




## CART Series

**Technology:**  **Acoustic**  **Radio**

**Product:**  **Tag**

Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)



## Combined acoustic/radio transmitters

The Lotek CART series of transmitters was introduced to minimize the impact on threatened or endangered fish species that traverse multiple environments where use of a single telemetry tracking technology (radio or acoustic) is sub-optimum. CART transmitters allow researchers to monitor fish in freshwater or saltwater, in areas characterized by shallow depths and turbid, high flow, as well as areas of greater depth. CART minimizes the impact on the species of interest by providing a single transmitting tag solution to studying animals in almost any environment. CART permits tracking anadromous species in river headwaters, the open ocean and everywhere between. CART offers real time sensor data (temperature, pressure/depth, bi-modal motion) transmission providing a deeper insight to animal behavior.

## Options

- Available as ID-only or ID plus real time sensor data transmission (temperature, pressure/depth, motion)

### Features:



Temperature



Depth



Activity

### Combines two telemetry technologies:

Radio and acoustic, within a single tag to minimize the impact of tagging and monitoring on the animal

**Over 700 (Lotek 5) unique animal IDs per frequency for radio and over 80,000 acoustic IDs available**

### Compatible with multiple acoustic receiving systems and UMAP fine scale positioning software:

Including MAP, JSATS, 69 KHz Rcode

## Product Applications

Studies of migration activity and timing of anadromous species from the open ocean and up river to spawning sites, studies of lake dwellers moving between shallow and deep freshwater, manual tracking, autonomous datalogging, presence/absence and 2D/3D positioning.

Model	Physical specifications <sup>[1]</sup>		Calculated life (days) (Std / HP) <sup>[2]</sup>			
	Size (ØxL) (mm)	Weight (g)	Acoustic = 5s Radio = 5s	Acoustic = 10s Radio = 10s	Acoustic = 20s Radio = 20s	Acoustic = 60s Radio = 60s
J-CART	Compatible with both JSATS acoustic and SRX coded radio receiving systems					
J-CART-16-25	16 x 57	17	1032	1933	3430	N/A
J-CART-14-12	14 x 40	8.0	273	497	846	N/A
J-CART Sensors	Temperature, Pressure, Motion, Temp/Press, Press/Motion available in SRX Radio mode only					
M-CART (76 KHz)	Compatible with both MAP acoustic and SRX coded radio receiving systems - 76 KHz MAP					
MM-MC-8-SO	8.5 x 43	6.3	17	34	65	179
MM-MC-11-SO	11 x 43	8.0	17	34	65	179
MM-MC-11-28	12 x 62	12	83	164	321	889
MM-MC-11-45	12 x 78	16	129	255	499	1383
MM-MC-16-25	16 x 63	28	170 / 49	338 / 99	665 / 197	1882 / 580
MM-MC-16-33	16 x 73	31	232 / 67	460 / 135	907 / 268	2567 / 790
MM-MC-16-50	16 x 86	37	371 / 108	736 / 215	1451 / 429	4107 / 1265
M-CART (200 KHz)	Compatible with both MAP acoustic and SRX coded radio receiving systems - 200 KHz MAP					
MM-MC-8-SO	8.5 x 43	6.3	22	44	85	224
MM-MC-11-SO	11 x 43	8.0	22	44	85	224
MM-MC-11-28	12 x 62	12	113	222	432	1164
MM-MC-11-45	12 x 78	16	176	346	672	1810
MM-MC-16-25	16 x 63	28	317 / 98	626 / 194	1217 / 385	3287 / 1116
MM-MC-16-33	16 x 73	31	433 / 133	853 / 265	1659 / 525	4482 / 1521
MM-MC-16-50	16 x 86	37	692 / 213	1365 / 424	2655 / 840	7172 / 2434
M-CART Sensors	Temperature, Pressure, Motion, Temp/Press, Press/Motion available in either/both modes					
			Acoustic = 60s Radio = 5s	Acoustic = 60s Radio = 10s	Acoustic = 120s Radio = 5s	Acoustic = 120s Radio = 10s
R-CART	Compatible with both Rcode acoustic and SRX coded radio receiving systems					
MM-RC-8-SO	8.5 x 43	6.3	66	98	77	125
MM-RC-11-SO	11 x 43	8.0	66	98	77	125
MM-RC-11-28	12 x 62	12	321	480	376	617
MM-RC-11-45	12 x 78	16	499	747	585	959
MM-RC-16-25	16 x 63	28	807 / 388	1146 / 453	991 / 595	1558 / 763
MM-RC-16-33	16 x 73	31	1101 / 529	1563 / 618	1352 / 811	2124 / 1040
MM-RC-16-50	16 x 86	37	1761 / 847	2501 / 989	2163 / 1297	3398 / 1664
R-CART Sensors	Temperature, Pressure, Motion, Temp/Press, Press/Motion available in SRX Radio mode only					

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Model	Physical specifications <sup>[1]</sup>		Calculated life (days) (Std / HP) <sup>[2]</sup>			
	Size (ØxL) (mm)	Weight (g)	Acoustic = 60s MAP = 5s Radio = 5s	Acoustic = 60s MAP = 10s Radio = 10s	Acoustic = 120s MAP = 5s Radio = 5s	Acoustic = 120s MAP = 10s Radio = 10s
MRCART TRI-MODE	Compatible with 76 KHz MAP acoustic, 69 KHz Rcode acoustic and SRX coded VHF radio receiving systems					
MM-MRC-8-SO	8.5 x 43	6.3	17	98	77	125
MM-MRC-11-SO	11 x 43	8.0	17	98	77	125
MM-MRC-11-28	12 x 62	12	83	480	376	617
MM-MRC-11-45	12 x 78	16	129	236	134	253
MM-MRC-16-25	16 x 63	28	166 / 46	306 / 85	173 / 48	329 / 92
MM-MRC-16-33	16 x 73	31	227 / 63	417 / 116	236 / 66	449 / 126
MM-MRC-16-50	16 x 86	37	363 / 101	667 / 186	377 / 105	718 / 201
MRCART Sensors	Temperature, Pressure, Motion, Temp/Press, Press/Motion available in SRX Radio and/or MAP acoustic modes					
Transmitter options	Additional	Additional <sup>[3]</sup>	Derating			
Motion	0 x 0	0.0	< 1%			
Temp+Press	0 x 5	0.5 - 3.0	< 1%			
Press+Motion	0 x 5	0.5 - 3.0	< 1%			

Tolerance on all specifications is ± 5%

Sensors available in MAP Acoustic and SRX Radio modes only.

1. Sensor length and weight are in addition to the ID-only specifications.
2. HP = High Power - Acoustic Mode Only
3. Sensor weight increase 0.5g for 8.5 mm diameter tag and 3g for 16 mm diameter tag.

Features and specifications subject to change without notice.

## Warranty

CART tags are warrantied to be free of defects in materials and workmanship under Normal Use for a duration of 80% of Estimated Life to a Maximum of 3 years.

For Warranty terms and conditions, please review our [Warranty Statement](#).