

Workhorse Quartermaster

150 kHz ADCP

Versatile Precision

Teledyne RD Instruments **Workhorse Quartermaster** Acoustic Doppler Current Profiler (ADCP) has been designed to fill the gap between Teledyne RDI's higher frequency 300 kHz Workhorse units and the 75 kHz Long Ranger. The Quartermaster is ideally suited for current profile measurements that may require up to 300m range. Additionally, the Quartermaster can be upgraded with the Teledyne RDI Bottom Track option for use on a moving vessel. The 150 boasts an unsurpassed combination of range, resolution, and versatility, thanks to Teledyne RDI's patented Broadband technology.

The highly flexible Workhorse Quartermaster is available in three product configurations: self-contained (Sentinel), direct-reading (Monitor), and vessel-mounted (Mariner). The Quartermaster is ideally suited for:

- Ocean observatories
- Shelf-edge profiling
- Upper ocean dynamics

Third-party solutions

Collect data at your desk: the Quartermaster can operate in real-time or stored-data mode. Third-party products are available for delivery of data via an acoustic modem and radio data transfer direct to your desktop.



Versatility. *The Workhorse Quartermaster can be configured to meet your deployment requirements. Self-contained, real-time, stationary or moving, the Quartermaster is the solution.*

Precision data. *Teledyne RDI's Broadband signal processing produces high-resolution, precise measurements without compromising battery life.*

Reliability. *Set it and forget it; the highly reliable and energy-efficient Quartermaster can be deployed for three, six, or even twelve months of worry-free operation.*

4-beam solution. *Teledyne RDI's 4-beam design provides a redundant data source in case of a blocked or damaged beam, as well as an independent measure known as error velocity to ensure the quality of the data.*



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MEASURING WATER IN MOTION AND MOTION IN WATER

Workhorse Quartermaster

150 kHz ADCP



Technical Specifications

Mode	Depth Cell Size	Std. Dev. ¹ (cm/s)	First Cell Range ² (m)	Maximum Range ^{4,5,6} (m)
High Resolution	4	7.0	8.9	200
	8	3.5	12.8	235
	16	2.0	20.6	255
	24	1.0	28.4	270
Long Range	4	14.0	8.8	275
	8	7.0	12.7	300
	16	3.6	20.5	325
	24	2.5	28.7	340
Bottom Track	N/A	N/A	N/A	480

¹ Standard deviation is ADCP uncertainty given a single ping.

² The first cell range is the distance from the transducer to the center of the first cell.

³ The minimum depth assumes one good depth cell.

⁴ Maximum range is a nominal value based on 5°C, 35ppt, and typical ocean backscatter; actual range will vary depending on environmental conditions.

⁵ Assuming the ADCP is pointed vertically (0° tilt), the maximum range is limited to 94% of the distance to the surface.

⁶ Assumes a power supply of 32VDC (typical average battery voltage).

Profile Parameters

Velocity accuracy: ± 1% ± 5mm/s

Velocity resolution: 1mm/s

Velocity range: ± 5m/s default
± 10m/s max

Depth cell size: 2–24m

Number of depth cells: 1–255

Ping rate: 1Hz (typical)

Echo Intensity Profile

Vertical resolution: depth cell size

Dynamic range: 70dB

Precision: ± 1.5dB

Transducer and Hardware

Beam angle: 20°

Beam width: 4°

Configuration: 4-beam, convex

Internal memory: Two PCMCIA card slots; one memory card included

Communications: RS-232 or RS-422; ASCII or binary output at 1200–115,400 baud.

Data Communications

Interface: RS-232 (default) or RS-422

Baud rate: 300 to 115,200 (9600 default)

Input data format: ASCII commands

Output data format: Binary or ASCII

Standard Sensors

Pressure Sensor: 2000m

Pressure Accuracy: ±5m

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°⁷

Precision: ±0.5°

Resolution: 0.01°

Maximum tilt: ±15°

⁷ <±1.0° is commonly achieved after calibration

Power

DC input: 20–50VDC. Standard configuration includes 2 alkaline batteries. (Select from 0, 2, or 4 battery configuration.)

Voltage: 42VDC (new) 28VDC (depleted)

Capacity Each pack @ 0°C: 450 watt hrs

Environmental

Depth rating:

1500m (3000/6000m optional)

Operating temperature: -5° to 45°C

Storage temperature

without batteries: -30° to 60°C

Weight in air:

SC (2 BP) 56kg, SC (4 BP) 70kg,

DR (0 BP) 41kg, ExtBC (4 BP) 39kg

Weight in water:

SC (2 BP) 29.9kg, SC (4 BP) 37.7kg,

DR (0 BP) 22kg, ExtBC (4 BP) 15.3kg

Software

Use Teledyne RDI's Windows™-based software for the best results:

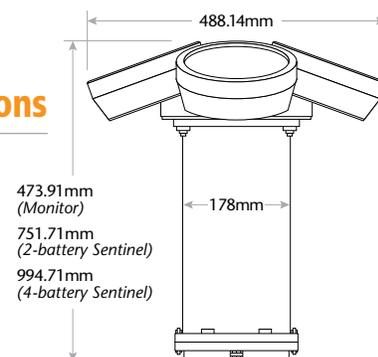
- WinSC—Data Acquisition
- WinADCP—Data Display and Export
- Teledyne RDI Tools—Utilities

Note: Teledyne RDI software and standard updates are included free of charge

Available Options

- 3000m and 6000m depth option
- External battery case
- Mooring accessories: in-line and bottom-mount accessories
- Remote head configurations
- Memory: 2 PCMCIA slots, total 4GB
- Bottom track or surface reference track

Dimensions



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www.rdinstruments.com



Free 24/7 emergency support

Teledyne RD Instruments

14020 Stowe Drive, Poway, CA 92064 USA

Tel. +1-858-842-2600 • Fax +1-858-842-2822 • E-mail: rdisales@teledyne.com

Les Nertieres 5 Avenue Hector Pintus 06610 La Gaude France

Tel. +33-49-211-0930 • Fax +33-49-211-0931 • E-mail: rdie@teledyne.com

Specifications subject to change without notice. ISO 9001:2008 certification applicable to Poway, CA facility only.
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