SEA SURVEILLANCE
SOFTWARE & HI-END SOLUTIONS

Maritime monitoring system

for offshore oil, gas and windmill installations

The system assures:

- Continuous surveillance of offshore assets using radars, CCTV, AIS, VHF and more
- Vessel traffic monitoring and control
- Environment protection
- Vessel collision avoidance with built in automatic audio and visual alarms
- Intrusion detection with automatic intrusion detection alarms
- Remote monitoring of offshore sites from onshore control center

Maritime monitoring system

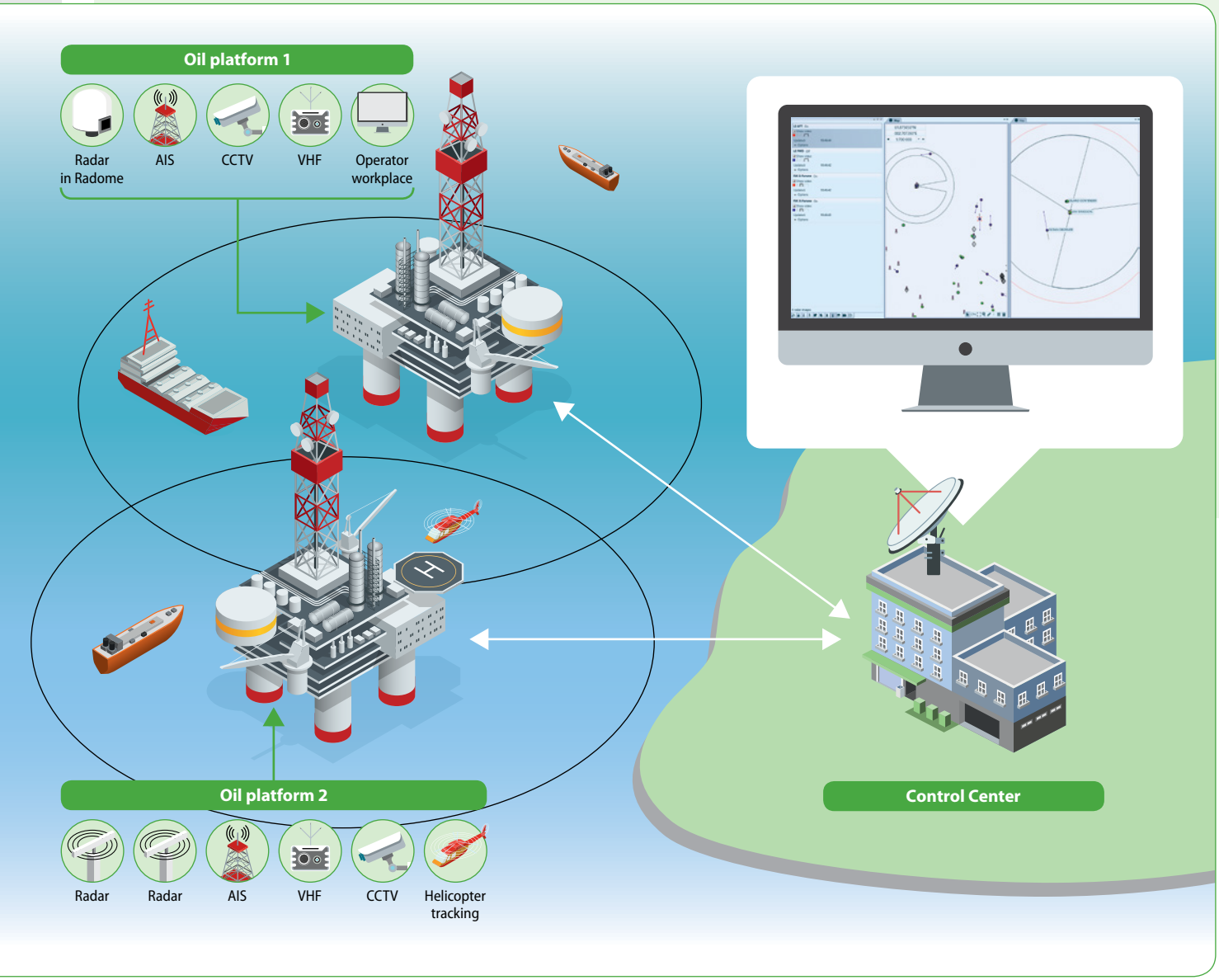
The maritime monitoring system is a fully integrated system designed for the safety and security of offshore oil and gas installations, particularly platforms and floating storage vessels. It reduces the security risks posed by: marine traffic, rogue vessels and small target threats.

The system has an open architecture with a modular and scalable design, using a centralized server connected by LAN to sensors and operator displays. It enables the automatic monitoring of multiple offshore sites using radars, AIS, weather sensors and CCTV cameras as well as remotely controlled VHF radio to form a complete control and monitoring system that is IALA compliant.

The maritime monitoring system continuously gathers information from its various sensors and processes them on a central server to form a common operational picture that is superimposed on S-57 electronic charts.

The system's scalability makes it suitable for large-scale monitoring systems with numerous sensors, users, and locations, as well as for one-radar/ one operator systems.

System configuration



System features

Radars

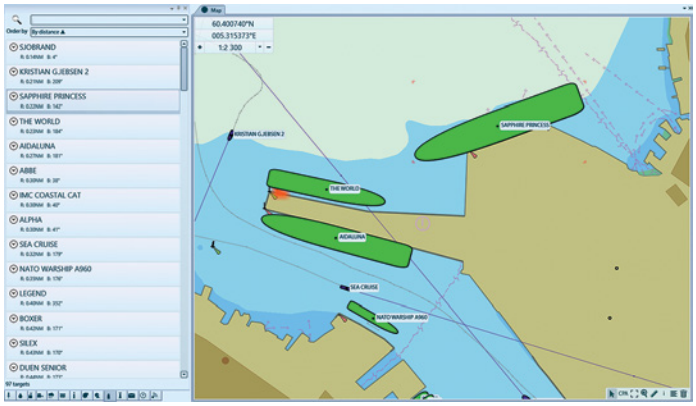
The system supports a number of different radar vendors including Sperry Marine, Furuno, Kelvin Hughes, Raytheon, Simrad 4G, and Sea-Hawk radars. This provides flexibility in the choice of radar based on the performance required or for integration with existing radars.

Ex(p) Radar Dome

The Ex(p) Radome is a self-regulating Exp-protected enclosure for X-band radars, S-band radars, VSAT antennas, position reference sensors, and other kinds of surveillance equipment.
ATEX zone 1 or 2 ready: the radar dome can be used when installing radars in potentially explosive oil platform areas. The radar dome allows the use of radars during gas leakage, increases equipment life and durability, and protects radar equipment from strong wind, rain, and extreme temperatures. Electromagnetic equipment performance is not affected. The dome can accommodate 3, 6, 8, 12 or 18ft scanners. There is a built-in function for the remote monitoring of pressure, temperature and the operational status of the system.

AIS

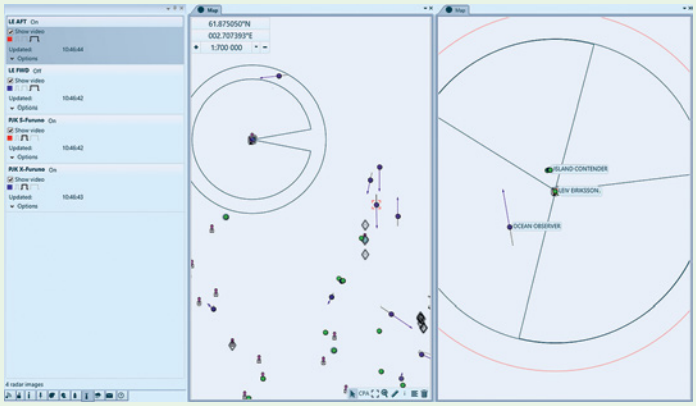
Automatic identification system is a mandatory carriage requirement for all commercial vessels over 300GT. AIS provides continuous monitoring of commercial vessels in the vicinity of the platform that not only provides the vessel position but also the vessel identification (name, call sign, and IMO number).
For precise information we use target merging — the information about the vessel is received both from the radar and AIS and merged to one target on the operator's screen. Virtual AToNs (VAToNs) are also supported in the system.



Central Server (iServer)

iServer receives information from all the system's sensors, processes the data and stores it in a database. We use a server-based architecture that means all traffic warning calculations are performed on a central server and a common operating picture is created. The use of powerful central servers assures fast processing and high reliability. Maintenance is simplified as changes only need to be made on the server. iServer can be configured to work in hot standby mode to offer redundancy where required.

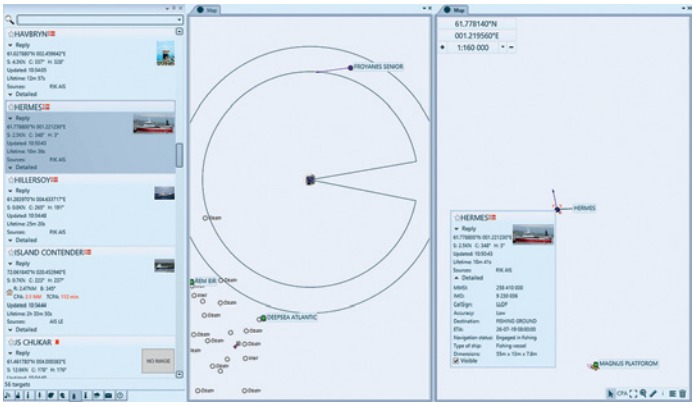
iSurv Operator Display



The iSurv Information Surveillance Display is an intuitive operator display, all system functions and components including 3rd party modules can be accessed and controlled from iSurv. The operator display presents tracked targets from radars and AIS on S-57 electronic charts. Ten security levels provide data protection and each user can customize their work space.

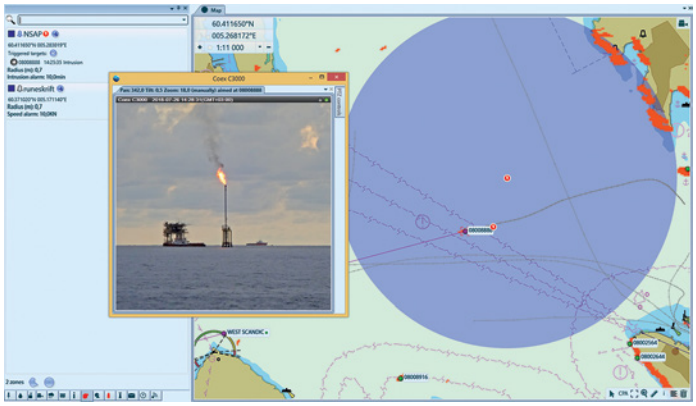
Information about vessels and targets

The system shows targets on an electronic chart and the list of all the targets in the system in a special targets tab. It is possible to get detailed information about each target, including: vessel name, MMSI, destination, ETA, speed, position, IMO number, navigational status, and type of vessel. Closest point of approach (CPA) and time to closest point of approach (TCPA) can be calculated for the selected vessels when required.

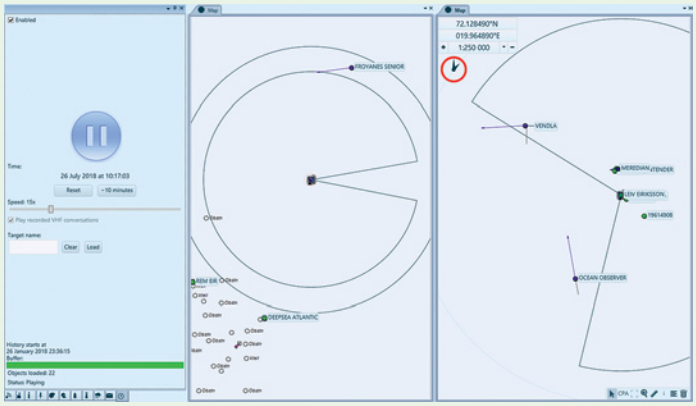


Alarm zones and automatic audio and visual alarms

An excellent tool for early collision warnings and intrusion detection. Operators can create different alarm zones, set alarm criteria and acknowledge alarms. The system has set of navigational alarms intended to avoid accidents in the coverage area. Standard alarms are: intrusion alarm, speed limit alarm, and leaving zone alarm. Other types of alarms can be added if required.
If there is a violation in a guard zone, an automatic audio and visual alarm appears. To avoid unnecessary alarms from port tugs, pilot boats and other service vessels, operators can add them to an exception list.



Record and playback



All target data and radar video can be recorded and played back. It is possible to view historical records and monitor live traffic at the same time. Playback speed is adjustable and playback can be specified for a particular target.
Playback is synchronized with radar video, tracked targets and VHF recordings.

Camera System

An additional tool that enables high-quality camera video.
Different models of Full HD cameras can be integrated into the system, including thermal cameras. The camera is controlled from the iSurv Information Surveillance display. It is possible to point, zoom, pan and tilt, and control wipers through the standard operator iSurv application. The camera can automatically follow a target. The stream from the camera is recorded and can be played back synchronously with radar/ AIS/VHF playback.

VHF Radio System

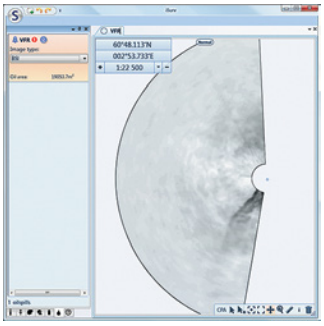
The VHF subsystem allows onshore and offshore operators to perform VHF calls via remote radio using VHF-over-IP (VoIP) technology. This can be integrated into the Maritime monitoring system or used as a stand-alone application. All audio streams to and from VHF base stations use the ED137 communication protocol. Remote control of VHF base stations is based on the TCP protocol. All VHF conversations are recorded on a central VHF server and can be retrieved for playback.

Man Overboard

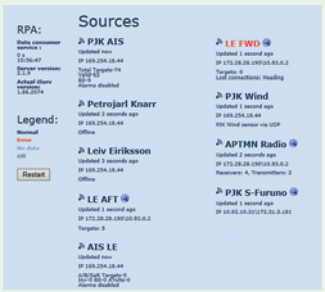
Signals received from AIS based man-overboard (MOB) devices are displayed as a different symbol, allowing the rapid alert and identification of a person falling into the sea.

Integration with other sensors and 3rd party modules

The open architecture enables the integration of third party sensors and modules, such as: helicopter tracking (ADS-B), oil spill detection module, weather sensors, AToNs.



Remote system control and monitoring



The performance of the system is controlled and monitored remotely. Different sensors can be switched on and off, and the radar pulse can be changed through the operator display when required.

If a hardware component fails or the connection between system components is lost, both audio and visual alarms are given.

Standards

- IALA Recommendation V-128, Operational and Technical Performance of VTS Systems (Advanced Performance Functions).
- IALA Recommendation V-125, The Use and Presentation of Symbology at a VTS Centre.
- IALA Guideline No. 1056, Establishment of VTS Radar Services.
- NORSOK (by the Norwegian petroleum industry).
- Radar Dome: EN 60079, ATEX, ISO 8573-1:2001(E).

Company

Sea Surveillance was founded in 2003 to specialize in creating state of the art maritime safety monitoring solutions for the oil and gas industy, particularly for offshore installations. We combine the latest technology with our team's deep knowledge and experience to create reliable user friendly-solutions. The performance of our systems can be seen in over 50 installations around the globe.
Sea Surveillance is a part of the Seabrokers Group.

Our key products are:

- Maritime monitoring systems
- Ex(p) and Ex(s) radar domes
- VHF radio systems

All our solutions can be customized to meet customer needs.

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