

# KRISO Cuts the Tether for Underwater Communications



Underwater communications equipment that enables video to be transmitted through the water and unmanned vehicles to be controlled without a tethered link to the surface has been supplied to the Korean Research Institute of Ships and Ocean Engineering (KRISO) by Sonardyne Asia Pte. Ltd. in Singapore and its Korean agent, Insung. The Sonardyne BlueComm 100-series optical modems will be used to stream high-definition imagery from cameras installed on seafloor sensor platforms and command *Crabster*, an autonomous walking and flying crab-like robot being developed by KRISO's ocean systems engineering department.

Transferring data using subsea modems provides a reliable alternative to using cables underwater which can be expensive to install and vulnerable to damage. However, unlike conventional acoustic-based devices that use pressure waves to send and receive relatively small packets of data at low bandwidths, Sonardyne's BlueComm uses rapidly modulated light emitting diodes (LEDs) and high power lasers to quickly deliver very high volumes of data.

## High Bandwidth Underwater Applications

Typically operating in the 450 nanometre Blue Light region of the spectrum, data rates of up to 500 megabits per second are achievable making the technology suitable for a wide range of underwater applications that require a high bandwidth, low latency, bi-directional communications link. These include harvesting data from seabed landers using AUVs, remote video monitoring of science operations and piloting unmanned vehicles without the need for a control umbilical.

When deploying battery-powered subsea instruments and vehicles, operating life is always a major consideration for users. BlueComm's method of optical data transmission is however, also highly efficient, enabling for example, one gigabyte of data to be transmitted with the energy contained within a single lithium 'D' sized cell over distances greater than 150 metres.