

# Workhorse Rio Grande ADCP

HIGHLY ACCURATE RIVER DISCHARGE MEASUREMENT TOOL

## Versatile River Discharge Measurement System

The **Workhorse Rio Grande ADCP** (Acoustic Doppler Current Profiler) is an accurate, rapid-sampling current profiling system designed to operate from a moving boat. The result is the fastest, safest, and most flexible method for measuring discharge.

The Rio Grande can be used for a wide range of river conditions, from shallow 75cm deep streams to rushing rivers and tidal estuaries where no prior discharge data exists.

The advantages will revolutionize the way you collect data, resulting in more productive, diverse, and cost-effective river surveys; reduced lifetime equipment costs; and the highest-quality data sets available.

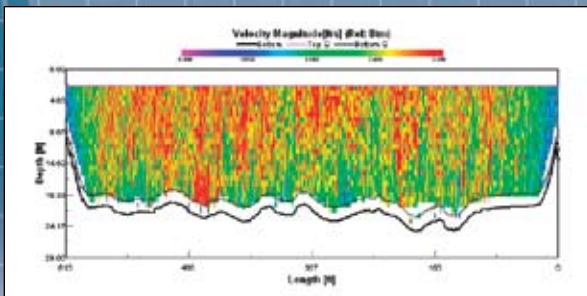


### Rio Grande ADCP Highlights:

- Teledyne RDI patented *BroadBand* technology that allows small depth cells and fast transects for velocity and discharge measurements
- Fast, accurate, and repeatable discharge measurement
- Integration capability with external sensors: GPS, depth sounder, and external compass through Windows software (*WinRiver*)
- Low flow or weak current measurement capability with high-precision modes (equipped as standard)
- Large depth range profiling capability that allows one unit to be used in both dry season (shallow and low flow) and flood season (high stage and strong flow) for the same site
- Windows-based data acquisition and playback software with standard discharge summary table



Teledyne RDI's Rio Grande ADCP allows you to collect real-time discharge measurements from any moving platform—from small tethered boats to inland survey vessels.



Sample data using WinRiver software.



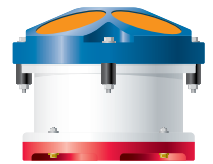
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MEASURING WATER IN MOTION AND MOTION IN WATER

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## Technical Specifications

### Standard Mode Water Profiling

| 1200kHz ZedHed | Bin Size (m) | Std. Dev. (cm/s) <sup>1</sup> | Min. Range (m) <sup>2</sup> | Typical Range (m) <sup>2</sup> |
|----------------|--------------|-------------------------------|-----------------------------|--------------------------------|
|                | 0.25         | 14.0                          | 1.2                         | 20                             |
|                | 0.5          | 7.0                           | 1.7                         | 22                             |
|                | 1.0          | 3.5                           | 2.7                         | 24                             |
|                | 2.0          | 1.8                           | 4.8                         | 26                             |
| 600kHz         | Bin Size (m) | Std. Dev. (cm/s) <sup>1</sup> | Min. Range (m) <sup>2</sup> | Typical Range (m) <sup>2</sup> |
|                | 0.5          | 14.0                          | 1.8                         | 70                             |
|                | 1.0          | 7.0                           | 2.9                         | 80                             |
|                | 2.0          | 3.4                           | 5                           | 90                             |
|                | 4.0          | 1.9                           | 9.2                         | 100                            |

### Special Features

Rio Grande comes complete with high-resolution modes used in special river conditions

#### 1200kHz ZedHed: shallow water, slow flow mode (Mode 11)

| Bin Size (m) | Std. Dev. (cm/s) <sup>1</sup> | Min. Range (m) <sup>2</sup> | Max. Range (m) <sup>2</sup> |
|--------------|-------------------------------|-----------------------------|-----------------------------|
| 0.05         | 1.0                           | 0.3                         | 4                           |
| 0.1          | 0.7                           | 0.5                         | 4                           |
| 0.25         | 0.4                           | 1                           | 4                           |

#### 600kHz: shallow water, slow flow mode (Mode 11)

| Bin Size (m) | Std. Dev. (cm/s) <sup>1</sup> | Min. Range (m) <sup>2</sup> | Max. Range (m) <sup>2</sup> |
|--------------|-------------------------------|-----------------------------|-----------------------------|
| 0.1          | 0.8                           | 0.7                         | 8                           |
| 0.25         | 0.5                           | 1                           | 8                           |
| 0.5          | 0.4                           | 1.6                         | 8                           |

#### Bottom tracking (included)

|         | Max. altitude (m) | Min. altitude (m) |
|---------|-------------------|-------------------|
| 1200kHz | 30                | 0.75              |
| 600kHz  | 100               | 0.75              |

<sup>1</sup>Standard deviation for default setup, 15°C, typical sediment load.

<sup>2</sup>Ranges are for fresh water, 15°C, typical sediment load.

## Standard Software

RDI's Windows™-based WinRiver

## Power

DC input: 10.5–18V DC

## Upgrades Available

- Memory: 2 PCMCIA slots, total 2GB

## New Options Available

- Shallow water bottom tracking from 30cm depth – Bottom Mode 7
- Fast sampling mode: selectable 10Hz, 20Hz, 40Hz – Water Mode 12

## Standard Sensors

**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°<sup>3</sup>

Precision: ±0.5°<sup>3</sup>

Resolution: 0.01°

Maximum tilt: ±15°

<sup>3</sup> @ 60° magnetic dip angle. 0.5G total field

## Transducer and Hardware

**Beam angle:** 20°

**Configuration:** 4-beam, transducer

**Communications:** Serial port selectable by switch for RS-232 or RS-422. ASCII or binary output at 1,200–115,400 baud

**Internal memory:** Optional flash PC card

**Velocity accuracy:** ±0.25% of the (water + boat) velocity ±0.25cm/s

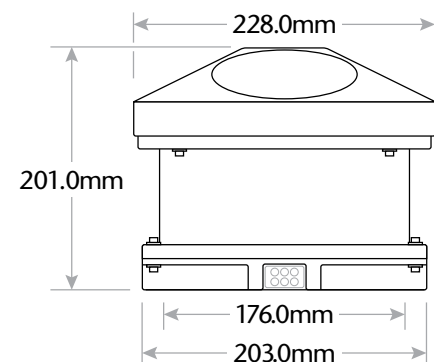
**Velocity resolution:** 0.1cm/s

**Velocity range:** ±5m/s default; ±20m/s maximum

**Number of depth cells:** 1–128

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

## Dimensions



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Specifications subject to change without notice.

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