

Sentinel V

20 m, 50 m, 100 m Profiling ADCP



TECHNICAL SPECIFICATIONS

Depth Cell Size ¹	V20 (1000 kHz)		V50 (500 kHz)		V100 (300 kHz)	
	Range (m) ^{2,3} Wide/Narrow	Std Dev (cm/s) ^{3,4} Wide/Narrow	Range (m) ^{2,3} Wide/Narrow	Std Dev (cm/s) ^{3,4} Wide/Narrow	Range (m) ^{2,3} Wide/Narrow	Std Dev (cm/s) ^{3,4} Wide/Narrow
0.25 m	18.0/22.6	19.2/36.5				
0.3 m	19.3/24.0	11.1/20.8				
0.5 m	20.2/24.9	7.1/13.4	44.1/57.6	19.2/36.5		
1.0 m	22.1/26.9	3.6/6.7	50.5/64.6	7.1/13.5	94.5/120.6	10.9/20.6
2.0 m	24.5/29.4	1.7/3.2	56.0/70.6	3.6/6.7	103.5/130.4	5.5/10.3
4.0 m	26.9/32.0	0.8/1.6	63.1/78.2	1.7/3.2	114.6/142.3	2.7/5.2
6.0 m			67.4/82.8	1.1/2.1	121.7/151.5	1.8/3.3
Self-Contained (SC) Communications and Recording	Wireless/Ethernet Internal memory		802.11 b/g/n / TCP/IP One 16 GB Micro SD Card included			
Real-Time (RT) Communications	Serial/Ethernet		RS232 and RS422 / TCP/IP (setup) UDP (output)			
Profile Parameters	Velocity accuracy		V20/V50: 0.3% of the water velocity relative to the ADCP ± 0.3 cm/s V100: 0.5% of the water velocity relative to the ADCP ± 0.5 cm/s			
	Velocity resolution		0.1 cm/s			
	Velocity range		± 5m/s (default); ± 20m/s (maximum)			
	Ping rate		Up to 4 Hz (SC); Up to 16 Hz (RT)			
Echo Intensity Profile	Vertical resolution Dynamic range Precision		Depth cell size 80 dB ±1.5 dB			
Transducer and Hardware	Beam angle Configuration Depth rating Materials		25° 4-beam, convex; 5th beam vertical 200 m Transducer, housing, and end cap: plastic Connector: metal shell			
Standard Sensors	Temperature (mounted on transducer) Compass (magneto-inductive sensor) Tilt (MEMS accelerometers)		Range -5° to 45°C, precision ± 0.4°C, resolution 0.1° Accuracy 2° RMS, resolution 0.1°, max. dip angle 85° Pitch range ± 90°, roll range ± 180°, accuracy 2° RMS, precision 0.05° RMS, resolution 0.1°			
	Pressure sensor (mounted on transducer) Recorder		Range 300m, accuracy 0.1% FS 16GB Micro SD Card			
Power	External DC input Internal battery voltage Battery capacity; over-the-counter @ 0°C Battery pack @ 5°C		12–20 VDC 18 VDC new 100 watt hours (typical) 510 watt hours			
Software	Included Teledyne RDI Software		ReadyV (SC)—Pre-deployment (testing, planning, and data recovery) ⁵ PLAN (RT)—Pre-deployment (testing and planning) ⁶ VMDAS (RT)—Real-Time (deploy and data processing) ⁶ Velocity (SC/RT)—Post-processing (data handling, display, and export) ⁶			
	Optional Teledyne RDI Software (recommended)					
Environmental	Standard depth rating Operating temperature Storage temperature (without batteries)		200 m -5° to 45°C -30° to 60°C			
Available Options—Hardware Available Options—Firmware/Software	Straight or right-angle metal shell connector • AC/DC power converter and cable • External battery case Waves (SC) / Bottom Track (RT)					
Dimensions and Weights	Special configuration drawing available upon request					

¹ User's choice of depth cell not limited to the typical values specified.
² Ranges specified are typical at temperature of 5°C and salinity of 35 psu; longer ranges are possible.
³ User selects the bandwidth mode; wide = 25% or narrow = 6%.

⁴ Standard deviations (Std Dev) are typical values for single ping data
⁵ Resident in ADCP accessed via a web browser.
⁶ Windows™ based software program.

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



Now Includes Real-Time, Bottom Track, and Ping Rates up to 16 Hz!



The Next Generation of ADCP Products

The Sentinel V is Teledyne RDI's next-gen family of Acoustic Doppler Current Profilers (ADCPs). Building upon the unparalleled success of our Workhorse ADCP products, our next generation V products offer a new level of features and versatility.

With profiling ranges from <1m to >150 m and a 200 depth rating, the Sentinel V ADCP is ideally suited for a wide variety of coastal and upper ocean applications.

The lightweight and adaptable Sentinel V is easily deployed on buoys or mounted on the seafloor. Real-time data can be transmitted to shore via a cable link or acoustic modem, or data can be stored internally for short or long-term deployments. With a pressure sensor delivered standard in Sentinel V, this highly versatile tool can be easily upgraded via an electronic firmware update to calculate directional and non-directional wave parameters. Our real-time Sentinel V can also be upgraded to include bottom track for your vessel-mounted applications.

Awesome Versatility for all Coastal Applications...



A comprehensive feature set that will handle anything your operational needs can throw at it:

Multiple simultaneous sampling strategies

Two users with 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.

Multiple bandwidths

User-selectable bandwidth options offer you the best of both worlds: wide bandwidth for high resolution and low noise measurements, narrow bandwidth for equal accuracy with extended profiling range.

Captured O-rings

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

Flood-resistant electronics chamber

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

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.

One-touch activation

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.

Individual transducers

Sentinel V's transducers are compact, self-contained discs, which allows for quick, cost effective repairs at our factory if damage occurs in the field.

Off-the-shelf battery option

Now you can gear up for your deployment using supplies found at the corner store. The Sentinel V is available in two configurations. For short-term deployments (<30 days), or when your sampling strategy is spread out over longer periods of time, Sentinel V can be designed to accept standard alkaline D batteries, resulting in reduced operating costs and increased convenience. For longer deployments, you can order an optional external battery case for extended life, or purchase a Sentinel V configured with a standard internal battery pack.



5 beams: Sentinel V 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

