

Pop-Up Satellite Tag Matrix

September 2011

I made this selection matrix to help organize all of the data that I could find on pop-up satellite tags. I obviously know our own tags very well, but I am sure that I am missing information on the other companies' tags. The information that I do have is pulled from their website(s). Therefore, I highly recommend contacting them and not taking what I have as 100% accurate and if I am missing something from these tables or if something is incorrect please contact me immediately so that I can update them. You can reach me via email at: tgray@desertstar.com or via phone 831-384-8000 x118.

	Desert Star Systems SeaTag-MOD	Desert Star Systems SeaTag- GEO/PSAT	Wildlife Computers (WC)	Microwave Telemetry (MT)	Lotek Wireless
Latitude/Longitude	Earth's magnetic field for latitude and light-based geolocation for longitude (Latitude error depends on location in the world. The average has been about 35nm.)	Same as SeaTag-MOD	Light-based geolocation only (We were unable to find papers with published figures of RAW data. Therefore we do not have information on accuracy of this approach.)	Light-based geolocation only (same as WC tag)	Light-based geolocation only (same as WC tag)
Temperature	Yes (0.001°C resolution, 0.2°C accuracy from -40 to +85°C)	Yes (same as SeaTag-MOD)	Yes (0.05°C resolution from -40 to +60°C)	Yes (0.23°C resolution from -4 to +40° C)	Yes (no published resolution data available, -5° to +35° C)
Depth	Yes (1% of full scale) (we've observed 0.01m resolution)	No	Yes (0.5m resolution)	Yes (1.34m resolution)	Yes (no published data)
Accelerometer	Yes (3-axis accelerometer measures changes in acceleration)	No	No	No	No
Data Storage	4gb microSD card (100,000+ years of daily locations)	18 months of positions with "memory zooming" feature.	64mb (Limited by battery life for transmissions, not memory)	(Could not find on the website)	128mb (same as WC tag)
Float Designs	(standard) Bulb shape or low drag bullet shape	Low drag shape only to reduce diameter and	Only available in the bulb shape	Only available in the bulb shape	Kind of half/half: bulb/bullet. See Lotek

	(Bullet design has 50% less drag than the bulb design BUT the bulb design has been used for decades.)	drag.			Wireless' YouTube channel for a video of their tag vs the standard bulb shape float.
Release Mechanism	An energetic release that works in both fresh and salt water. This design is not susceptible to fouling problems.	(same as SeaTag-MOD)	Salt water only corrosive pin (salt water only)	Salt water only corrosive pin (salt water only)	Salt water only corrosive pin (salt water only)
Power Source	Stored solar power is always the primary power source. Battery/Release sections are available from ½ AA, ¾ AA, and AA batteries depending on tagging requirements.	(same as SeaTag-MOD)	Battery	Battery	Battery
Data Retrieval	ARGOS: Stored solar power and battery-augmented (optional) (If equipped with a battery, the battery augments solar when necessary. When the battery is completely depleted, transmissions are only available on solar.)	Stored solar power only.	ARGOS: Battery only (The way I understand it is that it can only do one year of transmissions, battery limited. I do not have exact figures.)	ARGOS: Battery only (...probably the same limitations as WC because I think they use the same battery.) (As I understand it) They process the data for you then send the processed data.	ARGOS: Battery only (...probably the same limitations as WC because I think they use the same battery. I do not know if they provide software for processing data or if they process the data for you.)
Longevity	Because we don't use a battery in the main section if the tag is found you just replace the release section with a new one (with or without battery). Cost is about \$400 +/- and you essentially have a new tag.	Simply erase the memory, reprogram, and retag. There is no lifetime on this tag.	One time use with potential for rebuilding. I am not familiar with how they refurbish the units.	(I think) Same as WC tag	(I think) same as WC tag
Cost per Rebuild	\$400 +/-	No cost	\$700 (I thought I saw that figure somewhere, a while ago... <u>might be wrong</u>)	\$800	Don't know

Cost per Tag	(quantity dependent) Single Tag: \$2,250 Discounts at quantity 10 and 50.	(quantity dependent) Single Tag: \$1,350 Discounts at quantity 10 and 50.	\$3,500 (unaware of any discounts)	\$3,800 (unaware of any discounts)	(approx.) \$3,500 (unaware of any discounts)
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