

# *FootSim*

## **OWNER'S MANUAL**

Document OMFS0905



## **2 Year Limited Warranty**

Sound Sculpture Musical Instrument Products (Sound Sculpture) warrants the FootSim to the original purchaser to be free of defects in material and workmanship under normal use for a period of 2 year from the date of purchase from an authorized Sound Sculpture dealer or directly from Sound Sculpture Musical Instrument Products.

Sound Sculpture's liability under this warranty is limited to repairing or replacing defective materials that show evidence of defect, and only if the product is returned for repair directly to Sound Sculpture or to the authorized Sound Sculpture dealer from which the unit was purchased.

Sound Sculpture reserves the right to make changes in design or make additions or improvements on the product without incurring any obligation to install the same on products previously manufactured.

Sound Sculpture shall not be liable for any consequential damage or loss of profits as a result of the use of this product even if Sound Sculpture is advised of the possibility of such damages or loss. In no event will Sound Sculpture's liability exceed the price paid for the product.

No other warranties are expressed or implied and Sound Sculpture neither assumes nor authorizes any person to assume for it any obligation or liability in connection with the sale of this product. In no event shall Sound Sculpture or its dealers be liable for special or consequential damages due to the use of this product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusions or limitations may not apply to you.

## **In Case of Difficulty**

In the unlikely event that you experience problems with the FootSim, please refer to the section in this manual pertaining to the operation you are having difficulty with. Very often the difficulty is simply a result of improper setup or programming and can be resolved by studying this manual.

If, after reading this manual, you are unable to resolve the problem email us at [info@soundsculpture.com](mailto:info@soundsculpture.com) or call Sound Sculpture at (541) 318-1877 during normal business hours. If we are unable to resolve your problem over the phone and determine that the unit needs repair, you will be given a return authorization number and further procedures for returning the unit. **UNAUTHORIZED REPAIR OF THE FootSim BY ANYONE OTHER THAN THE FACTORY VOIDS THE WARRANTY. NO UNITS WILL BE ACCEPTED FOR REPAIR WITHOUT FIRST CONTACTING THE FACTORY FOR A RETURN AUTHORIZATION NUMBER.**

## **Precautions and safety notes**

To reduce the risk of fire or electric shock, do not expose this unit to rain or operate this unit in a wet environment.

Use only the power module supplied with the unit unless you are qualified to use a substitute power supply. Use of another module or supply with incompatible specifications will void the warranty if damage occurs.

If the unit becomes physically damaged due to dropping or for other reasons, it should be returned to the factory for repair to avoid the risk of further damage to the unit or to attached units.

To avoid damage due to lightning, the power supply should be unplugged during an electrical storm.

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## Introduction

The FootSim footswitch simulator replaces the mechanical footswitches that are used with amplifiers to control the overdrive and reverb functions of the amp so that these functions can be controlled by a MIDI foot controller or other MIDI based device. The FootSim may also be used to control any signal processor or other device that has a footswitch input.

The FootSim can simulate both a push on/push off (steady state) switch as well as a momentary type switch. Push/push switches are the type of switches used with most all traditional amps. Momentary switches are used to control more modern amps or for pulsing delay units that have a “tap” function for setting delay time from your MIDI foot controller.

The FootSim is a relay based device, which is to say that relays are used to replace the mechanical footswitches. Using relays instead of the usual transistors insure that any device that normally uses mechanical switches can now be replaced with the FootSim without compatibility problems.

The FootSim can be controlled with either MIDI Program Change commands or with Control Change commands for use with “Instant Access Switches” available on some MIDI foot controllers.

## Panel Controls

The back of the FootSim has a MIDI IN jack, a MIDI THRU jack, and power connector. The front panel has two stereo ¼” jacks and 3 status indicators. The “POWER” status indicator illuminates whenever power is applied to the unit. The “MIDI” indicator illuminates momentarily whenever valid (recognized) MIDI data is received by the unit. The “LAST” indicator shows the state of the last relay that was addressed. If a relay is turned on for example, the indicator comes on, and if a relay is turned off, then the indicator likewise extinguishes. If another relay is addressed then the state of that relay is shown instead. If a relay is pulsed, then the indicator simply blinks for a moment. The indicator stays off if a program number is selected that affects all 4 relays at once.

The two ¼” phone jacks are hardwired to the 4 relays inside the unit. Since the jacks are stereo, two relays are connected to each jack. If you only wish to use 2 of the relays to control your setup, rather than all 4 you can do so simply by using standard (mono) instrument cables. One cable might be connected to the reverb footswitch on the amp and the other cable would be connected to the overdrive or channel footswitch on the amp. In this case only relay 1 and 2 are used.

If you wish to use all 4 relays, such as would be the case if you wish to control two combo amps, then you will need to obtain a stereo to dual mono Y style adapter cable. Both the stereo jack and the two mono jacks should be male jacks. Connect the stereo side of the adapter to the FootSim and the two mono jacks of the adapter to the reverb and overdrive footswitch inputs on the amp. Do the same for the other amp. Using these connections, relay 1 and 3 control the first amp and relays 2 and 4 control the second amp.

## Setup

### Setting the FootSim MIDI Channel

The FootSim is factory set to MIDI channel 16. If this is an acceptable MIDI channel for your use than you do not need to do anything more. To set the unit to respond to another MIDI channel, you will need to change the switch setting inside the unit.

To access the switch use a Phillip’s head screwdriver to remove the 2 screws on the front panel. Slide the insides partially out by pulling the front panel away from the case. Inside you will find a 4 position switch that can be used to set the channel. If the switch is turned on then this indicates a “1” otherwise it indicates a “0”. Use the following chart to determine the switch setting for the channel you need.

| CHANNEL | SWITCH | CHANNEL | SWITCH | CHANNEL | SWITCH | CHANNEL | SWITCH |
|---------|--------|---------|--------|---------|--------|---------|--------|
| 1       | 0000   | 5       | 0100   | 9       | 1000   | 13      | 1100   |
| 2       | 0001   | 6       | 0101   | 10      | 1001   | 14      | 1101   |
| 3       | 0010   | 7       | 0110   | 11      | 1010   | 15      | 1110   |
| 4       | 0011   | 8       | 0111   | 12      | 1011   | 16      | 1111   |

After you have selected the MIDI channel slide the board back inside the case taking care that the board slides all the way in (you may need to push the bottom of the plastic bezel on the rear panel downward a slight amount while pushing the board in so the board goes all the way in). When the board is all the way in, attach the screws and lightly tighten the screw only enough to make contact with the panel. Do not over tighten the screw to avoid scratching the panel.

### **Connecting MIDI to the FootSim**

Connect a standard MIDI cable between your MIDI foot controller MIDI OUT jack and the FootSim MIDI IN jack. Connect an additional cable between the MIDI THRU jack on the FootSim and the MIDI IN jack of the next MIDI device in your chain as you normally would. The FootSim does not interfere with the MIDI signal and simply passes through all data seen on the MIDI IN jack directly to the MIDI THRU jack. Power must be applied to the FootSim in order for MIDI data to pass through to the next device.

### **Connecting the FootSim to the Amplifiers**

If you wish to only use 2 relays in the FootSim (to control a single combo amp for example), then connect two standard instrument cables between the two jacks and the two footswitch inputs on the amp. If the amp has a single stereo footswitch input intended for use with a footswitch that has a stereo connector then use a single stereo cord instead connected to only 1 jack on the FootSim.

If you wish to connect two combo amps then use two stereo to mono Y adapters instead. Connect the stereo end of the Y adapter to the FootSim and the two mono jacks to the two footswitch inputs on one of the amps. Do the same for the second amp by connecting a Y cord to the second jack on the FootSim.

### **Connecting Power to the FootSim**

Attach the supplied modular power supply to the power input on the FootSim. If you will be using a power substitute then it should supply 9V DC at 100ma using a 2.1mm connector with center pin positive. You can operate the unit safely with up to 12V DC supplies without damage. Operation beyond this voltage may cause damage to the unit and void the warranty if damage occurs. If you are unfamiliar with power supply substitutes then only use the supplied module.

### **Programming your foot pedal to operate the FootSim**

To control the FootSim, you will need to program your MIDI foot pedal to send out either Program Change commands or Control Change commands when you press a switch on the pedal. If your foot pedal only transmits Program Change commands, then these commands are what you will use to control the FootSim. If your foot pedal has additional switches that send out a two value Controller commands, sometimes referred to as “Instant Access” switches, you may use these switches as well to control the FootSim. Here is a summary of the ways you can control the FootSim.

1. You may turn a single relay on or off using two unique Program Change numbers. You would select this method if you are going to use two switches on your MIDI controller for each relay used. One switch will always turn the relay on (even if it is already on, but you have forgotten), and the second switch will always turn it off (even if it is already off). If you are going to control all 4 relays this way then you will be using 8 switches on your MIDI controller pedal and 8 unique Program Change numbers.
2. You may toggle a relay on and off using a single Program Change number. You would select this method if you wish to use only a single switch on your MIDI controller to change the state of the relay. If a relay is on, pressing this switch will turn it off, and if it is already off, pressing this switch will turn it on. Using this method only 4 switches are needed on your controller to control all 4 relays.
3. You can change the states of all 4 relays at once using a single Program Change command. This is useful if you want to change the state of several devices at once with a single command.
4. You can pulse a relay for 1/10 second using a single Program Change number. You would select this method if your amplifier or effect devices needs to see a “momentary” type of footswitch rather than a “push on/push off type”. In this case 4 switches would be used on your foot controller to pulse the 4 relays.
5. If your foot pedal has switches that transmit Control Change commands (a value of 0 when off and a value of 127 when on) sometimes referred to as “Instant Access Switches”, then you can control the relay using these commands as well.

You may mix any of the 4 options above for each of the relays. For example relay 1 you may wish to turn on and off using 2 switches, relay 2 you may wish to toggle with a single switch on your controller using a Program Change command, relay 3 you may wish to pulse using a Program Change command in order to set the timing on your delay and relay 4 can be controlled with an instant access switch. These combinations are possible just by selecting the correct Program Change number and Control Change number for the required operation. Refer to the two charts on the next pages for the Program Change and Control Change values required.

## Listing of all Program Change commands

Below is a chart showing the Program Change commands that are used to control the FootSim

| Relay Controlled | Desired Effect             | Program Change Number |
|------------------|----------------------------|-----------------------|
| 1                | Relay off                  | 0                     |
| 1                | Relay on                   | 1                     |
| 2                | Relay off                  | 2                     |
| 2                | Relay on                   | 3                     |
| 3                | Relay off                  | 4                     |
| 3                | Relay on                   | 5                     |
| 4                | Relay off                  | 6                     |
| 4                | Relay on                   | 7                     |
| 1                | Relay toggle on/off        | 8                     |
| 2                | Relay toggle on/off        | 9                     |
| 3                | Relay toggle on/off        | 10                    |
| 4                | Relay toggle on/off        | 11                    |
| 1                | Relay pulsed               | 12                    |
| 2                | Relay pulsed               | 13                    |
| 3                | Relay pulsed               | 14                    |
| 4                | Relay pulsed               | 15                    |
| All              | 1=off, 2=off, 3=off, 4=off | 16                    |
| All              | 1=on, 2=off, 3=off, 4=off  | 17                    |
| All              | 1=off, 2=on, 3=off, 4=off  | 18                    |
| All              | 1=on, 2=on, 3=off, 4=off   | 19                    |
| All              | 1=off, 2=off, 3=on, 4=off  | 20                    |
| All              | 1=on, 2=off, 3=on, 4=off   | 21                    |
| All              | 1=off, 2=on, 3=on, 4=off   | 22                    |
| All              | 1=on, 2=on, 3=on, 4=off    | 23                    |
| All              | 1=off, 2=off, 3=off, 4=on  | 24                    |
| All              | 1=on, 2=off, 3=off, 4=on   | 25                    |
| All              | 1=off, 2=on, 3=off, 4=on   | 26                    |
| All              | 1=on, 2=on, 3=off, 4=on    | 27                    |
| All              | 1=off, 2=off, 3=on, 4=on   | 28                    |
| All              | 1=on, 2=off, 3=on, 4=on    | 29                    |
| All              | 1=off, 2=on, 3=on, 4=on    | 30                    |
| All              | 1=on, 2=on, 3=on, 4=on     | 31                    |

## Listing of all Control Change commands

Below is a chart showing all the allowed Control Change numbers and their effect.

| Function                                | Controller number |
|---|-------------------|
| Control relay 1 (0=off 127=on)          | 0                 |
| Control relay 2 (0=off 127=on)          | 1                 |
| Control relay 3 (0=off 127=on)          | 2                 |
| Control relay 4 (0=off 127=on)          | 3                 |
| Pulse relay 1 (0=pulse 127=pulse again) | 4                 |
| Pulse relay 2 (0=pulse 127=pulse again) | 5                 |
| Pulse relay 3 (0=pulse 127=pulse again) | 6                 |
| Pulse relay 4 (0=pulse 127=pulse again) | 7                 |