Teledyne RD Instruments

Álava Ingenieros
GRUPO ÁLAVA

Workhorse Mariner

1200, 600, 300 kHz ADCP

Convenient Hull-Mounted ADCP for Coastal Vessel Applications

Teledyne RD Instruments' WORKHORSE MARINER Acoustic Doppler Current Profiler (ADCP) has become the instrument of choice for researchers and commercial surveyors working in coastal waters. The Mariner is an accurate, rapid sampling current profiling system designed to operate from a moving boat. The Mariner offers all of the benefits of RDI's traditional Workhorse ADCP products in a compact package designed specifically for coastal hull-mount applications. The unit is easily integrated into the vessel's DGPS input to provide integrated ADCP readings with precise position information.
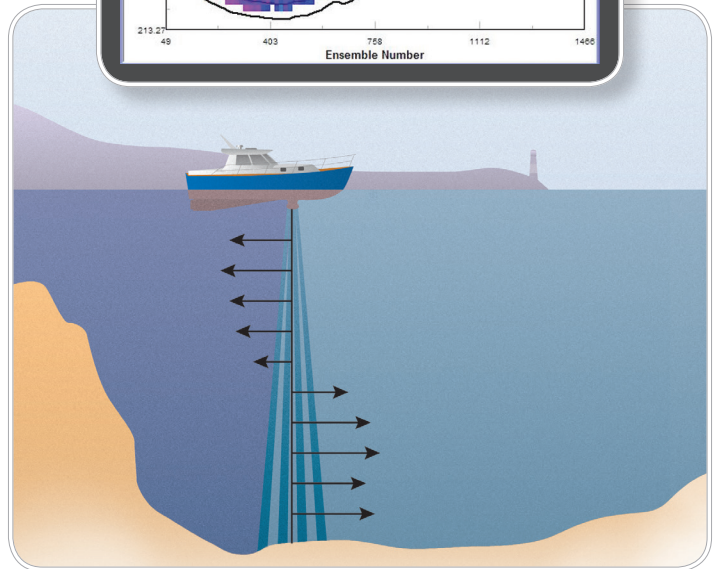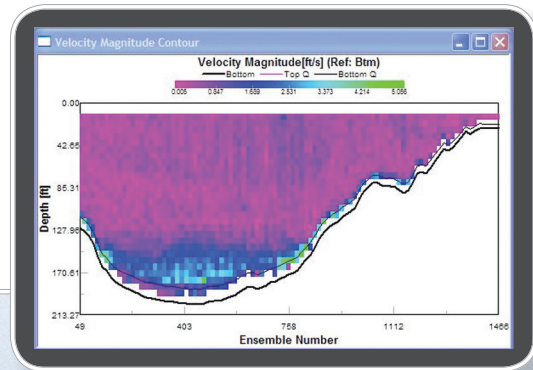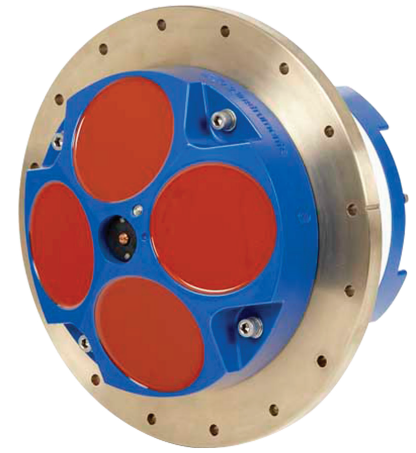
PRODUCT FEATURES

- **Convenience:** By installing the Mariner directly in the vessel's hull, the ADCP is always ready to operate—no need for cumbersome mounting tools and hardware, and the unit is safely protected from external elements.

- **Precision data:** Teledyne RDI's BroadBand signal processing delivers very low-noise data, resulting in unparalleled fine track resolution.

- **A four-beam solution:** Teledyne RDI's 4-beam design improves data reliability by providing a redundant data source in the case of a blocked or damaged beam; improves data quality by delivering an independent measure known as error velocity; and improves data accuracy by reducing variance in your data.

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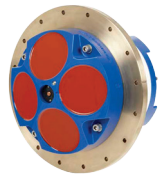
TECHNICAL SPECIFICATIONS

Water Profiling

Depth Cell Size[1]	Typical Range[2] 12m **1200kHz**		Typical Range[2] 50m **600kHz**		Typical Range[2] 110m **300kHz**	
Vertical Resolution	Range[3]	Std. Dev.[4]	Range[3]	Std. Dev.[4]	Range[3]	Std. Dev.[4]
0.25m	11m	14.0cm/s				
0.5m	12m	7.0cm/s	38m	14.0cm/s	see note [1]	
1m	13m	3.6cm/s	42m	7.0cm/s	83m	14.0cm/s
2m	15m[2]	1.8cm/s	46m	3.6cm/s	93m	7.0cm/s
4m	see note [1]		51m[2]	1.8cm/s	103m	3.6cm/s
8m					116m[2]	1.8cm/s

Long Range Mode

2m	19m	3.4m/s				
4m			66m	3.6cm/s		
8m					154m	3.7cm/s

Profile Parameters

Velocity Accuracy	0.3% of water velocity relative to ADCP ±0.3cm/s	0.3% of water velocity relative to ADCP ±0.3cm/s	0.5% of water velocity relative to ADCP ±0.5cm/s
Velocity resolution	0.1cm/s	0.1cm/s	0.1cm/s
Velocity range	±5m/s default, ±20m/s max	±5m/s default, ±20m/s max	±5m/s default, ±20m/s max
Number of depth cells	1–255	1–255	1–255
Ping rate	2Hz (typical)	2Hz (typical)	2Hz (typical)

Bottom Track Parameters

Max. Altitude (m)	27	99	253
Min. Altitude (m)	0.8	1.4	2.0
Range Accuracy = ±2% actual range[5]			

Echo Intensity Profile

Vertical resolution	Depth cell size, user configurable
Dynamic range	80dB
Precision	±1.5dB

Transducer and Hardware

Beam angle	20°
Configuration	4-beam, convex
Tilt sensor range	15°
Transducer face material	Polyurethane
Depth rating	200m standard
Internal memory	Card not included
Communications	Output format is RS-232, ASCII or binary output at 1200–115,200 baud

Environmental

Operating temperature	-5° to 45°C
Storage temperature (without batteries)	-30° to 60°C
Weight in air	10.7kg
Weight in water	8.1kg

Software

TRDI's Windows™-based software included: **VMDAS**—Vessel Mount Data Acquisition System; **WinADCP**—Data Display and Export

Power

External DC input	20–50VDC
Teledyne RDI Deck Box input	90–250VAC or 12–50VDC
Teledyne RDI Deck Box output	48VDC

Standard Sensors

Temperature (mounted on transducer)	Range -5° to 45°C, Precision ±0.4°C, Resolution 0.01°
Tilt	Range ±15°, Accuracy ±0.5°, Precision ±0.5°, Resolution 0.01°
Compass (fluxgate type, includes built-in field calibration feature)	Accuracy ±2°[6], Precision ±0.5°[6], Resolution 0.01°, Maximum tilt ±15°

Available Options

• Gyro Interface • Pressure Sensor • High-Resolution Water Profiling Modes • **Velocity** for advanced post processing

Dimensions

311.1mm wide x 217.4mm long *(line drawings available upon request)*

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1 User's choice of depth cell size is not limited to the typical values specified. 2 Longer ranges available. 3 Profiling range based on temperature values at 5°C and 20°C, salinity = 35ppt.
4 BroadBand mode single-ping standard deviation (Std. Dev.). 5 Excludes errors introduced by changes in speed of sound profile, by tilting of transducer, and by slope of bottom.
6 <±1.0° is commonly achieved after calibration.

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