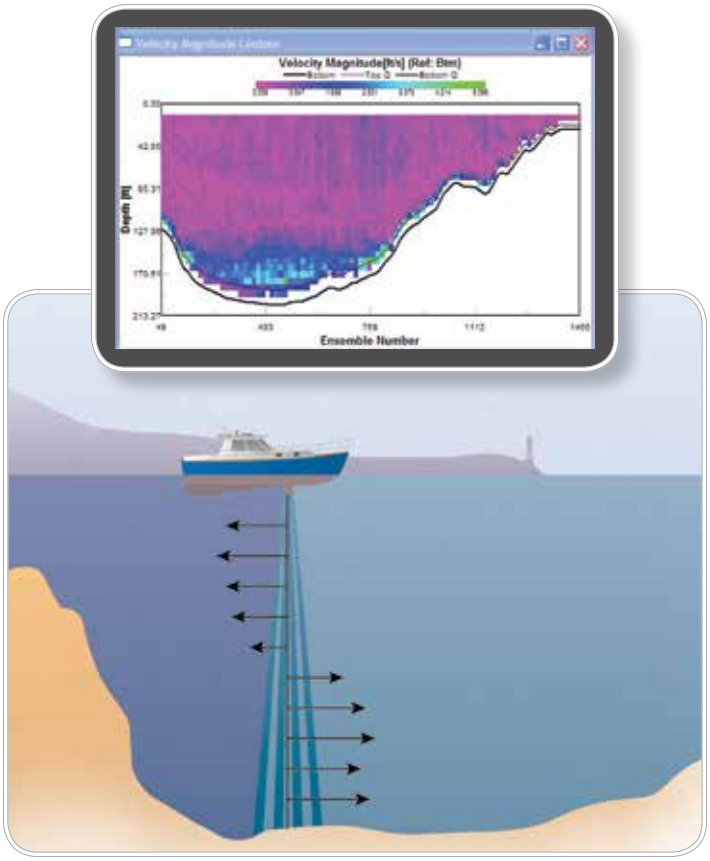
Teledyne RD Instruments

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 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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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	11–15m	12.9cm/s				
	0.5m	12–16m	6.1cm/s	38-52m	12.9cm/s	see note [1]	
	1m	14–17m	3.0cm/s	42-56m	6.1cm/s	83-117m	12.8cm/s
	2m	15–19m[2]	2.0cm/s	46-61m	3.0cm/s	93-128m	6.1cm/s
	4m	see note [1]		52-67m[2]	2.0cm/s	104-141m	3.0cm/s
	8m					116-154m[2]	2.0cm/s
Long Range Mode	2m	20m	3.8m/s				
	4m			70m	4.2cm/s		
	8m					165m	4.2cm/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	1–128		1–128		1–128	
	Ping rate	2Hz (typical)		2Hz (typical)		2Hz (typical)	
Bottom Track Parameters	Max. Altitude (m)	30		100		260	
	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 1200–115,400 baud					
Environmental	Operating temperature	-5° to 45°C					
	Storage temperature (without batteries)	-30° to 60°C					
	Weight in air	9.1kg					
	Weight in water	2.7kg					
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	Temperatures (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						
Dimensions	310.0mm wide x 207.0mm long *(line drawings available upon request)*						

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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