

Teledyne RD Instruments

RiverRay ADCP

Intelligent River Discharge System

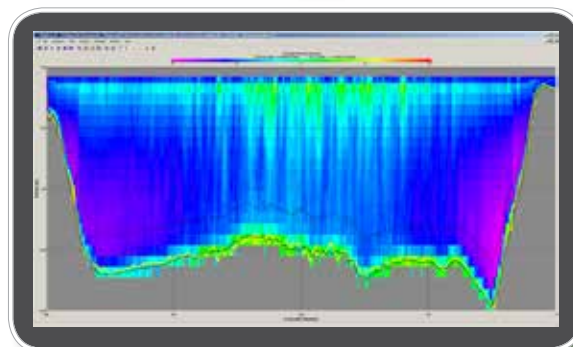
A Revolution in Discharge Measurement

Go straight to work collecting highly accurate stream and river discharge data with the RIVERRAY ADCP (Acoustic Doppler Current Profiler). This economical turnkey system comes complete with: the RiverRay ADCP, a custom-designed boat, user-friendly software, and convenient wireless communication—everything you need to begin making precision river discharge measurements.

With over thirty years experience delivering acoustic Doppler products, Teledyne RDI's RiverRay is the culmination of years of technology advances and invaluable customer feedback.

From a shallow stream to a raging river, the revolutionary RiverRay delivers the simplicity and reliability your operations require, at a price that won't break your budget.

The RiverRay ADCP utilizes a flat surface 4-beam phased-array transducer. A dedicated fifth beam is used to measure depth.



Sample data.



PRODUCT FEATURES

- **Ease of use:** Easy to carry, easy to deploy, and easy to operate; just power and go.
- **Intelligent:** Automatic adaptive sampling based on flow conditions continuously optimizes your discharge measurement from bank to bank, thus ensuring the highest quality data without your intervention.
- **Flat transducer:** The sleek phased array transducer design provides reduced size, weight, and flow disturbance.
- **Versatile:** A single instrument can deliver high quality data in environments ranging from a 0.4 m stream to a 60 m deep river.
- **Superior surface measurements:** Interwoven independent and short range measurements improve the discharge computation in your critical surface layer.
- **Platform stability:** RiverRay's float boasts reduced drag, causes less flow disturbance, and provides superior handling—even in high water velocities and rough surface.
- **No cables required:** Data is wirelessly transmitted to your shore station via Bluetooth™ technology.
- **DGPS compatible:** Integrate an external DGPS for difficult conditions, such as moving beds.



RiverRay ADCP

Intelligent River Discharge Measurement



TECHNICAL SPECIFICATIONS

Water Velocity Profiling	Operation mode	Broadband / pulse-coherent; automatic / manual			
	Velocity range	±5 m/s default, ±20 m/s max.			
	Profiling range	0.4 m ¹ to 60 m ²			
	Accuracy	±0.25% of water velocity relative to ADCP, ±2 m m/s			
	Resolution	1 mm/s			
	Number of cells	25 typical, 200 max. (automatic selection)			
	Cell size:	10 cm min. (automatic selection)			
Bottom Tracking	Surface cell range	25 cm ³			
	Data output rate	1-2 Hz (typical)			
	Operation mode	Broadband			
	Velocity range	±9.5 m/s			
	Depth range	0.4 m to 100 m ²			
	Accuracy	±0.25% of bottom velocity relative to ADCP, ±2 mm/s			
	Resolution	1 mm/s			
Depth Measurement	Range	0.3 m to 100 m ²			
	Accuracy	±1% (with uniform water temperature and salinity profile)			
	Resolution	1 mm ⁴			
Vertical Beam	Range	20 cm to 120 m			
	Accuracy	±1% (with uniform water temperature and salinity profile)			
	Resolution	1 mm			
Standard Sensors	Temperature	Range	Tilt (pitch and roll)	Compass	GPS (embedded)
		Accuracy	±90°	0-360°	
		Resolution	±0.3°	±1° ⁵	3 m horizontal / 5 m vertical
			0.0625°C	0.10°	
Transducer and Hardware	System frequency	614.4 kHz			
	Configuration	Phased array (flat surface), Janus four beams at 30° nominal beam angle			
	Internal memory	16 MB			
Communications	Standard	RS-232, 1200 to 115,200 baud. Bluetooth, 115,200 baud, 200 m range.			
	Optional	Radio modem, range >30 km (line of sight)			
Software (included)	<ul style="list-style-type: none"> • 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 				
Power	Input voltage	10.5-18VDC			
	Power consumption	1.5W typical			
	Battery (inside float)	12V, 7A-hr lead acid gel cell (rechargeable)			
	Battery capacity	>40 hrs continuous operation			
Float (included)	Configuration	Three hulls (trimaran)			
	Material	Polyethylene			
	Dimensions	Length 120 cm, width 80 cm, height 20 cm			
	Weight	10 kg bare; 17 kg with instrument and battery			
GPS Integration (optional)	Integration with GPS (customer supplied) through RS-232 to RR data stream				
Environmental	Operating temperature	-5°C to 45°C			
	Storage temperature	-20°C to 50°C			

- 1 Assumes one good cell (10 cm); range measured from the transducer surface.
- 2 Assume fresh water; actual range depends on temperature and suspended solids concentration.
- 3 Distance measured from the center of the first cell to the transducer surface.
- 4 For averaged depth data.
- 5 For combined tilt <±70° and dip angle <70°.