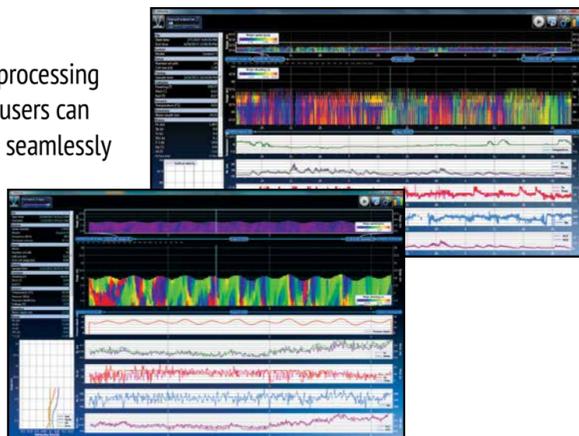


Velocity Waves Processing Software:

Capitalizing on WAVESMON, our highly-popular waves processing software used with our Workhorse products, Sentinel V users can now use Velocity with its built in WavesMon features to seamlessly post process your Sentinel V data.

Velocity displays 2D contour currents and times series of waves within a single display, allowing for easy comparison of currents and waves for both novice and expert users. Further data displays can also be accomplished through our new WavesView software.



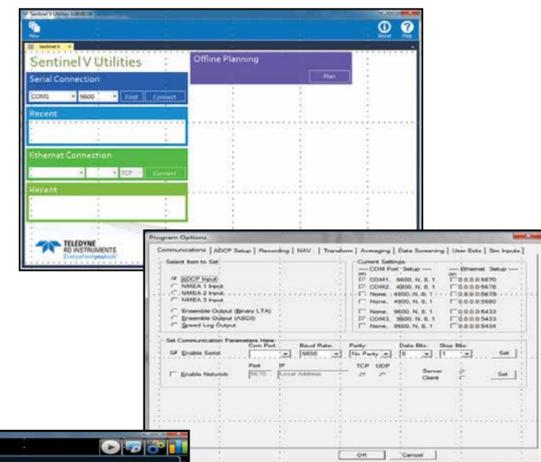
Real-Time Sentinel V Operations

Sentinel V Real-Time Utilities

Sentinel V's latest Real-Time release includes a new software package, Sentinel V Real-Time Utilities, which includes a built-in wizard for those who prefer a step-by-step walk through to deploy your Sentinel V, or it can be bypassed if assistance is not required.

Post-Processing:

- The **VMDAS** program allows users to both reprocess and playback the data with profile and ship track plots.
- The **Velocity** software program allows users to play back the data with 2D/3D contour and time series plots.



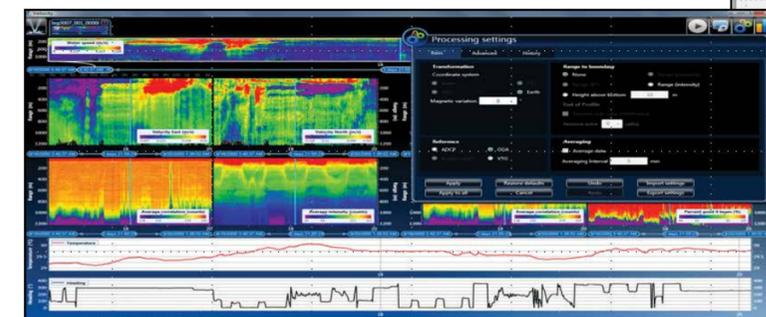
Top: Sentinel V Utilities for Real-Time Data Collection

Above: Supports real-time current profile data collection from a Sentinel V mounted on a vessel

Left: Supports playback of data collected by VMDAS with GPS referencing (includes support for WH and OS/OO data sets!)

Features include:

- **Sentinel V Real-Time Utilities Pre Deployment Testing:** Using the built-in wizard, or clicking directly on the self-tests allows the user a quick verification and safeguard that the system is ready to go for your real-time deployment.
- **Real-Time Data Collection Options:** The software offers users the ability to collect data through either a built-in terminal emulator, or our long-standing VM-DAS software for those that prefer this familiar format.



Sentinel V Next-Generation 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 | 11.1/20.8 | 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) Comms and Recording | Wireless/Ethernet ⁷ , Internal memory | | 802.11 b/g/n / TCP/IP; One 16 GB micro SD card included | | | |
| Real-Time (RT) Communications | Serial/Ethernet ⁷ | | RS422 / TCPIP (setup) UDP (output) | | | |
| Profile Parameters | Center Frequency | | 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 | | Depth cell size | | | |
| | Dynamic range | | 80 dB | | | |
| | Precision | | ±1.5 dB | | | |
| Transducer and Hardware | Beam angle | | 25° | | | |
| | Configuration | | 4-beam, convex; 5th beam vertical | | | |
| | Depth rating | | 200 m | | | |
| | 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 | Recorder | | 16GB Micro SD Card | | | |
| | External DC input | | 12-20 VDC | | | |
| | Internal battery voltage | | 18 VDC new | | | |
| | Battery capacity; over-the-counter @ 0°C | | 100 watt hours (typical) | | | |
| | Battery pack @ 0°C | | 510 watt hours | | | |
| Software | Included Teledyne RDI Software | | ReadyV (SC)—Pre-deployment (testing, planning, and data recovery) ⁵ Sentinel V Real-Time Utilities ⁶ 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 | | 200 m | | | |
| | Operating temperature | | -5° to 45°C | | | |
| | Storage temperature (without batteries) | | -30° to 60°C | | | |
| Available Options—Hardware | Straight or right-angle metal shell connector • AC/DC power converter and cable • External battery case | | | | | |
| Available Options—Firmware/Software | 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.
⁷ Consult with factory for details and availability.



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Sentinel V

The Next Generation of ADCP Products

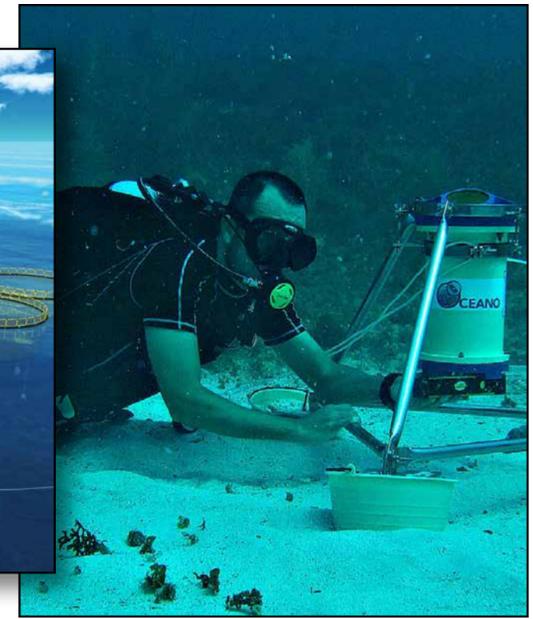


Sentinel V

Next-Generation ADCP

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.



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

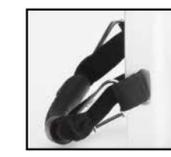
User-selectable bandwidth options offer you the best of both worlds: wide bandwidth for high resolution and low noise measurements, narrow bandwidth for equal accuracy with extended profiling range.

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.

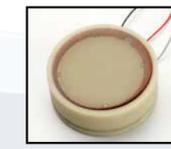


Increased portability

Grab it and go! The Sentinel V is smaller than its Workhorse predecessor and includes a convenient removable carrying handle.

One-touch activation

Start your ADCP with a simple touch of your finger. The instrument will give an audible signal when turned 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.



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



Sentinel V's latest **Velocity** and **ReadyV** software have 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.

Self-Contained Sentinel V Operations

ReadyV: 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.

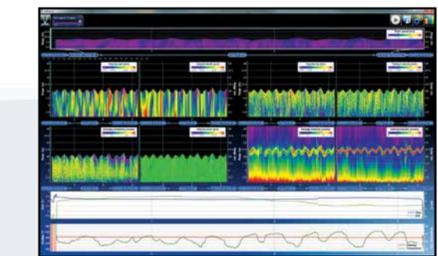
Features include:

- 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 needed to acquire, and no need for a dedicated computer. All that's required to communicate with your ADCP is a wireless computer of 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



Sentinel 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
- Comprehensive log of all loaded and recent data files
- Export to multiple output formats