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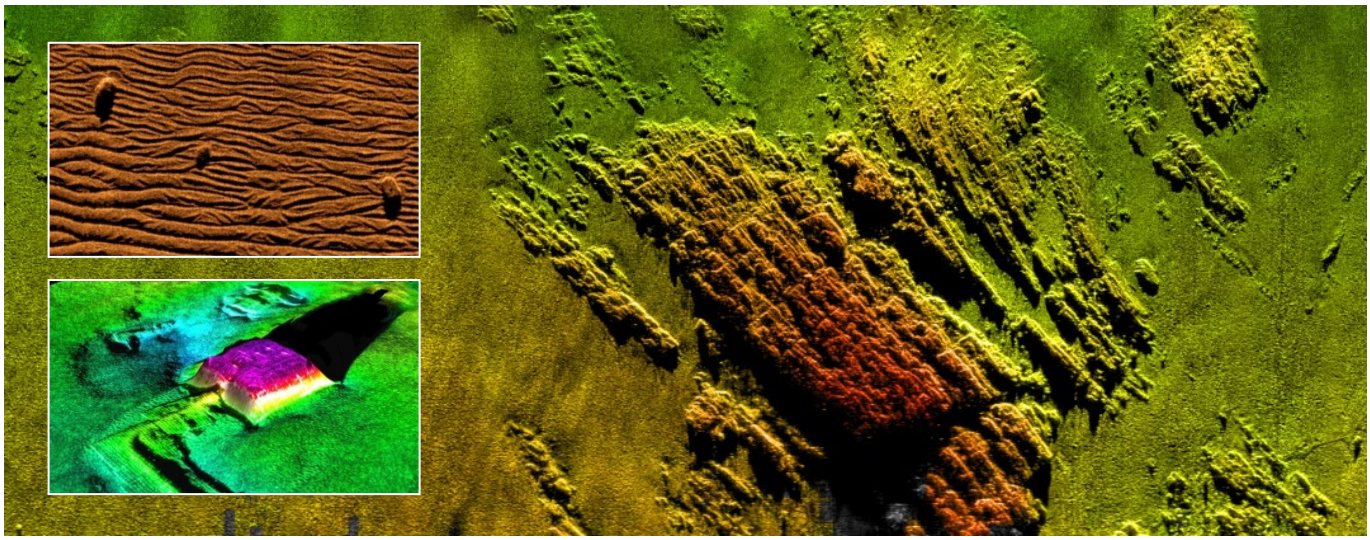
Datasheet

Solstice Multi Aperture Side-scan Sonar



Description

Solstice is a Multi Aperture Sonar (MAS) designed for Search, Classify and Map (SCM) and Hydrographic AUV operations with integrated swath bathymetry. It has been tailored for AUV operations providing high resolution imagery and full dynamic focus for improved mine recognition, hydrography and post-mission analysis. The imagery produced by Solstice is designed to be of the highest quality possible from side-scan sonar. The along-track resolution of 0.15° is unrivalled for this application.

The sonar has been carefully designed so that it will give excellent results even in very shallow water, where other side scans suffer degradation due to multi-path effects. All of which is achieved whilst consuming only 18 Watts of power. The low power and wide swath results in long vehicle endurance and high area coverage rates.

Solstice's onboard processing produces geo-coded side-scan imagery which is available for onboard automatic target recognition and post-mission analysis.

Solstice provides a high-fidelity image by using a back-projection beamforming technique to focus at every single pixel in the image. Solstice uses knowledge of the platform motion and eliminates unwanted effects, producing undistorted imagery with 100% ground coverage. Real-time array calibration is used to dynamically re-calibrate each individual hydrophone element several times a second to compensate for any dynamical strains causing array non-linearity.

The result is a wide swath (200 m) of high-resolution imagery suitable for simultaneous search and classification. Solstice is ideal for Computer Aided Detection and Classification (CAD/CAC).

Solstice produces high quality bathymetry data from a vertical hydrophone array on each flank. The bathymetry data is co-registered onto the same pixel grid as the side-scan imagery, and therefore can produce stunning digital terrain maps, with the side-scan imagery accurately wrapped over the bottom topography.

Key Features

- Multi Aperture Sonar improves Signal to Noise Ratio
- Low power suitable for AUV operations,18 W
- Full Dynamic Focus and ultra-high along-track resolution 0.15°, over the full 200 m swath
- Enables on-board computer-aided detection and classification (CAD/CAC)
- Co-registered side-scan imagery and bathymetry

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Specifications

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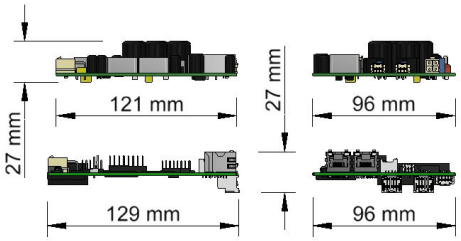

OEM electronics boards

Payload Pressure Vessel (PPV)

Solistice Array shown. Electronics can be supplied as OEM or in a Payload Pressure Vessel (PPV) both shown.

Feature	Type 8200-500-35
Depth Rating	300 metres
Frequency Band	725 to 775 kHz
Source Level (SL = dB re 1 uPa @ 1 m)	220 dB
Number of Receiver Channels	2 x (32 +4)
Number of Transmitter Channels	2 x 32
Azimuth Beam-Width	0.15°
Swath	200 m
Bathymetry	Yes
Power (Array & PPV)	18 W
Operating Temperature	-2 to 40°C
Hydrophone Array Length	682 mm
Projector Array Length	416 mm
Output Formats	.SWF8 and .XTF
Weight in Air/Water	2.11/0.76 kg
PPV	
Depth Rating	300 metres
Dimensions (Diameter x Length)	133 x 289 mm
Weight in Air/Water	2.88/0.25 kg