

Vaarst

SubSLAM[®] X2

Technical specification and equipment



Vaarst

Advancing human and machine collaboration



SubSLAM is a stereo vision system packed full of the latest technologies to provide **unparalleled data collection performance**.

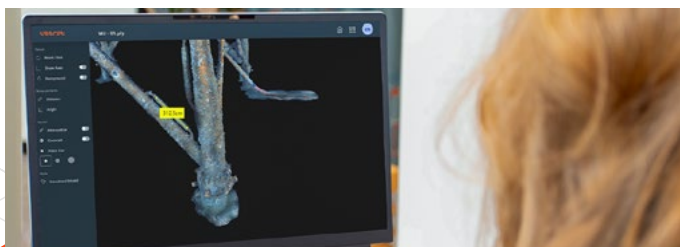
Unmatched 4K imagery and video. Ultra-high resolution live 3D reconstructions and enabled for photogrammetry post-processing. **Embedded AI capability** masks out unwanted objects and improves reconstruction performance.

Imaging, Mapping & Positioning

Contactless Real-Time Measurements

Generate Digital Twin 3D Models

Why SubSLAM?



Cost efficient, time effective

Simultaneously generate dense 3D models, images and video while performing visual inspection



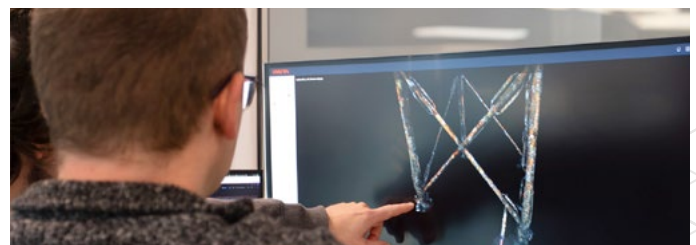
Precision autonomy

Accurate and responsive positioning in the most complex environments



Verified accuracy

Sub-millimetre measurement of complex structures



Instant outputs

Real-time access to live data without post-processing with ship to shore live streaming

Benefits of SubSLAM



Higher quality outputs:

Interrogatable 3D models over stills and videos



Faster actionable insights:

Accelerate decision making to minimise cost of delay



Lower costs:

Reduce cost of data collection, post processing and data management

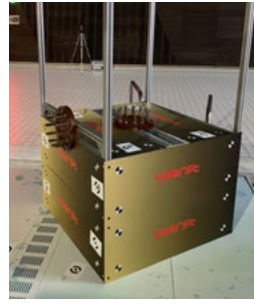


Enhance sustainability and safety:

Reduce vessel days and personnel offshore

Proven performance

The following measurements were as witnessed by Bureau Veritas. The Chain Metrology results were measured against UKCS calibrated vernier callipers and photogrammetry scale bars. The Spool Metrology results were measured against a control network of Total Stations and photogrammetry scale bars.



Defect metrology

Chain wear
Defect detection
Cracks and surface damages
Degradation

Real-time 3D measurement accuracy:

0.525mm

± 0.429mm (1σ)

Post processed 3D measurement accuracy:

0.328mm

± 0.238mm (1σ)



Distance metrology

- Spool pieces
- Cable protection system
- Engineering surveys
- Platform support placements

Real-time 3D measurement Accuracy (30m):

44.500mm

± 5.000mm (1σ)

Post processed 3D measurement Accuracy (30m):

31.600mm

± 2.900mm (1σ)

SubSLAM specifications

Mechanical & Environmental

SubSLAM X2	Shallow	Deep	Deeper
Operating Depth	300 msw	2000 msw	6000 msw
Length	349 mm	360 mm	364 mm
Width	264 mm	275 mm	275 mm
Height	142 mm	142 mm	142 mm
Weight in Air	8.55 kg	12.7 kg	15.45 kg
Weight in Water	0.7 kg	3.5 kg	6.25 kg

Operating Temperature	0 - 35°C (in water)
Top Station Format	4U, 550mm deep rackmount PC

Electrical

Camera System Power Input	24-75 VDC, 80W
Camera System Comms	Single twisted data pair, 100 Mbs Ethernet or 1G Ethernet
Top Station Power	Up to 850W
Top Station Comms	10G RJ45, 2.5G RJ45, USB, HDMI, DisplayPort

Image Processing

Sensors	Calibrated pair of 1" sensors, low light sensitive
Sensor Resolution	2 x 4096 x 2160 = 16MP
Frame Rate	Up to 60Hz
Field of View in water	73° Diagonal - 57° Horizontal
Top Station Storage	8TB SSD
Output Resolution	Up to 4k (Ethernet only)
Exported Output Format	Video (MPEG-TS h265), Image (.PNG) and 3D Visualisation (.PLY)

Shallow



Deep



Deeper



SubSLAM equipment



SubSLAM X2 pelicase



Deck test cable



SubSLAM X2



0.7m intercan cable



SubSLAM X2 power supply



TopStation pelicase



Pressure cap



TopStation



Dust cap female



Mouse and keyboard



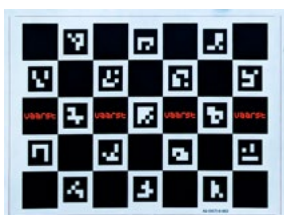
Dust cap male



16 pin tether cable



UK IEC cables



Calibration board



EU IEC cable



Vaarst

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collaboration

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