C500 Inspector

Rapid Modular and Mobile Deployment Platform

Real-Time 3D Inspection and Live Monitoring

The C500 Inspector System is a modular, mobile platform designed to make sonar deployment simple and fast. The Inspector comprises a lightweight mechanical carrier frame supporting the 4G Integrated Single Axis Rotator (4G ISAR) and the Echoscope PIPE® C500 Surface. The carrier frame can be suspended from a single lifting point or mounted on a tripod to allow placement on the seabed. A single Integrated Sensor Cable (ISC) connects the Echoscope PIPE® C500, AHRS Unit and the ISAR to the 3D Connect integrated topside unit for power, control and data. A laptop running 4G USE® software completes the suite providing real-time 3D visualization including directional control of the sonar via the ISAR.

The C500 Inspector System can provide relative positioning and tracking capability for scene awareness and diver 3D point tracking. It can also be used to create relative models of the underwater scene prior to dive operations to facilitate a safe, context-rich environment for the diver. With the optional AHRS unit which attaches to the top of the frame, the C500 Inspector can also provide GPS positioning and attitude and heading data. Whether you are working near a structure or in open water, the C500 Inspector can be deployed in minutes, enhancing operational efficiency and safety by giving your dive team clear 3D imagery of their work environment, even in zero visibility conditions.

Some of the innovative *C500 Inspector* features available are:

Echoscope PIPE® C500 Surface
3D imagery available direct to diver and at surface simultaneously, and just a shade bigger than a smartphone

DAVD Compatibility
Can be used with DAVD and DAVD Flex systems to provide sonar data directly to the divers Head-Up-Display (HUD), allowing direct visualization of data

Multiple Deployment Options
Can be deployed in Tripod or Hanging Mode

Adjustable Angles
Sonar can be mounted forward looking or tilted downward between 0-25° in 5° increments, and tilt allows easier seafloor visualization

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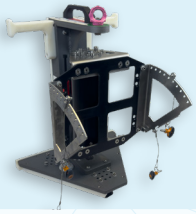
Tripod Deployment	Hanging Deployment
No Nearby Structures (Pier, Wall)	Pier Walls or Pylons Available
Vessel Deployment at Anchor	Vessel Deployment with Live Boating
Level Bottom in Project Area	Shallow Dive Monitoring Operations
Deep Dive Monitoring Operations	Uneven Bottom in Project Area

Main Components

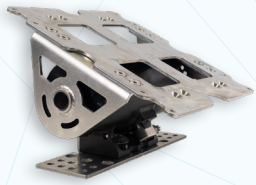
Echoscope PIPE® C500 Surface

Echoscope PIPE® C500 forms part of our compact sonar series and offers real-time 3D/4D/5D/6D capabilities. Due to its lightweight build, the C500 Surface is ideal for use with the C500 Inspector, providing Divers a mobile solution to surveying real-time 3D underneath the water, as it can provide relative positioning and tracking capability for scene awareness and diver 3D point tracking. The C500 Surface can also be used to create relative models of the underwater scene prior to dive operations to facilitate a safe, context-rich environment for the diver.



C500 Inspector Tripod

The C500 Inspector Tripod features epandable legs for the Inspector Frame, and allows for rapid scanning and target tracking from a fixed location. Utilizing the C500 Inspector allows for easy subsea positioning for small ROVs, and accurate monitoring and scene awareness for marine construction or diver activities. The Inspector Frame has an inbuilt lifting eye that allows the whole system to be hung safely.



4G ISAR

The 4G ISAR provides a rotatable platform on one axis for the Sonar, and is fully integrated with the C500 Inspector Frame. Coda Octopus 3D Integrated Single Axis Rotator is a high performance units designed to meet the demanding and exacting requirements of accurate orientation and position control of the real-time 3D Echoscope PIPE® sonars.

AHRS Unit

The AHRS Unit combines an Attitude and Heading Reference System with a small GNSS receiver. It provides attitude and heading information that is used to correctly orient the 3D sonar data, even if the tripod is deployed on an uneven or sloping surface, and the GNSS location is used to position the sonar data correctly in real-world space. No configuration or set-up is required - all offsets are preconfigured within the software, making the task of getting correctly located and oriented 3D point cloud data even easier.

3D Connect 5G

The power supply provides complete integration of the Echoscope PIPE® C500 Surface, 4G ISAR, GNSS Correction equipment and Navigation/Attitude sensors, supplying power directly to all of these devices and achieving sonar, rotator and GNSS time synchronization.

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Frame & Tripod Legs (Including AHRS Unit)	
Frame Dimensions (L x W x D)	520mm x 410mm x 320mm approx. (20.47" x 16.14" x 12.59" approx.)
Tripod Legs Dimensions	2080mm x ø30 mm approx. 81.8" x ø1.18" approx.
Weight in Air (With Legs)	15kg approx. (33.06 lbs approx.)
ISAR-30	
Dimensions (L x W x D)	300mm x 171mm / 112mm approx. (11.8" x 6.7" / 4.4" approx.)
Peak Torque	94 Nm
Operational Torque	61 Nm
Absolute Accuracy	±25 arcsec (0.007°)
Speed Typical	up to 10° per second
Angular Range (Tilt)	90-270°
Control Interface	Ethernet
Time Synchronization	Via 3D Connect 5G, 3D PSU 5G
Supply Voltage	24 - 30 V DC
Power Consumption (Dynamic)	Up to 2.0A at 48V DC
Power Consumption (Static)	180 mA (at brakehold position) at 24V DC
Weight in Air	9.08kg (Approx) 20.01 lbs (Approx)
Connector	Subconn MCBHRA8M (RS-232 serial only).
Construction	316/A4 Marine Grade Stainless Steel
Output Shaft	35mm diameter, Nitronic 60 steel, splined interface with pre-installed interface plate

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Echoscope PIPE® C500 Surface	Dual Frquency		Triple Frequency		
Acoustic Projectors	Mid-Frequency (375 kHz)	High-Frequency (630 kHz)	*WAVM* (345 kHz)	Mid-Frequency (375 kHz)	High-Frequency (630 kHz)
Adaptive Frequency Band	315 kHz - 425 kHz	550 kHz - 700 kHz	315 kHz - 375 kHz	315 kHz - 425 kHz	550 kHz - 700 kHz
Number of Beams (Density)	Up to 256 x 256				
Number of Values per Beam	5,500 (Dependent on Features Purchased)				
Maximum Range*	120 m (394 ft)	80 m (262 ft)	120 m (394 ft)	120 m (394 ft)	80 m (262 ft)
Minimum Range*	0.5 m (1.64 ft)				
Range Resolution	3 cm (1.2")				
Update Rate (Ping Rate)	Up to 50 Hz				
Imaging Field of View (User Selectable)	54°x54° – 46°x46°	33°x33° – 25°x25°	25° x Up to 125°	54°x54° – 46°x46°	33°x33° – 25°x25°

*The actual working range will depend on the target's size, reflectivity and the level of detail required for the Application.

Dimensions (H x W x D)	232 mm x 301 mm x 146 mm (9.1" x 11.9" x 5.7")
Weight in Air	9.6 kg (21.2 lbs)
Power Consumption	2 - 4 A at 24 V DC An up to 10 A inrush for less than 20 µs may occur on start-up.

3D Connect 5G	
Power Input	24 - 30 V DC
Power Output	Multi-Output Power Supply supporting all connected sensors Additional 12V DC Auxilliary Power Output (2A)
Data Input/Output	2 RJ45 Ethernet Gb/s Ports 3 DB9 Serial Connectors 1 Aux 12VDC Output 1 DB9 Serial GNSS Corrections I/O 1 BNC PPS TTL Signal Input 1 DB9 Serial Time Input Connector
Dimensions (L x W x H)	278mm x 170 mm x 90 mm (9.02" x 6.69" x 3.54")
Weight in Air	3.0kg (6.61 lbs)

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