

# **IR BASS EDITOR 4**

V1.1

Compatible with bass firmware 4.18.1

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# 1 FSI-1 FRETSense INTERFACE

The FSI-1 Fretsense Interface is the hub through which the bass connects to the outside world.

## 1.1 FRONT PANEL

**FRETSense CONNECTOR** - The 15-pin Fretsense connector on the front panel of the FSI-1 connects to the bass via the Fretsense cable.

**MUTE** - The MUTE button switches the FSI-1 into a muted state. The MUTE button mutes all signals to and from the FSI-1 including the MIDI IN, MIDI OUT, MIDI USB, magnetic pickup signal and the piezo pickup signals.

**POWER** - The POWER button turns the unit on and off.

## 1.2 BACK PANEL

**USB** - MIDI USB (Type B) connector used to connect the FSI-1 to a computer.

**12V AC 1000mA** - Input for 12V AC 1000mA power supply.

**MIDI OUT** - Standard DIN5 MIDI output.

**MIDI IN** - Standard DIN5 MIDI input.

**SWT** - 1/4" input jack for momentary, normally open footswitch.

**MAG** - 1/4" audio output jack for the magnetic pickups. The MAG output is essentially the same as the audio output on the bass. When the bass is connected to the FSI-1 by the Fretsense cable use the MAG output instead of the audio output on the bass.

**Important:** Do not use the MAG output and the audio output on the bass at the same time as it can lead to the creation of an earth loop which produces hum.

**6, 5, 4, 3, 2, 1** - 1/4" audio output jacks, one for up to 6 piezo pickups, with '1' being the highest string (G) and '4' being the lowest string (E). For a 4-string instrument outputs 5 and 6 are unused.

**Note:** The piezo pickups are intended for Imprint setups where the piezo audio signals from each string are used in conjunction with the IR Imprint Module (Reaktor 6 ensemble) to get a richer dynamic performance. Some examples of Imprint setups can be found on

our website.

### 1.3 MIDI USB PORTS

The MIDI USB connector on the back panel of the FSI-1 provides access to 2 separate MIDI ports.

**IR Fretsense 1** - This MIDI port is a carbon copy of the MIDI OUT connection on the FSI-1.

**IR Fretsense 2** - This MIDI port is reserved for communicating with the Bass Editor software. The names of the MIDI ports may not always be represented exactly as above. Different operating systems and host programs may slightly change the labels, however, they are still easily identifiable.

**Note:** Users who wish to connect the FSI-1 to a Windows computer will first need to install the necessary drivers (see article). Mac OS users do not require drivers for the MIDI USB connection to function.

**Note:** In most cases it is possible to use both the MIDI OUT (DIN5) connection and the MIDI USB port 'IR Fretsense 1' simultaneously.

**Note:** The MIDI USB connection is MIDI-only and does not provide access to any of the audio signals produced by the bass, ie. from the magnetic pickups or the piezo bridge pickups.

## 2 OVERVIEW & SETUP

This chapter provides a basic overview of the Bass Editor application and information on how to set it up.

### 2.1 EDITOR OVERVIEW

The Bass Editor application provides a convenient way to manage the numerous settings of the MIDI bass. Previously, users could only select, edit and save settings within the bass by using the programming switch and LCD display on the bass. Now users can much more easily browse and edit the bass settings without having to repeatedly 'click on frets'.

Keep in mind that the Bass Editor application is essentially a 'dumb terminal' for viewing and editing the settings contained within the bass. The performance presets and their settings always reside within the onboard computer of the bass. While the editor provides a way to view and manipulate these settings it does not actually store the settings within the application itself.

In fact, the Bass Editor application will not function unless connected to the bass, however, the bass itself can still operate without being connected to the editor. This means that the user can operate the bass without a computer, eg. in a live situation, if he/she is comfortable with the bass settings.

**Note:** Users of a MIDI bass with a LCD display can still edit most parameters using the display and programming switch without the editor. However, for IR model basses which do not have a LCD display, editing can only be done through the editor.

**Note:** Even though the editor does not save the settings of the bass directly to the memory of the application it is still possible to back up the instrument's settings by using the SAVE BACKUP function (UTILITIES tab) which saves all settings to a file (.irb) on the computer. This file can later be used to restore saved settings.

### 2.2 FIRMWARE & HARDWARE REQUIREMENTS

In order to use the IR Bass Editor 4 (V1.1) the user must have the compatible bass firmware 4.18 installed.

**Note:** The bass firmware 4.18 is for 4-string MIDI bass guitars with a 15-pin output that connect to the FSI-1 Fretsense Interface. The Bass Editor application requires the MIDI USB port IR Fretsense 2 to communicate with the MIDI bass.

## 2.3 SYSTEM REQUIREMENTS

To run the IR Bass Editor 4 (V1.1) the user must be using a compatible operating system (see below).

**For Mac** - OS X 10.11 (El Capitan) or later.

**For Windows** – Windows 7 or later.

**Important:** If a user encounters any compatibility issues with the Bass Editor application he/she should report the problem to Industrial Radio.

## 2.4 DOWNLOAD

The IR Bass Editor 4 application needs to be downloaded/installed on the computer.

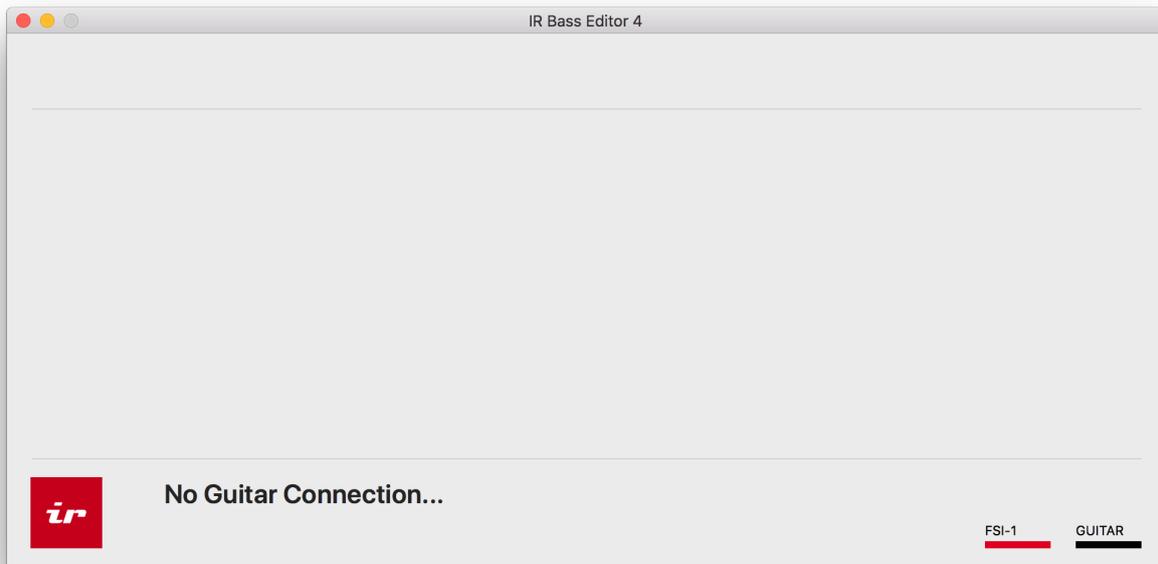
**For Mac** - Download the .app file onto your computer. Then locate and drag-and-drop the .app file to the Applications folder. At this point the application icon should appear in Launchpad and be ready to open.

**For Windows** – Download the .exe and run by opening.

## 2.5 SETTING UP THE SYSTEM

Below is a recommended order of operations for setting up the system.

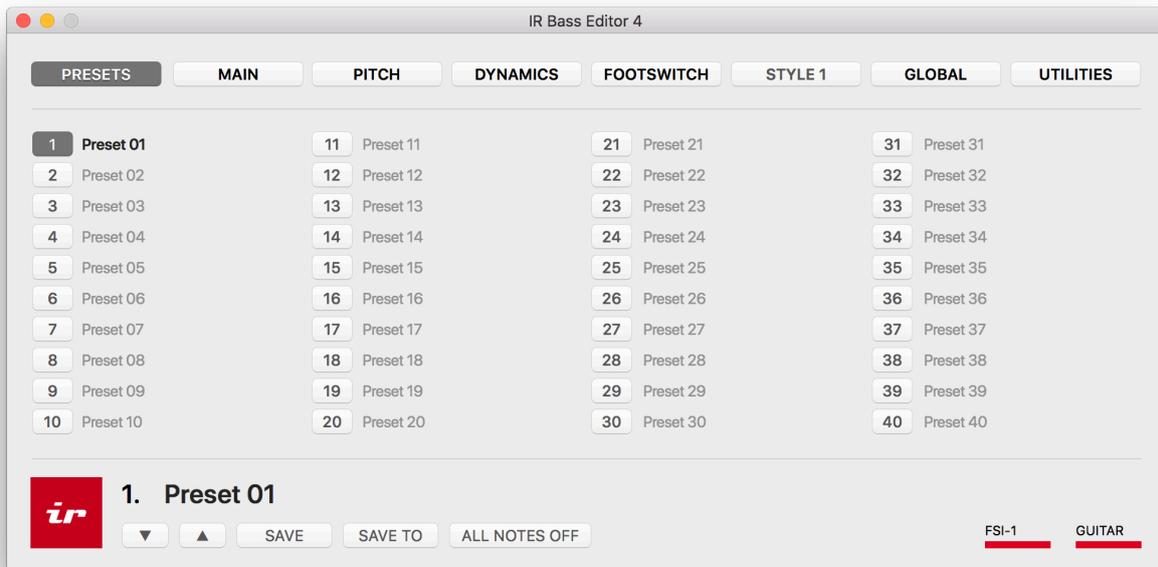
1. Make all connections between the FSI-1, the bass and external devices while the FSI-1 is powered down.
2. Once all connections have been made press the POWER button. The POWER indicator light on the front panel of the FSI-1 will turn 'hard' on while the MUTE indicator light will blink momentarily to indicate that the FSI-1 is starting in MUTE mode.
3. Open the Bass Editor application. You will see the message "No Guitar Connection...". You will also see that the 'FSI-1' indicator, in the bottom right of the application, is red. This means that the editor is connected to the FSI-1. The 'Guitar' indicator will be grey to indicate that the bass is not connected because the system is in MUTE mode (see image below).



4. Press the MUTE button to unmute the system. The MUTE indicator light on the front panel of the FSI-1 will turn off. You will see the message "Loading..." and the 'Guitar' indicator on the editor will turn red to show that you are successfully connected to both the FSI-1 and the bass (see image below).



5. Then the editor will populate with the bass settings and the system will be operational. The editor will start on the PRESETS tab (see image below).



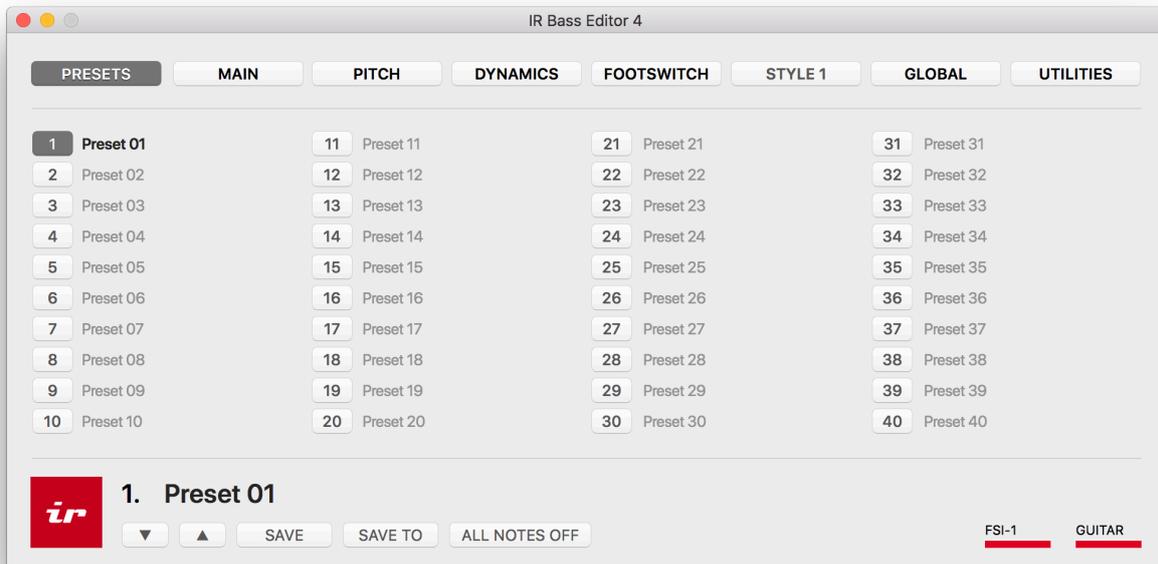
The list of steps above is not the only order possible. It is possible to open the application with MUTE off and the editor will connect to the FSI-1 and the bass and load the guitar settings in a single step.

**Note:** Always close the editor application before turning the power off to the FSI-1 or disconnecting the USB to avoid the application hanging up.

**Note:** Do not disconnect the Fretsense cable from either the bass or the FSI-1 while the FSI-1 is unmuted. If you disconnect the Fretsense cable while the FSI-1 is unmuted the system may transmit random MIDI data that could result in a stuck note. If you do get a stuck note press the ALL NOTES OFF button.

## 3 PRESETS TAB

The PRESETS tab lets you select and organise the 40 performance presets.



### 3.1 SELECT PRESET

When you turn on the Bass Editor it will always start on preset number 1.

To select a preset from the Bass Editor simply click on the numbered button to the left of the preset name or use the ▼ and ▲ buttons to step through the presets sequentially.

**Important:** When you change presets any changes made to the preset's settings that have not been saved will be lost. Remember to save the preset after editing and before changing presets. Note: You can also select a performance preset directly from the bass (see below).

### 3.2 SELECT PRESET USING BASS (NO LCD)

For the IR series basses, which do not have a LCD display on the top horn, the first 10 frets on each string correlate to a performance preset (see table below).

You can select a performance preset directly from the bass by holding down the string on the appropriate fret and pressing the Preset Select switch.

<b>G string (G1 - G10)</b>	Presets 1 - 10
<b>D string (D1 - D10)</b>	Presets 11 - 20
<b>A string (A1 - A10)</b>	Presets 21 - 30
<b>E string (E1 - E10)</b>	Presets 31 - 40

**Eg.** If you want to select preset number 15 from the bass, fret the D string on the 5th fret and press the Preset Select switch once.

**Note:** Selecting presets from the bass, via the Preset Select switch, can be performed even when the bass is not connected to the Bass Editor.

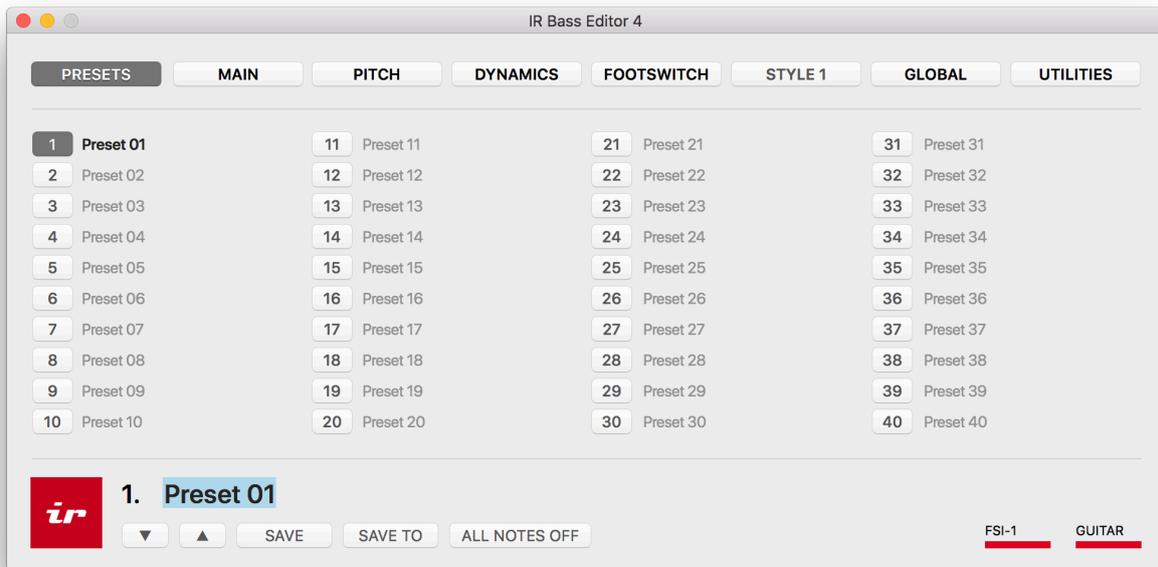
### **3.3 SELECT PRESET USING BASS (LCD)**

For other bass models, which have a LCD display on the top horn, the first 10 frets on the G-string correspond to the 10 performance presets of the respective performance preset bank as defined in BANK SELECT (G12). You can select a performance preset directly from the bass by holding down the string on the appropriate fret and pressing the Programming Switch.

**Eg.** If you want to select preset number 15 from the bass, set BANK SELECT to 11-20 and then fret the G string on the 5th fret and press the Programming Switch on the bass once.

### **3.4 EDIT PRESET NAME**

To edit the name of a preset select the relevant text within the preset name and type in the new name.



**Remember:** Make sure to save the preset before selecting a new preset otherwise all unsaved changes to the preset's settings will be lost.

### 3.5 PRESET SAVE TO

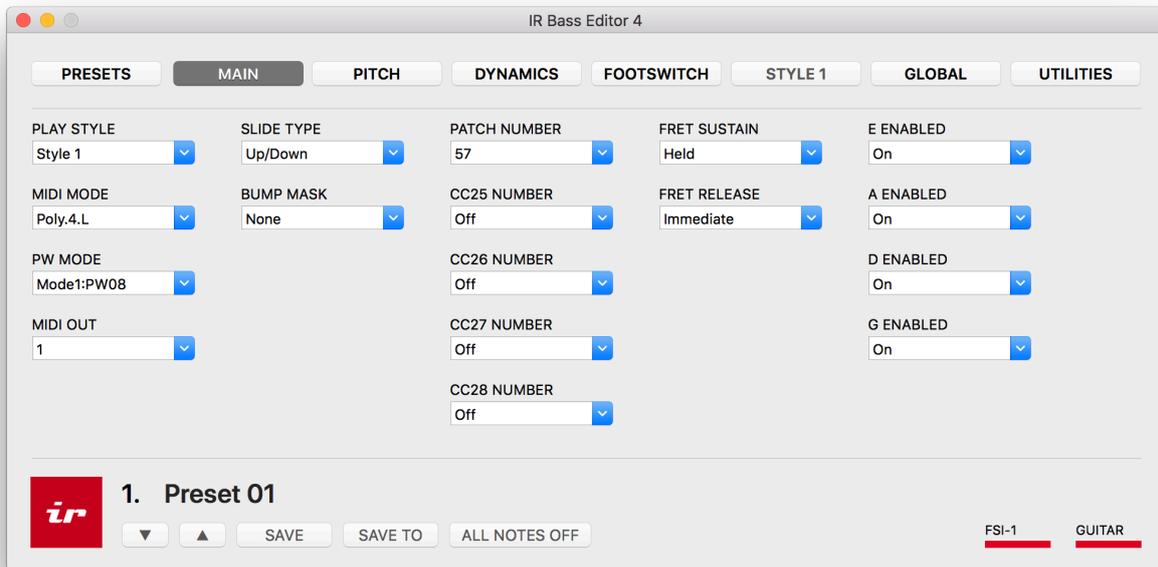
The SAVE TO function on the Bass Editor lets you easily save all preset settings, including preset name, to another preset number. This is especially helpful if many of your presets share almost identical settings and you wish to treat a specific preset as a template for quickly setting up other presets without having to individually change each setting.

To save a preset's settings to another preset number select the preset you wish to save and click on the SAVE TO button. The selected preset button will begin to flash, indicating that you need to select the 'target' preset number. When you select the 'target' preset all preset settings, including preset name, will be saved to this number. The 'target' preset settings will be entirely overwritten with no way of undoing the change. The original preset will remain unchanged.

**Note:** After pressing the SAVE TO button but before selecting the 'target' preset number you will notice that the label of the SAVE TO button changes to CANCEL. To cancel the SAVE TO operation midway press the CANCEL button.

## 4 MAIN TAB

The MAIN tab covers numerous core parameters including PLAY STYLE and MIDI MODE.



### 4.1 PLAY STYLE

Style 1, Style 2, Style 3, Style 4, RadioPick

This parameter defines which PLAY STYLE is associated with the performance preset. The PLAY STYLE settings are contained within the STYLE tab (see STYLE TAB chapters).

### 4.2 MIDI MODE

Mono.1.L, Poly.1, Poly.4.L, Imprint 1, Imprint 2, Imprint 3, Mono.1.PW, Poly.4.PW, Imprint 1.PW, Imprint 2.PW, Imprint 3.PW

The MIDI MODE parameter provides several ways the bass sends MIDI messages.

**Mono** – Monophonic. Plays only 1 note at any one time.

**Poly** – Polyphonic. Can play several notes simultaneously.

**Numbers 1 or 4** – The number of MIDI channels the bass sends on.

**L** – Stands for legato. Required to achieve slides with sound module that has legato op-

tion.

**PW** – Stands for pitch wheel. Required to achieve slides with sound module that does not have legato option.

<b>Mono.1.L</b>	Sends on only one MIDI channel (see MIDI OUT). Slides enabled. External sound module must be set to Legato mode. No chords.
<b>Poly.1</b>	Sends on only one MIDI channel (see MIDI OUT). No slides. Can play chords.
<b>Poly.4.L</b>	Sends on 4 MIDI channels (see MIDI OUT). Slides enabled. External sound modules must be set to Legato mode. Each string is assigned a separate MIDI channel. Can play chords.
<b>Imprint 1</b>	Imprint 1 is essentially the same as Mono.1.L, however, it also sends fret position information on continuous controller number 24 which is necessary for Imprint setups. All Imprint modes require the use of the Imprint Module. Sends on only one MIDI channel (see MIDI OUT). Slides enabled. External sound module must be set to Legato mode. No chords.
<b>Imprint 2</b>	Imprint 2 is essentially the same as Poly.4.L, however, it also sends fret position information on continuous controller number 24 which is necessary for Imprint setups. All Imprint modes require the use of the Imprint Module. Sends on 4 MIDI channels (see MIDI OUT). Slides enabled. External sound modules must be set to Legato mode. Each string is assigned a separate MIDI channel. Can play chords.
<b>Imprint 3</b>	Imprint 3 is identical to Imprint 2 apart from the fact that the strings slide down to open string pitch instead of issuing a MIDI NOTE OFF command. Imprint 2 is useful for playing parts where open notes are frequently played. All Imprint modes require the use of the Imprint Module. Sends on 4 MIDI channels (see MIDI OUT). Slides enabled. External sound modules must be set to Legato mode. Each string is assigned a separate MIDI channel. Can play chords.
<b>Mono.1.PW</b>	Sends on only one MIDI channel (see MIDI OUT). Slides enabled (see PW MODE). No chords.
<b>Poly.4.PW</b>	Sends on 4 MIDI channels (see MIDI OUT). Slides enabled (see PW MODE). Each string is assigned a separate MIDI channel. Can play chords.

<b>Imprint 1.PW</b>	Imprint 1.PW is essentially the same as Mono.1.PW, however, it also sends fret position information on continuous controller number 24 which is necessary for Imprint setups. All Imprint modes require the use of the Imprint Module. Sends on only one MIDI channel (see MIDI OUT). Slides enabled (see PW MODE). No chords.
<b>Imprint 2.PW</b>	Imprint 2.PW is essentially the same as Poly.4.PW, however, it also sends fret position information on continuous controller number 24 which is necessary for Imprint setups. All Imprint modes require the use of the Imprint Module. Sends on 4 MIDI channels (see MIDI OUT). Slides enabled (see PW MODE). Each string is assigned a separate MIDI channel. Can play chords.
<b>Imprint 3.PW</b>	Imprint 3.PW is identical to Imprint 2.PW apart from the fact that the strings slide down to open string pitch instead of issuing a MIDI NOTE OFF command. Imprint 3.PW is useful for playing parts where open notes are frequently played. All Imprint modes require the use of the Imprint Module. Sends on 4 MIDI channels (see MIDI OUT). Slides enabled (see PW MODE). Each string is assigned a separate MIDI channel. Can play chords.

### 4.3 PW MODE

Mode1:PW08, Mode1:PW12, Mode1:PW24, Mode2:PW08, Mode2:PW12, Mode2:PW24

PW MODE controls the way the bass sends MIDI when MIDI MODE is set to any of the 'Pitch Wheel' modes that end with 'PW'.

The 'Pitch Wheel' modes implement slides using MIDI pitch bend information and are intended to be used with sound modules that do not support legato mode. While this is often the case with older, legacy synths it is true that some relatively new software and hardware synths still require this mode. Furthermore, some sound modules that boast support for legato do not, in fact, implement legato correctly according to the MIDI specification which can lead to performance problems. In these cases, the only way around the problem is to switch to a 'Pitch Wheel' mode.

The specific mode to choose will depend largely on the pitch wheel range of the external sound module. The user must configure the bass with the sound module by matching the correct mode with the pitch wheel range of the sound module.

<b>Mode1:PW08</b>	Sends initial pitch of MIDI NOTE as part of standard MIDI message. Slides are then implemented via pitch bend. Pitch wheel range +/-8 semitone range.
<b>Mode1:PW12</b>	Sends initial pitch of MIDI NOTE as part of standard MIDI message. Slides are then implemented via pitch bend. Pitch wheel range +/-12 semitone range.
<b>Mode1:PW24</b>	Sends initial pitch of MIDI NOTE as part of standard MIDI message. Slides are then implemented via pitch bend. Pitch wheel range +/-24 semitone range.
<b>Mode2:PW08</b>	Sends fixed pitch number for all MIDI NOTES per string. All pitch variation in MIDI performance achieved via pitch bend. Pitch wheel range +/-8 semitone range.
<b>Mode2:PW12</b>	Sends fixed pitch number for all MIDI NOTES per string. All pitch variation in MIDI performance achieved via pitch bend. Pitch wheel range +/-12 semitone range.
<b>Mode2:PW24</b>	Sends fixed pitch number for all MIDI NOTES per string. All pitch variation in MIDI performance achieved via pitch bend. Pitch wheel range +/-24 semitone range.

**Note:** The 'Mode2' modes are most suitable for sounds with long release times. However, since the 'Mode2' modes send fixed MIDI NOTES per string they are least ideal for post-production editing in a DAW.

**Note:** PW MODE only has effect when MIDI MODE is set to a mode that ends with 'PW'.

**Important:** As mentioned above, the 'Pitch Wheel' modes are intended for synths that do not support legato. Whenever possible, ie. whenever a sound module correctly implements legato, the user should configure the bass with the synth by setting MIDI MODE to the appropriate mode legato, eg. Mono.1.L, Poly.4.L, etc.

## 4.4 MIDI OUT

Selects the MIDI channel that the bass transmits MIDI messages on.

When MIDI MODE is set so that the bass outputs on more than one MIDI channel (eg. Poly.4.L, Imprint 2, Imprint 3), MIDI OUT sets the first MIDI channel in the series.

**Eg.** When MIDI MODE is set to Poly.4.L and MIDI OUT is set to 6, the bass will send MIDI messages on 4 MIDI channels starting from MIDI channel 6. So the bass will send on MIDI channels 6, 7, 8 and 9.

Alternatively, if MIDI MODE is set to 15, the bass will send MIDI messages on 4 MIDI channels starting from MIDI channel 15 but the MIDI channel numbers wrap around after MIDI channel 16. So the bass will send on MIDI channels 15, 16, 1 and 2.

## 4.5 SLIDE TYPE

Up/Down, Up Only, Timed

The SLIDE TYPE parameter exists in order to avoid possible, unwanted pitch changes that can occur when playing the bass. Due to the fact that the bass is a fret contact system, movement and pressure across the fingerboard can sometimes lead to unwanted variations in pitch. This may happen when a player frets a string close to the preceding fret and when lifting from the fret and moving the hand to another position on the fingerboard may accidentally apply pressure to this other fret which sends unwanted pitch changes.

<b>Up/Down</b>	Sliding is enabled both up and down the fingerboard.
<b>Up Only</b>	Sliding is enabled only up the fingerboard.
<b>Timed</b>	Sliding is enabled both up and down the fingerboard for a brief 80mS period immediately after a trigger has been detected. The 'Timed' SLIDE TYPE offers a way of distinguishing between deliberate slides and subtle, 'micro' slides that can occur in the process of fretting a note.

## 4.6 BUMP MASK

None, Open, All

The BUMP MASK parameter exists in order to avoid possible, unwanted triggers that can occur if the player hits or bumps a string adjacent to the one that is being intentionally played.

When bass players play with their fingers they often hit the adjacent, usually open, string behind the string they are playing. This action is often referred to as 'follow through'. While this contact doesn't produce a perceivable sound the energy that is put into the string can, depending on the bass settings, lead to unwanted triggers of the adjacent string.

The BUMP MASK works by activating a short (64mS) timer after each note is produced. If the bass detects a trigger during this brief period, the trigger is ignored and a Note On message isn't sent; essentially masking a bump.

<b>None</b>	BUMP MASK is off.
<b>Open</b>	BUMP MASK is applied only to triggers that occur on open strings. A trigger on a fretted string will not be suppressed. Chords cannot include open strings.
<b>All</b>	BUMP MASK is applied to all triggers. Chords cannot be played.

## 4.7 PATCH NUMBER

Off, 1 - 128

Defines the patch number of the external MIDI device.

If MIDI MODE is set to polyphonic mode (eg. Poly.6.L, Imprint 2, Imprint 3) a patch number will be sent on all 4 MIDI channels according to the MIDI OUT setting (see MIDI OUT).

When you change performance presets the bass will, by default, send a patch number to the external MIDI device. To change this default behaviour for a specific performance preset set PATCH NUMBER to 'Off'.

## 4.8 CC25 NUMBER

Off, 0 - 127

The CC25 parameter is designed to be used in conjunction with Ableton Live racks.

When CC25 is set to a value other than 'Off' and a performance preset is selected the value of this parameter will be sent as a continuous controller message (on continuous controller number 25) immediately before the MIDI patch change command is sent.

By correctly configuring Ableton Live racks using the CC25 settings it is possible to switch seamlessly between multiple racks, ie. synths and effects, within a single Ableton Live

session by simply changing performance presets.

## 4.9 CC26 NUMBER

Off, 0 - 127

Identical to CC25 except the CC message is sent on continuous controller number 26.

## 4.10 CC27 NUMBER

Off, 0 - 127

Identical to CC25 except the CC message is sent on continuous controller number 27.

## 4.11 CC28 NUMBER

Off, 0 - 127

Identical to CC25 except the CC message is sent on continuous controller number 28.

## 4.12 FRET SUSTAIN

Held, String Decay

FRET SUSTAIN determines how the bass handles the length of a held note.

<b>Held</b>	Will hold the note as long as the string is fretted.
<b>String Decay</b>	Note will sustain until the energy in the string falls below threshold as defined by parameters E6 DECAY - E1 DECAY (see STYLE tab).

## 4.13 FRET RELEASE

Immediate, String Decay

FRET RELEASE determines how the bass handles the length of a released note.

<b>Immediate</b>	When finger is taken off string an immediate Note Off message is sent.
<b>String Decay</b>	When finger is taken off string Note Off message is not sent until energy in the string falls below threshold as defined by parameters E6 DECAY - E1 DECAY (see STYLE tab).

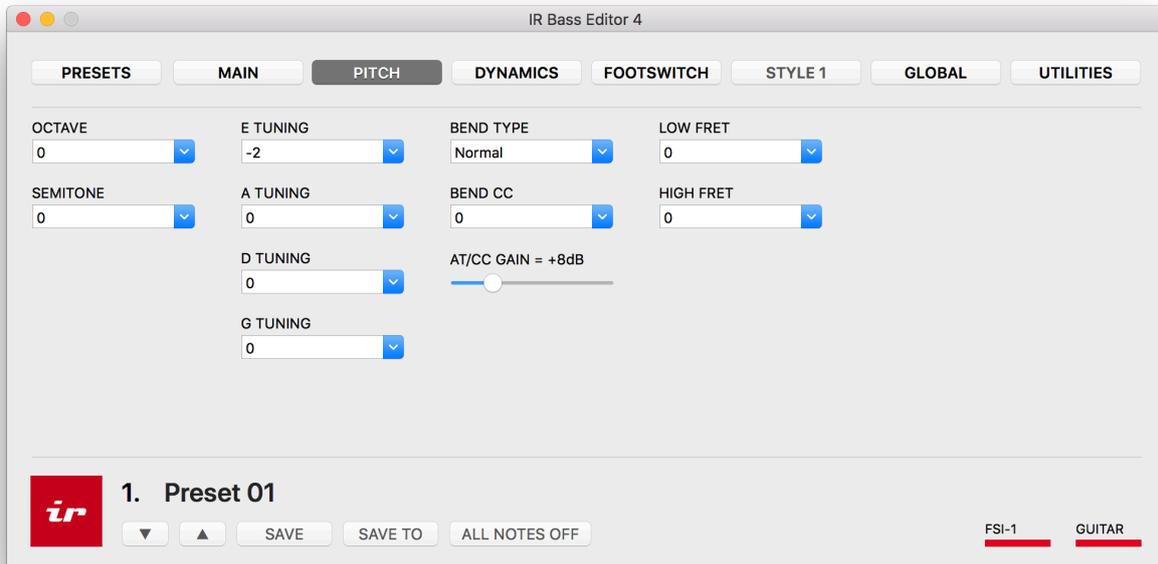
#### **4.14 E ENABLED – G ENABLED**

Off, On

These parameters enable, or disable, MIDI on a per-string basis.

## 5 PITCH TAB

The PITCH tab provides numerous controls to modify the way the bass sends MIDI pitch and pitch bend information, as well setting MIDI capable zones using fret position.



### 5.1 OCTAVE

-3 to +3

Transposes the tuning of the bass on all strings in octave steps from -3 octaves to +3 octaves with a setting of 0 being unchanged.

### 5.2 SEMITONE

-12 to +12

Transposes the tuning of the bass on all strings in semitone steps from -12 semitones to +12 semitones with a setting of 0 being unchanged.

### 5.3 E TUNING – G TUNING

-24 to +24

The TUNING parameters allow the user to transpose the tuning of an individual string in semitone steps from -24 semitones to +24 semitones with a setting of 0 being unchanged.

**Eg.** The user decides to tune the bass to a drop D tuning and wants the MIDI performance to reflect this tuning. The solution is to set E TUNING to -2.

## 5.4 BEND TYPE

The BEND TYPE parameter sets the method by which pitch bend information is sent.

<b>Off</b>	Pitch bend information is not sent by the bass. String bends and vibrato will not alter the pitch of the MIDI performance.
<b>Normal</b>	The bass sends pitch bend information as part of MIDI message.
<b>Normal DB</b>	Same as 'Normal' except includes deadband (DB).
<b>Atouch</b>	Pitch bend information sent as MIDI aftertouch message.
<b>Atouch DB</b>	Same as 'Atouch' except includes deadband (DB).
<b>CC</b>	Pitch bend information sent as continuous controller message. The continuous controller number used to send pitch bend information is assignable using the BEND CC parameter (see below).
<b>CC DB</b>	Same as 'CC' except includes deadband (DB).

**Note:** The deadband (DB) function reduces the amount of pitch bend data being sent by the bass so as to avoid the risk of overloading the MIDI bandwidth. If CC data exceeds the bandwidth it can cause intermittent delays in the MIDI performance.

## 5.5 BEND CC

0 - 127

Assigns the continuous controller number used for sending pitch bend information when BEND TYPE is set to CC or CC DB.

## 5.6 AT/CC GAIN

+0dB to +39dB

AT/CC GAIN stands for Aftertouch/Continuous Controller Gain and sets the sensitivity of pitch bend when BEND TYPE is set to 'Atouch', 'Atouch DB', 'CC' or 'CC DB'.

## 5.7 LOW FRET

0 - 21

This parameter sets the first fret number from which the bass sends MIDI data.

**Note:** When LOW FRET is set to 0, which is the default setting, the bass sends MIDI data starting from the nut, ie. open notes.

## 5.8 HIGH FRET

0 - 21

This parameter sets the final fret number at which the bass sends MIDI data.

Using both the LOW FRET and HIGH FRET parameters in tandem, it is possible to create a specific zone along the fingerboard where the bass sends MIDI data and another zone(s) where MIDI data is not sent and the bass functions as a standard electric bass.

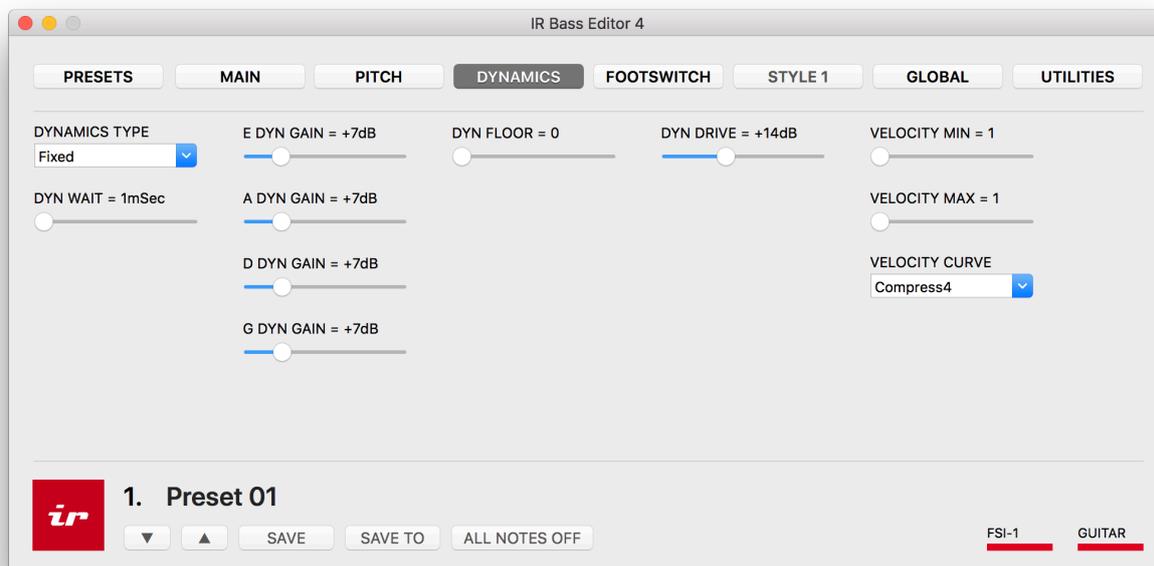
**Eg.** The user wants to trigger a synthesizer up to the 11th fret and from the 12th fret onwards have only regular bass audio. This would require setting LOW FRET to 0 and HIGH FRET to 11.

**Important:** When the bass is played with a hard right-hand technique, eg. slapping, it can cause the string(s) to occasionally make contact with the highest frets on the fingerboard which results in unwanted MIDI pitch changes. When necessary, we recommend creating a 'deadzone' by setting HIGH FRET to a fret number lower than 21 until the problem no longer occurs. For example, by setting HIGH FRET to 17 you would create a small 'deadzone' range at the highest frets, fret 18 to 21, where any contact between the strings and these frets will not result in unintended pitch changes.

**Note:** When the LOW FRET and HIGH FRET settings create a specific MIDI-capable zone on the fingerboard, slides into or out of the zone will not work. A note and a slide from a note must be instigated and remain within the MIDI-capable zone.

## 6 DYNAMICS TAB

The DYNAMICS tab covers a range of parameters that are aimed at fine tuning the way the bass handles MIDI velocity.



### 6.1 DYNAMICS TYPE

Fixed, Normal, CC11

The DYNAMICS TYPE parameter defines how the bass handles the velocity component of MIDI messages.

<b>Fixed</b>	The bass sends a fixed velocity number with every MIDI Note On command. When TYPE is set to fixed the VELOCITY MAX setting determines the fixed velocity number.
<b>Normal</b>	The bass dynamically calculates the MIDI velocity number of each note after analysing the dynamic content of the string(s) for a short period (see DYNAMICS WAIT under the STYLE tab).
<b>CC11</b>	The bass sends MIDI Note On command immediately and in parallel sends velocity information on continuous controller number 11.

**Note:** In earlier bass firmware revisions CC22 was CC11.

**Note:** CC11 setting can be problematic with samplers that use velocity shifting.

## 6.2 DYNAMICS WAIT

1mS - 10mS

Sets the time (in milliseconds) that the bass waits before sending the MIDI Note On message. By setting a longer DYNAMICS WAIT period the bass has more time to analyse the dynamics of the string and thus can send more accurate MIDI velocity information.

## 6.3 E DYN GAIN – G DYN GAIN

+0dB to +39dB

These GAIN parameters adjust the individual gain of the piezo signal from their respective string which are fed into the velocity algorithm.

**Note:** These individual gain settings give the the user the ability to alter and balance the gain of the signal that is passed to the MIDI velocity algorithm. This algorithm analyses the signal from the piezo pickups and generates MIDI velocity values that reflect the user's playing. One of the reasons behind having control over these signals on a per-string basis is to provide a way of balancing the velocity information.

## 6.4 DYNAMICS FLOOR

-50 to 49

The DYNAMICS FLOOR parameter sets the value added to the raw MIDI velocity data before it is rounded up or down according to the VELOCITY MIN and VELOCITY MAX parameters.

## 6.5 DYNAMICS DRIVE

+0dB to +39dB

The DYNAMICS DRIVE parameter sets an overall drive gain of the piezo signals which are fed into the velocity algorithm.

## 6.6 VELOCITY MIN

1 - 127

This parameter sets the minimum MIDI velocity number that the bass will send. All MIDI notes with a velocity measured below this number will be rounded up to this number.

## 6.7 VELOCITY MAX

1 - 127

This parameter sets the maximum MIDI velocity number that the bass will send. All MIDI notes with a velocity measured above this number will be rounded down to this number.

## 6.8 VELOCITY CURVE

Compress 4, Compress 3, Compress 2, Compress 1, Linear, Expand 1, Expand 2, Expand 3, Expand 4

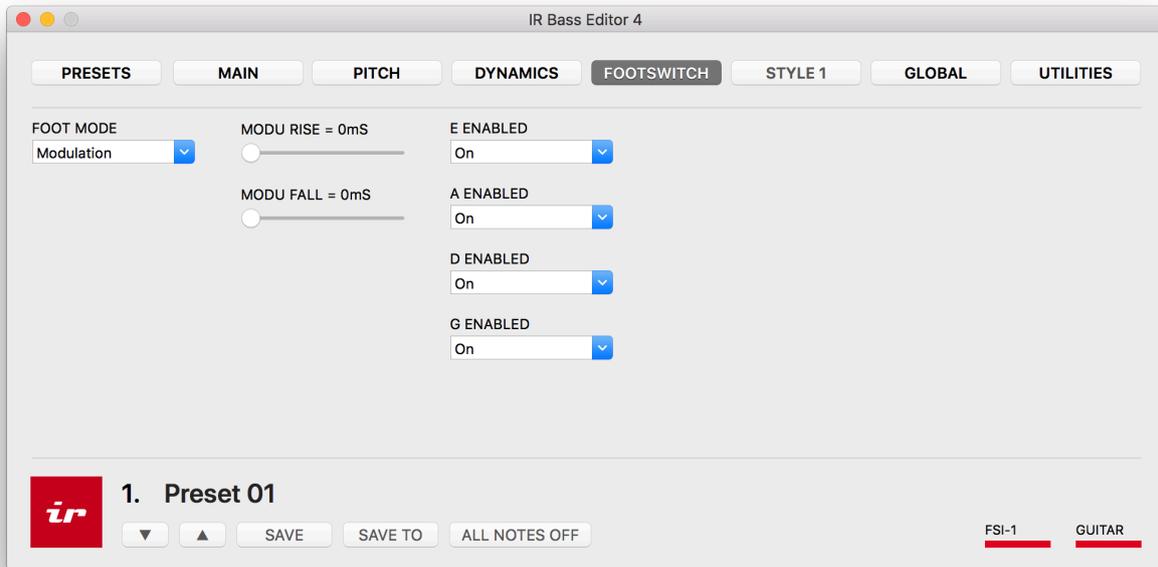
The VELOCITY CURVE parameter offers a range of velocity curves that control the way the bass handles MIDI velocity.

**Note:** Curve diagrams coming soon.

**Note:** The default setting for CURVE is 'Linear'. It is recommend that the user experiments with these settings thoroughly.

## 7 FOOTSWITCH TAB

The FOOTSWITCH tab provides the necessary controls for an optional footswitch.



**Note:** The SWITCH input on the back panel of the FSI-1 Fretsense Interface takes a 'normally open' footswitch.

### 7.1 FOOT MODE

Modulation, Sustain, Freeze

FOOT MODE is used to select one of three modes for an optional footswitch: Modulation, Sustain, or Freeze.

<b>Modulation</b>	Sends modulation messages on continuous controller 1. MOD ATTACK and MOD DECAy parameters (see below) modify the speed of modulation.
<b>Sustain</b>	Suppresses MIDI note off and slides while footswitch is depressed, ie. holds or sustains note. A new MIDI note can be triggered while footswitch is depressed.
<b>Freeze</b>	Suppresses MIDI note off and slides while footswitch is depressed, ie. holds or sustains note. A new MIDI note cannot be triggered until the footswitch is released. This functionality is intended so that the user can 'freeze' a MIDI performance and play standard 'electric' bass over it.

## 7.2 MODU RISE

0mS - 912mS

When FOOT MODE is set to 'Modulation', this parameter defines the speed at which the modulation rises when the pedal is depressed.

**Note:** MIDI modulation messages are sent on continuous controller 1. Modulation ramps up from 0 to 127. To change the modulation amount adjust the settings on the external sound module.

## 7.3 MODU FALL

0mS - 912mS

When FOOT MODE is set to 'Modulation', this parameter defines the speed at which the modulation falls after the pedal is released.

**Note:** MIDI modulation messages are sent on continuous controller 1. Modulation ramps down to 0 from 127 or the highest CC number reached before the pedal is released. To change the modulation amount adjust the settings on the external sound module.

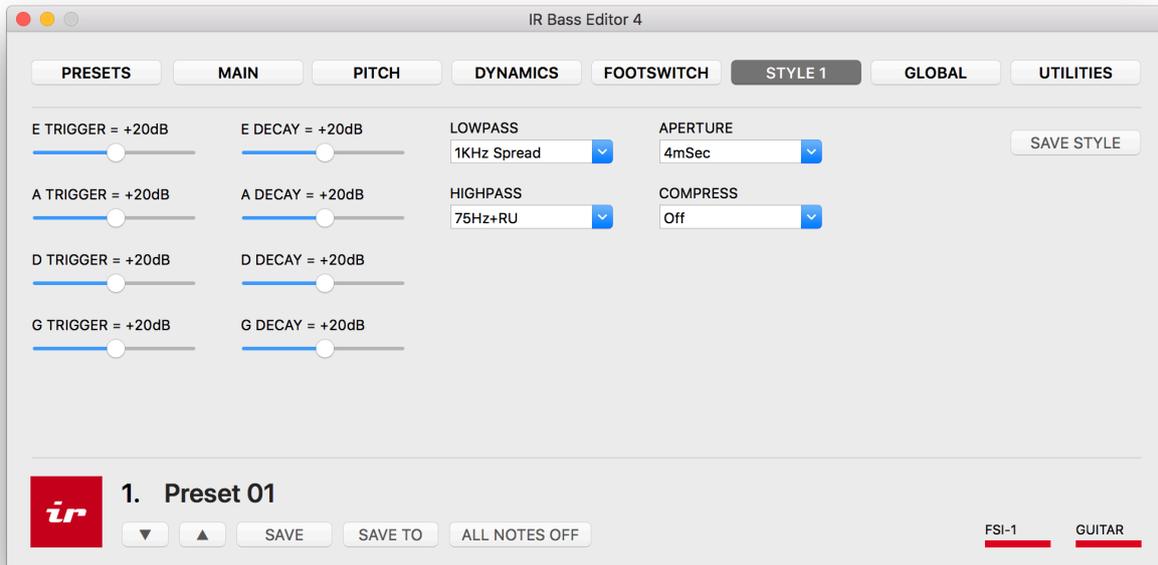
## 7.4 E ENABLED – G ENABLED

Off, On

These parameters enable, or disable, footswitch functionality on a per-string basis.

## 8 STYLE TAB (STYLE 1 - 4)

The STYLE tab provides access to the parameters of the currently selected PLAY STYLE (see MAIN tab). The exact label of the STYLE tab will reflect the name of the selected PLAY STYLE.



**Eg.** If PLAY STYLE is set to 'Style 1' the user will see the STYLE tab labelled as STYLE 1. If the user then changes the PLAY STYLE setting to 'RadioPick' the user will see the STYLE tab label change to RADIOPICK.

**Note:** The image below shows how the STYLE tab appears when PLAY STYLE is set to 'Style 1'.

PLAY STYLE settings, similar to global settings under the GLOBAL tab, are separate from the bulk of settings associated with a performance preset. A specific PLAY STYLE's settings are shared by all presets that have the same PLAY STYLE setting. The reason for this is that PLAY STYLE settings cover how the bass responds to the user's 'playing style' and will generally hold across all presets where a similar style or technique of playing the bass is used. Each PLAY STYLE is intended to be a blank slot that the user can program to suit a different approach to triggering the bass.

**Eg.** The user finds that the PLAY STYLE settings are quite different when he/she plays fingers technique versus when he/she plays with a slap technique. Since the user plays fingers technique most of the time he/she decides to set up STYLE 1 for fingers and STYLE 2 for slap bass. In future, whenever the user sets up a performance preset for fingers he/she will set the PLAY STYLE to 'Style 1' in the MAIN tab.

**Important:** PLAY STYLE settings are not recommended settings. Each PLAY STYLE should be individually tailored and tweaked to suit each player's specific technique. We encourage thorough experimentation.

**Note:** This chapter deals with the PLAY STYLE settings associated with 'Style 1 - Style 4'. The following chapter STYLE TAB (RADIO PICK) deals with the 'RadioPick' settings.

## 8.1 E TRIGGER – G TRIGGER

+0dB to +39dB

Each TRIGGER parameter sets the gain of the piezo saddle pickup for their respective string that is fed into the trigger algorithm. The higher the gain the more likely a trigger will occur.

## 8.2 E DECAY – G DECAY

+0dB to +39dB

The DECAY parameters increase the individual gain of the signal on each string that feeds into the Note Off detector. A high value should result in a longer note.

## 8.3 LOWPASS

100Hz Spread, 200Hz Spread, 300Hz Spread, 400Hz Spread, 500Hz Spread, 700Hz Spread, 1KHz Spread, 1 KHz, 2 KHz, 4 KHz

LOWPASS controls the amount of high frequencies that are passed to the triggering algorithm.

**Note:** LOWPASS is used to reduce fret noise and other intermittent high frequency content that can lead to unwanted triggers. The term 'Spread' indicates that the cut off frequencies of the lowpass filter for each string are spread proportionally to the open frequency of the strings.

## 8.4 HIGHPASS

0.01Hz, 0.5Hz, 1Hz, 2Hz, 5Hz, 10Hz, 20Hz, 40Hz, 80Hz, 120Hz, 50Hz+RU, 75Hz+RU, 100Hz+RU, 125Hz+RU,

150Hz+RU, 175Hz+RU, 200Hz+RU

HIGHPASS controls the amount of low frequencies in the bridge piezo signal that are passed to the triggering algorithms. RU means 'rumble filter' and is recommended for heavy, right-hand technique.

**Note:** 75Hz+RU is a good starting point..

## 8.5 APERTURE

3mS - 12mS

APERTURE, short for trigger detection aperture, defines the period (in milliseconds) that the triggering algorithm looks back at the energy in the string. A higher APERTURE setting will mean a trigger is more likely to occur.

**Note:** High settings on both the APERTURE and TRIGGER parameters can lead to unwanted triggers when the user bends the string.

## 8.6 COMPRESS

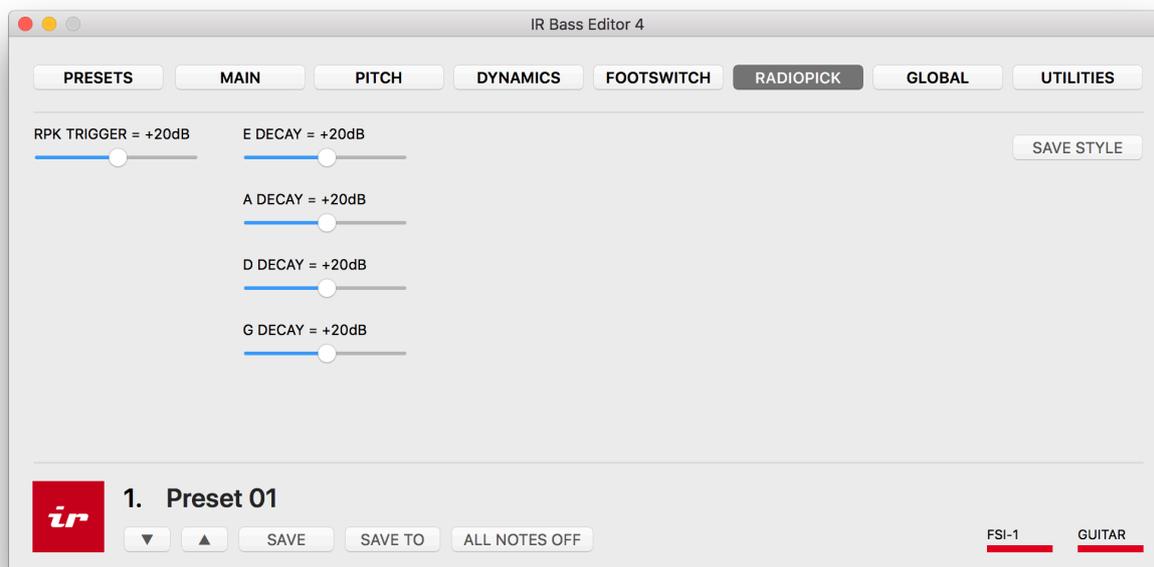
Off, 1 - 20

The COMPRESS parameter is used to suppress double triggers of a note that can occur when the bass is played hard. This parameter only needs to be considered if double triggers occur. If this doesn't happen the user should leave COMPRESS set to its default setting of 'Off'. If double triggers occur then set COMPRESS to 20 and then gradually lower the value until the double triggers disappear.

**Note:** COMPRESS at a value of 20 will have virtually no effect. When required COMPRESS will usually have a value of 6 or 7.

## 9 STYLE TAB (RADIOPICK)

When PLAY STYLE is set to 'RadioPick' the STYLE tab is labelled RADIOPICK. This PLAY STYLE is used in conjunction with the RadioPick pick trigger accessory. RadioPick triggering differs from the other PLAY STYLES by not requiring the LOWPASS parameter or parameters E6 TRIGGER - E1 TRIGGER (these are replaced by RPICK TRIGGER).



### 9.1 RADIOPICK TRIGGER

+0dB to +39dB

RPICK TRIGGER, short for RadioPick Trigger, is a gain control used to adjust the sensitivity of the RadioPick. The higher the gain the more likely a trigger will occur.

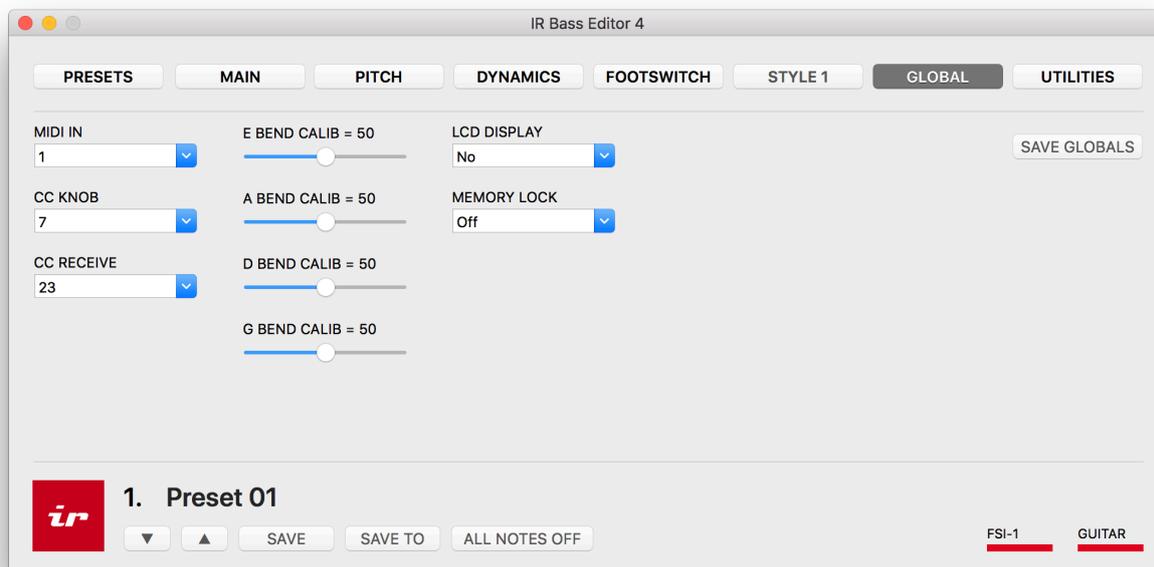
### 9.2 E DECAY – G DECAY

+0dB to +39dB

The DECAY parameters increase the individual gain of the signal on each string that feeds into the Note Off detector. A high value should result in a longer note.

## 10 GLOBAL TAB

The GLOBAL tab covers miscellaneous settings that are shared by all performance presets. Changes made to these parameters will be global and can only be saved by pressing the SAVE GLOBALS button.



### 10.1 MIDI IN

1 - 16, omni

Sets the MIDI channel that the bass will receive MIDI commands on.

<b>1 - 16</b>	Receives on single, specified MIDI channel.
<b>omni</b>	Receives on all 16 MIDI channels simultaneously.

### 10.2 CC KNOB

0 - 127

The CC KNOB parameter lets the user specify the continuous controller number that data will be sent on when the MIDI volume knob on the bass is turned. By default CC KNOB is set to continuous controller number 7 which is reserved for MIDI volume. By changing the CC KNOB setting the user can access a setting, other than MIDI volume, on the sound

module direct from the bass.

**Note:** The CC KNOB setting is tied to CC 7 messages received on the MIDI IN of the FSI-1 Fretsense Interface. CC 7 MIDI commands received on the MIDI IN of the FSI-1 will be remapped to the CC number set by CC KNOB.

**Eg.** The user sets CC KNOB to '30' and sends CC 7 MIDI commands to the MIDI IN of the FSI-1. In this case CC 7 will be remapped to CC 30 and sent from the MIDI OUT of the FSI-1 on the appropriate MIDI channels.

### 10.3 CC RECEIVE

0 – 127

CC RECEIVE sets the continuous controller (CC) number that the bass receives continuous controller commands on.

**Note:** Continuous controller 7 is reserved for MIDI volume which is the default setting.

### 10.4 E BEND CALIB – G BEND CALIB

0 - 99

The BEND CALIB (bend calibration) parameters are used to individually calibrate each string so that the pitch of the sound module and the bass are in tune when the user bends the string. To properly set the BEND CALIB parameter the user should set the range of the pitch wheel on the sound module to +/-2, ie. 2 semitones. The user then bends the string a tone and accordingly adjusts the BEND CALIB amount until the pitch of both the string and sound module are in unison.

**Note:** Some synth sounds are better than others for the purpose of calibrating pitch bends. We recommend that the user calibrates pitch bends with a clean, simple sound and not one that is heavily modulated or detuned.

### 10.5 LCD DISPLAY

Yes, No

This parameter is used to configure how the neck functions when there is no LCD display in the top horn of the bass. When LCD DISPLAY is set to 'No' the first 10 frets of each

string correspond to a performance preset (see chapter PRESETS TAB). When LCD DISPLAY is set to 'Yes', bass settings can be selected, viewed and edited directly from the bass by using the LCD display, fret positions and the programming switch in tandem (see chapter FINGERBOARD LAYOUT). **Note:** It is possible to have a bass with a LCD display and have LCD DISPLAY set to 'No'. This would mean the user cannot view and edit preset settings directly from the bass but can change performance presets.

**Important:** Do not set LCD DISPLAY to 'Yes' on a bass that does not have a LCD display. Since this could lead to inadvertent changes to settings being made.

## 10.6 MEMORY LOCK

On, Off

When MEMORY LOCK is set to 'On' every time the bass is turned on the bass will first require MEMORY LOCK to be manually set to 'Off' before settings can be saved while the user is editing the bass settings directly from the bass. Unless MEMORY LOCK is set to 'Off' from the Bass Editor the MEMORY LOCK will always revert to 'Off' after turning off the bass.

**Note:** MEMORY LOCK only relates to the saving functionality of the bass when programming is done directly from the bass. When the Bass Editor is being used the MEMORY LOCK setting is always ignored.

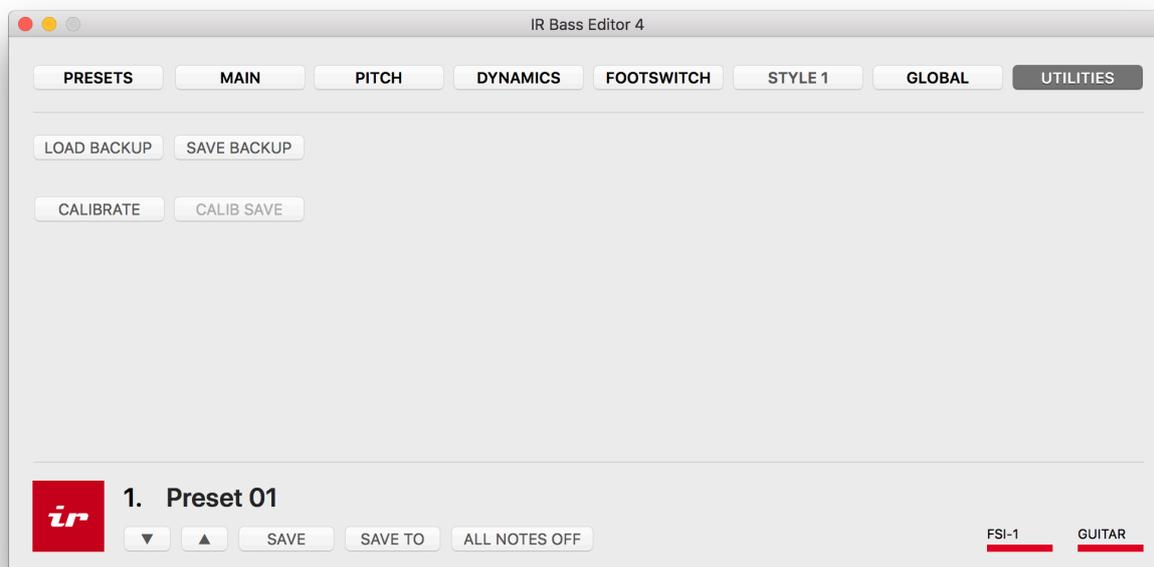
## 10.7 SAVE GLOBALS

The SAVE GLOBALS button saves all settings within the GLOBAL tab.

**Remember:** Pressing the preset SAVE button which is located under the preset name will save all settings associated with a performance preset except for the settings contained within the GLOBAL and STYLE tabs which each have their own specific save buttons.

## 11 UTILITIES TAB

The UTILITIES tab provides functions to save and load backup files as well as calibrate the neck.



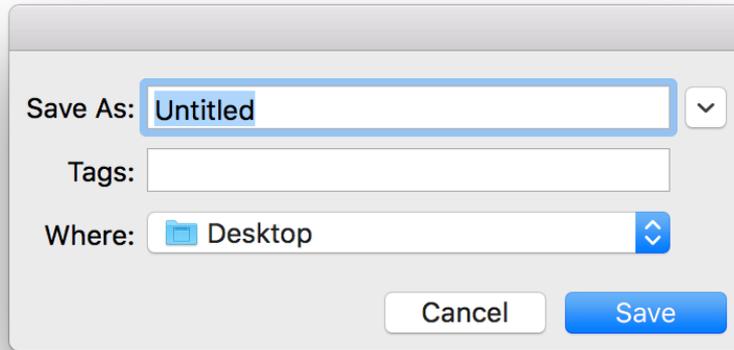
### 11.1 LOAD BACKUP

The LOAD BACKUP function lets the user load all performance presets and bass settings as saved to a .irb file (IR backup file). To load a .irb file press the LOAD BACKUP button and select the .irb file from the dialog box.

**Important:** When you load a backup file all existing performance presets and bass settings will be replaced by the settings contained within the .irb file.

### 11.2 SAVE BACKUP

The SAVE BACKUP function lets the user save all performance presets and bass settings to the computer as a .irb file (IR backup file). To save simply press the SAVE BACKUP button and enter the name and location you wish to save the .irb file to.



### 11.3 CALIBRATE

Neck calibration is performed in the final setup before the instrument is shipped. The calibration process is rarely required and is only needed if the pitch of a note noticeably drifts.

**Important:** Before calibrating the neck it is recommended that you clean the frets with the fret-cleaning pads.

Firstly, press CALIBRATE to begin the calibration process.

Now hold down fret 1 on the E-string. It will say something like  $E = -1$ . Note that the number will intermittently change as you hold down the fret. This is not a problem. While still holding the fret press the CALIB SAVE button.

Now repeat this process for the other 3 strings. The editor will auto detect the string you are calibrating when you fret the string.

**Note:** The calibration process is only performed once for each string on the first fret.

To end the calibration process press the CALIBRATE button again.

### 11.4 CALIB SAVE

See CALIBRATE above.

## 12 FINGERBOARD LAYOUT

For a MIDI bass with a LCD display it is still possible to view and edit many of the programmable settings via the LCD display, fingerboard and programming switch. To select and view a parameter hold the string down on the appropriate fret and press the programming switch once in either direction. This will show the specific parameter and its value. To edit the value simply press the switch up or down to increase or decrease the value respectively.

Below are tables for each string that list each fret position and its corresponding parameter.

**Note:** Some settings are only accessible via the IR Bass Editor 4, eg. E ENABLED – G ENABLED on the MAIN tab.

## 12.1 E STRING

FRET	DISPLAY	NOTE
E1	ST1> E TRIGGER	STYLE TAB
E2	ST1> A TRIGGER	STYLE TAB
E3	ST1> D TRIGGER	STYLE TAB
E4	ST1> G TRIGGER	STYLE TAB
E5	> INACTIVE	- - -
E6	ST1> E DECAy	STYLE TAB
E7	ST1> A DECAy	STYLE TAB
E8	ST1> D DECAy	STYLE TAB
E9	ST1> G DECAy	STYLE TAB
E10	ST1> LOWPASS	STYLE TAB
E11	ST1> HIGHPASS	STYLE TAB
E12	ST1> APERTURE	STYLE TAB
E13	ST1> COMPRESS	STYLE TAB
E14	> SAVE Style 1 SURE?	- - -
E15	GLB> MIDI IN	GLOBAL TAB
E16	GLB> CC KNOB	GLOBAL TAB
E17	GLB> CC RECEIVE	GLOBAL TAB
E18	GLB> E BEND CAL	GLOBAL TAB
E19	GLB> A BEND CAL	GLOBAL TAB
E20	GLB> D BEND CAL	GLOBAL TAB
E21	GLB> G BEND CAL	GLOBAL TAB

## 12.2 A STRING

<b>FRET</b>	<b>DISPLAY</b>	<b>NOTE</b>
A1	E01> DYN TYPE	DYNAMICS TAB
A2	E01> DYN WAIT	DYNAMICS TAB
A3	E01> E DYN GAIN	DYNAMICS TAB
A4	E01> A DYN GAIN	DYNAMICS TAB
A5	E01> D DYN GAIN	DYNAMICS TAB
A6	E01> G DYN GAIN	DYNAMICS TAB
A7	E01> DYN FLOOR	DYNAMICS TAB
A8	E01> DYN DRIVE	DYNAMICS TAB
A9	E01> VEL MIN	DYNAMICS TAB
A10	E01> VEL MAX	DYNAMICS TAB
A11	E01> VEL CURVE	DYNAMICS TAB
A12	E01> FOOT MODE	FOOTSWITCH TAB
A13	E01> MODU RISE	FOOTSWITCH TAB
A14	E01> MODU FALL	FOOTSWITCH TAB
A15	> INACTIVE	- - -
A16	> INACTIVE	- - -
A17	> INACTIVE	- - -
A18	> INACTIVE	- - -
A19	> INACTIVE	- - -
A20	> INACTIVE	- - -
A21	> INACTIVE	- - -

## 12.3 D STRING

<b>FRET</b>	<b>DISPLAY</b>	<b>NOTE</b>
D1	E01> PLAY STYLE	MAIN TAB
D2	E01> MIDI MODE	MAIN TAB
D3	E01> PW MODE	MAIN TAB
D4	E01> MIDI OUT	MAIN TAB
D5	E01> SLIDE TYPE	MAIN TAB
D6	E01> BUMP MASK	MAIN TAB
D7	E01> PATCH	MAIN TAB
D8	E01> FRET SUSTAIN	MAIN TAB
D9	E01> FRET REL	MAIN TAB
D10	E01> OCTAVE	PITCH TAB
D11	E01> SEMITONE	PITCH TAB
D12	E01> E TUNING	PITCH TAB
D13	E01> BEND TYPE	PITCH TAB
D14	E01> BEND CC	PITCH TAB
D15	E01> AT/CC GAIN	PITCH TAB
D16	E01> LOW FRET	PITCH TAB
D17	E01> HIGH FRET	PITCH TAB
D18	> INACTIVE	- - -
D19	> INACTIVE	- - -
D20	> INACTIVE	- - -
D21	> INACTIVE	- - -

## 12.4 G STRING

<b>FRET</b>	<b>DISPLAY</b>	<b>NOTE</b>
G1	P01 Preset Name	PRESETS TAB
G2	P02 Preset Name	PRESETS TAB
G3	P03 Preset Name	PRESETS TAB
G4	P04 Preset Name	PRESETS TAB
G5	P05 Preset Name	PRESETS TAB
G6	P06 Preset Name	PRESETS TAB
G7	P07 Preset Name	PRESETS TAB
G8	P08 Preset Name	PRESETS TAB
G9	P09 Preset Name	PRESETS TAB
G10	P10 Preset Name	PRESETS TAB
G11	> INACTIVE	- - -
G12	> BANK SELECT	PRESETS TAB
G13	> INACTIVE	- - -
G14	> INACTIVE	- - -
G15	E01> SAVE TO 01	- - -
G16	E01> SAVE TO 01 SURE?	- - -
G17	> MEMORY LOCK	GLOBAL TAB
G18	> FIRMWARE Rev 4.18	- - -
G19	> INACTIVE	- - -
G20	> INACTIVE	- - -
G21	> ALL NOTES OFF	- - -