

## QUICK START

### 1. POWER

To power the unit, insert 4 AA batteries (included) or connect a Source Audio SA150 9 Volt DC power supply to the 9V DC jack (A).

**Note:** Power supply must be REGULATED, minimum 200mA, and use a negative tip plug. Use of a non-Source Audio power supply may cause damage and void the warranty.

### 2. GUITAR/AUDIO CONNECTIONS

Next, plug your guitar (or other instrument) into the jack labeled GUITAR IN (B) via a standard ¼-inch cable. Connect your amp (or other audio device) to the GUITAR OUT (C) jack, again with a standard ¼-inch cable. Both input and output are mono signals.

**Note:** The unit will not power up until a MONO ¼-inch plug is inserted into the guitar input. This is to conserve power when the unit is running on batteries. Don't forget to unplug the cable from the input when the unit is not in use—otherwise the batteries will continue to drain.

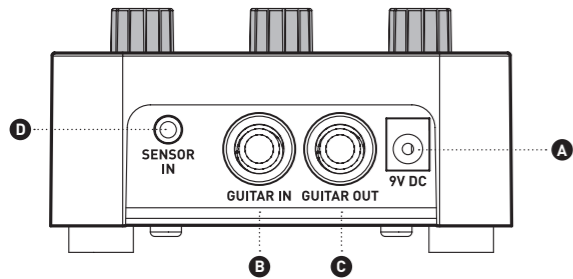
### 3. SENSOR IN (optional)

To use your Multiwave Distortion with a Hot Hand sensor: Connect the sensor to the SENSOR IN (D) jack and follow any instructions supplied with the sensor. The sensor input works with both wired and wireless sensors.

### 4. BRIEF KNOB AND PEDAL DESCRIPTIONS

(see *Controls* section for more details)

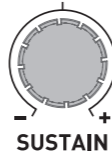
- **SUSTAIN** adjusts input gain to the front-end compressor
- **DRIVE** the amount of distortion gain applied to the signal.
- **OUTPUT** adjusts the output level of the effect.
- **ON/OFF** engages and disengages the effect.



## CONTROLS

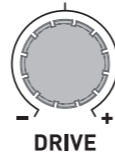
### EFFECT

The effect knob selects which effect type will be used. There are 21 effect positions around the knob as well as a setting for CALIBRATE. For information on the individual settings see the next section. See the *Use with Hot Hand* section for information on calibration.



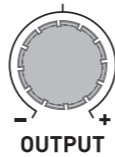
### SUSTAIN

There is a compressor in front of the distortion. The SUSTAIN knob adjusts the input gain of the compressor, while the threshold remains fixed. The compression ratio is 4:1, meaning that a 24 dB change in the input produces only a 6 dB change in the compressor output. The attack and release time constants are fairly quick. Increasing the SUSTAIN control will result in a higher signal level going to the distortion, even when DRIVE remains fixed. Increasing the amount of compression on the signal effectively creates more sustain.



### DRIVE

The DRIVE control adjusts the gain of the signal going into the distortion section. You probably don't want to max out both SUSTAIN and DRIVE at the same time, even for rock and roll.



### OUTPUT

Adjusts the output level of the effect. This is useful for setting the level of the effect compared to the bypass signal. Note that because the effect compresses the signal, the dynamic range of the distorted signal will be less compared to the dry signal. This should be accounted for when setting levels.

### ON/OFF

The ON/OFF switch engages or disengages the effect. When the effect is engaged, the ON/OFF LED will be lit. The LED will be off in bypass mode. The ON/OFF switch is also used to start the calibration routine when the EFFECT knob is set to CALIBRATE. See the section on Use with Hot Hand for more details.

## EFFECTS

Here are some brief descriptions of the effects included in the Multiwave Distortion. The EFFECT knob settings are split into two major categories: MULTI BAND and SINGLE BAND. MULTI BAND settings use the band splitting discussed in the feature section and the SINGLE BAND settings do not. Each main category contains 3 sub-categories: NORMAL, FOLDBACK, and OCTAVE. For each sub-category, turning the effect knob clockwise will tend produce more dramatic effects.

### MULTI BAND

#### NORMAL 1-3

These three settings are best for maximum clarity of the individual notes in a chord. These distortion curves are similar to standard distortions.

#### FOLDBACK 4-9

The foldback of the distortion curve greatly increases the distortion components for these settings. The higher numbered effects have more foldback creating even more distortion. Big chords may not work well.

#### OCTAVE 10-14

Settings 10 and 11 give the purest octave effect. Settings 12 through 14 also have foldback and can get pretty strange. Unlike classic octave effects, chords can produce some useful results.

### SINGLE BAND

#### NORMAL 15-16

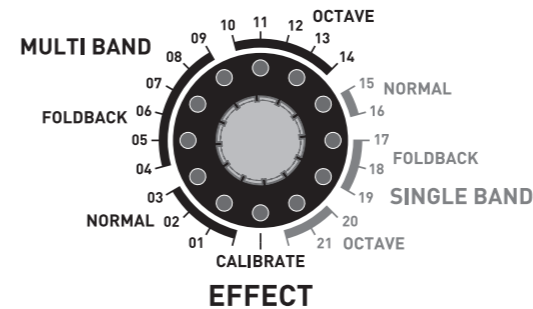
These two settings are fairly conventional distortion sounds.

#### FOLDBACK 17-19

With the entire guitar signal processed through a single foldback distortion curve, there will be much more intermodulation-type distortion produced.

#### OCTAVE 20, 21

20 is the purest single band octave effect, and 21 includes some foldback.



## SPECIFICATIONS

### Dimensions

- L: 7 inches
- W: 4 inches
- H: 2 inches (including knobs)

### Weight

- 1.25lbs

### Power

- 110mA @ 9V DC (max 145mA with Hot Hand Wireless Adapter)
- 15-20 hours battery life
- NEGATIVE tip power jack

### Audio Performance

- 115dB DNR audio ADC
- 24-bit audio conversion
- 56-bit digital data path
- Analog bypass

## TROUBLESHOOTING

### Noise:

Low Power	Change batteries or plug in a DC power supply.
Near noise source	Move pedal away from power supplies and other equipment.
Other equipment	Remove other effects 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.
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### Hot Hand doesn't work:

Low power	Change batteries or plug in a DC power supply.
Not calibrated properly	Calibrate the Hot Hand (see <i>Use with Hot Hand</i> ).
Not connected	Check Hot Hand 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 (see <i>Quick Start</i> ).
Corroded input cable plug	Check input cable plug for corrosion on sleeve, swap out cable if necessary.
TRS (stereo) cable used	Only use mono cable for input cable.

For additional assistance, please visit [www.sourceaudio.net](http://www.sourceaudio.net)

## LIMITED WARRANTY

Source Audio, LLC (hereinafter “Source Audio”) warrants that your new Source Audio Soundblox Effects Pedal, 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. This Limited Warranty does not extend to the batteries 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.

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

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

### DISCLAIMER AND LIMITATION OF WARRANTY

DO NOT OPEN THE EFFECTS PEDAL UNDER ANY CIRCUMSTANCE. THIS WILL VOID THE WARRANTY.

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## FEATURES AND THEORY OF OPERATION

The Soundblox Multiwave Distortion provides some unique distortion sounds. In creating this effects pedal, we didn’t intend to duplicate, model, or emulate any existing types of distortion. The types of algorithms we use to create the distortion are quite different from the standard set, although with certain settings the result can sound similar.

One of the techniques used is to divide up the input guitar signal into multiple frequency bands. Each band is separately distorted, and then all are recombined. If chords are played, there can be a lot of clarity between the various notes. It’s possible to leave several notes droning, while a melody is played on top. A normal distortion tends to reduce such playing to mush. Because of the multiple bands, it’s also possible to get several notes feeding back at the same time. The first 14 settings (labeled MULTI BAND) on the EFFECT knob use band splitting while the last 7 (labeled SINGLE BAND) do not.

The shape of the distortion mapping curve is also different from standard distortions. Normally, as the input signal voltage rises, the output voltage also rises, but begins to level off and finally pins (or clips) at a maximum value. With a foldback curve, for large enough values of the input, the output will begin to decrease. With more extreme amounts of foldback, after decreasing for a while, the output can begin to increase again. Maximum foldback has many regions where the output alternates between increasing and decreasing. These kinds of curves add a lot of high frequency content to the output. It also can provide a lot of control over the sound, based on the level of the input signal. With foldback, chords containing only octaves and fifths tend to sound best. Other intervals can cause some strange, although not necessarily undesirable sounds.

Using a special shape of the distortion curve, strong second harmonics can be created, sounding like a note an octave higher. Rolling off the guitar tone control will help maximize the octave impression. Complex chords don’t typically work well for octave settings. The result is very sensitive to the input signal level (as long as the SUSTAIN and DRIVE controls are not set too high) and can give a sort of auto-wah effect.

A conventional distortion effect tends to turn the guitar signal into square waves. Playing harder only makes the transition from negative clipping to positive clipping a little bit steeper. With our foldback and octave algorithms, a slightly higher input can have a radical effect on the shape of the output signal.

## USE WITH HOT HAND

While the primary function of the Multiwave Distortion is as a stand-alone effects pedal you also have the option of exploring some additional functions by plugging in a Hot Hand sensor. When a sensor is plugged in the amount of DRIVE is controlled by the Hot Hand sensor. The maximum amount of drive you can get by moving the sensor is determined by the position of the DRIVE knob.

### Hot Hand Basics

The Hot Hand motion sensors are sold separately and come in either wired or wireless versions. Both will work with the Multiwave Distortion. Additionally, the SENSOR IN jack will be compatible with any future Source Audio sensors.

The Hot Hand ring contains an accelerometer that responds to acceleration and is not based on any type of proximity to the guitar. By moving your hand or by changing the position of your hand you can modulate the effect. For a good description of Hot Hand Theory, download the Hot Hand Motion Controlled Wah Filters manual. It is available at [www.sourceaudio.net](http://www.sourceaudio.net). Keep in mind that the Multiwave Distortion can only use the x-axis of the ring sensor. Please note that for the Multiwave Distortion, the typical Hot Hand control parameters can NOT be adjusted.

### Calibration

The Multiwave Distortion has a calibration feature which is only used in Hot Hand mode. However, calibration is not required before use. The calibration feature allows you to set the maximum point of the DRIVE sweep for any position of your hand. Depending on your playing style, you may find it useful to try some different calibration positions. The most common use is setting the calibration with the sensor pointing up to make raising your hand the maximum end of the DRIVE sweep. Calibration can also be useful if you are putting the sensor on a headband or other alternate locations.

### To perform a calibration

- Turn the EFFECT knob to the CALIBRATE position.
- Hold the sensor in the desired position.
- While holding the sensor steady, press the ON/OFF footswitch and wait for 1 second.
- Turn the EFFECT knob away from calibrate to use your new calibration setting. Note: Calibration settings will be saved between power cycles.
- If you have trouble with calibration and need to get back to the default setting, run the calibration procedure with your hand raised up at a 45 degree angle.

## MULTIWAVE DISTORTION

### USERS GUIDE

Thank you for purchasing the Soundblox Multiwave Distortion. The Multiwave Distortion produces some very unique distortion sounds and does not attempt to model or emulate any classic distortions. It offers some new and different distortions ranging from the more organic to synth-like and octave heavy sounds. Like the other Soundblox effects pedals, the Multiwave Distortion is also HOT HAND® READY.

Enjoy!  
The Source Audio team

- **DIVERSE SOUND PALETTE**  
Featuring 21 varieties of our distortion algorithm.
- **MULTIBAND PROCESSING**  
Signal is split into multiple bands and each is distorted individually for unprecedented sound clarity.
- **MODERN DESIGN**  
A thoughtfully designed box which features rugged construction and sleek looks.
- **STATE-OF-THE-ART DSP**  
Our proprietary 56-bit Digital Signal Processor, the SA601, and crystal clear 24-bit converters.
- **HOT HAND READY**  
All Soundblox pedals can be used with any Hot Hand motion sensor to extend the capabilities of the unit.
- **ACTIVE ANALOG BYPASS**  
Bypass is fully routed around the DSP and active input ensures zero signal degradation.

SA120