

Workhorse Rio Grande ADCP

VERSATILE RIVER DISCHARGE MEASUREMENT SYSTEM

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 0.5m 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.

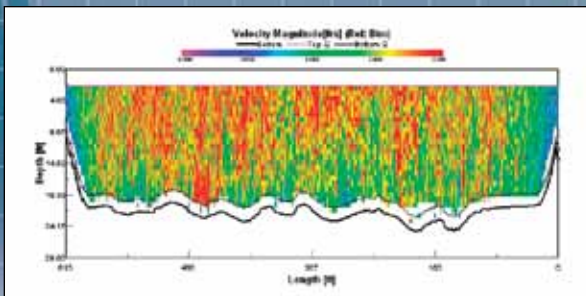


Rio Grande ADCP Highlights:

- Teledyne RDI BroadBand technology that allows small depth cells and fast transects for velocity and discharge measurements and produces accurate and repeatable discharge measurements
- Integration capability with external sensors GPS, depth sounder, an external compass through Windows software (WinRiverII)
- 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
- Comprehensive and multi-language data acquisition and processing 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 of cross-section velocity distribution collected by a Rio Grande ADCP.

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Technical Specifications

Model Name	WHR600	WHRZ1200
System frequency	600kHz	1200kHz
Water Velocity Profiling		
Profiling range	0.7m ^a to 75m ^b	0.3m ^a to 25m ^b
Velocity range	±5m/s default, ±20m/s maximum	
Accuracy	±0.25% of water velocity relative to ADCP, ±2mm/s	
Resolution	1mm/s	1mm/s
Number of cells	1-128	1-128
Cell size	0.1m to 4m	0.05m to 2m
Blanking distance	0.25m	0.05m
Data output rate	1-2Hz (typical)	1-2Hz (typical)
Bottom Tracking		
Velocity range	±9.5m/s	±9.5m/s
Depth range	0.8m to 90m ^b	0.5m to 30m ^b
Accuracy	±0.25% of bottom velocity relative to ADCP, ±2mm/s	
Resolution	1mm/s	1mm/s
Depth Measurement		
Range	0.8m to 90m ^b	0.5m to 30m ^b
Accuracy	±1% ^c ±1cm	±1% ^c ±1cm
Resolution	1mm ^d	1mm ^d

^a Assume one good cell (minimum cell size) with high-precision profiling mode; range measured from transducer surface.

^b Assume fresh water; actual range depends on temperature and suspended solids concentration.

^c Assume uniform water temperature and salinity profile.

^d For averaged depth data.

Standard Sensors

Sensor	Temperature	Tilt (pitch and roll)	Compass (heading)
Range:	-5°C to 40°C	±15°	0-360°
Accuracy:	±0.4°C	±0.5°	±2°
Resolution:	0.01°C	0.01°	0.01°

Operation Modes

Standard profiling mode (Broadband):	Mode 1
High precision profiling mode (included):	Mode 5 and Mode 11
High ping profiling mode (optional):	Mode 12
Shallow water bottom tracking mode (optional):	Bottom tracking Mode 7

Transducer and Hardware

Configuration:

Janus four beams at 20° beam angle

Internal memory:

Optional flash PC card up to 2GB

Software*

- WinRiver II (standard) for moving-boat measurement
- SxS Pro (optional) for stationary measurement; comes with an uncertainty model for in situ quality evaluation and control

* For system setup, data acquisition, discharge calculation, data display, and summary report

Communications

Serial (standard):

RS-232, 1200 to 115,200 baud rate.

Radio modem (optional):

Range >30km (line of sight)

Integration

With GPS, depth sounder, or external gyrocompass: available through RS232 to PC with WinRiver II software.

Power

Input voltage: 10.5–18V DC

Power consumption: 1.5W typical

Float (optional)

Configuration: Three hulls (trimaran)

Material: Polyethylene

Dimensions: Length: 120cm

Width: 80cm

Height: 18cm

Weight: 10kg bare; 17kg with instrument and battery

Environmental

Operating temperature: -5°C to 45°C

Storage temperature: -20°C to 50°C

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