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GeoInsight 100

3D Parametric Sub-bottom Profiler

Phased Multibeam · Real-time 3D Imagery

Description

Based on parametric acoustic principle, GeoInsight 100 keeps every capability of a conventional single-beam parametric profiler — high-frequency bathymetry, gain compensation, filter tracking and secondary-frequency waterfall display — and adds phased multibeam coverage. Each swath forms a 2D sediment section, and the sections are mosaicked along track into a 3D seabed view for rapid site investigation and buried target inspection.

Specifications match comparable parametric profilers, while the wider selection of secondary frequency and the shorter wavelength favour small buried targets. The 3D imagery raises both survey efficiency and interpretation clarity.

Application

- Geological and geophysical investigation
- Sedimental survey and analysis for dredging projects
- Routing survey and cable-laying
- Marine mineral investigation
- Bathymetry and silt analysis in very shallow water, harbours and reservoirs
- Sub-bottom searching of wrecks, pipelines, cables, obstacles and boulders
- Underwater archaeological survey of shipwrecks, relics and geological subsidence, etc.
- Water column and gas seep monitoring

Features

- **Real-time 3D, not profiles alone**
  Phased multibeam swaths mosaicked along track into a 3D seabed view.
- **Higher secondary frequency, shorter wavelength**
  Better resolution on small buried targets than comparable parametric profilers.
- **Single-beam capability retained in full**
  Bathymetry, gain compensation, filter tracking and profile display all remain — 3D is an addition, not a replacement.
- **Compact and quick to install**
  A 370 × 370 × 110 mm wet end suits pole, moon pool and towed installations.

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Technical Specifications of GeoInsight 100

Technical Specifications	
Primary Frequency	85 — 115 kHz
Pulse Length	0.05 — 1 ms
Beamwidth @ Primary Frequency	2.5° × 8°
Source Level @ Primary Frequency	better than 238 dB/μPa @ 1m (100 kHz)
Secondary Frequency	5 — 20 kHz
Beamwidth @ Secondary Frequency	approx. 3° × 10°
Source Level @ Secondary Frequency	better than 194 dB/μPa @ 1m (10 kHz)
Receiver Bandwidth	5 — 20 kHz
Acquisition Speed	128 ksps @ 24 bit
Dynamic Range	110 dB
Ping Rate	max 40 pings/s
Range Resolution	0.05 m
Sediment Penetration	up to 40 m, depending on sediment type and ambient noise
Water Depth Range	up to 500 m bathymetry range
Phased Array Transmission	max ±23°, up to 93 beams
Channel of Receiver	no less than 2 channels (primary & secondary)
Heave/Roll/Pitch Compensation	heave and roll
Physical Specifications	
Power Consumption	less than 300 W (equipment level)
Power Supply	220 VAC
Communication	Ethernet, PC control
External Sensors	GPS, IMU, external trigger
Dimension and Weight of Transducer	370 × 370 × 110 mm, 35 kg incl. 20 m cable
Dimension and Weight of Topside Unit	610 × 740 × 611 mm, 53.9 kg (rotomoulded case)

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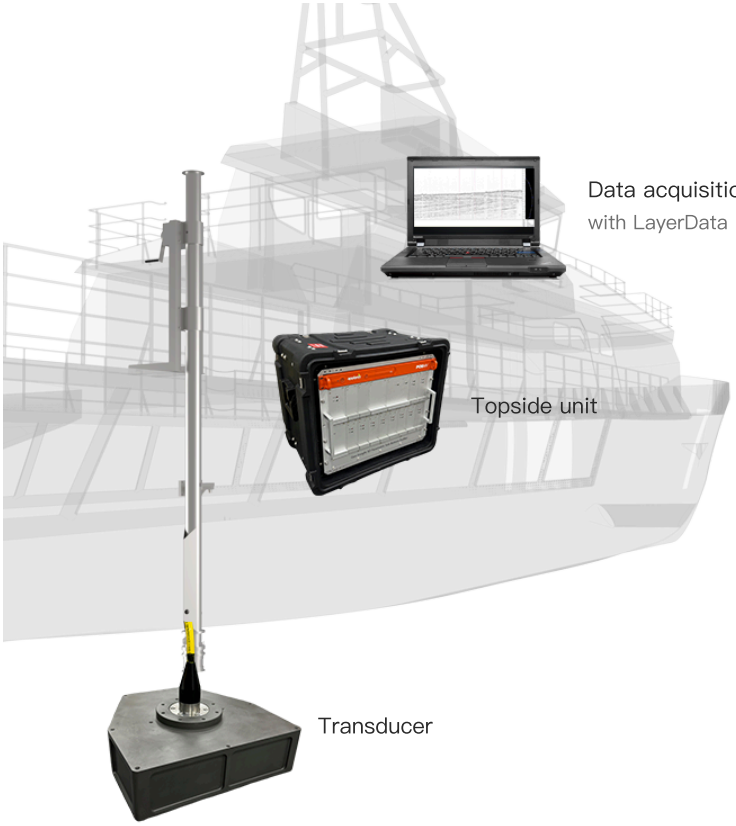
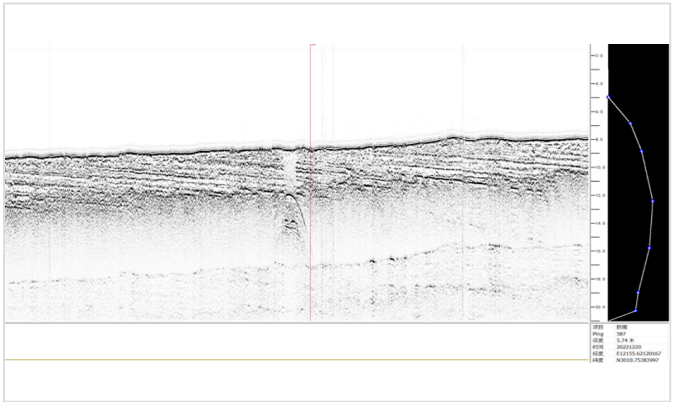
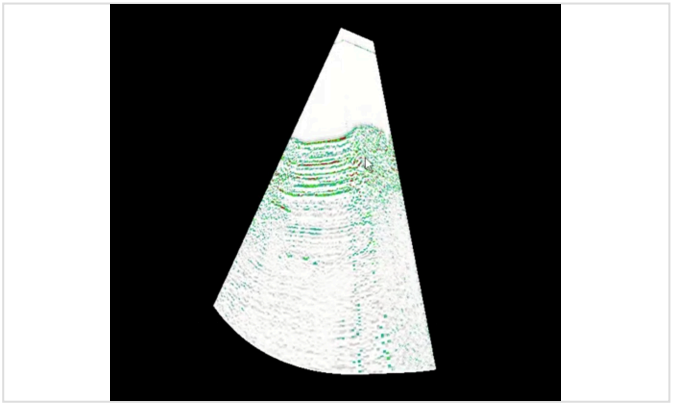
System Scheme of GeoInsight 100



Data Examples by GeoInsight 100



Pipeline Survey in 2D Mode



Real-time 3D View

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