4G USE® Version 6 Update

Comprehensive Summary of New Features

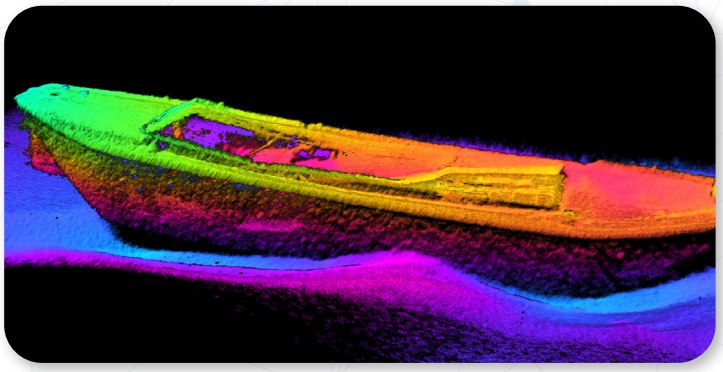
Intuitive Multi-Deployment and Multi-Sensor Platform for Simultaneous Data Acquisition and Processing for Echoscope PIPE®, Rotators, LiDARs and Motion Reference Systems

4G USE® is the latest generation of software for Real-Time 3D Sonar Acquisition, Visualization and Processing. Designed to be intuitive for users while offering great depth of functionality, it supports data acquisition and processing from multiple sensors, such as the Echoscope®, Rotators, LiDAR and Motion Reference Systems, simultaneously.

4G USE® enhances the full user experience through all aspects of 3D sonar data acquisition and presentation using the Echoscope PIPE®: Viewing live 3D real-time data in 3D instantaneously, allowing the user to enhance their understanding of the subsea world around them with real-time imagery and measurements.

4G USE® incorporates a modern user interface and includes new, powerful capabilities such as PIPE Sequencer, which allows users of Echoscope PIPE® sonars to pre-program a sequence of up to ten (10) different real-time 3D acoustic data captures using different acoustic and processing parameters such as frequency, range, pulse length, TVG, transmit and receive gain or sonar processing parameters such as filters, bottom detection methods or sidelobe clip levels. It also includes Advanced Beamforming capabilities, such as ERSA (Enhanced Resolution Split Aperture) Beamforming for the most accurate Echoscope PIPE® datasets to date by computing angles of arrival of echo returns, resulting in improved beamwidth compared to standard beamforming.

Version 6 of 4G USE® marks a significant step forward in capability and performance. Featuring a host of enhancements and new functionality, this release continues to streamline data collection while providing greater underwater spatial awareness. By delivering critical information when it's needed most, enabling faster, more informed decision-making and helping operator work with greater efficiency, accuracy, and confidence in demanding subsea environments.



This document provides a comprehensive summary of the new features introduced in Version 6, highlighting the improvements that continue to advance usability, performance, and operational effectiveness.

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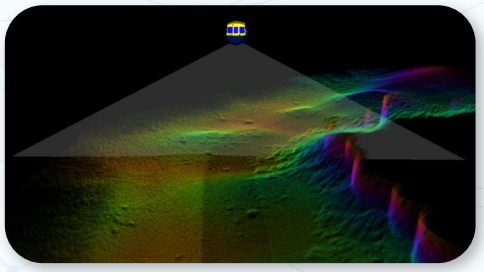
Support for PIPE Systems with Tiled Projectors (WAVM)



Version 6 brings support for Echoscope PIPE® *WAVM* (Wide-Area Volumetric Mapping), representing the next evolution of real-time 3D volumetric sonar mapping. *WAVM* combines proven Echoscope® derived technology wide ultra-wide-area acoustic mapping capability across swaths of up to 125° across-track x 25°. This allows operators to move beyond conventional 'survey-after-the-fact' workflows and instead interact with a persistent live 3D acoustic representation of the subsea environment as operations are taking place. This wide-area volumetric imaging and mapping technology can, for example, provide an instantaneous mapped seafloor coverage area of approximately 1,300 m^2 in only 25 m water depth, while simultaneously maintaining persistent real-time volumetric observation of the full water column and surrounding underwater environment.

Support for F275

4G USE® now supports the new F275 GNSS-aided inertial attitude and positioning system. Based on the proven F280® platform, the system integrates high-performance GNSS technology, precision accelerometers and gyroscopes with advanced navigation algorithms to deliver accurate positioning, heading and motion data in demanding offshore environments.

F275 is managed through an intuitive web-based interface, providing configuration, control, monitoring and data processing functions. The system requires no export license, supporting rapid global deployment and operational flexibility.

Gain Varying Threshold (GVT) Control for PIPE Systems

Echoscope PIPE *NANO Gen* Series® sonars include a feature called Gain Varying Threshold (GVT), introduced in Version 6, is designed to simplify sonar setup and help users achieve optimal 3D imagery with minimal manual adjustment. Echoscope PIPE® sonars provide a wide range of configurable parameters to accommodate different environmental operating conditions, including Target Size and Reflectivity, Water and Environmental Acoustic Conditions, Required Range and Field of View, and Application-Specific Imaging Requirements

These controls provide significant flexibility, allowing experienced operators to optimise sonar performance for a wide variety of scenarios. Configuring multiple interdependent settings can be challenging, particularly for new users. To simplify operation while maintaining high-quality sonar performance, Echoscope PIPE® has introduced Gain Varying Threshold (GVT). GVT automates much of the setup process by intelligently balancing Receive Gain and Detection Threshold, reducing the need for manual parameter adjustment.

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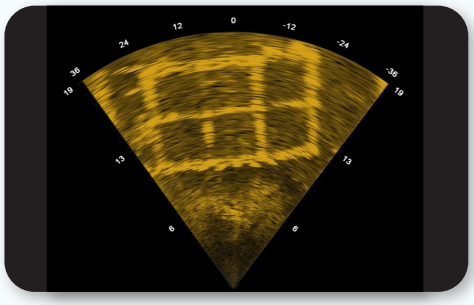
Vantage 3D Multi-Aspect Visualization Fan Pane



With the introduction of 4G USE® Version 6.0, users can now add the new Fans module as an individual pane within the Vantage workspace. This provides a powerful new method of visualizing Echoscope PIPE® data through cross-sectional "fan" views, giving operators additional insight into the sonar scene and enhancing target interpretation and situational awareness.

Fans present Echoscope PIPE® data as a vertical or horizontal cross-section through the complete data volume. Instead of returning a single point for each beam, as with a typical point cloud dataset, Fans present the intensity value for every sample within the slice, providing a 2-dimensional image with textural information that will be immediately familiar to operators who are used to multibeam imaging sonars. Fans can be generated and displayed alongside regular 3D Echoscope® data, providing the best of both worlds from a single sensor.

The 4G USE® Vantage 3D Multi-Aspect Visualization is an additional module designed for use with ROV platforms where the Echoscope PIPE® is being used for Obstacle Avoidance and Navigation, in addition to Survey, Inspection or Construction Operations simultaneously. The Vantage module in 4G USE® allows the user to section their 4G USE® 3D Scene view into individual panes. Each pane can be configured independently and can be set up to meet the individual users' requirements. Each pane can be configured as one of a range of types: 3D, Fans, Plan, Forward, Side, Camera (When Using a Camera) and Detect (When licensed for Object Detection), each providing a different viewpoint of the data.

Support for *NANO Gen* Series Accessories

Support for the *NANO Gen* Series accessories is now available, including the *NANO IPT* and the *NANO Gen* Series 3D PSU.

NANO IPT is the newest generation of our high performance Integrated Pan & Tilt (IPT) solutions, and are designed to meet the demanding and exacting requirements of accurate orientation and position control of our Echoscope PIPE *NANO Gen* Series® and Echoscope PIPE® C500 Surface variants.

NANO Gen Series 3D PSU is the newest generation of power, control and data integration units designed specifically for the Echoscope PIPE *NANO Gen* Series®. The *NANO Gen* Series 3D PSU supports the use Echoscope PIPE *NANO Gen* Series® and our latest Integrated Pan and Tilt device, the *NANO IPT*. Designed to effortlessly handle data and control both devices, the *NANO Gen* Series 3D PSU also allows both devices to be time synchronized to millisecond level accuracy.

Image Streaming Output Manager

Echoscope® technology is capable of generating a 2-dimensional 'first-person perspective' image of each ping, which can be colored according to intensity of return, distance to return or depth. These are represented within 4G USE® as the 2D Edge Image and within the 'Film Strip'. Version 6 of 4G USE® adds the ability to stream these images to an external third party application, allowing it to display live Echoscope® data within its regular GUI.

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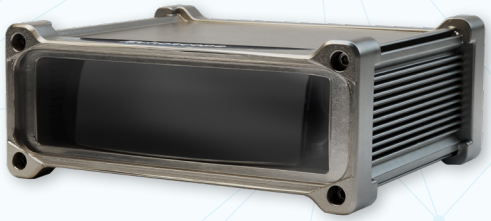
Echoscope® AIR LiDAR 2.0 Support

4G USE® now supports the newest generation of above-water imaging, the Echoscope® AIR LiDAR 2.0. The AIR LiDAR 2.0 is used as a standalone sensor, or can be combined with the Echoscope PIPE® on the same or on independent platforms to achieve seamless above and below the waterline imagery. It is capable of providing the same real-time 3D volumetric data as the Echoscope PIPE® Series, but above the waterline. It is designed for both mapping and inspection applications, affording the same benefits to surface construction applications where monitoring and placing objects above the waterline can be as critical as underwater.



Live XYZ Format Version 2

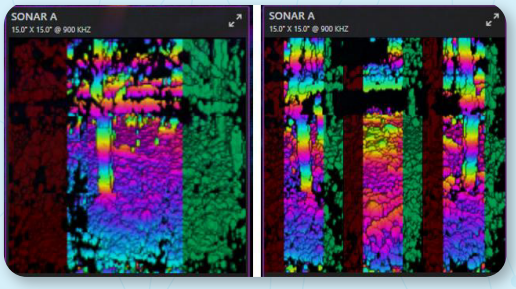
Version 2 of our Live XYZ Output utilises a more efficient method of transmitting positional information, reducing the amount of bandwidth required. Rather than sending each XYZ position in full global coordinates, a nearby reference location is specified or automatically selected, and all XYZ points are broadcast as offsets from the reference point. This reduces network traffic while allowing for higher beam density data to be broadcast and successfully received.

Live XYZ Output Echoscope PIPE® View Filtering

In addition to its improved efficiency, Version 2 of our Live XYZ data output includes additional information in the ping header that specifies the Sequencer View that was used to generate each ping. This allows the software consuming the broadcast to filter the data according to the sonar parameters in use. So, if you are simultaneously collecting low-frequency data to provide an overview across a wide area and high-frequency data to get ultra-high resolution in the area of interest, you can now filter the output according to the specific needs of a particular user or application.

Full Swath Beam Clipping for Tiled Shapes

Users can now clip full swaths across multi-tile technology blocks (CIVS and *WAVM*), providing greater flexibility when preparing imagery for analysis. Clipping can be applied either on a per-tile basis or across the entire image, allowing users to choose the approach that best suits their workflow. Per-tile clipping enables focused analysis of individual tiles, making it easier to isolate and analyze singular features or areas of interest. Alternatively, full-image clipping allows users to remove unwanted data across the entire swath easily, helping to reduce the impact of high-noise, improve visual clarity, and streamline analysis by ensuring a more consistent dataset.



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