

Sentinel V Waves Array

Current Profiler and Directional Wave Measurement ADCP

Teledyne RD Instruments **Sentinel V Waves Array** combines our highly robust, field-proven WavesMon processing with our new 5-beam **Sentinel V ADCP** to provide the highest-quality waves and current profiles of any ADCP in use today. Join the new wave in measuring waves and currents today!



	Workhorse Array	Sentinel V Array
Array Type	Velocity in 3 bins and 4 beams	Velocity in 3-6 bins and 4 beams plus surface 5th beam improves array geometry, allowing measurement of shorter length waves from deeper ADCPs
Janus	20°	25°; lower variance and large aperture improves directional acuity
# of Sensors	12	13-25; more sensors = more robust
Max Array Aperture	~0.68 x depth	~0.84 x depth; large aperture improves directional acuity
Smallest Lag in Array	~0.48 x depth	~0.42 x depth; 5th beam provides short lags in the array for resolving higher frequencies
Smallest Measurable Wavelength	~1.0 x depth	~0.84 x depth
Smallest Measurable Wave Period	D=20 m, P>3.5 s D=50 m, P>5.5 s D=80 m, P>7.0 s	D=20 m, P>3.3 s D=50 m, P>5.2 s D=80 m, P>6.5 s

PRODUCT FEATURES

- **Field-Proven Processing Functionality:** Ensure your success utilizing a platform built upon our proven patented, highly robust waves array processing.
- **Field-Proven Hardware:** Sentinel V ADCPs have been successfully used to collect waves and currents data in areas with waves as small as a few centimeters to over 20 m in height.
- **Small Size:** Sentinel V is available in a variety of configurations designed to meet your unique installment needs.
- **Dual Profiling Modes:** Separate control of the waves setup and current profile allows users to collect simultaneous currents and waves with no holes in the data.
- **Integrated Sensors:** Heading, pitch, roll, temperature, and pressure.
- **More Powerful than a Single-Purpose Instrument:** This highly versatile package delivers exceptional value by providing waves parameters, current profiles, echo intensity profiles, and water level all from a single instrument.





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TECHNICAL SPECIFICATIONS

Measurement Technique	Derivation of directional distribution	Array processing					
	Location of sensors	Remotely measured near surface					
	Number of independent sensors	13-25					
	Array aperture	~0.84 x depth; smallest lag in array ~0.42 x depth					
	Acoustic sensor signal processing	Broadband					
	Simultaneous sampling of wave burst + standard current profile	Yes					
Calculated Wave Parameters	Primary data source	Near-surface velocity sensors					
	Redundant data sources	Pressure sensor and "surface track" derived parameters for data QA					
	Height	H _s	H _{1/10}	H _{mean}			
	Period	T _p	T _{mean}				
	Direction	D _p					
	Custom	H _{sea}	H _{swell}	T _{sea}	T _{swell}	D _{sea}	D _{swell}
Minimum Wave Period Measured	Deployment	Surface Track & Non-Directional High-Frequency Cutoff			Array Directional High-Frequency Cutoff		
	Depth						
	5 m	1.0 s			1.6 s		
	20 m	1.0 s			3.3 s		
Minimum Wave Size Measured	Instrument	Surface Track & Non-Directional Minimum			Array Directional Minimum		
	Sentinel V20	2.0 cm			17.2 cm		
	Sentinel V50	5.0 cm			34.3 cm		
	Sentinel V100	10.0 cm			68.7 cm		
Recommended Deployment Depths	Instrument	Depth					
	Sentinel V20	2-15 m					
	Sentinel V50	5-40 m					
	Sentinel V100	10-80 m					
Raw Sensor Data <i>All sensors are sampled at a 2 Hz rate default</i>	Velocity	V20 accuracy	±0.3% ±0.3 cm/s				
		V50 accuracy	±0.3% ±0.3 cm/s				
		V100 accuracy	±0.5% ±0.5 cm/s				
	Velocity Precision	See Sentinel V ADCP brochure					
	Surface track range	Accuracy	1.0% of full scale				
		Resolution	ADCP bin size/15				
	Pressure	Accuracy	0.1% of full scale				
		Resolution	1/50,000 of full scale				
Installation	Cable Power/Communications	Provides unlimited duration for real-time data.					
	Battery Power	Collect hourly waves and current profiles every 20 minutes for 4 weeks on a single internal battery pack; add optional external battery packs to extend the duration.					
Software	Planning software (SC)	ReadyV: Self-contained deployment setup with waves, current profiles, or both.					
	Planning software (RT)	Sentinel V Real-Time Utilities: Real-time deployment setup and data collection					
	Viewing/Processing software (SC)	Velocity/WAVESMON: Self-contained deployment data playback and processing.					
Available Options	New Sentinel ADCPs can be ordered with the Waves Array option, or you can upgrade your existing Sentinel V ADCP to include this capability.						



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