3DSS-iDX Integrated Shallow Water Mapping/Imaging System

- *3DSS-DX-450 Sonar*
- *integrated AML MicroX Sound Velocity Sensor*
- *integrated SBG Ellipse2-E IMU*
- *optional integrated Septentrio dual GNSS*

## SUPERIOR SHALLOW WATER HYDROGRAPHY

Accurate, high resolution, ultra-wide swath echo-sounding and 3D imagery, with integrated real-time surface sound velocity, high accuracy INS position / attitude, optional RTK and PPK, provide superior hydrographic survey performance in shallow water.

SIMULTANEOUS REAL-TIME 3D IMAGERY

Geometrically correct, co-located 3D Sidescan imagery augments bathymetry and extends 2D sidescan resolution to three dimensions. 3DSS real-time 3D software displays, captures and allows accurate measurement in three dimensions of features on the seabed and in the water-column including pipes, cables, pilings, wrecks, subsea structures hazards, ecological habitats, and other features not well defined in bathymetry or 2D sidescan.

COMPACT, ULTRA-PORTABLE, VERSATILE

A versatile Sonar Interface Unit provides ultra-portable, easy operation with just a laptop and a battery together with flexible interfacing to 3rd party external equipment on a small boat, USV, or dedicated survey launch.
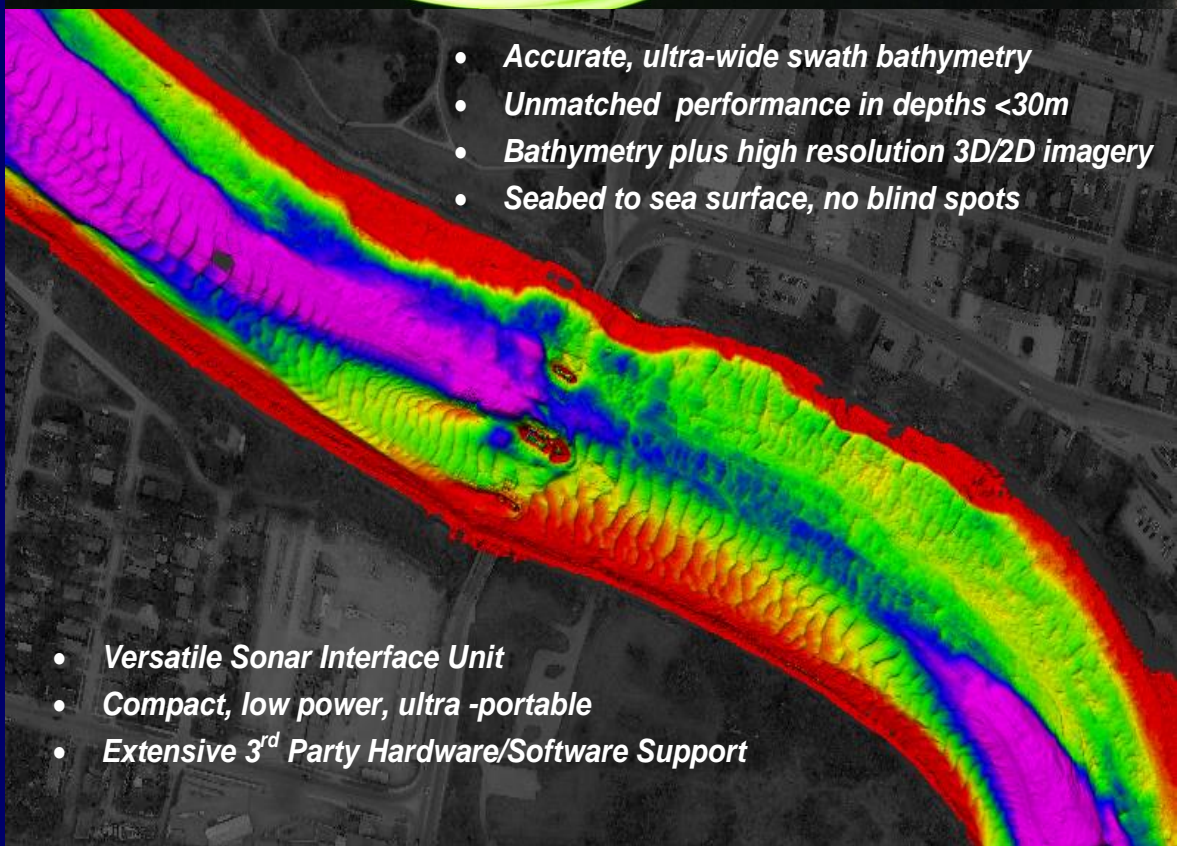
- *Accurate, ultra-wide swath bathymetry*
- *Unmatched performance in depths <30m*
- *Bathymetry plus high resolution 3D/2D imagery*
- *Seabed to sea surface, no blind spots*

- *Versatile Sonar Interface Unit*
- *Compact, low power, ultra-portable*
- *Extensive 3rd Party Hardware/Software Support*

PATENTED ARRAY SIGNAL PROCESSING TECHNOLOGY

3DSS-iDX incorporates a patented signal processing methodology that extends the single angle-of-arrival principle used in interferometric systems to accommodate multiple simultaneous backscatter arrivals. When combined with the 3DSS-iDX Multibeam Echo-Sounder Signal Processing Engine, the result is unsurpassed resolution and bathymetric accuracy over swath widths that can exceed 14 times water depth.

SOFTSONAR™ TECHNOLOGY

At the heart of the *3DSS-DX* sonar is Ping DSP's state-of-the-art *SoftSonar™* electronics technology with ultra-low noise, wide dynamic range receivers, state-of-the-art acoustic transducer arrays, Gigabit Ethernet, easy-to-use software interface, and integrated support for a wide range of third party survey software and hardware.

BROAD APPLICATION

- Coastal Hydrographic survey
- River and Lake surveys
- Dredge surveys
- Tailing Pond surveys
- Subsea structure surveying
- Search and localization
- Benthic habitat mapping
- Underwater archaeology

Specifications[1]

Sonar Model	3DSS-iDX-450
Sonar Specifications	
Operating Frequency	450 kHz
Transmit Waveforms	CW, Broadband
Pulse Lengths	10 – 200 cycles
Horizontal Beamwidth (2 way)	0.4°
Vertical Beamwidth (selectable)	19° - 125°
Mech. Transducer Tilt (fixed)	20°
Electronic Transmit Tilt	-45° to 45°
Max. Ping Rep. Rate	~45 Hz
2D Sidescan (2D Imagery) Specifications	
Data Output	Range and Amplitude
2D Imaging Swath Width	10 to 20 times sonar altitude, varies with sound velocity profile, geometry and seabed type
Max Range	200 m per side
Max Range Resolution	1.67 cm
3D Sidescan (3D Imagery) Specifications	
Data Output	Range, Angle, and Amplitude
3D Imaging Swath Width	8 to 14 times sonar altitude, varies with sound velocity profile, geometry and seabed type
Max 3D Imaging Range per Side	100m per side
Max Resolution	1.67 cm
Bathymetry Specifications	
Data Output	Range, Angle, and Amplitude
Bathymetry Swath Width	8 to 16 times sonar altitude, varies with sound velocity profile, geometry and seabed type
Max Bathymetry Range	100m per side
Min. Sounding Depth	0.7m
Max. Sounding Depth	75m (reduced swath width)
Sounding Accuracy	Exceeds IHO Special Order
Multibeam Mode Settings	Beamwidth (0.25°-5°), Sector (90°-220°), Beams (3-1024), Mode (Equidistant, Equiangle, Hybrid)
Binning Mode Settings	Bin Count (3-1440), Bin Width (5cm – 200cm)
Integrated Sensor Specifications	
SBG Ellipse2-E.	Pitch and roll <0.05°(ppk), <0.1°(real time), heading <0.5°, heave <5cm (see www.sbg-systems.com)
AML MicroX .	1375m/s – 1600m/s SV range, 20ms response, 0.025m/s accuracy (see https://amloceanographic.com)
GNSS	External
Interface Specifications	
Control Input / Data Output	Gigabit Ethernet, sonar software provides control GUI and TCP data server
Time Reference	Time aligned to GNSS time
Additional Communication Ports	RS-232 or Ethernet, for external MRU, GNSS or INS,
Additional Inputs	PPS (SMA), Ext. Trigger (SMA)
Computer Requirements	PC (Quad Core, 8GB, Discrete GPU (e.g. Nvidia), MS Windows 7,8, 10 (64 bit)
3rd Party Software Support	Hypack, SonarWiz, QINSy, PDS2000, Caris HIPS/SIPS
Physical Specifications	
Voltage Requirements	10.5-35 VDC
Power Consumption	25W (including SBG Ellipse2-E and AML MicroX, excluding GNSS)
Length	56.8 cm (25.5")
Diameter	9.8 cm (3.88")
Weight in Air, Water	8.5 kg (18.7 lbs), 5 kg (11 lbs)
Pole Mount Adapter Diameter	1.49" (fits standard thickwall 1.5" I.D. Aluminum pipe)
Ambient Operating Temp.	-5° C – 45° C
Depth Rating	10 m

Notes:
[1] Specifications subject to change without notice.