PRO-4 USER MANUAL

Rev. 1.1

Compatible with bass firmware 2.16 and 4.16

CONTENTS

E STRING PARAMETERS

The table below lists the parameters on the E string as they appear when the bass is set on Play Style 1. This layout holds for Play Style 2, 3, and 4. But the ST1 prefix will change accordingly to reflect the Play Style. So if you are on Play Style 2, for example, the prefix will be ST2.

FRET	DISPLAY	LONG FORM
E1	ST1> E TRIGGER	E STRING TRIGGER GAIN
E2	ST1> A TRIGGER	A STRING TRIGGER GAIN
E3	ST1> D TRIGGER	D STRING TRIGGER GAIN
E4	ST1> G TRIGGER	G STRING TRIGGER GAIN
E5	> INACTIVE	- - -
E6	ST1> APERTURE	TRIGGER DETECTION APERTURE
E7	ST1> HIGHPASS	HIGHPASS FILTER
E8	ST1> LOWPASS	LOWPASS FILTER
E9	ST1> NOTE OFF	NOTE OFF GAIN
E10	ST1> DYN WAIT	DYNAMICS WAIT
E11	ST1> COMPRESS	STRING TRIGGER COMPRESSION
E12	SAVE Style 1 SURE?	SAVE PLAY STYLE
E13	> INACTIVE	- - -
E14	GLB> CC KNOB	CONTINUOUS CONTROLLER KNOB
E15	GLB> MIDI IN	MIDI IN
E16	GLB> CC RECEIVE	CONTINUOUS CONTROLLER RECEIVE NUMBER
E17	GLB> E BEND CAL	E STRING BEND CALIBRATION
E18	GLB> A BEND CAL	A STRING BEND CALIBRATION
E19	GLB> D BEND CAL	D STRING BEND CALIBRATION
E20	GLB> G BEND CAL	G STRING BEND CALIBRATION
E21	> INACTIVE	- - -

NOTE: When the bass is set to Play Style 1 the display includes the prefix ST1> before the name of the parameter. This prefix changes according to the Play Style that is set in the performance preset you are on. If the user changes the Play Style to Play Style 3 then the prefix would change to ST3> in order to remind the user that they are using or editing Play Style 3.

NOTE: Frets E15 - E20 are global parameters and are preceded by the GLB> prefix. Global parameters are common to all performance presets and Play Styles.

The table below lists the parameters on the E string as they appear when the bass is set Radio Pick Play Style.

FRET	DISPLAY	LONG FORM
E1	> INACTIVE	- - -
E2	> INACTIVE	- - -
E3	> INACTIVE	- - -
E4	> INACTIVE	- - -
E5	RPK> TRIGGER	RADIO PICK TRIGGER GAIN
E6	> INACTIVE	- - -
E7	> INACTIVE	- - -
E8	> INACTIVE	- - -
E9	RPK> NOTE OFF	NOTE OFF GAIN
E10	RPK> DYN WAIT	DYNAMICS WAIT
E11	> INACTIVE	- - -
E12	SAVE RADIOPICK SURE?	SAVE PLAY STYLE
E13	> INACTIVE	- - -
E14	GLB> CC KNOB	CONTINUOUS CONTROLLER KNOB
E15	GLB> MIDI IN	MIDI IN
E16	GLB> CC RECEIVE	CONTINUOUS CONTROLLER RECEIVE NUMBER
E17	GLB> E BEND CAL	E STRING BEND CALIBRATION
E18	GLB> A BEND CAL	A STRING BEND CALIBRATION
E19	GLB> D BEND CAL	D STRING BEND CALIBRATION
E20	GLB> G BEND CAL	G STRING BEND CALIBRATION
E21	> INACTIVE	- - -

E TRIGGER (E1)

E STRING TRIGGER GAIN: +0dB to +40dB

Sets the individual gain of the piezo saddle pickup on the E string that is fed into the trigger algorithm. The higher the gain the more likely a trigger will occur.

A TRIGGER (E2)

A STRING TRIGGER GAIN: +0dB to +40dB

Sets the individual gain of the piezo saddle pickup on the A string that is fed into the trigger algorithm. The higher the gain the more likely a trigger will occur.

D TRIGGER (E3)

D STRING TRIGGER GAIN: +0dB to +40dB

Sets the individual gain of the piezo saddle pickup on the D string that is fed into the trigger algorithm. The higher the gain the more likely a trigger will occur.

G TRIGGER (E4)

G STRING TRIGGER GAIN: +0dB to +40dB

Sets the individual gain of the piezo saddle pickup on the G string that is fed into the trigger algorithm. The higher the gain the more likely a trigger will occur.

INACTIVE (E5) / TRIGGER (E5)

RADIO PICK TRIGGER GAIN: +0dB to +40dB

When Play Style is set to 'RadioPick' fret E5 controls the RadioplckTrigger Gain. This gain is used to control the sensitivity of the RadioPick.

APERTURE (E6)

TRIGGER DETECTION APERTURE: 3mS - 12mS

This parameter 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 APERTURE and STRING TRIGGER GAINS can lead to unwanted triggers when user bends string(s).

HIGHPASS (E7)

HIGHPASS FILTER: 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

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. 75Hz+RU is a good starting point.

LOWPASS (E8)

LOWPASS FILTER: 100Hz Sp, 200Hz Sp, 300Hz Sp, 400Hz Sp, 500Hz Sp, 700Hz Sp, 1KHz Sp, 1KHz, 2KHz, 4KHz

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

NOTE: Generally used to reduce fret noise and other intermittent high frequency content that can lead to unwanted triggers. Sp means spread. This indicates that the cut off frequencies of the lowpass filter for each, individual string are spread proportionally to the open frequency of the strings.

NOTE OFF (E9)

NOTE OFF GAIN: +0dB to +40dB

Increases the gain of the signal that feeds into the Note Off detector. This gain setting is common to all strings. A high value should result in a longer note.

DYN WAIT (E10)

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.

See also **VELOCITY TYPE (A5)**

COMPRESS (E11)

STRING TRIGGER COMPRESSION: OFF, 1 – 20

Description required.

SAVE STYLE (E12)

SAVE PLAY STYLE

This fret is used to save the settings associated with Play Styles. When the user actuates the fret the display will prompt them to save the PlayStyle that is currently in use.

To save the current play style click the MIDI switch up/down and the Play Style settings will be saved.

INACTIVE (E13)

CC KNOB (E14)

CONTINUOUS CONTROLLER KNOB: 0 -127

Sets the MIDI continuous controller number that data will be sent on when the MIDI VOLUME KNOB on the bass is turned. This value is by default set to 7 so it controls MIDI volume. Now you have the ability to reassign the continous controller number. Note that this knobs function is tied to the MIDI IN input continous controller 7.

For example, if you set CC KNOB to 30 and send a CC 7 midi command to the midi input of the FSI-1, the CC7 will be remapped to CC30 and be sent out off the MIDI OUT on the module/interface on the appropriate MIDI channels. When the MIDI VOLUME KNOB on the bass is moved its value will momentarily be displayed in the LCD where the selected Style would normal be displayed, after a few seconds the display will resort back to displaying the current Style selected.

MIDI IN (E15)

omni, 1 - 16

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

omni	Receives on all 16 MIDI channels.
1 - 16	Receives on any one of MIDI channels 1-16.

CC RECEIVE (E16)

CONTINUOUS CONTROLLER RECEIVE NUMBER: 0-127 (7 excluded)

Sets the continuous controller number that the bass recieves CC commands on.

NOTE: CC #7 is reserved for MIDI volume.

E BEND CAL (E17)

E STRING BEND CALIBRATION: 0 - 100

This parameter is used to sync the bass audio with the synth audio when you bend.

A BEND CAL (E18)

A STRING BEND CALIBRATION: 0 - 100

This parameter is used to sync the bass audio with the synth audio when you bend.

D BEND CAL (E19)

D STRING BEND CALIBRATION: 0 - 100

This parameter is used to sync the bass audio with the synth audio when you bend.

G BEND CAL (E20)

G STRING BEND CALIBRATION: 0 - 100

This parameter is used to sync the bass audio with the synth audio when you bend.

INACTIVE (E21)

A STRING PARAMETERS

FRET	DISPLAY	LONG FORM
A1	E01> E DYNAMIC	E STRING DYNAMICS GAIN
A2	E01> A DYNAMIC	A STRING DYNAMICS GAIN
A3	E01> D DYNAMIC	D STRING DYNAMICS GAIN
A4	E01> G DYNAMIC	G STRING DYNAMICS GAIN
A5	E01> VEL TYPE	MIDI VELOCITY TYPE
A6	E01> VEL DRIVE	VELOCITY DRIVE
A7	E01> VEL MIN	VELOCITY MINIMUM
A8	E01> VEL MAX	VELOCITY MAXIMUM
A9	E01> VEL FLOOR	VELOCITY FLOOR
A10	E01> PEDAL	PEDAL
A11	E01> SUSTAIN	SUSTAIN
A12	E01> MODU RISE	MODULATION RISE
A13	E01> MODU FALL	MODULATION FALL
A14	E01> BEND TYPE	BEND TYPE
A15	E01> AT SENSITIVITY	AFTERTOUCH SENSITIVITY
A16	> INACTIVE	- - -
A17	> INACTIVE	- - -
A18	> INACTIVE	- - -
A19	> INACTIVE	- - -
A20	> INACTIVE	- - -
A21	> INACTIVE	- - -

E DYNAMIC (A1)

E STRING DYNAMICS GAIN: +0dB to +40dB

This parameter adjusts the gain of the signal from the E string that is passed to the MIDI velocity algorithm.

A DYNAMIC (A2)

A STRING DYNAMICS GAIN: +0dB to +40dB

This parameter adjusts the gain of the signal from the A string that is passed to the MIDI velocity algorithm.

D DYNAMIC (A3)

D STRING DYNAMICS GAIN: +0dB to +40dB

This parameter adjusts the gain of the signal from the D string that is passed to the MIDI velocity

algorithm.

G DYNAMIC (A4)

G STRING DYNAMICS GAIN: +0dB to +40dB

This parameter adjusts the gain of the signal from the G string that is passed to the MIDI velocity algorithm.

NOTE: Parameters E DYNAMIC through to G DYNAMIC let the user 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 users actual playing. One of the reasons behind having control over thsee signals on a per string basis is to provide a way of balancing the velocity information.

VEL TYPE (A5)

VELOCITY TYPE: FIXED, NORMAL, CC #22

This parameter defines how the bass handles the velocity component of MIDI messages.

FIXED	The bass sends fixed velocity number with every MIDI Note On command. This fixed value is taken from VEL MAX parameter.
NORMAL	The bass determines MIDI velocity number after analysing dynamic content of string for short period (see DYN WAIT). The bass then sends velocity number as part of MIDI Note On command.
CC #22	The bass sends MIDI Note On command immediately and in parallel sends velocity information on continuous controller number 22.

NOTE: CC #22 setting can be problematic with samplers that use velocity shifting.

VEL DRIVE (A6)

VELOCITY DRIVE: +0dB to +40dB

Works in conjunction with the individual dynamic gains for each string. Sets an overall drive gain of the piezo signals into the velocity algorithim.

0dB to +40dB	Sets overall gain applied to piezo outputs before the bass velocity algorithm.

VEL MIN (A7)

VELOCITY MINIMUM: 1 - 127

Sets minimum MIDI velocity number. When velocity is measured below this number for these values number will be rounded up.

VEL MAX (A8)

VELOCITY MAXIMUM: 1-127

Sets maximum MIDI velocity number. When velocity is measured above this number for these values number will be rounded down.

VEL FLOOR (A9)

VELOCITY FLOOR: -100 to 100

Velocity floor value is added to the raw midi velocity data before it is rounded up or down according to the VEL MIN and VEL MAX settings.

PEDAL (A10)

Sustain, Modulation, Freeze

This parameter determines whether the SWITCH input on the module/interface is used as a modulation, sustain, or freeze pedal.

Sustain	See SUSTAIN (A11)
Modulation	See MODU RISE (A12), MODU FALL (A13)
Freeze	Freeze mode will hold the last MIDI notes played before the pedal is pressed and hold and disable MIDI triggering on strings that are set by SUSTAIN (A11) parameter until pedal is released. This functionality gives the user the ability to freeze aspects of a MIDI performance and play electric bass lines over it.

SUSTAIN (A11)

If parameter PEDAL is set to 'Sustain' this parameter will control which strings are sustained while the pedal is depressed.

Alternatively, if parameter PEDAL is set to 'Freeze' this paramter will control which strings are frozen while the pedal is depressed. Strings which are not active, ie. marked as ' - ' will still trigger MIDI.

E - - -	Only E string sustains.
EA - -	E and A strings sustain.
EAD -	E, A and D strings sustain.
EADG	All strings sustain.
- ADG	A, D and G strings sustain.
- - DG	D and G strings sustain.
- - - G	Only G string sustains.

MODU RISE (A12)

MODULATION RISE:

When parameter PEDAL is set to MODULATION, this parameter defines the speed at which the modulation rises while the pedal is depressed.

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

MODU FALL (A13)

MODULATION FALL

When parameter PEDAL 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 from 0 – 127. To change the modulation amount adjust the settings on the external sound module.

BEND TYPE (A14)

Off	Pitch bend is off.
Normal	The bass sends pitch bend data as part of MIDI message.
Normal DB	Same as Normal except there is a deadband to limit the amount of pitch bend data sent by the bass.
Atouch	Pitch bend data sent as MIDI aftertouch message.
Atouch DB	As above except there is a deadband to limit the amount of pitch bend data sent by the bass.

AT SENSE (A15)

AFTERTOUCH SENSITIVITY, +0dB to +40dB

This parameter only has effect when Atouch or Atouch DB is seletced. It sets the sensitivity of aftertouch to the amount you bend.

D STRING PARAMETERS

FRET	DISPLAY	LONG FORM
D1	E01> PLAY STYLE	PLAY STYLE
D2	E01> MIDI SEND	MIDI SEND
D3	E01> PATCH #	PATCH #
D4	E01> MIDI OUT	MIDI OUT
D5	E01> OCTAVE	OCTAVE
D6	E01> SEMITONE	SEMITONE
D7	E01> TUNING	TUNING
D8	E01> BUMP MASK	BUMP MASK
D9	E01> SLIDE TYPE	SLIDE TYPE
D10	E01> LOW FRET	LOW FRET
D11	E01> HIGH FRET	HIGH FRET
D12	E01> FRET SUST	FRET SUSTAIN
D13	E01> F RELEASE	FRET RELEASE
D14	E01> ^ PatchName1	PATCH NAME CHARACTER SELECT
D15	E01> ^ PatchName1	PATCH NAME CHARACTER EDIT
D16	> INACTIVE	- - -
D17	> INACTIVE	- - -
D18	> INACTIVE	- - -
D19	> INACTIVE	- - -
D20	> INACTIVE	- - -
D21	> INACTIVE	- - -

PLAY STYLE (D1)

This parameter defines which play style is associated with the performace preset.

MIDI SEND (D2)

The MIDI SEND parameter provides several modes that determine how 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.

Mono.1.L	Sends on only one MIDI channel (see MIDI OUT). Slides enabled. External sound module must be set to Legato mode. No chords.
Poly.1	Sends on only one MIDI channel (see MIDI OUT). No slides. Can play chords.
Poly.4.L	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.
Imprint 1	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.
Imprint 2	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.
Imprint 3	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.

PATCH # (D3)

OFF, 1 - 128

Defines the patch number of the external MIDI device.

If MIDI SEND is set to Poly.4.L, Imprint 2 or Imprint 3, a patch number will be sent on all 4 MIDI channels according to the MIDI OUT setting.

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 # to OFF.

MIDI OUT (D4)

1-16

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

When MIDI SEND (D2) is set so that the bass outputs on more than one MIDI channel (ie. Poly.4.L, Imprint 1 and Imprint 2), MIDI OUT sets the first MIDI channel in the series.

> **Eg.** When MIDI SEND (D2) 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 OUT is set to 15, the bass will send MIDI messages on 4 MIDI channels starting

from MIDI channel 15. In this case the MIDI channel numbers wrap around after MIDI channel 16. So the bass will send on MIDI channels 15, 16, 1, and 2.

OCTAVE (D5)

-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.

SEMITONE (D6)

-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.

TUNING (D7)

EADG or DADG

Provides standard and drop D tuning configurations.

EADG	Standard bass tuning.
DADG	Drop D tuning.

BUMP MASK (D8)

The BUMP MASK parameter exists in order to avoid possible, unwanted triggers that can occur if the player hits or bumps a string adjacant 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.

None	BUMP MASK is off.
Open	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.
All	BUMP MASK is applied to all triggers. Chords cannot be played.

SLIDE TYPE (D9)

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 midi bass is a fret contact system, movement and pressure across the fingerboard can sometimes lead to unwanted variations in pitch. This will sometimes 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.

Up/Down	Sliding is enabled both up and down the fingerboard.
Up Only	Sliding is enabled only up the fingerboard.
Timed	Sliding is enabled for brief 80mS period after trigger has been detected. This setting is designed to take into account difference between a deliberate, distinct slide and subtle slides that are can be produced in the process of fretting notes.

LOW FRET (D10)

0-21

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

HIGH FRET (D11)

0-21

This parameter sets the final fret number at which the bass stops sending 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. A player wants to trigger a synthesizer up to the 11th fret and from the 12th fret onwards have only regular bass audio for a solo performance. This would require setting LOW FRET to 0 and HIGH FRET to 11.

Also, when the bass is played aggressively, especially when a hard slapping technique is employed, it can cause the string(s) to vibrate so much that they 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 unwanted contact between the strings and these frets won't result in unwanted MIDI data being sent.

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.

Eg. LOW FRET is set to 0 and HIGH FRET is set to 11. If you play a note on the 11th fret and slide into the 12th fret the slide will not be sent via MIDI. Alternatively, if you play a note on the 12th fret and slide down to the 11th fret the slide will not be sent.

FRET SUSTN (D12)

FRET SUSTAIN

Strg Decay	Note will sustain until the energy in the string falls below threshold as defined by NOTE OFF (E8) parameter.
Hold	Will hold the note as long as the string is fretted.

F RELEASE (D13)

FRET RELEASE

Immediate	When finger is taken off string an immediate Note Off message is sent.
Strg Decay	When finger is taken off string Note Off message is not sent until energy in the string falls below threshold as defined by NOTE OFF (E8) parameter.

CHARACTER SELECT (D14)

This parameter let's you select the character of the performance preset name that you want to change.

See Also **CHARACTER EDIT (D15)**

CHARACTER EDIT (D15)

Once you have selected the character of the performance preset scroll up or down using the MIDI SWITCH in order to change the character.

INACTIVE (D16-D21)

G STRING PARAMETERS

FRET	DISPLAY	LONG FORM
G1	P01> Preset Name	P01> Preset Name
G2	P02> Preset Name	P02> Preset Name
G3	P03> Preset Name	P03> Preset Name
G4	P04> Preset Name	P04> Preset Name
G5	P05> Preset Name	P05> Preset Name
G6	P06> Preset Name	P06> Preset Name
G7	P07> Preset Name	P07> Preset Name
G8	P08> Preset Name	P08> Preset Name
G9	P09> Preset Name	P09> Preset Name
G10	P10> Preset Name	P10> Preset Name
G11	> INACTIVE	- - -
G12	> BANK SELECT	BANK SELECT
G13	> INACTIVE	- - -
G14	> INACTIVE	- - -
G15	E40> SAVE TO	SAVE PERFORMANCE PRESET TO
G16	E40> SAVE EXECUTE	EXECUTE PERFORMANCE PRESET SAVE
G17	> MEMORY LOCK	MEMORY LOCK
G18	> FIRMWARE Rev x.xx	FIRMWARE DETAILS
G19	> SYSEX DUMP	SYSTEM EXCLUSIVE DUMP
G20	> ALL NOTES	ALL NOTES OFF
G21	> INACTIVE	- - -

PRESETS (G1-G10)

Frets 1-10 correspond to the 10 performance presets of the respective performance preset bank as defined in BANK SELECT (G12).

INACTIVE (G11)

BANK SELECT (G12)

PRESET BANK SELECT, 0-10, 11-20, 21-30, 31-40

BANK SELECT sets the performance preset bank you are working in. If you set BANK SELECT to 11-20, frets G1-G10 will correspond to performance presets 11-20. So, if you are in BANK SELECT 11-20 and click on the 5th fret, performance preset 15 will be selected and will be reflected throughout the parameters on the A, D, and G strings by the prefix E15> which stands for EDIT preset 15.

INACTIVE (G13)

INACTIVE (G14)

SAVE TO (G15)

SAVE PERFORMANCE PRESET TO, 01-40

This parameter let's you select a target performance preset to which you can save the performance preset settings you are currently working on.

Eg. If I am working in performance preset 1 and wish to save these settings to performance preset 39 change this parameter to 39 and then save it with the SAVE TO (G16).

SAVE EXECUTE (G16)

EXECUTE PERFORMANCE PRESET SAVE

Once you have selected the target performance preset to which you want to save the current performance preset settings click on this switch. It will prompt you with SURE? By clicking the switch it will save the commit the save.

MEMORY LOCK (G17)

On, Off

Every time the Midi Bass powers up, MEMORY LOCK is set to On. Changes to the MEMORY LOCK setting are not stored in the memory so even if you turn it Off the next time you power up the Midi Bass it will be set to On.

MEMORY LOCK diasables save operations so you don’t accidentally save over your settings.

FIRMWARE (G18)

FIRMWARE REVISION NUMBER

Displays the revision firmware installed in the Midi Bass.

SYSEX DUMP (G19)

SYSTEM EXCLUSIVE DUMP

Allows you to backup all the Midi Bass settings via sysex dumps.

ALL NOTES (G20)

ALL NOTES OFF

This sends a global ALL MIDI NOTES OFF message. This is used if an external sound module gets

stuck on a note.

INACTIVE (G21)

INSTRUMENT MAINTENANCE

NEVER USE STEEL WOOL

IMPORTANT! Never use steel wool to clean the frets.

The frets in a Fretsense™ neck are pressed into the neck as a single fret and subsequently cut, or “split”, into electronically isolated segments. Each fret segment is insulated from its sibling segment, or segments, by the insertion of a piece of insulating plastic wherever the fret has been split. It is essential that nothing metallic or conductive ever bridges this insulation and electrically shorts these fret segments together.

During use steel wool sheds fine, conductive, metallic particles and splinters that can contaminate the plastic insulation between the frets and short the fret segments together. These metallic particles may not even be visible to the naked eye but can render a Fretsense™ instrument completely unuseable with the only solution being either to completely re-fret or replace the neck.

It is important to recognise that steel wool is very popular among luthiers and guitar repairers as it does a fantastic job of bringing frets up to a high shine. When a Fretsense™ instrument is given to a luthier or guitar repairer for maintenance the user should always stress to him/her not to use steel wool. Just to be sure, we also encourage the user to make a sign using an A4 piece of paper with the message "NO STEEL WOOL TO BE USED ON THIS INSTRUMENT" and to slip the sign between the fingerboard and the strings.

The cleaning pads supplied with Fretsense™ instruments are made of a synthetic, non-conductive material and pose no such problem.

FRET/STRING CLEANING

Fretsense™ instruments work by electronically measuring the contact made between the frets and the strings. Therefore, it is important to keep both the frets and the strings clean and free of any pollutants that may obstruct the conductivity of these metal surfaces. A recurring issue with Fretsense™ instruments is the gradual build up of a thin film of oxidisation on both the frets and the strings which acts as an insulator and can cause minor performance issues until the insulating film is cleaned off.

To avoid the inconvenience of bad fret contact we recommend that users routinely clean both the frets and the strings. The process should only take a few minutes. A general rule would be to do this once per day before playing. However, the time it takes for oxidisation to occur on the frets and the strings, and thus the need for fret/string cleaning, will depend on environmental factors, such as humidity and player perspiration, and will likely vary between users. If you don't use the instrument for a considerable period of time, for example several weeks, the frets and strings will probably tarnish considerably and thorough fret/string cleaning will be absolutely necesssary.

To keep the frets and the strings clean we provide customers with the necessary cleaning

accessories, namely cleaning pads and two different-sized fingerboard guards.

To clean the frets and the strings slip the full-length, plastic fingerboard guard between the fingerboard and the strings. The guard will only expose the frets and masks the remainder of the fingerboard so that the cleaning process will not damage the Lexan fingerboard coverings. Cut off a small piece of the cleaning pad, approximately 2 inches by 1 inch, and wrap it in a U-shape around the string, pinching the loose ends together above the string. To clean the frets run the U-shaped pad up and down the length of the fingerboard several times while placing downward pressure on the frets. To clean the strings lift the U-shaped pad up and run the pad up and down the length of the fingerboard several times. Here the upward pressure is concentrated on the underside of the string which is the part of the string that makes contact with the frets. You will see that the frets are clean when all tarnish is removed and the frets look bright and shiny.

Here is the URL to a YouTube video that demonstrates the fret/string cleaning process:
https://www.youtube.com/watch?v=HdvmXbSfOsE

The smaller stainless steel fingerboard guard is provided for spot cleaning a problematic fret.

Generally we advise users not to use chemical agents, cleaning fluids or guitar polishes to clean the frets and the strings. However, if the cleaning job necessitates the use of a cleaning fluid we advise users to use pure, or near pure, isopropyl alcohol. Isopropyl alcohol helps remove tough grime but evaporates quickly and completely without leaving any residues that can negatively impact on the instrument's performance.

Furthermore, we advise against the use of waxes, oils, greases and any other type of string or hand lubricant designed to improve fingering speed and player performance. These solutions all run the risk of reducing the conductivity between the frets and the strings and impeding the performance of the Fretsense™ system.

STRINGS

Fretsense™ instruments depend on the conductivity between the frets and the strings. Anything that insulates or diminsihes the conductivity of the frets, strings or even the connection made between the ball end of the string and the bridge piece runs the risk of causing performance issues.

A good guide for choosing appropriate strings for a Fretsense™ instrument is to avoid any unconventional string type that employs nylon, plastic coatings, painted and/or tinted ball ends or unorthodox material composites since nylons, plastics, paints and unusual materials can all act as insulators that diminish conductivity and interfere with the optimal performance of the Fretsense™ system.

Here is a short list of string types to avoid:

- Coated strings
- Nylon strings or strings that contain a nylon component
- Tapewound strings

- Strings with painted or tinted ball ends

Generally we recommend that users string their instrument with conventional, nickel, round wound strings with plain, brass ball ends.

All PRO-4 basses ship with Dunlop Nickel Wound Medium (45-105) strings. Here is a link to the Dunlop website:
http://www.jimdunlop.com/product/bass-guitar-strings--nickel-plated-steel

NOTE: It is also important that the string ends at the tuner are always cut short so that there is no chance that a loose string end can connect with another string or tuner.

BASS CONTROLS

Morbi elementum commodo sem, a congue ex pellentesque ac. Etiam pharetra, dolor vitae cursus vehicula, magna leo sagittis turpis, ut dictum dolor purus faucibus justo. Nulla ac nisi neque. Donec non semper tortor. Duis vitae libero velit. Nulla quis eleifend nisi. Ut facilisis libero in sapien blandit fringilla.

MIDI VOLUME

The MIDI VOLUME knob is the knob positioned closest to the pickguard. While we generally refer to this knob as MIDI VOLUME it can, in fact, be assigned to control any continuous controller, see CC KNOB (E14).

FRONT PICKUP VOLUME

Controls the gain of the front/neck pickup.

BACK PICKUP VOLUME

Controls the gain of the back/bridge pickup.

TONE CONTROL

Tone control.

PROGRAMMING SWITCH

The programming switch is use in conjunction with the LCD display to program the bass.

LCD DISPLAY

The LCD display shows parameters and settings of the bass.

OPERATING THE BASS

Operating the bass is a quite a simple process. Each fret on the fingerboard corresponds to a parameter or function that determines the settings of the bass. The parameters sections of this manual go through each parameter on each string and contain a list of the parameters names.

In order to select a parameter or function so as to display its current setting or to edit its setting, all you need to do is fret the string over the parameter's corresponding fret and click the MIDI programming switch. This will show you the name of the parameter and the current setting.

To edit the parameter you need to click the MIDI programming switch up or down accordingly to change the parameter's value while still holding down the string.

Clicking the MIDI programming switch while the strings are open will display the performance preset that you are currently on and the Play Style that is associated with that preset.

NOTE: When the display shows a parameter and includes an asterisk on the second line this means that the parameter is being overridden by another parameter. While it is still possible to change and save the parameter's setting, it will not have any affect on the functionality of the bass until the other parameter changes.

EXAMPLE: If VELOCITY TYPE (A5) is set to fixed it means that the Midi Bass will send a fixed, static velocity number with every MIDI Note On without waiting to analyse the dynamic content of the string. This means that the DYNAMICS WAIT (E9) parameter will have no effect if you change its value and as such an asterisk will appear in the display.

FOOTSWITCH

A normally open footswitch can be plugged into the Midi Bass Module on the front Panel. See parameters PEDAL TYPE, SUSTAIN, MOD RISE and MODU FALL for its operation.

SOUND MODULE COMPATIBILITY

LEGATO MODE

For optimal MIDI performances using the bass it is essential that the external sound module supports Legato mode. This is the method that the midibass uses to create slides.

We moved away from using the pitch wheel data (as in older midi bass system) to do slides for the following reasons:

a) Many synths only support up to +/- 12 range, you really need +/- 24.

b) Several synths especially VSTs put a filter on the pitch wheel data movement to smooth out the movement, this results in the synth feeling like portamento is always turned on, this will drive you crazy.

c) When sequencing into a computer DAW the slides are represented as pitch wheel data rather than note data making it really hard to edit.

We have not found many synths that don't support legato mode. Fingered legato can also be very usefull. Legato MIDI data is displayed as Note On and Off MIDI messages which makes it easy to edit in the DAW. There are no limitations to how far you can slide a note. This now frees up the pitch wheel MIDI messages just for the bend data, you can now set the pitch wheel range in the synth to just +/- 2. Another great reason to decouple the slides from the pitch wheel is that you can now experiment with larger ranges of the pitch wheel in the synth for dive bombing sounds, etc.

PLAY STYLES SETUP

The bass in its simplest form transmits a MIDI Note On message when the string is plucked. This MIDI Note On message is transmitted when the computer inside the bass sees a jump in the energy of the string that comes from the individual strings piezo bridge saddles.

The Play Styles are the parameters that effect the response of the signals that come from the piezo pickups. As there are many ways to play the bass, eg. fingers, slap, down thumb, pick, tapping, etc we decided than rather locking the parameters up in the software that effect the triggering response, we would give you access to them so you could tweak them to get the ultimate possible triggering performance.

Also we have provided 4 seperate play styles so you can optimise the bass if you wish for different techniques of playing.

When you create a Performance Preset you assign one of the four styles to that Performance Preset.

There are 10 parameters that constitute a play style.

The first 7 are associated with the trigger response of the bass.

- E TRIGGER
- A TRIGGER
- D TRIGGER
- G TRIGGER
- APERTURE
- HIGHPASS FILTER
- LOWPASS FILTER

The next STRING DECAY effects the MIDI Note Off message.

The next DYNAMICS WAIT effects the velocity component of the MIDI Note On command.

The last is RPK> TRIGGER, this parameter is for the Radio Pick triggering and is not a part of the piezo

triggering so it will not be discussed here.

But first lets talk about the piezo pickups and their preamps. The piezo preamps have been designed so as they preserve the ultra low frequency signal that they can generate. We are talking about 0.25Hz! You cannot hear this signal but what it represents is the pressure of your fingers on the strings. When you pluck a string on the bass you can actually see on an oscillascope connected to the preamps output a lump in the signal which represents the initial pressure of your fingers on the string. This ultra low frequency signal can help for some Play Styles to detect a more reliable trigger. Depending on your Play Styles this ultra low frequency signal may help or may not and you may wish to remove it. The HIGHPASS FILTER is used to control the amount of the ultra low frequency that is presented to the trigger software module. A low value allows the ultra low frequency signal to pass, a higher value decreases the amount. Note, that we have found that if you are a hard fingers player and follow through and bump into the adjacent strings you can create a large amount of pressure on these strings when you initially bump into them (the BUMP MASK parameter helps look after this) but more so when your finger 'follows out' from the adjacent string it can create an ultra low frequency lump in the piezo signal. This 'follow out' signal can produce false triggers when you start really digging in, there is no masking attribute within the software to eliminate this. This why if you are a hard fingers player that follows through to the adjacent string we would recommend a value of 40Hz or 80Hz. Again, there are hard and fast rules so we encourage you to thoroughly experiment with these settings to determine the best setup for your unique playing technique.

Another attribute of the piezo pickups is they are to a degree directional in the pluck angle. Eg. if you pluck the string in an upwards direction as to a downwards direction with the same energy the output levels from the preamp will be different. Again the ultra low frequency content from the piezo preamps can contribute to this phenomenon, high values of the HIGHPASS FILTER will help minimise this.

So why do we want to have the ultra low frequency content? If you are a light player or a player that has a technique that does not bump into adjacent strings when playing, you will find the ultra low frequency content can give the instrument a more consistent feel.

The LOWPASS FILTER is used to remove high frequency content from the piezo pickups. This high frequency content is generated from noises your left hand is making on the strings, like fret contact noise when you hammer on or when you slide your finger along the string and it rubs the windings on the string and create a high frequency noise content.

The LOWPASS FILTER allows you to control how much high frequency content from the piezos is fed into the trigger algorithm, higher values allow more high frequency signal to pass. You will notice in the display for some settings an SP character will be displayed, this stands for frequency spread. Basically it spreads the filters frequency rolloff point for each string proportionally to the open string frequency. Note even though this is just one parameter, each string has its own individual set of filters.

The APERTURE is a parameter within the software trigger module. It controls the length of time of the signal that is being analysed for triggers. The longer the time the more of the signal that is being analysed. This parameter can actually behave like the HIGHPASS FILTER, if you are an aggressive player. In this case it is best for the APERTURE to be set to a lower value. You will need to tweak this parameter while playing to find the optimum setting.

Sometimes a string bend can cause an unwanted trigger if the APERTURE value is set too long and the STRING TRIGGER GAIN is set high. If this occurs lower the TRIGGER GAIN or the APERTURE, you will need to experiment to find which is best but APERTURE would be the main parameter to focus on. The TRIGGER GAIN effects all frequencies as where the APERTURE time only effects the lower frequencies, a shorter time will lessen the lower frequencies but preserve the higher frequencies, this can be usefull to suppress triggers caused by string bends as the signal induced in the piezo's by string bending are very low in frequency.

E, A, D, G TRIGGERS

The Midi Bass has a threshold in its software triggering module that determines when a trigger has been deemed to have taken place. These parameters controls the gain of the piezo signal after it has been through the LOWPASS and HIGHPASS filters. Higher gains will mean that you only have to pluck the string softly to get a trigger, lower gains will mean you have to pluck the string harder to get a trigger.

Don't forget to save your values on E12 once you are happy with the response.