CYGNUS
INSTRUMENTS

"Simplicity through technology"

CYGNUS DIVE Mk2

Ultrasonic Thickness Gauge

Measures metal thickness to determine wastage or corrosion accurately, quickly and without removing protective coatings.

Manufactured in the UK, Cygnus DIVE is designed for the professional diver.

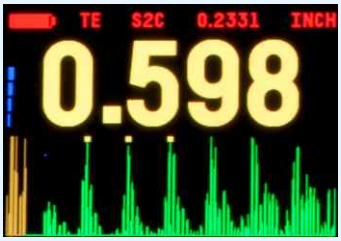
The Cygnus DIVE is a wrist-mountable, simple to operate, robust underwater ultrasonic thickness gauge which provides an invaluable free hand while performing remaining metal thickness measurements. The Cygnus pioneered Multiple Echo technique is the heart of the electronics and ensures protective coatings up to 20 mm (0.787") thick are completely ignored, there is no need to remove protective coatings. Additionally, all measurements are automatically checked and verified by the Multiple Echo technique electronics.

The large, bright color AMOLED display is easily viewable by both the diver and his camera even in the poorest visibility and the operation of the gauge couldn't be simpler, only two buttons for easy navigation of the intuitive, clear menus.

The completely new feature of the DIVE Mk2 is the added flexibility of single echo mode where twin crystal probes can be used. This feature is useful for some specific situations including on; uncoated surfaces that have extreme front face and back wall corrosion, anchor chain links and highly attenuative materials such as cast iron.

Key Features

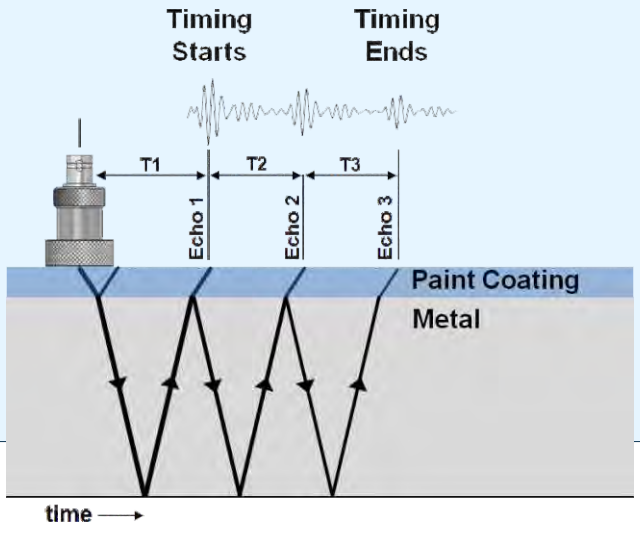
- Wrist-mountable giving the diver a free hand
- Large, bright color AMOLED display, highly viewable by diver and camera in poor visibility
- A-Scan display to assist with measurement verification
- Auto-Log Data Logging - option, no log button to press - stores up to 5,000 measurements with A-Scans
- Multiple Echo means no need to remove protective coatings up to 20 mm (0.787") thick
- Error-checked Multiple Echo measurements to ensure genuine, verified measurements are displayed
- Deep Coat mode to measure through coatings up to 20 mm (0.787") thick
- Single Echo mode with Twin Crystal probes
- Probes are connected to the DIVE with a coiled double jacket cable which will extend up to 1 meter (3 ft)
- Pressure tested to 300 meters (1,000 ft)
- Rechargeable Lithium-Ion battery giving up to 11 hours continuous operation.



Benefits of Cygnus Multiple Echo

- Measures remaining metal thickness of corroded and coated structures
- All measurements are error checked using 3 return echoes to give repeatable, reliable results
- Accepted by all major classification societies
- Greatly reduces inspection time and costs
- Echo strength indicator to aid measurement.

With Multiple Echo, readings are taken by measuring the time delay between any three consecutive backwall echos. The time of T1 (coating thickness) is ignored. The times of T2 and T3 are equal to the time that it takes to travel through the metal. Only by looking at three echoes can the measurements be automatically verified (where T2 = T3).



Options and Accessories

Data Logging

Adds data logging capability to the gauge. Supplied with CygLink v4 software for data transfer. Measurements can be recorded in either a linear or grid format.

CygLink v4 Software

CygLink v4 is a Windows® application and has two functions:

- It is used to transfer information from a data logging gauge to a computer. This can then be used to create reports, analyzed, stored and exported.
- As part of the CygLink Surface Display and Control Kit it can be used to provide a top side view of the survey. An umbilical cable is required to connect the gauge to the computer. This also allows the gauge set-up to be controlled from the surface, including logging readings during the survey.

Information displayed by CygLink includes; measurements, A-Scans, battery level, velocity of sound, measurement units, Deep Coat status and operating mode.

Once the survey results are in CygLink there is a range of different ways to view the data. This includes; linear, grid, color 2D and 3D representations. The data can be exported to a spreadsheet program e.g. Excel.

The Ghost Overlay offers the option to pause an A-Scan that can be used as a reference trace.

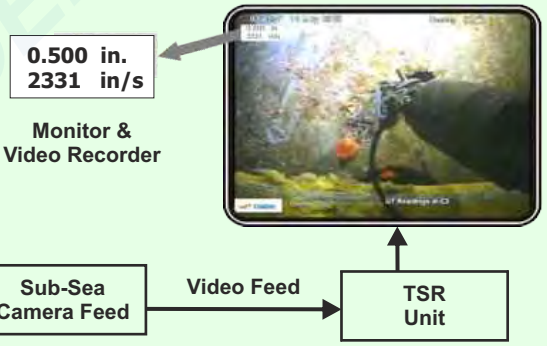
Measurements can be made on an A-Scan using two cursors.

Topside Repeater Remote Display Kit

The Cygnus Top Side Repeater is a remote display unit connected to the DIVE gauge with an umbilical cable. It displays the thickness measurements at the surface in real-time during the survey.

Topside Repeater with Video Overlay

The Top Side Repeater can also overlay the real-time thickness measurement on to a composite video signal, displaying it on the monitor screen / video recording of the survey.



Umbilical cables can be supplied made to custom lengths up to 500 meters (1,640 ft).

HelmetView™ Display

Remote display with fixing bracket for Kirby Morgan® helmets with an accessory mounting point.

Standard Kit Content

- Cygnus DIVE gauge
- 2 rechargeable batteries
- Fast charger
- Multiple Echo (through coating) probe (2.25 MHz 13 mm (0.512"))
- User manual
- Spare membranes
- Membrane key
- Test block
- Surface and membrane couplant.

Technical Specifications

Display	2.8” quarter VGA color AMOLED (320 x 240 pixels) Large clear thickness measurement (15 mm (0.591") high numbers), viewable from all angles A-Scan display with automatic X axis Battery level, signal strength, probe type, velocity Measurement mode and units indication
Battery	Single 3.6V Li-ion 8.2 W battery 11 hours continuous measurement Low battery warning ‘alert’ message
Measurement Modes	Multiple Echo (three back-wall echoes) using Single Crystal (zero-degree) probes automatically ignores surface coatings and measures only metal thickness Single Echo (first back-wall echo) using Twin Crystal probes
Deep Coat	In Multiple Echo mode, allows measurement to be made through thicker coatings of suitable materials of up to 20 mm (0.787") thick
Probes	Single Crystal probes: 2.25 MHz 13 mm (0.512") (standard) S2C 2.25 MHz 19 mm (0.748") S2D 3.5 MHz 13 mm (0.512") S3C 5.0 MHz 6 mm (0.236") S5C Twin Crystal probes: 2.0 MHz 13 mm (0.512") x2 (for cast irons etc.) T2C 5.0 MHz 8 mm (0.315") x2 (standard) T5B
Probe Cables	Double outer jacket in tough PU. Colored yellow for easy locations underwater. Coiled for ease of use. Fischer S105 series connectors.
Measurement Ranges	Multiple Echo (through coatings) with Single Crystal probes: 2.25 MHz = 3.0 to 250 mm (0.110" to 9.995") 3.5 MHz = 2.0 to 150 mm (0.065" to 6.000") 5.0 MHz = 1.0 to 50 mm (0.045" to 4.000") Single Echo with Twin Crystal probes: 5.0 MHz = 1.5 to 50 mm (0.059" to 4.000") in steel 2.0 MHz = 2.5 to 150 mm (0.098" to 6.000") in steel
Measurement Resolution	Multiple Echo with Single Crystal probes - 0.1 mm or 0.05 mm (0.005" or 0.002") Single Echo with Twin Crystal probes - 0.1 mm or 0.01 mm (0.005" or 0.0004")
Measurement Units	mm or inches
Probe Zero	Fully automatic probe zeroing for all probes types
V-Path Correction	Automatic V-Path correction for all Twin Crystal probes
Velocity Range	2000 to 9000 m/s in 1 m/s setps (78740.158 to 354330.709 in/s in 39.370 in/s setps)
Pulser	Twin channel 70 V spike pulser
Receiver / Amplifier	10 MHz bandwidth, 120 dB range, automatic TCG 60 MHz measurement time-base
Data Logging	One-handed automatic logging of stable measurements. Capacity for up to 5000 points including 640 point A-Scan data.
Data Output	RS-485 single pair, half duplex for surface connection
Computer Software	CygLink v4 allows remote logging and viewing of A-Scan graphs. Survey and report generation to PDF file. Graphic analysis of data and statistical calculations. Designed for Windows 7 and Windows 8.

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