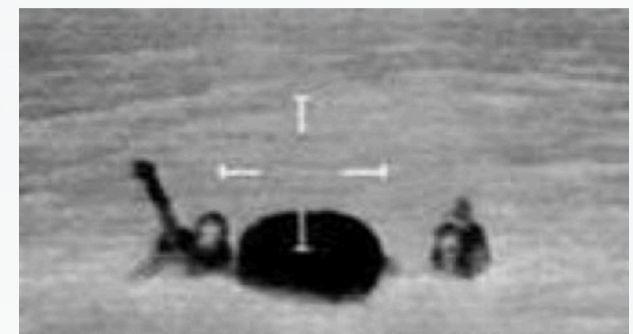
- Detect and position the thickest part of an oil slick for an optimal recovery operation
- Detect low thermal signature targets for both Search and Rescue (SAR) as well as Security operations
- Superior detection range

## HD DAY & LOWLIGHT CAMERA

- High resolution for range and detail performance

## SEARCH LIGHT

- 300W xenon Search Light
- Aligned with the camera movements
- Search Light can be focused for a narrow beam for long range, or a wide beam for area illumination
- Stabilisation allows illuminating a point regardless of the movement of the vessel
- Can also be locked to follow an AIS or ARPA target, just as it can be locked to be fixed on a certain point





# SEACOP WORKSTATION

SeaCOP workstation is the user interface of the SECurus system. It consists of a marine-certified touch screen and a Joystick.

- Easy and intuitive easy-to-use touchscreen user interface
- The video from the day and lowlight camera and Cooled IR camera are displayed in a window of the maritime chart-based display, as well as being projected onto the map
- All data are geo-referenced on the electronic chart







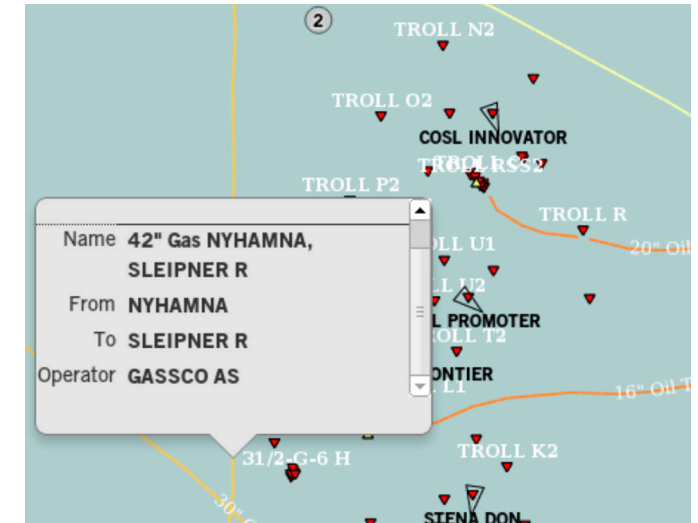
Touchscreen User Interface

- Simple and intuitive touchscreen interface
- Mouse and keyboard also supported
- Real-time video integrated with other relevant sensors such as radar and AIS

OBJECT ARCHIVE					
				SENSOR ARCHIVE 29 NEW	OBJECT ARCHIVE NO NEW
				PIC & VID ARCHIVE NO NEW	
TYPE	SOURCE	AGE	DST / BRG	SHARED	
ALL	ALL	ALL	ALL	ALL	
AMFORM	SS YELLO-SUB	0m	0.3 Nm / 199°		
LABORG	SS YELLO-SUB	0m	4.2 Nm / 79°		
RICHARD WITH	SS YELLO-SUB	0m	7.0 Nm / 4°		
IK	SS YELLO-SUB	0m	4.1 Nm / 78°		
STELLA VIKING	SS YELLO-SUB	0m	4.3 Nm / 80°		
OTRAOIL	SS YELLO-SUB	0m	4.1 Nm / 77°		

Recording and Storage

- The SeaCOP System can record and store video, still images and other relevant data
- Configurable storage capacity



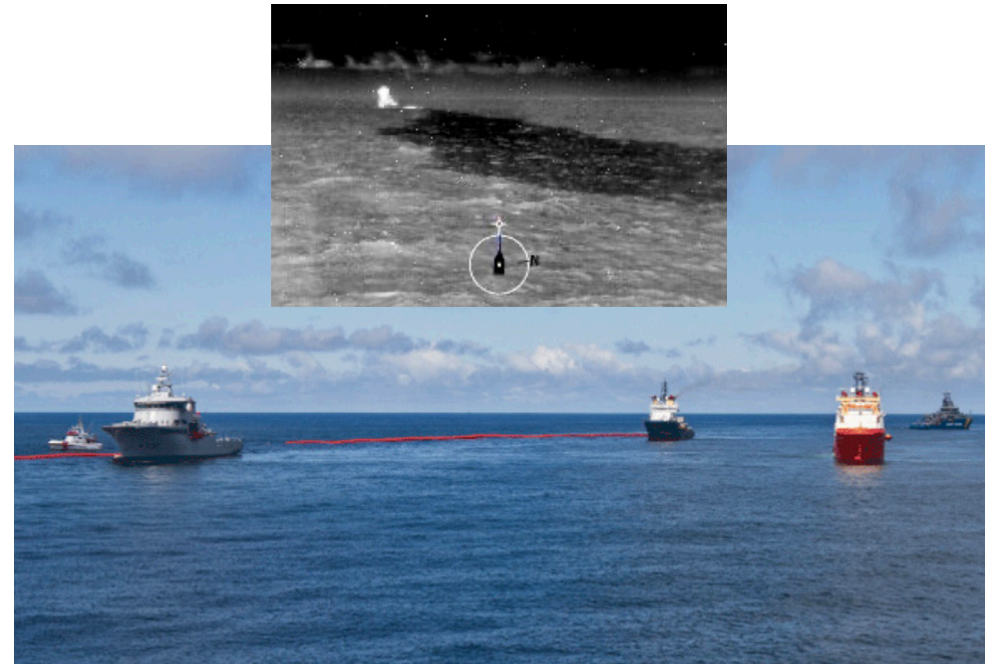
GIS Information

- GIS information can be stored to create user-specific maps with e.g. underwater fixtures and assets
- Points, areas, polygons and routes can be created by users and displayed on the electronic chart
- Chart objects can also be displayed as Augmented Reality in the camera view windows, and objects detected in the video can also be marked and transferred to the electronic chart

## OIL SPILL DETECTION & OPERATION MANAGEMENT

SECurus integrated with radar Oil Spill Detection (OSD), provides the operator with the most complete and reliable oil spill detection system available. This is established as the best practice on the Norwegian continental shelf.

- Automatic detection with Radar OSD
- Verify or Reject alarms quickly with Actively Cooled IR camera
- Detect and locate the combatable part of an oil spill in all light conditions
- Decision support tool for choosing the most appropriate method and strategy to combat the oil
- Create the Common Operating Picture by networking SECurus Systems together to form the most comprehensive situation overview available

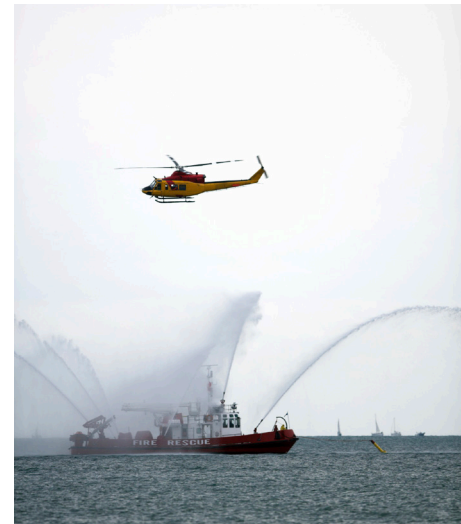




# SEARCH & RESCUE

SECurus' long-range, stabilized EO sensors that allow detection of extremely low thermal signatures in seawater, SECurus is one of the most powerful tools within maritime Search & Rescue.

- Detect person in water at up to 2 nm
- Geo-referencing provides location and range and bearing of a person in the sea
- Sharing of position to other vessels and shore
- Built-in search patterns with integrated drift estimation
- Integration with other sensors and sensor platforms, like drones and manned aircrafts, for optimal detection probability
- User-specified area sweep by SECurus enables efficient search
- Illuminate person or object in the water with Powerful Searchlight to assist other units to locate the person
- Searchlight also informs the person in the water that they have been seen, and that rescue is on the way



## FIREFIGHTING

- Sees through smoke to identify the flames.
- Identify area of highest temperature
- Live-streaming to Emergency Response Room for incident management to know severity of situation.



## TOWING

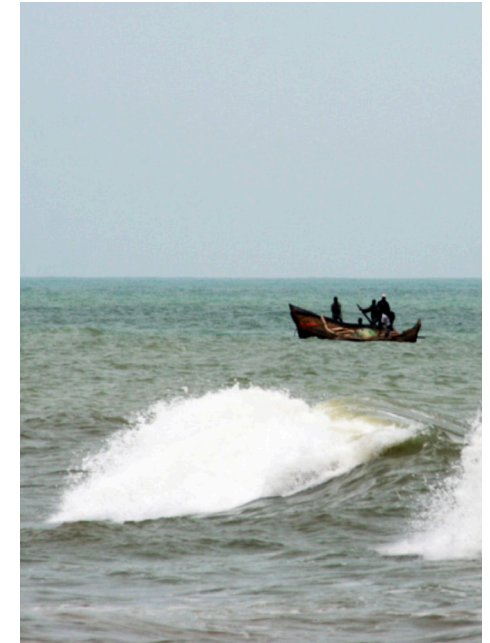
- Monitoring of the towed vessel from the bridge day and night
- Monitoring towline to identify friction to avoid breakage
- Sharing of real-time video of tow to onshore control room for constant status updates





# MARITIME SURVEILLANCE

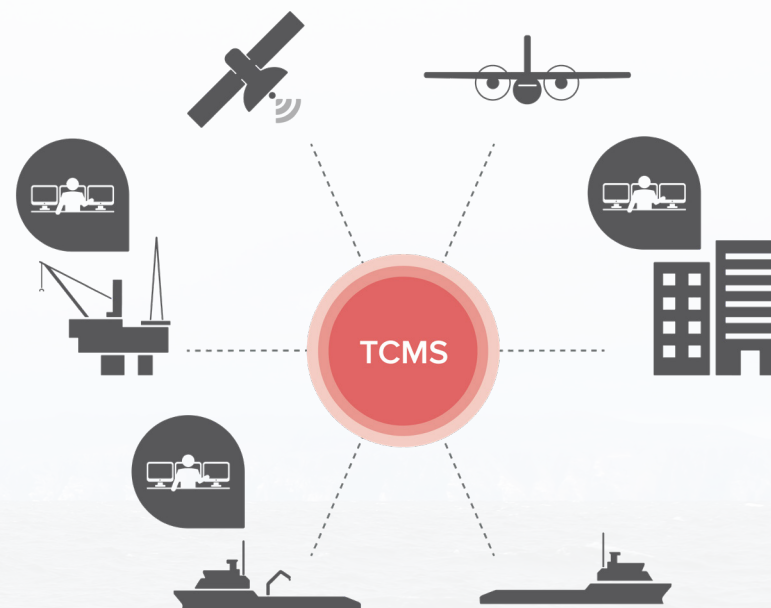
- Detect a large vessel at ranges up to 20 km, and a standing person at up to 10 km, by far exceeding the performance of uncooled IR sensors
- HD digital day and lowlight camera is capable of up to 30X zoom level
- Monitor a large area of the sea from a single location
- Integrate with Small Target Detection processing unit to visually identify and classify targets detected by the radar
- Highly accurate stabilization enables long zoom levels even with vessel movement
- Powerful searchlight used to provide a steady illumination of the target vessel during boarding operations by daughter craft
- Use of Searchlight lets the target know they have been detected
- Recording and sharing of video and images for debrief and evidence
- Integrated with other relevant sensors for optimal Situational Awareness



## COMMON OPERATIONAL PICTURE

When connected to an Aptomar SeaCOP TCMS (Tactical Collaboration Management System) Network, the SECurus System can share all information.

- Sharing of videos, still images, GIS data, Screenshots with Operations Rooms and other vessels
- Sharing data from a number of individual SECurus System installations can provide the ultimate in situational overview in a maritime operation
- Sharing the combined data with all parties in real-time creates the Common Operational Picture
- More efficient and speedier decision-making, meaning time and money saved





# SECURUS TRAINING

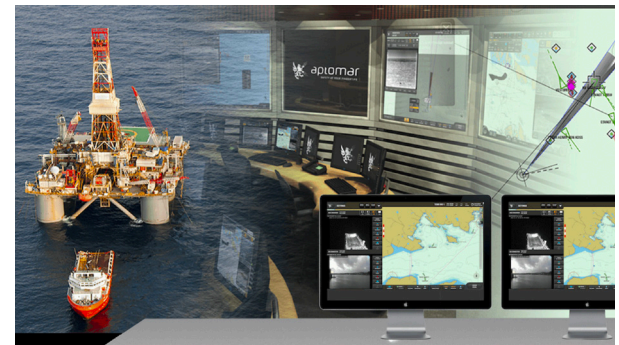
No surveillance, security and emergency response system is going to be efficient without those using the system being thoroughly trained in its use. NORBIT Aptomar provides regular user training, and refresher training for SECurus operators. The training encompasses theory and best practice for marine operations, as well as the features and use of SECurus.

Goals of courses;

- Establish a good understanding of the SECurus system's functionality & possibilities
- Focus on how the SECurus can be used in a variety of emergency situations
- Demonstrate how SECurus fits in the complete Tactical Oil Spill Management system to provide a Common Operating Picture
- Secure operational knowledge for operators/ end users, as well as for onshore oil spill response management
- The courses shall be available as e-learning

Courses consist of presentations and exercises with main focus on surveillance, security, SAR and oil spill management.

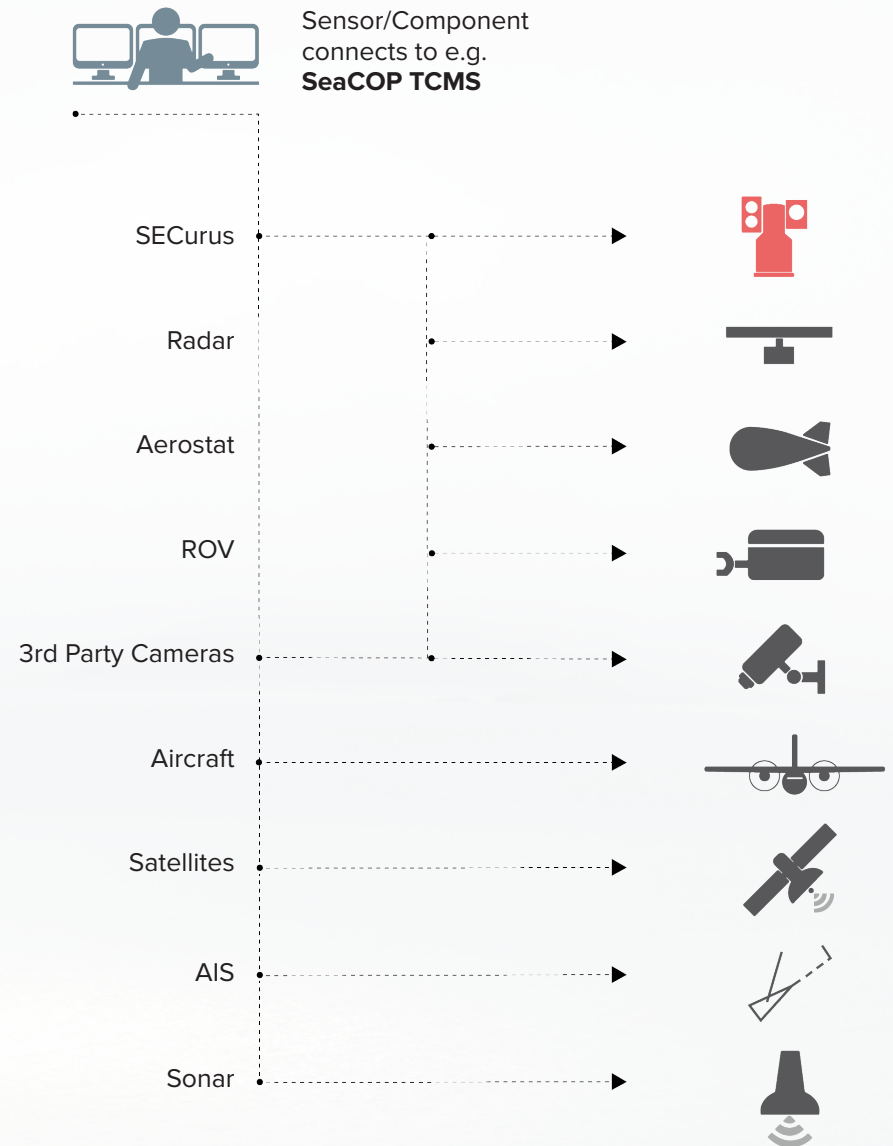
The operational training courses are arranged at the Aptomar facilities, in the Oil Combat Simulator at North Cape Maritime Training Center (Honnongsvåg, Norway), at customer locations.



NORBIT Aptomar's software, sensors and networking technology create one of the most comprehensive and accessible maritime domain awareness systems available today. As the challenges and operations of our clients change, the SECurus and SeaCOP system is under continuous development.

The SeaCOP TCMS and all available add-on modules are designed and improved over the last decade based on thousands of small and large operations, incidents and operations, during Maritime Surveillance missions such as Vessel traffic management, Fishing Area Enforcement, Border Patrol, oil and gas asset protection and environmental monitoring and detection.

Together we will secure the safety and integrity of people, environment and assets.





## **NORBIT Aptomar**

Stiklestadveien 1  
N-7041 Trondheim, Norway

**Tel:** (+47) 40 00 34 03

**E-mail:** [info.aptomar@norbit.com](mailto:info.aptomar@norbit.com)

**Web:** [www.norbit.com/aptomar/](http://www.norbit.com/aptomar/)

