Teledyne RD Instruments

ChannelMaster

Horizontal Acoustic Doppler Current Profiler

Open Channel Flow and Water Level On-Line Monitoring

The compact, flexible, and affordable CHANNELMASTER is a horizontally-oriented Acoustic Doppler Current Profiler (H-ADCP) designed to collect high-accuracy water velocity, stage, and discharge data for a wide array of applications.

By leveraging Teledyne RDI's BroadBand technology, ChannelMaster allows you to obtain unmatched data quality, even in low velocities and complex flows, where a single cell cannot provide enough information.

The ChannelMaster's innovative design includes everything you need to collect high-quality data. The standard unit comes equipped with temperature, pressure, pitch and roll sensors, and a vertical beam.

Above right: ChannelMaster H-ADCP data sample.

Right: The ChannelMaster H-ADCP is installed on a riverbank or near-shore structure to acquire real-time velocity, stage, and discharge data.

PRODUCT FEATURES

- **Accurate:** Teledyne RDI Broadband technology allows for small cells and/or short averaging sampling intervals, thus increasing your data accuracy.
- **Robust:** Collect highly accurate velocities even in difficult environments such as slow flow or rapidly changing flow.
- **Versatile:** ChannelMaster offers a range of 1-128 user-selectable cell sizes from 25 cm - 8 m and profiling ranges from 1 m - 300 m (frequency dependent).
- **Sturdy:** Comes standard with stainless steel mounting fixture.

Applications

- **Rivers, Streams, and Irrigation Canals:** Monitor discharge and water level for a variety of applications. The ChannelMaster easily integrates with a telemetry or SCADA system, providing you with remote access to your data.
- **Estuaries:** Measure complex currents for environmental monitoring or circulation model calibrations or verifications.
- **Port and Harbors:** Monitor currents to provide velocity information for vessel maneuvering and safety.

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TECHNICAL SPECIFICATIONS

		CM300 300 kHz	CM600 600 kHz	CM1200 1200 kHz
Water Velocity Profiling (Broadband mode)	Profiling range	4 m[1] to 300 m[2]	2 m[1] to 90 m[2]	1 m[1] to 25 m[2]
	Velocity range	±5 m/s default, ±20 m/s maximum		
	Accuracy	±0.5% of water velocity relative to ADCP, ±2 mm/s		
	Resolution	1 mm/s	1 mm/s	1 mm/s
	Number of cells	1-128	1-128	1-128
	Cell size	1 m to 8 m	0.5 m to 4 m	0.2 m to 2 m
	Blanking distance	1 m	0.5 m	0.2 m
	Data output rate	User-programmable		
Physical Properties	Weight in air	6.8 kg	4.76 kg	3.4 kg
	Weight in water	3.17 kg	2 kg	1.58 kg
	Height	18.3 cm	18.3 cm	18.3 cm
	Width	32.5 cm	26.4 cm	18.3 cm
	Depth	19.8 cm	19.3 cm	18.9 cm
Transducer	Geometry	2 beams, ±20°	2 beams, ±20°	2 beams, ±20°
	Beam width	2.2°	1.5°	1.5°

Standard Sensors	Temperature	Tilt (pitch and roll)	Pressure	Acoustic Stage
Range:	-4°C to 40°C	±10°	0.1 m to 10 m	0.1 m to 10 m[3]
Accuracy:	±0.2°C	±0.2°@2°, ±0.5°@10°	0.5%	±0.1%, ±3 mm
Resolution:	0.01°C	0.01°	1 mm	0.1 mm

Software	• WinH-ADCP: System setup, data acqusition, discharge calculation, data display, and summary report • PlanCV: Deployment planning, predicting precision, power usage, etc. • ChannelMaster Utilities: System setup and guided site visit workflow including data retrieval	
Other Hardware and Features	• 4mb internal recorder • 25m power and communications cable standard, longer available • Stainless steel mounting plate • Built-in index-velocity method flow calculator	
Communications	RS-232 with SDI-12, or RS-422	SDI-12 supports v 1.3 (concurrent) Simultaneous SDI-12, and internal logging supported
	Serial baud rates	300–115,200 bps
Construction	Cast polyurethane with titanium hardware, mounting plate included	
Power	Voltage:	10-18VDC
	Max. current:	1.5A
	Power consumption:	0.1W @ 10% duty cycle (typical)
Environmental	Operating temperature:	-5°C to 45°C
	Storage temperature:	-20°C to 50°C

1 Assume one good cell (minimum cell size); range measured from the transducer surface.
2 Assume fresh water; actual range depends on temperature and suspended solids concentration.
3 User-programmable to 18m maximum.

TELEDYNE
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