

Pedal, Switch, and Cable Tutorial

For Eventide DSP4000/7000/4000B+/ORVILLE™/H8000™/ECLIPSE™ Ultra-Harmonizers®.

A very useful and powerful feature of our UltraHarmonizers® is real time, external control of parameters. Besides MIDI control, we also provide two inputs on the rear panel of all units of the 4000 series, 7000 series, Orville™ and Eclipse™.

4000 series owners:

In the DSP4000, DSP4000B, DSP4500 & GTR4000 units you can connect one pedal for continuous control to the FOOT PEDAL INPUT and two switches for momentary control (latched or unlatched) to the FOOT SWITCH INPUT. Both inputs are stereo tip/ring/sleeve 1/4" jacks connectors.

DSP7000/DSP7500/DSP4000B+/ORVILLE/ECLIPSE owners:

Your units are equipped with two inputs, called PEDAL 1 and PEDAL 2. Each one can accept either a pedal for continuous control or up to three switches for momentary control (latched or unlatched). Please refer to your manuals for soldering schematics of the three-switches connection. Both inputs are stereo tip/ring/sleeve 1/4" jacks.

You can also choose to have only two switches. A total of two pedals or six switches or a combination of them is possible.

In all units the sleeve is ground reference, the ring is +5 volts (source) and the tip is an analog signal from 0 to 5 volts. Connect foot switches, foot pedals or control voltage sources to these inputs to modulate parameters or to trigger events (including remote program loads).

Some foot pedals already come equipped with a stereo 1/4" jack connector, ready to be plugged in.

Many others don't. Most foot switches do not have a cable at all.

Let's take a look at cables and plugs to get our controls up & running in a moment.

When your pedals & switches do not have cables included, the cable you will need is the one in picture 1.



Picture 1. A standard stereo 1/4" jack cable split in two 1/4" mono jacks, also known as **INSERT CABLE**.

This cable is pretty common on the market today; many companies have such products in their catalogs.

A clever way to build a cable like this, without any soldering, is to get a common RCA stereo cable, like those we all use for home stereo set ups, with black and red RCA connectors. We normally use these cables to connect CD players, radio tuners & cassettes decks to compact amplifiers.

Get also 2 mono females RCA to 1/4" mono male jacks adaptors and a 2 mono females RCA to 1/4" stereo male jack adaptor like those in picture 2, for each cable you need to convert.



Picture 2. Left: a 2 mono female RCA to 1/4" stereo male jack adaptor. Center & right: 2 mono females RCA to 1/4" mono male jacks adaptors.

Connect the RCA cable to the three adaptors like in picture 3.



Picture 3. Cable conversion.

Once your cables are ready, connect the bigger stereo adaptor to the UltraHarmonizer® rear panel PEDAL or FOOTSWITCH input; then connect the 2 mono adaptors to the input and output of a volume pedal or connect each one to a momentary switch output. Try swapping input with output if it doesn't work properly. Check these connections in pictures 4, 5 and 6.



Picture 4. A Foot Pedal or 2 or 3 Foot Switches connected to ORVILLE rear panel PEDAL 2 input.



Picture 5. A Foot Pedal connected at the other end of our "smart" cable.



Picture 6. Or a double Foot Switch the other end of our smart cable.

Hopefully this smart cables will save you quite a headache. We all have RCA cables around, don't we? And some plugs converters too! Here is a chance to use them in a clever way.

In my long time experience I have always found terrible differences between pedals: more often than you would think, potentiometers can be very different; even two samples of the same pedal will have different electrical values. This often translates into a pedal not being able to express the full range of power, necessary to control a parameter in its full range, from 0% to 100%.

DSP4000, 4500, 4000B, GTR4000 owners:

To avoid the potentiometer's inconsistency you need to test as many pedals as you can. There is no other way around it. You have to connect each one, patch a parameter to the pedal and visually control that its sweep covers the full range, from 0% to 100%.

DSP7000/7500/4000B+/ORVILLE/ECLIPSE owners:

We have added a cool "CALIBRATE PEDAL" utility in the SETUP area of these units; it will allow you to overcome all pedals electric quirks.



Picture 7. Orville/DSP7000/7500/4000B+ Pedal Calibration screen.



Picture 8. Eclipse Pedal Calibration screen.

This technote was written by [Italo De Angelis](#).

