

Sentinel V



Self-Contained 20m, 50m, 100m Profiling ADCP

TECHNICAL SPECIFICATIONS

Depth Cell Size ¹	Vertical Resolution	V20 (1000kHz)		V50 (500kHz)		V100 (300kHz)	
		Range ^{2,3}	Std Dev ⁴	Range ^{2,3}	Std Dev ⁴	Range ^{2,3}	Std Dev ⁴
	0.25m	18m	11.5cm/s				
	0.5m	20m	4.3cm/s	45m	11.5cm/s		
	1m	22m	2.1cm/s	51m	4.3cm/s	96m	6.5 cm/s
	2m	24m	1.0cm/s	57m	2.1cm/s	105m	3.3 cm/s
	4m			64m	1.0cm/s	116m	1.6cm/s
	8m					130m	0.8cm/s
Communications and Recording	Wireless: Internal Memory	802.11b/g/n One 16GB Micro SD Card included					
Profile Parameters	Velocity accuracy	V20/V50: 0.3% of the water velocity relative to the ADCP ±0.3cm/s V100: 0.5% of the water velocity relative to the ADCP ±0.5cm/s					
	Velocity resolution	0.1cm/s					
	Velocity range	±5m/s (default); ±20m/s (maximum)					
	Ping rate	Up to 4Hz					
Echo Intensity Profile	Vertical resolution	Depth cell size					
	Dynamic range	80dB					
	Precision	±1.5dB					
Transducer and Hardware	Beam angle	25°					
	Configuration	4-beam, convex; 5th beam vertical					
	Depth Rating	200m					
	Materials	Transducer, housing, and end cap: plastic Connector: metal shell					
Standard Sensors	Temperature (mounted on transducer)	Range -5° to 45°C, Precision ±0.4°C, Resolution 0.1°					
	Compass (magneto-inductive sensor)	Accuracy 2° RMS, Resolution 0.1°, Max. dip angle 85°					
	Tilt (MEMS accelerometers)	Pitch Range ±90°, Roll Range ±180°, Accuracy 2° RMS, Precision 0.05° RMS, Resolution 0.1°					
	Pressure Sensor (mounted on transducer)	Range: 300m, Accuracy: 0.1%FS					
Power	External DC input	12–20VDC					
	Internal battery voltage	18VDC new					
	Battery capacity; over-the-counter @0°C	100 watt hours (typical)					
	Battery Pack @5°C	510 watt hours					
Software	Teledyne RDI's new software included	ReadyV—Pre-deployment (resident in ADCP) ReadyV Lite—Pre-deployment (mobile app) Velocity—Post-processing (Data Handling, Display, and Export)					
Environmental	Standard depth rating	200m					
	Operating temperature	-5° to 45°C					
	Storage temperature (without batteries)	-30° to 60°C					
	Weight in air	7.5kg – 16.0kg					
	Weight in water	1.6kg – 6.0kg					
Available Options		<ul style="list-style-type: none"> • RS232 or RS422; 300 to 230,400 baud • External battery case • AC/DC power converter • 5th beam • Waves processing • Straight or right-angle metal shell connector 					
Dimensions		Special configuration drawing available upon request					

1 User's choice of depth cell size is not limited to the typical values specified.
 2 Longer ranges available.
 3 Profiling range based on temperature values at 5°C, salinity = 35ppt.
 4 Broadband mode single-ping standard deviation (Std. Dev.).

Specifications subject to change without notice.
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Teledyne RD Instruments

Measuring Water in Motion and Motion in Water

SENTINEL V—NEXT GEN ADCP
 Product Line



The Next Generation of ADCP Products.




For 15 years, Teledyne RD Instruments' Workhorse Acoustic Doppler Current Profilers have been the world's gold standard for measuring ocean currents and waves. The new generation V line of ADCP products raises the bar again. The **Sentinel V** is the first product to be released from this emerging line. This self-contained instrument is available in three profiling ranges: 20m, 50m, and 100m.

Sentinel V hardware / firmware features include:

Multiple simultaneous sampling strategies

Two users with vastly different interests in the same environment can share a single ADCP to accomplish the data collection goals of both, essentially doubling hardware output.


High-speed wireless data download

 Lose the cables. Wireless functionality allows you to fly through your data download and instrument reconfiguration, saving you time and money. This feature also allows for wireless setup and software/firmware updates.

Record every measurement


There's no need to decide in advance what time scales are of interest. Sentinel V has the memory and ability to record all raw data, allowing you to investigate features of interest over time scales that you can determine at a later date.

5 beams: data redundancy and enhanced measurements

 An integrated 5th beam provides a direct vertical velocity measurement and a 5th range to the surface measurement, allowing for enhanced turbulence and waves measurement capabilities.

- Measure vertical velocity profile
- Measure high-resolution echo intensity profile
- Measure range to the surface
- Allows turbulence measurements
- Allows error velocity validation with 3 beam solutions
- Allows redundant error velocity validation with 4 beams
- Allows robust zero up waves parameter

Off-the-shelf battery option

 Gear up for your next deployment at the corner store. The Sentinel V reduces your operating costs and increases convenience with its ability to accept standard alkaline D batteries. (Good for 1 – 3 month typical deployment setup.)

Looking for a longer deployment?

You can still use a Teledyne RDI supplied battery pack option, best suited for 12 to 24 month deployments. External battery cases are also available for even higher energy-demanding deployment requirements.



Increased portability

Grab it and go! The Sentinel V is smaller than its Workhorse predecessor and includes a convenient removable carrying handle. Cradling is for babies—not instruments.

Multiple bandwidths

User-selectable bandwidth options offer the best of both worlds. Generally narrower bandwidths result in longer range, but less precision per measurement. However, there are times when range is of paramount importance. Sentinel V supports both configurations.

One-touch wireless

Start your ADCP with a simple touch of your finger. The instrument will give an audible signal to know you've turned it on, and will time out to save battery life if not engaged.



Replaceable transducer pucks

Transducers are potted and installed individually, making it easy and cost-effective to swap out a damaged transducer.

Flood-resistant electronics chamber

Separate battery and electronics chambers help to safeguard your system's electronics.

Captured O-rings

A dovetail groove retains the O-ring, which "snaps" into place so you know it's properly seated.



Sentinel V—V's latest **Velocity** and **ReadyV** software are sure to become the industry benchmark, with their powerful features, multiple views, touch-screen capability, and highly intuitive interface. If you can navigate a smart phone—you're ready for Velocity and ReadyV.

ReadyV/ReadyV Lite: Pre-deployment Software

Our pre-deployment software is an all-purpose, real-time planning tool with an interface simple enough for a brand new ADCP user, yet powerful enough for the seasoned pro. Available via desktop or mobile app.



Features include:

- **Onboard Software.** The software required to configure, deploy, and recover your data is resident on the ADCP. That means no software to install, no administrator access to acquire, and no need for a dedicated computer. All that's required to communicate with your ADCP is a wireless computer or opportunity and web browser. This feature also allows you to keep your system's software and firmware up to date.
- **Intuitive Interface.** ReadyV delivers a user-friendly interface that literally steps you through your pre-deployment planning to configure the Sentinel V for deployment, running all pre-deployment tests, and starting the deployment properly configured for the task at hand.
- **Onboard Maintenance Log.** When was the last time the compass was calibrated? The batteries changed? O-rings replaced? Now this information and more can be stored on the Sentinel V itself, for ready access whenever you are connected to the instrument.

Velocity: Post-processing Software

V's latest ADCP post-processing software provides users with turnkey processes and tools that will wow even our most seasoned ADCP veterans. The features are too many to list in this small space, but highlights include:

- Intricate 2D and 3D graphs including:
 - Time series graphs
 - Contour graphs
 - Profile graphs
 - 3D surface / contour / profile graphs
- Basic/conventional processing features including averaging, coordinate transforms, and velocity reference
- Comprehensive, advanced, and fully customizable data processing engine
 - A comprehensive log of all loaded and recent data files
 - Export to multiple output formats

