QuNeo

Multi-Touch Pad Controller

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INSTRUMENTS

QuNeo Reference Manual

QuNeo Version 1.01
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Welcome

QuNeo is a 3D multi-touch pad controller. QuNeo is a different species of pad controller for electronic musicians, DJs, VJs and DIY hackers. While it covers all of the functionality of other pad controllers, QuNeo adds the power of touch recognition in multiple dimensions.

Each of the 27 pads, sliders and rotary sensors are pressure, velocity, and location sensitive. The 17 buttons also respond to pressure and velocity. The 16 square pads provide 128 levels of velocity response, X-Y location, and continuous pressure for each pad. Each rotary sensor measures direction, pressure and location.

QuNeo is the size of an iPad and can fit in iPad accessories such as mic clips, stands and more. QuNeo works with USB, MIDI or OSC and will communicate with your favorite music software environments right out of the box.

In this manual you will find detailed information to help answer all of your questions about QuNeo hardware and software.

Questions or Feedback? Contact Us!

If at any time you have any questions, please contact us:

Web: www.keithmcmillen.com
Forum: forum.keithmcmillen.com
Support: http://www.keithmcmillen.com/support

What's in the QuNeo Package

When you open up the box you should find:
- (1) QuNeo
- (1) USB A-to-Micro cable (1 meter)
- (1) QuNeo QuickStart Document

QuNeo Hardware

Dimensions: 9.5" x 7.3" x .3" (inches). The pads are about 1.2" x 1.2".
Weight: 14 oz.

There are no user serviceable parts inside QuNeo. Attempts to open the enclosure will void the warranty.

USB Port
QuNeo is connected to a computer and powered by USB. It is a class compliant USB device and does not require a driver. This allows for maximum compatibility with an extremely wide range of other devices.

MIDI Expander (optional)
Connect QuNeo to our KMI MIDI Expander (sold separately) to control MIDI hardware without a computer. Power is supplied to QuNeo from the MIDI Expander's power port when the MIDI Expander is plugged into a power outlet.

LEDs
LEDs provide the visual feedback needed for intuitive control over the QuNeo. Contained within QuNeo are 251 LEDs with 16 different levels of brightness. The 16 square pads provide an option of red and green on each corner, giving you 128 LEDs at your disposal on just the pads alone. Local or Remote LED control is available. In Local, the action on sensors will determine the LED behavior. In Remote, note or CC data input will determine LED behavior. Local and Remote LED Control can be used simultaneously. See the QuNeo LED Behavior chapter for more information.

Connecting QuNeo

Connect QuNeo to a computer
This image shows QuNeo set up to send MIDI data to a computer.

Use a USB A-to-Micro cable to connect the QuNeo micro port to a USB port on a computer. QuNeo will receive power from the computer.
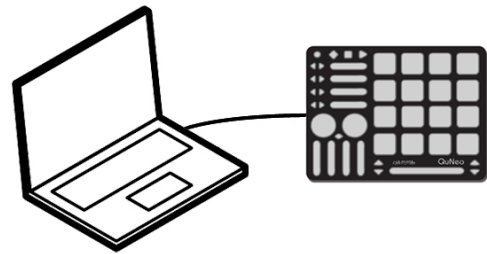
Connect QuNeo to MIDI hardware
The image to the right shows QuNeo connected to a hardware synth via our MIDI Expander (sold separately):
1. Use a USB A-to-Micro cable to connect the QuNeo micro port to the USB "Expand" port on the MIDI Expander.
2. Connect the power supply to the MIDI Expander USB "Power" port.
3. Connect the MIDI Out on the Expander to the MIDI In on a synth or other hardware device.
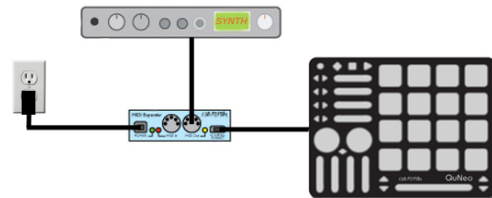
Connect QuNeo to an iPad
The image to the right shows QuNeo connected to an iPad using the QuNeo Remote Power Kit (sold separately through our online store: http://store.keithmcmillen.com/). This includes a Y USB cable and a power supply. You will also need the iPad Camera Connection Kit (sold by Apple: http://store.apple.com/us/product/MC531ZM/A).
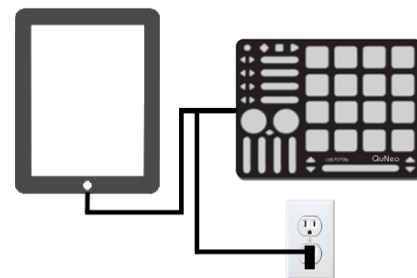
MIDI Expander

The KMI MIDI Expander is an optional accessory which enables use of QuNeo with hardware MIDI devices. Plug MIDI devices into the MIDI Out port and QuNeo will send MIDI data through a regular 5 pin MIDI cable.

Dimensions: 4" x 1.25" x 1.25"
Weight: 2.5 oz

QuNeo Data Sources and Sensor Output

There are many useful types of sensors that can be found on the QuNeo:
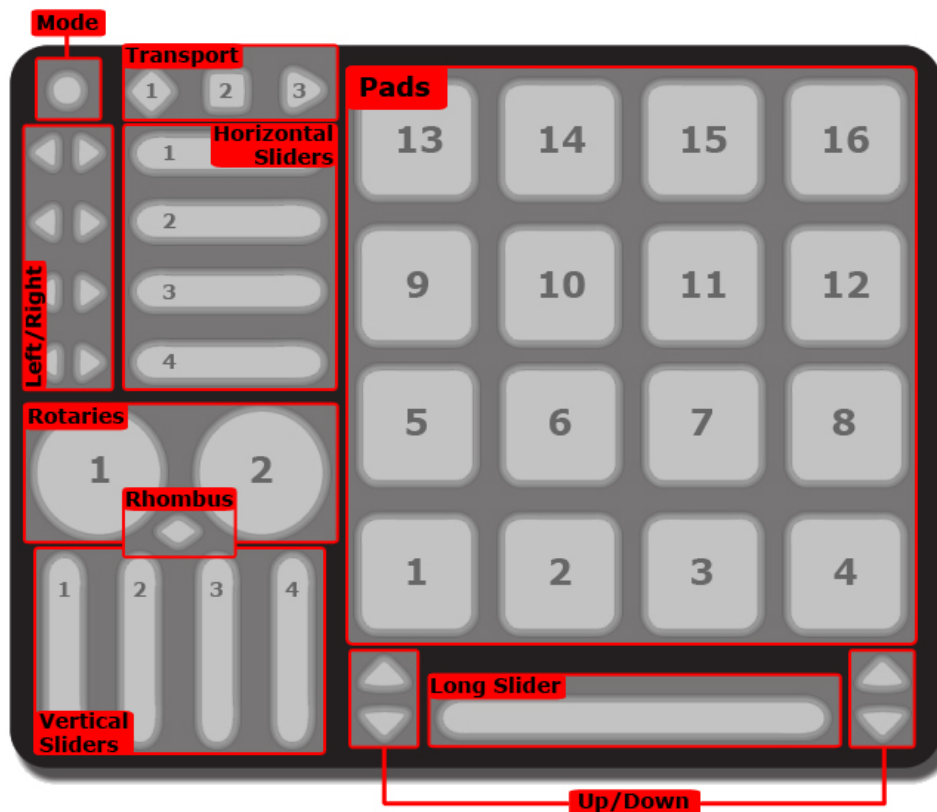
Pads (16)   Horizontal Sliders (4)   Vertical Sliders (4)
Long Slider (1)   Rotaries (2)   Transport Buttons (3)
Left/Right Buttons (4)   Up/Down Buttons (2)   Rhombus Button (1)
Mode Button (1)

Each sensor type has the ability to send out multiple MIDI messages at once for several different kinds of sources.

Here is a list of exactly what kinds of sources are available in each of the sensor types:

Source Definitions

Note - Tapping on the sensor causes 1 note to output along with a velocity value relative to how hard it is hit. Velocity sensitivity can be turned off if unwanted.

Pressure - Pressing on the sensor will cause the pressure CC# value to output from low to high (soft to hard).

X-Axis (horizontal/side to side) - Pads only. Moving a finger from side to side across the surface of a pad will cause the X-Axis CC# value to output going from low to high (left to right).

Y-Axis (vertical/top to bottom) - Pads only. Moving a finger up and down across the surface of a pad will cause the Y-Axis CC# value to output going from low to high (bottom to top).

> **Tip**: It is possible to set the X and Y Axis to either latch where you left it or return to a value. When an X/Y Return value is set the X and Y Axis CC values will always go back to that number when the pad is released. The Factory Preset Guides detail which presets are set to latch and which use a return value.

Location - Pressing down and moving a finger along a slider or rotary will cause the location CC# value to output going from low to high (left to right or bottom to top).

> **Tip**: The Location source on the Rotaries use a variation of Pass Thru Mode. Pass Thru Mode is normally when MIDI will not be sent until you pass through the value the rotary was left at. Our Pass Thru Width parameter sets a range of pass through values. **Example**: If Pass Thru Width is set to 10 and the slider was left at 40, you would have to press somewhere between 30 and 50 to pick back up and output location data. If set to 127, you can hit anywhere on the slider or rotary. The Factory Preset Guides detail what the Pass Thru Width is for each preset.

Width - pressing with two fingers on the Long Slider sends a width CC# value that represents the distance between the two fingers. The wider the gap, the higher the value. When the second finger leaves the slider, the width will not change again until the second finger returns to the slider.

Direction - Moving a finger around a rotary will cause the direction CC# value to output. If finger movement is clockwise, the CC# will repetitively send out a 127. If finger movement is counterclockwise, the CC# will repetitively send out a 0. The faster a finger is moved, the faster the repeated value will output.

The list below will detail which sources can be used for each sensor type and how they are implemented.

- **Pads** - The Pads will work differently depending on whether they are in **Drum Mode** or **Grid Mode**. The Factory Preset Guides detail which presets use Drum or Grid Mode and if both are utilized within one preset.

  > **Drum Mode** - Pad sources in Drum Mode include Note, Pressure, X-Axis, and Y-Axis.

  > **Grid Mode** - While in Grid Mode, note and pressure are available in the corner of each pad (if enabled within the given preset). X and Y are not available in grid mode. To the right is an example of how a Pad might be set up in Grid Mode. In this example each corner has a note and pressure CC#.

  > **Hint**: Throughout the QuNeo documentation note names are used to show where notes are on and what they are set to. QuNeo treats C3 = Note #60. In the image to the right the note numbers correspond to the pressure CC#s.

- **Horizontal and Vertical Sliders** - If enabled in a preset, Horizontal and Vertical Sliders use Note, Pressure, and Location. They can also be set up to have **banks**. See the [Banks](#) chapter for more information.

- **Long Slider** - If enabled within a preset, the Long Slider uses Note, Pressure, Location, and Width. The Long Slider can also be set up to have **banks**. See the [Banks](#) chapter for more information.

- **Rotaries** - If enabled within a preset, the Rotaries use Note, Pressure, Location, and Direction. Location and Direction may not be enabled simultaneously. The Rotaries can also be set up to have **banks**. See the [Banks](#) chapter for more information.

- **Transport Buttons** - There are 3 buttons intended for transport control: the diamond button for record, the square button for stop, and the sideways triangle for play. If enabled within a preset, Transport Buttons use Note and Pressure.

- **Left/Right and Up/Down Buttons** - While bank switching is disabled, Left/Right and Up/Down Buttons use Note and Pressure. The Left/Right and Up/Down arrow buttons can be used either as bank switches, or as programmable MIDI buttons. See the [Banks](#) chapter for more information.

- **Rhombus Button** - While bank switching is disabled, the Rhombus button uses Note and Pressure. The Rhombus button can be used either as a bank switch, or a programmable MIDI button. See the [Banks](#) chapter for more information.

Consult the [Factory Preset Guides](#) to determine which of the sources for each sensor are enabled in a given preset.

Banks

Banks can be used for the sliders and rotaries if enabled. If banks are enabled for the sliders or rotaries, a different note, pressure CC#, and location CC# can be assigned for each bank so that each slider or rotary can control 4 different things. These banks will be selectable using either the Left/Right Buttons, the Up/Down Buttons, or the Rhombus Button.

The presets determine whether the sliders and rotaries have banks enabled and which buttons are assigned as bank switches. Consult the [Factory Preset Guides](#) for this information.

The **Horizontal Slider** banks are controlled individually by their neighboring **Left/Right arrow buttons**. The images below show how the Horizontal Slider banks are indicated with the Left/Right Button LEDs:

Bank 1 - no LEDs	Bank 2 - left LED only	Bank 3 - right LED only	Bank 4 - both LEDs
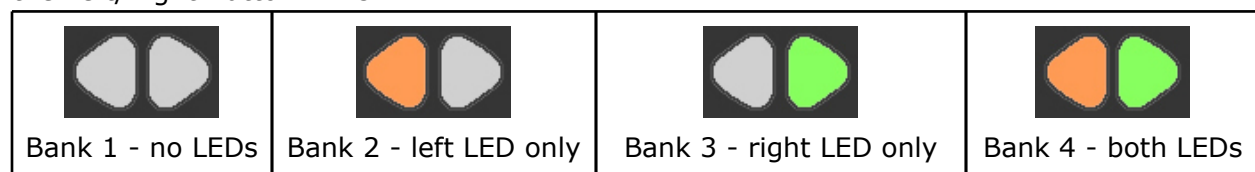
In our presets, the **Vertical Slider** banks are all controlled using the nearest **Up/Down Button** pair. The **Long Slider** banks are controlled using the **Up/Down Button** pair on the right side of the Long Slider. The images below show how the Vertical and Long Slider banks are indicated with the Up/Down Button LEDs:

Bank 1 - no LEDs	Bank 2 - top LED only	Bank 3 - bottom LED only	Bank 4 - both LEDs

In our presets, the **Rotary** banks are both controlled using the **Rhombus** Button. The images below show how the Rotary banks are indicated with the Rhombus Button LEDs:

Bank 1 - no LEDs	Bank 2 - only the green LED is on	Bank 3 - both red and green are on to make orange	Bank 4 - only the red LED is on

Using the QuNeo Editor, the bank controls for the Vertical Sliders, the Long Slider, and the Rotaries can be chosen. Both Up/Down Button Pairs and the Rhombus Button can be assigned to one of these sensors if editing presets in the Editor. See the QuNeo Editor chapter for more information about editing presets.

The Mode Button

The Mode button is a small circular button that can be found in the upper left corner of the QuNeo. When illuminated, the button is blue. The Mode button serves as the gateway to selecting presets and entering CoMA mode (our Controller Mapping Assistant).

Selecting Presets

After plugging in the QuNeo, it will automatically load the last preset you used. The first time, it will load Preset 1.

To enter preset mode, quickly tap the Mode button so that it begins to flash blue.

13	14	15	16
9	10	11	12
5	6	7	8
1	2	3	4
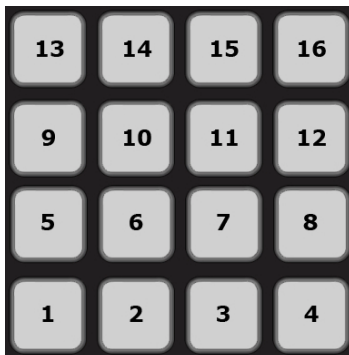
After entering Preset mode, the pad for the current preset will be illuminated in red. Select a preset by pressing one of the pads. The selected pad will briefly blink green and QuNeo will exit Preset mode and go to the selected preset.

The image to the left shows how the pads are numbered and which pad to select for which preset number.

Tapping the Mode button again will put QuNeo back into Preset mode at any time.

For detailed information about the factory presets, see the Factory Preset Guides chapter of this manual.

CoMA Mode

Many DAWs and performance software tools like Ableton Live and Apple's Logic have MIDI Mapping modes that will recognize MIDI data from a controller and map it to whatever you choose. Since the QuNeo can have multiple data sources for one control, it is useful to use the Controller Mapping Assistant (CoMA). CoMA mode allows quick mapping of each available data source one at a time, allowing for rapid and efficient software/controller pairings.

Here is an **example** of how to use CoMA mode to map the Y-Axis data from a pad on QuNeo in Ableton Live:

1. Enable MIDI Mapping mode in Ableton Live by clicking the MIDI button at the top right-hand corner. Select the control you'd like to have QuNeo control in Live.
2. Put QuNeo into CoMA mode by holding down blue Mode button in the upper left-hand corner for 1 second. All the LEDs will flash and the blue mode LED will turn on (and stay on), showing that you have successfully entered CoMA mode.
3. Pick the pad you'd like to map to Live and press the bottom right (south-east) corner of the pad. The SE corner is designated to send out the CC# for the Y-Axis.
4. Repeat step 3 for any other pads you wish to map.
5. Exit CoMA mode by pressing the Mode button again.
6. Take Live out of MIDI Map mode and try out your new mapping by pressing and sliding your finger from top to bottom (the Y-Axis) of the pad you mapped.

CoMA Mode Mapping Guide

To enter CoMA Mode using the Mode Button, hold down on the Mode Button for 1 second until all the LEDs flash. When in CoMA mode it is necessary to be familiar with how each data source from QuNeo is mapped. Here is how to do this for each sensor type:

- **Pads** -
  - When in **Drum Mode** each corner outputs a different data source. Pressing the NW (North-West) corner outputs the Note, the NE corner outputs the Pressure CC#, the SW corner outputs the X-Axis CC#, and the SE corner outputs the Y-Axis CC#.
    - For your convenience the red LEDs for each corner will illuminate after the note or CC# is sent out.

    When Pads are in **Grid Mode** a Note and Pressure CC# are in each corner. Quickly tap the corner to output the Note. Press and hold for 1 second to output the Pressure CC#.
    - A red LED will illuminate for each Note sent out and a green LED will illuminate for each Pressure CC#.
- **Sliders** - to output the Note quickly tap the slider, press and hold for 1 second to output the Pressure CC#, and press and drag a finger to output the Location CC#. To output the Width CC# for the Long Slider press and hold with 2 fingers.

    The red LEDs will illuminate when the Note is sent out, the green LEDs will illuminate for the Pressure CC#, and the yellow LEDs will illuminate for the Location CC#. The blue LED on the Long Slider will illuminate when the Width CC# is sent out.
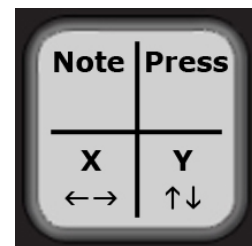
- **Rotaries** -

  Note - Press and hold the rotary in the top left sector.
  - ■ The LEDs in the top left will illuminate as soon as the note is sent out. (As shown in image to the right).
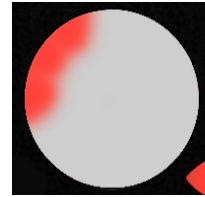
  Pressure CC# - Press and hold the rotary in the top right sector.
  - ■ The LEDs in the top right will illuminate. (As shown in image to the right).
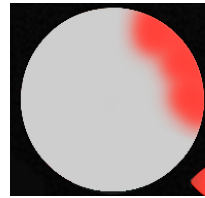
  Location CC# or Direction CC# - Press and hold the bottom sector of the rotary.
  - ■ The LEDs along the bottom will illuminate. (As shown in image to the right).
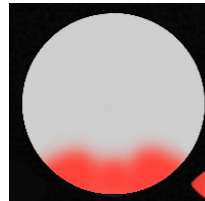
- **Buttons** - To output the Note quickly tap the button. Press and hold for 1 second to output the Pressure CC#. If buttons are assigned to bank switching they will not output their own data in CoMA mode, but instead control the banks for the Sliders or Rotaries they are assigned to. Use the bank buttons to shift through banks, then map the MIDI data for each of the Slider or Rotary banks.

Tip: Before using CoMA mode to map presets, consult the Factory Preset Guides to check whether the Pads are in Grid Mode or Drum Mode for the preset you are mapping. Pad mapping works differently for Drum and Grid mode. Also check which data sources are enabled. There may be presets with Notes or Pressure turned off. When data sources are turned off, they will not output in CoMA mode.

Factory Preset Guides

Notes about the Preset Guide images:
- If a data source is not accounted for in the preset guide image, this means it is disabled. For Example: If one of the Pads only shows note names and not pressure CC#s, assume that the pressure data is turned off and will not output as MIDI data, even in CoMA mode.

MIDI Output

Preset 1: (Drum C1-D#2 / Serato)
Preset 2: (Drum E2-G3)
Preset 3: (Drum G#3-B4)
Preset 4: (Drum C5-D#6)
Presets 1-4 are the same except the pad notes increment up as the preset # increases. So the pad notes on preset 1 are shown below from C1-D#2, preset 2 are from E2-G3, preset 3 are from G#3-B4, and preset 4 are from C5-D#6.

These presets are in Drum Mode and don't use banks. Rotaries are set to use Direction instead of Location. Pass Thru Widths for the rotaries are set to 127. The Pad X/Y Return values are set to 63. Velocity response is enabled for all notes on the Pads; velocity is fixed at 127 for notes on other sensors.
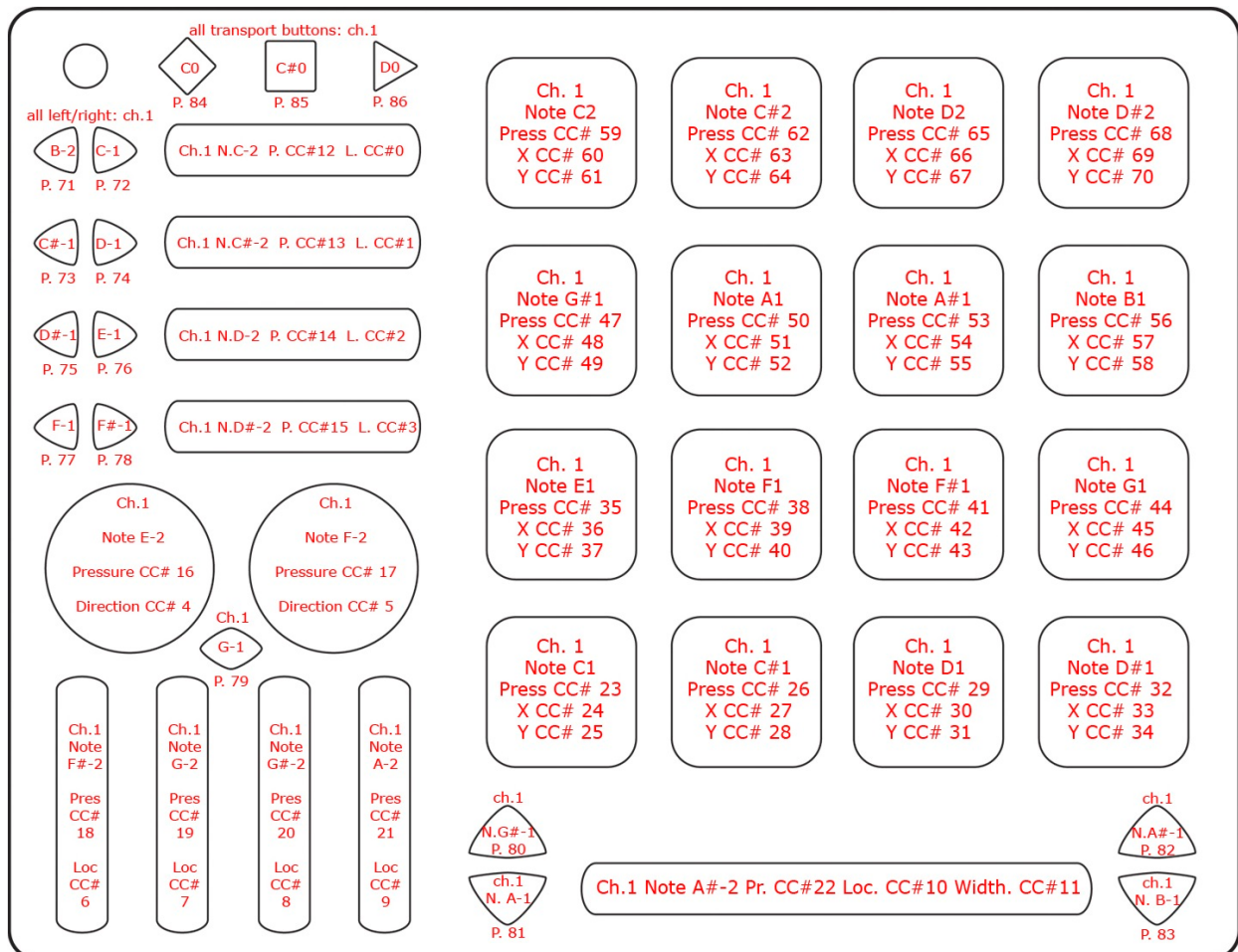
Our Serato Template uses Presets 1-3 and is included in the QuNeo Software Installer.

Scratch Live (Serato) Mappings for Preset 1, 2, & 3:

Global:

1. LOAD Deck 1 - loads the selected track from the main track library or crate to Deck 1

2. LOAD Deck 2 - loads the selected track from the main track library or crate to Deck 2

3. Track Library Browse - Browse Up and Down a crate or the main Track Library.

A. Left Deck - Represents Deck 1

B. Right Deck - Represents Deck 2

QuNeo Preset 1:
A1/B1 - Trigger Cue Point 1
A2/B2 - Trigger Cue Point 2
A3/B3 - Trigger Cue Point 3
A4/B4 - Trigger Cue Point 4
A5/B5 - Play
A6/B6 - Loop In
A7/B7 - Loop Out
A8/B8 - Loop On/Off
A9/B9 - DJ/FX Select
A10/B10 - DJ/FX Amount

SERATO CUE / LOOP PAGE - PRESET 1

SERATO SET CUE POINTS - PRESET 2
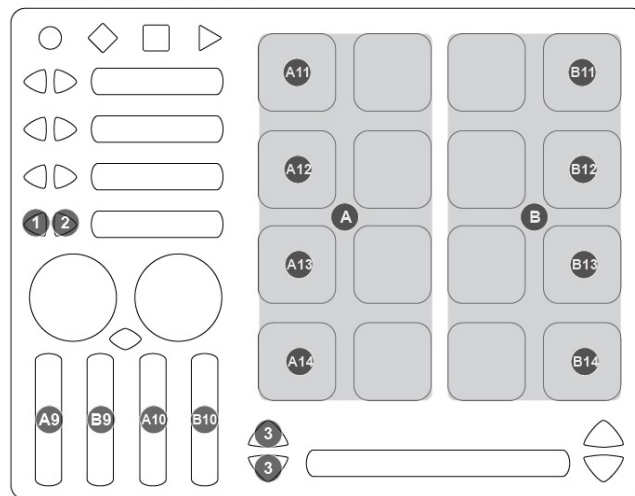
QuNeo Preset 2:
A11/B11 - Set Cue Point 1
A12/B12 - Set Cue Point 2
A13/B13 - Set Cue Point 3
A14/B14 - Set Cue Point 4

SERATO DJ-FX PAGE - PRESET 3
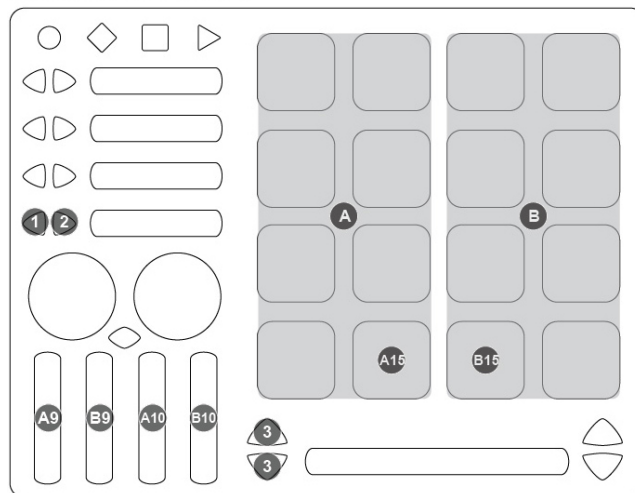
QuNeo Preset 3:
A15/B15 - DJ/FX On/Off

For more information read the Quickstart document in the QuNeo directory's "Software Templates/Serato 1.0".

Preset 5, 6, 7, & 8 (Grid Mode):
Presets 5-8 are the same except the Pad channels increment as the preset # increases.

These presets are in Grid Mode and don't use banks. Rotaries are set to use Direction instead of Location. Pass Thru Widths for the rotaries are set to 127. Velocity response is fixed at 127 for all notes.

all transport buttons: ch.1

all pads on channel 2

C0	C#0	D0
P. 84	P. 85	P. 86

all left/right: ch.1

B-2 C-1   Ch.1 N.C-2 P. CC#12 L. CC#0
P. 71 P. 72

C#-1 D-1   Ch.1 N.C#-2 P. CC#13 L. CC#1
P. 73 P. 74

D#-1 E-1   Ch.1 N.D-2 P. CC#14 L. CC#2
P. 75 P. 76

F-1 F#-1   Ch.1 N.D#-2 P. CC#15 L. CC#3
P. 77 P. 78

Ch.1 Note E-2 Pressure CC# 16 Direction CC# 4

Ch.1 Note F-2 Pressure CC# 17 Direction CC# 5

Ch.1 G-1 P. 79

Ch.1 Note F#-2 Pres CC# 18 Loc CC# 6	Ch.1 Note G-2 Pres CC# 19 Loc CC# 7	Ch.1 Note G#-2 Pres CC# 20 Loc CC# 8	Ch.1 Note A-2 Pres CC# 21 Loc CC# 9

ch.1 N.G#-1 P. 80

ch.1 N. A-1 P. 81

Ch.1 Note A#-2 Pr. CC#22 Loc. CC#10 Width. CC#11

ch.1 N.A#-1 P. 82

ch.1 N. B-1 P. 83

Pads (channel 2):

G#2 CC#56	A2 CC#57	A#2 CC#58	B2 CC#59	C3 CC#60	C#3 CC#61	D3 CC#62	D#3 CC#63
C2 CC#48	C#2 CC#49	D2 CC#50	D#2 CC#51	E2 CC#52	F2 CC#53	F#2 CC#54	G2 CC#55
E1 CC#40	F1 CC#41	F#1 CC#42	G1 CC#43	G#1 CC#44	A1 CC#45	A#1 CC#46	B1 CC#47
G#0 CC#32	A0 CC#33	A#0 CC#34	B0 CC#35	C1 CC#36	C#1 CC#37	D1 CC#38	D#1 CC#39
C0 CC#24	C#0 CC#25	D0 CC#26	D#0 CC#27	E0 CC#28	F0 CC#29	F#0 CC#30	G0 CC#31
E-1 CC#16	F-1 CC#17	F#-1 CC#18	G-1 CC#19	G#-1 CC#20	A-1 CC#21	A#-1 CC#22	B-1 CC#23
G#-2 CC#8	A-2 CC#9	A#-2 CC#10	B-2 CC#11	C-1 CC#12	C#-1 CC#13	D-1 CC#14	D#-1 CC#15
C-2 CC#0	C#-2 CC#1	D-2 CC#2	D#-2 CC#3	E-2 CC#4	F-2 CC#5	F#-2 CC#6	G-2 CC#7

Presets 9 (Ableton Live Clip Launching):

The QuNeo Ableton Live Remote Control Surface contains a variety of Modes. Modes remap the 8x8 Grid and non Global Buttons into various functions for Ableton Live. Modes include Clip Launch, Step Sequencer, and Note Mode. When the Ableton Live Remote Control Surface is loaded it initializes Mode 1 (M1 - Clip Launch Mode). The image and corresponding text below summarizes Clip Launch Mode.

M1. CLIP LAUNCH MODE

GLOBAL CONTROLS:

1. Transport Controls
2. Tempo
3. Metronome
4. MIDI Overdub
5. Track Navigation
6. Scene Navigation
7. Selected Track Send A
8. Selected Track Send B
9. Selected Track Pan
10. Selected Track Volume
11. Selected Clip Loop
12. Selected Clip Loop End
13. Volume Faders
14. Crossfader
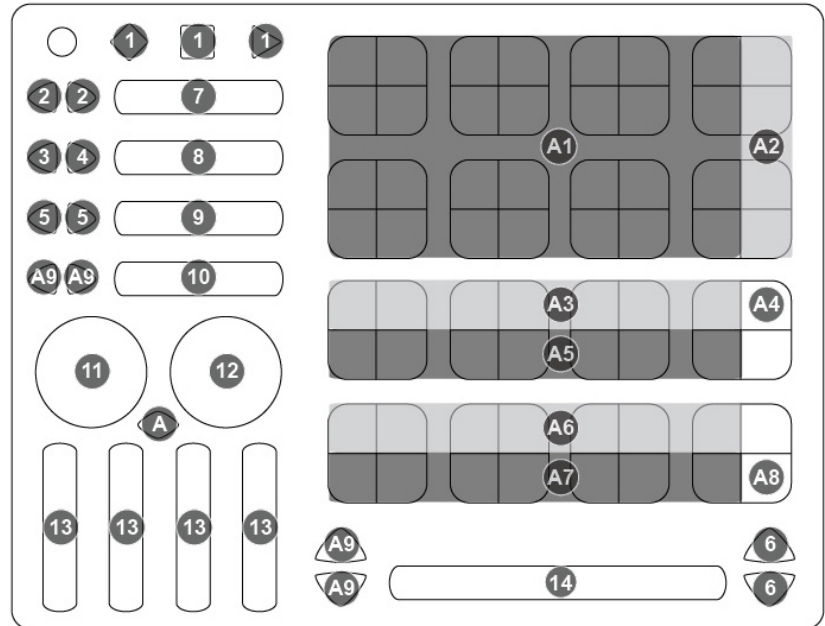
M1. CLIP LAUNCH MODE Controls:

Clip Launch Mode represents an overview of the current Ableton Live Session. Clip Launch Mode enables the QuNeo to launch clips within Ableton's clip slots and control volume parameters assigned to the first 4 volume Sliders within Ableton's highlighted red box. Other controls include: overdub - on/off, metronome - on/off, tempo - up/down, and transport functionality including: play, stop, and record.

A1. CLIP LAUNCH - These Pads launch clips within Ableton's clip slots.

A2. SCENE LAUNCH - Rows in the Session View are called scenes. All clips in a scene can be launched simultaneously by clicking the corresponding SCENE LAUNCH button in the column. These buttons trigger a row of clips within the session. A row is known as a "SCENE". When triggered, all of the clips in the selected scene will play.

A3. CLIP STOP - Push to stop the currently playing or recording clip corresponding to the correct track.

A4. STOP ALL CLIPS - Push to stop all playing and recording clips in the session.

A5. TRACK ACTIVATOR - Activate this button to hear the track, or deactivate it to mute the track.

A6. SOLO / CUE - Activate this button to solo the track, or deactivate it to unsolo the track.

A7. RECORD ARM - Active this button to Arm the track, or deactivate it to unarm the track.

A8. BANK SELECT - These allow the user to move the highlighted 7 x 4 red box around the session LEFT/RIGHT/UP/DOWN

A9. SELECTED CLIP LAUNCH - Push to launch the currently selected clip.

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This image shows what MIDI data will output for each sensor in the "Ableton Live Clip Launching" preset. In this preset the Pads use Grid Mode. This preset doesn't use banks. Rotaries are set to use Direction instead of Location. Velocity response is enabled for the Pads and fixed at 127 for the Buttons.
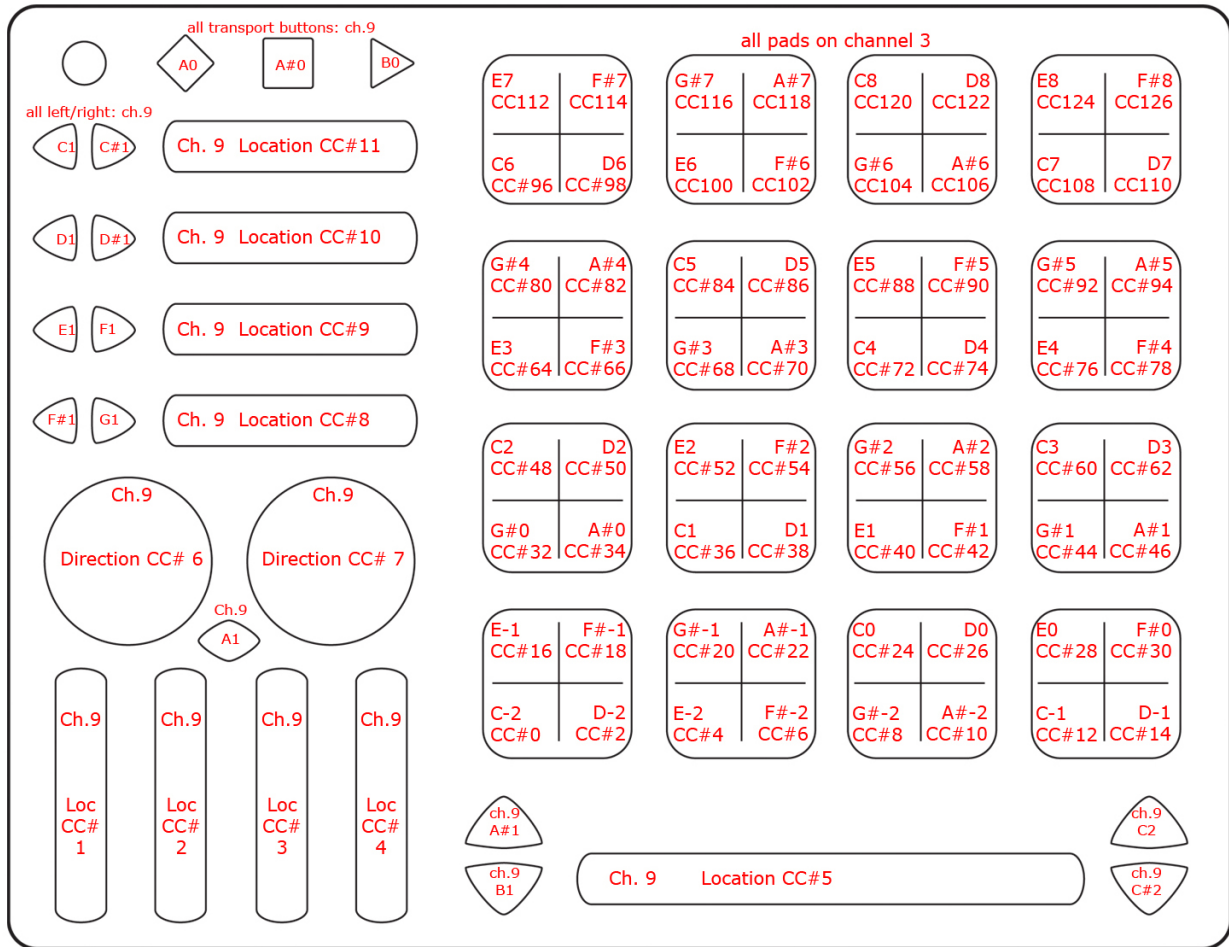

For more information about using the Ableton Live Template, read the Quickstart document in the QuNeo directory's "Software Templates/Ableton Live 1.0".

Presets 10 (Ableton Live Drum Rack):

PRESET 10 - DRUM MODE

GLOBAL CONTROLS:
1. Transport Controls
2. Tempo
3. Metronome
4. MIDI Overdub
5. Track Navigation
6. Scene Navigation
7. Selected Track Send A
8. Selected Track Send B
9. Selected Track Pan
10. Selected Track Volume
11. Selected Clip Loop
12. Selected Clip Loop End
13. Volume Faders
14. Crossfader

Preset 10
D1. Drum Rack - These Pads are Assigned to Drum Rack's C1-G8 Cell slots.
D2. Impulse - These Pads are Assigned to Impulses 8 Sample cells.

This image shows what MIDI data will output for each sensor in the "Ableton Live Drum Rack" preset. In this preset the Pads use Drum Mode. This preset doesn't use banks. Rotaries are set to use Direction instead of Location. The X/Y Return values are set to 63 on the Pads. Velocity response is enabled for the Pads and fixed at 127 for the Buttons.

all transport buttons: ch.9

A0 A#0 B0

all left/right: ch.9

C1 C#1 Ch. 9 Location CC#11

D1 D#1 Ch. 9 Location CC#10

E1 F1 Ch. 9 Location CC#9

F#1 G1 Ch. 9 Location CC#8

Ch.9 Direction CC# 6   Ch.9 Direction CC# 7

Ch.9 A1

Ch.9 Loc CC# 1   Ch.9 Loc CC# 2   Ch.9 Loc CC# 3   Ch.9 Loc CC# 4

Ch. 6 Note E1	Ch. 6 Note F1	Ch. 6 Note F#1	Ch. 6 Note G1
Ch. 6 Note C1	Ch. 6 Note C#1	Ch. 6 Note D1	Ch. 6 Note D#1
Ch. 6 Note G3	Ch. 6 Note A3	Ch. 6 Note B3	Ch. 6 Note C4
Ch. 6 Note C3	Ch. 6 Note D3	Ch. 6 Note E3	Ch. 6 Note F3

ch.9 A#1   ch.9 C2

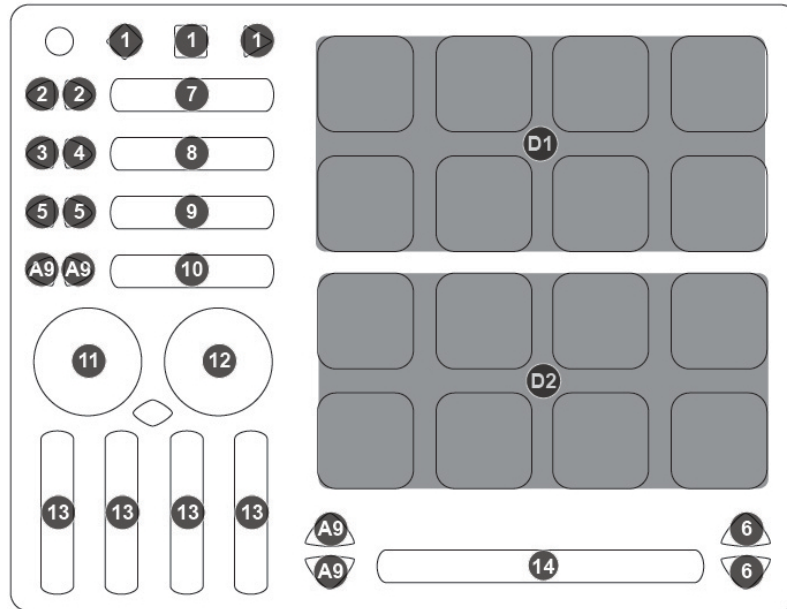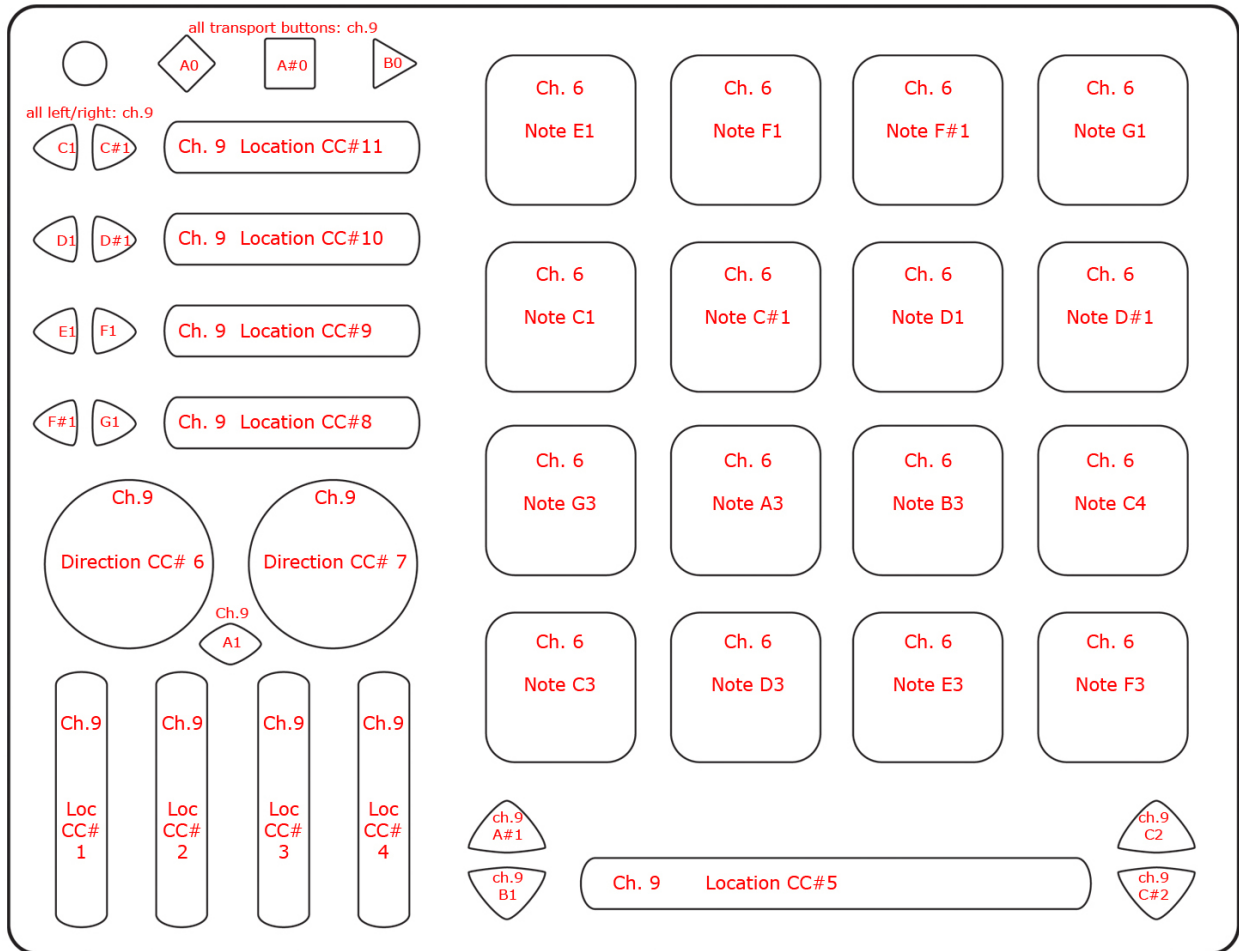ch.9 B1   Ch. 9   Location CC#5   ch.9 C#2

For more information about using the Ableton Live Template, read the Quickstart document in the QuNeo directory's "Software Templates/Ableton Live 1.0".

Preset 11 (Logic):

This turns QuNeo into a drum synth controller using the Ultrabeat software instrument that comes with Apple's Logic Pro. Below is an image showing how this preset is mapped to the Logic Template:

Sequencer and Transport Control

Rec   Stop   Play

switch track

Ultrabeat presets

unmute   unsolo
all   all

mute   solo
trk   trk

Ultrabeat Sequence Launch Toggle

Ultrabeat Drumpad Bank Switch

Mixer

Selected Trk Vol

LowPass Cutoff Freq

Delay Wet/Dry

Flanger Mix

Arrangement View

Track Select

C2	C#2	D2	D#2
G#1	A1	A#1	B1
E1	F1	F#1	G1
C1	C#1	D1	D#1
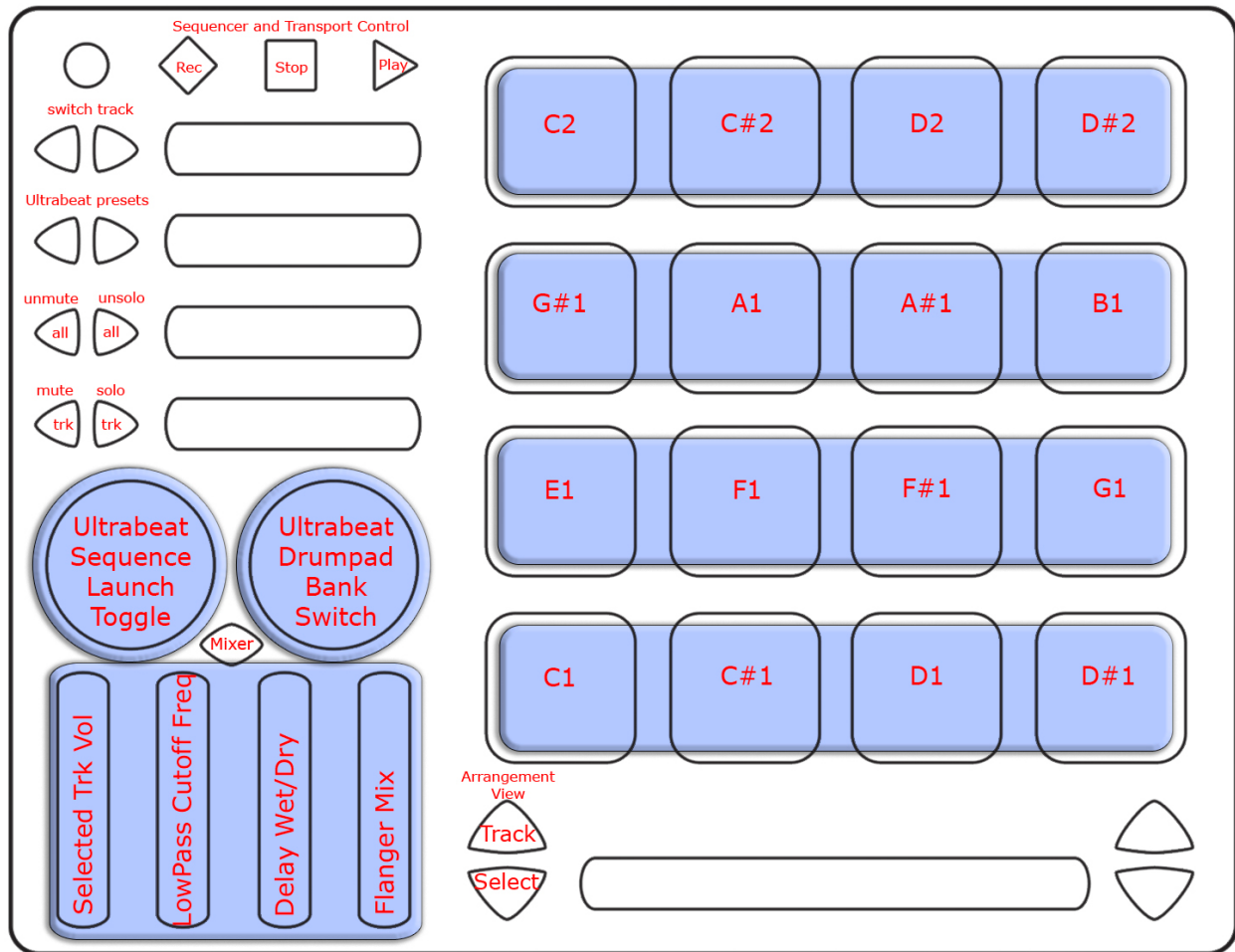
This image shows what MIDI data will output for each sensor in the "Logic" preset. The Pads are in Drum Mode. This preset doesn't use banks. Velocity response is fixed at 127 for the buttons but is responsive on the Pads.

all transport buttons: ch.1

A-2   A#-2   B-2

all left/right: ch.1

G-2   G#-2   Ch. 1 Location CC#1

F-2   F#-2   Ch. 1 Location CC#2

D#-2   E-2   Ch. 1 Location CC#3

C#-2   D-2   Ch. 1 Location CC#4

Ch.1   Ch.1
Note A#0   Note B0

Ch.2
F-2

| Ch.1 | Ch.1 | Ch.1 | Ch.1 |
| Loc CC# 7 | Loc CC# 8 | Loc CC# 9 | Loc CC# 10 |

ch.2 C-2

ch.2 C#-2   Ch. 1 Location CC#5   Width CC#6

OFF

OFF

Ch. 1 Note C2	Ch. 1 Note C#2	Ch. 1 Note D2	Ch. 1 Note D#2
Ch. 1 Note G#1	Ch. 1 Note A1	Ch. 1 Note A#1	Ch. 1 Note B1
Ch. 1 Note E1	Ch. 1 Note F1	Ch. 1 Note F#1	Ch. 1 Note G1
Ch. 1 Note C1	Ch. 1 Note C#1	Ch. 1 Note D1	Ch. 1 Note D#1

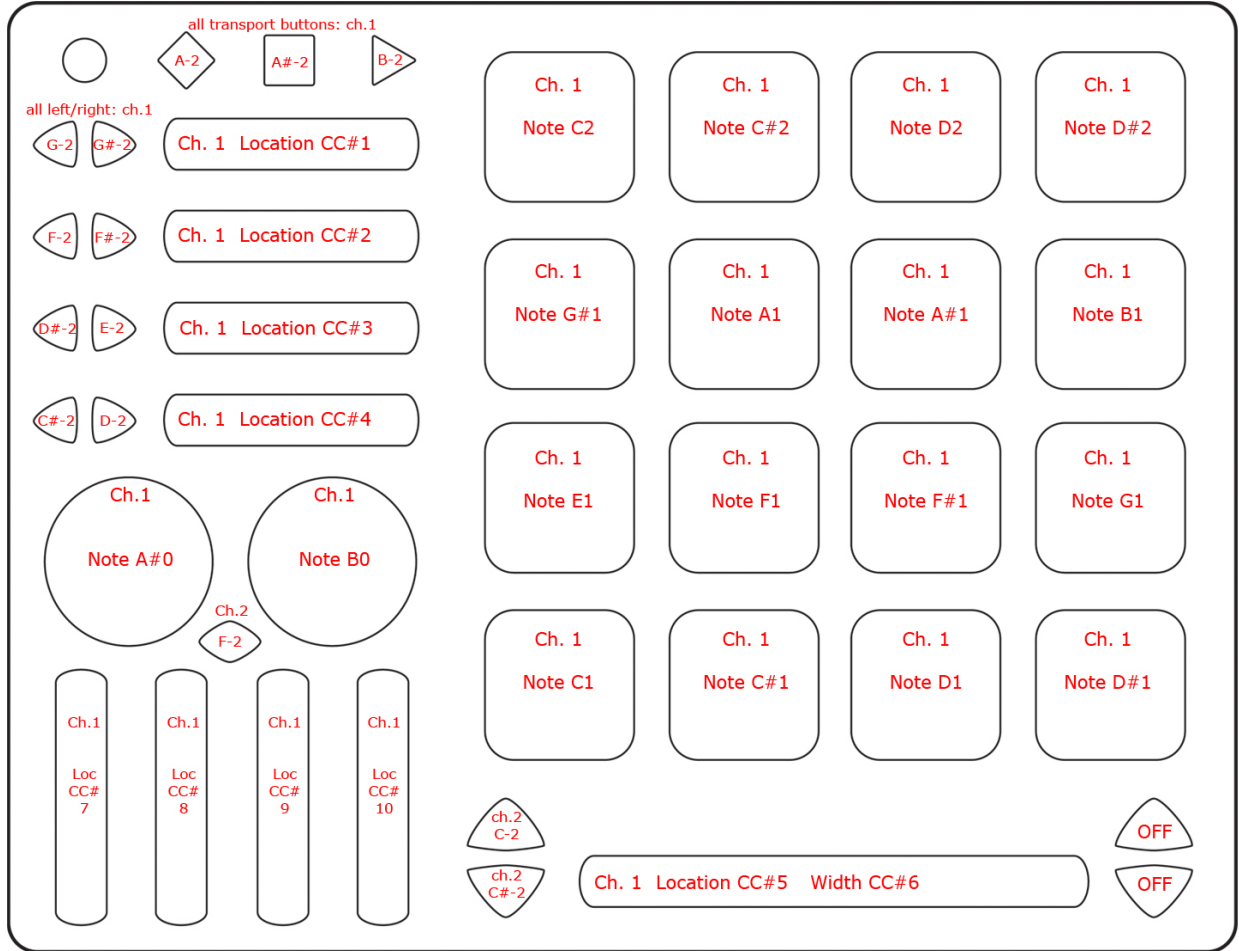For more information about using the Logic Template read the Quickstart document in the QuNeo directory's "Software Templates/Logic 1.0".
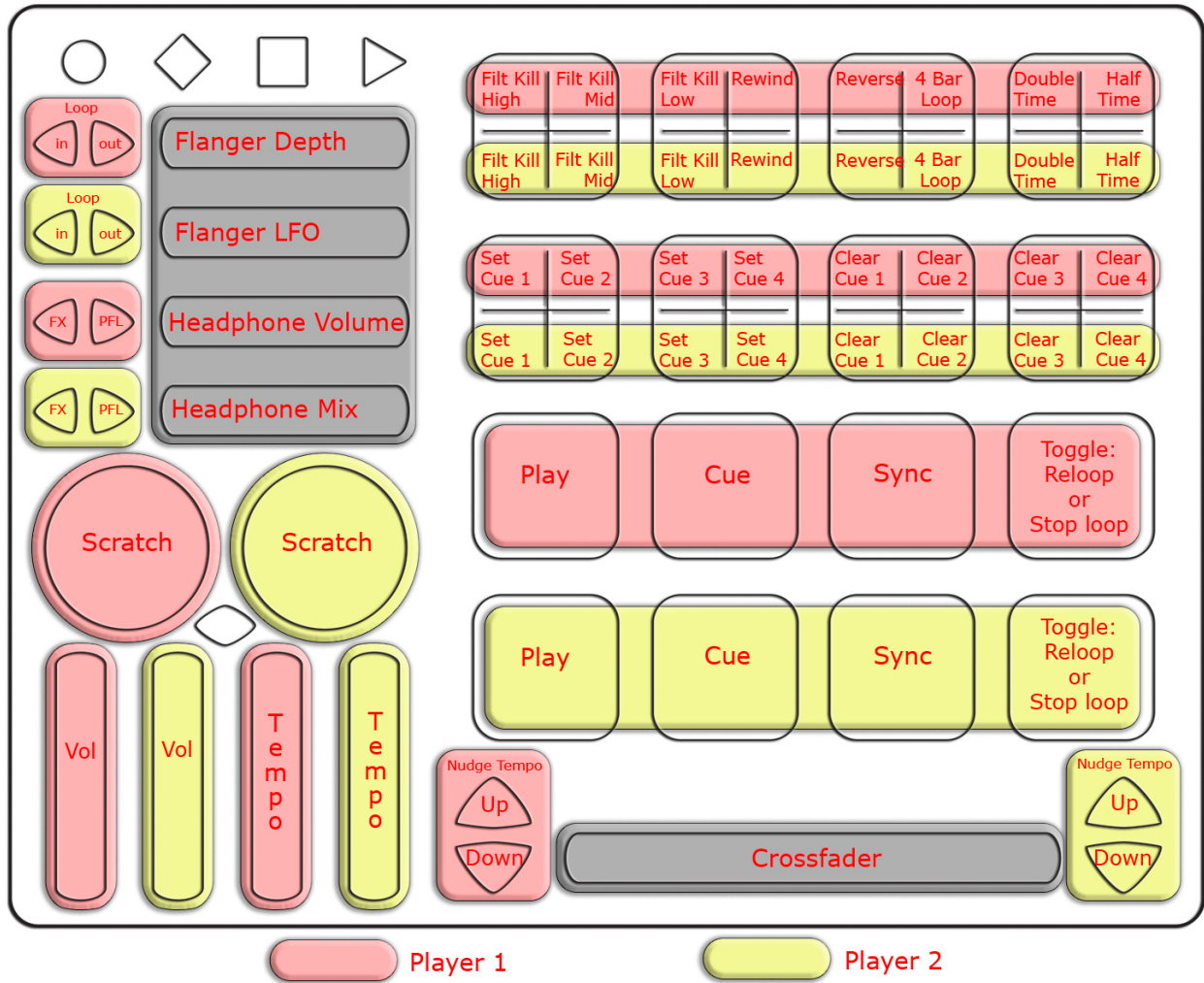
Preset 12 (Traktor - DJ / Mixxx):

The Traktor DJ Preset turns QuNeo into a full fledged DJ controller for Native Instruments' Traktor. This preset is designed with a more traditional approach to digital DJing in mind, with play, sync, cue, monitor, fx, filter, loop points, cue points, crossfading, deck control, and various volume controls accessible from QuNeo. In addition, this preset takes advantage of the modifier functions, creating a Shift button on QuNeo that allows for sample playback, extended mixing, and more in depth FX control.

The image below shows what each sensor controls in our Traktor DJ Template (included in the QuNeo Software Installer):
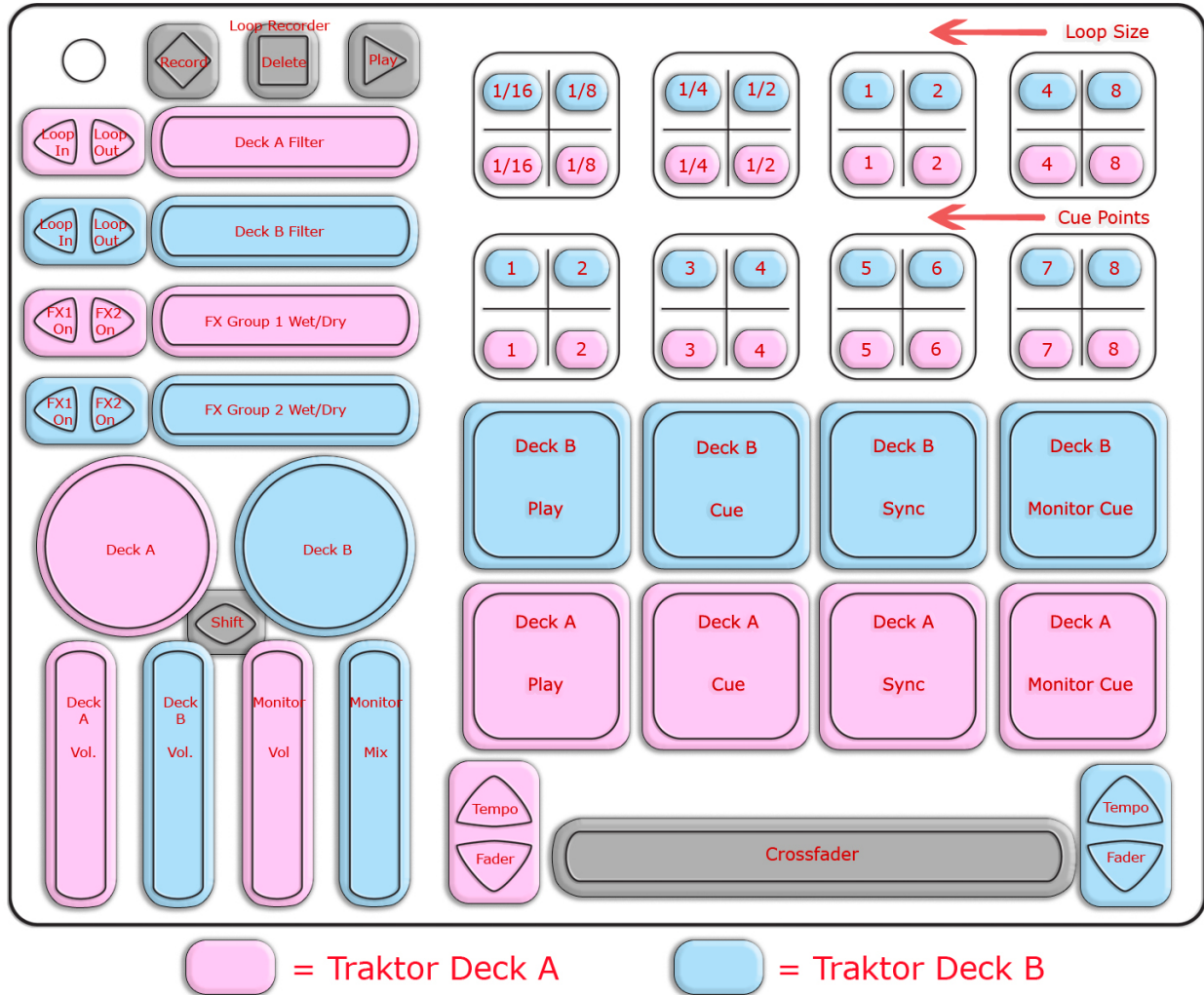
This preset turns QuNeo into a full fledged DJ controller using Mixxx as well. It includes controls for 2 players: play, sync, cue, tempo controls, crossfading, scratching, and various volume controls accessible from QuNeo.

The image below shows what each sensor controls in our Mixxx Template (included in the QuNeo Software Installer):

This image shows what MIDI data will output for each sensor in the "Traktor - DJ / Mixxx" preset. The top 2 rows of Pads are in Grid Mode and the bottom 2 rows of Pads are in Drum Mode. This preset doesn't use banks. Rotaries are set to use Direction instead of Location. Velocity response is fixed at 127 for all notes.
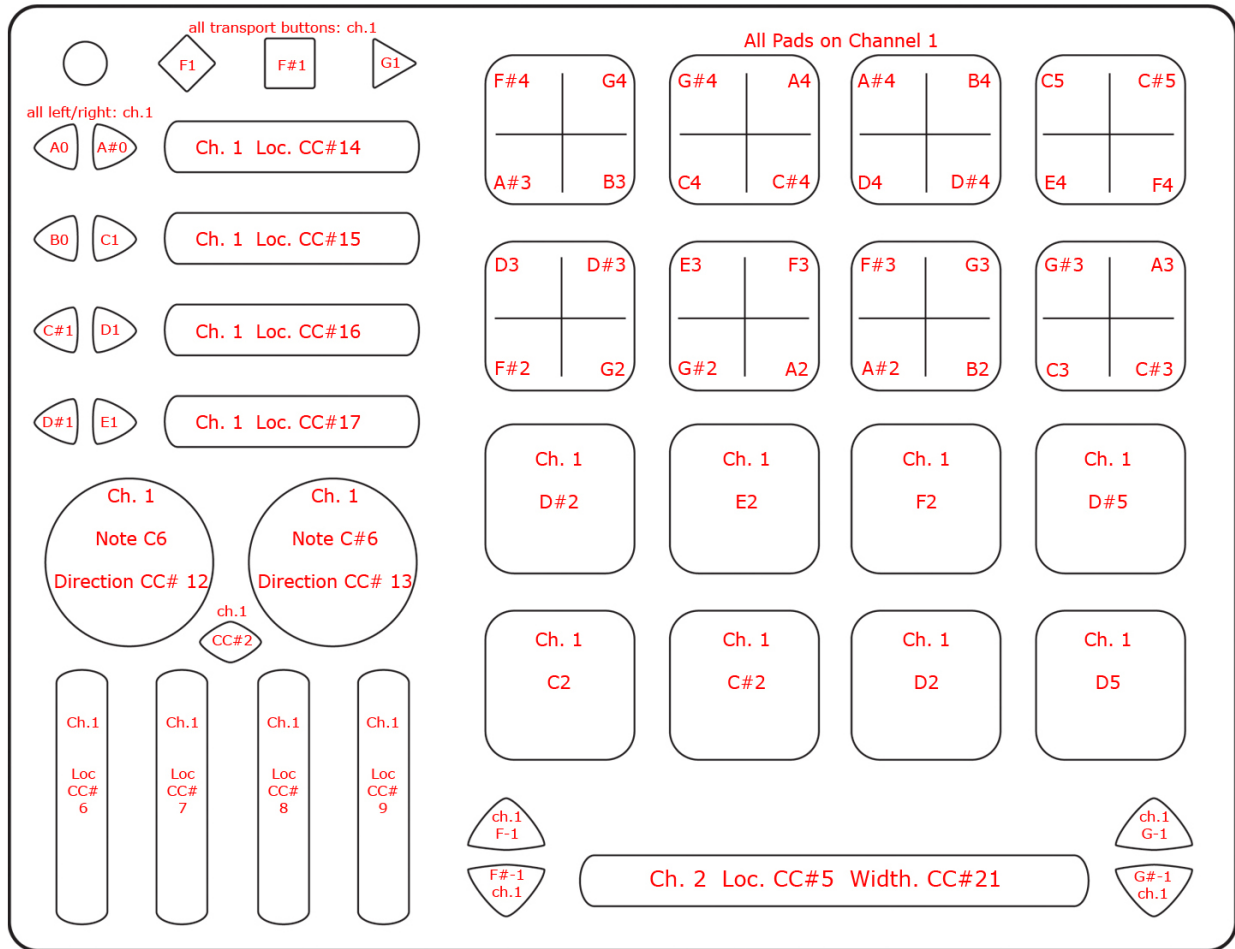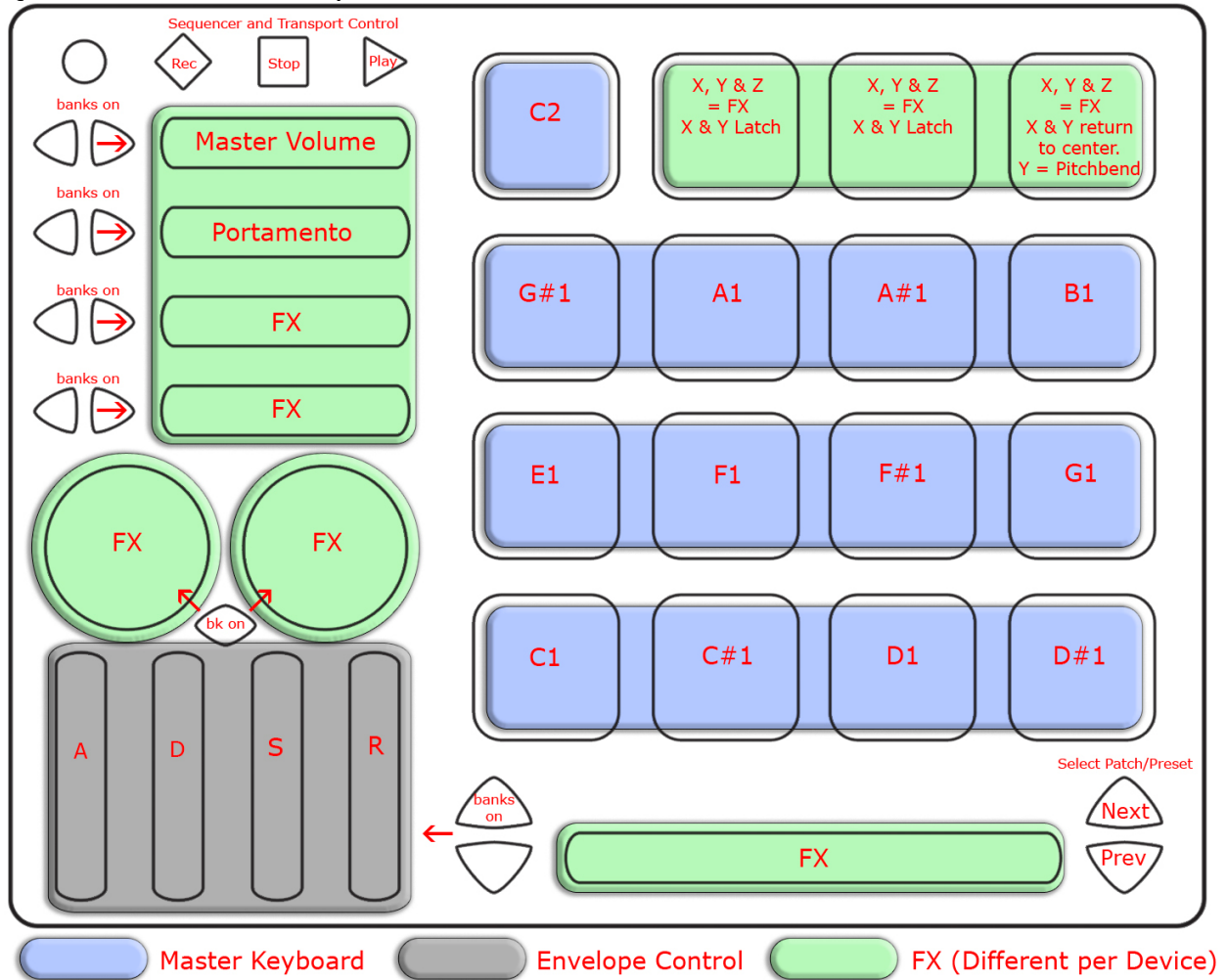

For more information about using the Traktor or the Mixxx Template read their Quickstart documents in the QuNeo directory's "Software Templates/Traktor 1.0" and "Software Templates/Mixxx 1.0" folders.
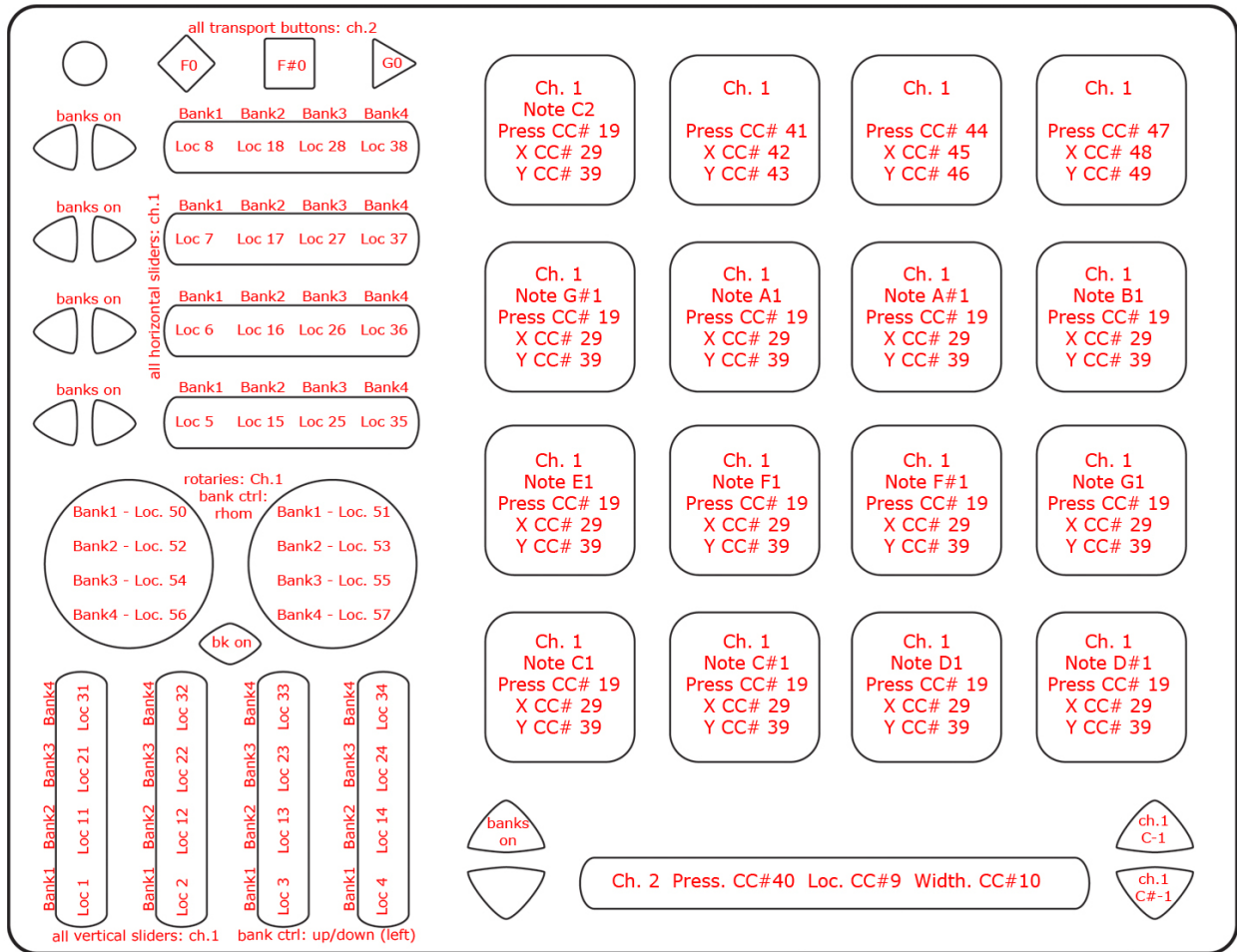
Preset 13 (Reason):

The Reason Preset turns QuNeo into a full fledged master keyboard controller for Propellerhead's Reason. The pads give one octave of notes while sliders control an ADSR envelope and various effects parameters.

The image below shows what each sensor controls in our Reason Template (included in the QuNeo Software Installer):

This image shows what MIDI data will output for each sensor in the "Reason" preset. In this preset the Pads use Drum Mode. Banks are enabled for the Horizontal Sliders, the Vertical Sliders, and the Rotaries. Rotaries are set to use Location instead of Direction. Pass Thru Widths for the rotaries are set to 127. X/Y sources on the Pads are set to latch on all Pads except Pad 16, which is set to return to 63. Velocity response is enabled for the Pads and fixed at 127 for the Buttons.
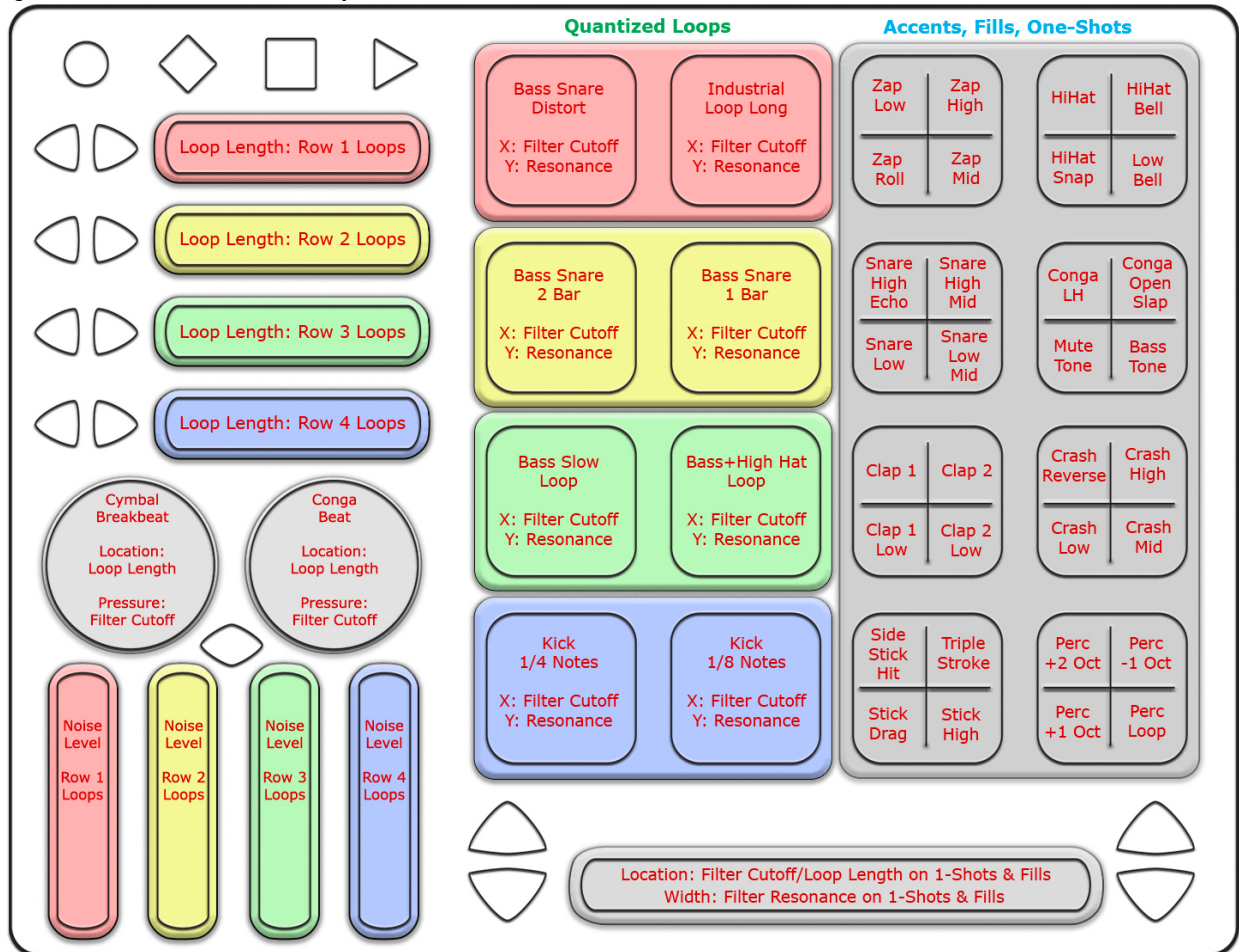

For more information about using the Reason Template read the Reason Template Quickstart document in the QuNeo directory's "Software Templates/Reason 1.0" folder.

Preset 14 (Battery):

This preset is for use with our Native Instrument's Battery 3 template file. This template will turn the QuNeo into a sampler with loops on the left 8 pads and both rotaries and quick drum hit samples on the right 8 pads. The sliders provide additional control and effects.

The image below shows what each sensor controls in our Battery Template (included in the QuNeo Software Installer):

This image shows what MIDI data will output for each sensor in the "Battery" preset. In this preset the Pads use Drum Mode in the left 2 columns and grid mode in the right 2 columns. Banks are not enabled. Rotaries are set to use Location instead of Direction. Pass Thru Widths for the rotaries are set to 127. X/Y sources on the Pads are set to latch. Velocity response is enabled for notes on Pads and Rotaries. Velocity is fixed at 127 for notes on the Buttons.
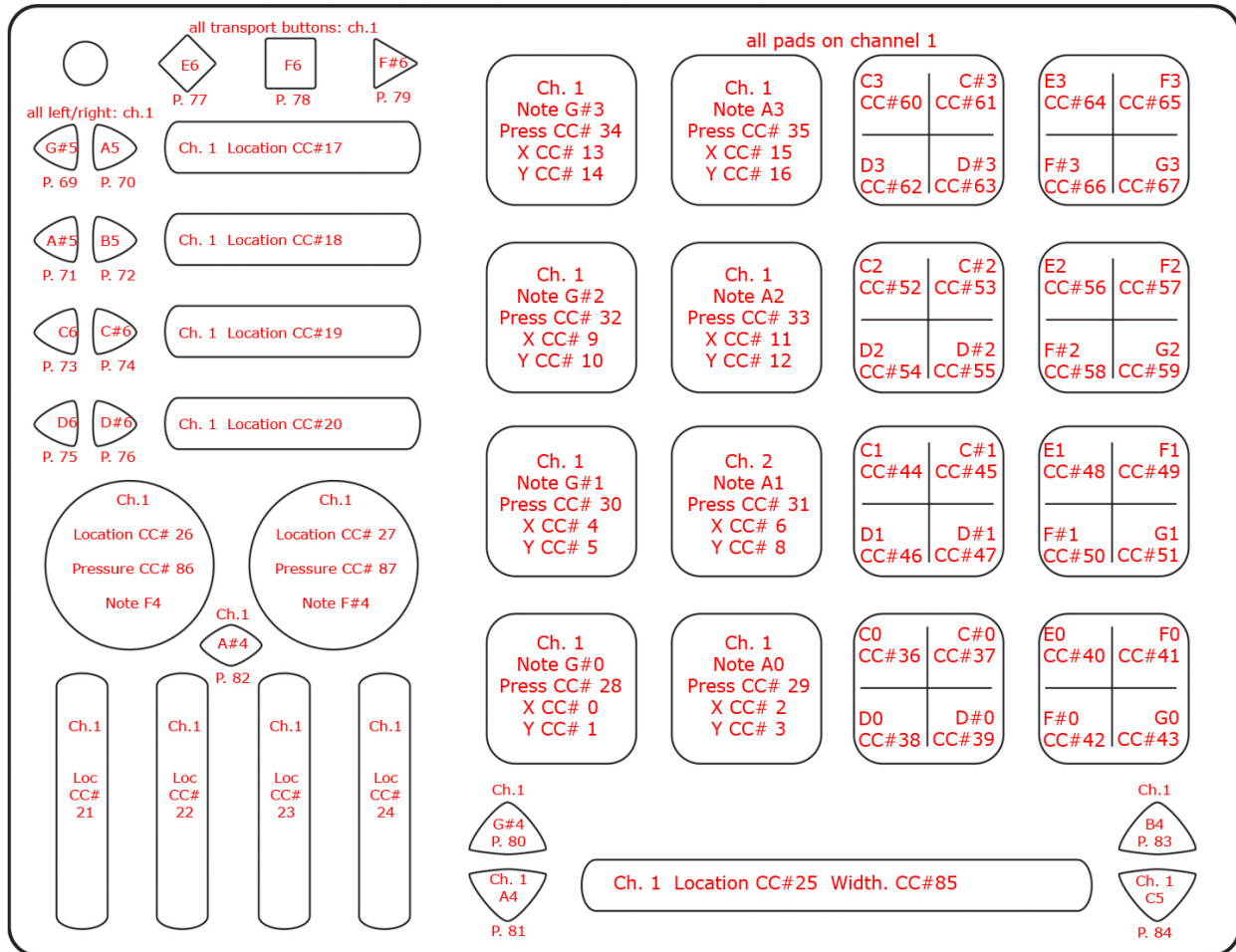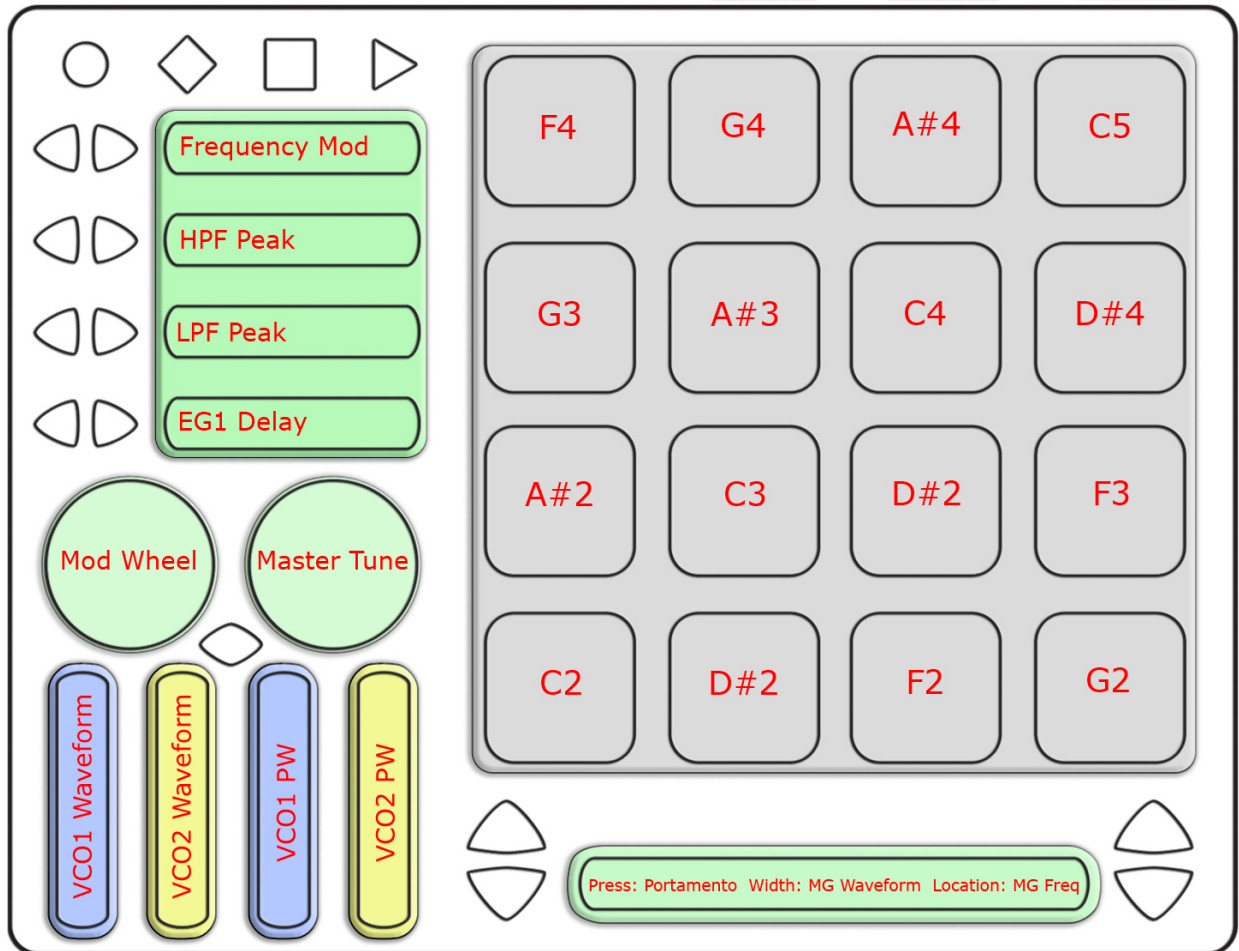

For more information about using the Battery Template read the Battery Template Quickstart document in the QuNeo directory's "Software Templates/Battery 1.0" folder.
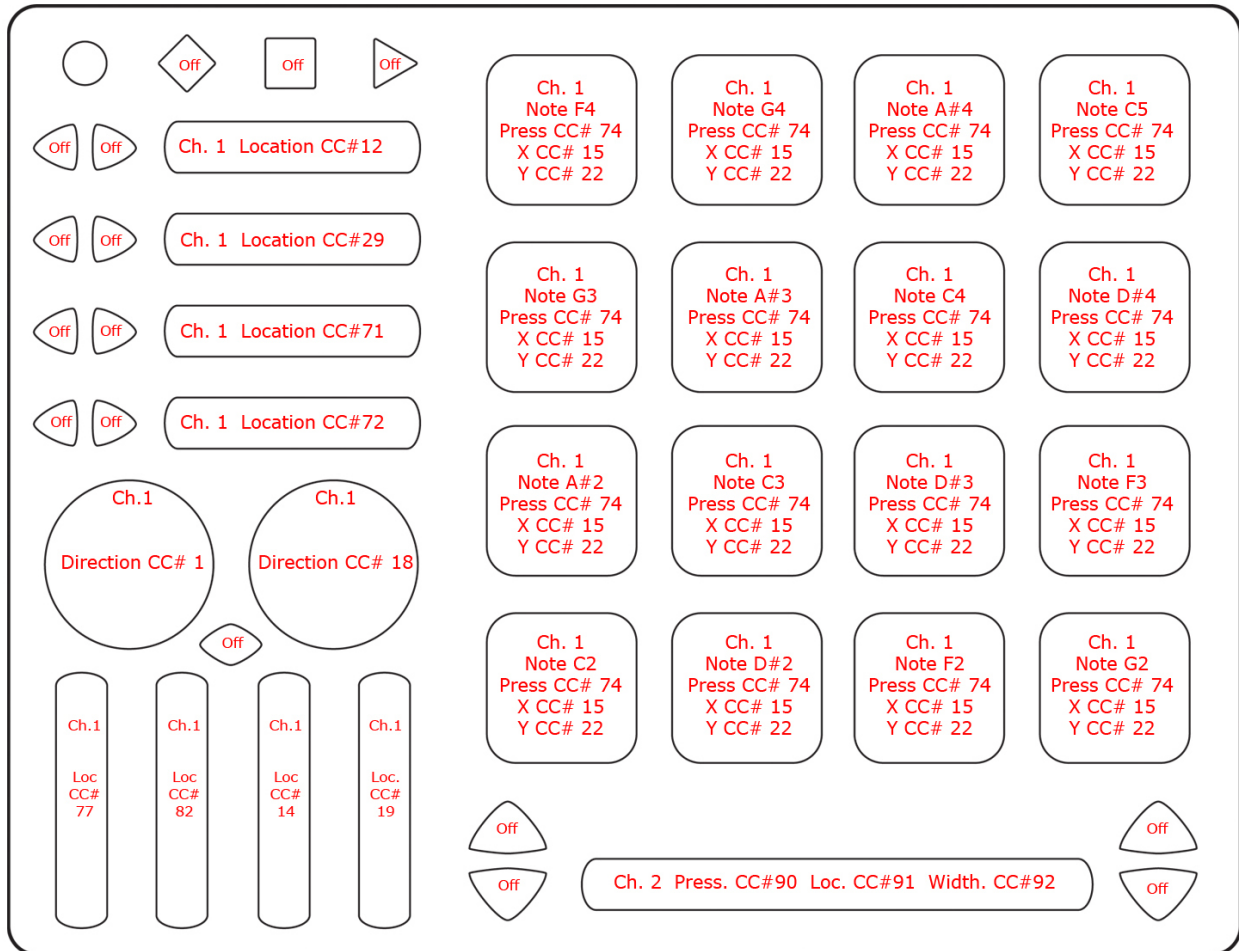
Presets 15 (Korg iMS-20 - iPad):

This preset is for use with Korg's iMS-20 synthesizer for iPad. This allows the QuNeo to play minor pentatonic notes from the iMS-20 and adjust voltage controlled oscillators and effects. Each pad will send out the same pressure CC# to control a low pass filter cutoff frequency. The X axis of each pad will control the first voltage control oscillator. The Y axis of each pad will control the second voltage control oscillator. The Horizontal Sliders and the Long Slider control effects. Use the Rotaries to control the mod wheel and the tuning. The Vertical Sliders control the VCO waveforms and pulse width.

The image below shows what each sensor controls in the Korg iMS-20 synthesizer:

All Pads: Pressure = LPF Cutoff   X = VCO1 Scale   Y = VCO2 Scale

F4	G4	A#4	C5
G3	A#3	C4	D#4
A#2	C3	D#2	F3
C2	D#2	F2	G2

Frequency Mod

HPF Peak

LPF Peak

EG1 Delay

Mod Wheel   Master Tune

VCO1 Waveform   VCO2 Waveform   VCO1 PW   VCO2 PW

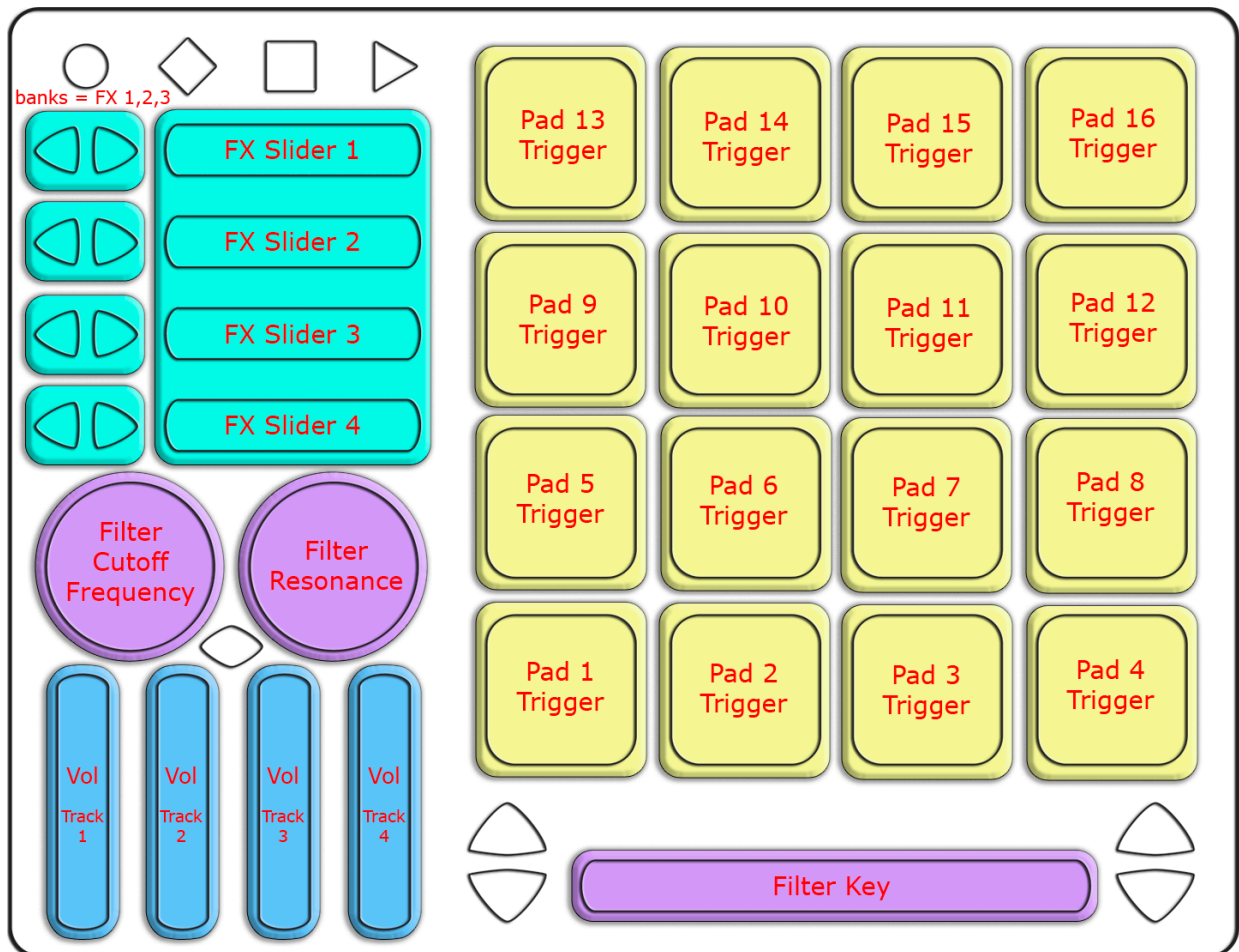Press: Portamento Width: MG Waveform Location: MG Freq

This image shows what MIDI data will output for each sensor in the "Korg iMS-20 - iPad" preset. In this preset the Pads use Drum Mode. Banks are not enabled. Rotaries are set to use Direction instead of Location. X/Y sources on the Pads are set to return to 63. Velocity response is enabled for notes on Pads.

○ ◇ Off ▭ Off ▷ Off			

◁ Off ◁ Off (Ch. 1 Location CC#12)

Ch. 1 Note F4 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note G4 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note A#4 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note C5 Press CC# 74 X CC# 15 Y CC# 22

◁ Off ◁ Off (Ch. 1 Location CC#29)

Ch. 1 Note G3 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note A#3 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note C4 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note D#4 Press CC# 74 X CC# 15 Y CC# 22

◁ Off ◁ Off (Ch. 1 Location CC#71)

Ch. 1 Note A#2 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note C3 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note D#3 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note F3 Press CC# 74 X CC# 15 Y CC# 22

◁ Off ◁ Off (Ch. 1 Location CC#72)

Ch.1 Direction CC# 1   **Ch.1** Direction CC# 18

◇ Off

Ch. 1 Note C2 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note D#2 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note F2 Press CC# 74 X CC# 15 Y CC# 22	Ch. 1 Note G2 Press CC# 74 X CC# 15 Y CC# 22

Ch.1 Loc CC# 77	Ch.1 Loc CC# 82	Ch.1 Loc CC# 14	Ch.1 Loc. CC# 19

Off

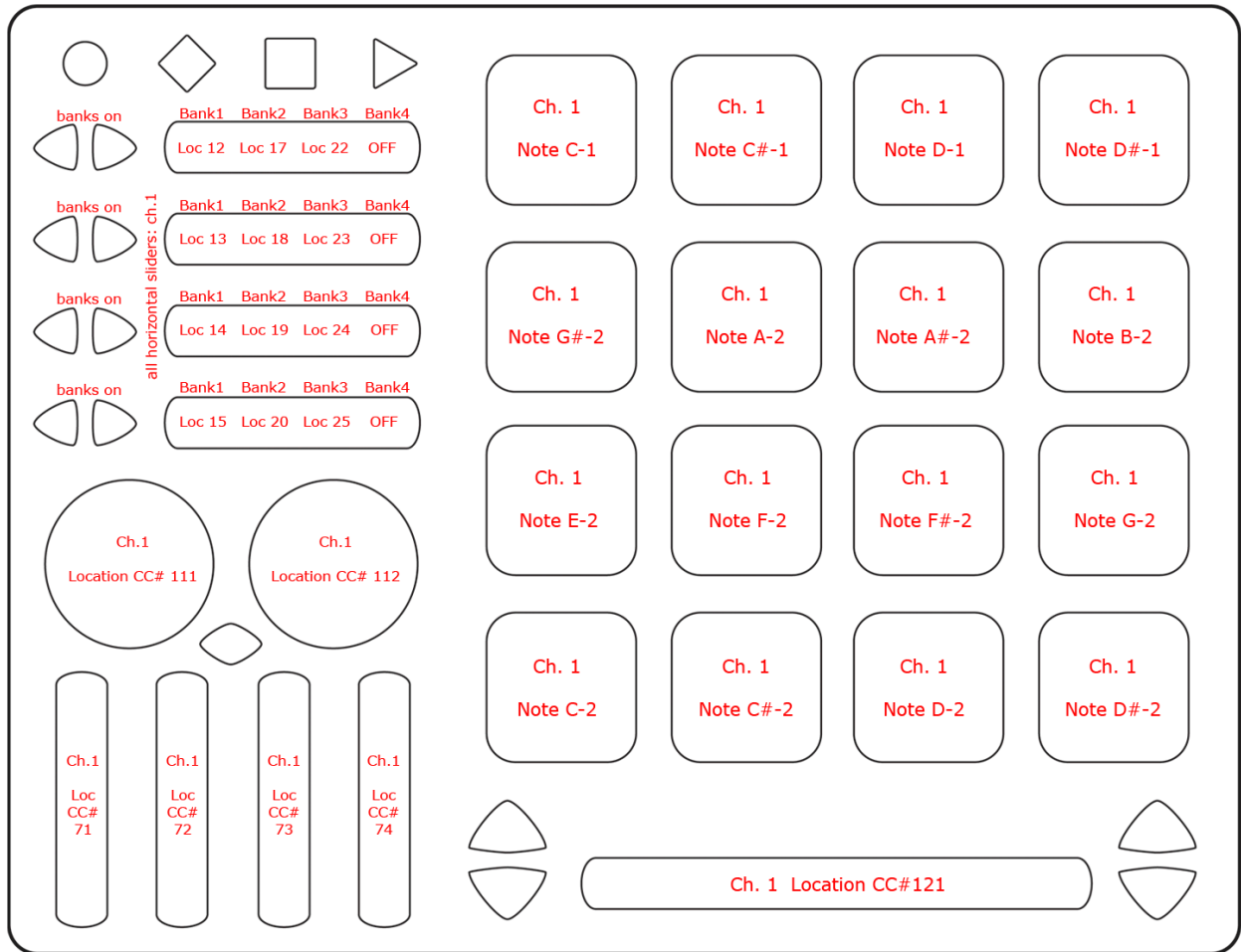Off   (Ch. 2 Press. CC#90 Loc. CC#91 Width. CC#92)   Off

Off

For more information about using the iMS-20 Template read the iMS-20 Template Quickstart document in the QuNeo directory's "Software Templates/iPad 1.0/iMS-20 1.0" folder.

Preset 16 (BeatMaker - iPad):

Below is an image showing how the QuNeo is mapped to BeatMaker's controls in factory preset #16. Each pad is in Drum Mode and outputs a MIDI note to trigger one of BeatMaker's drum pads. The vertical sliders each output a location CC to control the volume for tracks 1-4 in BeatMaker. The horizontal sliders are set up to control the first four sliders on the currently selected track's effects. Using the bank buttons next to the horizontal sliders you can access control for all three of a track's effects (bank four has nothing set as there are a maximum of three effects per track). The left rotary is mapped to filter cutoff frequency and the right rotary is mapped to filter resonance. The long slider controls a track's filter key.

This image shows what MIDI data will output for each sensor in the "BeatMaker iPad" preset. In this preset the Pads use Drum Mode. Banks are enabled only for the Horizontal Sliders. Rotaries are set to use Location instead of Direction. Pass Thru Widths for the rotaries are set to 127. Velocity response is enabled for all notes.

For more information about using the BeatMaker Template read the BeatMaker Template Quickstart document in the QuNeo directory's "Software Templates/iPad 1.0/BeatMaker 1.0" folder.

MIDI Input

Use the MIDI Input guides below to find out what MIDI data to send the QuNeo to control the LEDs remotely. See the Remote LED Control chapter of this manual for more information.

Drum Mode:

QuNeo Drum Mode LED Map. All On Channel 1
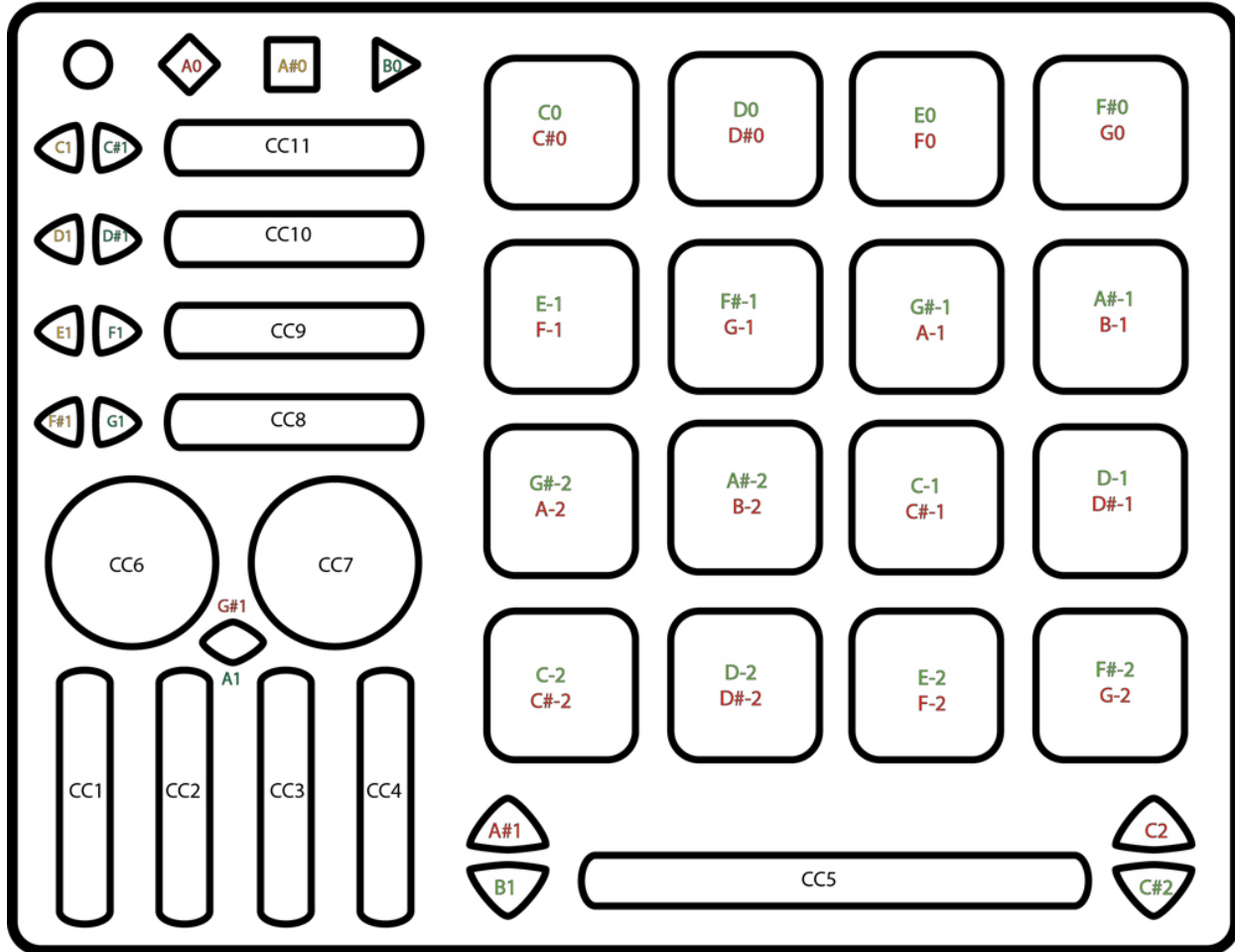
Grid Mode:
QuNeo Grid Mode All Pads on Channel 2, rest on Channel 1.
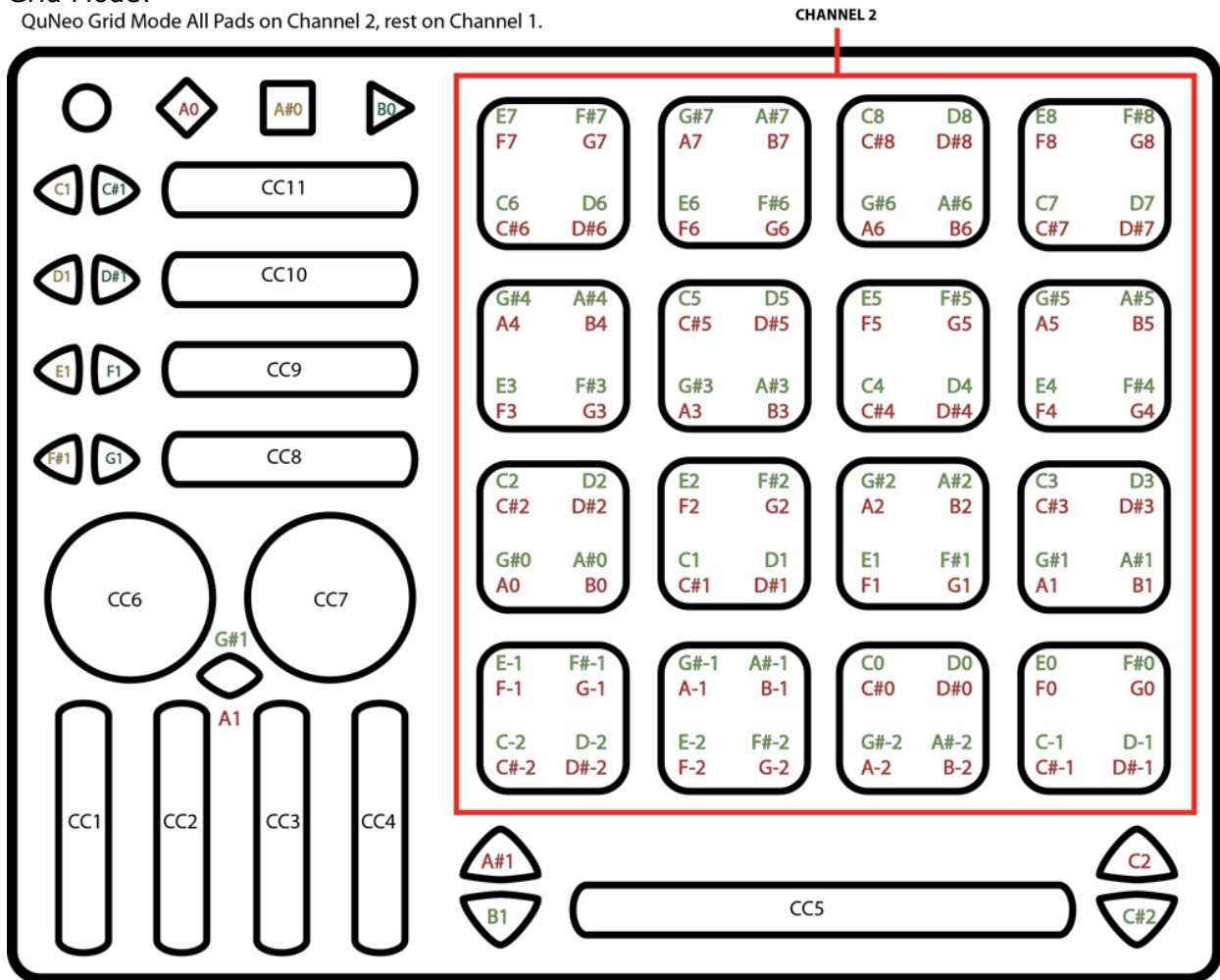
It is also possible to use 1 note per corner. In this case the velocity of the note will fade the LEDs from green to red. Send the notes in the image to the right to QuNeo on **Channel 3**.
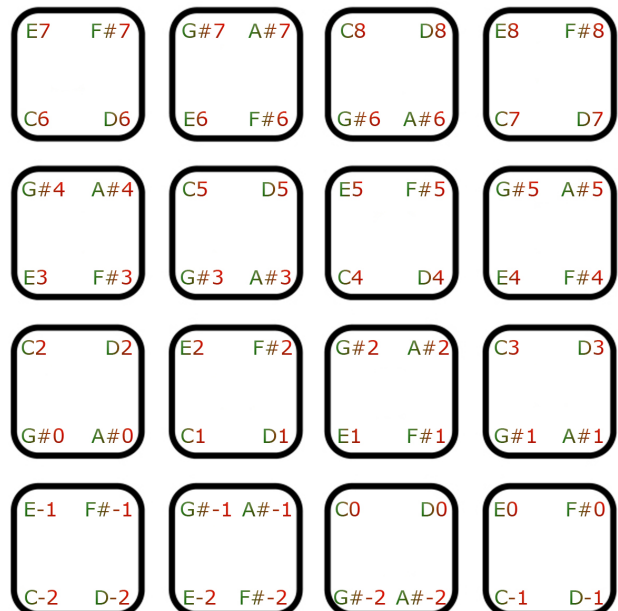
QuNeo LED Behavior

QuNeo's LEDs provide many great ways to visualize interactions with the QuNeo. Local or Remote control is available. **Local LED Control** means the action on sensors will determine the LED behavior. **Remote LED Control** means note or CC Data being sent to the QuNeo will determine LED behavior. Local and Remote control can be used simultaneously as well.

Local LED Control

Without sending LED messages to the QuNeo from another application or device, the QuNeo's LEDs will automatically respond to touch. Local LED Control is the QuNeo's built-in LED behavior and will override any currently incoming Remote messages. Here is how the LEDs will behave for each sensor.

- **Pad LEDs** - The LEDs in each corner of the pad will illuminate individually with color and brightness corresponding to velocity and pressure (from green to red). If the Pads are in Drum mode and the X/Y Axis sources are set to latch, the LEDs will latch too.

- **Horizontal and Vertical Slider LEDs** - The LEDs will illuminate to where a finger is and fill in from the left (for Horizontal) or bottom (for Vertical).

- **Long Slider LEDs** - The LEDs will illuminate where a finger is. If a second finger touches the slider, then the LEDs will illuminate between the two fingers.

- **Rotary LEDs** - When the rotary is pressed, all LEDs will illuminate around the finger. When released, one LED will show where the finger last was.

- **Transport Button LEDs** - When the button is pressed, the LED will illuminate. When released, the LED will turn off.

- **Left/Right Button LEDs**
  When Bank Switching is off - When the button is pressed, the LED will illuminate. When released, the LED will turn off.
  When Bank Switching is enabled - LED of the Left/Right arrow pairs indicate the banks that the corresponding Horizontal Slider is in.

Bank 1 - no LEDs	Bank 2 - left LED only	Bank 3 - right LED only	Bank 4 - both LEDs

- **Up/Down Button LEDs**

  When Bank Switching is off - When the button is pressed, the LED will illuminate. When released, the LED will turn off.

  When Bank Switching is enabled - The LEDs for the two buttons will indicate which bank the corresponding sensors are in.

Bank 1 - no LEDs	Bank 2 - top LED only	Bank 3 - bottom LED only	Bank 4 - both LEDs

- **Rhombus Button LEDs**

  When Bank Switching is off - When the button is pressed, both the red and green LEDs will illuminate. When released, the LEDs will turn off.

  When Bank Switching is enabled - The LEDs for the button will indicate which bank the corresponding sensors are in.

Bank 1 - no LEDs	Bank 2 - only the green LED is on	Bank 3 - both red and green are on to make orange	Bank 4 - only the red LED is on

- **Mode Button LEDs**

  When tapped to go into Preset mode, the Mode Button's blue LED will blink

  When held for 1 second to go into CoMA mode, the Mode Button's blue LED will illuminate

Remote LED Control

The LEDs on the QuNeo can be sent MIDI messages to control their behavior. When the QuNeo receives the proper MIDI data for a pad, slider, button, etc., the LEDs will respond accordingly. If you are touching the QuNeo, the Local LED control will momentarily override the Remote LED Control for as long as a finger is pressed down. When released, Remote LED Control will take over again. You can disable Local LED control using the editor.

To learn what MIDI messages can be sent to the LEDs, consult the MIDI Input chapter of the Factory Presets Guide.

Here is a list of the possible ways to control the LEDs when using Remote LED Control:

- **Pad LEDs**

  When in **Drum Mode** - Pads can receive a note for the green LEDs and a note for the red LEDs. The velocity of the note will determine the brightness.

  When in **Grid Mode** - The LEDs in each corner of the pad can light up individually. Pads can receive 4 notes (one for each corner) for the green LEDs and 4 other notes for the red LEDs. The velocity of the note will determine the brightness.

  > It is also possible to use 1 note per corner. In this case the velocity of the note will fade the LEDs from green to red.

- **Horizontal and Vertical Slider LEDs** - Each slider can receive a CC# value for LED location. This will tell the slider where the LEDs should fill up to. They will fill in from the left (for Horizontal) or bottom (for Vertical). This works great for VU meters.

- **Long Slider LEDs** - The Long Slider can receive a CC# value for LED location. This will tell the slider which of the LEDs should light up.

- **Rotary LEDs** - Each rotary can receive a CC# value for LED location. This will tell the slider which of the LEDs should light up.

- **Transport Button LEDs** - Each Transport button can receive a note for its LED. A note with velocity above 0 will turn the LED on and the velocity of the note will also determine the brightness.

- **Left/Right Button LEDs**
    When Bank Switching is off - Each of the arrow buttons will respond to a note. A note with velocity above 0 will illuminate the LED and the velocity of the note will determine the brightness.
    When Bank Switching is enabled - The LEDs will not respond to remote messages. Instead they will behave the way they do in Local LED Control.

- **Up/Down Button LEDs**
    When Bank Switching is off - Each of the arrow buttons will respond to a note. A note with velocity above 0 will illuminate the LED and the velocity of the note will determine the brightness.
    When Bank Switching is enabled - The LEDs will not respond to remote messages. Instead they will behave the way they do in Local LED Control.

- **Rhombus Button LEDs**
    When Bank Switching is off - The Rhombus button can receive a note for the red LED and a note for the green LED. A note with velocity above 0 will illuminate the LED and the velocity of the note will determine the brightness.
    When Bank Switching is on - The LEDs will not respond to remote messages. Instead they will behave the way they do in Local LED Control.

- **Mode Button LEDs** - The Mode button will not respond to remote messages. Instead it will behave the way it does in Local LED Control.
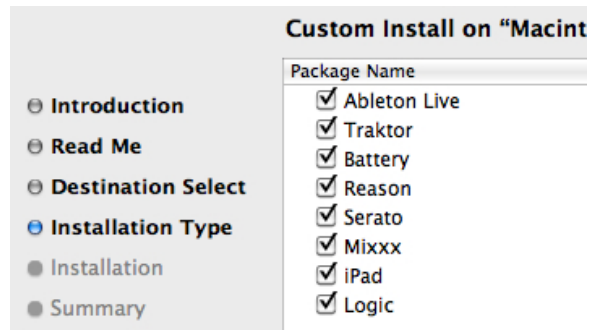
QuNeo Software

Download our free QuNeo Software Installer from: http://www.keithmcmillen.com/QuNeo/downloads/

The Software Installer contains template files that go with QuNeo presets for Ableton Live, Traktor, Battery, Reason, Mixxx, and BeatMaker (iPad). All of these can be automatically copied onto a computer by running the QuNeo Software Installer. There is also a Manual QuNeo Software Installer which will allow you to place the template files yourself. When using the manual installer, be sure to read the README files associated with each application template.

Installation Instructions (Mac)
Double-click on the .dmg file to open the disk image, then double-click on the QuNeo Software Installer.

On the "Installation Type" page, select the software you want to use with QuNeo (as shown in the image to the right). Hit continue, enter your admin password, and the installer will copy over any necessary auto-mapping files. A QuNeo folder will now appear in the Applications directory on your computer.

Installation Instructions (Windows)
Double-click on the .exe file to launch the QuNeo Software Installer. This will copy all of the necessary files and documentation into the C: directory. When installation is complete click the close button.

Now that the software is installed, look inside the QuNeo folder to find a "Documentation" folder, a "Software Templates" folder, and a "QuNeo Editor" folder. Template files for the software you selected will appear in the "Software Templates" folder. To use them just plug in QuNeo, select the corresponding preset, and try out the template. Use the Quickstart Guides in the respective Software Templates folders for more information about using these templates.

The "QuNeo Editor" folder will contain the QuNeo Editor. Use this to make changes to QuNeo's presets. Once installed **keep everything in the "QuNeo Editor" folder as is** so the application can access everything it needs to run.

System Requirements

We recommend the following minimum system requirements for the QuNeo Editor and the Software Examples:

MAC:
- An Intel Core 2 Duo 2.3GHz or greater
- Mac OS 10.5 or later

WINDOWS:
- Windows XP, or Windows 7
- Intel Core 2 processor or greater
- 1GB of RAM with 50 MB free hard disk space

Updating the Firmware

Make sure the editor and the firmware versions are compatible with each other.

When the QuNeo Editor opens, it checks to make sure the firmware on the device is compatible with the application. If the firmware is not compatible, an update prompt will appear. Click ok and wait until the blue Mode button light stops flashing and the "Update Complete" dialog appears before continuing. The blue light and progress bar on screen indicate that the firmware update is in progress.

The firmware on the selected QuNeo is out of date.
Please unplug any other QuNeos, and then click OK to update your firmware.

Cancel   OK

An "Update Firmware" option is located in the file menu of the QuNeo Editor. Select this option and the prompt to the right will appear. Click ok to update firmware.

This will update the firmware on your QuNeo.
Please click OK to continue.

Cancel   OK
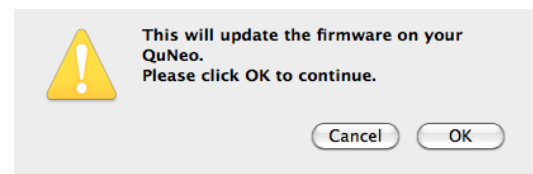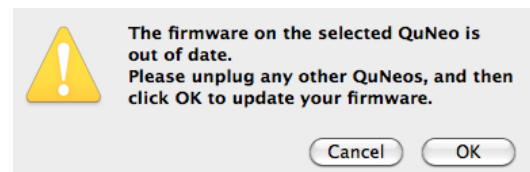
Keith McMillen Instruments cannot be held liable for damage resulting from installation and operation errors or improper use.

Main Window Overview

The QuNeo Editor opens with this window:
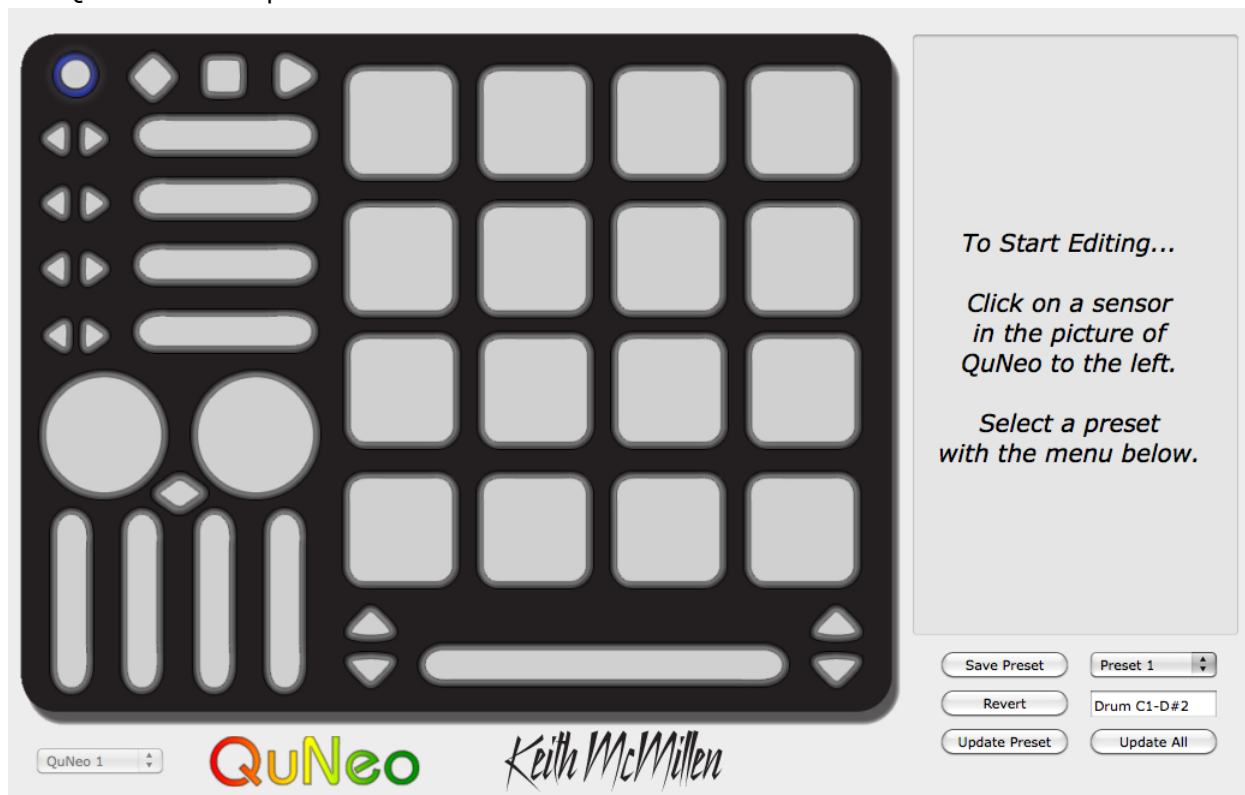
Selecting a sensor on the QuNeo image will open an edit pane in the box to the right. In the edit pane, one can adjust the settings and MIDI data for the selected sensor.

In the bottom left side of the window is an indicator to show that QuNeo is connected to the Editor. If the Editor has found the QuNeo, the device indicator will automatically change to "QuNeo 1" (after the application fully loads) to show that a connection between the Editor and QuNeo has been made.

Controls for saving and recalling presets are found in the bottom right side of the window.

Saving

Select presets from the menu, name them in the text box, and save or revert them with the "**Save Preset**" and "**Revert**" buttons. Press the "**Update Preset**" button to send the current preset to the QuNeo or press the "**Update All**" button to send all of the presets to the QuNeo.

If edits are made to the selected preset, the **Save Preset** button will begin to blink red as a reminder to save. Click the save button to save the selected preset, and it will cease to blink red. Modified/unsaved presets will appear in the preset list with an asterisk until they are saved.

Click the **Revert** button to go back to the previously saved state of the current preset.

In the menu, the presets are listed by number to correspond with the pad numbering when selecting presets from the QuNeo (see the Selecting Presets chapter for more information).
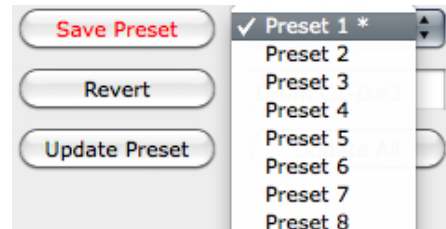
Menu Bar

More functions can be accessed from the **File** menu. "**Export Presets**" will save a file containing the currently selected preset for safe keeping or sharing. "**Import Presets**" opens previously exported presets into the currently selected preset slot. Importing and Exporting makes preset sharing easy.
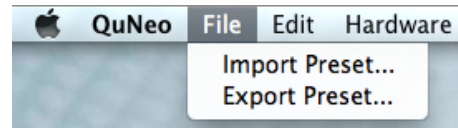
The **Edit** menu contains copy and paste functions. "**Copy Current Preset**" will put the current preset onto the application's clipboard. To paste a copied preset into a different preset, use the "**Paste to Current Preset**" option. It will then be necessary to save the pasted preset.
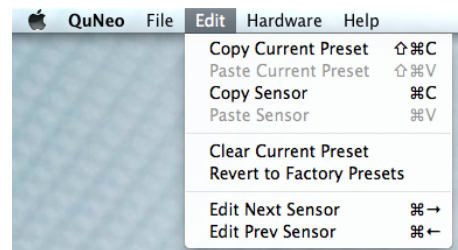
"**Copy Sensor**" places parameters from the current sensor's edit pane on the clipboard. Selecting another sensor of the same type enables the "**Paste Sensor**" option.

"**Clear Current Preset**" will blank out the current preset. All sources will be off and everything else will be set to their default values, allowing the user to start from scratch. After clearing the current preset, save the preset to keep the factory versions. "**Revert to Factory Presets**" reloads the original presets into the editor. After reverting to the factory presets, save each preset to keep the factory versions.

"**Edit Next Sensor**" or "**Edit Prev Sensor**" opens the other sensor's edit pane.

The **Hardware** menu contains a couple options that will affect the QuNeo hardware. The "**Update Firmware...**" option will open up a firmware update prompt. Click ok and the firmware will update. (see the "Updating the Firmware" chapter of this manual for more information).
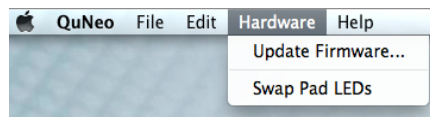
The "**Swap Pad LEDs**" option will switch the red and green LEDs on the QuNeo.

Sensor Edit Panes
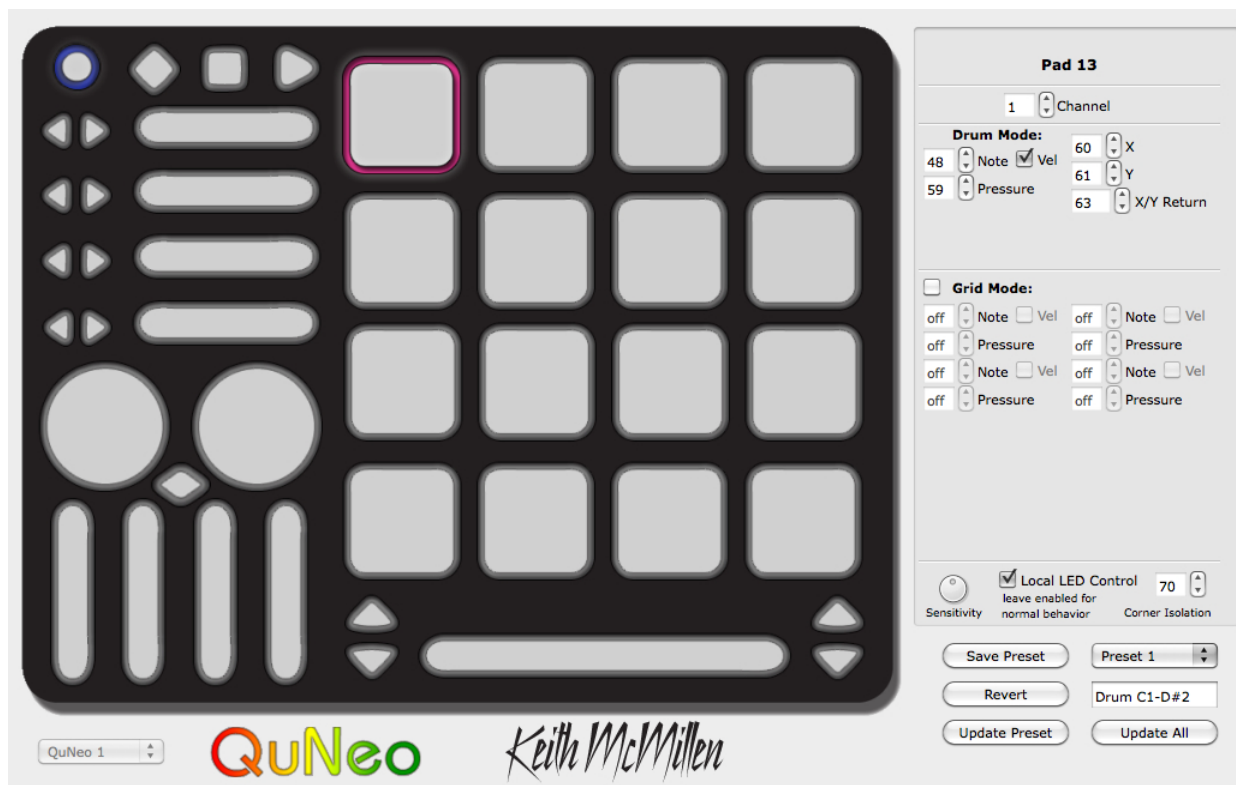
The image above shows Pad 13 selected on the QuNeo image and the Pad 13 edit pane open on the right side of the window. Pad 13 is highlighted pink to show that it is selected.

When editing a parameter in the edit pane, the parameter is displayed on the QuNeo image; as are the similar parameters for all sensors.

Example: In the image below, the Note parameter for Pad 13 is set to MIDI note 60 (C3). All of the other pads will display their notes as well. This allows easy checking to prevent unwanted duplicate notes.
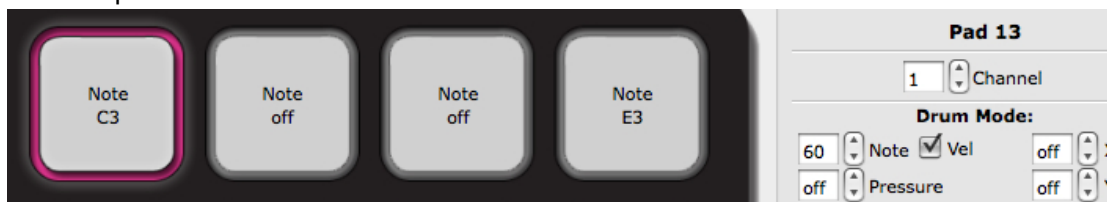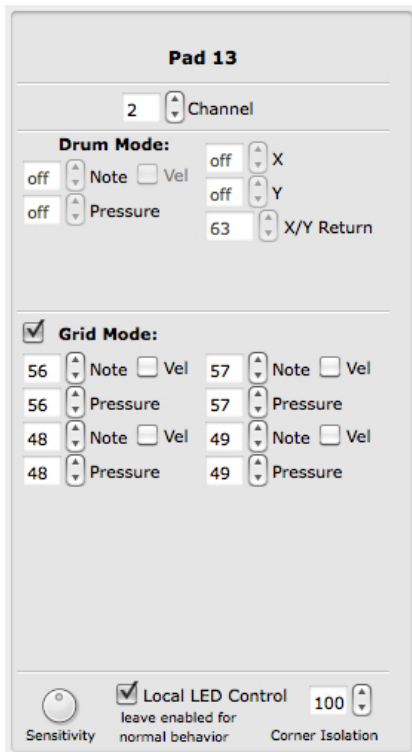

Adjusting the Pressure parameter changes the QuNeo image to display what CC# is assigned to pressure on all of the pads.

All parameters are displayed in this way for all sensor types.

Read on for more detail about the editable parameters in each of the various edit panes.

Pad Edit Pane

Each Pad can function in either **Drum Mode** or **Grid Mode**. In Drum Mode, it is not possible to edit the parameters for Grid Mode and vice-versa. Enter Grid Mode by clicking on the "Grid Mode" check box.

In **Drum Mode**, the pad parameters include a note, pressure CC#, X-Axis position CC#, Y-Axis position CC#, and an X/Y Return value.

In **Grid Mode**, the pad sources include note and pressure in each corner, allowing up to 4 notes or pressure points per pad.

To disable a source, set the number box below 0 to "off". Enable velocity sensitivity for MIDI notes with the "**Vel**" check boxes. If unchecked the velocity of the note (if the note is enabled) will be fixed at 127.

X/Y Return is the value that X and Y CC#s will return to when the Pad is released. If the number box is set below 0 the values will "latch", staying where they were left when the pad was released.
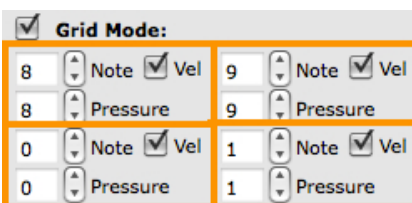
The image to the left displays the parameters for Grid Mode. It is divided to show which of these parameters correspond to each corner of the pad. The parameters of each pad corner contain a note, velocity switch, and pressure CC#. The placement of the parameters in the edit pane corresponds to the corners of the pads.

The **Corner Isolation** parameter (in the bottom right corner of the Pad edit pane) adjusts how sensitive the other corners of the Pad are while one of the corners is in use. This helps prevent accidental triggers. This is global for all Pads and applies only when they are in grid mode. **Example**: If corner isolation is set to 100, while pressing 1 corner, the other 3 corners must reach 100% of the pressure the first corner is at before registering a note on. So the higher the corner isolation value, the greater the isolation is between corners.

Sensitivity and Local LED Control parameters are at the very bottom of the edit pane. For more information on these please reference the Sensitivity and Local LED Control chapters in this section of the manual.

Vertical and Horizontal Slider Edit Pane

The Vertical and Horizontal Slider Edit Panes have essentially the same editable parameters.

There are 4 banks available per slider. The Horizontal Sliders each have their own Left/Right Buttons to control which bank is selected. (See the Left/Right Buttons Edit Pane chapter for more information).

The banks of the Vertical Sliders can be selected by using either the Rhombus button, or one of the Up/Down button pairs. This is programmable in the edit panes for those buttons. (See the Rhombus Button Edit Pane or the Up/Down Buttons Edit Pane chapters for more information).

The Slider Edit Pane parameters include a Note, Pressure CC#, and Location CC# for each bank. To disable a source, set the number box below 0 to "off". Enable velocity sensitivity for MIDI notes with the "**Vel**" check boxes. If unchecked the velocity of the note (if the note is enabled) will be fixed at 127.

Sensitivity and Local LED Control parameters are at the very bottom of the edit pane. For more information on these please reference the Sensitivity and Local LED Control chapters in this section of the manual.

Long Slider Edit Pane

The Long Slider Edit Pane is similar to the Vertical and Horizontal Slider edit panes.

There are 4 banks available. The banks of the Long Slider can be selected by using either the Rhombus button, or one of the Up/Down button pairs. This is programmable in the edit panes for those buttons. (See the Rhombus Button Edit Pane or the Up/Down Buttons Edit Pane chapters for more information).

The Long Slider Edit Pane parameters include a Note, Pressure CC#, Location CC#, and Width CC# for each bank. To disable a source, set the number box below 0 to "off". Enable velocity sensitivity for MIDI notes with the "**Vel**" check boxes. If unchecked the velocity of the note (if the note is enabled) will be fixed at 127.

The Sensitivity and Local LED Control parameters are at the very bottom of the edit pane. For more information on these please reference the Sensitivity and Local LED Control chapters in this section of the manual.

Rotary Edit Pane

Rotary 1

Bank 1:
off ↕ Note ☑ Vel | 1 ↕ Channel
off ↕ Pressure | 50 ↕ Location
5 ↕ Speed | 127 ↕ Pass Thru Width
                    | off ↕ Direction ☐

Bank 2:
off ↕ Note ☑ Vel | 1 ↕ Channel
off ↕ Pressure | 52 ↕ Location
5 ↕ Speed | 127 ↕ Pass Thru Width
                    | off ↕ Direction ☐

Bank 3:
off ↕ Note ☑ Vel | 1 ↕ Channel
off ↕ Pressure | 54 ↕ Location
5 ↕ Speed | 127 ↕ Pass Thru Width
                    | off ↕ Direction ☐

Bank 4:
off ↕ Note ☑ Vel | 1 ↕ Channel
off ↕ Pressure | 56 ↕ Location
5 ↕ Speed | 127 ↕ Pass Thru Width
                    | off ↕ Direction ☐

Sensitivity   ☑ Local LED Control
              leave enabled for
              normal behavior

The Rotary Edit Panes are also similar to the Slider Edit Panes.

There are 4 banks available per Rotary. The banks of the Rotaries can be selected by either the Rhombus button, or one of the Up/Down button pairs. This is programmable in the edit panes for those buttons. (See the Rhombus Button Edit Pane or the Up/Down Buttons Edit Pane chapters for more information).

The Rotary Edit Pane parameters include a Note, Pressure CC#, Location CC#, Pass Thru Width, Direction CC#, and Speed for each bank.

The **Direction** CC# will repetitively send out a 127 if finger movement is clockwise. If finger movement is counterclockwise, the CC# will repetitively send out a 0. We refer to this repetitive CC# as a tick. The faster a finger is moved, the faster the tick will output. The **Speed** parameter controls the number of ticks per degree.

Direction and Location cannot be used at the same time.

The Rotaries use a variation of Pass Thru Mode when the location parameter is used. Normally, in pass through mode, MIDI will not be sent until the location value the rotary was left at is triggered. **Pass Thru Width** sets a range of pass through values. **Example**: If Pass Thru Width is set to 10 and the rotary was left at 40, it would be necessary to press somewhere between 30 and 50 to pick back up and output location data. If set to 127, the whole range of the rotary will respond.

To disable a source, set the number box below 0 to "off". Enable velocity sensitivity for MIDI notes with the "**Vel**" check boxes. If unchecked the velocity of the note (if the note is enabled) will be fixed at 127.

The Sensitivity and Local LED Control parameters are at the very bottom of the edit pane. For more information on these please reference the Sensitivity and Local LED Control chapters in this section of the manual.

Transport Edit Pane
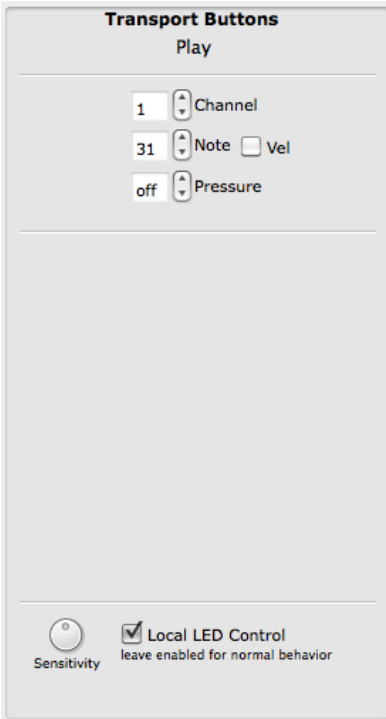
The Transport buttons are the 3 buttons at the top of the QuNeo next to the Mode button. The diamond button with the red LED is the record button, the square button with the yellow LED is the stop button, and the triangular button with the green LED is the play button. Assign the Channel, Note, and Pressure CC# for each Transport button.

To disable a source, set the number box below 0 to "off". Enable velocity sensitivity for MIDI notes with the "**Vel**" check boxes. If unchecked the velocity of the note (if the note is enabled) will be fixed at 127.

The Sensitivity and Local LED Control parameters are at the very bottom of the edit pane. For more information on these please reference the Sensitivity and Local LED Control chapters in this section of the manual.

Left/Right Buttons Edit Pane
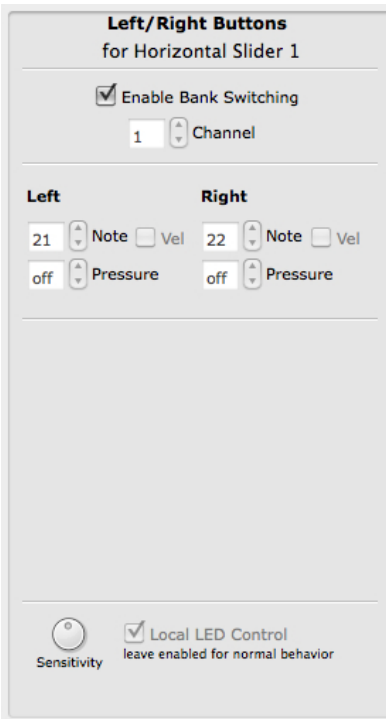
The Left/Right buttons are positioned to the left of each Horizontal slider. If the "**Enable Bank Switching**" box is checked, these button pairs act as bank controls for each Horizontal Slider. See the Vertical and Horizontal Slider Edit Pane chapter for more info. The banks will be indicated by the LEDs of the 2 buttons.

For information about how the LEDs indicate the banks, see the Left/Right Buttons and Banks chapter of this manual.

If Bank Switching is disabled, each button can output an assigned Note or Pressure CC#.

To disable a source, set the number box below 0 to "off". Enable velocity sensitivity for MIDI notes with the "**Vel**" check boxes. If unchecked the velocity of the note (if the note is enabled) will be fixed at 127.

The Sensitivity and Local LED Control parameters are at the very bottom of the edit pane. For more information on these please reference the Sensitivity and Local LED Control chapters in this section of the manual.

Up/Down Button Edit Pane

The Up/Down buttons are positioned on either side of the Long Slider. If the "**Enable Bank Switching**" box is checked, these button pairs act as bank controls for the Rotaries, Vertical Sliders, or Long Slider. See the [Vertical and Horizontal Slider Edit Pane](#), [Long Slider Edit Pane](#), or [Rotary Edit Pane](#) chapters for more info. The banks will be indicated by the LEDs of the 2 buttons.

For information about how the LEDs indicate the banks, see the [Up/Down Buttons and Banks](#) chapter of this manual.

If Bank Switching is disabled, each button can output an assigned Note or Pressure CC#.

To disable a source, set the number box below 0 to "off". Enable velocity sensitivity for MIDI notes with the "**Vel**" check boxes. If unchecked the velocity of the note (if the note is enabled) will be fixed at 127.

The Sensitivity and Local LED Control parameters are at the very bottom of the edit pane. For more information on these please reference the [Sensitivity](#) and [Local LED Control](#) chapters in this section of the manual.

Rhombus Button Edit Pane

The Rhombus button is positioned under the Rotaries and above the Vertical Sliders. If the "**Enable Bank Switching**" box is checked, this button acts as a bank control for the Rotaries, Vertical Sliders, or Long Slider. See the [Vertical and Horizontal Slider Edit Pane](#), [Long Slider Edit Pane](#), or [Rotary Edit Pane](#) chapters for more info. The banks will be indicated by the LEDs of the button.

For information about how the LEDs indicate the banks, see the [Rhombus Button and Banks](#) chapter of this manual.

If Bank Switching is disabled, the button can output an assigned Note or Pressure CC#.

To disable a source, set the number box below 0 to "off". Enable velocity sensitivity for the MIDI note with the "**Vel**" check boxes. If unchecked the velocity of the note (if the note is enabled) will be fixed at 127.

The Sensitivity and Local LED Control parameters are at the very bottom of the edit pane. For more information on these please reference the [Sensitivity](#) and [Local LED Control](#) chapters in this section of the manual.

Sensitivity

Sensitivity is editable for the various sensors using the **sensitivity** dial at the bottom of each of the edit panes. This will adjust the on threshold for the sensor. If the sensitivity knob is all the way up, the on threshold will be lower, allowing less pressure before registering any activity. If the sensitivity is all the way down, the on threshold will be higher, requiring more pressure before registering any activity.

The Sensitivity dial is global for all controls of that type.

E**xample**: Adjusting the sensitivity in one of the Pad Edit Panes will adjust the sensitivity for all pad edit panes. The Sensitivity dials for the Horizontal Sliders are linked, the Vertical Sliders, the Left/Right Buttons, etc...

Local LED Control

In each Edit Pane, next to the Sensitivity dial, is a check box for turning **Local LED Control** on and off. Without sending LED messages to the QuNeo from another application or device, the QuNeo's LEDs will automatically respond to touch. This built-in LED behavior can be enabled using the Local LED Control check box. Like the sensitivity dial, the Local LED Control check box is global for all controls of that type.

Hint: If Local LED Control is disabled and the QuNeo is not receiving MIDI notes for controlling LEDs, the QuNeo will not light up at all.

In the Left/Right, Up/Down, and Rhombus Button edit panes, if Bank Switching is enabled, Local LED Control cannot be disabled.

The Local LED Control check box is global for all controls of that type.

E**xample**: Changing the Local LED Control in one of the Pad Edit Panes will adjust the sensitivity for all pad edit panes. The Local LED Control check boxes for the Horizontal Sliders are linked, the Vertical Sliders, the Left/Right Buttons, etc...

Troubleshooting

If you are having trouble of any kind make sure you double check the following before moving on to the chapters below that address specific problems:

1. With your QuNeo plugged in check Audio MIDI Setup's MIDI view and make sure QuNeo's icon is active (not grayed out). Or open up the QuNeo Editor and check the box in the lower left corner to make sure it says "QuNeo 1". If not, try these:
   a. Unplug your QuNeo and plug it back in.
   b. Unplug your QuNeo, restart your computer, and plug your QuNeo back in.
   c. Try a different USB cable.
2. Make sure you are using the correct firmware. When the QuNeo Editor opens, it checks to make sure the firmware on the device is compatible with the application. If the firmware is not compatible, an update prompt will appear. Click ok to update the firmware.
3. Make sure the QuNeo Editor is in the same directory with the presets folder. It's best to keep the QuNeo Software directory as is after downloading so that everything that is relevant to the version you downloaded stays together. You can make an alias or shortcut and then put that wherever you wish.

If you experience any problems or have questions regarding the QuNeo install process after viewing the troubleshooting suggestions, submit a support request (http://www.keithmcmillen.com/support) outlining the problems you're experiencing. The more detailed you are in describing your problem (information about your computer, the software you're running, the circumstances around the issue), the more easily we will be able to help you.

DAW/Host Application Trouble

If you are having problems getting your DAW or other host application (Ableton Live, Traktor, Logic, Digital Performer, Mobius, GarageBand, etc...) to receive MIDI data from the QuNeo make sure you double check and try out the following:

1. Make sure QuNeo has successfully connected to your computer. You can check this by opening the QuNeo Editor and making sure the device indicator in the bottom left corner says "QuNeo 1". If it is blank try this:
   a. Unplug your QuNeo and plug it back in.
   b. Unplug your QuNeo, restart your computer, and plug your QuNeo back in.
   c. Try a different USB cable.
2. Make sure QuNeo is not in CoMA mode. The blue Mode button in the upper left corner of QuNeo would be on to indicate CoMA mode. Press it to exit CoMA mode and the blue light will turn off.
3. If you are using one of our Templates for Ableton Live, Traktor, Reason, Battery, or Mixxx, make sure all files are correctly installed from the QuNeo Software Installer. Use the Quickstart Guides that come in the "Software Templates" folder for the application you are using to check file locations and follow the instructions for set up.
4. Most DAWs have MIDI preferences or a place where a user would select the MIDI device to use for MIDI input and output. Make sure the QuNeo is selected as the MIDI input device for controlling the DAW. If using the DAW to send LED information to QuNeo make sure to also select QuNeo as the MIDI Output device.

Firmware Updating Trouble

If you suspect your QuNeo's firmware is not up to date:

1. Open up the QuNeo Editor
2. Go to the QuNeo Menu and select "About QuNeo"
3. The image to the right shows the window that will appear. In this image the firmware is up to date with the editor. The first 2 numbers indicate the firmware version (1.0). The numbers after the firmware version indicate the bootloader version (1.2).
4. If the board version does not match the editor version use the "Update Firmware" option in the file menu of the QuNeo Editor. Select this option and a prompt to update will appear. Click ok to update firmware.

> **QuNeo | Keith McMillen Instruments**
> **Editor Version: 1.0.1.2**
> **Firmware Version: 1.0.1.2**
>
> [OK]

Note Name to Note Number Reference

Keith McMillen Instruments uses the C3 = 60 standard for note naming/numbering. Below is a chart that can help with converting note numbers to note names and vice-versa.

C3 = 60

Octave	Note Numbers											
	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
-2	0	1	2	3	4	5	6	7	8	9	10	11
-1	12	13	14	15	16	17	18	19	20	21	22	23
0	24	25	26	27	28	29	30	31	32	33	34	35
1	36	37	38	39	40	41	42	43	44	45	46	47
2	48	49	50	51	52	53	54	55	56	57	58	59
3	60	61	62	63	64	65	66	67	68	69	70	71
4	72	73	74	75	76	77	78	79	80	81	82	83
5	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107
7	108	109	110	111	112	113	114	115	116	117	118	119
8	120	121	122	123	124	125	126	127				

2011 MacBook Pro USB Port Problems

USB ports on Apple laptops are connected to an internal USB hub that also feeds the keyboard, trackpad, iSight camera, Bluetooth, and IR receiver. Some 2011 MacBook Pro models (and potentially others) shipped with an internal USB hub that exhibits connectivity issues when a device that draws a lot of power is plugged in. This results in the port completely shutting down, and you will not be able to use any USB device in that port until it is reset.

The internal USB hub in question is Vendor ID: SMSC, Product ID: 0x2513. To find out if you have this hub installed in your computer, go to the apple menu at the top-left of the screen and select "About This Mac". In the window that appears, click the "More Info..." button — this will open System Profiler (alternatively you can open System Profiler directly from Applications ---> Utilites ---> System Profiler). In the "Contents" column on the left, under "Hardware", click on "USB". Click on one of the "USB High-Speed Bus" options in the "USB Device Tree" area and some information will show up in the area below. Under the "**Hub:**" section, check to see what the "Product ID" and "Vendor ID" are. The hub we

have noticed problems with is Product ID: 0x2513 from Vendor ID 0x0424 (SMSC).
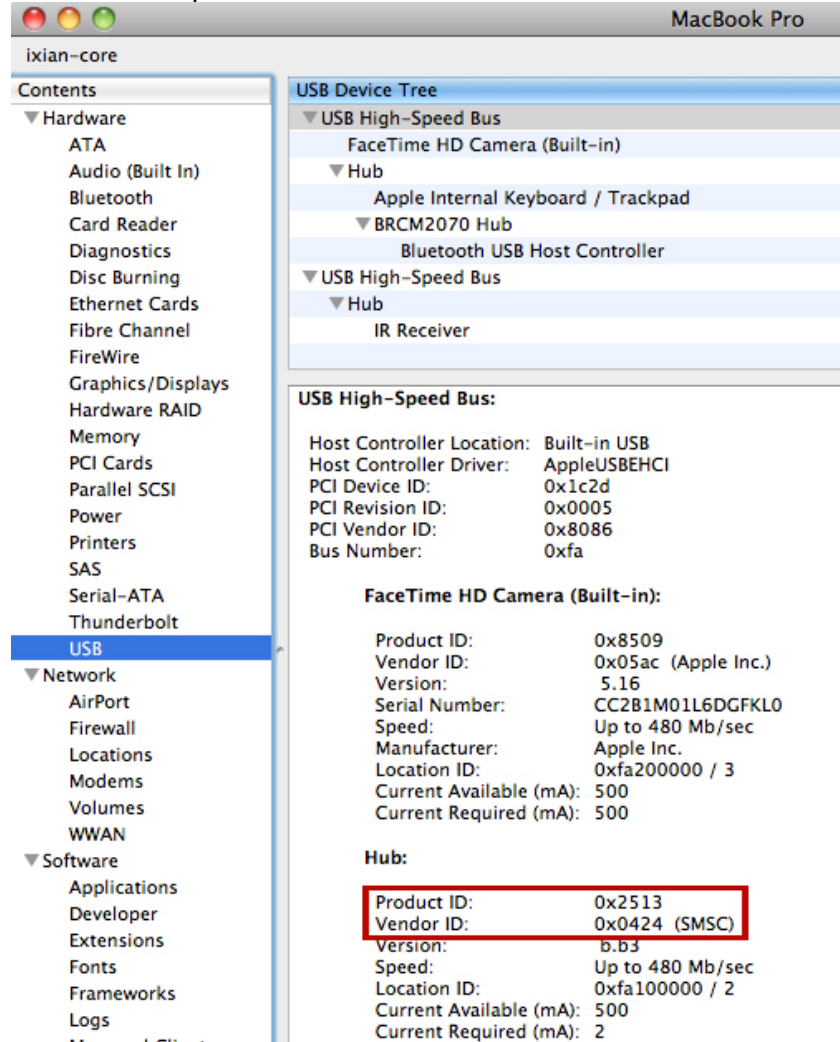
If your USB port is no longer working, there is a fix. You should first try completely shutting down your computer and starting it back up again (simply restarting may not work).
If it is still exhibiting the same problem, then you will need to reset your SMC (System Management Controller).

To reset the SMC:
1. Shut down the computer.
2. Plug in the MagSafe power adapter to a power source, connecting it to the Mac if it is not already connected.
3. On the built-in keyboard, press the (left side's) Shift-Control-Option keys and the power button at the same time.
4. Release all the keys and the power button at the same time.
5. Press the power button to turn on the computer.

Your SMC should now be reset and your USB port should be working again.