Acoustic Doppler Current Profiler (ADCP)

Overview

The most accurate and reliable Real-Time Monitoring Systems in the world base their Data Collection Platforms on Sutron's Xpert Datalogger Series. With custom RDI drivers, they're designed precisely to handle any Real-Time ADCP Application. And, they're manufactured in the USA to strict ISO 9001 standards.

ADCP Intelligent River System

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.

RiverRay is the culmination of years of technology advances and invaluable customer feedback. From a shallow stream to a raging river, this revolutionary ADCP delivers the simplicity and reliability your operations require, at a price that won't break your budget.

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 0.4m stream to a 60m 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 BluetoothTM technology.
- DGPS compatible: Integrate an external DGPS for difficult conditions, such as moving beds.
- The RiverRay ADCP utilizes a flat surface 4-beam phased-array transducer. A dedicated fifth beam is used to measure depth.

Sutron ADCP System Features

- Instant Voice or Text Message Alarms & Warnings
- Interactive Discharge Auto-Correct Computation
- Multiple Simultaneous Communications & Protocol Types (GOES, Iridium…)
- Hydro-Met Web Cams plus Custom Web Output
- Almost unlimited I/O Expansion
- Multi-tasking loggers with Ethernet/USB Ports for high-speed downloads & networking not available in other loggers

Applications

Surface Water Data - Catch Basins, Reservoirs, Lakes, River Basins, Streams, etc.

Groundwater

Stilling Wells

Water Quality & Water Levels

Stream Gaging

Hydropower, Dam Safety & Reservoir Monitoring

Canals & Irrigation Automation & Control

SCADA Stations & Systems

Water Distribution Control

Oceans, Channels, Estuaries

Flood, flash flood , storm surge monitoring & warning systems.

Add a Web Cam

SPECIFICATIONS

Specifications subject to change without notice

Water Velocity Profiling			
Operation mode	Broadband or pulse-coherent, automatic		
Velocity range	±5m/s default, ±20m/s max.		
Profiling Range	0.4m[1] to 60m[2]		
Resolution	1mm/s		
Accuracy	±0.25% of water velocity relative to ADCP, ±2mm/s		
Number of cells	5 typical, 200 max. (automatic selection)		
Cell Size	10cm min. (automatic selection)		
Surface Cell Range	25cm[3]		
Data Output Rate	1-2Hz (typical)		
Bottom Tracking			
Operation Mode	Broadband		
Velocity Range	±9.5m/s		
Depth Range	0.4m to 100m[2]		
Accuracy	±0.25% of water velocity relative to ADCP, ±2mm/s		
Resolution	1mm/s		
Depth Measurement			
Range	0.3m to 100m[2]		
Accuracy	±1% (with uniform water temperature and salinity profile)		
Resolution	1mm[4]		
Vertical Beam			
Range	0.2m to 80m		
Accuracy	±1% (with uniform water temperature and salinity profile)		
Resolution	1mm		
Standard Sensors	**Temperature**	**Tilt (Pitch & Roll)**	**Compass**
Range	-5°C to 45°C	±90°	0-360°
Accuracy	±0.5°C	±0.3°	±1°[5]
Resolution	0.0625°C	0.06°	0.10°
Transducer & Hardware			
System Frequency	614.4kHz		
Configuration	hased array (flat surface), Janus four beams at 30° nominal beam angle		
Internal Memory	16MB		
Communications			
Standard	RS-232, 1200 to 115,200 baud. Bluetooth,115,200 baud, 200m range.		
Optional	Radio modem, range >30km (line of sight)		
Software (included)	▸ 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		

SPECIFICATIONS (continued)

Specifications subject to change without notice

Power	
Input Voltage	10.5–18V DC
Power Consumption	1.5W typical
Battery (inside float)	2V, 7A-hr lead acid gel cell (rechargeable)
Battery Capacity	>40 hrs continuous operation
Float	
Configuration	Three hulls (trimaran)
Material	Polyethylene
Dimensions	Length 120cm Width 80cm Height 20cm
Weight	10kg bare; 17kg 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 (10cm); 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°.