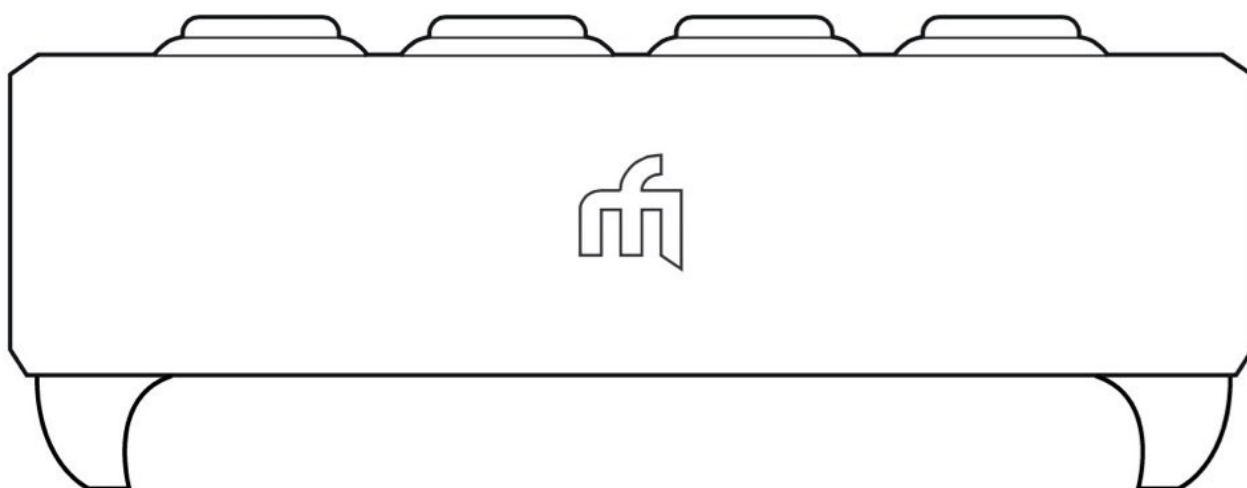


Midi Fighter 3D

User Guide



DJTECHTOOLS.COM

Introduction

This user guide is split in two parts, first covering the Midi Fighter 3D hardware, then the second covering the Midi Fighter Utility and all relevant device settings.

If you are simply looking to learn how to set up and use an existing mapping in either Traktor or Ableton, please refer to the quick start guides, these are both available here.

djtechtools.com/midifighterhelp

Nomenclature

The Musical Instrument Device Interface (MIDI) protocol at its most basic level describes 16 channels, each consisting of 128 Notes, and 128 Control Change (CC) messages.

This user guide and the Midi Fighter Utility refers to these 16 channels as channels 0 through 15, the notes as notes 0 through 127, and the control change messages as CC's 0 through 127.

The Midi Fighter 3D Hardware

This section describes the hardware & MIDI operation of the Midi Fighter 3D in detail and should be used as a reference when creating your own MIDI mapping in your software of choice.

This section assumes that the reader is already familiar with the basics of the MIDI protocol.

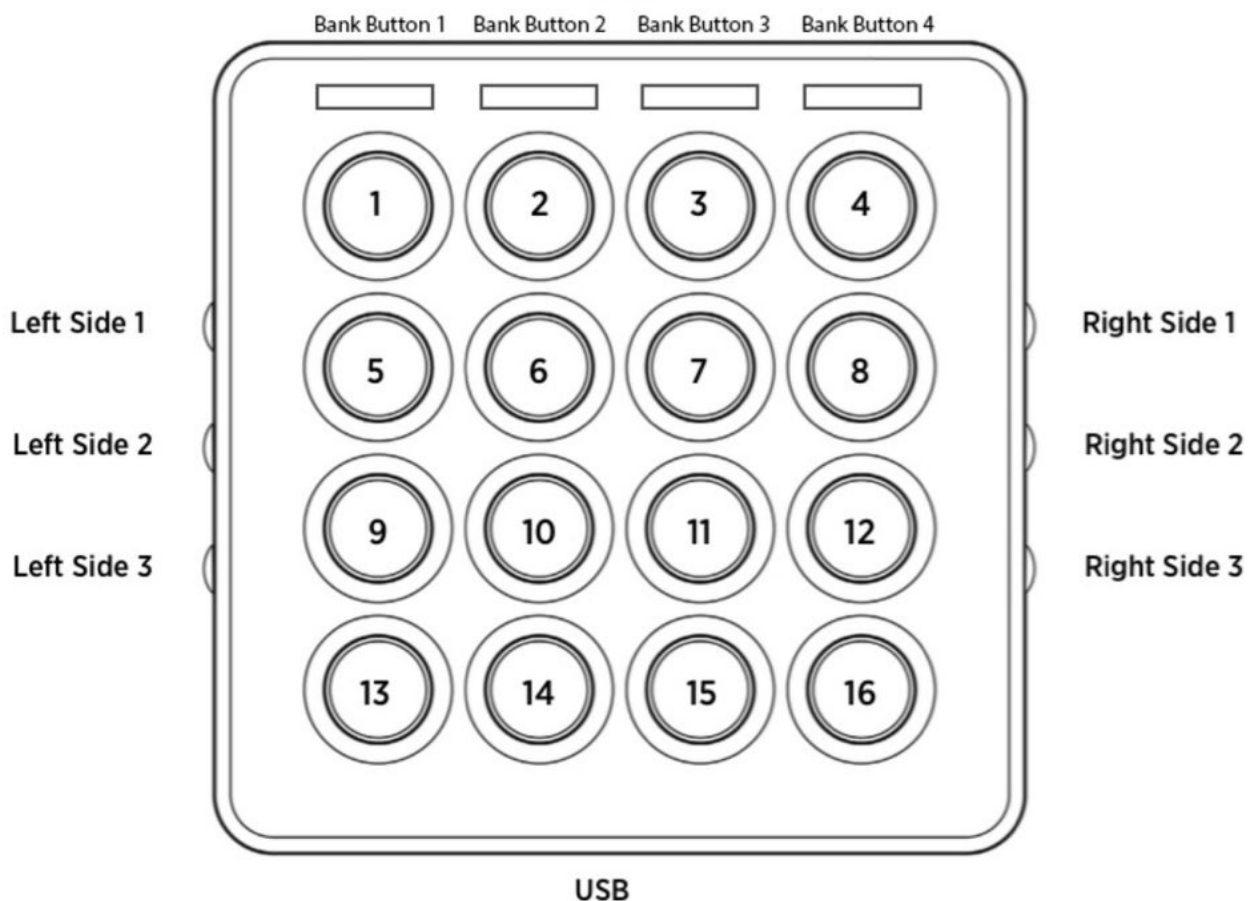
Introduction

The Midi Fighter 3D consists of 16 arcade triggers with MIDI controlled full color ring illumination, 4 user configurable top mounted bank buttons, 6 user configurable buttons mounted on the side of the device and multiple axis motion controls (tilt & rotation). The side buttons have no LED illumination.

Each of the 16 arcade triggers will send a different note in each bank, allowing access of up to 64 unique notes across the four banks. By default any side button MIDI Notes or CC's are also unique for each bank, this behaviour can be disabled with the Utility by unchecking the "Bank Side Buttons" option.

For a full description of the bank operation refer to the virtual bank section.

Fig 1 Hardware Naming Convention



Arcade Triggers

Each trigger sends a Note On when pressed and a Note Off once released. Because these triggers are not velocity sensitive the velocity defaults to 127. This value may be adjusted using the Utility. By default all arcade trigger notes are sent on MIDI Channel 3.

If the 'Momentary CC' option is enabled then the Midi Fighter 3D arcade triggers will also send CC's. When the trigger is pressed a CC with value 127 is sent, when the trigger is released a CC with value 0 is sent. Momentary CC's are sent on Channel 4.

This is useful for control of effects in Ableton, where note messages will only toggle the effect each time the button is pressed and released. By mapping to a CC rather than the note you can create a mapping where the effect is on while the button is down, and off when the button is released.

In Appendix 1 you will find a complete list of MIDI data for each button in each bank

Setting Arcade Trigger Color

The ring illumination color of the arcade triggers has two states, active (pressed) and inactive (released). The Utility can be used to set the inactive and active color state of each ring in each of the four virtual banks.

By using MIDI messages the user can also override the default inactive/active color setting and control both the color and animation state of each arcade trigger ring.

There are 10 colors available, each with a bright state and a dim state. To set the color send a MIDI Note On of the same pitch and channel as the arcade trigger you are trying to control. The velocity of the note will determine the color selected. A velocity of 0 will disable MIDI control of color.

I.e. To set the color of the first arcade trigger to Bright Red send a Ch3 C3 Note On of Velocity 13.

The following table shows the velocity range for each color. You may notice that the velocity range 121 - 127 is not covered, this range will force the LED to its active color as set in the Utility regardless of if the button is pushed or not.

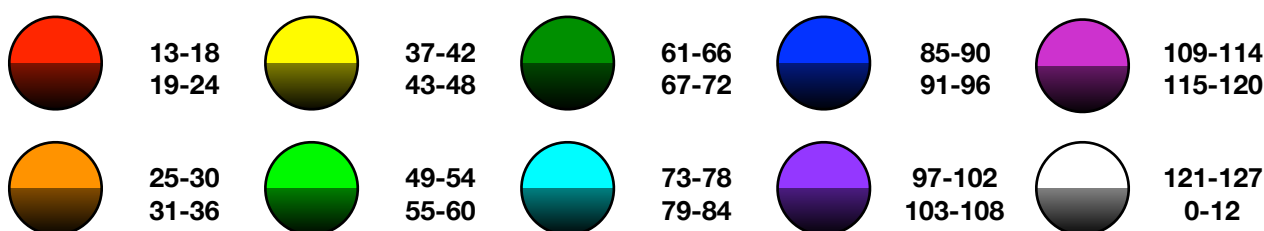


Fig 2 MIDI Color Velocity Settings

Setting Arcade Trigger Animation State

By sending MIDI Notes of a particular velocity it is also possible to set a variety of animation states for each ring, these animations modify the color state of the ring illumination.

The available animation states are,

Brightness Level | Velocity 18 - 33

This animation allows the user to set the brightness of the current color to one of 16 brightness levels between 0 and 100%. This is useful for creating VU meters.

Gate | Velocity 34 - 41

Allows the user to gate (flash) the current color at one of 8 different rates. If a MIDI clock signal is present the timing is derived from that, otherwise the timing is based on a half second interval which is the equivalent of 120 BPM. This is useful for creating warnings, for example in Traktor you could map the Track End Warning output to flash an LED when the track is nearing its end.

Pulse | Velocity 42 - 49

Similar to the Gate animation this allows the user to pulse the current color at one of 8 different rates. If a MIDI clock is present the timing is derived from that otherwise the timing is based on a half second interval which is the equivalent of 120 BPM. This animation is useful for creating subtle alerts, for example in Traktor you could map the Loop On output to control the pulse rate to reflect that the loop is active, and what length it is set to.

To set the animation state of a given arcade trigger ring send a Note On message of the same pitch, but on Channel 4.

i.e. To set the animation state of the first arcade trigger to Gate 1/4 send a Ch4 C3 Note On of Velocity 39.

It is important to note that the MIDI color setting and MIDI animation setting can be used in conjunction.

i.e. To set the first arcade trigger to Bright Red flashing at a rate of 1/2 first send the color information with a Ch3 C3 Note On of Velocity 13, then the animation setting with a Ch4 C3 Note On of Velocity 39.

4 Banks Mode

The Midi Fighter 3D defaults to banked mode. In this mode the 16 arcade buttons send different notes depending on which bank is currently selected. All arcade button notes are sent on channel 3. All other messages are sent on channels 4 - 6.

The bank selection can be changed by pushing the desired bank button, the LED of the currently selected bank will glow white. In Traktor mode the banks buttons also send midi signal as detailed in the diagram below.

The 6 side buttons are fixed and send the same notes regardless of which bank is selected unless the option “Bank Side Buttons” is enabled in the Midi Fighter Utility.

When four banks is enabled there is no capability to change the state of the LEDs. In this mode any MIDI out message will force the device to switch the to the bank selected by the relevant button.

4 Banks Mode Disabled

If you do not wish to use banks when creating your own midi mapping you can set the “Four Banks Mode” to “Disabled” using the Midi Fighter Utility software. When four banks mode is disabled the arcade buttons will send the same MIDI data regardless of the state of the bank buttons.

Four Banks Disabled Hold

In this mode the bank buttons behave like any normal button, sending a note on when held, and a note off when released. By sending a MIDI out message with a non-zero velocity on the same note as the MIDI in for any of the bank buttons you can turn the LED on, sending a 0 velocity or note off will turn this LED off.

Four Banks Disabled Toggle

In this mode the banks buttons have toggle functionality, changing state each time they are pressed then released. In this mode there is no control of the LED as the LED will always reflects the state of the toggle.

Advanced Bank Control

It is also possible to use MIDI to read and set the currently selected bank.

When the virtual bank selection changes the Midi Fighter 3D sends a Note On to indicate a new bank has been selected. It will also send a Note Off to indicate the previously selected bank is no longer active. By default the bank selection notes are sent on MIDI Channel 4.

I.e. When changing from Bank 1 to Bank 2 the Midi Fighter will send a Ch4 C-1 Note Off followed by a Ch4 C#-1 Note On.

By sending Note On messages to the MIDI Fighter 3D it is also possible to force it to automatically change to a specific bank.

Bank Change Notes

Bank 1 | Ch4 C-1 Bank 2 | Ch4 C#-1 Bank 3 | Ch4 D-1 Bank 4 | Ch4 D#-1



Motion Messages

The Midi Fighter 3D carries an arsenal of electronic sensors which are used to track its orientation and translate this into a variety of MIDI messages allowing highly expressive control of your software. There are two types of orientation messages: edge tilt and button rotation.

Edge Tilt Messages

The Midi Fighter 3D generates the following tilt based control change messages. **All tilt messages are sent on Channel 4.**

Left Tilt | CC0
Forwards Tilt | CC1
Right Tilt | CC2
Back Tilt | CC3

In Traktor mode the Midi Fighter 3D also sends secondary tilt CC's. These operate over the second half of the range of the primary CC.

Left Tilt Secondary | CC4
Forwards Tilt Secondary | CC5
Right Tilt Secondary | CC6
Back Tilt Secondary | CC7

While sitting flat on the table all four CC's will be at zero, when the Midi Fighter 3D is tilted on an edge it will send a CC which varies from 0 – 127 corresponding to its tilt angle on that edge.

The Midi Fighter 3D also sends a channel 4 F0 note on event when any edge CC is active, and note off event when all edges are inactive, i.e., the Midi Fighter 3D is flat on the table.

As well as a note to indicate if the device is in edge tilt or not, the Midi Fighter 3D sends a channel 4 F1 note on event whenever it detects that it has been picked up. This is **Pickup Mode**.

Button Rotation Messages

The Midi Fighter 3D also generates rotation or “pitch” CC's for each arcade button.

There are 3 rotation modes, Relative (default), Absolute, and Disabled.

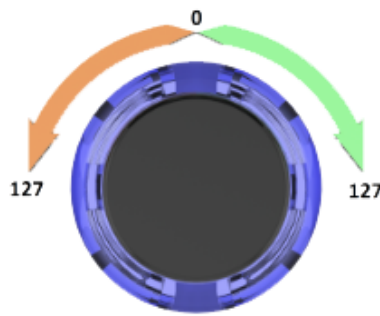
The rotation messages are only sent when a button is pressed, and the device is in “Pick Up Mode”

Relative Mode

In relative mode when an arcade button is pressed, then the device is rotated a CC is sent proportional to the change in rotation from the point at which the arcade button was pressed. **The CC is sent on channel 4 when the rotation is counter clock-wise, and channel 5 when the rotation is clock-wise.**



Ch4 CC Ch5 CC



Absolute Mode

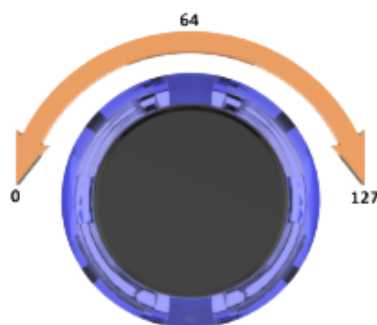
Absolute mode was created for the instance when you want to be able to point the Midi Fighter 3D in a certain direction and always get the same CC value.

This is primarily useful for FX like the beatmasher and gater where you need to be able to reliably jump between different rates.

In absolute mode the Midi Fighter 3D takes a compass reading when it is first powered on, this is its home position. If the device is in pickup mode and button is pressed while in the home position a CC of 64 is sent, on channel 4, if the Midi Fighter 3D is pointing 80 degrees clockwise to the home position it will send 127, and at 80 degrees counter clock-wise from the home position it will send 0.

If you use this mode it is important to always connect the device only once it is positioned correctly.

Home Position



The Midi Fighter Utility Software

This section covers the Midi Fighter Utility software. This is an application for PC & Mac that can be used to control, configure, and update your Midi Fighter 3D.

Getting Started

The Midi Fighter Utility software can be downloaded using the following links.

[Download For Mac](#)

[Download For PC](#)

Once this has been installed you will find a shortcut on your desktop if using PC, or you can find the utility in your Applications folder if using Mac.

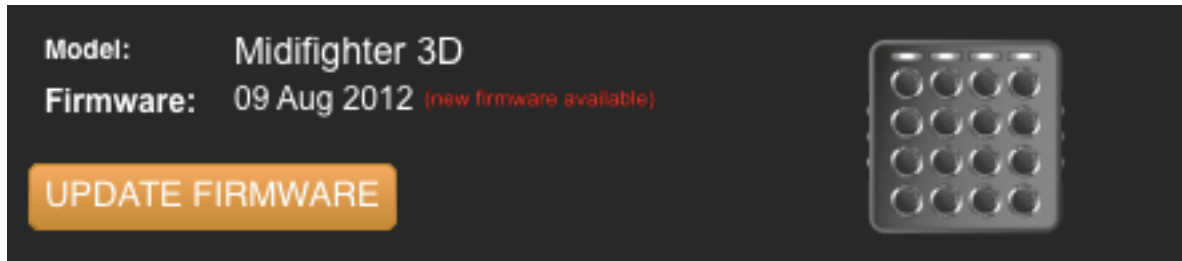
To get started launch the application and connect your Midi Fighter 3D to a spare USB port.

Note: If the Midi Fighter Utility does not detect the Midi Fighter 3D please make sure all other MIDI software has been shut down, then restart the utility and reconnect the device.



Firmware Update

It is important to ensure your device is loaded with the latest firmware. You can tell if you need to update your firmware by looking at the device information section.



If the device firmware needs to be updated the “Update Firmware” button will display in orange, and the text “new firmware available” will display in red. If the firmware is already up to date the ‘Update Firmware’ button will display in grey and the text “up to date” will appear in green.

To update the device firmware simply click the update firmware button.

Note: When updating the firmware do not connect the Midi Fighter 3D via a USB Hub, this may lead to a bricked device.

Performing a Factory Reset

Using the Midi Fighter Utility it is possible to restore all device settings and color information back to the factory defaults. If you are having trouble with your Midi Fighter 3D this can be a good place to start when diagnosing the problem.

To perform a factory reset connect your Midi Fighter 3D to the Utility and in the menu bar click,

Tools>Midi Fighter>Factory Reset

Importing & Exporting Settings

It is possible to import and export device settings, this is useful for saving and sharing device settings and color information used for a particular mappings.

To export your settings click File>Export Settings and enter the name you wish to save the file under.

To import your settings click File>Import Settings and select the settings file you wish to load.

Note: Once these settings are loaded you must still press “Send to Midi Fighter” to save them to the device.

Color Settings

The right hand side of the Midi Fighter Utility interface is used for configuring the color of the arcade rim lighting. You can set the color for both the active (pressed) and inactive (released) state for each arcade trigger in all four virtual banks.

To choose your color settings first pick a color from the palette tool.



To apply this color to the inactive state click in the outer rim of the desired button.



To apply this color to the active state click in the center of the desired button.



You can change between virtual banks using the four bank buttons above the arcade buttons.



Once you are happy with your changes you must save them by click the “Send To Midi Fighter” button.



Device Settings

On the left side of the Utility interface are a number of device hardware settings.

MIDI Channel

This sets the base MIDI channel that the Midi Fighter will send and receive MIDI data on. The Midi Fighter 3D uses 3 channels and the second and third channels will follow the base channel sequentially.

MIDI Velocity

The Midi Fighter triggers & buttons are not velocity sensitive. This setting sets the default velocity for Note On messages from the Midi Fighter.

Software Mode

When this option is set to **Ableton** the Midi Fighter 3D arcade triggers will send both Note & Control Change messages. This is useful when using the device in Ableton as it allows you to map momentary control of FX to the arcade triggers, whereas Note On messages will only provide toggle control. Setting it to **Traktor** will only send Note messages.

Combos

The Combos check box enables sending of 'Super Combo' MIDI notes. These are special notes sent only when specific patterns of arcade triggers are pressed, just like an arcade game. The full details of the super combos are secret, but details can be found on the Midi Fighter forum!

Sleep Timer

The Midi Fighter 3D can be configured to sleep after a certain period of inactivity. You can configure the sleep timer to be between 0 and 120 minutes. A setting of 0 will disable sleep. Pressing any key will wake the Midi Fighter from sleep.

Bank Buttons

When this option is enabled you will gain access to the 4 built in virtual banks. If you decide to disable it you can set the Bank Buttons behaviour to either hold or toggle.

Bank Side Buttons

The 6 side buttons are fixed and send the same notes regardless of which bank is selected unless this option is enabled.

Animations

The animations section allows you to configure the various global animations settings for the Midi Fighter 3D display.

Spark

Spark enables an animation where a burst of sparks shoot across the display with each press of an arcade trigger.



Button Pitch

Enables an animation that displays the position of Button Rotation or Pitch.

Edge Tilt

Enables an animation that gives proper feedback for the position of all tilt motion messages.

Motion

All customisation and sensitivity parameters can be tweaked in this section of the Midi Fighter Utility.

Pickup Sensitivity

The 3D sends an independent message when the device is lifted from a surface, this setting gives you control over the sensitivity of it with a range of 0-127. If you want to turn off this feature completely set the sensitivity to 0.

Rotation

Displays and selects the active rotation mode. Options available are: Disabled, Absolute and Relative

Rotation Range (Deg)

Sets Rotation (Pitch) range between 0° and 90°. Higher values normally give more precise control

Tilt Directions

Toggles control over each tilt direction independently.

Join Tilt CCs

Merges the CC messages on each axis for a wider control range. X axis controls Left|Right and Y axis controls Front|Back

Tilt Dead Zone

Dead Zone moves the starting point of the motion controls to a set angle to prevent them from activating as soon as the device is moved. Range for this setting is 0°-30°

Tilt Range

Controls the overall range for the tilt motion controls. The Range available is 0°-85.

Tilt Sensitivity

Smooths out the responsiveness of the motion controls to prevent the device from picking up unwanted vibrations during operation.

Appendix 1

Bank 1 MIDI

Control	Ch	Note	Note #
LH Side Switch 1*	4	A#0	22
LH Side Switch 2*	4	A0	21
LH Side Switch 3*	4	G#0	20
RH Side Switch 1*	4	C#1	25
RH Side Switch 2*	4	C1	24
RH Side Switch 3*	4	B0	23

* Side Switch MIDI only changes with bank when the “Bank Side Button” option is enabled.

Control	Note Ch	Note	Note #	CC Ch	CC #
Arcade Button 1	3	C3	48	4	48
Arcade Button 2	3	C#3	49	4	49
Arcade Button 3	3	D3	50	4	50
Arcade Button 4	3	D#3	51	4	51
Arcade Button 5	3	G#2	44	4	44
Arcade Button 6	3	A2	45	4	45
Arcade Button 7	3	A#2	46	4	46
Arcade Button 8	3	B2	47	4	47
Arcade Button 9	3	E2	40	4	40
Arcade Button 10	3	F2	41	4	41
Arcade Button 11	3	F#2	42	4	42
Arcade Button 12	3	G2	43	4	43
Arcade Button 13	3	C2	36	4	36
Arcade Button 14	3	C#2	37	4	37
Arcade Button 15	3	D2	38	4	38
Arcade Button 16	3	D#2	39	4	39

* CC only available when Ableton Mode is active



Bank 2 MIDI

Control	Ch	Note	Note #
LH Side Switch 1*	4	E1	28
LH Side Switch 2*	4	D#1	27
LH Side Switch 3*	4	D1	26
RH Side Switch 1*	4	G1	31
RH Side Switch 2*	4	F#1	30
RH Side Switch 3*	4	F1	29

* Side Switch MIDI only changes with bank when the “Bank Side Button” option is enabled.

Control	Note Ch	Note	Note #	CC Ch	CC #
Arcade Button 1	3	E4	64	4	64
Arcade Button 2	3	F4	65	4	65
Arcade Button 3	3	F#4	66	4	66
Arcade Button 4	3	G4	67	4	67
Arcade Button 5	3	C4	60	4	60
Arcade Button 6	3	C#4	61	4	61
Arcade Button 7	3	D4	62	4	62
Arcade Button 8	3	D#4	63	4	63
Arcade Button 9	3	G#4	56	4	56
Arcade Button 10	3	A3	57	4	57
Arcade Button 11	3	A#3	58	4	58
Arcade Button 12	3	B3	59	4	59
Arcade Button 13	3	E3	52	4	52
Arcade Button 14	3	F3	53	4	53
Arcade Button 15	3	F#3	54	4	54
Arcade Button 16	3	G3	55	4	55

* CC only available when Ableton Mode is active



Bank 3 MIDI

Control	Ch	Note	Note #
LH Side Switch 1*	4	A#1	34
LH Side Switch 2*	4	A1	33
LH Side Switch 3*	4	G#1	32
RH Side Switch 1*	4	C#1	37
RH Side Switch 2*	4	C1	36
RH Side Switch 3*	4	B0	35

* Side Switch MIDI only changes with bank when the “Bank Side Button” option is enabled.

Control	Note Ch	Note	Note #	CC Ch	CC #
Arcade Button 1	3	G#5	80	4	80
Arcade Button 2	3	A5	81	4	81
Arcade Button 3	3	A#5	82	4	82
Arcade Button 4	3	B5	83	4	83
Arcade Button 5	3	E5	76	4	76
Arcade Button 6	3	F5	77	4	77
Arcade Button 7	3	F#5	78	4	78
Arcade Button 8	3	G5	79	4	79
Arcade Button 9	3	C5	72	4	72
Arcade Button 10	3	C#5	73	4	73
Arcade Button 11	3	D5	74	4	74
Arcade Button 12	3	D#5	75	4	75
Arcade Button 13	3	G#4	68	4	68
Arcade Button 14	3	A4	69	4	69
Arcade Button 15	3	A#4	70	4	70
Arcade Button 16	3	B4	71	4	71

* CC only available when Ableton Mode is active



Bank 4 MIDI

Control	Ch	Note	Note #
LH Side Switch 1*	4	E2	40
LH Side Switch 2*	4	D#2	39
LH Side Switch 3*	4	D2	38
RH Side Switch 1*	4	G2	43
RH Side Switch 2*	4	F#2	42
RH Side Switch 3*	4	F2	41

* Side Switch MIDI only changes with bank when the “Bank Side Button” option is enabled.

Control	Note Ch	Note	Note #	CC Ch	CC #
Arcade Button 1	3	C7	96	4	96
Arcade Button 2	3	C#7	97	4	97
Arcade Button 3	3	D7	98	4	98
Arcade Button 4	3	D#7	99	4	99
Arcade Button 5	3	G#6	92	4	92
Arcade Button 6	3	A6	93	4	93
Arcade Button 7	3	A#6	94	4	94
Arcade Button 8	3	B6	95	4	95
Arcade Button 9	3	E6	88	4	88
Arcade Button 10	3	F6	89	4	89
Arcade Button 11	3	F#6	90	4	90
Arcade Button 12	3	G6	91	4	91
Arcade Button 13	3	C6	84	4	84
Arcade Button 14	3	C#6	85	4	85
Arcade Button 15	3	D6	86	4	86
Arcade Button 16	3	D#6	87	4	87

* CC only available when Ableton Mode is active



Edge Tilt MIDI

Control	Ch	Primary CC	Secondary CC
Left Tilt	4	E2	40
Forwards Tilt	4	D#2	39
Right Tilt	4	D2	38
Back Tilt	4	G2	43

* Secondary CCs are only available in Traktor Mode

Button Rotation MIDI

Control	CC Ch	Bank 1	Bank 2	Bank 3	Bank 4
Arcade Button 1	5	48	64	80	96
Arcade Button 2	5	49	65	81	97
Arcade Button 3	5	50	66	82	98
Arcade Button 4	5	51	67	83	99
Arcade Button 5	5	44	60	76	92
Arcade Button 6	5	45	61	77	93
Arcade Button 7	5	46	62	78	94
Arcade Button 8	5	47	63	79	95
Arcade Button 9	5	40	56	72	88
Arcade Button 10	5	41	57	73	89
Arcade Button 11	5	42	58	74	90
Arcade Button 12	5	43	59	75	91
Arcade Button 13	5	36	52	68	84
Arcade Button 14	5	37	53	69	85
Arcade Button 15	5	38	54	70	86
Arcade Button 16	5	39	55	71	87



Appendix 2

Animation Settings

Velocity / CC Value	Animation	Setting
0 - 17	None	-
18 - 33	Brightness	Level 0 - 15
34	Gate	Toggles every 16 beats
35	Gate	Toggles every 8 beats
36	Gate	Toggles every 4 beats
37	Gate	Toggles every 2 beats
38	Gate	Toggles every beat
39	Gate	Toggles every 1/2 beat
40	Gate	Toggles every 1/4 beat
41	Gate	Toggles every 1/8 beat
42	Pulse	Pulses every 32 beats
43	Pulse	Pulses every 16 beats
44	Pulse	Pulses every 8 beats
45	Pulse	Pulses every 4 beats
46	Pulse	Pulses every 2 beats
47	Pulse	Pulses every beat
48	Pulse	Pulses every 1/2 beat
49	Pulse	Pulses every 1/8 beat
50 - 127	None	-

Note: Animations are sent on the same Note as the buttons but on Ch.4 (e.g. Animations for the top left arcade button and button on Bank 1 are sent to Note C3 Ch4)

