



This Field Communication Quick Guide provides information on key acoustic transponding procedures. Full details for transponding procedures are found in the VR100 user manual and at www.vemco.com. We strongly recommend you study the full manual before using this quick guide.

Equipment and Setup

Acoustic transponding communication requires three elements: an **HR2 receiver**, a **VR100-200 receiver**, and a **180kHz transponding hydrophone** like the one shown below.

Connect the transponding hydrophone to the first connector on the side of the VR100-200 case (see photo, far right).

Place the transponding hydrophone in the water so it is at least **5m** below the hull of the boat. The hydrophone needs line-of-sight to the receiver.

Make sure the hydrophone doesn't bang against the hull. Turn off your boat's depth sounder, and if possible, the engine. These can interfere with communication.



Connect

1. Turn on the VR100-200.
2. On the main menu, select **Transpond**.
3. To scan for HR2 receivers in the area, select **Auto Scan** or **Manual Scan**. Alternately, select **Add Device** and enter the receiver serial number.
4. Wait while the "wake-up" command is broadcast, and again for responses from units in the area. These wait times are fixed and displayed with a "T_" counter. The VR100-200 will not respond to user input until the wait times are completed.
5. Select the desired unit from those that responded. If your desired unit is not listed, select **Rescan** to try again.

```
SCANNING... Found 3
HR2:461049 100m
T-13 63dB III
M00 Mute
```

Health

You are encouraged to use **Get Health** to establish communications.

1. Select **Status...**
2. Select **Get Health...**
3. Wait while health information is gathered from the receiver and then displayed. From top:
 - serial number & slant range
 - battery life remaining
 - memory used
 - tilt angle from vertical
 - Temperature (not shown)

```
HR2:461049 170m
Batt: <25% left
Mem: 0-30% used ↓
Tilt: 11° Resend
```

To refresh the information onscreen, select **Resend**.

Configure Built-In Transmitter

From the main **Transponding** menu:

1. Select **Settings... (#2)**,
2. then **Synctag... (#2)**,
3. then **Set Up Profile... (#2)**.
4. Select **Power Level**
 - **1 - Low** 135dB
 - **2 - Medium** 139dB
 - **3 - High** 143dB
 - **4 - Very High** 147dB
5. Click **Next**.

6. Select **Built-in transmitter (Synctag) Timing Mode:**

- **1 - Don't Change**
- **2 - Synctag** PPM 270-330sec / HR 25-35sec
- **3 - RangeTestRand** PPM 25-35sec / HR 4-6sec
- **4 - RangeTestFixed** PPM 30sec / HR 5sec
- **5 - Off**

7. Click **Next**.
8. Confirm the New Profile and click **Send**.

```
Synctag Power Level
1 2 3 4 ↓
(High)
Next
```

```
Synctag Timing Mode:
1 2 3 4 5 ↓
(RangeTestRand)
Next
```

```
Confirm New Profile:
Power: High
Profile: RangeTestRand
(SYNCTAG) Send
```

Field Communication Quick Guide

Detections and Transmissions

From the main **Transponding** menu:

For **Detections**, select **Status...** (#1), then **Detections...** (#3).

For **Transmissions**, select **Settings...** (#2), then **Synctag...** (#2), then **Transmissions...** (#4).

You can retrieve PPM, HR, or PPM + HR (**detections** or **transmissions**), under each of the options below:

- **Total Detections** – count of detections stored in the HR2 receiver since last initialization.
- **Total Transmits** – count of transmissions of receiver's built-in transmitter since last initialization.
- **Since Offload** – count of **detections** (or **transmissions** of receiver's built-in transmitter) stored since data was last offloaded.
- **Since Marking** – count of **detections** (or **transmissions** of receiver's built-in transmitter) stored since the receiver was last "marked".

Detection and **Transmission** counts and times are rounded to allow faster transmission.

NOTE: Marking clears the **Since Marking** counters (**detections**, pings, and built-in transmitter **transmissions**) as well as the entire Watch Table.

1 PPM + HR
2 PPM only
3 HR only
Select

HR2:461049	170m
Detects:	91,072
Last:	May26/17 17:02
TOTAL	Resend

HR2:461049	170m
Transmits:	91,072
Last:	May26/17 17:02
TOTAL	Resend

Watch Table

The **Watch Table** is helpful in identifying if specific tags were in the area surrounding a receiver. IDs for tags of interest are programmed into the HR2 ahead of time using the Fathom software (see Fathom/HR2 receiver documentation for details).

Detection counts for each of these IDs can then be accessed using the VR100-200 while the HR2 is deployed. Each ID in the watch table is assigned an index number between 1 and 192; be sure to bring a list of Watch Table IDs and their corresponding indices into the field for reference.

To check a Watch Table on the VR100

1. Select **1-Status**.
2. Select **4-Watch Table**.
3. Select **2-Query**.
4. Enter the Watch Table **Index number**. To continue, click **Send**.
5. Wait while the information passes between the VR100 and the receiver. The result will be shown on the VR100 screen.
6. You can also read the **Total Hits** (#1), the **Tag ID** (#3) for a particular watch table index, and the **Signal Stats** (#4, signal in dB and quality from 1 to 10).

1 Status...
2 Settings...
3 Acoustic Release
Select

2 Get Range	↑
3 Detections...	
4 Watch Table...	
Select	

1 Total Hits
2 Query...
3 Get ID...
Select

Enter Watch Table Index (1 to 192):
003
Send

HR2:461049	150m
Detects:	18,062
Last:	Aug30/17 11:02
(Index 3)	Resend

Total Hits represents the sum of detections in the entire Watch Table (i.e. "are any of my Watch Table tags getting detected?"). **Signal Stats** also applies for each Watch Table entry, for you to get some idea of how well a particular tag is being detected.

Trouble?

If receivers do not respond to commands, try the following suggestions:

- Move the research vessel closer to the HR2.
- Check the power level setting of the VR100-200. On the main screen, select **Transpond** and then **Hydrophone Power** (#4). If the power is *low*, increase the power level and scan for receivers again. If the power level is *high* and you are working

Transmit power level
1 2 3 4 5 6 7
↓
*
Set

in shallow water, decrease the power level and scan again (high power may cause echoes under certain conditions such as shallow water, reflective environments, or when too close to the receiver).

- Manually increase the Gain on the VR100.
- Check the receiver's transmit power level (**Settings > Power Level**) and increase it if possible. If power is high, lower power to decrease echo effects.