



## GeoScope 6100

### Deep-water Parametric Sub-bottom Profiler

GeoScope Series · split unit · 6,000 m

## Description

GeoScope 6100 is a parametric sub-bottom profiler rated to 6,000 m for deep-sea vehicles. Built on nonlinear acoustics, it transmits at a 100 kHz primary frequency and generates 5 – 20 kHz secondary frequencies with strong sediment penetration.

Transducer and electronics bottle are separate pressure-rated units, designed for integration on crewed submersibles (HOV), work-class ROVs and long-endurance AUVs. **It holds range resolution at  $\leq 5$  cm while penetrating up to 30 m into the seabed** — a profiler for deep-ocean science and deep-sea geological mapping.

## Application

- ▶ Deep-sea geological and geophysical survey and ocean science expeditions
- ▶ Deep-water pipeline routing and trans-ocean cable projects
- ▶ Deep-sea sediment stratigraphy and subsidence studies
- ▶ Shoal checks and concealed-hazard search on deep-water routes
- ▶ Engineering integration on HOVs and deep-sea AUVs / ROVs

## Features

- ▶ **Rated to 6,000 m**  
Pressure housings built and validated with high redundancy for reliable operation at full working depth.
- ▶ **Up to 30 m penetration**  
Mature parametric technology resolves complex deep-sea sediment structure.
- ▶ **Narrow beam, no side lobes**  
A  $\sim 5.5^\circ \times 5.5^\circ$  primary beam suppresses clutter and delivers  $\leq 5$  cm range resolution.
- ▶ **Split layout, easier integration**  
A 5 kg transducer and 15 kg electronics bottle mount separately, easing space and trim on deep-diving vehicles.

# Technical Specifications of GeoScope 6100

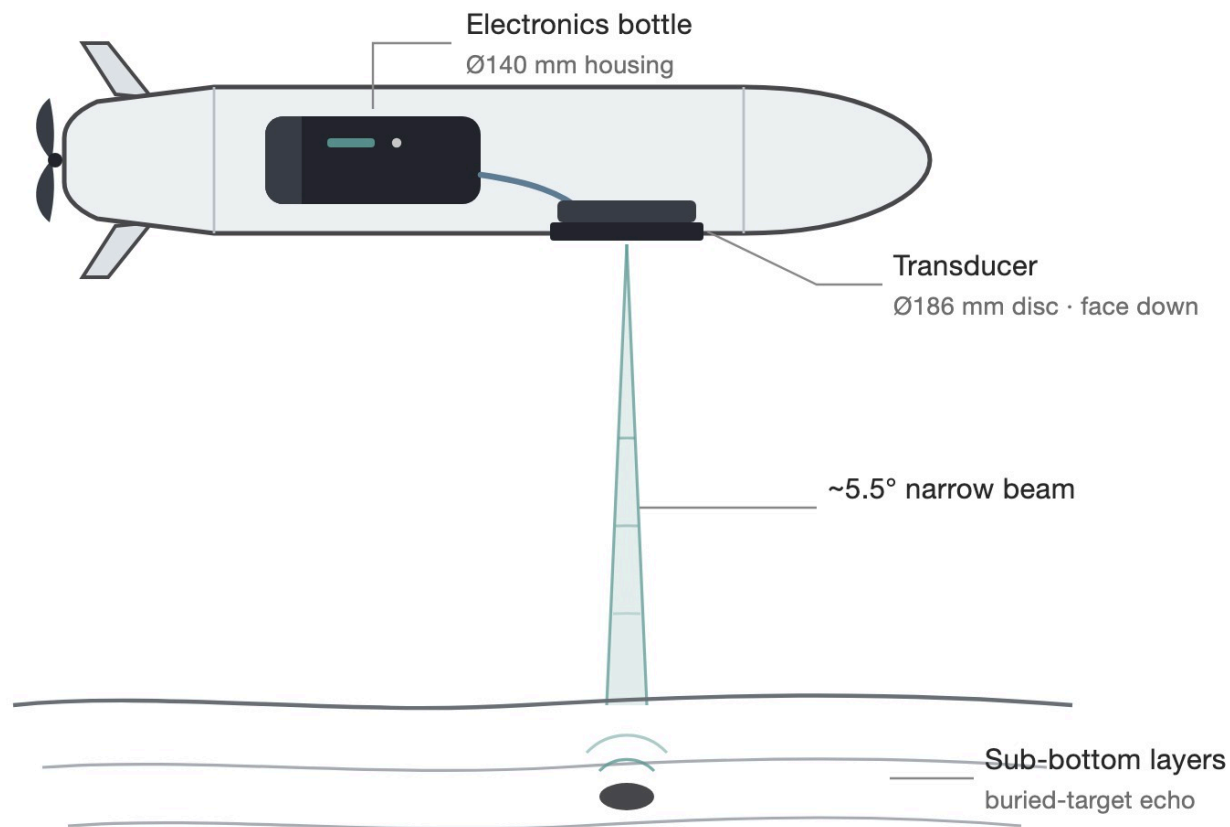
| Technical Specifications           |                                                                                                            |
|------------------------------------|------------------------------------------------------------------------------------------------------------|
| Primary Frequency                  | 90 – 120 kHz                                                                                               |
| Secondary Frequency                | 5 – 20 kHz                                                                                                 |
| Pulse Length                       | 0.04 – 1 ms                                                                                                |
| Primary Beamwidth                  | ~5.5° × 5.5°                                                                                               |
| Source Level @ Primary Frequency   | ≥238 dB/μPa@1m 100 kHz                                                                                     |
| Source Level @ Secondary Frequency | ≥194 dB/μPa@1m 15 kHz                                                                                      |
| Dynamic Range                      | ≥110 dB                                                                                                    |
| Range Resolution                   | ≤5 cm                                                                                                      |
| Sediment Penetration               | ≤30 m (subject to sediment type and noise)                                                                 |
| Operating Range                    | ≤200 m (water depth)                                                                                       |
| Motion Compensation                | Heave correction and compensation                                                                          |
| Physical Specifications            |                                                                                                            |
| Power Consumption                  | 75 W max. average                                                                                          |
| Power Supply                       | 220 VAC 50 Hz ±5% via adapter, or 24 VDC input                                                             |
| Communication                      | Ethernet, PC control                                                                                       |
| Transducer                         | Ø186 × 71 mm, 5 kg in air                                                                                  |
| Electronics Bottle                 | Ø140 × 356 mm, 15 kg in air                                                                                |
| Max. Working Depth                 | 6,000 m                                                                                                    |
| Software                           | SPAS acquisition and post-processing as standard;<br>compatible with third-party software such as SonarWiz |

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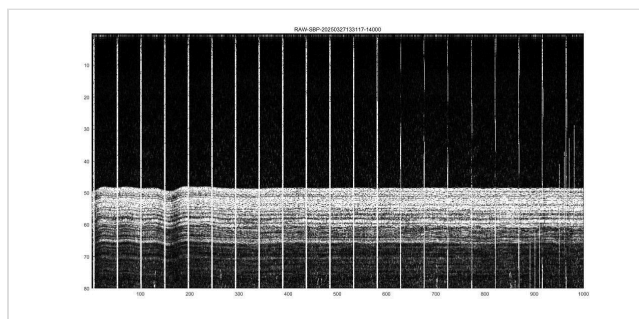
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## AUV Integration of GeoScope 6100



## Data Examples by GeoScope 6100



AUV sea trial, South China Sea  
(penetration beyond 28 m)



Sea trial on a crewed submersible