COASTAL OBSERVER

Marine Survey Workboat
MCA Category 3

Coda Octopus

CODA OCTOPUS PRODUCTS LTD

www.codaoctopus.com

The **Coastal Observer** is an MCA Category 3 Coded Survey Workboat moored at Port Edgar on the river Forth. The vessel is owned and operated by Coda Octopus Products Ltd, an Edinburgh based, industry-leading marine technology company specialising in the development and manufacture of real-time 3D volumetric imaging through our unique Echoscope® product range.

The vessel is available for hire with crew, survey engineer and equipment to meet your **real-time 3D survey and inspection** requirements. The vessel is fully equipped for survey and real-time monitoring operations using Echoscope® sonar and full GNSS-aided Inertial Measurement unit, the Coda Octopus F280 Series.

Additional equipment includes Echoscope AIR Volumetric LIDAR (for above water geo-referenced point cloud data), dual axis Integrated Pan &Tilt Unit (IPT), 5G 3D CONNECT interface unit, Trimble VRS NOW™ Corrections supported by the Coda Octopus software suite for data acquisition and data post-processing.

Echoscope® technology is unique in providing a real-time 3D view of both static and dynamic underwater environments and this capability supports a broad range of marine applications.

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VESSEL SPECIFICATION

TYPE	CHEETAH CATAMARAN
LENGTH	7.9m
BEAM	2.4m
DRAFT	1.5m
ENGINES	TWIN HONDA 90 HP
GROSS TONNAGE	2.12
CODING	Category 3 20 miles from safe haven 3 crew + 3 personnel

APPLICATIONS

Complex Structural Survey	Hydrographic Survey and Mapping
Search and Rescue Recovery	General 3D Real-time Imaging and Monitoring
Trenching and Rock Dumping	Asset Inspection Repair and Maintenance
Salvage and Recovery	Subsea Placement and Landing
UXO Identification and Clearance	Offshore Renewables Construction and Monitoring
Pipeline Survey Inspection and Monitoring	Oil and Gas Leak Detection and Monitoring

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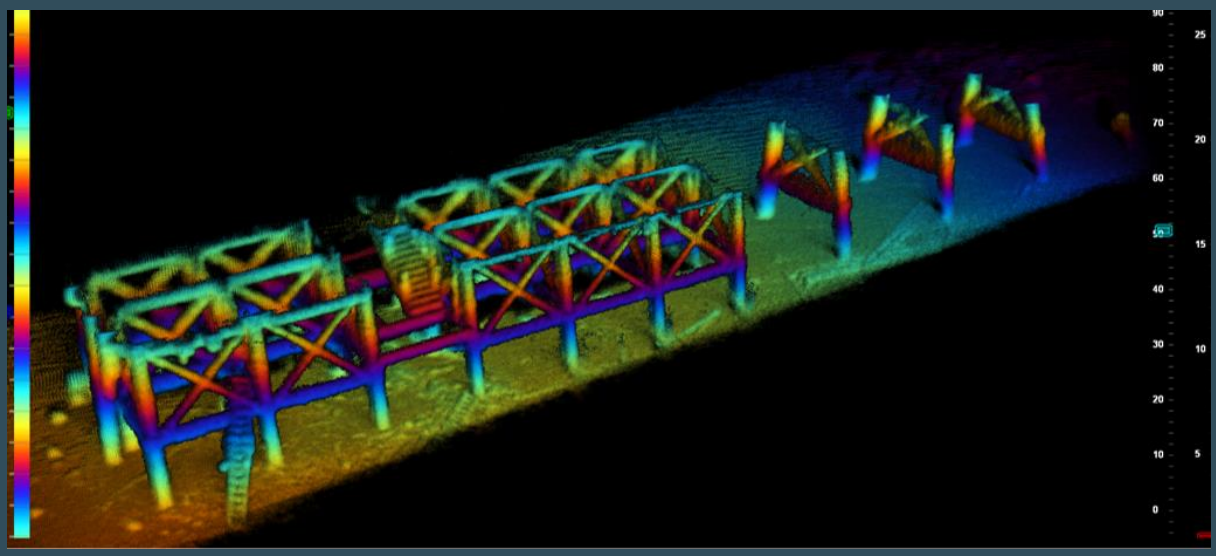
SURVEY EQUIPMENT SUMMARY	
Echoscope PIPE 	The PIPE Processing engine which sits at the heart of this new generation of imaging sonars can capture, process and display in real time significantly higher data density with multiple parallel outputs and much higher ping rates. In addition, increased processing capability allows more advanced beamforming algorithms including phase-based processing resulting in more accurate bottom detection. An innovation of the PIPE series includes 3D full time-series data offering the capability to process up to 81 million points per ping (180x180x2500), to generate 4D images with typically several 100Ks 4D points per ping (depending on the insonified scene).
Echoscope LIDAR 	The Echoscope Air initially focusses on the critical above water, short range construction market applications where imaging and placing objects above the waterline can be as critical as underwater, adding to placement accuracy and efficiency for operators and project construction teams. It gives users an extra level of scene awareness to ensure inspection and monitoring tasks are completed safely and efficiently with the same real-time 3D data and multi-aspect imaging as enjoyed uniquely by our Echoscope users. Providing the same real-time volumetric 3D data as the Echoscope allows seamless use of our powerful real-time and post-processing software applications (Underwater Survey Explorer and CMS) which have been invaluable in the construction industry for well over a decade.
F280 Series 	The F280® GNSS-Aided Inertial Navigation System (Attitude and Positioning Systems) is one of the models within the F280 Series® which is our new generation of high accuracy measurement instruments for use in the marine hydrographic and laser survey market. This new generation of GNSS-Aided INS systems embeds high accuracy components (accelerometers and gyros) and smart algorithms. Designed to meet the exacting and demanding requirements of the hydrographic survey market, the F280® instruments are easy to install and use. These instruments produce very accurate positioning, heading and MOTION data in the most dynamic offshore conditions.
IPT 	The fourth generation of our Integrated Pan and Tilt Unit (IPT) units operate as an integrated solution within the CodaOctopus® 4G USE software application and is now lighter and has a smaller form factor than the previous IPT. The software integration of the IPT with the real-time 3D sonar eliminates the need for multiple patch testing during mapping and inspection tasks. All angular and positional offsets are dynamically calculated within the software for simple and accurate operation.
4G USE	4G USE® is an enterprise class software package which allows control of, and processing of data from, multiple sonars and other sensors on different physical platforms enabling multiple subscribers of the live 3D data to independently view and process the 3D data in real time with parallel and sequential real time data output. 4G USE® is at the heart of its capability a multi-deployment and multi-sensor platform allowing for comprehensive integration of all data sources, visualization, and processing.
F280 Series INSight	F280 Series® Motion Insight is a GNSS-Aided Inertial Post Processing tool for the F280 Series® that allows previously collected data to be Repaired, Enhanced or re-Processed to improve the quality, accuracy and repeatability of all survey outputs.

Listen! You might see something…..

Echoscope 3D Data examples

(Infrastructure Inspection)

Real-time volumetric 3D survey of Carlingnose Pier, North Queensferry

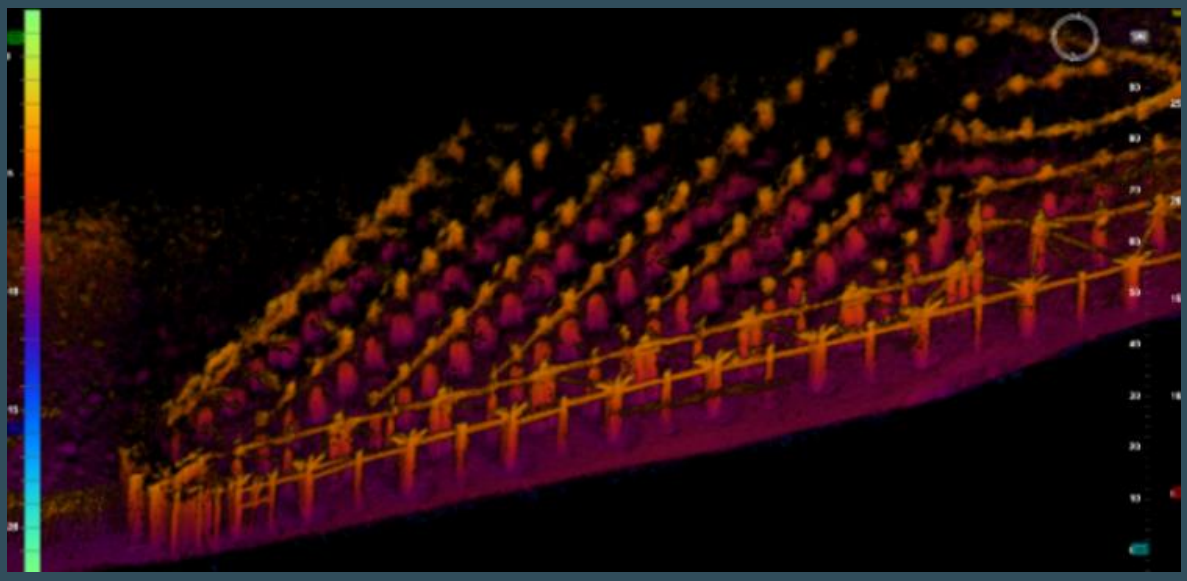


This data set was collected as a real-time, fully geo-referenced mosaic with RTK positioning in **less than 1 minute of survey time**. The 3D point cloud density and the volumetric aperture provide comprehensive coverage of the pier and surrounding environment allowing the user to easily identify the state of the structure and any localised debris

Echoscope 3D Data examples

(Infrastructure Inspection)

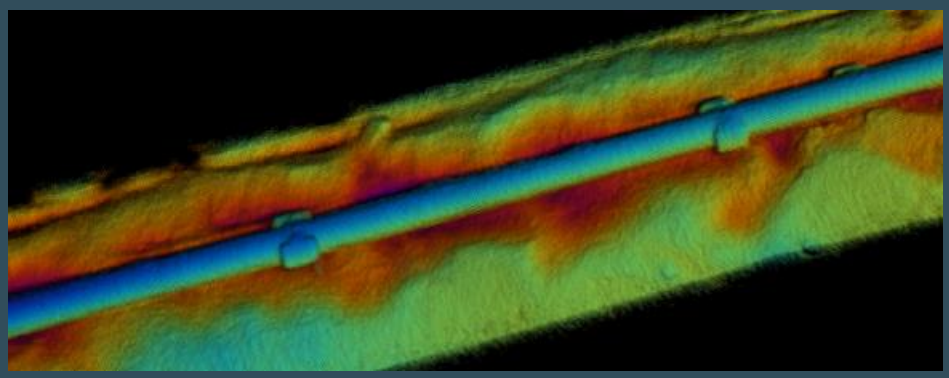
Real-time volumetric 3D survey of Granton Pier



This data set illustrates the ability of the Echoscope to penetrate and image complex structures with high point density and multiple angles of incidence reducing acoustic shadowing and providing comprehensive coverage.

(Pipeline Inspection)

Real-time volumetric 3D survey of Pipeline

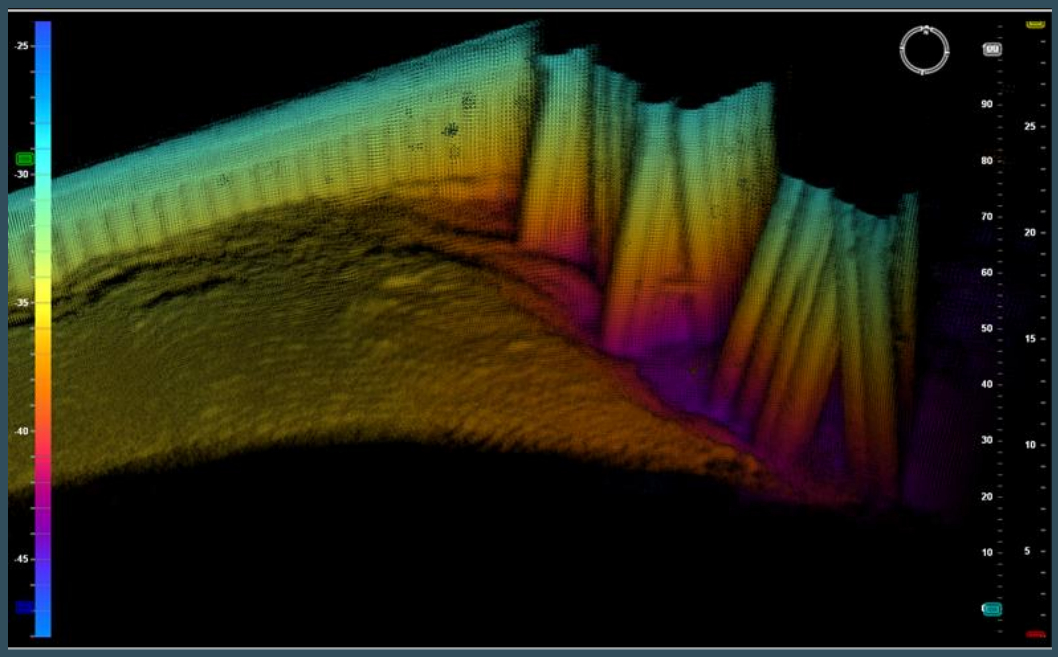


This data set illustrates the ability of the Echoscope to provide coverage of the pipeline with high point density enabling the user to monitor general status and highlight areas of interest such as scour zones causing freespan.

Echoscope 3D Data examples

(Port Infrastructure Inspection)

High Resolution Real-time volumetric 3D survey of Quay Structure



Detailed inspection data of sheet pile and quay structural members undertaken for routine inspection of port infrastructure.

Further Echoscope® application videos on our Coda Octopus channels:

https://www.youtube.com/user/CodaOctopus/videos

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