Teledyne RD Instruments

Workhorse Monitor
Direct Reading 1200, 600, 300 kHz ADCP

Real-Time Current Monitoring

The MONITOR is Teledyne RD Instruments’ most popular direct-reading Acoustic Doppler Current Profiler (ADCP). The unit is typically bottom frame-mounted and hard-wired to shore to provide real-time monitoring of coastal currents.

The Monitor’s high data accuracy and reliability make it a favorite for deployments in high-volume traffic areas such as ports and harbors, where the data is often integrated into a Vessel Traffic Monitoring System. In fact, the Monitor has been selected for most major port programs undertaken in the United States.

The Monitor offers a choice of three frequencies and ranges, to meet a wide array of data requirements. The unit also offers a flexible upgrade path, which includes an external battery pack, pressure sensor, bottom tracking capability for moving boat applications, and directional wave measurement.

PRODUCT FEATURES

- **Extreme accuracy and reliability:** The Monitor is ideally suited for the most demanding environments, including high traffic areas such as ports and harbors.

- **Versatility:** This direct reading unit can easily be upgraded to tackle a wide variety of coastal applications. Typical upgrades include pressure sensor, external battery pack, bottom tracking, and directional wave measurement—a single instrument can do it all!

- **Precision data:** Teledyne RDI’s Broadband signal processing delivers very low-noise data, resulting in unparalleled data resolution and minimal power consumption.

- **A four-beam solution:** Teledyne RDI’s 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.
## TECHNICAL SPECIFICATIONS

### Water Profiling

<table>
<thead>
<tr>
<th>Depth Cell Size¹</th>
<th>Typical Range² Depth Cell Size³</th>
<th>Typical Range³ Velocity Accuracy</th>
<th>Typical Range³ Velocity Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12m</td>
<td>50m</td>
<td>110m</td>
</tr>
<tr>
<td></td>
<td>1200kHz</td>
<td>600kHz</td>
<td>300kHz</td>
</tr>
<tr>
<td>0.25m</td>
<td>0.5m</td>
<td>1m</td>
<td>2m</td>
</tr>
<tr>
<td>0.5m</td>
<td>1m</td>
<td>2m</td>
<td>4m</td>
</tr>
<tr>
<td>1m</td>
<td>2m</td>
<td>4m</td>
<td>8m</td>
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<tr>
<td>2m</td>
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<tr>
<td>4m</td>
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<td></td>
</tr>
<tr>
<td>8m</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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**
- 1–255
- 1–255
- 1–255

**Ping rate**
- 2Hz (typical)
- 2Hz (typical)
- 2Hz (typical)

**Echo Intensity Profile**
- Vertical resolution: Depth cell size, user configurable
- Dynamic range: 80dB
- Precision: ±1.5dB

### Long Range Mode

<table>
<thead>
<tr>
<th>Depth Cell Size¹</th>
<th>Range³</th>
<th>Depth Cell Size³</th>
<th>Range³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1m</td>
<td>1.8cm/s</td>
<td>3.6cm/s</td>
</tr>
<tr>
<td></td>
<td>2m</td>
<td>1.8cm/s</td>
<td>3.6cm/s</td>
</tr>
<tr>
<td></td>
<td>4m</td>
<td>1.8cm/s</td>
<td>3.6cm/s</td>
</tr>
<tr>
<td></td>
<td>8m</td>
<td>1.8cm/s</td>
<td>3.6cm/s</td>
</tr>
</tbody>
</table>

### 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**
- 1–255
- 1–255
- 1–255

**Ping rate**
- 2Hz (typical)
- 2Hz (typical)
- 2Hz (typical)

### Transducer and Hardware

**Beam angle**
- 20°
- 4-beam, convex

**Configuration**
- Two PCMCIA card slots; no memory card included

**Internal memory**
- Serial port selectable by switch for RS-232 or RS-422. ASCII or binary output at 1200-115,200 baud

### Environmental

**Standard depth rating**
- 200m; optional to 500m, 1000m, 6000m

**Operating temperature**
- -5° to 45°C
- -30° to 60°C

**Storage temperature (without batteries)**
- 70kg
- 3.0kg

### Software

**TRDI's Windows-based software included:**
- **WinSC** — Data Acquisition System
- **WinADCP** — Data Display and Export

### Power

**Input Power**
- 20–50VDC

### 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 ±2m, Precision ±0.5m, Resolution 0.01°, Maximum tilt ±15°

### Available Options

- Memory: 2 PCMCIA slots; total 4GB
- Pressure sensor
- External battery case
- High-resolution water-profiling modes
- Bottom tracking
- AC/DC power converter, 48VDC output
- Conversion kit for internal power supply and memory
- Directional Waves Array
- **Velocity** — Data Display, Processing, and Export software

### Dimensions

- 228.0mm wide x 201.5mm long (line drawings available upon request)

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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. <±1.0° is commonly achieved after calibration.

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