

Teledyne RD Instruments

# Workhorse Long Ranger

75 kHz ADCP

## The Name Says It All

Long-range, long-term, and reliable, the LONG RANGER is the best choice for gathering detailed data on seasonal and annual current structure fluctuations for scientific research and offshore oil and gas applications. Hundreds of Long Ranger units are currently deployed on:

- environmental monitoring buoys
- offshore oil rigs
- polar research moorings

The highly flexible Long Ranger unit is available in three product configurations: self-contained, direct reading, or remote-head—depending on your application requirements.

### Third-party solutions

Collect data at your desk: the Long Ranger is designed to operate in real-time data mode. Third-party products are available for acoustic and radio data transfer direct to your location.

### Programmable modes for deployment flexibility

| Mode           | High Power | Low Power |
|----------------|------------|-----------|
| Long range     | 600m       | 434m      |
| High precision | 503m       | 267m      |

Source: Plan ADCP 2.06



## PRODUCT FEATURES

- **Extended range:** As the name implies, the Long Ranger provides the longest proven profiling range (600m) available from a self-contained ADCP.
- **Precision data:** Broadband signal processing produces precise measurements, allowing for frequent sampling with extended battery life.
- **Proven reliability:** The Long Ranger inherits the Workhorse family of electronics, which have been proven in thousands of field applications.
- **Extended deployment life:** Set it and forget it. The Long Ranger can handle three, six or twelve month long deployments, from frigid polar waters to the balmy tropics.

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## TECHNICAL SPECIFICATIONS

| Mode (maximum power)             | Depth Cell Size | Std Dev. <sup>1</sup> | Range <sup>2,3,4</sup> |
|----------------------------------|-----------------|-----------------------|------------------------|
| High Resolution (wide bandwidth) | 4m              | 15.0cm/s              | 432m                   |
|                                  | 8m              | 7.6cm/s               | 465m                   |
|                                  | 16m             | 3.9cm/s               | 503m                   |
|                                  | 32m             | 2.0cm/s               | 545m                   |
| Long Range (narrow bandwidth)    | 4m              | 29.0cm/s              | 525m                   |
|                                  | 8m              | 14.6cm/s              | 560m                   |
|                                  | 16m             | 7.6cm/s               | 600m                   |
|                                  | 32m             | 3.9cm/s               | 644m                   |

Source: Plan ADCP 2.06

|  |   |  |
|--|---|--|
| <b>Profile Parameters</b><br>(not designed for moving vessels) | Velocity accuracy   | ± 1% ± 5mm/s   |
|  | Velocity resolution   | 1mm/s  |
|  | Velocity range  | ± 5m/s default, ± 10m/s max  |
|  | Depth cell size   | 4–32m  |
|  | Number of depth cells   | 1–128  |
|  | Ping rate   | 1Hz (typical)  |
| <b>Echo Intensity Profile</b>                                  | Vertical resolution   | Depth cell size, user configurable   |
|  | Dynamic range   | 80dB   |
|  | Precision   | ±1.5dB (relative measure)  |
| <b>Transducer and Hardware</b>                                 | 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 1200-115,200 baud                                  |
| <b>Power</b>   | DC input  | 20–50VDC   |
|  | Number of batteries   | 4 internal alkaline battery packs  |
|  | Internal battery voltage  | 42V DC(new) 28VDC (depleted)   |
|  | Battery capacity @0°C   | 450 watt hours each / 1800 watt hours total  |
| <b>Standard Sensors</b>  | Pressure Sensor   | Maximum range 2000m, Accuracy 0.25% of full scale  |
|  | Temperature (mounted on transducer)   | Range -5° to 45°C, Precision ±0.4°C, Resolution 0.01°  |
|  | Tilt  | Range ±50°, Accuracy ±0.5°, Precision ±1.0°, Resolution 0.01°                                  |
|  | Compass (fluxgate type, includes built-in field calibration feature)  | Accuracy ±2° <sup>5</sup> , Precision ±0.5° <sup>5</sup> , Resolution 0.01°, Maximum tilt ±15° |
| <b>Environmental</b>   | Standard depth rating   | 1500m (3000m optional)   |
|  | Operating temperature   | -5° to 45°C  |
|  | Storage temperature without batteries   | -30° to 60°C   |
|  | Weight in air   | SC 86kg, DR 58kg, ExtBC 39kg   |
|  | Weight in water   | SC 55kg, DR 36kg, ExtBC 16kg   |
| <b>Software</b>  | Use Teledyne RDI's Windows™-based software for the best results:<br><b>WinSC</b> —Data Acquisition; <b>WinADCP</b> —Data Display and Export; <b>Teledyne RDI Tools</b> —Utilities; <b>Velocity</b>  |  |
| <b>Available Options</b>                                       | <ul style="list-style-type: none"> <li>• 3000M Pressure-Rated Configuration • External Battery Case (Extbc) • Remote Head Configurations</li> <li>• Memory: 2 PCMCIA Slots, Total 4GB • <b>Velocity</b> for advanced post processing</li> </ul> |  |
| <b>Dimensions</b>  | 550mm wide x 1014mm long (self-contained); 550mm wide x 493mm long (direct reading) <i>(line drawings available upon request)</i>   |  |

1 Standard deviation is ADCP uncertainty given a single ping.  
 2 Maximum range is a nominal value based on 5°C, 35ppt, and typical ocean backscatter; actual range will vary depending on environmental conditions.  
 3 Assuming the ADCP is pointed vertically (0° tilt), the maximum range is limited to 94% of the distance to the surface.  
 4 Assumes a power supply of 32VDC (typical average battery voltage).  
 5 <±1.0° is commonly achieved after calibration.