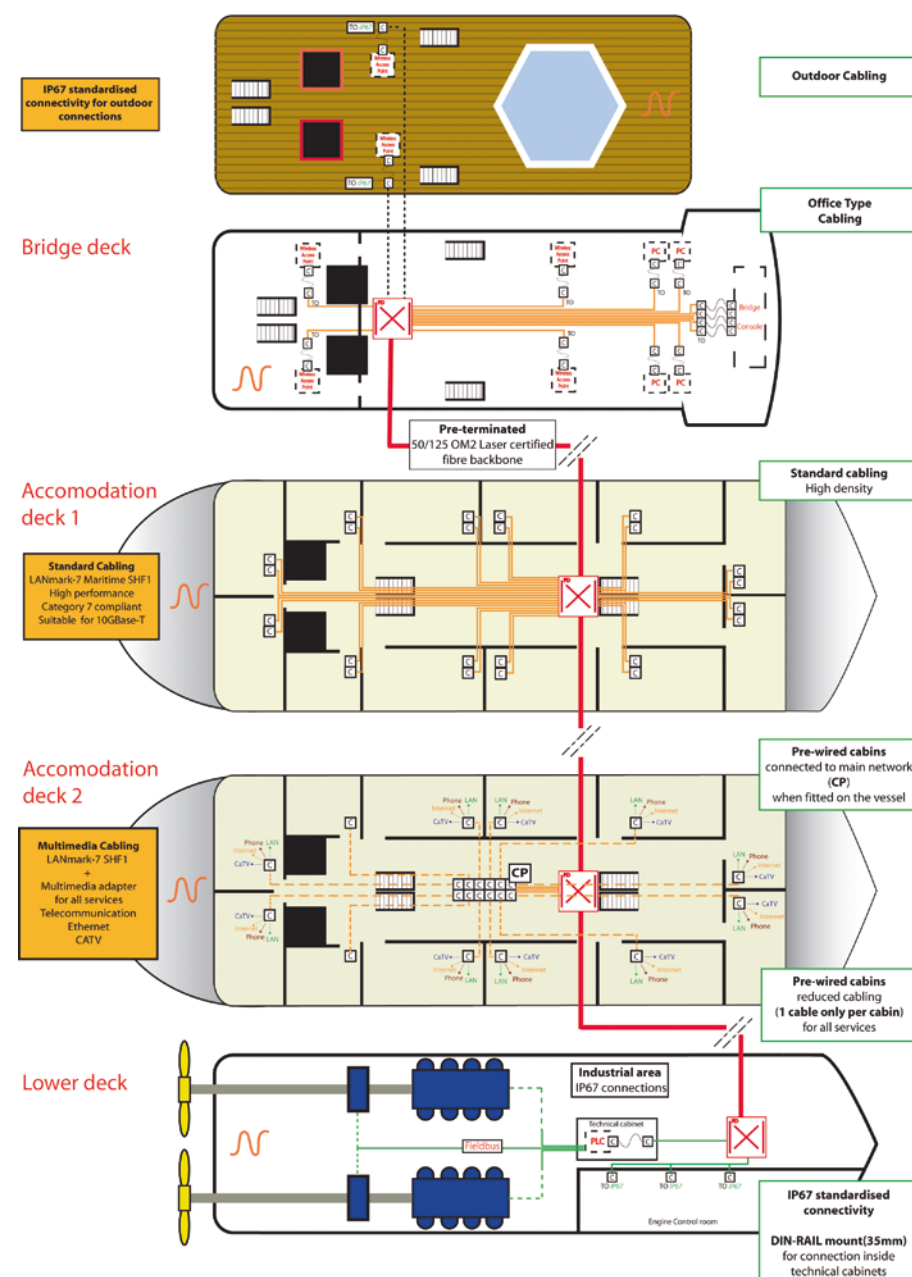


Nexans' network configuration installed at the Royal Research Ship James Cook.



nexans

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NEXANS CABLING SOLUTIONS ENABLES SCIENCE TO THRIVE ON THE HIGH SEAS FOR NATIONAL OCEANOGRAPHY CENTRE

Nexans Cabling Solutions installs future-proof, robust cabling solutions on the RRS James Cook — a new oceanographic research vessel operated by the UK's National Oceanography Centre

When the UK's Natural Environment Research Council invested in the construction of an ocean-going research ship, it required a fast, reliable network, which would meet scientific and administrative needs for a considerable time into the future.

Leading the way

The National Oceanography Centre Southampton (NOCS) is one of the world's leading institutions devoted to research, teaching and technology development in ocean and earth science. The Centre works with the wider science community to provide strategic leadership and co-ordinate the efforts of organisations involved in oceanography and marine geoscience.

NOCS is owned and run by the UK's Natural Environment Research Council (NERC) and the University of Southampton and its purpose-built waterside campus accommodates some 520 research scientists, lecturers and technical support staff as well over 700 undergraduate and postgraduate students.

Built to last

In 2004-2006, NERC invested in the construction of a new ocean-going research ship, the RRS James Cook. This represented a £36 million (€55 million) investment by the UK government in oceanographic exploration. The James Cook and its on-board cabling infrastructure was built to withstand the most challenging and varied environmental conditions – from the storms and humidity of the tropics to the intense cold of the polar ice caps.

It was also built to last – it is expected to provide NERC with a leading-edge multi-disciplinary research resource for many years to come. In addition, its on-board network was designed to be future-proof and enable administrative and scientific systems to function side by side.



“FROM WHAT I’VE HEARD DURING THE TESTING PERIOD, THE CREW THINK THE NEXANS NETWORK IS A MODERN SOLUTION, WHICH IS FAST, WELL-DISTRIBUTED AND ROBUST.”

EDWARD COOPER,
PROJECT MANAGER, NATIONAL OCEANOGRAPHY CENTRE,
SOUTHAMPTON

CHALLENGES

- » Systems required to withstand the most extreme conditions
- » Long-term requirement — network needs to have a life-cycle of up to 20 years
- » Need to accommodate both scientific and administrative functions on-board

SOLUTIONS

- » 50/125 OM3 Laser-certified fibre vertical backbone,
- » LANmark-7 GG45 Marine technology provides connections to cabins
- » 1000 Mhz high-performance LANmark-7 Maritime cable

BENEFITS

- » Reliable and robust network that can operate in extreme conditions
- » Up-to-date technology enhances communications and productivity
- » Future-proof — open standards mean upgrades can be accommodated at any time throughout the network life cycle



CONNECTIONS ARE BUILT TO PERFORM UNDER HARSH OFFSHORE CONDITIONS AND MAINTENANCE IS POSSIBLE BY THE EMBARKED STAFF WITHOUT SPECIFIC TOOLING.

Reliability of fast connections guaranteed

Edward Cooper says that the benefits of the new network were apparent immediately: “The crew testing the vessel are very satisfied with the network’s features. They can now send and receive emails with their laptops in real time thanks to the satellite internet connection. This is a huge advance, especially in a scientific environment where fast access to information is important. It makes a difference in the day-to-day management too – the crew can reference technical information on-line, just as if they were in an office, factory or lab on shore.”

To ensure the James Cook can keep functioning off-shore and in remote areas, the network has been built to withstand the harshest environmental conditions and stresses. It is resistant to vibration and extreme weather, electromagnetic interference and even the potential for oil spills. It has also been designed to enable on-going maintenance to be performed easily and quickly by on-board staff, without special tooling.

Moreover, the network is constructed to deliver consistent and reliable performance over a full refurbishment cycle, which on a ship of the James Cook’s class is expected to be between 15 to 20 years. During this time, a number of upgrades and new technology deployments can be expected and the infrastructure has also been designed to accommodate these changes and additions. “To ensure the floating office is future-proof, the vessel’s LANs are based on open technology, which gives enough headroom to support foreseeable technology upgrades”, says Terje Olsen, SOhome Technical Manager.

Nexans works together with qualified partners such as Terje Olsen from SOhome. He has been in the industry for 35 years and has acquired an extensive experience in the field of embarked communication systems. His expertise covers maritime LAN, wireless, telephony and bus systems over copper and fiber. Terje Olsen was the network designer and project manager for both G.O. Sars and James Cook.

The network is certainly meeting the present needs of both scientific and administrative staff, notes Edward Cooper. “From what I’ve heard during the testing period, the crew and technical support staff think the Nexans network is a modern solution, which is fast, well-distributed and robust.”

Solid and dependable

The Nexans solution has given the James Cook a solid and dependable framework upon which it can depend entirely to meet its scientific and administrative needs, both today and in the future. This provides good investment protection for NERC and strong justification for the substantial investment made in the vessel. It also ensures that the ship can remain productive throughout its initial lifecycle.

SOhome plans to make use of the same technologies in four more maritime projects it is now working on. This will take the number ships that depend on Nexans technology to over 30, providing a powerful testimony to their effectiveness in the most testing conditions. ■

In 2004, Nexans Cabling Solutions and its Norwegian partner SOhome had successfully provided the cabling and network infrastructure for G.O. Sars, a research vessel that was constructed in the same Norwegian shipyard where the James Cook would be built. This encouraged NERC that Nexans and SOhome could meet its needs as well, says Edward Cooper, Project Manager at NOCS. “The G.O. Sars project has clearly been a great success and we had very similar requirements. We were confident from the very start that Nexans and SOhome could provide the robust and network infrastructure we would need on the James Cook.”

All systems go with high-end solutions

In April 2006, Nexans Cabling Solutions and SOhome started implementing the structured cabling on board. This included a 50/125 OM3 Laser-certified fibre vertical backbone, horizontal copper links to the individual crew cabins based on the DNV certified LANmark Maritime solutions: GG45 Marine connectors, and 1000 Mhz high-performance LANmark-7 Maritime cable, which would link the vessel to the Isis, a sophisticated deep sea remotely operated vehicle. This part of the infrastructure would support all the scientific systems. All administrative applications were to be run across a separate 10 GB Ethernet Local Area Network (LAN).

In the living quarters, SOhome provided television (CATV) for entertainment, voice applications and fast internet. These individual components are compliant to the strictest international maritime standards.