Teledyne RDI's WORKHORSE WAVES ARRAY is an innovative, cost-effective upgrade that allows you to take your Teledyne RDI ADCP to the next level. Via a simple upgrade, you can capture not only the industry's most field-proven and dependable Broadband current profiling data, but highly accurate multi-directional wave measurements as well.

Teledyne RDI's Workhorse ADCP has long been viewed as the industry's most versatile ADCP. With a single instrument you can collect precision ADCP data from the seafloor, the surface, or even a moving vessel. And now, for the fraction of the cost of a stand-alone waves measurement tool, you can add highly robust multi-directional waves measurement capability to your instrument's repertoire.

Why limit yourself to a single measurement, or settle for inferior measurements, when Teledyne RDI's Waves Array allows you to have it all—at a price that meets your budget.

**PRODUCT FEATURES**

- **More than a basic wave gauge.** Waves Array not only measures the complete frequency/direction wave spectrum, it provides you with the most reliable and field proven ADCP data available.
- **Better than a directional buoy.** This ADCP distinguishes waves from multiple directions with high resolution. Ocean floor deployment reduces the risk of loss or damage.
- **More powerful than a single-purpose instrument.** Waves Array allows your existing ADCP to measure multi-directional wave spectra, current velocity profiles, and water level—all at the same time.
- **Waves data when and where you need it.** Store your data in our stand-alone configuration, or transmit it directly to the surface utilizing our optional NEMO Waved Data Processing Module.
- **Available as an option to your new ADCP, or as an upgrade to your existing Workhorse or Horizontal ADCP.**
## TECHNICAL SPECIFICATIONS

### Measurement Technique
- Derivation of directional distribution
- Array processing
- Remotely measured near surface
- Number of independent sensors: 12
- Array aperture: \( \sim 0.7 \times \) depth
- Acoustic sensor signal processing: Broadband
- Simultaneous sampling of wave burst + standard current profile: Yes

### Calculated Wave Parameters
- Primary data source: Near-surface velocity sensors
- Redundant data sources: Pressure sensor and “surface track” derived parameters for data QA
- Height, Period, Direction, Custom parameters:
  - \( H_s, T_p, D_p \)
  - \( H_{\text{swell}}, T_{\text{swell}}, D_{\text{swell}} \)

### Minimum Wave Period Measured
- Deployment Depth: 5m, 20m, 80m
- Surface Track High-Freq. Cutoff: 1.0s, 1.0s, 1.0s
- Non-Directional High-Freq. Cutoff: 2.2s, 4.4s
- Directional High-Freq. Cutoff: 1.7s, 4.4s

### Recommended Deployment Depths
- ADCP Frequency: 1200kHz, 600kHz, 300kHz
- Depth: 2.5–14m, 5–45m, 10–80m

### Raw Sensor Data
- All sensors are sampled at a 2Hz rate default. Sample rates of up to 4Hz are possible with a specialized setup with a 1200 kHz.
- Velocity:
  - 1200kHz accuracy: ±0.3% ±0.3cm/s
  - 600kHz accuracy: ±0.3% ±0.3cm/s
  - 300kHz accuracy: ±0.5% ±0.5cm/s
- Precision: See Workhorse ADCP brochure
- Surface track range:
  - Accuracy: 1.0% of full scale
  - Precision: ADCP bin size/3.5
- Pressure:
  - Accuracy: 0.25% of full scale
  - Precision: 1/40,000 of full scale
- Compass:
  - Accuracy: \( \pm 1^\circ \)
  - Precision: \( \pm 0.5^\circ \)

### Installation
- Cable power/communications:
  - Provides unlimited duration for real-time data.
- Battery power:
  - For remote locations, power for 90 days or more available. Optional external pack available.

### Software
- Planning software:
  - Self-contained or real-time deployment set up with waves, current profiles, or both.
- Monitoring software:
  - Data acquisition and processing.
- Viewing software:
  - Zoom, animate, average. Export to bmp, png, or text files.

### Available Options
- New ADCPs can be ordered with the Waves Array option, or you can upgrade your existing ADCP to include this capability.
- See the Workhorse NEMO datasheet for real-time waves processing capability.

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1. Acoustic surface track is only reliable in non-“whitecapping” conditions.
2. Assumes bottom-mounted ADCP, near-surface deployment on top of a current meter mooring is possible.
3. \( \pm 1^\circ \) is commonly achieved after field calibration.

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