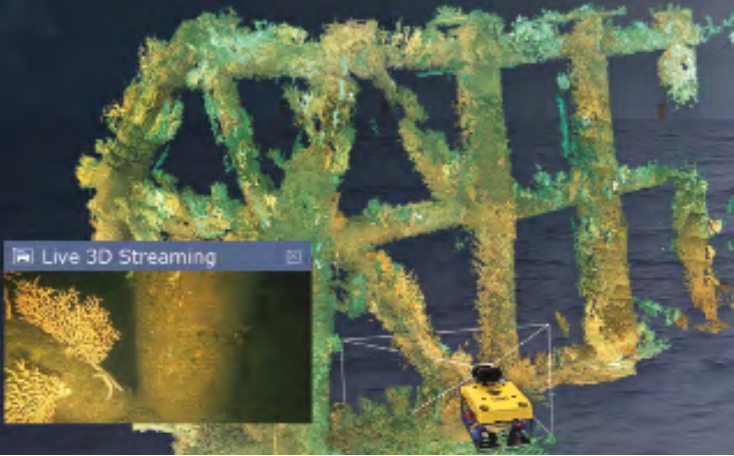




SubSLAM X2

PATENTED*

Intelligent Data Collection System



Instant Metrology Data, Shorter Projects

SubSLAM X2 tracks relative position perfectly without relying on any other external sensor. Construction and metrology projects can therefore take place without the need for Compatt beacons or long duration LBL array setup. Our SubSLAM system can replace INS or other metrology techniques, completing measurements in a fraction of the time.

Our live 3D data can be streamed to any device anywhere in the world over VSAT satellite bandwidths, using Rovco's intelligent online data delivery platform. This allows onshore engineers to track progress, spot issues and react proactively during an offshore campaign from their own offices rather than being stationed offshore.

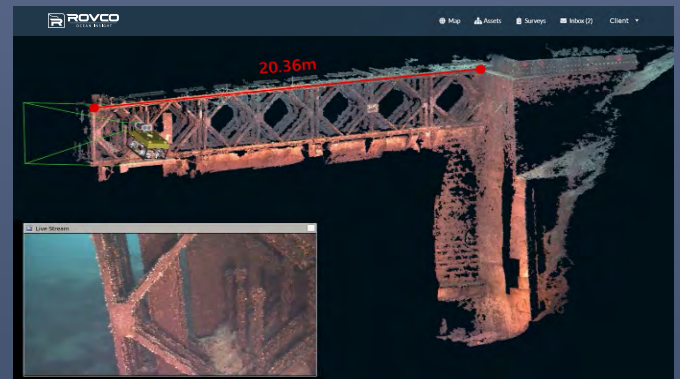
SubSLAM X2 captures and creates next generation data. Equipped with machine vision sensors and fast onboard processors that generate live 3D point clouds. Captured data can then be further processed using photogrammetry techniques if even greater accuracy is required.

Designed to replace video, laser scanning, and INS systems, operators can take instant, accurate measurements from either offshore or onshore, enabling multiple projects to be coordinated from a single location easily.

Benefits and Features

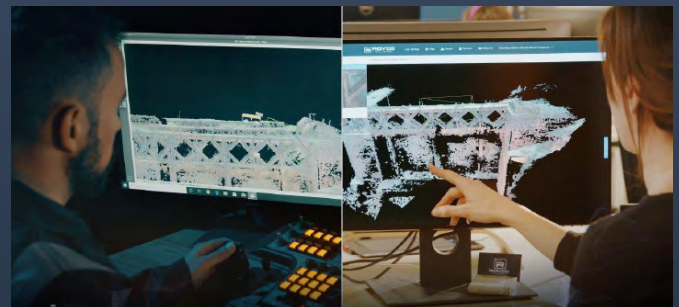
- Shorter project durations, reducing vessel days
- Enables Machine Learning and AI at the edge
- Perfect relative positioning without USBL, LBL or INS
- Live 3D reconstructions with proven mm accuracy
- Instant 3D data streamed to any device anywhere
- No additional sensors or scale bars required

LIVE 3D STREAMING



Live 3D Streaming allows onshore teams to have better context during offshore campaigns than can be offered from video alone. The same point cloud that is being created offshore can be transmitted over a low bandwidth 150-256 kbit data link to any device via our Intelligent Data Delivery Platform.


Each user can manipulate their 3D view independently of one another, allowing measurements to be taken as a task is being conducted, without the need to wait. Operators can be more reactive to potential issues while a campaign is still underway, providing stakeholders with confidence that their projects are proceeding safely and to plan.




Rovco is a leading subsea technology company, we are the number one organization for underwater 3D computer vision and applied artificial intelligence technologies. Together these bring greater efficiencies to subsea projects with complete control, complete clarity and complete Ocean Insight.

*GB Patent Granted as GB2570748 | EP Patent Application Number 18192388.9 | PCT Patent Application Number PCT/EP2019/070586

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Proven Performance



SubSLAM X2 delivers equivalent accuracy and better performance underwater compared with high-quality ground truth (Leica P40 laser scanner) in air.

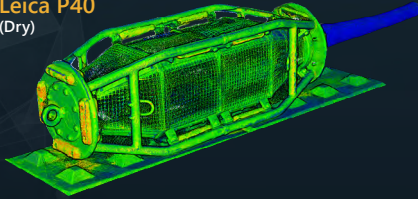
To simulate the most challenging conditions, ground truth was taken in a dry dock using a top of the range laser scanner.

The dock was then flooded, and the same assets modelled using the SubSLAM X2 system. Underwater visibility during the trials was 1.2m.

The subsea connector had varying levels of surface complexity, both in terms of shape and texture. The results of both systems are shown below.



Leica P40
(Dry)



SCAN TIME
2 hours, stationary multiple scans, in air/good visibility

P40 TOTAL 3D ERROR (1σ)
±4.0mm

SubSLAM PROCESSED 3D ACCURACY (1σ)
±4.0mm

SubSLAM LIVE 3D ACCURACY (1σ)
±16mm

SubSLAM X2
(Underwater)



SCAN TIME
Immediate and live, mobile ROV, 1.2m visibility

POINT TO POINT ACCURACY
±0.07%

ALIGNMENT ERROR
None

ERROR OVER 1m
±0.67mm

Specifications

Image processing

Sensors	Calibrated pair of 1" sensors, low light sensitive
Sensor Resolution	2 x 4096 x 2160 16MP
Frame Rate	Up to 40 fps @ 4K
Field of View in water	73° Diagonal - 65° Horizontal
On Board Storage	2+TB SSD
Processing	On board embedded processing - over 20 TFlops
Output	4K, 2K, HD or SD video and 3D visualisation

Specifications

Mechanical

Length	359 mm
Width	274 mm
Height	140 mm
Weight In Air	12 kg
Weight In Water	0.7 kg
Materials	316 stainless steel, aluminium

Electrical

Power Input	18-75 VDC, 60 Watts (max.)
Interfaces	Single data pair or 4-wire Ethernet for live stream

Environmental

Operating Depth	1000msw (other depths available on request)
Temperature Operating	0 to 40°C
Suitable Subsea Vehicles	Any 24V or 48V system with spare twisted pair or ethernet availability to surface. Mojave, Falcon, Cougar, Leopard and Magnum vehicles have been tested to date.