

CATS – Diary

User-defined fully wireless multi-sensor data recorder

Data sheet

Highlights:

- 14-channel high-res recording
- Extended deployment period (solar – optional)
- Reciprocal sensor control (optional)
- Very small footprint
- GPS (optional)
- CATS-Visualizer analysis software
- Up to 800Hz sampling rates
- User can choose sensor configuration



Fully wireless CATS-Diary (optional solar re-charge)

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Document status explanation

<i>Objective Specification</i>	Document contains target values. Revised and supplementary data will be published later.
<i>Advance Information</i>	Document contains data based on early testing. Revised and supplementary data will be published later.
<i>Early Production Information</i>	Document contains data from product verification. Revised and supplementary data may be published later.
<i>Production Information</i>	Document contains the final product specification.

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1. Overview

As with the CATS-Flight-Diary, the CATS-Diary is a small and very flexible advanced data recorder. It is fully wireless (recharge and programming), is capable of recording with up to 800Hz (1600Hz on request) and can be fitted with a choice of sensors (e.g. depth, conductivity, speed, GPS, IMU, etc.). Another promising advancement has been in the post-processing and analysis of the recorded data: CATS has managed to develop the [CATS-Visualizer](#), which enables the user to recreate the entire three-dimensional movement of the animal.

2. Product features

Model	Sensors	Supply	Interfaces	Features	User level
CATS-Diary v3.4.r2.	Pressure (Depth, 300m, 500, 1000m, 2000m) [standard] Barometer [optional] Accelerometer [standard] Gyroscope [standard] Magnetometer (compass) [standard] Pitot (Air pressure) Temperature [standard] Light [standard] Speed (speed wheel) [optional] Conductivity [optional] Sound [optional] GPS (RAW) [optional] GPS [optional] CATS-Visualizer analysis possible GSM (see CATS GSM Tag) Video (see CATS Cam)	Primary cells Li-Ion Primary cell or Li-Ion	USB Wireless USB and wireless (optional)	Choose your own sensors Pre-defined set of sensors Infrared (IR) capable IR LEDs (optional) Visible light LEDs (optional) Solar-recharge (optional)	Professional Advanced Beginner
Available sensors	<ul style="list-style-type: none"> • • • • • • • • • • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • • 	<ul style="list-style-type: none"> •

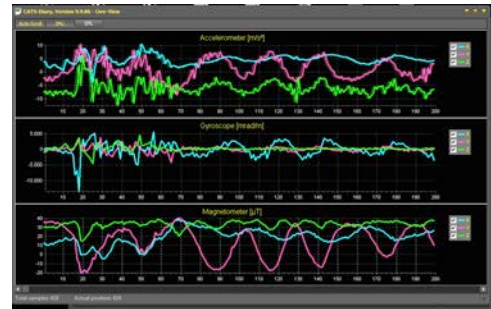
3. Pricing

The standard CATS-Diary (WiFi) with the standard sensors starts at a price of 2400 Euro. This does not include any customization (optional sensors, see above) or larger capacity devices (i.e. more battery). The optional solar re-charge version also adds a surcharge. Please contact us for more info on additional costs.

In order to analyse the obtained data with the CATS-Visualizer software please contact CATS for the stand-alone off-line software version.

4. Detailed description

Similar to the CATS-Flight-Diary, the CATS-Diary is a high-resolution multi-sensor recorder, which is capable of resolving fine-scale movement, however, the CATS-Diary is designed to be very flexible with its sensors. This means that the customer can choose from a set of sensors to be included. So if the researcher would like to have a certain combination of sensors (e.g. depth, conductivity and speed) CATS is able to equip the CATS-Diary with them. In addition, as with all new generation CATS-devices the new CATS-Diary is fully wireless, making any cables, or USB connections obsolete.






In the past, IMU analysis has often been a very tedious, time-consuming and difficult procedure. As with the CATS-Flight-Diary, CATS has managed to develop the [CATS-Visualizer](#) software facilitating the graphic, 3-dimensional movements of the recorded animal/data.

Further is it possible to program the CATS-Diary to duty-cycle the device. The user has the choice to either set the cam to record continuously or to duty-cycle the recordings or delay its start. It has a solid USB interface and the user interface includes a live view of selected sensors with a special option to visualize the 3-D IMU output live at 20Hz, enabling the user to verify its functioning and identify the correct orientation of the axis. In addition, no matter how you place the device on the animal, it is possible to choose the orientation in the UI.

5. Sensor performance

Sensor type	Max. sampling rate (Hz)	Range	Accuracy	Resolution (bit)	Comments
Accelerometer	800 (3-axis)	2 g - 16 g	0.0000061 g	16	
Gyroscope	800 (3-axis)	250 - 2000 dps	0.00763 mdps - 0.06 mdps	16	
Magnetometer	100 (3-axis)	$\pm 4800 \mu T$	0.15 μT /LSB	16	
GPS	10	-	NavSol +/- 5-20cm	-	
Barometer	100	10 - 2000 mbar	+/- 0.024 mbar (19 cm)	24	
Pressure (depth)	100	0-2000 m	+/- 20 cm	24	Various sensors
Conductivity	50				
Speed (water)	50	0.5 - 100 m/s	TBA	16	
Audio	44000				
Temperature	100	$(-45^{\circ}C - (+85^{\circ}C)$	+/- 0.8 $^{\circ}C$	24	
Light	10	500 lux	-	16	Not calibrated, relative values

6. Application examples

Application (mode)	Deployment duration	Example
Great white shark	3 days	
Jellyfish	6 hours	
Humpback whale	12 hours	
Shark	24 hours	
Crocodile	3 days	