WILDLIFE COMPUTERS

RAINIER-S20 TAG PRODUCT SHEET

The Rainier-S20 is a rechargeable, solar-powered GPS PTT tag specifically designed with the bird in mind. Not only is the tag built for comfort but it comes with field-tested features like solar cells that charge in low-light conditions or when partially covered by feathers, and an incredibly robust and bendable antenna that stands up to any abuse.

A deployed Rainier-S20 tag collects GPS locations on a flexible, customer-programmable deployment schedule. Over six-and-a-half years of archived locations can be stored on the tag and transmitted via Argos satellites together with some diagnostic sensor data. The small, solid-cast, 20-gram package is waterproof and tested to 100 meters depth.

The Rainier-S20 dispels all myths that a large bird requires a large tag. It's a simple, smart, one-size-fits-all tag suitable for deployment on birds weighing 650 grams or bigger. The tag can be fitted to a bird as supplied, or it can have any size footprint or padding glued to the base to lift the tag to fit larger species.

Key Features of the Rainier-S20
Specific avian design—this tag is comfortable for the bird with rounded edges that allow for streamlined aerodynamics while preventing feather and skin damage from sharp, cutting edges. During our field trials, all of the recaptured birds showed no evidence of any damage from the Rainier-S20.

Model: Rainier-S20

Argos antenna—our antenna is field-proven and virtually indestructible. The minimally intrusive, low-lying antenna exits the rear of the tag. It is lightweight, highly robust, and super flexible. The antenna is securely anchored in epoxy resin and withstands over 100 pounds of tensile force.

Solar cells and power—solar-cell design and circuitry efficiencies allow for improved charging in low-light conditions and partial feather coverage.

Rainier-S20 recovered from a Golden eagle after 604 days of deployment.
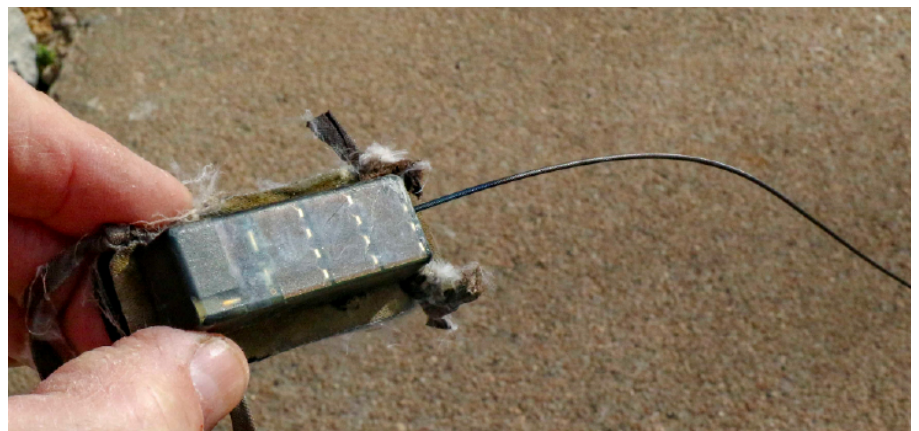
Smart algorithms differentiate shifts in day length and times of civil sunrise and sunset—Rainier-S20 tags' smart day/night algorithms accurately calculate civil sunrise and civil sunset to the minute for any location on the globe. This, along with GPS, allows you to get data from locations all over the world with little to no gaps.

External communications port with multiple benefits including:
- Administer your own tag settings through Wildlife Computers Tag Agent Software
- Charge your tags indoors with visual LED feedback
- Download the entire tag archive if it is located after deployment (it does not need to come back to Wildlife Computers for data extraction)

The portal advantage—Rainier-S20 tags are supported by the Wildlife Computers Data Portal, a collection of online data management tools and services. Developed specifically for the display and investigation of data from Wildlife Computers tags, the data portal streamlines the processes of acquiring, preserving, and sharing data services. The portal helps collect, prepare, and analyze the data returned from the tag—via Argos or the archive. Data are easily sorted, filtered, searched, uploaded, and shared. You can see a Google Earth display of your deployment track, color-coded to show the relative age of each location. You can also set up a live KMZ to get data into your own monitoring system.

Technical Specifications

Tag weight (excluding neoprene)	20 grams
Dimensions (L x W x H) mm	56 x 18 x 14
Construction	Solid cast/hermetically sealed in biologically inert epoxy resin
Antenna make and length	GPS patch antenna embedded. Argos antenna 200 mm. Protrudes from back edge of transmitter at 30° to the horizontal
Pressure rating	Tested to 100 m depth
Memory/archive	Approximately 58,000 GPS locations timestamped to the nearest second. Equates to >6 years of data stored at hourly locations 24/7
Operating frequency	401.678 MHz
Operating life	Solar tags > 3 years
Sensors	GPS, temperature, battery voltage
GPS accuracy	Coordinate positions are recorded to four decimal places yielding accuracy to +/- 11 m
GPS channels	48
GSP datum	WGS84
Operating temperature range	Range: 0° C to 65° C as specified by battery manufacturer
Communications	Via USB port and Tag Agent user interface software
Battery charging	Solar or USB
Recovery pinger	Optional in future designs, not currently activated
Battery	Lithium polymer rechargeable battery
RF power output	Maximum 500 mW, typically 200 mW when deployed
Tag on/off protocol	Using a magnet cover
Supply voltage	3.0 to 4.0 volts