

**Solstice is a Multi Aperture Sonar (MAS) designed for Search, Classify and Map (SCM), Mine Counter Measures (MCM) and hydrographic AUV operations with integrated swath bathymetry. It has been tailored for AUV operations providing ultra-high resolution imagery both across and along the track of the AUV. It offers full dynamic focus across a wide area, 200 metre swath. The images are designed to be of the highest quality possible from side-scan sonar. Solstice aids vehicle operators make better decisions and improves results from Computer Aided Detection and Classification (CAD/CAC).**

#### **SYSTEM OVERVIEW**

Solstice increases the operational envelope of a vehicle significantly by providing wide swath coverage at high resolution whilst consuming typically 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 Computer Aided Detection and Classification (CAD/CAC) and Automatic Target Recognition (ATR). It is also compatible with leading Post-Mission Analysis (PMA) software packages. The imagery produced by Solstice is designed to be of the highest quality possible from side-scan sonar. It is designed to produce wide swath coverage (200 metres), with image quality suitable for simultaneous search and classification.

Solstice uses the multibeam input from its 32 elements to dynamically focus along the whole length of the swath. By using multiple apertures, the data is further enhanced and the Signal-to-Noise Ratio (SNR) is improved. The process generates narrow along-track beams. For Mine Counter-Measure (MCM) applications, this means larger coverage and improved clearance percentage. Solstice is not limited by the sweet-spot typical of side-scan sonars with limited focus capabilities and a single aperture.

#### **MORE DETECTIONS AND LESS FALSE ALARMS**

By improving the contrast and SNR ratio and sharpening the along-track resolution, Solstice users are afforded a much better resolution and picture to assess the environment and the objects populating it. The result is improved mission tempo and better results.

## **SONARDYNE SOLSTICE SEARCH AND CLASSIFY SIDE SCAN SONAR**

#### **WHAT YOU NEED TO KNOW**

- Multi Aperture Sonar suitable for low-logistic AUVs
- Improved Signal to Noise Ratio produces smoother images
- Low power ensures longer side-scan sonar missions
- Full dynamic focus and ultra-high along-track resolution best for CAD/CAC
- Suitable for Search, Classify and Map (SCM) and hydrographic operations
- Wide swath (200 metres) ensures high coverage rates
- Option to geocode all data on-board optimising Post-Mission Analysis process
- Provided with Interface Control Document (ICD) for easy integration

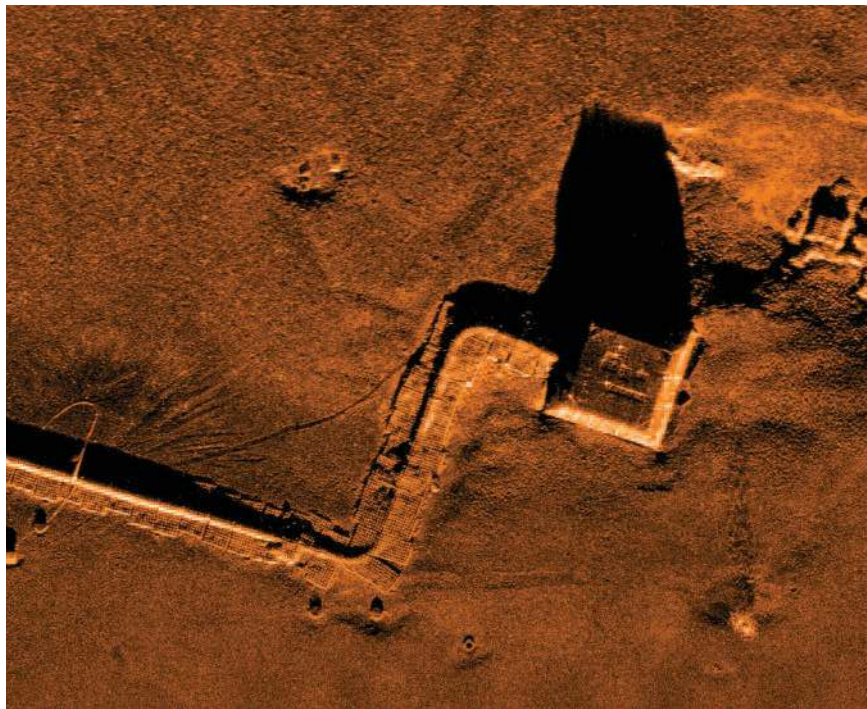
**IMPROVED HIGHLIGHTS AND SHADOWS**

Solstice’s proprietary array design is capable of producing increased contrast between highlights and shadows along the whole 200 metre swath. This in turn leads to better classification decisions.

**SIMPLE INTERFACES**

Solstice has a track record with leading AUV brands and integration into new platforms is straightforward. Every Solstice is provided with a simple Interface Control Document (ICD) to simplify the integration into low-logistic AUVs. The data is stored in Sonardyne’s proprietary .SWF8 format which can be processed by leading third-party software suppliers and can be easily converted into .XTF.

Feature	Type 8200
Operational Depth Rating	200 metres
Frequency Band	725 to 775 kHz
Source Level	220 dBµPa @ 1 metre
Pulse Length	1 ms FM
Number of Receiver Channels	2 x (32 + 4)
Number of Transmitter Channels	2 x 32
Azimuth Beam-Width	0.15°
Elevation Beam-Width	80°
Swath	200 metres
Number of Bathymetry Verniers	6
Power (Arrays and Electronics)	18 W
Hydrophone Array Length	682 mm
Projector Array Length	416 mm
Output Formats	.SWF and .XTF



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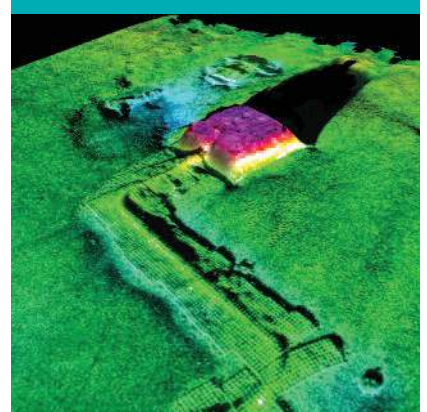
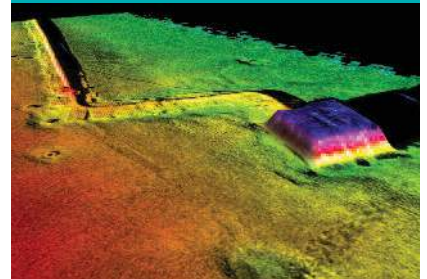
**Chosen by leading manufacturers**

Solstice redefines your expectations from a side-scan sonar and is a popular choice amongst leading AUV manufactures. (Top) Shown fitted to a Bluefin 12 AUV and (below) to Saab Seaeye’s Double Eagle SAROV where it is used to search for and classify mine-like objects.



**Solstice Array**

Solstice delivers advanced imaging technology, extraordinarily low power consumption and simple mechanical integration.



**Exceptional imagery**

Left, above and below shows Solstice imagery gathered from a pipeline end manifold (PLEM) and it provides an excellent target to show the resolution and contrast performance of Solstice. This particular PLEM is used to import LNG and consists of a large square template (12m by 12m), pipe and mattress protectors; the individual elements of the mattresses (25cm by 25cm) are clearly resolved in the imagery.