VR2AR/VR2Tx Receivers
Field Communication Quick Guide

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: a **receiver** (VR2Tx or VR2AR), a **VR100-200** receiver, and a **69kHz 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.

Status Light

Before deploying a VR2Tx or VR2AR receiver, watch the Status Light for **two quick red flashes** every 5 seconds indicating receiver is in **Recording Mode**.

If there are **no flashes**, the VR2Tx/VR2AR is not powered.

Green flashes indicate acoustic pings were transmitted, but only if the transmit feature is enabled.

Connect

1. Turn on the VR100-200.

2. On the main menu, select **Transpond**.

```
SCANNING....Found 3
VR2AR:012344 100m
T-13        63dB |||
          M00 Mute
```

3. To scan for VR2Tx and VR2AR 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.

Health

You are encouraged to use **Get Health** to establish communications, as it takes less time (at 69kHz).

1. Select **Status…**

2. Select **Get Health…**

3. Wait while health information is gathered from the receiver and then displayed. From top:

```
VR2AR:012345    170m
Batt: <25% *    left
Mem:  0-30%     used
Tilt: 0-11°   Resend
```

- serial number & slant range
- battery life
- memory used
- tilt angle from vertical

Range

1. Select **Status…**

2. Select **Get Range…**

3. Wait while range/depth information is gathered from the receiver and then displayed.

```
VR2AR:012345    170m
hRange: 80m
Depth: 150m
          Resend
```

From top:
- serial number & slant range
- horizontal range (AR only)
- depth (AR only)

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

*The remaining battery capacity displayed on the VR100 (Batt: xx%) is a soft counter intended to estimate the unit's remaining battery life. For the counter to display the correct battery capacity, you must connect to VUE and initialize the receiver each time the receiver battery is replaced (see receiver manual for details).

Detections

On the transponding **Status** menu, select **Detections…**(#3).

Make selection based on desired information:

Total Detects – amount of detections stored in the VRTx/VR2AR receiver since last initialization

Since Offload – amount of detections stored since data was last offloaded to VUE

Since Marking – amount of detections stored since the receiver was last "marked"

Detection amounts and times are rounded for easier transmission.

```
1 Get Range
2 Get Health
3 Detections...        ↓
                  Select
```

```
1 Total Detects...
2 Since Offload...
3 Since Marking...     ↓
                  Select
```

```
VR2AR:000001   170m
Detects: 91,072
Last: May26/14 17:02
TOTAL          Resend
```

Marking clears the **Since Marking** counters (detections, pings, sync tag transmissions) as well as the entire Watch Table.

Acoustic Release (VR2AR only)

1. After selecting/adding a receiver, select **Acoustic Release** (#3).

2. **Verify Status:**
   a. To view the VR2AR's release status, select **Release Status**. It should report **Unarmed** at this stage. Press **MENU** to go back to the menu.

3. **Arm receiver:**
   a. Select **Arm** and wait for the status to change to **Armed**.
   NOTE: A VR2AR with firmware 1.2.5 and up does not require this arming step.

4. **Activate release:**
   a. Select **Activate** to send the release command. After reading the confirmation screen, select **Activate** again.

   b. Wait while the mooring lug is ejected from the VR2AR. The status is reported as **Opening** until the VR2AR's motor has completed the task, at which time the status changes to **Open**.

5. Press **MENU** to go back a screen and then select **Status**. The current status is reported and refreshing the information (Resend) allows you to view the progress to surface.

6. To refresh the depth value, select **Resend** and "watch" the VR2AR ascend. This also reports the horizontal distance to the receiver for easier retrieval.

```
1 Status
2 Arm
3 Activate
                  Select
```

```
VR2AR:000001   150m
Status: Opened
hRange: 80m
Depth: 130m     Resend
```

Trouble?

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

- Move the research vessel closer to the VR2Tx/VR2AR.
- 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 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).

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

- 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.
- A successful release will report **Opening** and then change to **Open**; all other values will warrant a Retry (i.e. "Jammed", "Unarmed", "ERROR").If you still don't have success, contact VEMCO.
- If **Unarmed** is reported when trying to release, select **Acoustic Release** (#3) and then **Arm** (#2) to arm the receiver and prepare it for release. Select **Activate** to perform the release.