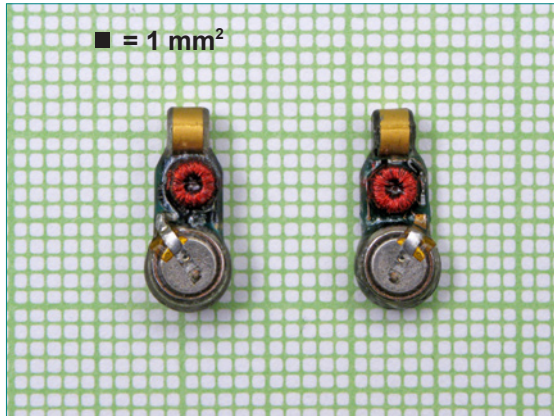


# JSATS AMT

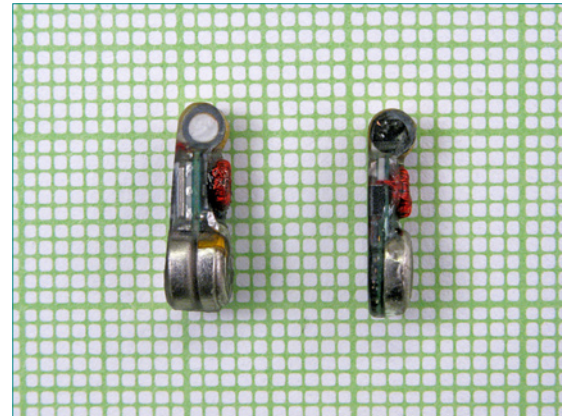
## Juvenile Salmon Acoustic Telemetry System Acoustic Micro Transmitter

Front



L-AMT 2.1 L-AMT 1.1

Side



L-AMT 2.1 L-AMT 1.1

The Lotek JSATS AMT – Juvenile Salmon Acoustic Telemetry System Acoustic Micro Transmitter – was developed to satisfy the research and regulatory requirements for monitoring juvenile salmon in the Columbia River Basin. The transmitter’s small size and relatively long operational life permits tracking of sub-yearlings throughout their natural environment while minimizing impact upon them.

The Lotek JSATS AMT transmitter is compatible with JSATS receiving systems and utilizes a Binary Phase-Shift Keying (BPSK) coding system that allows for tens of thousands of unique IDs on a single acoustic frequency. Each transmission consists of an ID and check sum delivered in less than one millisecond thereby minimizing the probability of mis-identification or interference from code collision. The delay activation feature conserves battery life while fish recover from implantation.

### Key Features

- Small form factor and light weight suitable for small fish / sub-yearling applications
- BPSK coding with sub-millisecond pulse and check sum for up to 65,536 unique IDs
- Sleep / Delay activation feature maximizes operational life during the tracking period
- Used for monitoring presence/absence and wireless positioning applications



Innovative solutions for a sustainable future.

- Receivers
- Dataloggers
- Radio transmitters

- Acoustic transmitters
- Archival tags
- GPS systems

- Hydrophones
- Wireless hydrophones
- 2D/3D Position systems

- Sensor transmitters
- Accessories
- Consulting

## Specifications

Lotek JSATS AMT								
Juvenile Salmon Acoustic Telemetry System Acoustic Micro-Transmitter								
TAG MODEL	Physical Specifications		Calculated Life (days)*			Calculated Life (days)*		
	Size (l x w x t)	Weight** (g)	(with given transmission period)			(with given transmission period)		
			2 sec	5 sec	10 sec	2 sec	5 sec	10 sec
L- AMT-1.1	11.2 x 5.1 x 2.9	0.300	11	27	50	9	22	42
L- AMT-2.1	11.8 x 5.1 x 3.8	0.430	16	40	76	13	33	63
			source level 150dB (re. $\mu$ Pa @1m)			source level 154 dB (re. $\mu$ Pa@ 1m)		

\* Warranty Life is 70% of calculated life

\*\* Stated weight in air may vary by +/-5%

Surface Roughness:	Smooth and devoid of sharp edges or protrusions
Coating:	Parylene-C (25 microns min. thickness) or alternate field proven encapsulation
Biocompatibility:	Biologically inert coating
Shape:	See photographs
Transmitter frequency:	416.7 kHz $\pm$ 0.5%
Transmitter power:	Minimum source level of +150 dB (re: $\mu$ Pa @ 1 meter)
Transmitter beam pattern:	3dB maximum variability
Message transmit interval:	Factory configurable - 1 second minimum / 1 second increments
Message encoding:	31-bits, BPSK, with format as follows: <ol style="list-style-type: none"> <li>1. 7-bit Barker code (0x72)</li> <li>2. 16-bit tag ID code (0x0000 – 0xFFFF)</li> <li>3. 8-bit cyclic redundancy check (CRC), (0xFF)</li> </ol>
Message length:	744 microseconds
Number of possible tag ID codes:	65,536
On/off switch:	Non-contact acoustic trigger device, i.e. no exposed wires; tags are fully encapsulated when delivered.
Transmitter label:	Discernable 4-character code representing the 16-bit tag ID code (0xFFFF)

*Prior to delivery, 100% of all transmitters are tested for adherence to dimensional and dry weight specifications, acoustic source level, code sequence and transmit interval.*

### AMT Pre-Delivery Screening:

A permanent record<sup>1</sup> is kept of the test results to include the above information as well as the date of the test, and the technician performing the test.

### Shipment of AMT:

Transmitters are separated in the shipping box using shock absorbing high density anti-static foam.

<sup>1</sup> Consists of date, lot #, transmitter ID, code technician, pulse rate, warranty life, size (l x w x h - mm), dry weight (mg), source level (dB re  $\mu$ Pa @ 1 meter).

# LOTEK

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