

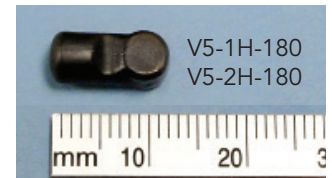
Coded Transmitters - 180 kHz

Dual tag transmission system (HR and PPM) allows researchers to tag and release large numbers of small to medium sized fish simultaneously

Vemco's 180 kHz coded transmitters provide researchers with the means to track and monitor movement and behaviour of small to medium sized animals from salmon smolts to arctic cod to various reef species.

180 kHz tags can transmit ID codes using both High Residence (HR) and Pulse Position Modulation (PPM) coding schemes virtually at the same time thereby offering new ways of detecting your tagged fish.

Available in a range of sizes and in a variety of battery models, the tags can be used for studies from one month to two years in duration. Transmission range can be in excess of a few hundred meters depending on environmental conditions and tag selection.



Use Cases and Benefits

- » Monitor non-native fish species to understand their impact on the ecosystem and its inhabitants
- » Study animals as they migrate from rivers to the ocean and back with the V5
- » Monitor juvenile fish in nursery areas with the V5
- » Investigate temperature and depth behavior of smaller fish using the V7
- » Conduct long-term studies of predator movement (up to two years) with the V9
- » Use the V7 and V9 to measure 2D and 3D fine-scale positions with very high precision
- » Dual transmission system (HR and PPM) provides flexibility for study designs and research objectives
- » Position the same fish with two coding systems (HR may have advantages over PPM in some conditions)
- » Combine HR2 and VR2W-180 kHz receivers in the same study
- » Monitor HR and PPM tags in real-time (HR2s)

Coded Tag Sensor Options

For research requiring temperature and depth information, the V7TP and V9TP are available with both temperature and depth sensors (TP).

Temperature Sensors (V7, V9, V13, V16)		
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

V7 and V9 Pressure Sensors (at room temperature)		
Max Depth	Accuracy	Resolution
17 m	±0.5 m	0.075 m
34 m	±0.5 m	0.15 m
68 m	±1.0 m	0.3 m
136 m	±1.0 m	0.6 m
204 m	±1.0 m	0.9 m

A raw unscaled data value of 0 indicates a problem was detected in the pressure sensor and no pressure measurement is available. This value will never occur in normal operation. Please contact your sales representative.

Range Test, Sync, Reference and Sentinel Tags

Most 180 kHz tag models can be purchased with a convenient and permanent cap that allows for easy attachment to receiver lines.



In addition, the long life and transmission flexibility of the tags make them ideal for use as synchronization tags to synchronize receiver clocks and as a reference tag to calibrate positioning accuracy within a 180 kHz positioning study. The V9-180 kHz tag also has the same acoustic power output as a V5 making it an excellent choice for 180 kHz range testing.

Programmable ON/OFF

Programming options allow users to take advantage of tag behaviour over the life of their tags. Users can use between one to four programming steps to define the tags transmission: status (ON/OFF), time interval, power level (L/H) and nominal delay.

For example, tags can be programmed to start in LOW power mode for one day during the surgical implantation phase. Program to turn OFF for the surgery recovery period to conserve battery life since the location of the animals are known.

If you are tracking animals during a migration phase, the tag can be programmed to turn ON in HIGH power mode for several weeks or months at a time.

To track animals in a residency type setting, the tag may be programmed to stay ON in LOW power mode for extended periods of time.

Pair With

Coded 180 kHz transmitters are used as a system with all Vemco 180 kHz receivers:

- » VR2W-180 kHz
- » HR2 (High Residence)
- » VR4-UWM (Underwater Modem)
- » VTA (Vemco Tag Activator)



Battery Life Examples													
Type	Nominal Delay (sec)	V5-1H Life (days)		V5-2H Life (days)		V7TP-2H Life (days)		V7TP-4H Life (days)		V9-2H Life (days)		V9TP-2H Life (days)	
		95%	50%	95%	50%	95%	50%	95%	50%	95%	50%	95%	50%
HR	5	65	80	80	95	49	57	75	87	500	570	335	385
PPM	30	75	90	95	110	65	78	100	117	580	635	445	520
HR/PPM	5/30	42	50	52	62	31	37	48	56	320	355	215	250

PRODUCT SPECIFICATIONS

Tag Family	Diameter	Length (mm), Min - Max	Weight in Air (g) Min - Max	Power Output (dB re 1 uPa @ 1m)	Sensors *
V5	4.3 - 5.7 mm	12.7	0.64 - 0.74	143	D
V7	7 mm	19 - 22	1.2 - 1.5	137 - 143	T, P, TP
V9	9mm	24.1 - 26.5	3.67 - 3.9	143	P, TP

* T - Temperature, P - Pressure, TP - Temperature/Pressure, D - Predation

Ready to Get Started? [Contact us](#) today.

About Innovasea

Innovasea designs the world's most technologically advanced aquatic solutions for fish tracking and builds them to withstand the toughest conditions. It's all driven by a commitment to make our ocean and freshwater ecosystems sustainable for future generations. Today. Tomorrow. For life.