星天海洋
STARTEST MARINE

High Stability

GeoBeam72

Midwater Multibeam Echosounder

Product Overview

GeoBeam72 is a high-performance, ship-mounted multibeam echosounder developed in China for marine surveys and engineering. It operates at 40–100 kHz, reaches depths of up to 3,500 m and provides swath coverage of 5–5.5 times the water depth. The system supports 1,024 beams, a 140° coverage sector, three-axis beam stabilization, CW/FM waveforms, multi-swath operation and multi-ping transmission. Its hardware and software are domestically developed throughout. GeoBeam72 integrates with large survey vessels, supports high-precision BeiDou positioning and provides access to multiple types of survey process data for offshore surveys, seabed mapping and marine engineering.



[Equipment Details]

GeoBeam72 system connection diagram



System Components

Transducer Array

Transmit and receive arrays; installation frame

Transmit Subsystem

Transmitter, charger and energy storage unit

Receive Subsystem

Receiver

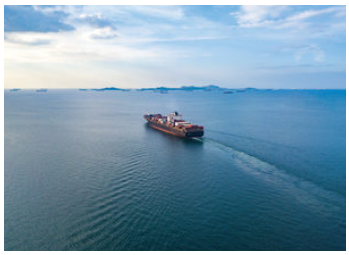
Real-Time Processing and Storage

Transmit processing and control unit;
receive processing and storage unit

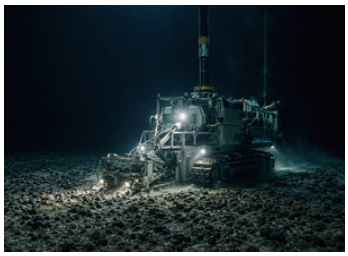
Display and Navigation

Portable computing platform

[Applications]



Offshore and deep-sea mapping



Deep-sea mining

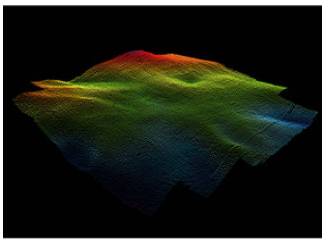


Oil and gas exploration

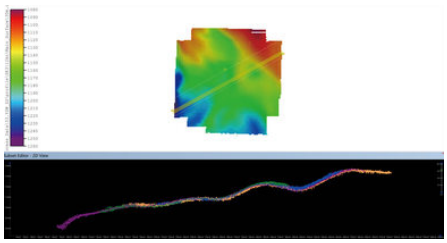


Deep-sea search and salvage

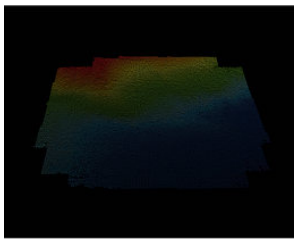
[Survey Results]



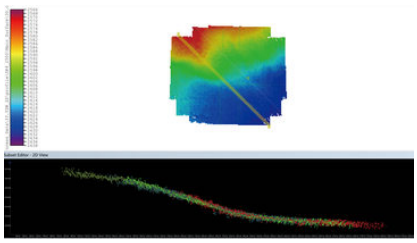
2,100 m bathymetry



2,100 m cross-section



2,500 m bathymetry



2,500 m cross-section

[Technical Specifications]

Operating frequency	40–100 kHz (center frequency: 70 kHz)
Beamwidth	0.5° × 0.5°, 1° × 1° or 2° × 2°
Depth range	Up to 3,500 m (0.5° × 0.5°), 2,500 m (1° × 1°) or 2,000 m (2° × 2°)
Beam count	1,024 per full transmit swath
Maximum coverage	140° sector; swath width up to 5.5 × water depth
Attitude compensation	Real-time: roll ±15°, pitch ±10° and yaw ±10°
Waveforms	CW / FM
Beam spacing modes	Equiangular, equidistant and high-density
Multi-swath operation	2 swaths
Near-field focusing	Dynamic focusing on transmit and receive
Bottom detection	Amplitude and phase
Water column imaging	Supported
Multi-ping transmission	Supported
Maximum survey speed	12 knots
Interfaces	Ethernet, serial and 1 PPS
Power consumption	3,000 W peak, 1,500 W average
Bathymetric accuracy	Meets IHO and hydrographic survey requirements
Operating temperature	−5 °C to +40 °C
Storage temperature	−40 °C to +70 °C
Transducer dimensions	1,940 × 224 × 118 mm (0.5°), 970 × 224 × 118 mm (1°), 490 × 224 × 118 mm (2°)
Transducer weight	256 kg (0.5°), 128 kg (1°), 64 kg (2°)
Dry-end weight	Approx. 250 kg

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