

# **Motion Controlled Wah Filters** Users Guide



# **Please Read This First**

# **Important Safety Information**

- WARNING! Before using unit, be sure to read the owners manual and other warnings below.
- CAUTION! All electronic devices should be out of reach of children.
- **CAUTION!** If used improperly, batteries may explode or leak and cause damage or injury.

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# Welcome!

Thank you for purchasing The Hot Hand™ Motion Controlled Wah Filters. We hope to help you discover a whole new world of musical expression.

Hot Hand products may be completely new, but they are easy to use. We have worked hard to bring you as much power and as many features as possible while keeping the controls simple and intuitive.

This manual is organized so that you can get started quickly. Read over the first few pages and you will be ready to go. If you would like to know more about the product, move on to the following sections. It is certainly recommended that you quickly read the Theory of Operation section. A few quick insights into how it works will allow you better control of the sounds you create.

# Enjoy!

—The Source Audio team

# **Overview of Features**

# MOTION CONTROL

Motion control with Hot Hand™, which uses patent-pending technology to translate your body movement into sound.

# INTUITIVE

An innovative and simple interface that makes it easy to access all features.

# **MODERN DESIGN**

A thoughtfully designed box, which features rugged construction and sleek design.

# **DIVERSE SOUND PALETTE**

A wide palette of sounds: some new, some classics, and all customizable.

# STATE-OF-THE-ART DSP

Our proprietary state-of-the-art 56 bit Digital Signal Processing chip, the SA601, and crystal clear 24 bit converters.

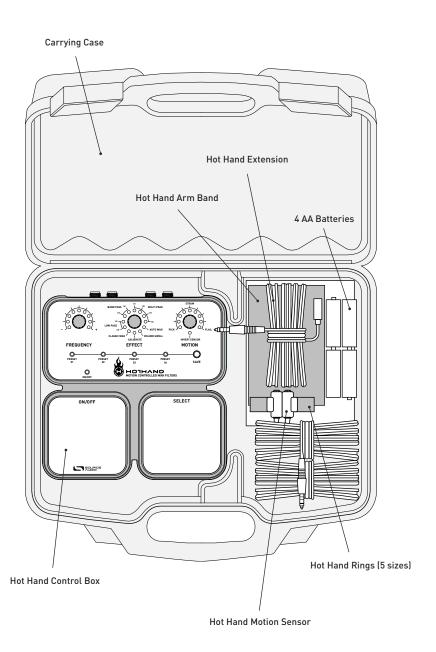
## **ULTRA-CLEAN SIGNAL**

"Active Analog Bypass" which routes the signal around the entire signal processing path to ensure your signal is clean when the effect is not engaged.

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# **Quick Start**

# Your Hot Hand comes with the following components.

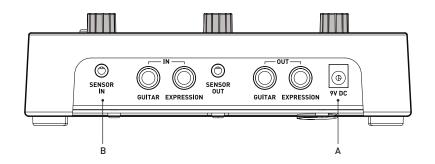


## 01: Power

The first thing you will need is power. Your Hot Hand™ unit comes with 4 AA batteries to get you started. The batteries will typically last about 15 to 20 hours. To avoid concerns about battery life, we recommend you buy a Source Audio 9V DC power supply (A) [see power supply note on page 14 for exact requirements].

# 02: SENSOR IN connection

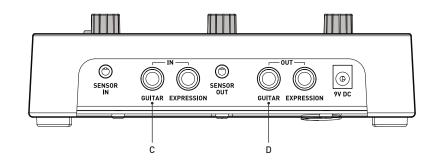
Next, connect the supplied EXTENSION CABLE to the SENSOR IN jack (B). Later, you'll plug the other end into the wire that trails from the Hot Hand, but hold off on that for now.



# 03: Guitar/Audio Connections

Now, you'll need to make the audio connections. Plug a regular ¼-inch guitar cable from your guitar into the GUITAR IN jack (C). Connect your amp (or other audio device) to the GUITAR OUT jack, again with a regular ¼-inch cable (D).

**Note:** Plugging a cable into the input will turn the unit on, causing the LEDs to light up briefly. Don't forget to turn off the unit by unplugging this cord—otherwise the battery will continue to drain.

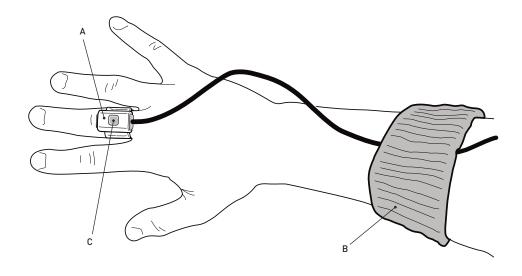


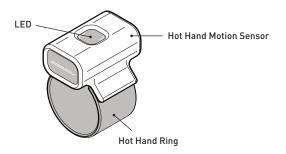
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# 04 : Attaching the Hot Hand Motion Sensor

Choose the ring size which fits most comfortably. This is ideally placed on the middle or ring finger of your strumming hand (A). Put your guitar on and take out the Hot Hand sensor. Insert the Hot Hand into the ring as shown. To prevent the sensor cord from interfering with your playing, use the provided arm band (B) to hold it up near your elbow as shown. Once everything is comfortable, attach the wire that comes from the Hot Hand into the EXTENSION CABLE.

**Note:** the extension cable is not required for operation, but it is almost certainly required for using the product in the standing position. When the Hot Hand is connected, and the control box is powered-on, a blue LED will glow in the sensor to indicate is it ready to be used (C).





# 05 : Calibration (optional)

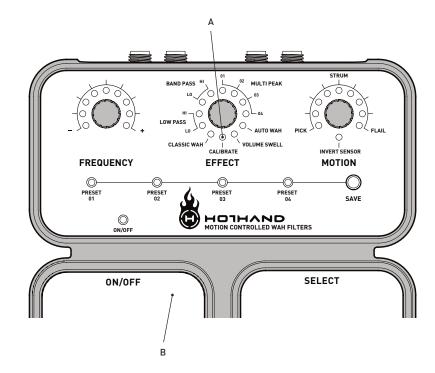
Calibration is recommended, but not required. See page 11 for additional information.

Calibration is easy. Just turn the Effect Selector knob to the Calibrate (A) position and hold your strumming hand in its normal playing position over the strings. Your hand should be held relatively still. Then, tap the On/Off pedal once (B). The On/Off LED will blink for a few seconds. When the LEDs are off, you are calibrated and ready to go. Turn the Effect Selector knob away from the Calibrate position to select an effect.

# 06 : Brief Knob, Pedal, and Button Descriptions

(see pages 11-15 for more detail.)

- EFFECT Knob: Selects the desired effect.
- FREQUENCY Knob: Adjusts the filter characteristics of the effect.
- MOTION Knob: Adjusts the sensitivity of the motion sensor.
- ON/OFF Pedal: Use this to engage or bypass the effect.
- SELECT Pedal: Scrolls though the presets.
- **SAVE Button:** Hold down this button to save your sound on the preset location.



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# **Features**

# The Hot Hand Concept

The concept of Hot Hand is to provide a new way to control effects. Our first product, the Hot Hand Motion Controlled Wah Filters, is focused on controlling the response of one of more filter types. Until now, the only way to do it was with your feet on an expression pedal or with an auto-wah effect. The downside of the expression pedals in that you're rooted to one spot on the stage and there are limits on how fast the pedal can move up and down. The shortcoming of auto-wah effects is they can only follow the amplitude envelope of the sound.

With Hot Hand, you're not glued to your pedals and you have more control over the wah sound than with previous solutions. Plus, it adds the potential for additional showmanship in live performances. The movement of your hand up and down as you play the guitar becomes the expression pedal.

It is worth noting that the Hot Hand sensor can be mounted on any part of the body that moves. We have experimented with both mounting to shoes as well as to head bands. The latter is very fun to watch!

## The Controls

The Hot Hand Control Box is where all of the effects are created and controlled. The product contains 11 different wah/filter effects. Some sounds are classics, others are new, and all have been carefully modeled and created by real musicians. And by using the PRESETS, you can switch between FOUR of those sounds without ever bending down to tweak a knob on stage.

Note that the Hot Hand control box uses rotary encoder knobs and LED rings. This allows you not only see the knob locations in low light situations, but you can also jump from one preset to the next and see the setting of each knob quickly.

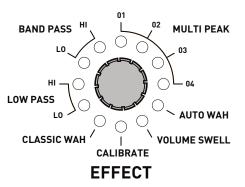
The product also gives you control over the FREQUENCY of the wah and the sensitivity of the Hot Hand. These features allow you to make adjustments to how the Hot Hand interacts with the effect that you have selected.

There are three other features related to external "expression" control. First, the EXPRESSION IN allows you to control the effects in the Control Box with an external expression pedal. The EXPRESSION OUT allows you to take the Hot Hand signal and use it to control other effects boxes that have an Expression Input feature. Finally, the SENSOR OUT jack allows you to send the Hot Hand signal to other Source Audio Hot Hand products and control them with a single motion sensor.

# Knobs

## **EFFECT Knob**

The EFFECT knob switches between different types of wah sounds. Note that AUTO WAH is not impacted by the Hot Hand signal. The VOLUME SWELL setting allows you to use the Hot Hand for volume swell or tremolo effects. For a description of each effect, please see page 18.



# Calibration (optional)

Your use of Hot Hand will benefit from the unit being calibrated to your playing position and style. In effect, you are telling the control box where your hand is when it is centered over the strings. Calibration is recommended when using for the first time or when your playing position changes due to guitar strap changes or when moving from standing to sitting. If you do not calibrate, the "zero" or center point of the Hot Hand signal may not match the natural resting position of your hand.

To calibrate, turn the EFFECT knob to the CALIBRATE position and hold your strumming hand in its normal playing position over the strings. Then, tap the ON/OFF pedal once. The LEDs will blink for a few seconds. When the LEDs are off, you are calibrated and ready to go. Please note that the effect will be muted when the selector is in the calibrate position.

#### ADVANCED USER NOTES

1) The calibration "zero" point does not necessarily need to be in the middle of your arm stroke. By setting the zero point higher or lower it is possible to span a different range of the effect. Also, calibration may be required if the Hot Hand sensor is mounted to some other part of your body (head, foot, etc.)

2) One calibration setting is typically used across all presets. However, it may desirable to create a different calibration setting for each preset. When the function selector is turned to calibrate all the preset LEDs will be lit. If, before depressing the ON/OFF pedal, one hits the SELECT pedal, the light from the last preset selected turns on. Successive SELECT pedal depressions cycle through all the preset LEDs. If only one preset LED is lit, then only that preset gets the new calibration data. The remaining presets are unaffected, even if the last calibrate applied to all presets.

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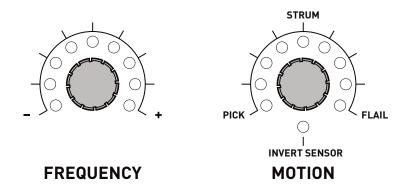
## **FREQUENCY Knob**

The FREQUENCY knob selects the frequency of sound on which the wah effect acts most strongly. In more technical terms, the FREQUENCY knob specifies the starting frequency of the filter sweep. Turning this clockwise will make the wah sound higher and thinner, and turning it counter-clockwise will make is sound darker and thicker.

When the EFFECT knob is set to VOLUME SWELL, the FREQUENCY knob controls the gain applied to the Hot Hand signals. Increasing the gain will allow you to get larger volume changes with smaller motions of your hand.

#### ADVANCED USER NOTE

For information on how to adjust the gain of the Hot Hand signals for effects other than volume swell, see the Hidden Feature and Controls section on page 20.



# MOTION Knob/INVERT Sensor

The MOTION knob essentially determines how sensitive the Hot Hand is. Setting this knob towards "pick" will make the Hot Hand more sensitive so that even the smallest motions will be picked up. Setting it to near "strum" is best for strumming, and "flail" will reduce the sensitivity so that more dramatic motions are required to produce a noticeable effect. Alternatively, the motion knob can be thought of as setting the amount of "smoothing" of the Hot Hand signal. "Pick" having the least smoothing, while "flail" has the most.

Turning the MOTION knob all the way around past the six o'clock position causes the Hot Hand to invert its axis—up is down and down is up. When the INVERT SENSOR light is off, the product is in normal mode (hand up boosts higher frequencies), while on indicates inversion (hand up boosts lower frequencies).

When the EFFECT knob is set to Auto-Wah, the Hot Hand signals are not used and the MOTION knob controls the speed of the envelope follower.

# **Connections**

## **SENSOR IN**

Connect the Hot Hand here directly or using the supplied EXTENSION CABLE.

## **GUITAR IN**

This is where you connect your guitar to the box, using a standard ¼-inch quitar cable.

## **EXPRESSION IN**

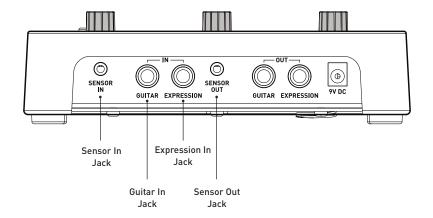
This input allows you to connect any standard expression pedal to the product. If the EXPRESSION IN and the Hot Hand are connected at the same time, the control box will take the sum of their positions to control the wah. If the Hot Hand is disconnected, then the pedal will have exclusive control and the product will function like a traditional wah pedal.

**Technical Note:** The pedal needs to be a potentiometer, from 10K to 100K, with one side connected to ring, and the other to ground, and the wiper connected to the tip of the TRS ¼-inch connector. We have found that the Mooq and M Audio EXP pedals work well.

# **SENSOR OUT**

This output can be used to "pass on" the Hot Hand signal to future Source Audio Hot Hand Products so that one Hot Hand Sensor will control multiple effects. This application is also known as "Daisy Chaining".

• WARNING! Do not connect this to any device other than the SENSOR IN jack on another Source Audio product. Damage may result.



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## **GUITAR OUT**

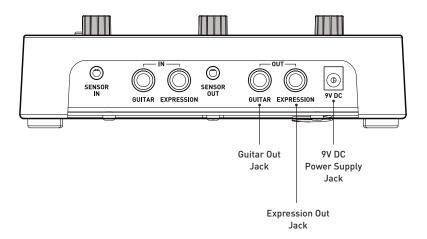
This  $\frac{1}{2}$ -inch output is where you connect your amp or the next pedal in your chain.

## **EXPRESSION OUT**

This jack allows you to send the Hot Hand control signals to other effects devices that accept an expression input. This output signal defaults to an analog voltage ranging from zero to 3.3VDC. This signal is "tip hot". The maximum voltage can be adjusted up to 4.5VDC to accommodate other devices that require higher voltages. For details on adjusting the voltage range see the Hidden Features and Controls section on page 20. Note that this output is active at all times when the Control Unit power is On. BE SURE TO READ THE DOCUMENTATION ON ANY DEVICE YOU USE WITH THE HOT HAND IN THIS CONFIGURATION.

# 9V DC

Connect a 9V DC power supply here if you do not wish to use batteries. Batteries will not be used while the power supply is connected. Power supply must be REGULATED, minimum 200mA, and use a NEGATIVE tip plug. Use of a non-Source Audio approved supply may cause damage and void the warranty. See our website for a list of approved supplies, www.sourceaudio.net.



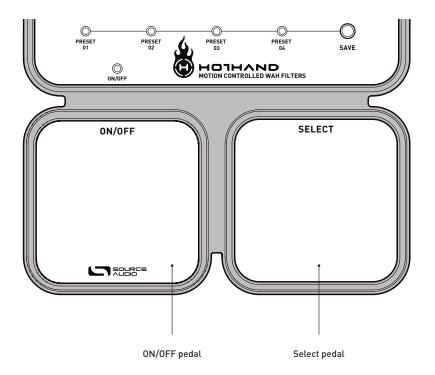
# **Pedals**

# ON/OFF (left) Pedal

Pressing this pedal once engages the effect that is selected. Touch the pedal again, the effect is turned off and bypass is on. There is an ON/OFF LED right above the pedal that notifies you when the effect is turned on.

# SELECT (right) Pedal

The SELECT pedal cycles through 4 PRESETS in a repeating pattern. The 4 LEDs above this pedal indicate which preset has been selected.



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# **Saving Presets**

The PRESET feature of this product has been designed to be simple. This product allows you to save 4 different configurations so that they may be easily recalled from the standing position. When you receive your product from the factory, we have selected what we think are 4 useful configurations. You may either keep these or replace any of them with your own settings. Should you wish to return to the original factory presets, the configurations and other ideas are located on our website, www.sourceaudio.net.

# 01 : Select and edit a preset

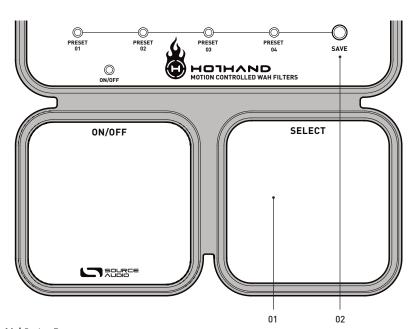
By stepping on the SELECT pedal you can select one of four user presets. Edit a preset by changing values for FREQUENCY, EFFECT or MOTION. Any time that you change the knob positions of a given preset, that LED will blink slowly to indicate that the preset is being edited.

# 02: Press and hold the SAVE button for two seconds

The LED will blink rapidly to signal that the saving process has begun. When the light becomes solid, the save process is complete. Note that this process will over-write any setting that we previously stored in this location.

#### ADVANCED USER NOTE

It is possible to save different calibration settings for each preset. The procedure is described in the CALIBRATE section on page 10.



# **Hot Hand Theory of Operation**

While it is certainly possible to use Hot Hand without much technical background, a few words about how it works will allow you to quickly understand how hand position and hand motion impact the sound.

The Hot Hand sensor senses acceleration. This means that both hand position and hand motion will cause the Hot Hand to react and send signals to the control box.

# **Hand Position**

Since gravity is an acceleration, the Hot Hand is always measuring the pull of the Earth's gravitational force. To illustrate this, try strumming a chord and pointing your hand with the sensor attached straight at the ground. By bending your arm at the elbow, slowly move your forearm up until your hand is pointing at the ceiling. You should hear the filter sweep from low to high following the position of your arm. When the INVERT light is on, the opposite will be true and the same gesture will sweep the filter from high to low. You don't need to move your entire arm to accomplish this. The same effect can be achieved changing your hand position by bending at the wrist or by leaning back and moving your hand and the guitar together. Hand position can range from subtle movement to the not so subtle. If subtlety is not your thing, dramatic motions will open the door for showmanship as your hand shapes the sounds from your guitar. We must point out that the Hot Hand will respond differently in Outer Space!

When you are using hand position and larger hand or arm motions to control the Hot Hand, we recommend turning the MOTION knob towards FLAIL. This will prevent the Hot Hand from responding to small variations and sounding too "jittery".

## **Hand Motion**

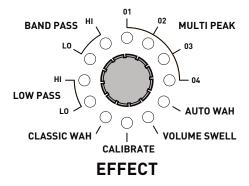
In addition to measuring gravitational force, the sensor also measures movement. The more the hand moves, the more the signal will change. To illustrate this, strum a chord and shake your hand quickly. You should hear the filter sweep back and forth following your hand motion. Experiment with moving your hand in different directions and at different speeds to find the method that works best for you. Use the MOTION knob to control how quickly an effect will respond to your hand motion. In the most sensitive position (PICK) the Hot Hand will detect even the slightest motion of the picking hand and the result will sound like an auto-wah. In the STRUM position, the Hot Hand will react more slowly. Try strumming some chords normally and listen to how the Hot Hand reacts

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Hot Hand Theory of Operation | 17

# Wah Types

Following are descriptions of the different types of wah filters we programmed into the Hot Hand box. Note that each sound interacts differently with both the Hot Hand hand motions as well as the settings on the FREQUENCY and MOTION knobs. It is suggested that one experiment a bit to find just the right sound for different playing styles.



## **CLASSIC WAH**

- Technical: Modified band pass filter
- **Description:** Classic wah pedals remain very popular and have a very well-recognized sound. We have invested significant effort to model this sound in our product. To be a true Classic Wah model, the FREQUENCY KNOB should be set to the middle position.

## LOW PASS - LO

- Technical: Single Peak Low Pass Filter with a low Q
- **Description:** Simple low pass filter with a wide resonant peak near the cutoff frequency. Use the FREQUENCY KNOB to control the cut-off point.

## LOW PASS - HI

- Technical: Single Peak Low Pass Filter with a high Q
- **Description:** Simple low pass filter with a narrow peak near the cutoff frequency. Use the FREQUENCY KNOB to control the cut-off point.

# **BAND PASS - LO**

- Technical: Single Peak Band Pass Filter with low Q and parametric equalization.
- **Description:** Simple band pass filter with a wide resonant peak at the center frequency. Use the FREQUENCY KNOB to control the center frequency.

## **BAND PASS - HI**

- **Technical:** Single Peak Band Pass Filter with high Q and parametric equalization.
- **Description:** Simple band pass filter with a narrow resonant peak at the center frequency. Use the FREQUENCY KNOB to control the center frequency.

#### **MULTI-PEAK 01-04**

- **Technical:** Various Advanced Multi-Peak Filter with multiple peaks and dips moving in independent directions under Hot Hand control.
- **Description:** Each quite different. Some have phasing qualities and some have more vocal characteristics. Give them a listen!

#### **AUTO-WAH**

- Technical: Automatic Wah Filter
- **Description:** This effect is a typical auto-wah effect. The wah effect is triggered by the amplitude of the guitar signal. Note that neither the Hot Hand nor the EXPRESSION IN controls the signal in this mode. When the EFFECT knob is set to Auto-Wah, the MOTION knob controls how quickly the effect will react and reset.

#### **VOLUME SWELL**

- Technical: Volume Control or Tremolo
- Description: Use the Hot Hand to create volume swells as you raise (normal) or lower (INVERT SENSOR) your hand. Bounce or shake your hand to create tremolo effects. The FREQUENCY knob controls how fast the volume rises as you raise or move your hand. Note the calibration is very important in this mode to establish the exact points where the fade begins/ends.

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# Hidden Features and Controls

We have tried to balance the conflicting requirements of flexibility and simplicity in this unit. As such, most of the key features of the product are found using the control knobs as they are labeled and defined in this manual. However, we recognize that many of you will want to experiment beyond the typical user, thus we have created a list of controls which are accessible via a special start-up mode. To avoid getting into trouble, simply read the last point in this section to get back to the factory settings.

To get into the special setup mode, power up the unit while holding down the SELECT pedal and wait two seconds. The FREQUENCY and EFFECT knobs will now reflect the current settings. This mode may be exited by power cycling the unit (without depressing the pedal), or by turning the function selector to the Calibrate position.

The EFFECT knob now chooses what special parameter to edit.

• Calibrate: Exit special setup mode

• Classic: Input gain trim

• Low Pass Lo: Accelerometer gain trim

Low Pass Hi: Accelerometer x and y axis interchange
 Band Pass Lo: Expression control output gain trim

• Band Pass Hi: Restore all special settings to default values

The FREQUENCY control will display the value of the selected parameter and turning the knob will adjust the value. There are only 9 values per parameter; there are no in-between values. Once a value is changed it will be saved automatically.

# Input gain trim

This is a gain adjustment applied to the guitar signal immediately after A/D conversion. The possible values are -8, -6, -4, -2, 0, 2, 4, 6, and 8 dB. Positive values may be helpful for low level signals. If the input signal is particularly hot, some attenuation may be required in order that the output of the filter does not clip.

# Accelerometer gain trim

This adjusts the gain multiplier applied to the Hot Hand signals relative to the zero point from calibration. The lowest gain is .5, and the highest is 2.0. The default of 1.0 is in the center position. The higher gains may be useful if you like to use small hand motions and the lower gains if you prefer larger hand motions

# Accelerometer x and y-axis interchange

The Hot Hand sensor uses a two axis accelerometer. By default, the Hot Hand senses acceleration along the x-axis. The x-axis runs parallel to your arm and the long dimension of the sensor ring. The y-axis is perpendicular to x, while still being in the plane of an outstretched hand wearing the ring. We generally find that the x-axis gives better control than the y-axis, but feel free to experiment, especially if your playing technique is somewhat unconventional. (Lefties—no, you still want to use x, but the normal and inverted settings are effectively switched.)

Please note that if you are using the y-axis that you may need to re-calibrate with your hand and the sensor parallel to the ground (palm down). This will allow you to set a useful "zero" point for the y-axis.

The use of the x-axis sensor is indicated by the center LED. The next LED, in either direction, indicates use of an axis midway between x and y (a 45 degree angle.) Another step in either direction gets us to the y-axis. The complete set of 9 choices, from counter-clock-wise:

**1.** -x

2. Halfway between -x and -y

**3.** -\

4. Halfway between -y and x

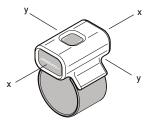
5. x

6. Halfway between x and y

**7.** y

8. Halfway between y and -x

**9.** -x



The INVERT setting on the MOTION control will act to invert whichever axis direction is chosen.

# Expression control output gain trim

This allows adjustment of the level of the signal on the EXPRESSION OUT jack. The default is position 2. This will result in a signal that varies between zero and 3.3VDC. The maximum output voltage is 4.5VDC. Note that greater changes in signal can also be produced by faster motion of your hand. Higher gain will allow you to use slower motions to achieve the desired signal levels. Check our website for additional usage tips, www.sourceaudio.net.

#### Restore defaults

When the EFFECT knob is set to restore (BAND PASS HI) in the special setting mode, depressing the SELECT pedal will reset all of the special parameters to their default settings.

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# **Specifications**

#### Dimensions

- L: 7.125 inches (18.1cm)
- W: 7.125 inches [18.1cm]
- H: 1.75 inches (4.5cm)

#### Total including knobs:

• H: 2.125 inches (5.5cm)

#### Weight

- 3lbs/1.36kg (floor unit only)
- 5lbs/2.27kg (total, including case)

#### Power

- 130mA @ 9 VDC
- 15-20 hours of battery life
- NEGATIVE tip power jack

#### Audio Performance

- 115dB audio ADC
- 24 bit audio conversion
- 56 bit digital data path
- Active analog bypass utilized when effect not engaged

# **Troubleshooting**

Noise	
Low Power	Change batteries or plug in a DC power supply.
Near noise source	Move control box away from power supplies and other equipment.
Other equipment	Remove other boxes from signal chain, see if noise persists.
Bad cables	Swap out audio cables.
Low volume	
Low power	Change batteries or plug in a DC power supply.
Hot Hand doesn't work Low power	Change batteries or plug in a DC power supply.
Not calibrated	Calibrate the Hot Hand - see page 11.
Set to Auto-Wah	Change FUNCTION knob position.
Not connected	Check data cable connections.
Knobs don't work /light up	
Low power	Change batteries or plug in a DC power supply.
Wrong power supply	Use correct power supply as defined on page 14.

For additional assistance, please visit www.sourceaudio.net.

#### LIMITED WARRANTY

Source Audio, LLC (hereinafter "Source Audio") warrants that your new Source Audio Hot Hand Control Box, when purchased at an authorized Source Audio dealer in the United States of America ("USA"), shall be free from defects in materials and workmanship under normal use for a period of one (1) year from the date of purchase by the original purchaser. Source Audio further warrants that the Hot Hand Ring Sensor shall be free from defects in materials and workmanship under normal use for a period of ninety (90) days from the date of purchase by the original purchaser. This Limited Warranty does not extend to the batteries, wires, and other components sold as part of the product, which are purchased as is. Please contact your dealer for information on warranty and service outside of the USA.

Under this Limited Warranty, Source Audio's sole obligation and the purchaser's sole remedy shall be repair, replacement, or upgrade, at Source Audio's sole discretion, of any product that, if properly used and maintained, proves to be defective upon inspection by Source Audio. Source Audio reserves the right to update any unit returned for repair and to change or to improve the design of the product at any time without notice. Source Audio reserves the right to use reconditioned parts and assemblies as warranty replacements for authorized repairs. Any product repaired, replaced, or upgraded pursuant to this Limited Warranty will be warranted for the remainder of the original warranty period.

This Limited Warranty is extended to the original retail purchaser. This Limited Warranty can be transferred to anyone who may subsequently purchase this product provided that such transfer is made within the applicable warranty period and Source Audio is provided with all of the following information: (i) all warranty registration information (as set forth on the registration card) for the new owner, (ii) proof of the transfer, within thirty (30) days of the transfer, and (iii) a photocopy of the original sales receipt. Warranty coverage shall be determined by Source Audio in its sole discretion. This is your sole warranty. Source Audio does not authorize any third party, including any dealer or sales representative, to assume any liability on behalf of Source Audio or to make any warranty on behalf of Source Audio.

#### WARRANTY INFORMATION

Source Audio may, at its option, require proof of the original purchase date in the form of a dated copy of original authorized dealer's invoice or sales receipt. Service and repairs of Source Audio products are to be performed only at the Source Audio factory or a Source Audio authorized service center. Prior to service or repair under this Limited Warranty, the purchaser must request from Source Audio a return authorization, which is available at:

Source Audio LLC 120 Cummings Park, Woburn, MA 01801 [781] 932-8080 or at www.sourceaudio.net.

Unauthorized service, repair, or modification will void this Limited Warranty.

#### DISCLAIMER AND LIMITATION OF WARRANTY

DO NOT OPEN THE FLOOR BOX UNDER ANY CIRCUMSTANCE. THIS WILL VOID THE WARRANTY

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# **About Source Audio**

Source Audio was founded in January 2005 by former engineers, scientists, and executives of Analog Devices, Kurzweil Music Systems, and Thomas H. Lee Partners. With over 80 years of broad combined industry experience, we bring to the audio effects market a powerful team with skills in analog and digital circuit design, algorithm and effects development, and marketing and business management.

