



IMPLANTABLE TEMPERATURE TRANSMITTERS

Transmitter Number	Type	Battery	Dimensions LxWxH (cm)	Mounted Weight (grams)	Pulse Width (ms)	Pulse Rate* (ppm)	Peak Current (ma)	Antenna Length 218 MHz** (cm)	Power Output (dBm)	Battery Life (days)	Typical Species
LPT-21100	Multivibrator 2 Stage	3.6 v 13.5 ah Li	6.6x3.5x3.6	102-110	25	40	15	tuned loop	-22 to -30	1908	manatee, catfish, snake
LPT-2140	Multivibrator 2 Stage	3.6 v 5.2 ah Li	5.4x2.6x2.7	60-70	25	40	11	tuned loop	-24 to -32	1002	otter, beaver, salmon
LPT-2124	Multivibrator 2 Stage	3.6 v 2.6 ah Li	4.4x3.8x1.8	36-42	25	40	11	tuned loop	-24 to -32	469	otter, beaver, salmon
LPT-2150	Multivibrator 2 Stage	3.6 v 1.3 ah Li	4.4x1.8x1.9	28-33	25	40	11	tuned loop	-28 to -36	235	snowshoe hare, raccoon
LPT-2800	Multivibrator 2 Stage	3.6 v 850 mah Li	3.4x1.8x1.9	11-20	20	40	11	tuned loop	-28 to -36	189	fox, piglet, marten
LPT-2700	Multivibrator 2 Stage	3 v 750 mah Li	3.3x2x.9	9.5-14	20	30	6	tuned loop	-36 to -46	376	mongoose, medium fish
LPT-2350	Multivibrator 2 Stage	3.6 v 350 mah Li	2.3x2x.9	7-11	20	30	6	tuned loop	-36 to -46	174	small and medium fish
LPT-2320	Multivibrator 2 Stage	3.0 v 160 mah Li	4.1x1.4x1.4	14-18	19	35	4	tuned loop	-15 to -20	102	raccoon, beaver
SOPT-2380	Multivibrator 2 Stage	1.5 v 350 mah silver oxide	3.7x1.8x1.7	7-14	20	30	2.5	tuned loop	-25 to -30	403	squirrel, king snake
SOPT-2190	Multivibrator 2 Stage	1.5 v 70 mah silver oxide	2.8x1.3x.7	4-6	20	30	2	tuned loop	-48 to -58	240	squirrel, mole
SOPT-2070	Multivibrator 2 Stage	1.5 v 70 mah silver oxide	2.2x.8x.6	2.2-3	20	30	1.5	tuned loop	-50 to -60	119	mouse, gopher, other small animals
SOPT-2038	Multivibrator 2 Stage	1.5 v 43 mah silver oxide	2.2x.8x.6	1.8-2.2	20	30	1.5	tuned loop	-50 to -60	73	mouse, gopher, other small animals
SOPT-2028	Multivibrator 2 Stage	1.5 v 28 mah silver oxide	2.2x.8x.6	1.5-1.7	20	30	1.5	tuned loop	-50 to -60	48	Indigo snake
SOPT-2018	Multivibrator 2 Stage	1.5 v 19 mah silver oxide	2.1x.8x.6	1.4-1.6	20	30	1.5	tuned loop	-53 to -63	32	Indigo snake
SOPT-2012	Multivibrator 2 Stage	1.5 v 11.5 mah silver oxide	2.0x.8x.6	1.3-1.5	20	30	1.5	tuned loop	-55 to -65	20	tiny mammals
SOPT-2011	Multivibrator 2 Stage	1.5 v 11.5 mah silver oxide	1.8x.8x.6	1.2-1.4	20	30	1.5	tuned loop	-60 to -70	20	tiny mammals
LPT-2160	Multivibrator 2 Stage	3.5 v 1600 ah LI		34-34	25	50	11	20 whip	-1 to +1	235	

*At 38 degrees Celsius

**Available also with a small-diameter flexible stainless steel whip antenna for better range

Note: Temperature can be measured by using a receiver that has the capability of measuring pulse interval.

BlueSky Telemetry

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The implantable temperature transmitters for all sized animals shown in this table are meant only as examples of typical applications for multivibrator two stage circuitry. The table in no way exhausts the many combinations of transmitter type, weight, peak current, pulse width, pulse rate, battery, and mountings available. Wildlife Materials will custom-build according to the researcher.s specifications.

The efficient multivibrator-pulsed circuits used in Wildlife Materials. transmitters offer a clear, chirp free signal that is easy to tune and hear in receiver noise. Multivibrator-pulsed transmitters permit greater flexibility in customizing for optimum output and duty cycle. Because pulse rate and pulse width remain virtually constant throughout the life of the battery, transmitter performance is more predictable than that of older designs.

Surface mounting techniques enhance miniaturization by allowing more chip components to be placed on a smaller, flatter circuit board. The low-profile, rugged components also greatly improve reliability in punishing environments.

To minimize weight and provide packaging strength, transmitters are waterproofed with a tough epoxy resin conformal coating. The epoxy is a neutral substance which will not harm the animal after implanting.

When implanting a radio device in a species. peritoneum, researchers should take precaution to prevent infection.

Implanting allows a deep body temperature reading for research studies. See the Implantable Temperature Transmitter chart for availability of large to small transmitters. Temperatures are accurate to +/-1 degree Celsius. We will supply a temperature calibration procedure where needed at extra cost.

Assuming that the temperature of each animal.s transmitter has been calibrated before implanting, the transmitter registers illness, stress or estrus by means of an internal thermister that varies the pulse rate with any temperature change. The higher the transmitter.s temperature is, the faster its pulse rate will go.

These transmitters use a tuned loop antenna, which is coiled around the transmitter. However, a small-diameter flexible whip antenna may be used. This enhances the signal range and is not injurious to the animal if implanted correctly. Especially in snakes, the antenna is implanted between skin and muscle. Many researchers use a technique described in **Copea** (1982 (3): pp. 702-705) for inserting the antenna under the skin.

Exact output of the listed transmitters may vary, depending on the transmitter.s antenna length and the frequency range used. Available crystal frequencies include, but are not limited to, 40-50 MHz, 148- 155 MHz, 160-165 MHz, and 216-222 MHz.

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Each transmitter's signal range will be influenced by tracking conditions. Signal range can be diminished by rugged terrain, natural obstacles such as mountains and timber, dense vegetation, swamps and fog, along with large concrete structures. Best signal range occurs in flat, open country, in line-of-sight conditions. Air-to-ground radio monitoring also enhances the received signal.

Clients should contact our facility by telephone, mail, fax or e-mail. Detailed written specifications and drawings allow us to recommend the best possible combinations of options for a particular study.

Contact us for warranty information. If refurbishing is required so that a transmitter can be used in a different study, we will provide a conversion estimate after inspecting the transmitter.

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