

British Antarctic Survey

Surveillance delivering situational awareness at sea

“We needed a surveillance solution that would benefit both safety and study and that’s exactly what we’ve got. The COEX camera stations provided by Synectics – chosen specifically for their capacity for high-quality image capture in extreme temperatures, visibility, and weather conditions – combined with the monitoring and control solution, make complete situational awareness possible.”

Randolph Sliester
Head of BAS Shipping



The British Antarctic Survey is using on-board surveillance solutions for ice-class vessels to keep its teams and technology safe while at sea and in port.

The security challenge

British Antarctic Survey (BAS) is one of the world’s leading environmental research bodies and is responsible for the UK’s scientific activities in Antarctica. Its specially designed research ships are among the most advanced in their field.

RRS James Clark Ross is one such vessel. The ice-class ship is capable of sailing through 1m thick pack ice at -30°C, as well as navigating in 100-knot winds with poor visibility. Designed for conducting biological, oceanographic, and geophysical cruises (around six per year) primarily in the Antarctic, and

equipped as a full floating laboratory, the ship is one of the most sophisticated marine research vessels in the world.

BAS required a surveillance solution that would deliver on-board, real-time situational awareness, even in the most extreme weather conditions, in order to monitor crew and science team safety – as well as ship security – at all times.

Space was also a major challenge. The ship’s primary purpose is scientific study, requiring extensive equipment and on-board technology. All cameras, recording equipment, and monitoring equipment specified therefore needed to function efficiently while taking up limited physical space and minimal energy supply.

In addition to meeting these challenging demands, the selected surveillance solution also had to be “mission-ready” – fully factory acceptance tested (FAT) as an operational system prior to delivery.

BAS called on Synectics’ 30-year marine surveillance heritage for the answers.

Cameras connecting captain and crew

Footage from 25 Synectics COEX C2000 fixed, PTZ, and portable cameras, located throughout the ship, is streamed to two key monitoring and control stations in the bridge and the winch room. Corrosion-resistant, and operational at temperatures as low as -45°C (and up to +60°C), the C2000



PROJECT DETAILS

Client

BAS

Location

Antarctica

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camera stations can monitor and track both fixed and moving objects on deck or at sea, regardless of weather conditions or visibility.

Camera control panels and flat panel monitors on the bridge, integrated with ship audio communication links, provide the captain with real-time audio and visual information regarding the positions and activities of the deck crew, science team, and testing equipment, while also being able to detect ice hazards and guarantee safe navigation. Additionally, they can monitor for areas suitable for equipment deployment, such as clear water, and communicate this to the scientists. A monitoring and control hub located in the ship's winch room provides another vital layer of situational awareness.

Located on deck, the ship's winch is used throughout research cruises to lower heavy and often highly sensitive equipment/research technology

Synectics designs integrated end-to-end surveillance control systems for the world's most demanding security environments. We excel at complex projects that require innovative, tailored solutions with high reliability and flexibility, specifically for casinos, oil and gas, marine, public space, banking, transport and critical infrastructure applications. Synectics' Systems division is part of Synectics plc, a global leader in advanced surveillance, security and integration technologies and services.

overboard. With unpredictable weather conditions – potentially major ice hazards – and extreme wire tension to contend with, the winch operator needs to know what's happening on deck at all times so that should an incident occur, the winch can be retracted or stopped to ensure the safety of personnel and equipment. Seven flat panel monitors and two camera control panels enable the operator to be fully informed and in control.

Security in port

While the majority of the ship's year is spent at sea conducting research, between voyages the vessel makes several important stops in port to pick up vital supplies for research teams back out in the field.

In addition to helping RSS James Clark Ross safely navigate into busy ports, the solution developed by Synectics also provides valuable protection for

the ship and its contents while docked. The combination of fixed and PTZ C2000 cameras covering all entry points on board, and surrounding waters, enables the detection and tracking of potential intruders with live footage relayed to the bridge for continuous surveillance monitoring.

Customer view

"Whether it's lowering trawl nets for fish stock and plankton analysis, or deploying eight-ton corers to obtain sea-bed sediment samples, in our work and the environment in which we operate, risk mitigation is paramount. There needs to be constant communication and full situational awareness between the captain, the crew, and the science teams conducting research. We needed a solution to facilitate that," said Randolph Sliester, Head of BAS Shipping.

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