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SPLASH10-BF BASIC FASTLOC® GPS TAGS PRODUCT SHEET

The SPLASH10-BF adds our Wildlife Computers Argos transmitter to Wildtrack Telemetry Fastloc® technology and the basic TDR10 archival tag. This tag performs sub-second GPS acquisitions and transmits Fastloc and other data through the Argos satellite system. It has the standard TDR10 sensors to measure temperature and to differentiate wet or dry conditions, and has basic archival capabilities with 1 GB of memory.



SPLASH10-BF-297

Controller features

The SPLASH10-BF has a low-power design that is optimized for long battery life. The controller contains a real-time clock, up to eight 12-bit analog-to-digital converters, 512 KBytes of low-power static RAM, support for FLASH data memory, and 128 KBytes of program FLASH memory. The operating code of the TDR10 resides in this code memory and can be upgraded. This means it can always have the most up-to-date version of on-board software, regardless of when the tag was purchased.

Sensors

The SPLASH10-BF is configured with the following sensors.

Wet/Dry — The wet/dry sensor allows the tag to recognize when it is dry to control sampling and transmissions.

Internal Temperature — A 12-bit analog-to-digital converter is used, providing an actual measured range of -40 to $+60^{\circ}\text{C}$, with 0.05°C resolution and an accuracy of $\pm 0.1^{\circ}\text{C}$.

External Temperature — A 12-bit analog-to-digital converter is used, providing an actual measured range of -40 to $+60^{\circ}\text{C}$, with 0.05°C resolution and an accuracy of $\pm 0.1^{\circ}\text{C}$. Response time is less than 1 second.

User-programmable sampling protocols

Sampling is controlled by a user-specified sampling protocol. The researcher programs the rate at which each sensor is sampled, and whether or not sampling is suspended when the wet/dry sensor reads dry.

Memory and data retention

Collected data are stored in non-volatile FLASH memory. Data are maintained for at least 25 years, even if the battery is exhausted.

Transmitter

The SPLASH10-BF incorporates a specialized Argos transmitter developed by Wildlife Computers. It generates 0.5W of radiated power output. The high-efficiency and frequency stability of this transmitter maximize the quantity and quality of messages.

Transmitted data

Researchers can program the SPLASH10-BF to transmit time-at-temperature and wet/dry timelines. For the histograms, the researchers can configure the histogram collection period (1 to 24 hours) and bin ranges (up to 14 bins). Many other parameters are user-programmable and provide the flexibility to customize data collection to best achieve different experimental objectives. The SPLASH10-BF also transmits data collected from the Fastloc module. Each Fastloc location fits into a single Argos message.

Location accuracy

Service Argos provides the locations with best accuracy as good as $\pm 250\text{m}$. Additionally the data from the Fastloc module can be post-processed (with supplied software) to generate locations with GPS precision and typical accuracy of less than 50m.

SPLASH10-BF Fastloc® GPS Tags Product Sheet – continued

Battery Life

Actual battery life depends on the sampling regime and temperature conditions. In calculating the power budget for the Wildlife Computers SPLASH10-BF Argos/Fastloc-GPS tags, the researcher needs to allow for both the Argos transmissions and Fastloc acquisitions. Since each deployment situation is different, we provide instructions for budgeting the available power to best benefit your application.

Tag activation

The SPLASH10-BF will auto-deploy. The tag senses its environment using the wet/dry sensor. When in standby mode, tags will “auto-start” when the wet/dry sensor senses a pre-set minimum change in conductivity. As with other Wildlife Computers tags, a magnet can be used to change or indicate the mode of the tag. The LED flash sequence indicates the current mode.

Communication

Wildlife Computers provides an interface to the SPLASH10-BF that runs on a PC. This interface allows the user to set up the tag for deployment, and download the data after recovery.

Data decoding and analysis

Wildlife Computers-designed PC-based WC-DAP software helps collect, prepare, and analyze the data returned from the tag through Argos or from the tag's archive. DAP can automatically collect Argos data from the Argos servers, decompress the messages into readable data, generate CSV files of the data, generate KML files of the track for Google Earth, and generate PXP files for visualization and further processing by Igor Pro (Wavemetrics).