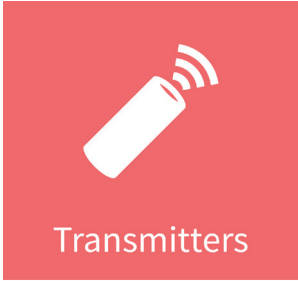


V13 Continuous Transmitters



Implantable transmitter for small and juvenile species



The **V13 continuous transmitter** is a 13mm diameter tag developed to provide researchers with the means to track and determine the behaviour patterns of small and juvenile fish. The V13 can function as a simple pinger for location only or for more detailed analysis, it can be equipped with a depth and/or temperature sensor. V13 continuous tags are used with the VR100 active tracking receiver.

Continuous Mode

In continuous transmission mode, the acoustic ping is sent at a fixed rate that is factory pre-set and typically between one and three seconds. This mode is ideal for real time tracking studies.

Physical Specifications

The physical specifications of the V13 vary depending upon whether temperature and/or depth sensors are included in the table.

		Battery Option:	
		1L	1H
V13	Length (mm)	36	36
	Weight in air (g)	11	11
	Weight in water (g)	6.3	6.3
	Power Output (dB re 1uPa @1m)	147	152
V13TP	Length (mm)	46	46
	Weight in air (g)	13	13
	Weight in water (g)	6.9	6.9
	Power Output (dB re 1uPa @1m)	149	154

Stated tag length, weight and output power are nominal. Small manufacturing variations can be expected.



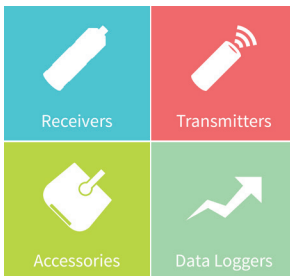
The V13 transmitter

V13 Continuous Tag Sensor Options

For research requiring temperature and depth information, V13 tags can be equipped with temperature, V13T, or depth, V13P, or both temperature and depth sensors, V13TP. V13P pressure transmitters are available in the following full scale pressure options: 17, 34, 68, 136, 204, 340, and 680 meters. V13T temperature transmitters are available in four temperature ranges: -5 to 35°C, -4 to 20°C, 0 to 40°C and 10 to 40°C.



V13P with pressure sensor



Pressure Sensors (at room temperature)		
Max Depth	Accuracy	Resolution
17 m	±1.7 m	0.08 m
34 m	±1.7 m	0.15 m
68 m	±3.4 m	0.3 m
136 m	±6.8 m	0.6 m
204 m	±10 m	0.9 m
340 m	±17 m	1.5 m
680 m	±34 m	3.0 m

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Temperature Sensor		
Range	Accuracy	Resolution
-5 to 35 °C	±0.5 °C	0.15 °C
-4 to 20 °C	±0.5 °C	0.1 °C
0 to 40 °C	±0.5 °C	0.15 °C
10 to 40 °C	±0.5 °C	0.12 °C

Expected Battery Life

The battery life of the V13 depends on the output power level and the ping period. The higher output power level allows for a greater acoustic range but reduces the life of the tag (see table below). The high power option is designated by an H next to the battery size while a L indicates low power.

Period	V13 Continuous Tags Battery Life (days)							
	V13-1L	V13-1H	V13T-1L	V13T-1H	V13P-1L	V13P-1H	V13TP-1L	V13TP-1H
1000 ms	65	23	61 (31)	22 (11)	18 (9)	12 (6)	36 (25)	18 (12)
2000 ms	121	45	113 (74)	43 (27)	36 (23)	24 (15)	N/A	N/A

Notes: The projected battery life is an estimate and users will experience a decrease in battery life if their tags are operating in extreme warm or extreme cold temperatures.

VEMCO transmitters are programmed to stop transmitting when they reach their stated battery life. This ensures that tags will operate at published specifications until expiration.

V13 pingers incur a small current drain prior to activation. Tag life will be reduced if tags are shelved for a significant period of time (months). V13 pingers should be activated within nine (9) months of delivery. Contact VEMCO for information.

The ping period is the rate at which the transmitter pings. The table describes the life span of each power level at the standard ping periods. Naturally, transmitters that ping less frequently last longer.

Available Frequencies

V13 continuous pingers are available in the following frequencies: 60, 63, 75, 78, 81, 84 kHz and can be used with a number of hydrophone and receiver types. For more information on the specific applications of the V13 or for technical details, please contact VEMCO.

VEMCO tags are warranted to be free from defects in material and workmanship for one year from date of delivery.

V13 tags with sensors will ping at varying rates depending on the sensor readings and therefore battery life will vary depending on the behaviour of the animal. The two battery lives shown for sensor tags are the extremes. Consult your VEMCO representative to determine the expected battery life for your study and for additional information regarding battery life.

