

HR3 High Residence Receiver

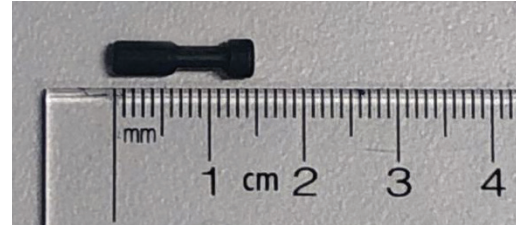
Track more small fish in less time and with more accuracy than ever before



The HR3 High Residence Receiver is an excellent choice for tracking many fish with higher accuracy than ever before using our 307 kHz V3 transmitter. The HR3 receiver and HR telemetry system was designed specifically to allow researchers to monitor or position many tagged animals with sub-meter accuracy.

The HR3 is capable of decoding two different methods of transmitting IDs to satisfy different study design objectives: HR Mode(High Residency),and HTI Mode. HR represents a more aggressive transmission system that offers the ability to detect many more tagged animals at once than our traditional PPM coding. Each HR ID code is embedded in every short ping transmitted by the tag. The HTI coding structure provides researchers with high performance in noisy and reflective environments. To provide collaboration/equipment efficiencies, the HR3 receivers can detect tags transmitting our traditional HR signal, or transmissions from HTI 307kHz tags. This means that the HR3 can be used with existing HTI 307 kHz transmitters.

Remotely monitor mooring integrity, lost receivers, or if fish have passed HR3 receivers, using a VR-



100 surface receiver and a VHTx 307kHz transponding hydrophone (both sold separately). Query a moored HR3 for tilt, temperature, noise and number of detections, or program the on-board sync tag and then move on to the next receiver. If an HR3 shifts its mooring position or drifts away in the tide, locate it by setting up two-way communication between the HR3 receiver and VR100, and measure the precise distance between you and your HR3.

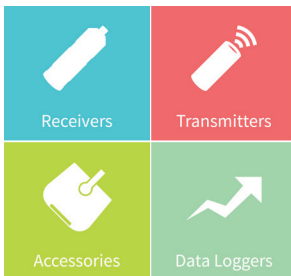
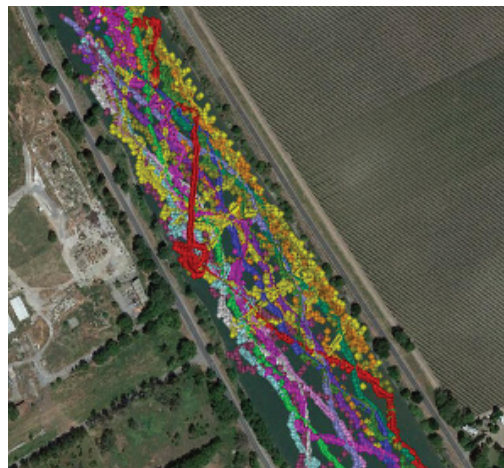


VEMCO Positioning System (VPS)

The HR3 has a built-in sync tag for receiver synchronization in 2D/3D positioning studies. When setting up a VPS study, use the HR3's transponding features to quickly verify if receiver spacing is appropriate to provide high accuracy positioning.

Real-time Monitoring

The HR3 supports real-time monitoring. Connect a cable to the bottom of the HR3 to communicate directly with the receiver via PC, or through a data logger or cellular modem to an IP address. Through the data port, offload detections, view data in real time, and check the health of the receiver.



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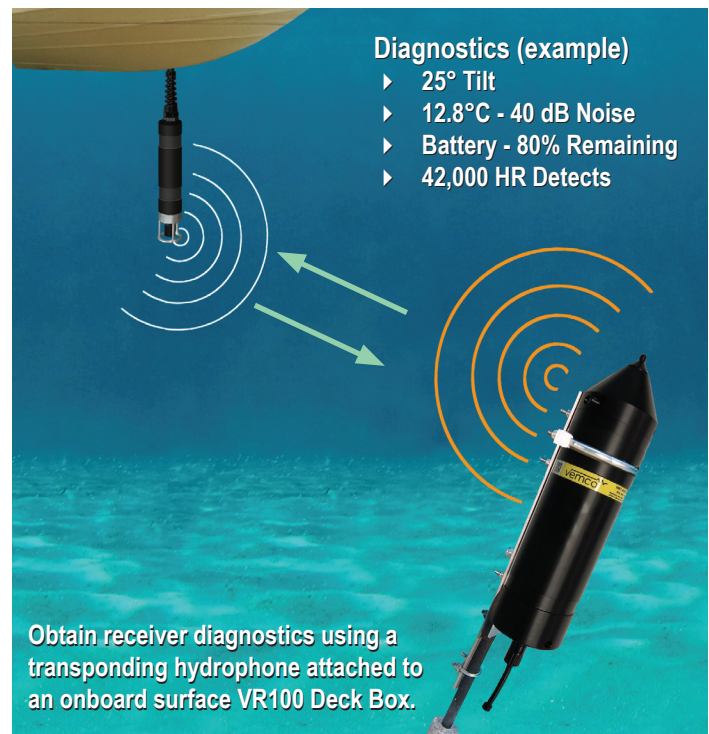
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Transponding

Rather than employing a diver to check receivers, communicate with HR3s remotely from the surface to learn about their status (i.e. tilt, battery level, number of detections). Having transponding capability adds tremendous value in numerous scenarios including 2D/3D positioning studies, range testing, and knowing if any fish have passed a receiver gate.

HR3 307 kHz Applications

- ▶ High residence studies of hundreds of tagged animals
- ▶ Frequent and precise positioning of fish (i.e. sub-meter every second depending on tag transmission rate)
- ▶ Monitor migration survival
- ▶ Monitor predator and prey behavior
- ▶ Multi-mode: the HR3 can be set to detect HR Mode or HTI Mode to support high residence studies
- ▶ Small tags: detects VEMCO's smallest tag, highest frequency tags (weighing 0.3g) making it ideal for very small fish
- ▶ Real-time data access and precise positioning (standalone or cabled)



| General Specifications | |
|------------------------|---|
| Weight | 2.93 kg (Lithium battery); 3.21 kg (Alkaline battery) |
| Dimensions | Length 40 cm (15.75 inches); Diameter 10 cm (3.9 inches) |
| Battery Life | 6 months (Lithium); 2 months (Alkaline) |
| Power | Internal Lithium or Alkaline battery pack and optional external power supply: 10-30 VDC |
| Temperature Limit | -5°C to +40°C (Water must not freeze) |
| Depth | 300m (440 psi) |
| Frequency | 307 kHz |
| PC Software | fathom™ |
| Data Capacity and Type | 160,000,000 HR detections or 100,000,000 HTI detections |
| Diagnostics | Received signal strength, receiver noise, tilt, temperature, battery capacity, etc. |
| Transponding | 2 way acoustic communications between the HR3 and the researcher at the surface (requires a VR100 Deck Box and 307 kHz transponding hydrophone, both sold separately) |



VR100 Deck Box



307 kHz Transponding Hydrophone