Ping
Digital Signal Processing

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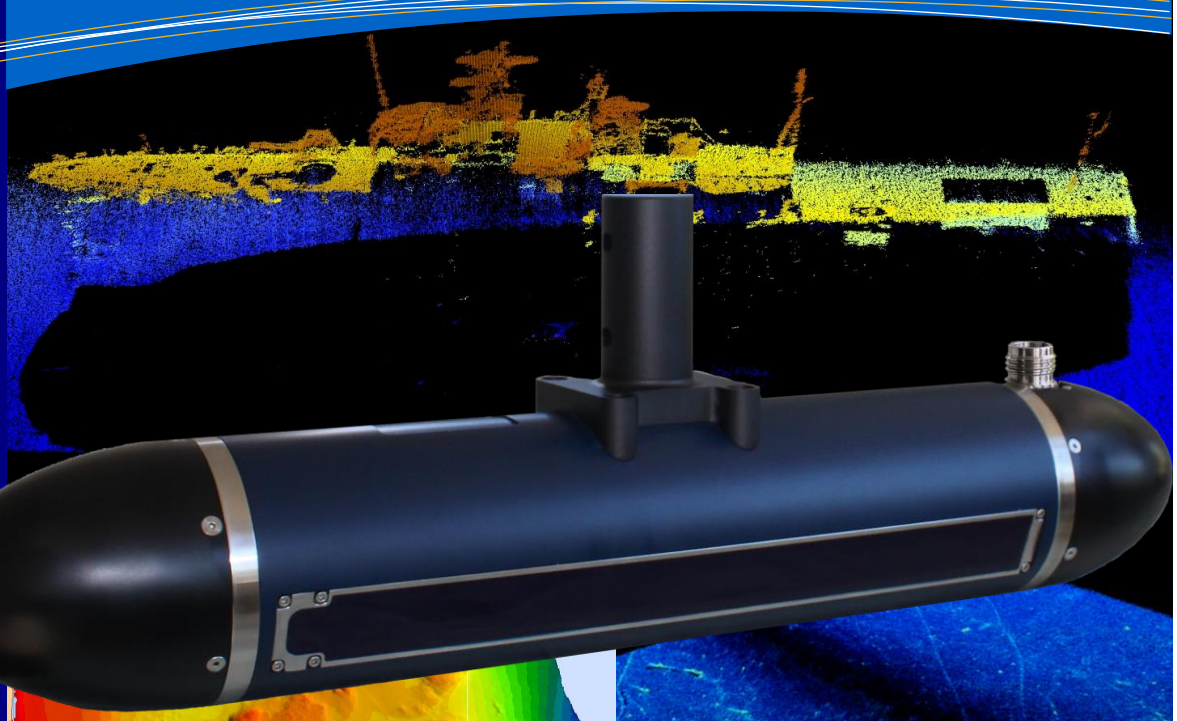
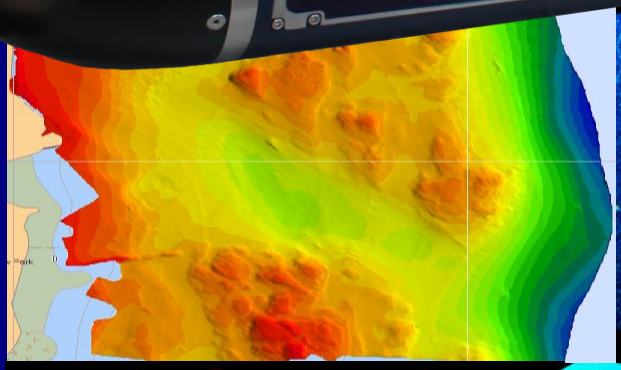
3DSS-DX Swath Bathymetry 3D Sidescan

- *High resolution, wide swath bathymetry in water depths <1m to >80m*
- *Stunning 3D and 2D sidescan imagery spans the entire water-column*
- *Patented angle-of-arrival signal processing replaces interferometry and phase based methods*
- *Compact, low power, easy-to-use*



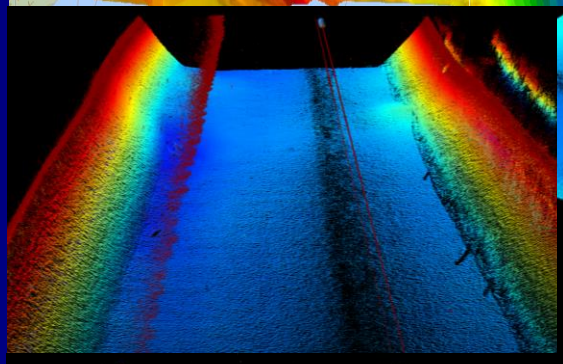
WIDE SWATH BATHYMETRY

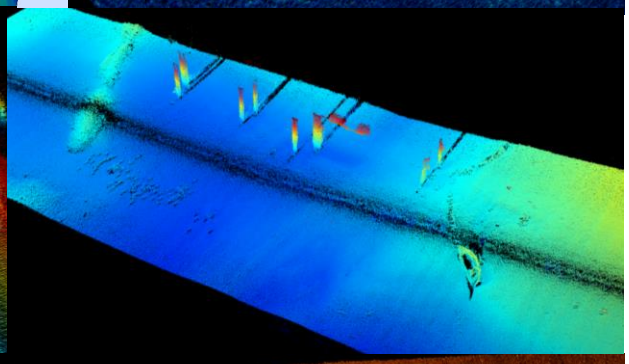
High resolution swath bathymetry coverage of up to 14 times altitude. State-of-the-art acoustic transducer technology, combined with ***SoftSonar™*** electronics and patented signal processing, provide superior swath bathymetry performance by separating backscatter arrivals from the seabed, sea-surface, water-column and multipath.

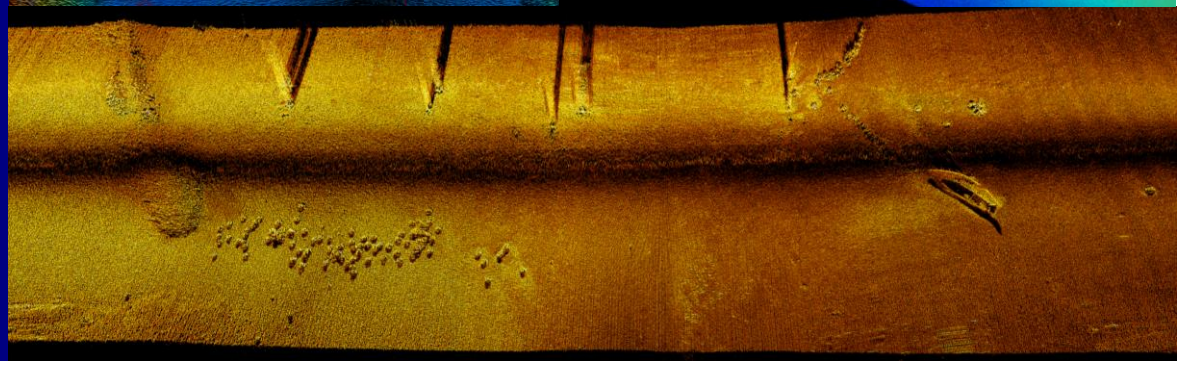


REAL-TIME 3D SIDESCAN IMAGERY

3D Sidescan imagery spans the entire water column and extends 2D sidescan resolution capabilities to three dimensions. Revolutionary ***Sidescan3D™*** software displays stunning 3D imagery in real time. The ***3DSS Target Logger*** feature allows easy capture and inspection of 3D objects and seabed views to augment bathymetry with co-located, geometrically correct views of structures, pipes, cables, pilings, debris, hazards, habitats, vegetation and other finescale features of the seabed.







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For more information please contact ***Ping DSP Inc***. at: ***info@pingdsp.com***

PATENTED ARRAY SIGNAL PROCESSING TECHNOLOGY

3DSS-DX incorporates a patented signal processing methodology that extends the single angle-of-arrival principle used in interferometric systems to accomodate multiple simultaneous backscatter arrivals (e.g. the seabed, sea surface, water-column, and multipath). The result is true 3D sidescan imaging and superior swath bathymetry from a compact, easy-to-use sonar.

SOFTSONAR™ TECHNOLOGY

At the heart of the ***3DSS-DX*** sonar is Ping DSP's state-of-the-art ***SoftSonar™*** electronics technology that integrates low noise, wide dynamic range receivers with steerable transmitters, a versatile Gigabit Ethernet interface, a modular high speed digital signal processing architecture, an easy-to-use software GUI and integrated support for 3rd party hydrographic survey hardware and software.

BROAD APPLICATION

- Hydrographic survey
- Search and localization
- Subsea structure surveying
- Dredge surveying
- Benthic habitat mapping
- Underwater archaeology
- Fisheries surveys
- Naval MCM

Specifications[1]

Sonar Model	3DSS-DX-450
Sonar Specifications	
Operating Frequency	450 kHz
Transmit Waveforms	CW, Broadband
Pulse Lengths	10 – 200 cycles
Dynamic Range	108 dB
Time Varying Gain Method	Digital
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 MRU Specifications	
Pitch Range, Res., Rep., Acc.	±90°, < 0.05°, < 0.2°, 0.5° @ 25°C
Roll Range, Res., Rep., Acc.	±180°, < 0.05°, < 0.2°, 0.5° @ 25°C
Heading Range, Res.,Rep., Acc.	±180°, < 0.05°, < 0.5°, 2° @ 25°C
Motion Sensor Output Rate	100 Hz
Interface Specifications	
Control Input / Data Output	Gigabit Ethernet, sonar software provides control GUI and TCP data server
Time Reference	Topside PC or GPS with optional external PPS via TTL signal level (rising edge)
External MRU Input	RS-232 interface, TSS protocol
GPS Input	RS-232 interface, NMEA 0183 protocol
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	17 W idle, 22W typical (current@24VDC: 0.7A idle 0.9A typical average, 3A max for 2sec., 7A peak)
Length, Diameter	56.8 cm (22.35"), 9.8 cm (3.88")
Weight in Air, Water	8 kg (17.6 lbs), 4.7 kg (10.3 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..