

The Song Meter SM4M Submersible and SM4M Deep Water

Lowering the cost of long deployments with the proven technology of the Song Meter SM4 platform.

Time at sea is an expensive proposition, and the new SM4M marine recorders provide significantly increased deployment times over the prior generation of Song Meter recorders. This new generation is based on the time-proven and globally tested Song Meter SM4 platform.

The SM4M Submersible is rated to 150 meters, and the SM4M Deep Water is rated to 800 meters. Both models feature sophisticated scheduling tools – making them ideal for extremely long deployments in harsh, hard-to-reach offshore environments.

Acoustic and ultrasonic models.

The SM4M Submersible and SM4M Deep Water are both available in either a dual-channel Acoustic model which can record frequencies up to 48 kHz, or a single-channel Ultrasonic model which can record up to 192kHz.

A hydrophone for every purpose.

We offer three hydrophone options for the Song Meter SM4M. Record audio frequencies from 2Hz to 192kHz – in extremely quiet environments, or those where very loud, man-made noise is present.

Easy to deploy and service.

We designed SM4M recorders to be easily deployed and quickly retrieved/serviced onboard. Both models use globally available, standard D cell batteries. The units are easily tethered for anchoring and recovery. They're easy to open, thanks to the included spanner wrench, and memory cards are easy to remove and replace.



Photo courtesy of Dr. Matthew Witt



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Available Hydrophones



Acoustic Hydrophone

Ideal for recording whale songs, dolphin whistles, and/or ambient noise levels our Acoustic Hydrophone records frequencies from 2Hz to 48kHz, with a sensitivity of -165dB re: 1 V/uPa. The hydrophone also features an integrated LED for instant confirmation of unit operation.



Ultrasonic Hydrophone

Ideal for recording dolphin and porpoise echolocations, our Ultrasonic Hydrophone records frequencies from 2Hz to 192kHz, with a sensitivity of -165dB re: 1 V/uPa. The hydrophone also features an integrated LED for instant confirmation of unit operation.



High-SPL Hydrophone

This hydrophone was specifically designed with a lower sensitivity of -240dB re: 1 V/uPa in order to record and quantify very high sound pressure level sounds, such as those produced by pile drivers and air guns. This hydrophone can be ordered alone or along with an Acoustic Hydrophone, to allow the simultaneous recording of quieter sounds.

Kaleidoscope Pro Analysis Software

Kaleidoscope Pro software is an integrated suite of tools that make bioacoustic analysis easier, faster and more effective.

Kaleidoscope acoustic Cluster Analysis detects similar vocalizations in one or many recordings, and quickly sorts them into Clusters for easy labeling or review. You can also build Classifiers from the labeled clusters to search new recordings for similar sounds.

The Kaleidoscope Noise Analysis Module – engineered specifically for marine research – quickly analyzes noise spectrum and generates reports of noise levels. Analysis includes weighted SPL and SEL measurements as well as third octave band analysis. The module is included with a Pro purchase or available for separate purchase.

Kaleidoscope Viewer is a free download to allow listening to your recordings and viewing them on a fully featured spectrogram.

Kaleidoscope Pro Includes:

- Noise Analysis Module
- Acoustic Cluster Analysis
- Build and run species-specific classifiers
- High-speed batch processing
- Sophisticated spectrogram and audio tools
- CSV export for easy reporting



Try Kaleidoscope Free For 15 Days
wildlifeacoustics.com/kaleidoscope



Specifications: Song Meter SM4M



	SM4M Deep Water	SM4M Submersible
Working Depth	800 meters	150 meters
Recording Format	16-bit .wav with 16-bits of dynamic range on each channel for ultrasonic frequencies	16-bit .wav with 16-bits of dynamic range on each channel for ultrasonic frequencies
Sample Rates	Acoustic: Nine settings between 8,000Hz and 96000Hz Ultrasonic: 192kHz, 256kHz, 384kHz, 500kHz	Acoustic: Nine settings between 8,000Hz and 96000Hz Ultrasonic: 192kHz, 256kHz, 384kHz, 500kHz
Power	Accepts up to 64 standard D size disposable alkaline batteries (1.5V) or rechargeable NiMH batteries (1.2V) A minimum of 4 batteries is required for recorder to function, at least 8 is recommended.	Accepts up to 32 standard D size disposable alkaline batteries (1.5V) or rechargeable NiMH batteries (1.2V) A minimum of 4 batteries is required for recorder to function, at least 8 is recommended.
Storage	Accepts up to 2 SDHC or SDXC cards (class 4 or higher) for storage capacity up to 1 terabyte	Accepts up to 2 SDHC or SDXC cards (class 4 or higher) for storage capacity up to 1 terabyte
Dimensions	Diameter: 6.5"/16.5 cm Length: 58.3"/148.0 cm	Diameter: 6.5"/16.5 cm Length: 31.4"/79.4 cm
Weight	Without batteries: 24.4 kg in air w/1 kg of buoyancy in water With batteries: 32.2 kg in air w/ -9.8 kg of buoyancy in water	Without batteries: 9.5 kg in air w/5.5 kg of buoyancy in water With batteries: 13.5 kg in air w/1.5 kg of buoyancy in water

Maximum Deployment Time in Days				
Version	Sampling Rate (Hz)	SM4M Deep Water	SM4M Submersible	Note:
Acoustic (100% duty-cycle)	8,000	266	133	Note: Maximum recordable frequency is half of the sample rate. Assumptions: All batteries are populated: 32 for SM4M Submersible 64 for SM4M Deep Water Storage capacity based on two 512 GB cards Alkaline batteries: NiMH batteries will provide approximately 60% of the longevity. Continuous recording: Significantly longer deployment times can be achieved using a duty-cycled schedule.
	12,000	266	133	
	16,000	266	133	
	22,050	262	133	
	24,000	241	133	
	32,000	181	133	
	44,100	131	131	
	48,000	121	121	
Ultrasonic (10% triggered)	192,000	301	153	
	256,000	226	153	
	384,000	151	151	
Ultrasonic (non-triggered)	192,000	30	30	
	256,000	23	23	
	384,000	15	15	
Color Code:		= Limited by battery capacity		
		= Limited by storage capacity		

