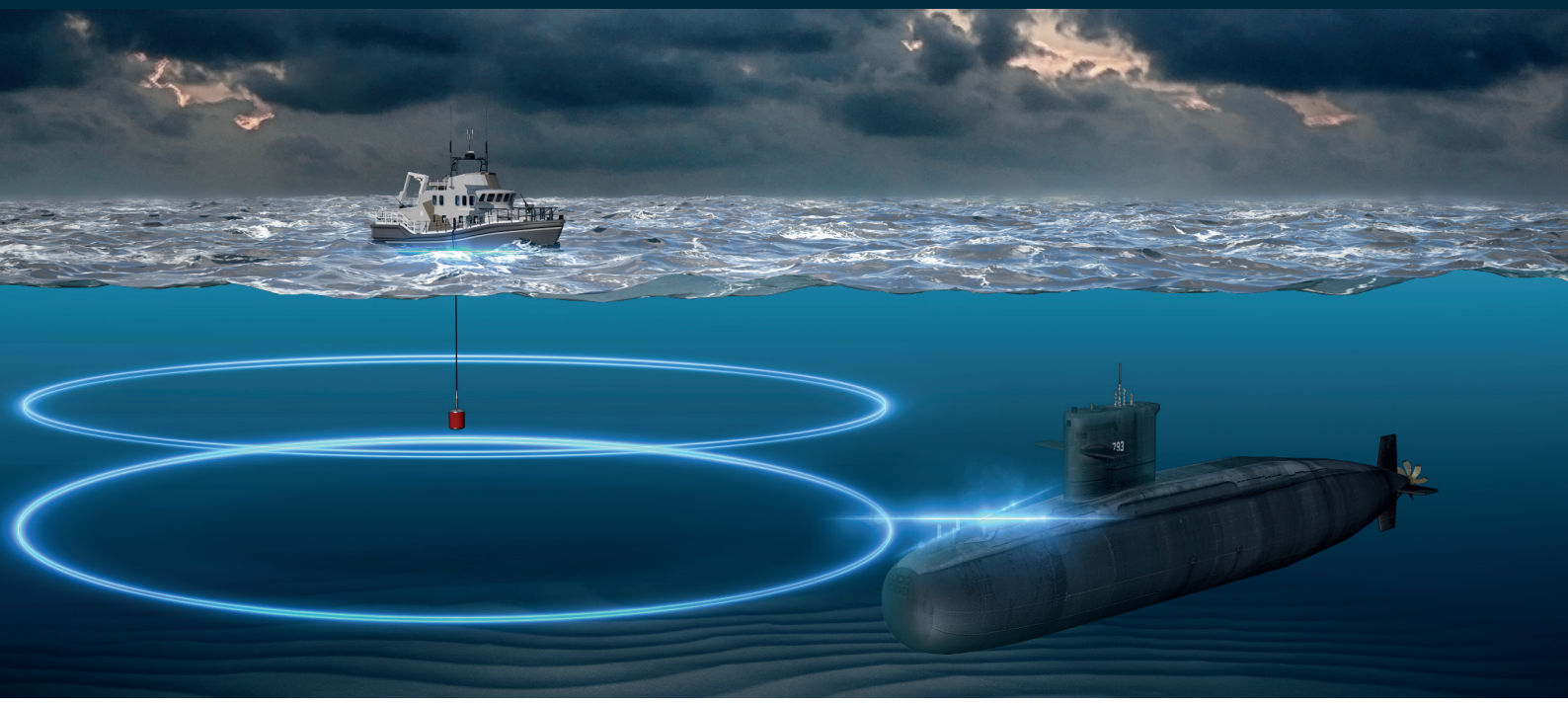
SD9500

KONGSBERG



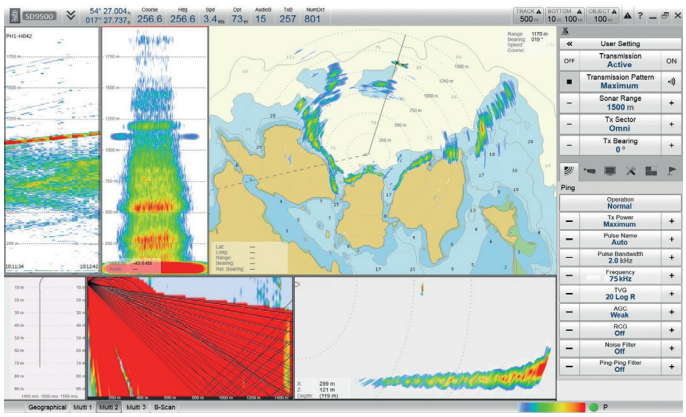
DIPPING SONAR FOR ASW AND VOLUME SURVEY IN LITTORAL WATERS

Recently, proven developments and a new approach to transceiver design has put Kongsberg Maritime in a position to offer a high performance, active dipping sonar to the market. The SD9500 is suitable for meeting the challenging conditions of littoral waters and bring a new countermeasure into the area-denial challenge. The SD9500 is primarily a light type ASW sonar with special capabilities in reverberation limited areas. High bandwidth and resolution also makes this sonar quite suitable for detection of MLO (Mine Like Objects).

The SD9500 is a dipping sonar deployable from any surface vessel, including smaller ships (≥10m) or USVs. The use of a dipping sonar from a surface vessel, e.g. a Fast Patrol Boat, will increase the endurance of the sonar operation compared to helicopter operations.

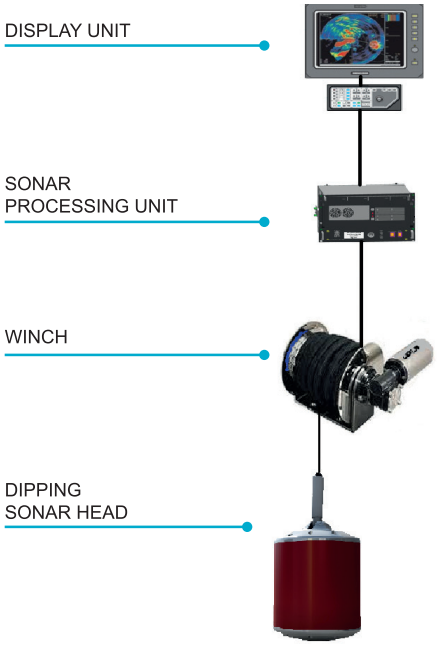
The SD9500 has a wideband composite cylindrical array consisting of 1024 individual transducer elements. The phased array provides full control of all the transmitter and receiver channels, giving full flexibility for beam steering vertically and horizontally and the ability to focus the transmitted pulse energy in the direction of interest or with full 360° coverage. The sonar also provides good vertical resolution which is an important feature in shallow waters for discrimination of targets from the bottom.

The SD9500 sonar can operate in the frequency band from 70 to 110 kHz. A typical and effective operation scenario would be to employ several sonars spread over a confined search area. To avoid interference between sonars the operator can select the active centre frequency and frequency band. The sonar can operate in multi-static or in normal mode.



FEATURES

- Compact system, fits smaller ships
- Enhanced shallow water features
- Wide bandwidth
- Transmission modes: Omni / Hor. Sector / Vert. Sector
- Operation modes: Multi-static/Normal
- Multiple pulses simultaneously
- Inspection beams (interferometric)
- Tilt-able transmit angle
- Good vertical resolution
- Good horizontal resolution
- Electronic maps (S57 and S63)
- Built in Sound Propagation Model
- Multiple target tracking: Automatic and manual track initiation
- Recording and replay
- Alarms for objects/torpedo close to own ship
- Built In Test (BIT) system.



TECHNICAL SPECIFICATIONS *(preliminary)*

- Operating frequency: 70-110 kHz
- Pulse bandwidth: Up to 10kHz
- Pulse types: CW, HFM, LFM
- Transmission tilt angle: +15° to -60°
- Range Scale: 10m to 5000m
- Transmission modes:
  - Horizontal: Omni 360°
  - Horizontal sector: 6°, 30°, 60°, 90°, 120°
  - Vert. sector : 30°,60°
- Transmitting beam widths:
  - Hor Omni/Sector: Vertical beam width 5° @85kHz
  - Vertical sector: Horizontal beam width 6° @85kHz
- Number of Rx beams:
  - Horizontal: 128 beams covering 360°
  - Vertical sector: Up to 32 beams covering 60°
- Receiving Beam widths:
  - Omni/Sector: Horizontal single beam width 6° @85kHz
  - Omni/Sector: Vertical single beam width 5° @85 kHz
  - Vertical sector: Horizontal single beam width 6° @85 kHz
  - Vertical sector: Vertical single beam width 5° @85 kHz
- Beam stabilisation: Yes (MRU integrated in sonar head)
- Transducer geometry: Cylindrical
- Number of channels:
  - Transmitter: 1024 transmitting channels
  - Receiver: 1024 receiving channels
- Presentation Views:
  - Omni or sector view w/electronic map
  - Vertical view
  - Zoom view
  - B-Scan view
  - Radial velocity view
  - Echogram view
  - Probability of Detection (PoD) view
  - Ray trace view
  - Sound velocity profile view
- Operating depth: 150 m maximum

Specifications subject to change without any further notice.

TBD//May 2016

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