

Vortex Vader Real-Time Voice Effects Amplifier

Operating Instructions

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This document explains how to setup your Vader voice amp, operate it correctly, and use all the features available on the unit.

This package includes:

- 1) Programmed Vader voice effects board
- 2) Battery harness
- 3) On/off power switch
- 4) AC wall adapter power supply
- 5) 1/8" pushbutton cable
- 6) 1/8" stereo output cable

You will also need the following if not included in your package:

- 1) Amplified speaker (Radio Shack #277-1008C)
- 2) Microphone with boom (Radio Shack #33-3012) or tie-clip mic (#33-3013)

The voice board will run off any DC power supply from 6V-18V. You can use the supplied battery harness. The board will also run off two 9V batteries if you want. Use alkaline batteries or lithium batteries for added life. You can also use a 6AA battery pack for extended costuming sessions. *When the batteries are getting low, you will start to hear a high-pitched whine emanating from the speaker.* This is your cue that the batteries need replacing soon!

Depending on your order, you also might have aluminum standoffs included in your package. They are for the 4 holes in the corner of the sound board. If you want to mount the sound board in an area where it needs to "stand up" some, you can remove the 4 rubber stoppers on the bottom of the sound board and use these standoffs with the screws to mount the board.

NOTE: *Handle your board as you would any piece of delicate electronics! Do not get it wet and do not handle it without grounding yourself first! Even a static shock can destroy the delicate components on the board. I suggest when installing the board, insulate it with non-static foam, hot glue, or other material. Handle the board around its edges when moving it. We are not responsible for boards that are rendered useless by improper handling.*

The Vader voice amp has 2 main operating modes:

- 1) Output level selection mode
- 2) Normal operating mode

Each will be discussed in detail. This unit contains very sophisticated software that requires you to follow the setup procedures in order to get the best performance from the voice amp.

PLEASE READ!!!

OUTPUT LEVEL SELECTION MODE

When the unit first powers up by switching the on switch, it selects its output mode. There are 2 modes, mic level output and line level output. The default mode is mic level output, which is compatible with the small amplified speaker (Radio Shack model #277-1008C).

Mic output mode: This is the default output mode. You do not have to do anything special, just power up the unit and this mode is auto selected. This means that the output signal is matched for speakers or other output sources that expect a mic-level input, for example, like the amplified speaker or the mic input to a sound card.

Line output mode: This mode is used if you want to connect the amp output to a home stereo, computer sound card line-in jack, or other line-in source. To get into this mode, hold down the remote pushbutton and then turn the unit on. The unit should respond by blinking the red LED (light) twice. You can now let go of the pushbutton. The unit is now set to work with line-level outputs. NOTE: This mode is not remembered, so it has to be done each time the unit is powered up.

NORMAL OPERATING MODE

After selecting the output mode, the voice amp stays in normal operating mode. When you talk the unit will automatically pitch shift your voice down and also add reverb and echo. This will make your voice sound like the dark lord himself! The amount of pitch shift, reverb, and echo was carefully researched and calibrated to match Vader's movie voice!

Getting the Right Voice Effect

If the amount of pitch shifting performed on your voice is not enough to make your natural voice sound like Vader, try to lower your voice while you talk into the mic. You will find that by fine tuning your own voice, you can achieve the spirit of Vader's speech much more readily. Nothing can automatically turn your voice into James Earl Jones, but if you study his speech patterns, talking speed, and word emphasis in the movies, you too can achieve a near perfect effect that is indistinguishable to most people. Perfecting these intricacies will transform your voice effect from good to great!

Changing the Pitch of the Voice Effect

There are 7 different pitch settings to help match your voice to right pitch to a proper Vader voice. If the default setting does not give your voice the proper amount of shift (which varies between the user's own voice), you can use the remote button cable to increase or decrease the pitch setting. The internal pitch table wraps around after 7 button presses so you can search for the best effect using your own voice.

The pitch table is measured in semitones. The default pitch when the board powers up is 2.0 semitones of downward pitch. The available pitch settings in the pitch table are 1.0, 1.25, 1.5, 1.75, 2.0, 2.25, 2.5 semitones. For each press of the pushbutton that is greater than 2 sec in

duration, the pitch advances through the table one setting at a time. Since the default pitch setting is 2.0, then successive presses of the pushbutton would set the pitch to 2.25, 2.5, 1.0, 1.25, 1.5,, etc. So, the largest amount of pitch is 2.5 semitones and the smallest amount of pitch is 1.0 semitones.

NOTE: The pitch setting is not remembered when you power off the unit, so if you choose a different pitch other than the default, you will have to reset this everytime the unit is powered up. Performing this ritual on bootup is as simple as pressing the pushbutton the desired number of times to get to your custom pitch setting. This is normal operation of the unit!

Sound Effects

Vader's breathing will also play out automatically and is mixed in with your voice while talking. The background breathing has a 1.8 sec repetition rate. You can turn the breathing sound off by pressing the remote button for greater than 1 sec. but less than 1.5 sec in duration. Pressing it again for >1sec but <1.5sec turns the breathing back on.

The remote button cable is also used to play out a light saber ignition, retraction, and swing sound. You can run the cable from the voice board down to your hand or other place where you have easy access to the pushbutton.

Pressing the button quickly once (less than ½ sec) will play out the saber ignition sound. After this, the ambient saber "hum" sound will play while the saber is "active". You can continue to talk during this time, as your voice, background breathing, and saber sounds will all be mixed together! Pressing the button once again quickly (less than ½ sec) will play out the deactivation sound. The hum sound will also stop.

If the saber is "active" and you press the remote button for greater than ½ sec but less than 1 sec, a swing sound will play out. This is useful if you are carrying around a plasma, EL, or other prop saber and want to make that added impression!

Here is the function list of the remote button cable:

Voice amp Action	Hold button down for (seconds)
Saber ignition and retraction sound	Less than ½ sec
Saber swinging sound	Greater than ½ sec. but less than 1 sec.
Toggles breathing sound on/off	Greater than 1 sec. but less than 1.5 sec.
Changes pitch of voice effect (7 available settings - in semitones). Default start-up pitch setting is 2.0 semitones. Table Auto wraps after 7 th setting is hit.	Greater than 2 sec.

Mic placement issues

For the tie-clip mic (Radio Shack #33-3013), I have found it best to place it right under your lower lip. This gives you maximum sensitivity and loudness. Experimentation will give the best results. If you use the boom mic (#33-3012), the headset is more comfortable and can be worn under your helmet. The boom mic also has a unidirectional mic, which will help reduce feedback. The tie-clip mic has an omnidirectional mic, which gives better voice pickup but increases potential feedback.

Here is the channel mapping of the right and left channels on the board.

Input channel	Voice board processing	Output channel
Right	Vader voice + breathing + saber	Right
Left	Vader voice + breathing + saber	Left

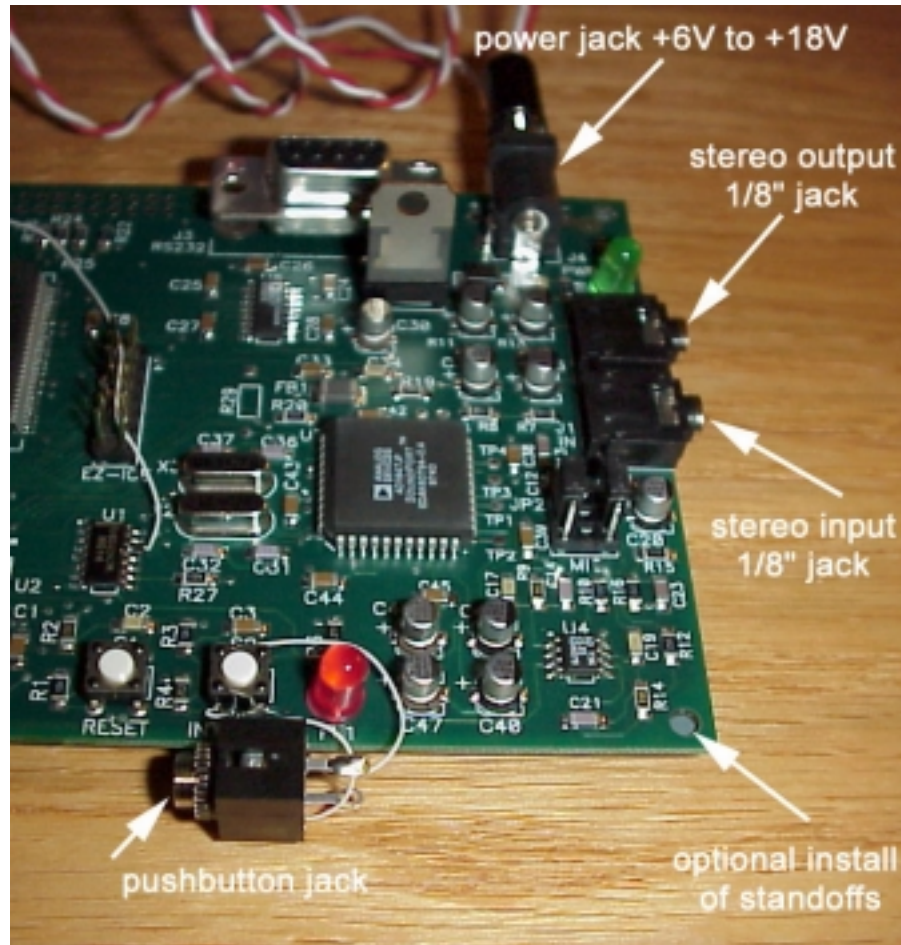
The output sounds are put out on both channels. Hence you have a stereo output in case you want to hook this up to 2 or more speakers.

Feedback issues

This unit has its own natural feedback attenuator. If you turn up the speaker volume too much, or move the mic too close to the speaker, you will begin to hear a strange reverberant type noise. You must lower the volume or place the speaker farther away from the mic. Otherwise you risk having the unpleasant sounds continue, which is known as feedback. Feedback is caused by the output of the speaker being picked up by the mic, and that sound amplified over and over, until the amplifier “howls” or otherwise makes unpleasant noises. You should experiment where to place the speaker and mic in order to find the “sweet spot” in your setup. The anti-feedback mechanism in the software can only handle a certain amount of feedback. You must remember that feedback always exists. Physical placement of the mic and speaker are the main variables in combating feedback. Feedback also increases when you put a helmet on your head, so some trial and error is necessary to find the best configuration and mic/speaker placement. Using the boom mic will also help with feedback since it is a unidirectional mic. The easiest way to combat feedback is to lower the volume until it disappears. Also, separating the mic and speaker will reduce feedback immensely.

SUMMARY OF INPUT/OUTPUT JACKS

Here is a brief description of the jacks on the voice amp.



Power jack: Used to turn the unit on and off. Unit can be used with batteries or supplied DC adapter.

Pushbutton jack: Used to hook up a remote pushbutton, which is linked to the pushbutton on the unit.

Stereo output jack: Hook up to output source – amplified speaker(s), sound card, etc.

Stereo input jack: Input jack to connect external microphone. (this is a stereo mic jack).

Any questions, you can email me at: shima@hyperdynelabs.com if you are having difficulties setting up the unit. Good luck and enjoy!!!!