



THURN Group

OceanAlpha SL40 Profiling USV

A fully autonomous USV-carried Sub bottom system for rapid low-logistics surveying in dams, rivers and coasts. Suitable for deployment in shallow and high speed waterways.



The THURN USV Profiler System provides all the tools for your USV sub bottom requirements. Supplied with a GeoAcoustics GeoPulse compact and an SBG INS/positioning sensor all of which come fully integrated. The system was designed to enable remote surveys, keeping people out of the water and minimising risk.

Thus decreasing survey time and enabling surveys in previously inaccessible and dangerous waters. With easy to use industry standard software options this will help solve your hydrographic and survey safety problems. The software will track and display the position of the USV in real-time, with a real-time data feed option.

Benefits:

- Autonomous map-based survey patterns ensuring full coverage of larger areas
- Quick set up for survey operations
- Individualised incident projects
- Increased situational awareness and safety of operations

Applications:

- Ports, Harbours and Dredging
- Underwater Archaeology
- Sunken Timber Recovery
- Surveying
- Law Enforcement Work
- Scientific Research
- Environmental Survey

Key Features

Self-contained integrated USV Profiler system. Can be supplied with an SL40 or fitted to an existing USV asset	Automated survey patterns enable sensitive change detection due to surveys being easily repeatable	Optional real time display of the data provides immediate feedback for the survey team to ensure that the entire area has been covered
Standard INS SBG Equinox and Ellipse navigation systems. Others available on request.	All Profiler data is stored on board USV to allow post-mission analysis of the survey	Reliably survey shallow and high speed waters

GeoPulse Specifications:

Transmit

Output Power:	1kW peak (adjustable as % of full scale)
Frequency:	1.5kHz – 18kHz
Waveforms:	Pinger (CW), Ricker and “Chirp” Pinger: Frequency and cycles selectable 1 – 32 cycles (in 1 cycle steps) 4 – 15kHz (in 0.1kHz steps) Ricker: Spread spectrum (selectable by highest frequency component) 4kHz – 15kHz (in 0.1kHz steps) Chirp: Range of sweeps available 5, 10 or 15kHz bandwidth 8, 16 or 32ms length Range of wave shapes
Rep Rate:	Up to 20pps (waveform dependent)

Receive

Acquisition:	Dual channel, 800kHz front end sampling 50 / 100kHz sample output, 24bit
Acoustic	Source Level: Up to 196dB ± 3dB re 1uPa @ 1m Beamwidth: Along Track (Hydrophone Rx): (two way) 35° at 5kHz, 18° at 10kHz, 12° at 15kHz Along Track (Transducer Rx): 45° at 5kHz, 25° at 10kHz, 35° at 15kHz Resolution: 6cm (using 15kHz “Chirp” sweep) Penetration: Up to: 80m (fine clay) 20m (sand)

SL40 Specifications:

Hull Material	Carbon fiber
Dimension	(L)160 cm *(W)70 cm *(H)40 cm
Weight	35 kg
Payload	15 kg
Draft	15 cm
Propulsion	Electric water-jet propeller
Communication Range	Autopilot: 2 km Remote Control: 1 km
Max. Speed	12 knots (6 m/s)

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