

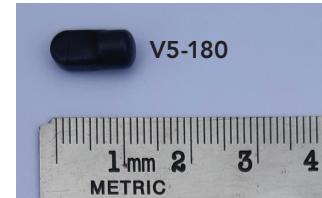
Coded Transmitters - 180 kHz

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

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 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

The V7 and V9 are available with both temperature and depth sensors (TP). The V5 is available with a predation sensor option.

| Temperature Sensors (V7, V9) | | |
|------------------------------|----------|------------|
| 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 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.



can use between one to four programming steps to define the tags transmission: status (ON/OFF), time interval, power level and nominal delay.

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)



Programmable ON/OFF

Programming options allow users to take advantage of tag behaviour over the life of their tags. Users

| 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 | 60 | 72 | 73 | 88 | 49 | 57 | 75 | 87 | 438 | 528 | 321 | 368 |
| PPM | 30 | 80 | 89 | 98 | 108 | 65 | 78 | 100 | 117 | 484 | 579 | 432 | 504 |
| HR/PPM | 5/30 | 40 | 48 | 49 | 58 | 31 | 37 | 48 | 56 | 266 | 329 | 206 | 242 |

Shelf life will affect tag life and therefore tags should be deployed within a reasonable amount of time from purchase. Please contact your Sales Representative to determine the time frame within which your tags should be deployed.

PRODUCT SPECIFICATIONS

| Tag Model | Diameter (mm) | Length (mm) | Weight in Air (g) | Weight in Water (g) | Power Output dB re 1µPa @1m (Low / High) |
|-------------|---------------|-------------|-------------------|---------------------|--|
| V5-1x | 4.3 x 5.73 | 12.7 | 0.64 | 0.38 | 141 |
| V5-2x | 5.7 x 5.66 | 12.7 | 0.74 | 0.45 | 141 |
| V7T-2x | 7 | 16 | 1.2 | 0.6 | 137 / 143 |
| V7T-4x | 7 | 19 | 1.5 | 0.8 | 137 / 143 |
| V7P/V7TP-2x | 7 | 19 | 1.4 | 0.7 | 137 / 143 |
| V7P/V7TP-4x | 7 | 22 | 1.7 | 0.85 | 137 / 143 |
| V9-2x | 9 | 24.1 | 3.67 | 2.1 | 138 / 143 |
| V9P/V9TP-2x | 9 | 26.5 | 3.9 | 2.2 | 137 / 143 |

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.