

soundblox[®]PRO

BASS ENVELOPE FILTER
USER'S GUIDE

WELCOME

Thank you for purchasing the Soundblox Pro Bass Envelope Filter. The BEF Pro is a highly flexible envelope filter effect unit specially optimized for the bass guitar. With 23 individual filter types, the BEF Pro contains a wide range of sounds, from traditional filter effects to advanced & unique filter sounds.

The BEF Pro offers a unique and useful variety of control options. The unit functions as either an envelope follower or an LFO (Low Frequency Oscillator) driven filter, but is also controllable with a standard expression pedal or our patented Hot Hand[®] motion sensor ring,

The *Quick Start* guide will help you with the basics. For more in-depth information about the BEF Pro, move on to the following sections.

Enjoy!

The Source Audio team

OVERVIEW

DIVERSE SOUND PALETTE

Featuring 23 types of envelope filter and phaser effects.

FLEXIBLE ENVELOPE CONTROL

A highly bass-optimized envelope follower with multiple sweep and speed control options.

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.

LO-RETAIN

Our unique mixing algorithm carefully preserves the lowest bass frequencies.

6 USER PRESETS

Easy to configure user presets in two banks selectable via 3 footswitches for quick access to your favorite sounds.

7-BAND EQUALIZER

Ultra-precise 7-band equalizer for in-depth tone control saved per preset.

FILTER CONTROL

The filter effects can be modulated with an envelope follower, an LFO (low frequency oscillator), expression pedal, or our patented Hot Hand Motion Control sensor ring.

BACKPAGE PARAMETERS

a second level of control functions, providing access to different LFO shapes, Q levels, customized expression pedal routing.

ACTIVE ANALOG BYPASS

Bypass is fully routed around the DSP and active input ensures zero signal degradation.

QUICK START

1. POWER

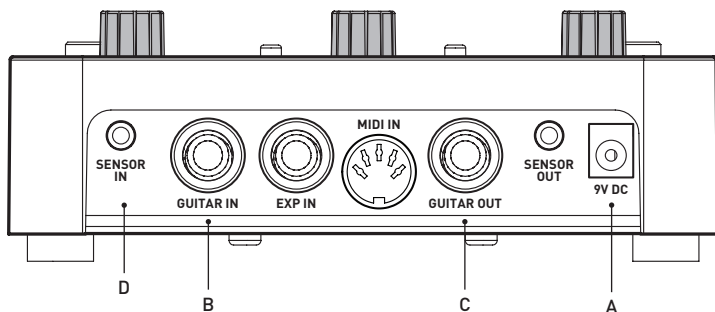
To power the unit, connect the included DC adapter power supply to the 9V DC jack (A) on the back panel. **Note:** Using a different supply could damage the unit and void the warranty.

2. GUITAR/AUDIO CONNECTIONS

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

3. SENSOR IN (optional)

To use your BEF Pro with a Hot Hand sensor, connect the sensor to the SENSOR IN (D) jack and follow any instructions given with the sensor

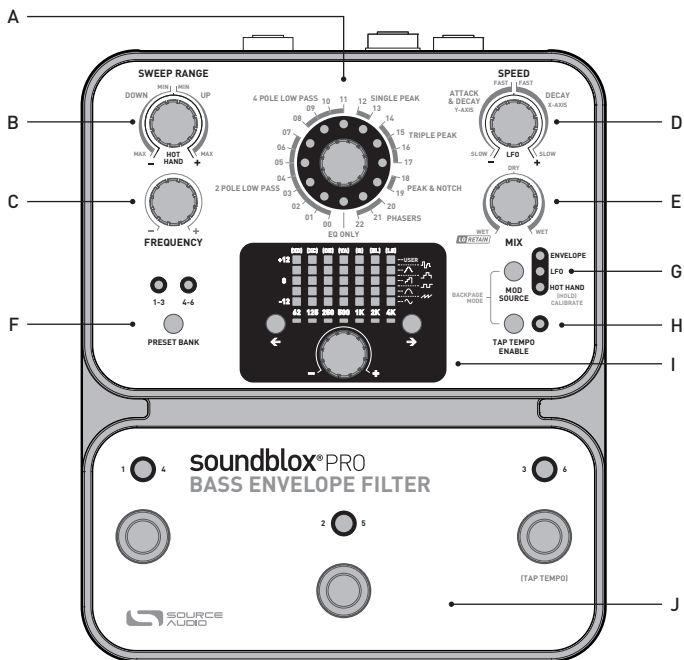


4. BRIEF KNOB AND PEDAL DESCRIPTIONS

See *Controls* section for more details.

- A **EFFECT:** selects desired filter type
- B **SWEEP RANGE:** adjusts the direction (up/down) and breadth of the filter sweep or the depth of the LFO and Hot Hand modulation.
- C **FREQUENCY:** adjusts the center frequency of the filter

- D **SPEED:** Controls the attack and decay speed of the envelope follower, the LFO speed, or the motion-sensitivity of the Hot Hand.
- E **MIX:** adjusts the ratio of clean to wet signals.
- F **PRESET BANK BUTTON:** select preset bank A (presets 1, 2, and 3) or B (presets 4, 5, and 6).
- G **MOD SOURCE:** selects between ENVELOPE, LFO, and HOT HAND as the modulation source for the filter effect.
- H **TAP TEMPO ENABLE:** Enables a tap tempo function for use with the LFO.
- I **EQ SECTION:** the two buttons select the frequency band to edit and the knob adjusts the value of the selected band.
- J **FOOTSWITCHES:** Enables/Disables a selected preset depending on the currently selected preset bank. Press and hold to save an edited preset. The switch to the far right also sets the tap tempo.



FEATURES

The Soundblox Pro Bass Envelope Filter is a very flexible envelope filter effect. The unit features multiple filter types ranging from simple to complex, which can all be controlled by an Envelope Follower, an LFO (Low-Frequency Oscillator), the Hot Hand Motion Sensor or an Expression Pedal.

An *Envelope Follower* is an algorithm that responds to the amplitude (or volume) of the incoming signal and creates a control signal based on the input level. This control signal is used to modulate the filter to create an auto-wah effect. (Note: The envelope follower signal can be reset to zero between notes by a very brief moment of silence, allowing the next note played to experience the full sweep of the filter effect all the way from its starting point)

An *LFO* (low frequency oscillator) is an electronic signal that uses a rhythmic pulse or sweep to create a control signal. This control signal is used to modulate the filters of the BEF Pro to create an oscillating filter or sequencer-like effect. The BEF Pro also features a variety of LFO shapes including sine, square, saw, step and triangle, each of which can dramatically change the sound of the effect.

The *Hot Hand Motion Sensor* uses data from an accelerometer placed inside a wearable ring to modulate the filters of the BEF Pro. Either a wired or wireless sensor can be plugged into the sensor input on the back panel. After the sensor is plugged in, use the MOD SOURCE button to select "Hot Hand Mode". At this point the controls take on slightly different functions. Note that the calibrate feature is intended for use with the "Hot Hand Mode" only.

An *Expression Pedal* can be used to control a variety of selectable parameters in the BEF Pro including direct filter modulation like a standard wah pedal.

The BEF Pro features *LO-RETAIN*, an algorithm that alleviates the issue of low-end "tone suck" commonly experienced with bass effects.

CONNECTIONS

GUITAR IN

Connect your bass guitar or other instrument here using a standard MONO ¼" cable.

GUITAR OUT

Connect this to your amp, pedal, or other audio device.

EXPRESSION IN (optional)

Connect a passive expression pedal that uses a TRS plug here. The expression pedal is assignable to a variety of parameters.

SENSOR IN (optional)

Connect an optional Hot Hand sensor here, either wired or wireless.

SENSOR OUT (optional)

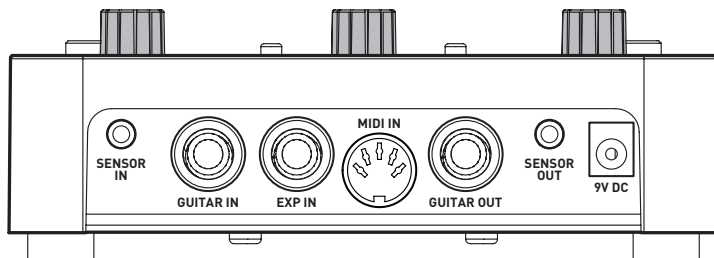
Use a Source Audio daisy-chain cable to connect this jack to the sensor input of another pedal.

MIDI IN (optional)

MIDI program and continuous control input. Connect to a MIDI output with a standard MIDI cable. Can also be used to sync the LFO with a MIDI clock.

9V DC

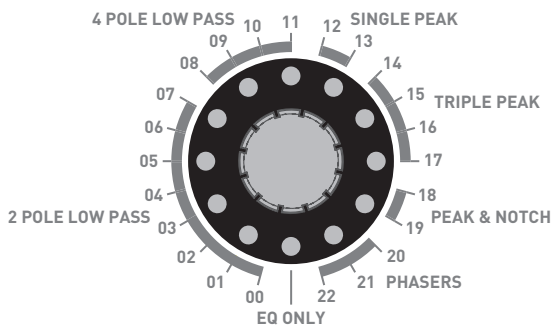
Connect the included 9 Volt DC power supply here. Use of a non-Source Audio power supply may cause damage and void the warranty.



CONTROLS: KNOBS

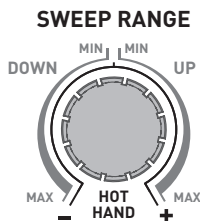
EFFECT (not labeled)

The effect knob selects which filter type will be used. There are 23 effect positions (0 through 22) around the knob as well as a setting for EQ ONLY. In the EQ ONLY mode, the envelope filter effect is bypassed but the equalizer still applies. For information on the individual settings see the *Effect Types* section.



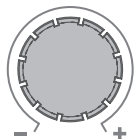
SWEEP RANGE

In Envelope and Hot Hand modes, the sweep range knob controls the direction and breadth of the filter sweep. The right side of the knob (labeled UP) adjusts the breadth of the upward sweep, adding greater range as you turn the knob clockwise. The left side of the knob (labeled DOWN) adjusts the breadth of the downward sweep, adding greater range as you turn the knob counterclockwise. In LFO mode the knob also controls the depth of the upward and downward sweep, but keep in mind that symmetric LFO shapes (i.e. sine, square, 6 and 8 step triangle, and random) will sound the same in either sweep direction. Conversely, non-symmetrical LFO shapes (i.e. rising saw and step sequences) will sound very different, depending on the direction of the sweep.



FREQUENCY

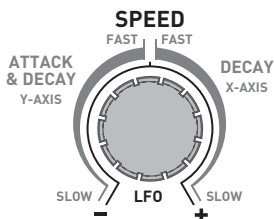
The Frequency knob sets the center frequency of the filter sweep in all modulation modes. Turning the knob counterclockwise will result in the filter moving over lower frequencies for a darker sound. Turning the knob clockwise will result in the filter sweep moving over higher frequencies for a brighter sound.



FREQUENCY

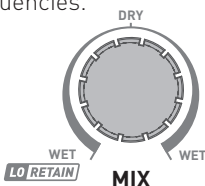
SPEED

The Speed knob controls the attack and decay time of the envelope follower or the rate of the LFO. In Envelope mode, the range of the speed control is divided into two parts. Turn the knob to the left of 12 o'clock to adjust both the attack and decay times—as the knob is turned counterclockwise both will slow down equally. Turn the knob to the right of 12 o'clock and the attack will stay fixed at its fastest setting while the decay time gets slower. In Hot Hand mode, this knob controls the sensitivity of the motion sensor and selects which axis of the sensor will be used.



MIX

The Mix knob adjusts the ratio of dry to wet signal. This knob is also divided into two halves. Setting the Mix knob to 12 o'clock results in a 100% dry signal. Turning the knob to the right of 12 o'clock increases the amount of wet signal while decreasing the dry. The right most position results in a 100% wet signal. Turning the Mix Knob left of 12 o'clock increases the amount of wet signal using LO-RETAIN to preserve more of the low-end bass frequencies.



CONTROLS: EQUALIZER

One of the key features of the BEF Pro is the 7-band graphic equalizer. Each band can be adjusted up or down in 1 dB steps from -12 dB to +12 dB. The display shows 1 dB steps by lighting adjacent LEDs with varying brightness. The factory default places the EQ after the MIX control applying the EQ to both the wet and dry signals. Alternatively, a special Backpage parameter (See Backpages instructions) offers the option of placing the EQ on just the wet signal. Another Backpage parameter extends the EQ by an octave and allows access to the adjustment of one additional high frequency band (8K). The equalizer section has three controls:

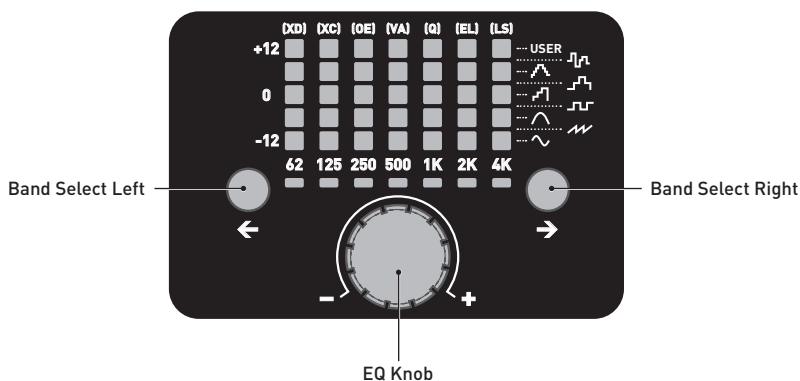
BAND SELECT LEFT and RIGHT

The two buttons on either side of the EQ knob select the frequency band to edit.

EQ knob

The equalizer knob changes the value of the selected band up or down in 1 dB steps.

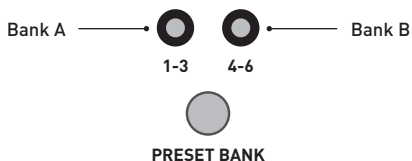
Tip: You can quickly and easily zero the equalizer by pressing both left and right band select buttons at the same time. The equalizer display will reset to a default “flat” setting.



CONTROLS: OTHER BUTTONS

PRESET BANK

There are six available user presets in two banks. Switch between banks by pressing the PRESET BANK button. When preset bank A is selected, pressing the corresponding footswitches will select presets 1, 2, or 3. When preset bank B is selected, the footswitches select presets 4, 5, and 6. The indicator lights above each footswitch alternate from green for bank A to red for bank B.

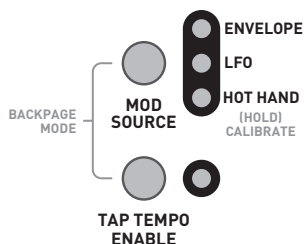


MOD SOURCE

Pressing this button selects between the three choices of modulation source: Envelope, LFO, and Hot Hand. When Hot Hand is selected as the modulation source, press and hold the MOD SOURCE button to start the Hot Hand Calibration procedure. (See the *Use with Hot Hand* section for calibration instructions).

TAP TEMPO ENABLE

When LFO is selected as the modulation source, press this button to enable Tap Tempo Mode. The rightmost footswitch will be converted to a tap tempo control. Press the TAP TEMPO MODE button again to disable tap tempo. Tap tempo only applies in LFO mode.



CONTROLS: FOOTSWITCHES

There are three footswitches on the BEF Pro. From left to right, the footswitches correspond to presets 1, 2, and 3 for preset bank A and 4, 5, and 6 for bank B. Pressing any of the buttons will engage a given preset. Pressing the footswitch for the currently engaged effect will put the unit into bypass mode. Pressing another switch will engage the corresponding preset without going into bypass.

The indicator lights above the three footswitches are bi-color and will change depending on which bank is selected. Bank A presets are green while bank B presets are red. When a preset is edited, the LED will begin to blink, indicating that the preset has been changed. When a preset has been edited, pressing and holding any of the switches will save the changes to the corresponding preset. The LED will blink quickly to indicate that the preset has been saved. Once changes are saved, the LED will be lit solidly. See the “Preset Saving” section for other saving options.

Note: Changes made to a preset will be lost if you go into bypass or switch to another preset without saving.

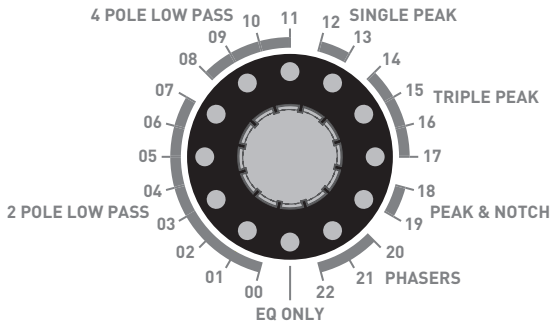
Tap Tempo

In Tap Tempo Mode, the rightmost footswitch can be used to change the speed of the LFO. Tap the footswitch at least two times in rhythm to set a new LFO speed. The tapped speed will be one cycle of the LFO. The new speed will also be reflected in the blinking LED above the footswitch.



EFFECT TYPES

The following are brief technical descriptions of the filter effects included in the BEF Pro. Some of the filter types are intended to approximate, but not exactly copy, some common and well-known bass envelope filter effects. These are marked below.



2 POLE FILTERS

- 00 Three two-pole resonant low-pass filters in parallel.
- 01 Resonant low pass. A flat response at low frequencies, rising to a resonant peak, and then falling at 12 dB/octave. Low resonance (low Q). *This setting creates sounds similar to the 3leaf Groove Regulator*
- 02 Resonant low pass. High resonance (high Q).
- 03 Notch, Resonant low pass. The frequency response begins flat, then has a deep notch, then back to flat, and then a resonant peak followed by a 12 dB/octave fall. *This setting creates sounds similar to the Pigtronix EP-1.*
- 04 Notch, Notch, Resonant low pass. Same as 03, but with two notches.

- 05 Peak, Notch, Resonant low pass. A resonant peak, followed by a notch, followed by a resonant low pass.
- 06 Resonant low pass, Peak, Peak. As the response of the low pass filter falls, the fall is interrupted by two peaks. The low pass resonant peak moves in the opposite direction from the additional higher frequency peaks.
- 07 Two resonant low pass filters in parallel. *This setting creates sounds similar to the EHX Bass Balls.*

4 POLE FILTERS

- 08 Resonant four pole low pass. Like the two pole low pass, but after the resonant peak, the signal falls at 24 dB/octave.
- 09 Four pole low pass with two resonant peaks. The resonant peaks are separated by 1.3 octaves.
- 10 Peak, Four pole low pass. A four pole low pass with an extra peak at a lower frequency than the resonant peak.
- 11 Four pole low pass, Peak. A four pole low pass with an extra peak at a higher frequency than the resonant peak.

SINGLE PEAK

- 12 Peak. The frequency response is flat, except in the region around the peak. Moderate Q.
- 13 Peak. As above, with higher Q.

These two settings can be used to approximate the low and high Q sounds of the MXR Bass Envelope Filter.

TRIPLE PEAKS

14, 15 Three peaks moving together.

16, 17 Three peaks moving in opposing directions.

PEAKS AND NOTCHES

18 Peak, Notch, Peak.

19 Notch, Peak, Notch.

PHASERS

20 Notch, Notch. A pair of frequency response notches creates a standard two notch phaser. There is a little feedback to boost the non-notched frequencies.

21 Notch, Notch, Notch. A three notch phaser with some feedback.

22 Two notch phaser with high feedback

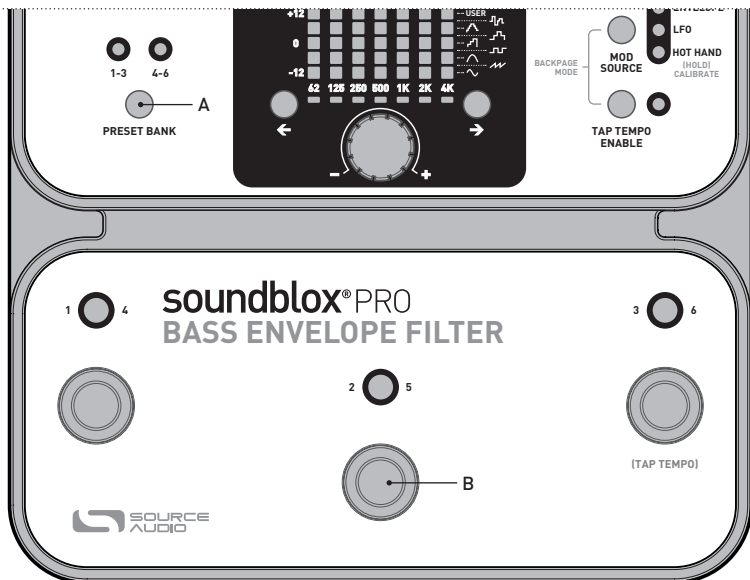
EQ ONLY – No Filter

23 EQ Only. Select this setting to bypass the filter to use the BEF Pro as an equalizer only.

PRESET SAVING

An edited preset can be saved by pressing and holding a footswitch as described in the Controls: Footswitches section. But keep in mind that an edited preset can be saved to any one of the 6 preset locations. For example if preset 1 has been selected and edited, it can be saved to preset location 3 by pressing and holding the 3/6 footswitch. Once the preset has been saved to that location, the new location will be the selected preset.

Presets can be copied across preset banks by holding the PRESET BANK button while pressing and holding a footswitch. For example, if preset 2 has been selected and edited, holding the PRESET BANK button (A) while pressing and holding footswitch 2/5 (B) will save the current settings to location 5. Once the preset is saved to another bank, the preset in the current bank will stay selected and NOT be saved to its own location since it was saved elsewhere as a new preset.



SYNCHRONIZING THE LFO

The LFO will start from zero in its pattern every time the pedal is switched on or a new tempo has been set using tap tempo. This facilitates the synchronization of the LFO to other musicians or recorded tracks. Resynchronization will also happen when switching from one preset to another.

USE WITH AN EXPRESSION PEDAL

A passive expression pedal can be connected via the BEF Pro's expression input. Use an expression pedal to control a variety of functions that can be set in the Backpage mode (see *Backpage Parameters* section). For example, use an expression pedal to manually modulate a filter effect in the same fashion as a wah-wah pedal, control the LFO speed of an effect, switch quickly between effect types, or control the depth and sweep range of a chosen effect.

USE WITH HOT HAND®

While the primary function of the BEF Pro is as a standalone effect pedal you also have the option of exploring some additional functions by plugging in a Hot Hand sensor. After connecting the sensor, use the MOD SOURCE button to select Hot Hand mode. In Hot Hand mode, some knobs assume an alternate function (see below).

Hot Hand Basics

The Hot Hand motion sensors are sold separately and come in either wired or wireless versions. Both will work with the BEF Pro. 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.

In Hot Hand mode, the SWEEP RANGE knob becomes the depth of the effect based on the sensor input. It can alternatively be thought of as a gain control for the Hot Hand signal. Increasing the depth will cause the filter to move more based on smaller motions of the sensor. Decreasing the depth will decrease the movement of the filter. In Hot Hand mode, the depth increases by turning the knob to the left or right. In the “Up” region the motion of the filter will be from low to high and in the “Down” region the filter will move from high to low. This effectively inverts the Hot Hand signals.

The SPEED control adjusts the ring’s sensitivity in Hot Hand mode and also selects which axis of the accelerometer will be used. The left side of the knob selects and controls the response speed for the Y-axis of the Hot Hand motion sensor while the right side selects and controls the speed of the X-axis.

Select either the X or Y axes by turning the knob to the right or the left, respectively. Once an axis is selected, turn the knob toward either extreme labeled SLOW to smooth out fast changes from the sensor signal. Turning the knob towards SLOW provides the most amount of smoothing causing the effect to react to only large, deliberate motions of the sensor. Turning the knob all the way to FAST sets the smoothing at a minimum. This means that fast changes in the sensor signal will be applied to the effect and the motions created from normal picking will be enough to move the filter.

Calibration

The BEF Pro has a calibration feature that is only used in Hot Hand mode. However, calibration is not required before use. The calibration feature allows you to set the midpoint of the filter 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 of calibration is setting your resting hand position on the guitar to be the midpoint of the filter sweep. Calibration can also be useful if you are putting the sensor on a headband or other alternate locations.

To perform a calibration:

1. Select a preset by pressing a footswitch.
2. Select Hot Hand mode with the MOD SOURCE button.
3. Press and hold the MOD SOURCE button to put the BEF Pro into Calibrate Mode. The Hot Hand LED will begin to blink slowly.
4. Put the Hot Hand sensor into the desired calibration position.
5. Press the footswitch for the currently selected preset.
6. The Calibrate LED will blink until the calibration is complete.

Note: Calibration can be cancelled by pressing the MOD SOURCE button again.

If you have trouble with calibration and need to get back to the default setting, place the sensor on a flat, level surface with the blue LED facing down and run the calibration procedure again.

MIDI CONTROL

The BEF Pro can optionally be controlled by an external MIDI controller, such as the Hot Hand MIDI-EXP controller, through the MIDI input. All of the knob parameters as well as several other Backpage parameters are controllable via MIDI Continuous Controller messages. Individual presets can also be selected by MIDI Program Change messages. The unit can also be put into bypass in this way. The following table describes the use of the MIDI input.

MIDI implementation

Parameter	Message Type	Data Value
Enable Preset 1	Program Change	001
Enable Preset 2	Program Change	002
Enable Preset 3	Program Change	003
Enable Preset 4	Program Change	004
Enable Preset 5	Program Change	005
Enable Preset 6	Program Change	006
Disable Preset - Bypass	Program Change	007

Note: Presets can be remapped to alternate program change values. Please visit the BEF Pro product page at www.sourceaudio.net for details.

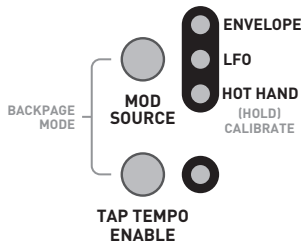
Parameter	Message Type	Data Value 1	Data Value2
Frequency	Continuous Controller	020	0-127
Depth	Continuous Controller	021	0-127
Wet/Dry Mix	Continuous Controller	022	0-127
Speed	Continuous Controller	023	0-127

The MIDI Channel is selectable as a Backpage parameter. Please see the *Backpage Parameters* section for more details.

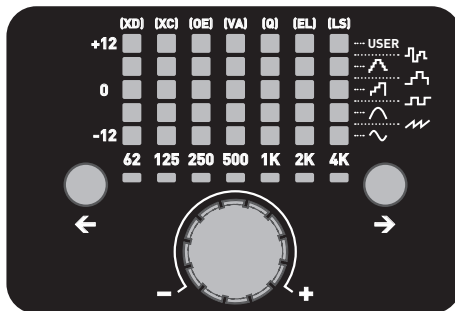
Note: MIDI Channel is a global setting and will not be saved per preset.

BACKPAGE PARAMETERS

The BEF Pro has some additional editable parameters accessible via the special Backpage mode. Pressing the MOD SOURCE and TAP TEMPO ENABLE buttons simultaneously enables the Backpage mode, as indicated on the main control panel. All Modulation Source LEDs and the Tap Tempo Enable LED will be lit to indicate that the unit is in Backpage mode. The Backpage mode can be exited by pressing the two buttons simultaneously again.



In Backpage mode, the EQ controls and the Effect knob take on different functions and the displays will change to indicate the parameter values. For the EQ display, there are two letter abbreviations above the columns that indicate the parameter controlled in Backpage mode. Select the parameter to be edited with the left and right Band Select buttons and adjust the value with the knob.



To return to the default Backpage settings, press both Band Select buttons at the same time. All Backpage parameters will return to factory default settings. Unless otherwise noted, all Backpage parameters are save per preset.

Below is the list of editable Backpage parameters.

Expression Pedal Depth (XD)

The 'XD' parameter can be used to modify the range or depth of an expression pedal connected to the BEF Pro. Many of the available parameters assignable to the expression pedal input will sound best when the depth is not set to its maximum range.

- A single light in the +12 position denotes the maximum depth of positive value.
- A single light in the -12 position denotes the maximum depth of negative value.
- A single light in the '0' position is a neutral selection that effectively disables the expression input.

Expression Pedal Control (XC)

The 'XC' parameter can be used to select the input destination of an expression pedal or the LFO. Any of the four control knobs (Frequency, Sweep Range, Speed, and Mix) may be a destination. Filter modulation and the effect selector knob are also available destinations.

When controlling a knob parameter, the knobs remain active with the expression pedal signal summed with the knob position. This sum value is pinned to stay within the full control range of the knobs alone. To enable control of the entire range of a knob with an expression pedal, it is important to set the destination knob to the full counter-clockwise position. Otherwise, the value will pin and some of the range of the expression pedal will not have any effect.

It is important to note that the signal from the expression pedal is identical to the action of turning each knob. The range and direction of the expression pedal is dictated by the 'XD' parameter. When 'XD' is set to a parameter above the neutral '0' position (towards +12), moving the expression pedal forward will be like turning the destination knob clockwise. When 'XD' is set to a parameter below the neutral '0' position (towards -12), moving the expression pedal forward will be like turning the destination knob counter-clockwise.

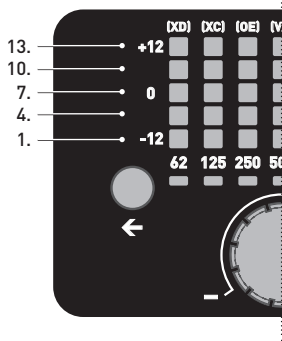
For example, in the case of the Sweep Range knob, this means that rocking the expression pedal forward while the knob is set to its full counter-clockwise position may pass the signal from maximum negative sweep through zero modulation to maximum positive sweep.

For split function knobs such as Sweep Range, it is advisable to set the destination knob to 12 o'clock and set the 'XD' parameter to half of its maximum positive (+6) or negative (-6) so that the full range of the expression corresponds to the full range of one function.

For single function knobs such as Frequency, it is advisable to set the destination knob to its full counter-clockwise position and set the 'XD' parameter to its maximum positive (+12) so that the full range of the expression pedal corresponds to the full range of the knob.

There are 13 possible 'XC' selections. Starting from the bottom (-12), they are:

The 13 possible 'XC' selections start from the bottom (-12) on the EQ panel.



1. **EXPRESSION PEDAL to SPEED**
2. EXPRESSION PEDAL to SWEEP RANGE
3. EXPRESSION PEDAL to WET/DRY MIX
4. **EXPRESSION PEDAL to MODULATION**
5. EXPRESSION PEDAL to FREQUENCY
6. EXPRESSION PEDAL to EFFECT SELECTOR
7. **LFO to EFFECT SELECTOR**
8. LFO to EFFECT SELECTOR and EXPRESSION PEDAL to LFO SPEED
9. LFO to FREQUENCY
10. **LFO to FREQUENCY and EXPRESSION PEDAL to LFO SPEED**
11. LFO to MODULATION and EXPRESSION PEDAL to LFO SPEED
12. LFO2 TO MODULATION and EXPRESSION PEDAL to LFO2 SPEED
13. **LFO2 to EFFECT SELECTOR and EXPRESSION PEDAL to LFO2 SPEED**

Selections in bold are denoted by a single LED.

For a more detailed explanation of each setting and some tips on how they can be used, download the Expression Control Supplement from the BEF Pro product page at www.sourceaudio.net

Octave Extension (OE)

This Backpage parameter offers a choice between a seven or eight band equalizer. The illumination of the bottom most LED signifies the selection of the factory default 7-band EQ. The illumination of the second LED from the bottom signifies the selection of an 8-band EQ. The additional 8th EQ band is one octave above the highest band in the default setting [8 Kilohertz].

Once the 8-band EQ has been selected and the Backpages mode has been exited, the additional 8K band can be accessed by scrolling the EQ all the way to the right, then hitting the right arrow button one additional time. Each frequency band setting will shift one position to the left opening access to the 8K band in the right most column.

Note: This is a global setting and will not be saved per preset.

Volume (VA)

Adjusts the pedal's final output signal level. It is possible to change the factory default output level by +/- 12dB in steps of 1 dB.

Q (Q)

First, let's define what Q is. In the early days of radio, the sharper the band-pass filter in the tuner section was, the better the radio could tune in a desired station and reject other stations at nearby frequencies. So the sharpness of the filter was termed "quality", or Q.

Adjusting the Q parameter in the BEF Pro multiplies all the Q's in the filter definition. Increasing the Q's of the filters results in narrower and sometimes higher peaks in the frequency response. In general, it will sound wetter, although it is certainly possible to overdo it—the highest Q settings are extreme. Notches in the frequency response, however, will become less evident with higher Q's (because they will become narrower.). Decreasing Q will create a dryer, less effect driven tone.









The center position of the LED display represents a value of 1.0, or no change to Q. Going up to higher values can reach a factor of 20. Lower values go to .25. Higher Q's may require a volume reduction on the Backpage.

EQ Location (EL)

There are two possible EQ locations within the pedal's signal chain. The lowest LED in the EQ Location column signifies the factory default setting, which places the EQ after the mix control, thereby affecting both the wet and dry signal. Selecting the other LED position applies the EQ only to the wet signal, leaving the dry signal unaffected.

LFO Shape Control (LS)

The BEF Pro offers nine different LFO shapes. Within the EQ box on the pedal's faceplate, a graphic of each LFO shape has been placed next to its corresponding LED selector position. The available LFO shapes are:

1. **USER** User Downloadable Step Sequence with Up to 16 Steps (factory set to 6 Step Triangle).
2.  Random Steps
3.  8 Step Triangle
4.  4 Step Triangle
5.  4 Step Saw
6.  Square
7.  Rectified Sine
8.  Rising Saw
9.  Sine

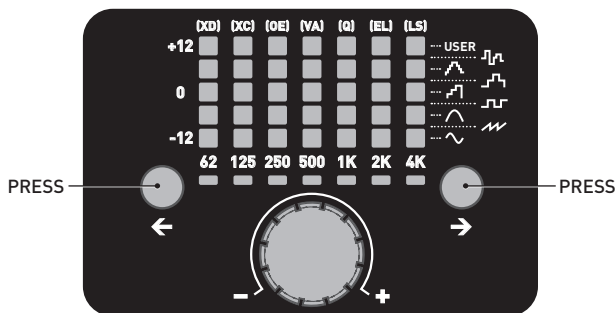
Except for the random steps, all waveforms complete their entire cycle in the same amount of time. The random step waveform does four steps in that time interval.

The User Downloadable Step Sequence can be customized and saved to the pedal via an upcoming software tool that will be available on the BEF Pro product page at www.sourceaudio.net

MIDI Channel (Effect Knob)

The label numbers around the effect knob correspond to MIDI Channels 1 through 16. Channel 1 is the default. This is a global setting and not saved for individual presets.

Don't forget to save the preset after editing the Backpage parameters. All of the Backpage parameters except the MIDI Channel are saved per preset. To reset values to the default, press both left and right column select buttons at the same time.

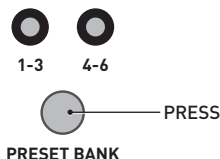


Press both left and right column select buttons at the same time to reset values to the default.

Restoring Factory Settings

The following procedure can be used to restore the factory settings to the BEF Pro:

Press and hold the Preset Bank button while plugging in the DC power supply. Note that this will also delete all saved presets and MIDI User sequences.



SPECIFICATIONS

Dimensions

- L: 7 inches (18.1cm)
- W: 6 inches (18.1cm)
- H: 2 inches (including knobs)

Total including knobs:

- H: 2.125 inches (5.5cm)

Weight

- 1.75 lbs

Power

- 110mA @ 9 VDC (max 145mA w/ Hot Hand Wireless Adapter)
- NEGATIVE tip power jack

Audio Performance

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

TROUBLESHOOTING

Noise

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.

Hot Hand doesn't work

Not calibrated properly	Calibrate the Hot Hand - see page 20.
Not connected	Check Hot Hand connections.

Knobs don't work /light up

Wrong power supply	Use correct power supply as defined on pages 4 and 8.
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For additional assistance, please visit www.sourceaudio.net.



If possible, dispose of the device at a recycling center. Do not dispose of the device with the household waste.

For full compliance with EN 61000-4-6 standard, input cable must be less than 3 meters in length.

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.

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