

Teledyne RD Instruments  
Acoustic Doppler Products

**WORKHORSE  
MARINER**

MARINE MEASUREMENTS

NAVIGATION

WATER RESOURCES

# Workhorse Mariner

1200, 600, 300 kHz ADCP

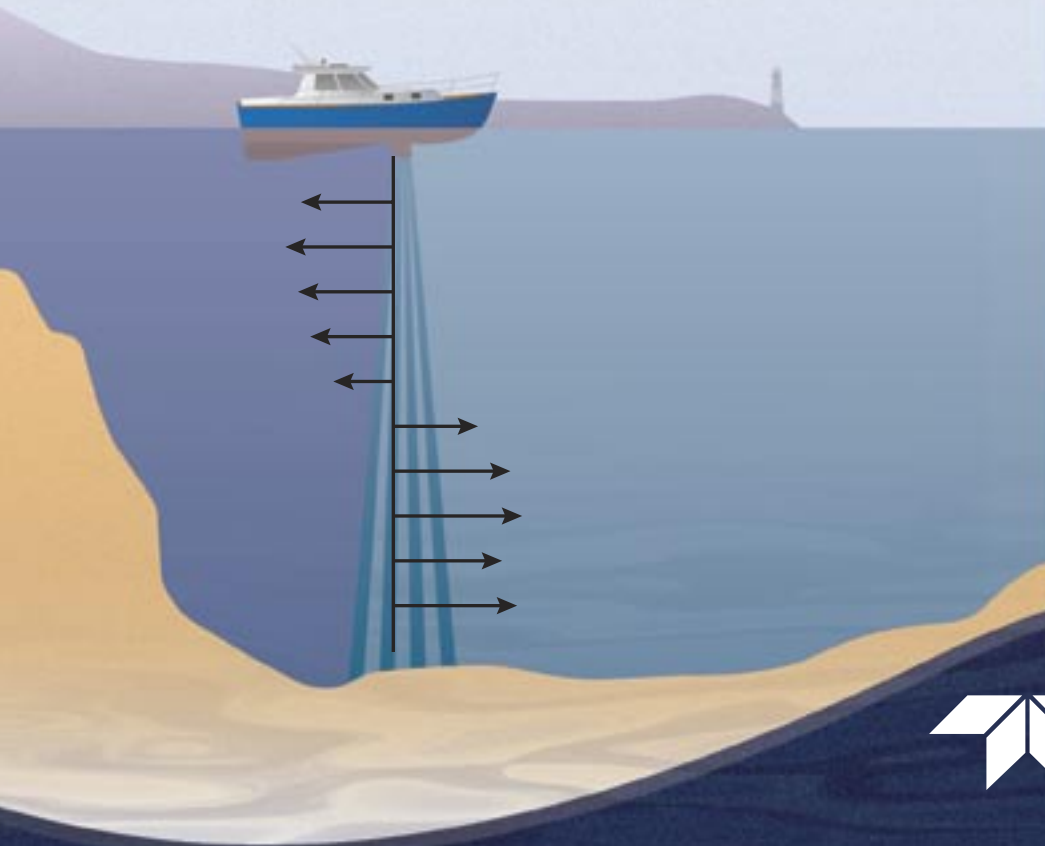
## Convenient hull-mounted ADCP for coastal vessel applications

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 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 IN MOTION AND MOTION IN WATER

# Workhorse Mariner

1200, 600, 300 KHZ ADCP



## Technical Specifications

### Water Profiling

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

<sup>1</sup>User's choice of depth cell size is not limited to the typical values specified; <sup>2</sup>Longer ranges available; <sup>3</sup>Profiling range based on temperature values at 5°C and 20°C, salinity = 35ppt; <sup>4</sup>BroadBand 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

## Profile Parameters

### Velocity accuracy:

- **1200, 600:** 0.3% of the water velocity relative to the ADCP  $\pm 0.3$ cm/s
- **300:** 0.5% of the water velocity relative to the ADCP  $\pm 0.5$ cm/s

Velocity resolution: 0.1cm/s

Velocity range:  $\pm 5$ m/s (default)  
 $\pm 20$ 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:  $\pm 1.5$ dB

## Bottom Track Parameters

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

System Frequency	1200	600	300
Max. Altitude (m)	30	100	260
Min. Altitude (m)	0.8	1.4	2.0
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:  $\pm 0.4$ °C

Resolution: 0.01°

Tilt: Range:  $\pm 15$ °  
Accuracy:  $\pm 0.5$ °  
Precision:  $\pm 0.5$ °  
Resolution: 0.01°

Compass (fluxgate type, includes built-in field calibration feature):

Accuracy:  $\pm 2$ °<sup>5</sup>

Precision:  $\pm 0.5$ °<sup>5</sup>

Resolution: 0.01°

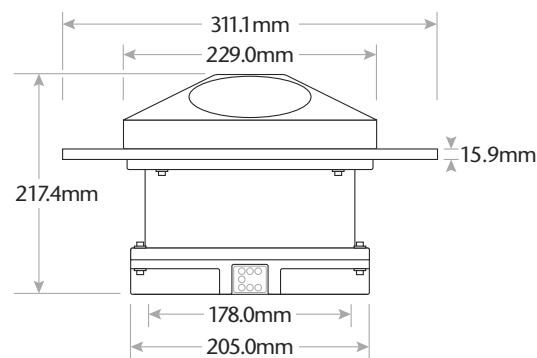
Maximum tilt:  $\pm 15$ °

<sup>5</sup>  $\leq \pm 1.0$ ° is commonly achieved after calibration

## Upgrade Available

- Gyro interface

## Dimensions



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[www.rdinstruments.com](http://www.rdinstruments.com)

## Teledyne RD Instruments

9855 Businesspark Avenue, San Diego, CA 92131 USA

Tel. +1-858-693-1178 • Fax +1-858-695-1459 • E-mail: [sales@rdinstruments.com](mailto:sales@rdinstruments.com)

Les Nertieres 5 Avenue Hector Pintus 06610 La Gaude France

Tel. +33-49-211-0930 • Fax +33-49-211-0931 • E-mail: [rdi@rdieurope.com](mailto:rdi@rdieurope.com)

