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3DSS-DX AUV/UUV Integrated Mapping/Imaging System

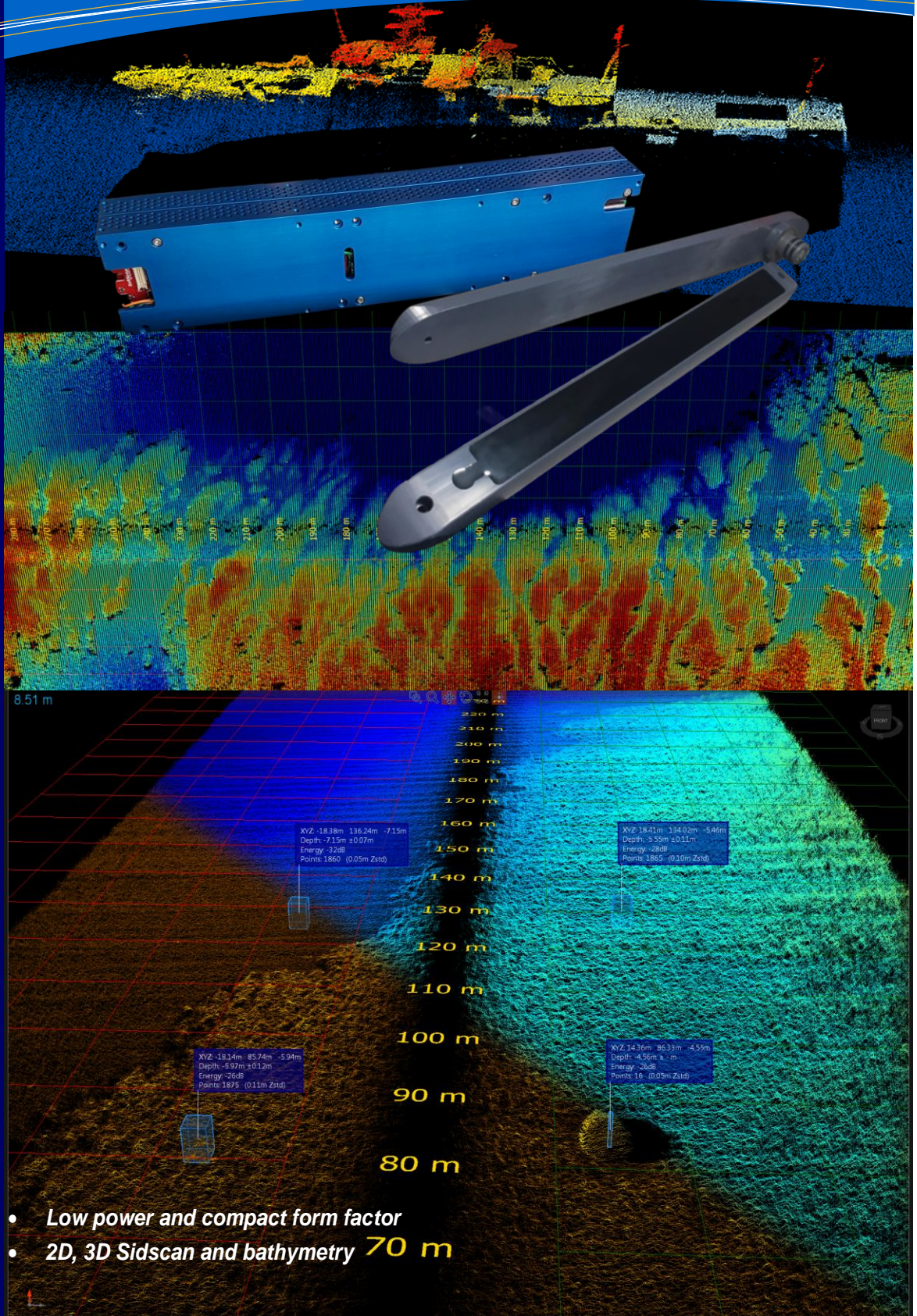
- Patented angle-of-arrival CAATI signal processing
- 2D and True 3D Sidescan Imagery
- Designed for AUV integration
- Compact and low power requirement

BRINGING ANGLE-OF-ARRIVAL PROCESSING TO UNMANNED AND AUTONOMOUS VEHICLES

State-of-the-art transducer design and manufacturing techniques, combined with *SoftSonar™* onboard electronics and patented CAATI signal processing will now provide fine scale imagery and bathymetry to unmanned vehicles. Superior swath bathymetry performance and dense 3D point cloud imagery over ultra-wide swath sectors has is available in a compact and low power form factor perfect for portable and low logistics AUV platforms.

REAL-TIME 3D IMAGERY

Geometrically correct, co-located 3D Sidescan imagery augments bathymetry and extends 2D sidescan resolution into three dimensions. 3DSS real-time software displays, captures and allows measurement of stunning 3D images of seabed texture, structures and wrecks, biological habitats and vegetation, pipes, cables, geological morphology, pilings, hazards, and other features that are not evident in bathymetry alone.



- Low power and compact form factor
- 2D, 3D Sidescan and bathymetry 70 m



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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 accommodate multiple simultaneous backscatter arrivals (e.g. the seabed, sea surface, water-column, and multipath). The result is superior wide swath bathymetry and true 3D sidescan imaging and 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
- Subsea Structure Surveying
- Search and Localization
- Marine Archaeology
- Pipe and Junction Surveying
- Benthic habitat mapping
- Water-column imaging

Specifications¹

Sonar Model	3DSS-DX-OEM
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 depending on sound profile and bottom 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 and bottom 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 and bottom 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° @ 25C
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	Automatically 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), GNSS Ant. (2xTNC)
Computer Requirements	PC (Quad Core, 8GB, Discrete GPU (e.g. Nvidia), MS Windows 7 or 8 (64 bit)
3 rd 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: 0.7A idle 0.9A typical average, 3A max for 2sec., 7A peak)
SoftSonar™ Module Dimensions	L: 14.08" W: 3.10" H: 1.85"
SoftSonar™ Module Weight (Air)	1.38 kg
Transducer Dimensions	L: 17.00" W: 1.75" H: 0.69"
Transducer Weight (Air)	0.8 kg
Depth Rating	Standard: 100 m (3DSS-DX-AUV), Optional: 500m (3DSS-DX-AUV-500m)
Ambient Operating Temp.	-5° C – 45° C

Notes:
¹ Specifications subject to change without notice.