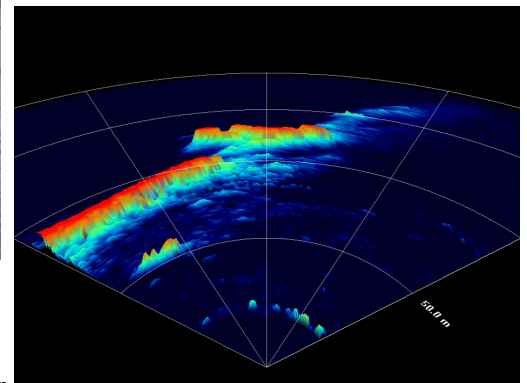
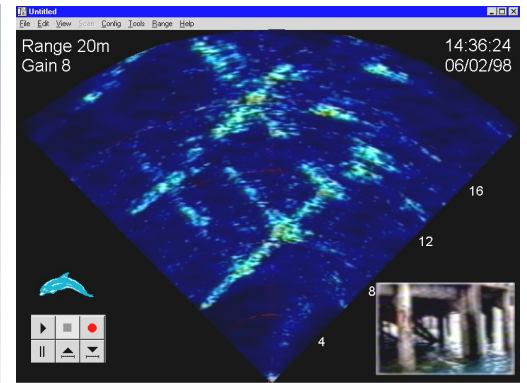
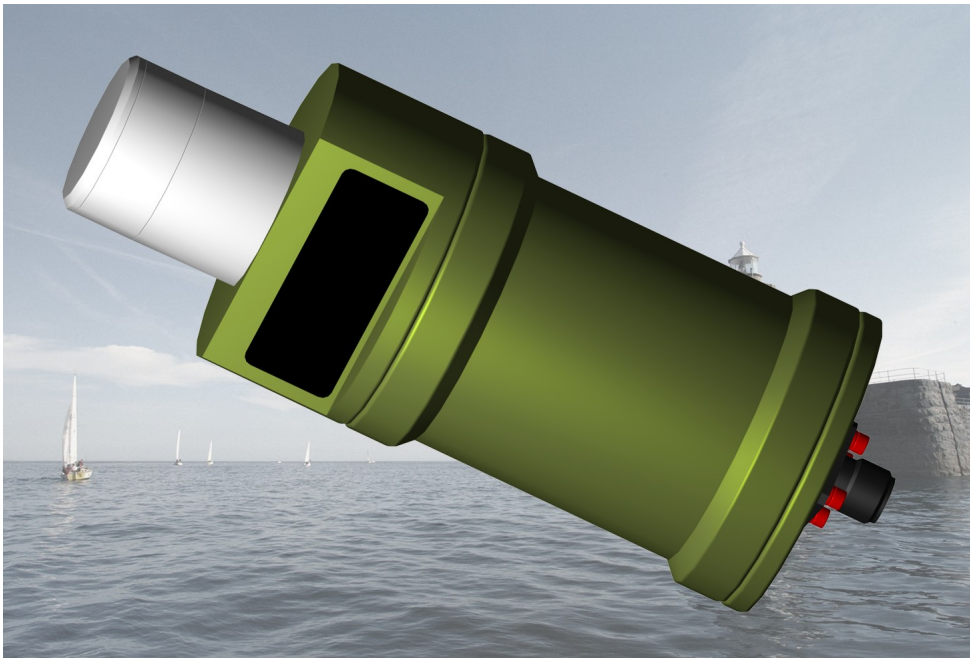


# Dolphin Real Time Hybrid Sonar

## Model 3040V



The Dolphin Real Time Hybrid Sonar is an exciting new product from Marine Electronics designed to combine two reliable technologies into one dedicated package, helping to minimise valuable space and weight on underwater vehicles.

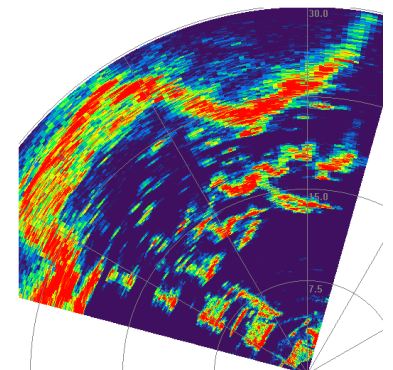
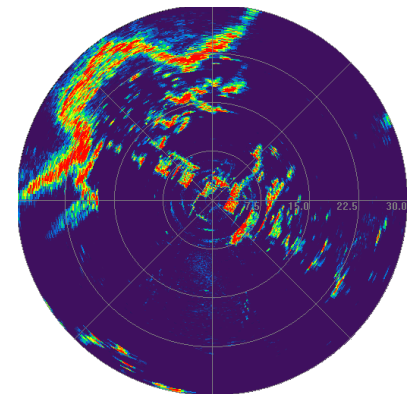
The Dolphin Hybrid comprises a mid range, high frequency, high resolution electronically scanned sonar particularly suited for pilotage, navigation and search operations. Built into the same unit is a short range, high resolution, mechanically scanning imaging sonar for higher definition and close proximity inspection and monitoring.

The underwater housing is suitable for mounting on anything from a small Remotely Operated Vehicle to a large surface vessel. The surface display is generated by a P.C. running the "Windows" operating system. The umbilical cable requirement is a single twisted pair to handle both sonar's telemetry plus a coaxial cable to handle the video signal of the electronically scanned system. At the surface the sonar telemetry is connected to a small USB Interface Unit which is self-powered from the P.C. Power to the sonar is supplied either from the vehicle or via an additional two power cores through the umbilical.

The system software provided has facilities to log raw data at full resolution to a hard disk drive for post analysis as well as a suite of on-screen measurement tools. The "Windows" interface significantly reduces the time taken to understand the system, minimising training requirements.

### FEATURES INCLUDE

- Real Time continuous scanning over a 120° sector at 30 frames per second (USB 2.0)
- 1024 x 768 pixels with 256 colours
- Raw data logging to mass storage
- Multiple cursors for accurate on screen measurement
- Enclosed rugged mechanical transducer
- Image save and restore at full resolution allows post analysis of real data
- ASCII data export (Mechanically scanned system)
- 500m depth rating as standard
- "Windows '98, ME, 2000, NT, XP software
- Pseudo-Perspective Display



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# Dolphin Real Time Hybrid Sonar

## Model 3040V



The combination of fast update speed and high resolution scanning of the Dolphin Real Time Hybrid Sonar sets unprecedented flexibility for Underwater Vehicle operators.

The compact, rugged underwater unit weighs only 7kg in water allowing the system to be integrated with the smallest of Remote Vehicles. The unit has a standard thirteen pin connector; six pins are used for telemetry and comms data, two for video signal and two for 24v d.c. power.

At the surface the sonar output is routed through a discrete USB interface unit. The USB unit contains the data acquisition hardware to convert the video telemetry uplink into a high speed digital data stream.

The system software can be run on virtually any modern "Windows" P.C and is ideally suited to the portability of a notebook P.C provided that the system has at least one USB port. By using optimised display techniques the high speed real time display for the electronically scanning sonar is generated at up to 30 frames per second.

The operator, utilising the huge speed advantage of the electronically scanned system, can pilot the Vehicle using the system software's real-time "pseudo perspective" mode before switching to the high accuracy mechanically scanned system for close-up inspection of mid water objects and targets in a 360° swath.

The Raw data obtained may be logged automatically (at programmed intervals), or on demand, to hard disk for post analysis of survey results. Sonar images may also be incorporated into reports or pasted into other "Windows" applications.

The Dolphin USB Interface unit will operate at full speed when connected to a USB2.0 port but will also operate at a reduced frame rate when connected to a USB1.1 port. As the USB Interface is powered from the USB port the system lends itself to being used with a notebook P.C.

### Electronically Scanning Sonar Specifications

<i>Operating Frequency:</i>	250kHz
<i>Range Settings:</i>	10m to 200m in 10m steps
<i>Range Resolution:</i>	>35mm
<i>Sector Scanned:</i>	120°
<i>Angular Resolution:</i>	4°
<i>Horizontal Beamwidth:</i>	Receive: 4° (+/-3dB points) Transmit: 120°
<i>Vertical Beamwidth:</i>	Receive: 16° Transmit: 12°
<i>Update Rate (120° Sector):</i>	10m range, 30 frame/sec 20m range, 28 frame/sec 50m range, 14 frame/sec 100m range, 7 frame/sec
<i>Data Logging:</i>	Auto at variable frame rate Manual, key press on demand
<i>Transmit Pulse Length:</i>	30µsec to 1msec
<i>Transmit Power:</i>	Variable
<i>Telemetry Link:</i>	19200 baud half duplex

### USB Interface Unit

<i>Dimensions:</i>	Width: 110mm Depth: 165mm Height: 35mm
<i>Protocol:</i>	USB2.0 and USB1.1
<i>Power Supply:</i>	+5V DC at 200mA typical (self-powered from USB port)
<i>Input Data Format:</i>	Video (+/-1V peak)

### Mechanically Scanning Specifications

<i>Acoustic Frequency:</i>	500kHz
<i>Horizontal Beamwidth:</i>	1.25° (-3dB half angle)
<i>Vertical Beamwidth:</i>	+/-10° about horizontal
<i>Transmit Pulse Width:</i>	60/300/600 µsec
<i>Transmit Power:</i>	186dB re 1µPa/V at 1m
<i>Receive Sensitivity:</i>	5µV r.m.s.
<i>Range Resolution:</i>	42mm

### Telemetry

<i>Telemetry Link:</i>	Isolated RS485
<i>Data Rate:</i>	115200 baud
<i>Protocol:</i>	Asynchronous packet protocol

### Underwater Unit Properties

<i>Dimensions:</i>	Diameter: 130mm Height: 320mm
<i>Weight:</i>	10 kg in air; 7 kg in water
<i>Materials:</i>	Stainless Steel 316 uPVC
<i>Power Supply:</i>	24V DC at 2A max.
<i>Temperature:</i>	Operating: 0 to +40°C Storage: -20 to +60°C
<i>Operating Depth:</i>	500m
<i>Underwater Connector:</i>	Burton 5506-2013-AL



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Specifications are subject to change without notice