



Workhorse Mariner

1200, 600, 300, 150 kHz ADCP

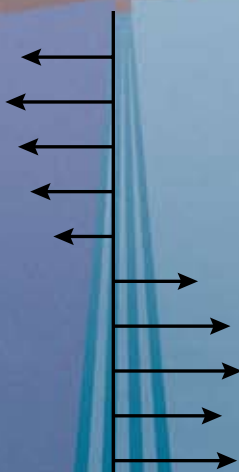
Convenient Hull-mounted ADCP for Coastal Vessel Applications

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 offers all of the benefits of Teledyne RDI's traditional ADCP products in a compact package designed specifically for coastal hull-mount applications.



The Workhorse Mariner offers:

- *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 patented Broadband signal processing delivers very low-noise data, resulting in unparalleled fine track resolution.
- *A four-beam solution:* Teledyne RDI's patented 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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MEASURING WATER MOTION AND MOTION IN WATER

Workhorse Mariner

1200, 600, 300, 150 kHz ADCP



Technical Specifications

Water Profiling								
Depth Cell Size ¹	Typical Range 12m ² 1200kHz		Typical Range 50m ² 600kHz		Typical Range 110m ² 300kHz		Typical Range 275m ² 150kHz	
Vertical Resolution (m)	Range ³ (m)	Std. Dev. ⁴ (cm/s)	Range ³ (m)	Std. Dev. ⁴ (cm/s)	Range ³ (m)	Std. Dev. ⁴ (cm/s)	Range ³ (m)	Std. Dev. ⁴ (cm/s)
0.25	11–14	12.9						
0.5	13–16	6.1	39	12.9	see note ¹			
1	14–18	3.0	43	6.1	92–71	12.8		
2	15–20 ²	2.0	47	3.0	102–78	6.1		
4	see note ¹		52 ²	2.0	113–86	3.0	275	14.0
8					126–95 ²	2.0	300	7.0

¹User's choice of depth cell size is not limited to the typical values specified.

²Longer ranges available.

³Profiling range based on temperature values at 5°C and 20°C, salinity = 35ppt.

⁴BroadBand mode single-ping standard deviation (Std. Dev.).

Long Range Mode

	Range (m)	Depth Cell Size (m)	Std. Dev. (cm/s)
1200kHz	20	2	3.8
600kHz	70	4	4.2
300kHz	165	8	4.2
150kHz	323.6	16	4.2

Profile Parameters

Velocity accuracy:

- **1200, 600:** 0.3% of the water velocity relative to the ADCP ± 0.3 cm/s
- **300:** 0.5% of the water velocity relative to the ADCP ± 0.5 cm/s
- **150:** 1% of the water velocity relative to the ADCP ± 0.5 cm/s

Velocity resolution: 0.1cm/s

Velocity range: ± 5 m/s (default)
 ± 20 m/s (maximum)

Number of depth cells: 1–128

Ping rate: 2Hz (typical)

Echo Intensity Profile

Vertical resolution: Depth cell size

Dynamic range: 80dB

Precision: ± 1.5 dB

Bottom Track Parameters

The Workhorse Mariner ADCP includes bottom-tracking capability to measure the ADCP speed and direction over ground.

System Freq.	1200	600	300	150
Max. Alt. (m)	30	100	260	500
Min. Alt. (m)	0.8	1.4	2.0	2.6

Range Accuracy = $\pm 2\%$ actual range*

* Excludes errors introduced by changes in speed of sound profile, by tilting of transducer, and by slope of bottom.

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 1200–115,400 baud.

Environmental

Operating temperature: -5° to 45°C

Storage temperature*: -30° to 60°C

Weight in air: 9.1kg

Weight in water: 2.7kg

* Without batteries

Software

Teledyne RDI'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 ° ⁵

Precision: ± 0.5 ° ⁵

Resolution: 0.01°

Maximum tilt: ± 15 °

⁵ $\leq \pm 1.0$ ° is commonly achieved after calibration

Available Options

- Gyro interface

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Specifications subject to change without notice.

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