



GeoChart X240 Series

Subsea Broadband Multibeam Echosounder

200 — 400 kHz · 1,024 beams · 6,000 m

Description

GeoChart X240 is a subsea broadband multibeam echosounder built for deep-sea survey and tight integration on underwater vehicles. Electronics and transducer arrays share compact pressure housings, removing the high-frequency watertight cabling that links a separate electronics bottle to the arrays in conventional split systems. Fewer cables means fewer failure points at depth, and a payload that suits AUVs and ROVs where internal volume, weight and hydrodynamics are at a premium.

Broadband piezo-composite arrays tune continuously from 200 to 400 kHz, so the operator chooses per task: 400 kHz for 0.5° imaging of near-bottom structures, or 200 kHz for a wider swath in deep water and to step away from same-frequency interference. **With up to 1,024 dynamically formed beams and real-time beam stabilization, GeoChart delivers 3D bathymetry, seabed imagery and water-column data to IHO S-44 Special Order.**

Application

- ▶ Deep-sea topographic and geological survey; polar under-ice mapping
- ▶ Inspection of offshore wind farms, subsea pipelines and waterway structures
- ▶ Wreck search, underwater archaeology and fine-scale obstacle survey
- ▶ AUV / ROV navigation and obstacle avoidance
- ▶ Complex seabed reconnaissance and underwater target surveillance

Features

- ▶ **Tunable from 200 to 400 kHz**
Trade range against resolution on the fly instead of fitting a second sonar.
- ▶ **No cabling between bottle and arrays**
Electronics sit with the arrays, purpose-built for AUV / ROV integration.
- ▶ **Rated to 6,000 m**
4,500 m and 11,000 m versions available.
- ▶ **0.5° × 0.5° beams at 400 kHz**
Resolves small targets and obstacles close to the seabed.
- ▶ **150° swath**
Coverage of at least 5× altitude in a single pass.
- ▶ **Electronic beam stabilization**
Compensates vehicle roll and pitch in real time.
- ▶ **Gigabit Ethernet, AUV mode**
All-digital output for plug-and-play autonomous operation.

Technical Specifications of GeoChart X240 Series

Technical Specifications		
Number of Beams	Up to 1,024	
Operating Frequency	200 – 400 kHz	
Pulse Length	50 μ s – 10 ms	
Ping Rate	10 Hz @ 70 m	
Operating Range	400 m	
Transmit Sector	150°	
Swath Width	$\geq 5\times$ altitude (at 40 m altitude)	
Across-track Resolution	0.5°	
Along-track Resolution	0.5°	
Beam Stabilization	Pitch and roll	
Depth Accuracy	Meets IHO S-44 Special Order	
Triggering	Internal / external	
Data Output	Standard XTF; AUV mode supported	
Temperature	–3 to +40 °C operating (in water); –10 to +55 °C storage	
Physical Specifications	GeoChart 4240	GeoChart 6240
Max. Working Depth*	4,500 m	6,000 m
Power Supply	48 VDC	
Power Consumption	65 W average; 160 W peak (transmit)	
Communication	Gigabit Ethernet (sonar and sensor data)	
External Interface	External trigger input	
Transmit Array (L x W x H)	450 x 120 x 155 mm	450 x 120 x 170 mm
Transmit Array Weight (air / water)	23 kg / 16 kg	26 kg / 18 kg
Receive Array (L x W x H)	480 x 115 x 90 mm	500 x 120 x 105 mm
Receive Array Weight (air / water)	20 kg / 13 kg	22 kg / 15 kg

Dimensions exclude connectors. Width including cover plate: transmit array 146 mm; receive array 141 mm (4240) / 146 mm (6240).

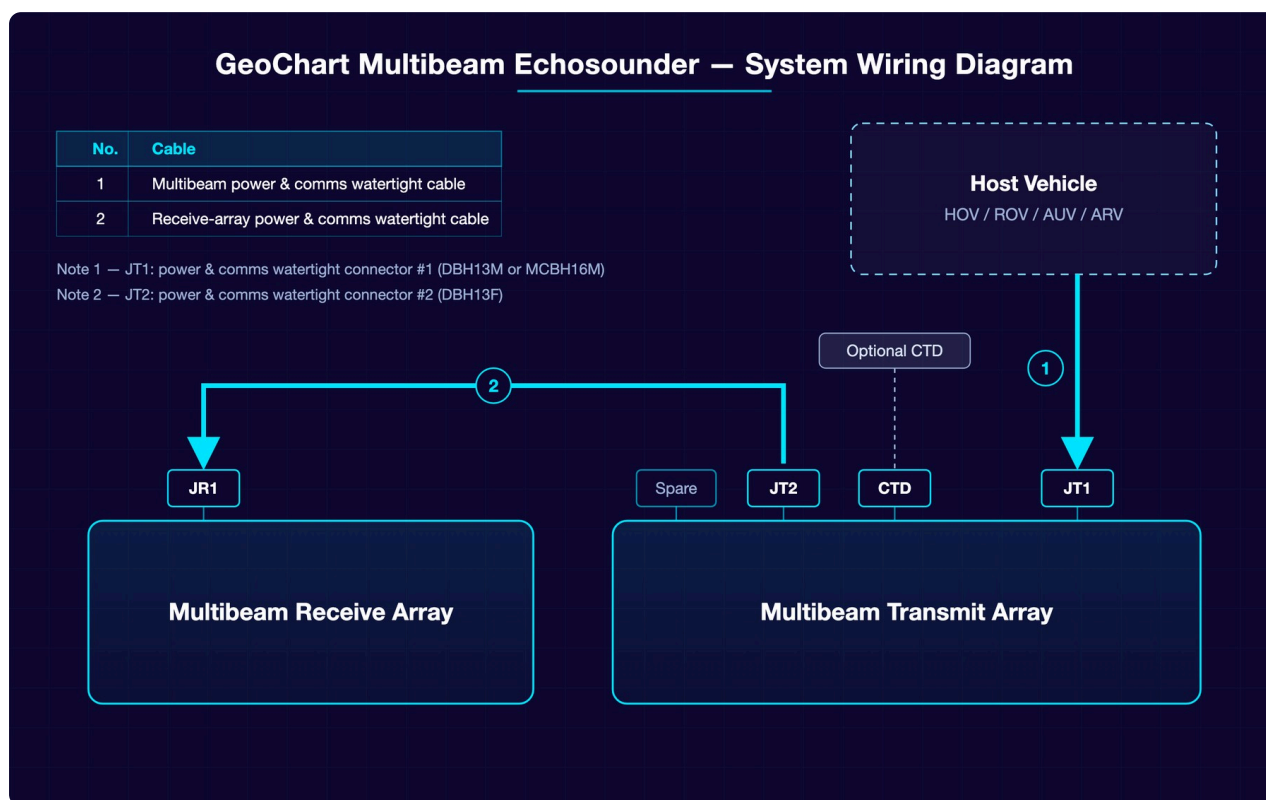
* An 11,000 m full-ocean-depth version (GeoChart 11240) is available on request.

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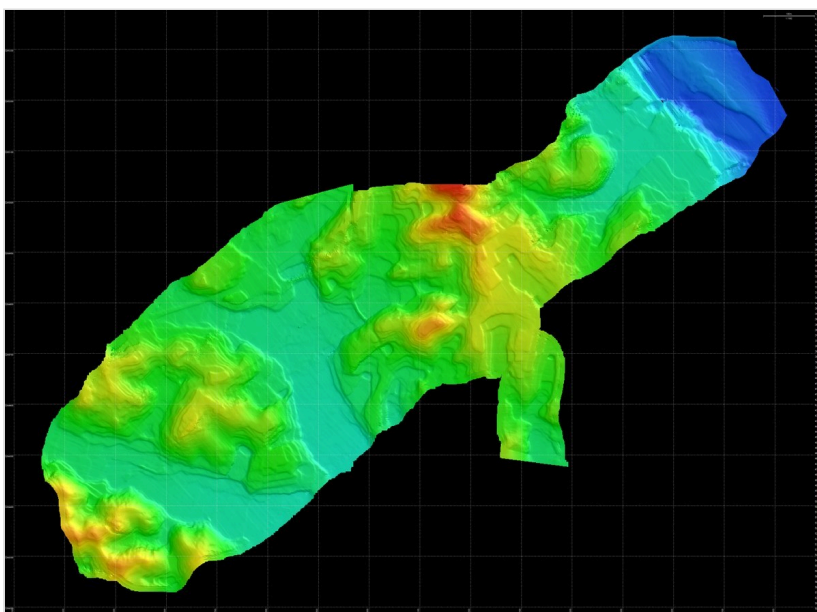
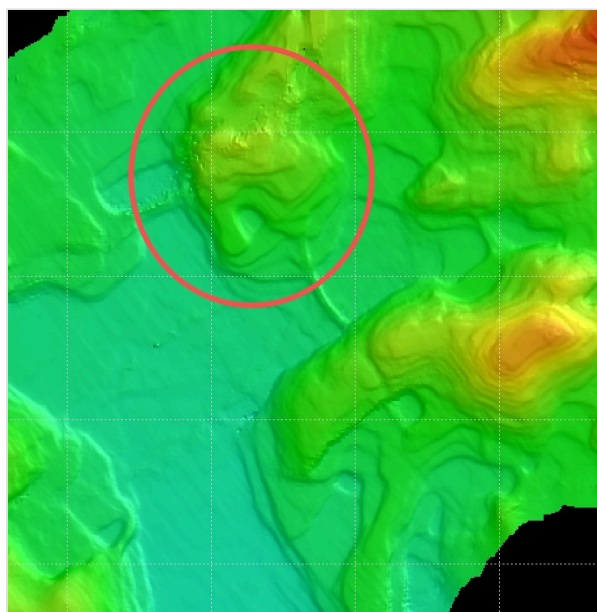
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System Wiring of GeoChart X240



Data Examples by GeoChart X240



Seafloor imagery from GeoChart field data