

### The Basics:

Width- 14HP  
 Power Requirements- +/-12V or +/-15V  
 Current Draw- 160mA  
 Maximum Audio Input- 16Vpp (Before Clipping)  
 Maximum Audio Output (Dry/Wet)- To Rail / 16Vpp  
 CV Input Range- 0 to +5V

### Effect

Hall Reverb A  
 Hall Reverb B  
 Hall Reverb C  
 Room Reverb A  
 Room Reverb B  
 Room Reverb C  
 Plate Reverb A  
 Plate Reverb B  
 Plate Reverb C  
 Chorus  
 Flanger  
 Chorus/Room Reverb  
 Chorus/Delay  
 Rotary Speaker

### CV Controllable Effect Parameter

Reverb Decay Time  
 Reverb Decay Time  
 Reverb Decay Time  
 Reverb Decay Time  
 Reverb Decay Time  
 Reverb Decay Time  
 Reverb Decay Time  
 Reverb Decay Time  
 Chorus Depth  
 Flanger Rate  
 Reverb Decay Time  
 Delay Time  
 Speed Low/High

### Effect

Room Reverb B  
 Non-linear Reverb  
 Delay

### Non-Controllable Effect Parameter

Reverb Decay Time  
 Reverb Decay Time  
 Delay Time

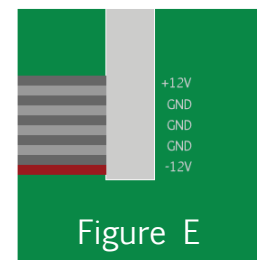
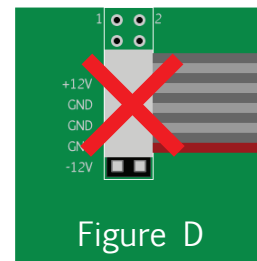
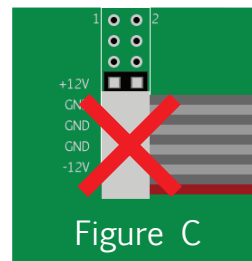
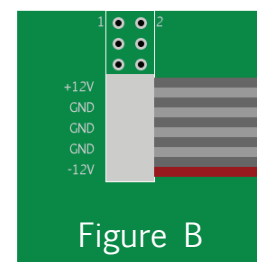
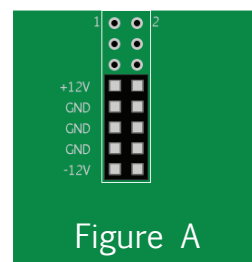
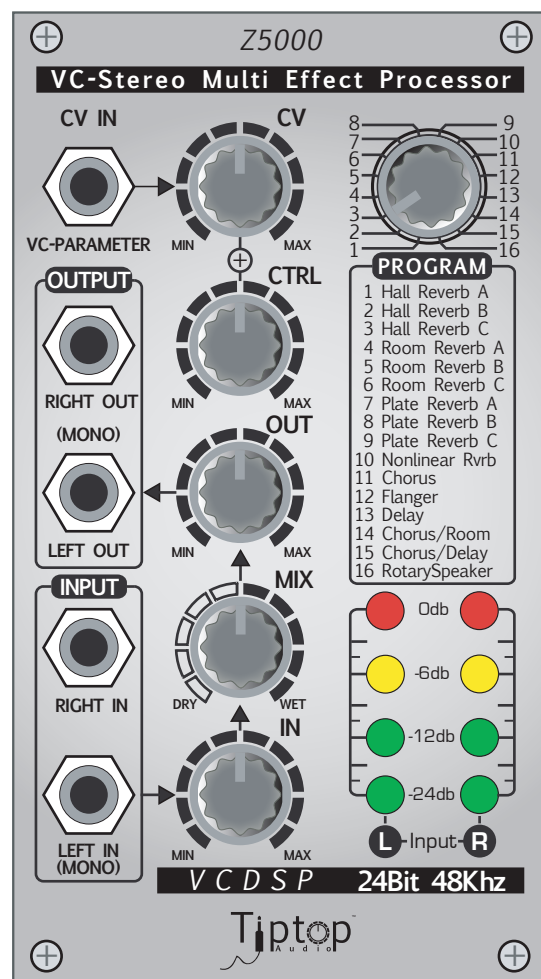
### Important Note:

Though not originally designed to be controlled using a CV signal, it is still possible to use a CV input or the CTRL knob to adjust a parameter on the Room Reverb B, Non-linear Reverb, and Delay effects. However, these three effects will generate digital artifacts known as “zippering” when adjusting a parameter using the CTRL knob or with an external CV signal. Some users may find this zippering effect sonically useful and this was the primary motivation behind leaving these effects available in the module. Users who wish to have CV control over this effect are encouraged to experiment with a stepped CV signal from modules such as a Sample and Hold or a sequencer. This should provide a certain degree of control over the effect parameter with a limited amount of “zippering”.

### Connecting The Module:

Find the power connection header on the PCB perpendicular to the front panel. It is located toward the top of the module and should look like Figure A. Orient the ribbon cable so that the red line is on the bottom and oriented with the -12V label on the connection header as in Figure B. Ensure that the connector fully covers the header (as in Figure B) and press firmly to ensure a proper mechanical connection. Additionally, please ensure that the connector is properly oriented on the power connection header before powering the module (Figures C and D). Once connected to the module, ensure that the ribbon cable connects with the red line on the bottom and to the matching -12V on the power supply bus, as in Figure E.

**Warning: Improper connection of the power supply can permanently damage the module.**



## Switching and Controlling Effects:

To switch effects on the Z5000, simply alter the position of the Program selector at the top right of the front panel. An effect parameter (see list on first page) can be controlled by both the CV and CTRL knobs at the top center of the unit. Applying a control voltage to CV In and adjusting the CV knob allows the user to adjust the degree to which the control voltage affects the effect parameter. The CTRL knob allows you to directly control the effect parameter. The CTRL knob allows you to directly control the effect parameter. The control is the sum of both the CV and CTRL knobs, as indicated by the '+' sign on the front panel of the module. When the CTRL knob is set to MAX the external CV will have no effect as the maximum parameter value has already been set by the CTRL knob. Decreasing the CTRL knob will allow the external CV signal to control the parameter. With no external CV signal entering the module, the position of the CV knob does not have any effect.

## Program 7: Plate Reverb A

Plate Reverb A (7) is a subtle effect and best heard when processing vocals and other "airy" sounds. If you do not hear it immediately, simply set the MIX knob to WET and CTRL to MAX to hear the effect and adjust it to fit the desired effect. When processing modular signals, the effect can be difficult to hear.

## Module Gain and Gain Control

One of the key features of the Z5000 is that it is a high-gain module intended to handle signals directly from modules that generate "large" (high Vpp) signals like filters, VCOs, and other signal generators in a modular synthesizer. The module is also designed to allow for control of the ratios of the DSP gain, dry/wet mix, and output gain to allow the user to finely craft a tonal quality for any given sound.

There are two gain control knobs on the module. The IN knob controls the gain of the signal being sent to the DSP and the OUT knob controls the gain of the signal after it has passed through the MIX knob.

## VU Meter and External Inputs

The VU meter LEDs are set when assembled, however, some vibration during shipping may alter the VU board position. Should that occur, gently push the board from the back so the LEDs shift back into place projecting just above the surface of the front panel.

When handling external (non-modular) inputs the VU meter will not respond significantly to instrument and line level signals without boosting the gain prior to sending it to the Z5000 as the meter is intended for use at higher signal levels. Do not be alarmed if the VU meter does not respond to an external input, the module will perform as designed. It should still be possible to hear the signal being passed through the DSP, but in order to make full use of the module it is best to add gain to the signal.

## Testing The Z5000

While all Z5000 modules are tested prior to packaging, the following testing procedure will ensure that the module is in full working order and allow for improved familiarity with the operation of the VU meter.

Before powering the module, set the knobs to the following: CV to MIN, CTRL to MAX, MIX to 50%, and IN to MIN. Select program 5 on the rotary encoder.

Power the module and send a sawtooth wave to LEFT IN (MONO) and slowly increase the IN knob until the signal is visible on the VU meter. Then send LEFT OUT (MONO) to a filter or amplifier and slowly increase the OUT knob. You should hear the signal and effect clearly and equally. Sweep the frequency on the VCO to better hear the effect.

Next, set the MIX knob to DRY to hear the VCO without added effect. Sweep the frequency on the VCO to ensure that the signal is totally dry. Note, turning the IN knob completely off does not affect the dry signal. Set the MIX knob to WET to hear only the effect and sweep the VCO frequency to ensure that the signal is totally wet.

Set the CTRL knob to MIN and sweep the VCO frequency. The effect should have minimal effect on the signal.

**Have fun and we hope that you enjoy your new Z5000 VCDSP!**

