

## AUTONOMOUS HYDROPHONE RECORDER

Long-Term – Broadband – Easy to Use



### Description

EA-SDA1000 is an autonomous recorder able to acquire sounds on a broadband hydrophone for a long period.

The EA-SDA1000 acoustic recorder accepts both passive and pre-amplified active hydrophones. Its broadband analog inputs allow over 500 kHz with a dynamic range greater than 100 dB guaranteeing efficient signal to noise ratio.

The embedded digital signal processor makes possible high speed acquisition, filtering and storage. Data is stored whether on SSD or hard drive in .wav standard format, directly compatible with processing programs such as ©Matlab, ©LabVIEW and ©PAMguard.

EA-SDA1000 can be programmed with a mission schedule including date of beginning, sleep and record periods, in order to improve battery life. Its power consumption is between 600 mW in low power mode and up to 2 W in very broadband mode.

The configuration and recovery of data are facilitated through Ethernet connection and intuitive web browser interface.

### Applications

- Noise impact studies
- Environmental monitoring
- Marine renewable energies
- Cetacean research
- Seismic / Shipping / Construction

### Options

- Rechargeable batteries
- GPS
- Temperature, pressure, conductivity
- Low power mode
- Low frequency module
- Up to 2 TB memory on HDD
- Selectable hydrophone type

### Key Characteristics

- **Long term:** over one year deployment
- **Broadband:** from 3 Hz to over 500 kHz
- **Wide dynamic:** 24 bits recording
- **Easy to use:** intuitive embedded web interface with selectable duty cycle, sampling rate, gain, High Pass Filter.

- Dim.:** 121 cm long, 12 cm diameter
- Weight:** 20 kg in air, 10 kg in water
- Depth:** 200 to 700 meters
- Power:** 54 Alkaline or Li-SoCl<sub>2</sub> D cells, or rechargeable Li-ion
- Storage:** 128 or 256 GB SD Card, 1 TB SSD, 2 TB HDD

- **Broadband frequencies and great dynamic range**

Eight recording frequencies going from 39 kHz to over 1000 kHz are selectable. The EA-SDA1000 can thus monitor noises and a frequency bandwidth going from 3 Hz to more than 500 kHz guaranteeing great dynamic and Signal to Noise Ratio (>100 dB). This high SNR allows recording to strong and low level noise simultaneously.

Channels are electronically synchronized and calibrated at +/- 0.1 dB.

Gains are electronically configurable on each channel between -10 dB and +24 dB.

High pass filters are also configurable (3 Hz, 300 Hz, 3 kHz...).

- **Long term autonomous deployments**

Duty cycles can allow extending length of deployment. The table below shows EA-SDA1000 performances at different sampling rates and duty cycles.

Configuration		Duty cycles and configuration examples							
Sampling rate	Recording frequency	100% Continuous recording	75% 45 min ON 15 min OFF	50% 10 min ON 10 min OFF	40% 24 min ON 36 min OFF	33% 10 min ON 30 min OFF	25% 15 min ON 45 min OFF	17% 10 min ON 50 min OFF	10% 1 hour ON 10 hours OFF
		Total autonomy endurance							
39 kHz <sup>1</sup>	3 Hz – 15 kHz	40 days	53 days	80 days	100 days	121 days	160 days	235 days	400 days
48 kHz <sup>2</sup>	3 Hz – 20 kHz	103 days	137 days	206 days	258 days	312 days	412 days	606 days	1030 days
312 kHz <sup>1</sup>	3 Hz – 150 kHz	35 days	47 days	70 days	87 days	106 days	140 days	206 days	350 days

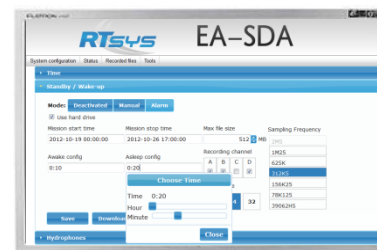
<sup>1</sup>high quality mode

<sup>2</sup> low-power mode

- **Easy to use**

The web browser interface gives intuitive access to configuration of the recorder and to the recorded files.

After the mission, the EA-SDA1000 is recovered and data is downloaded by Ethernet via the embedded software of FTP server (downloading speed: 7 MB/S). This allows the user to collect quickly the data without having to open the recorder.



- **Multi-hydrophone compatibility**

EA-SDA1000 recorders are compatible with any type of calibrated whether passive and/or pre-amplified hydrophones from different renowned manufacturers – High Tech, Inc., Reson, Brüel & Kjaer, Colmar, etc. Hydrophone cable length is also selectable.

## Contact

- [www.rtsys.eu](http://www.rtsys.eu)
- [info@rtsys.eu](mailto:info@rtsys.eu)
- +33 (0)297 898 580



25 rue Michel Marion 56850 Caudan – France

## RTsys activities

- Marine acoustics
- Embedded electronics
- Marine robotics
- Systems integration
- Customized R&D