CASE STUDY

Small Ship Passive Sonar

SEA's first Swedish export contract with Fˆrsvarets Materielverk (FMV) in Stockholm, was to enable sonar inboard equipment, originally fitted to a Royal Swedish Navy (RSwN) submarine, to operate on the RSwN surface ship, HMS Orion.

The scope of the project was to modify the Sonar 088 surveillance sonar system to interface with a different sonar array configuration.

In addition, extra functionality was required to support the acquisition and processing of data from sonobuoys. To overcome obsolescence issues, SEA inserted Commercial Off The Shelf (COTS) equipment into the legacy equipment.

The small ship sonar is a modular passive sonar system, using standard industrial PC hardware and software, for the detection and analysis of underwater noise. It can be configured to work with a wide range of pre-existing cylindrical hydrophone arrays, or it can be supplied complete with array and preamplifiers. It can also analyse the signals from sonobuoy radio receivers, either in conjunction with a hydrophone array or as a standalone sonobuoy analysis system.

Broadband processing on the hydrophone data forms beams for narrowband analysis, and performs cross-correlation between pairs of beams in order to detect sonar targets. These targets are automatically detected and tracked by the system.

Narrowband processing includes LOFAR for detecting characteristic frequency spectra and DEMON for detecting patterns in the modulation of the signal.