



QuNeo Reference Manual

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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 a USB A-to-Micro cable. 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

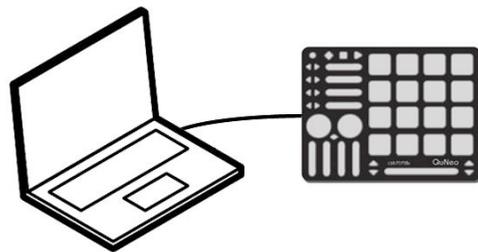
LEDs provide the visual feedback needed for intuitive control over the QuNeo. Contained within QuNeo are 251 LEDs with 16 different levels of brightness. The 16 square pads provide an option of red and green on each corner, giving you 128 LEDs at your disposal on just the pads alone. Local or Remote 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.

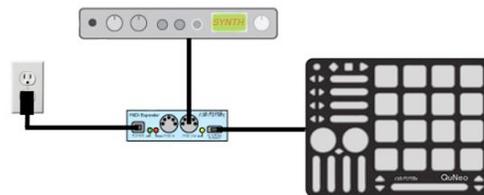
Use a USB A-to-Micro cable to connect the QuNeo micro port to a USB port on a computer. QuNeo will receive power from the computer.



Connect QuNeo to MIDI hardware

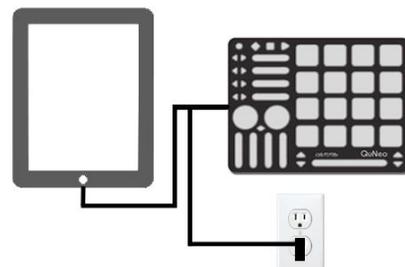
The image to the right shows QuNeo connected to a hardware synth via our [MIDI Expander](#) (sold separately):

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.
4. Put QuNeo into MIDI Expander mode by holding down the mode button and the bottom right down arrow simultaneously (see the [MIDI Expander](#) chapter for more information).



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

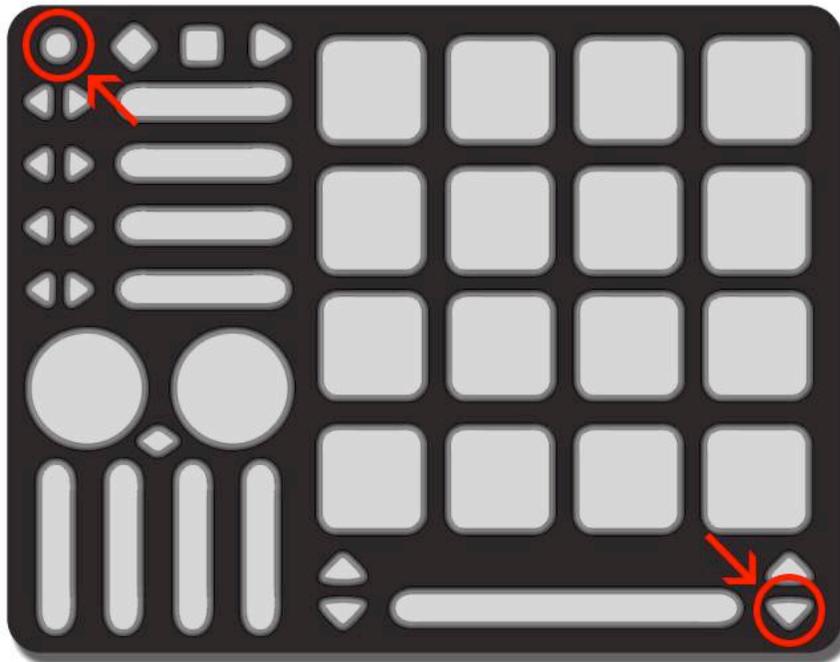


The KMI MIDI Expander is an optional accessory, which enables use of QuNeo with hardware MIDI devices. Plug MIDI devices into the MIDI Out port and QuNeo will send MIDI data through a regular 5 pin MIDI cable.

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

To use QuNeo with the KMI MIDI Expander follow these steps:

- 1 Connect a QuNeo to the KMI MIDI Expander (see [Connecting QuNeo](#) for instructions).
- 2 Put QuNeo into MIDI Expander mode by holding down the mode button and the bottom right down arrow simultaneously (as shown in the image below). The QuNeo LEDs will swipe like they do when you first connect to power, indicating that you have successfully put QuNeo into MIDI Expander mode.

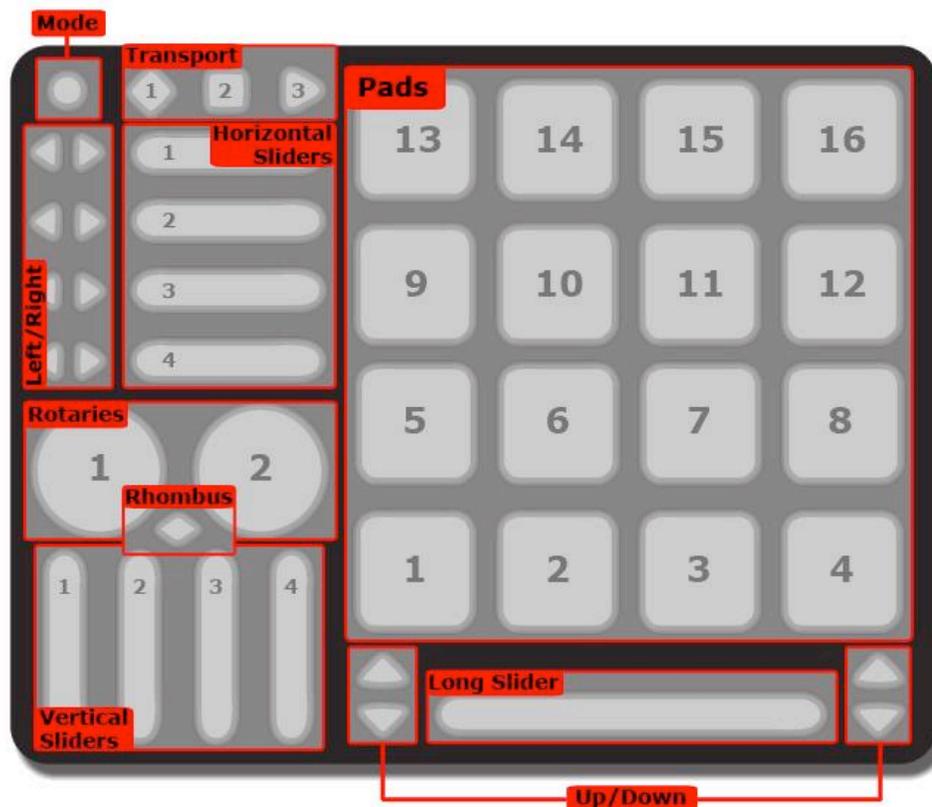


- 3 Plug MIDI devices into the MIDI Expander. The QuNeo will now send MIDI messages through the MIDI Expander.

It is necessary to put QuNeo into MIDI Expander mode every time it is connected to a MIDI Expander.

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. Tilting 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. Tilting 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 leave them or return to a value. When an X or Y Return value is set the X or Y Axis CC values will always go back to that number when the pad is released. The [Factory Preset Guides](#) provide details about which presets have x or y 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 (0-127) to output going from low to high (left to right or bottom to top).

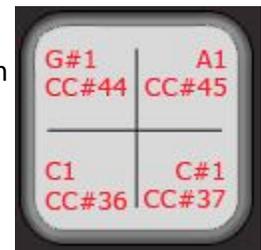
Tip: The Location source on the Rotaries use a variation of Pass Thru Mode. Pass Thru Mode is normally when MIDI will not be sent until you pass through the value the rotary was left at. Our Pass Thru Width parameter sets a range of pass through values. **Example:** If Pass Thru Width is set to 10 and 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 it 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 - Long Slider only. 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 between fingers, 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 - Rotaries only. 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 1. If finger movement is counterclockwise, the CC# will repetitively send out a 127. The faster a finger is moved, the faster the repeated value will output. Direction and Location on the Rotaries may not be enabled simultaneously.

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. Pads can be set up to have note banks. See the [Banks](#) chapter for more information.
 - **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.

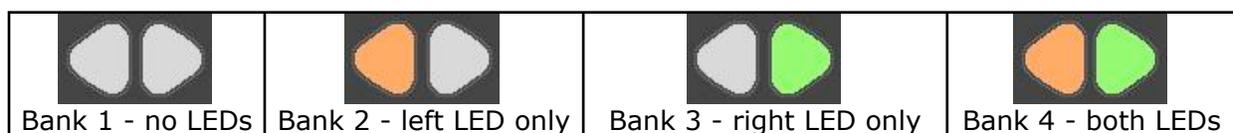
Banks

Banks can be used for the Pad notes, 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 can be selected using the Left/Right Buttons, the Up/Down Buttons, or the Rhombus Button.

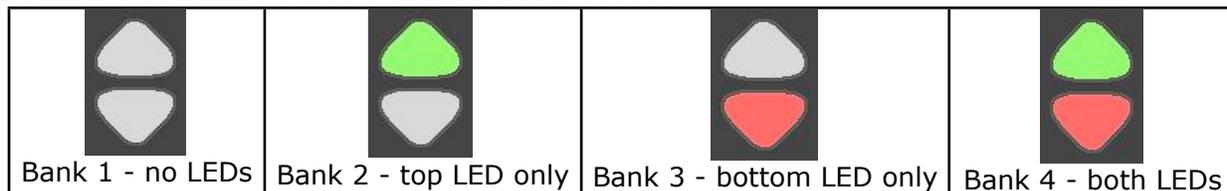
Pads can also be set to different notes per bank. This is accomplished by setting transpose intervals for the notes in each bank. The Pad banks will not affect the CCs of the other sources (X, Y, Pressure, etc.). The note banks can be selected using either the Up/Down Buttons or the Rhombus Button.

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

Left/Right arrow buttons control their neighboring **Horizontal Slider** banks. The images below show how the **Left/Right Button** LEDs indicate which bank the **Horizontal Sliders** are in:



In our presets, when the **Vertical Slider** banks are used, the banks are 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 **Up/Down Button** LEDs indicate which bank is active:



In our presets, when the **Rotary** banks are used, the banks are controlled using the **Rhombus Button**. The images below show how the **Rhombus Button** LEDs indicate which bank is active:



Using the QuNeo Editor, the bank controls for the Pad notes, 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.

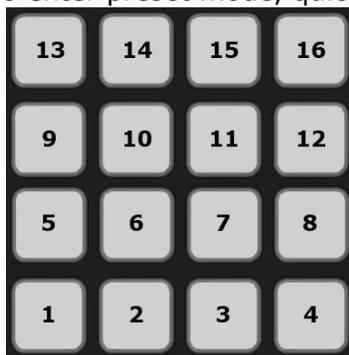
The Mode Button

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.



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 often necessary to use the Controller Mapping Assistant (CoMA). CoMA mode allows quick mapping of each available data source one at a time, enabling rapid and efficient software/controller pairings.

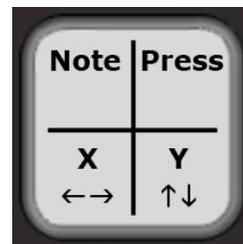
Here is an **example** of how to use CoMA mode to map the Y-Axis data from a pad on QuNeo in Ableton Live:

- 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 map QuNeo to in Live. Live is now listening for a MIDI command to assign to this control. If Live receives more than one MIDI message, it won't know which to map. CoMA only sends one MIDI message at a time for exactly this reason.
- 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 Exit CoMA mode by pressing the Mode button again.
- 5 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

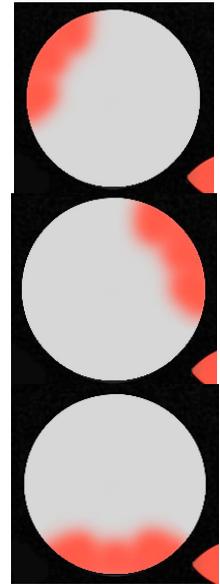
To enter CoMA Mode using the Mode Button, hold down on the Mode Button for 1 second until all the LEDs flash. When in CoMA mode it is necessary to be familiar with how each data source from QuNeo is mapped. Here is how to do this for each sensor type:

- **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, and 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 mode vs. Grid mode. Also check whether the Sliders or Rotaries have banks enabled and 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.
- Assume that all notes and pressure sources use Normal mode (as opposed to Toggle mode) unless otherwise indicated in the preset descriptions below.

MIDI Output

Preset 1: (Drum C1-D#2 / Serato)

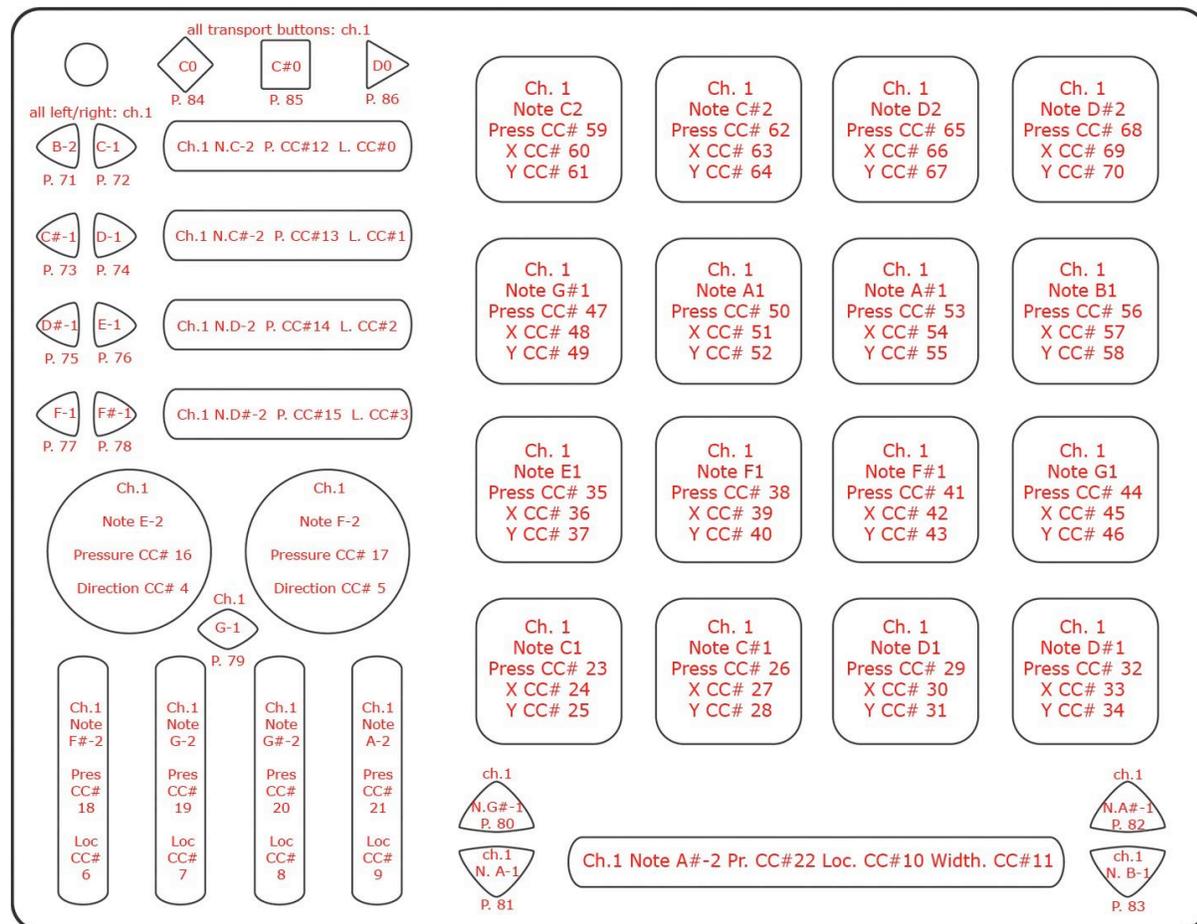
Preset 2: (Drum E2-G3)

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 number 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 is variable and pressure is continuous 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.

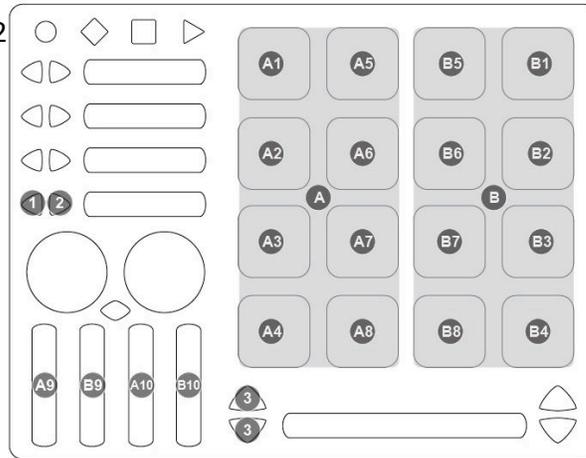
A. Left Deck - Represents Deck 1

B. Right Deck - Represents Deck 2

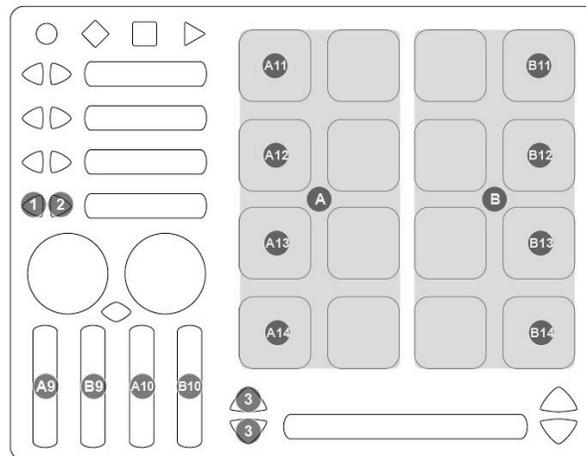
QuNeo Preset 1:

- 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

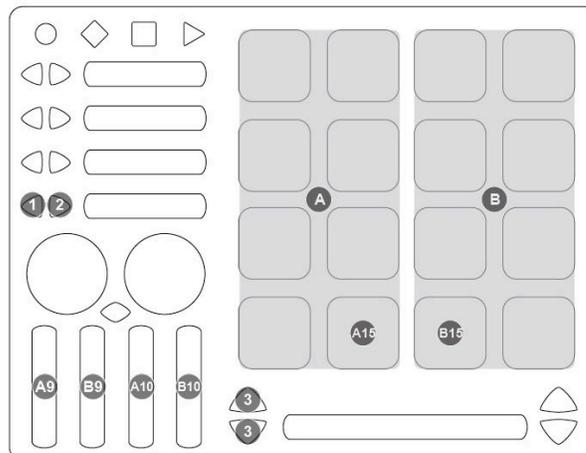
SERATO CUE / LOOP PAGE - PRESET 1



SERATO SET CUE POINTS - PRESET 2



SERATO DJ-FX PAGE - PRESET 3



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

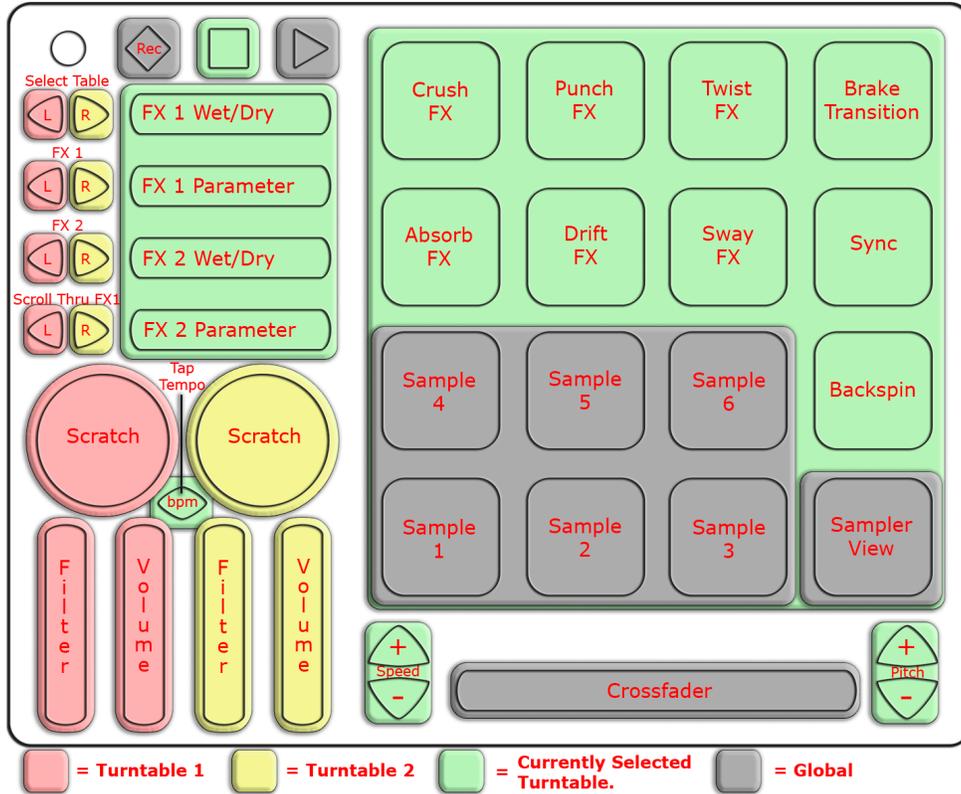
QuNeo Preset 3:

- A15/B15** - DJ/FX On/Off

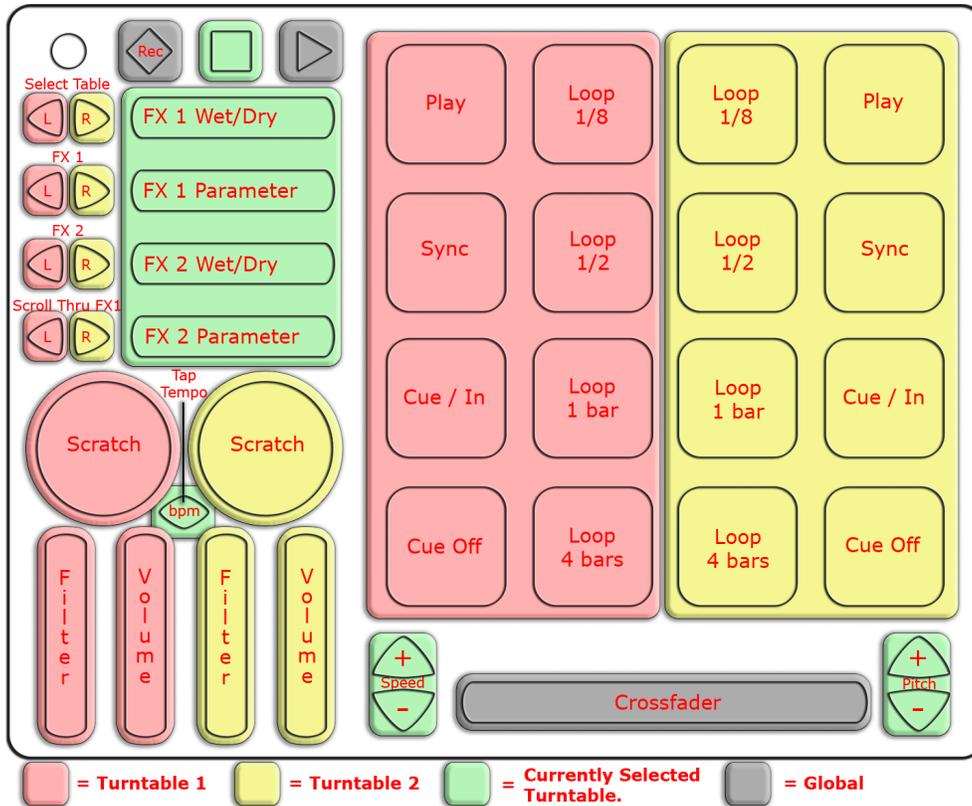
For more information read Serato's Quickstart document in the QuNeo directory: "Documentation/Template Quickstarts".

Algoriddm's djay MIDI Mappings for Preset 1 & 2:

Preset 1



Preset 2

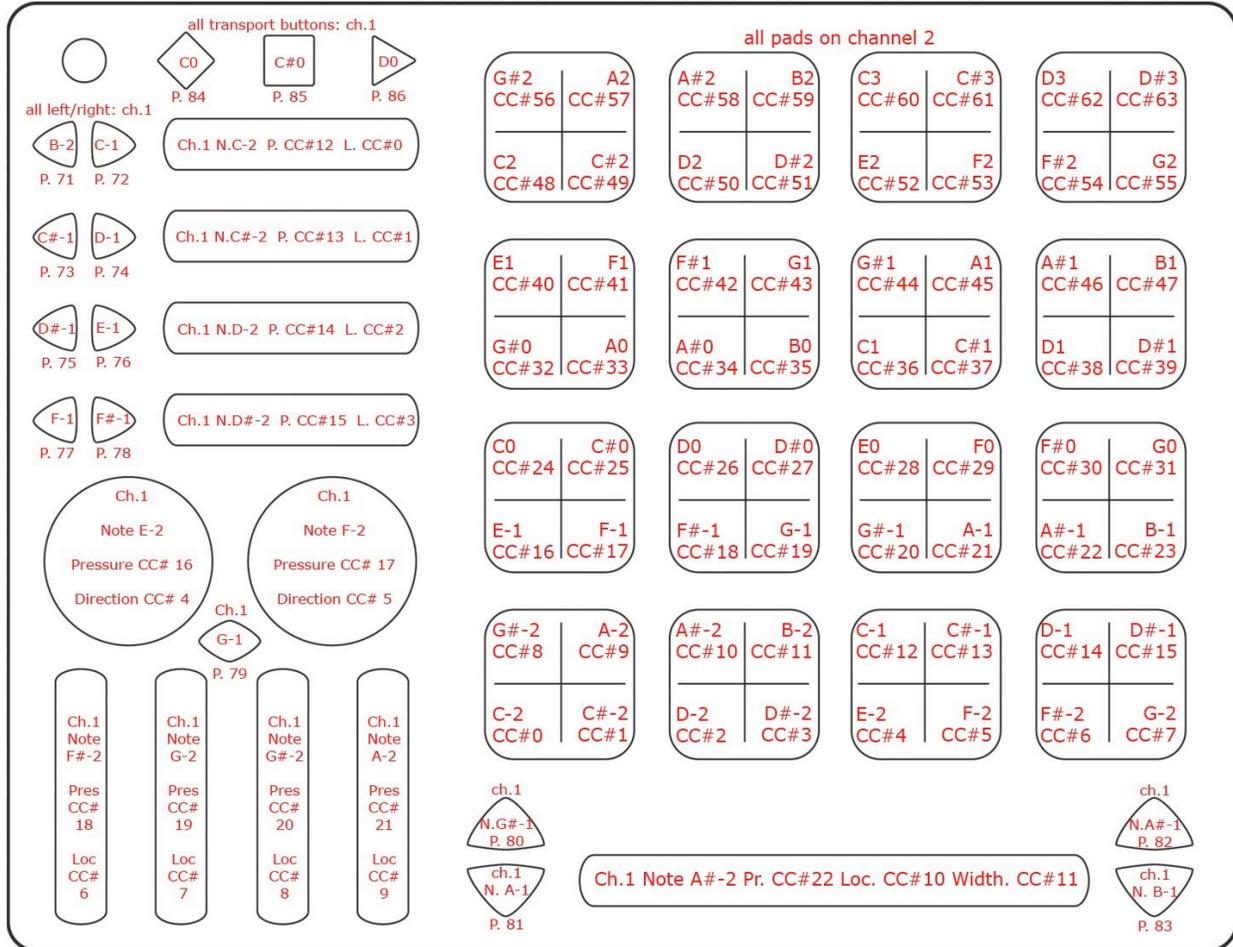


For more information read djay's Quickstart document in the QuNeo directory: "Documentation/Template Quickstarts".

Presets 5, 6, 7, & 8 (Grid Mode):

Presets 5-8 are the same except the Pad channels increment as the preset number 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 Pressure sources send out continuous CC values.



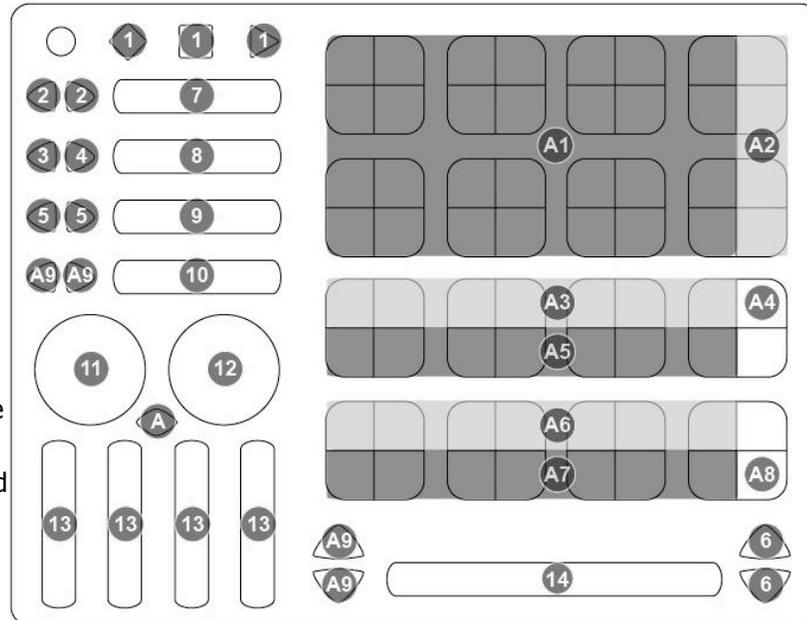
Preset 9 (Ableton Live Clip Launching):

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.

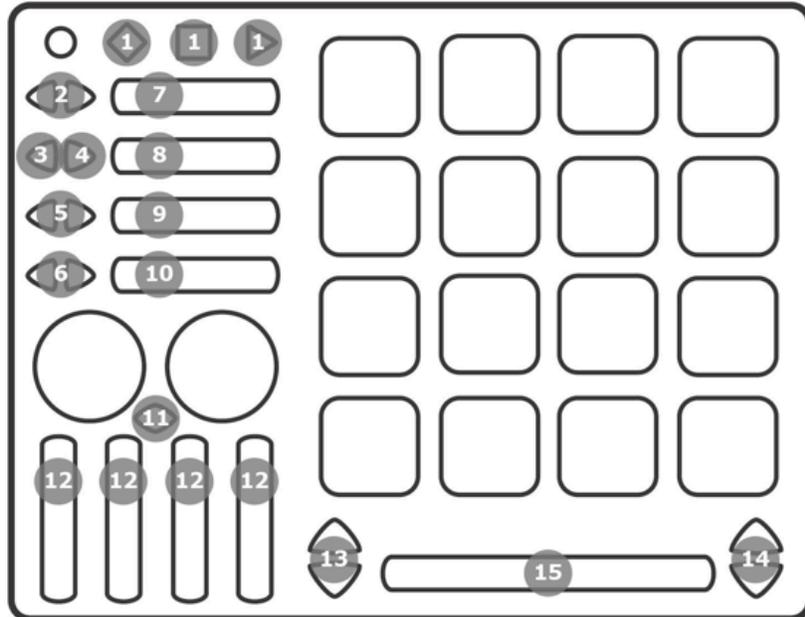
A8. SELECTED CLIP LAUNCH - Push to launch the currently selected clip.

A9. BANK SELECT - These allow the user to move the highlighted 7 x 4 red box around the session LEFT/RIGHT/UP/DOWN.

Preset 9 (LaunchPadEmulator):

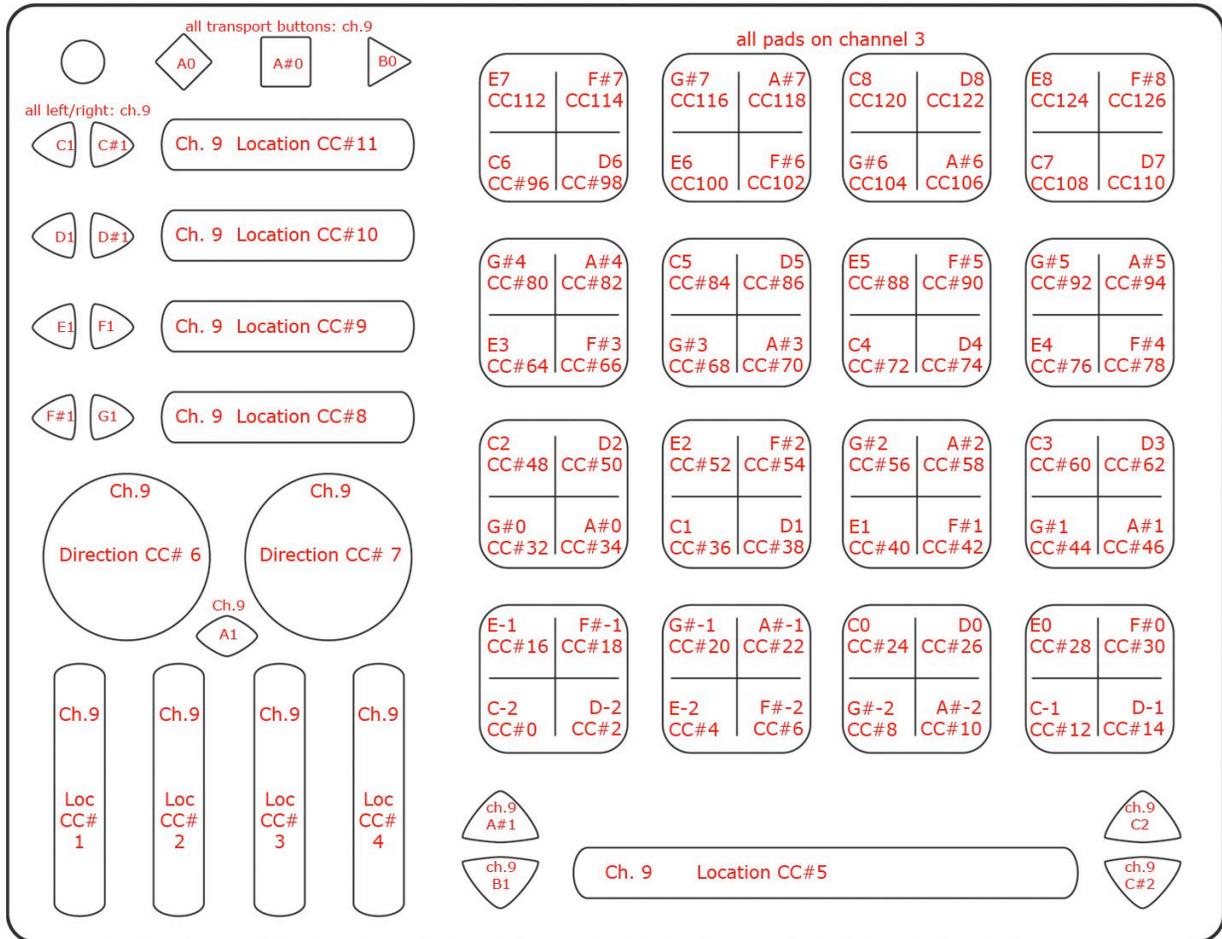
Our Novation LaunchPad Emulator for QuNeo consists of an Ableton Live Remote Control Surface map created with Python. This allows you to use all of the familiar features that the LaunchPad provides on QuNeo. The image and corresponding text below summarizes what the buttons and sliders of the QuNeo do in all modes. The Pads behavior is determined by the selected mode. See the QuNeo_LaunchPad_Quickstart document for more information about the Pad behavior.

1. **Transport controls** - The Record, Stop, and Play buttons correspond to the Transport Controls within Live.
2. **Tempo** - LEFT ARROW steps the tempo down 1.0 BPM. RIGHT ARROW steps the tempo up 1.0 BPM.
3. **Metronome** - Enables Metronome On/Off.
4. **MIDI Overdub** - Enables MIDI Overdub On/Off.
5. **Track Navigation** - Move left or right from the current selected track to the next or last track.



6. **Red Box Track Navigation** - Move the location of the highlighted bounding box left or right (this box may or may not be red).
7. **Selected Track Send A** - Control the selected track Send A.
8. **Selected Track Send B** - Control the selected track Send B.
9. **Selected Track Pan** - Control the selected track Pan.
10. **Selected Track Volume** - Control the selected track Volume.
11. **Shift Button** - Holding down the **SHIFT (Rhombus)** button enables you to access various **Modes** from the **Shift Page**. When the **SHIFT (Rhombus)** button is released it returns the controls to the currently selected **MODE**.
12. **Volume Faders** - This controls Live's first four volume faders within the highlighted bounding box.
13. **Red Box Scene Navigation** - Move the location of the highlighted bounding box up or down (this box may or may not be red).
14. **Scene Navigation** - Move up or down from the selected scene to the next within a selected track.
15. **Crossfader** - This controls Live's crossfader.

This image shows what MIDI data will output for each sensor in the "Ableton Live Clip Launching" and "LaunchPad Emulator" 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 fixed at 127 for all notes. All Pressure sources send out continuous CC values. In this preset, the LEDs will not light up because Local LED Control is turned off. This is so the Ableton Live template's Remote LEDs will have full control over the LEDs.



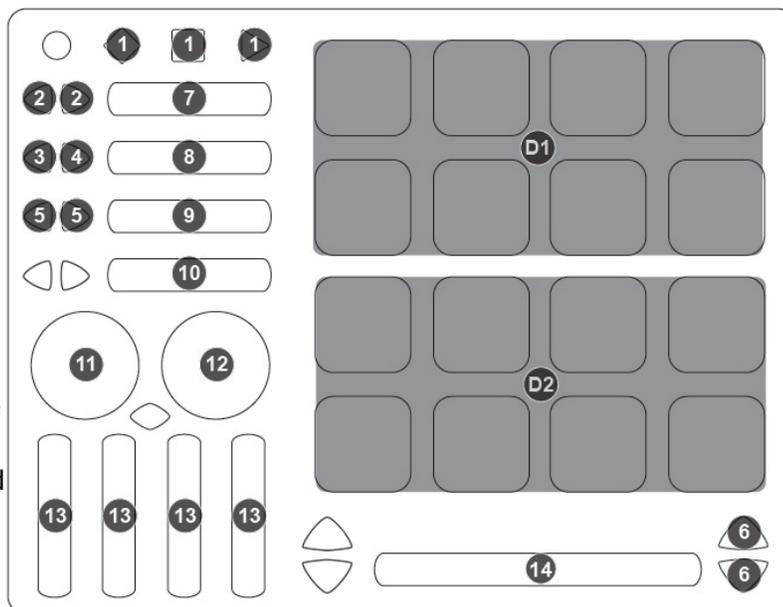
For more information about using the Ableton Live Template or the LaunchPad Emulator Template, read the corresponding Quickstart document in the QuNeo directory: "Documentation/Template Quickstarts".

Preset 10 (Ableton Live Drum Rack):

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 - DRUM MODE

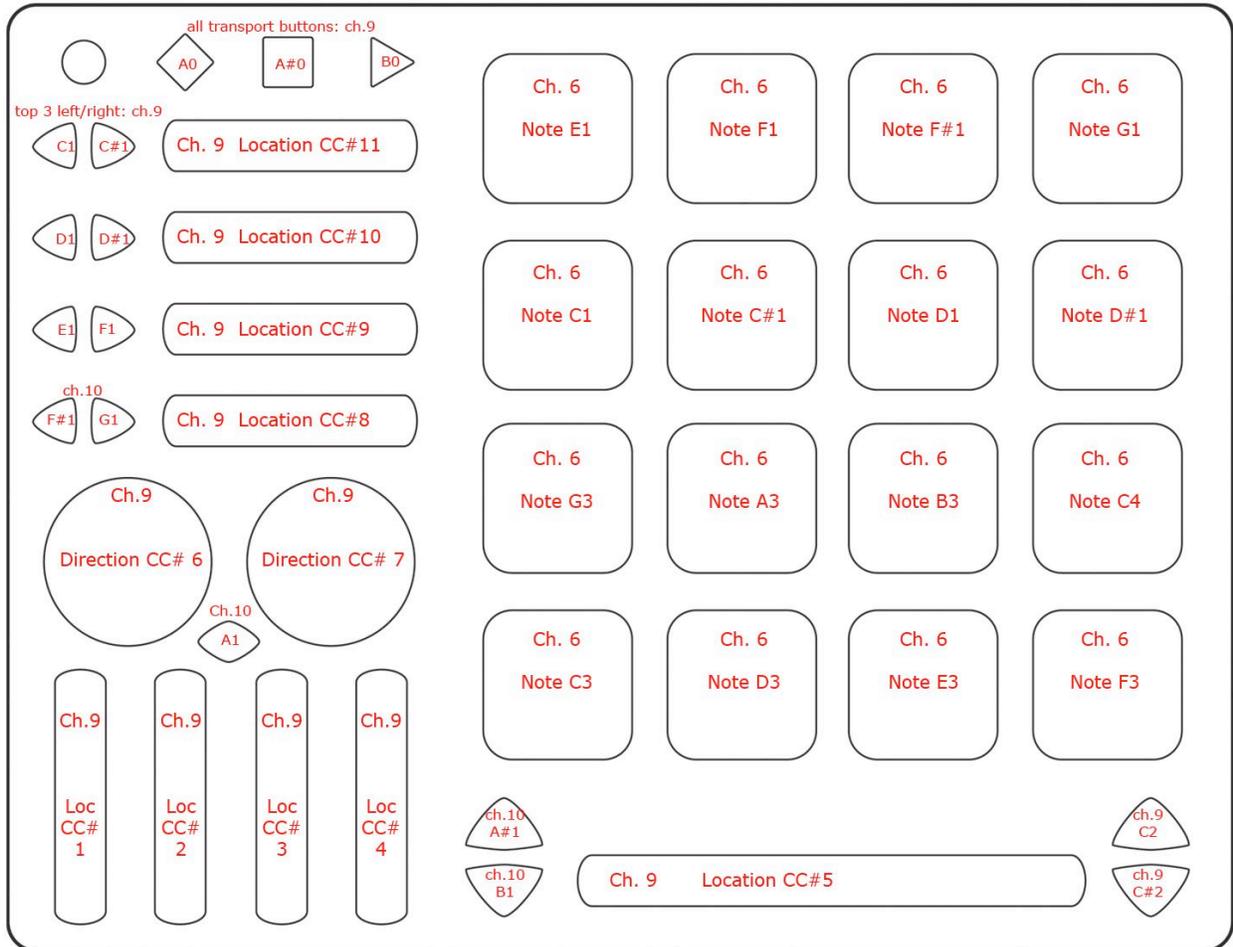


Preset 10

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.

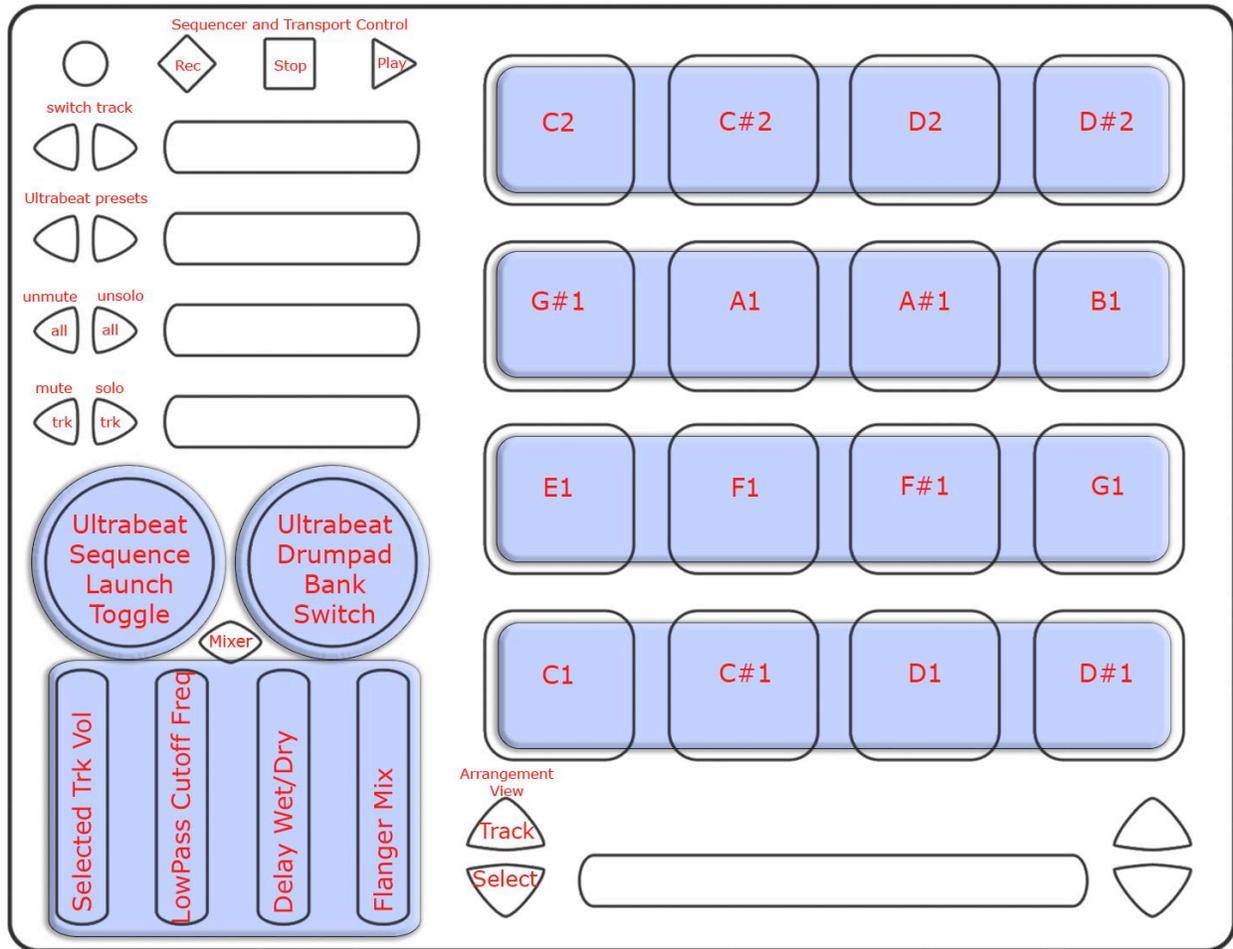
This image shows what MIDI data will output for each sensor in the "Ableton Live Drum Rack" preset. In this preset the Pads use Drum Mode. This preset doesn't use banks. Rotaries are set to use Direction instead of Location. The X/Y Return values are set to 63 on the Pads. Velocity response is variable for the Pads and fixed at 127 for the Buttons. All Pressure sources send out continuous CC values. In this preset, the LEDs will not light up because Local LED Control is turned off. This is so the Ableton Live template's Remote LEDs will have full control over the LEDs.



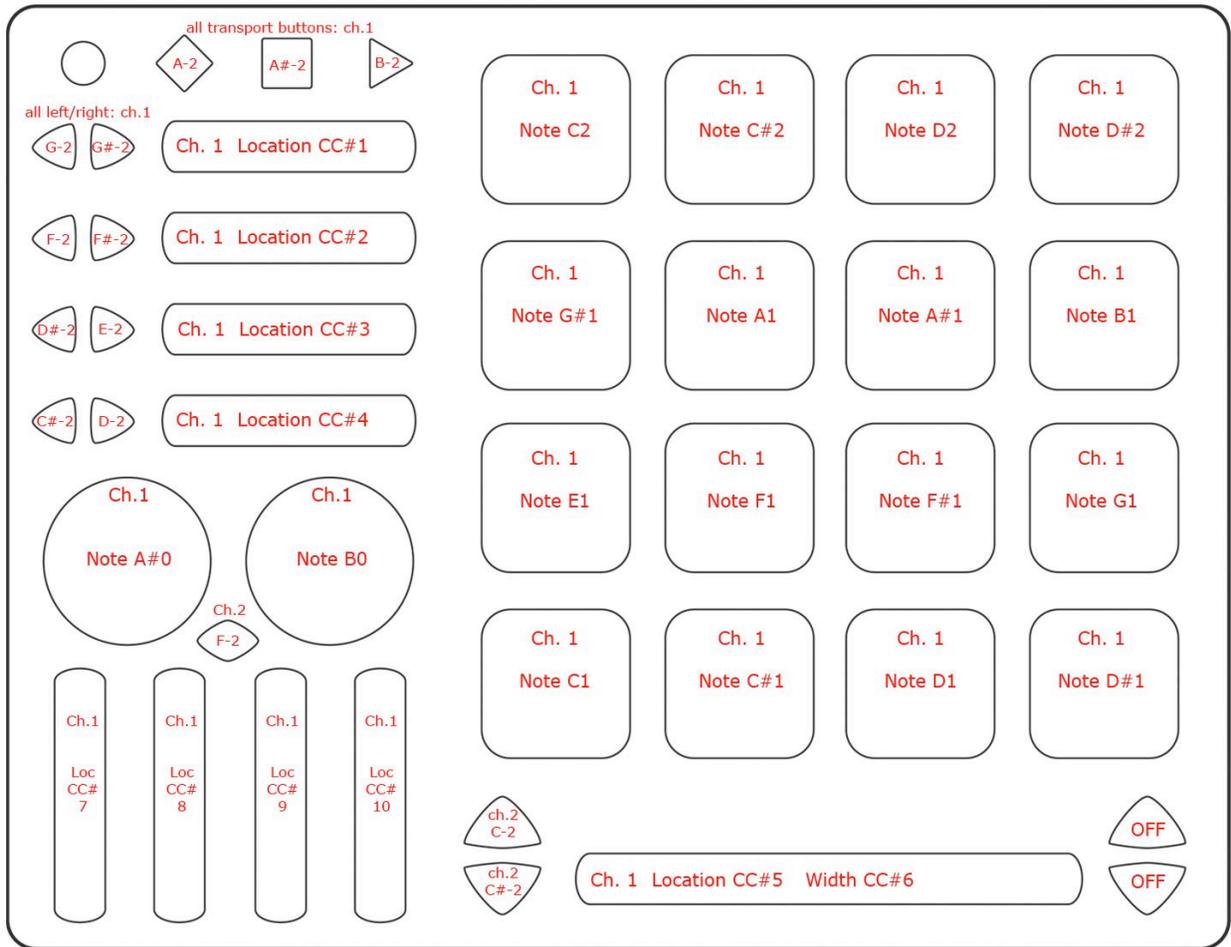
For more information about using the Ableton Live Template, read its Quickstart document in the QuNeo directory: "Documentation/Template Quickstarts".

Presets 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:



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 variable on the Pads. All Pressure sources send out continuous CC values.

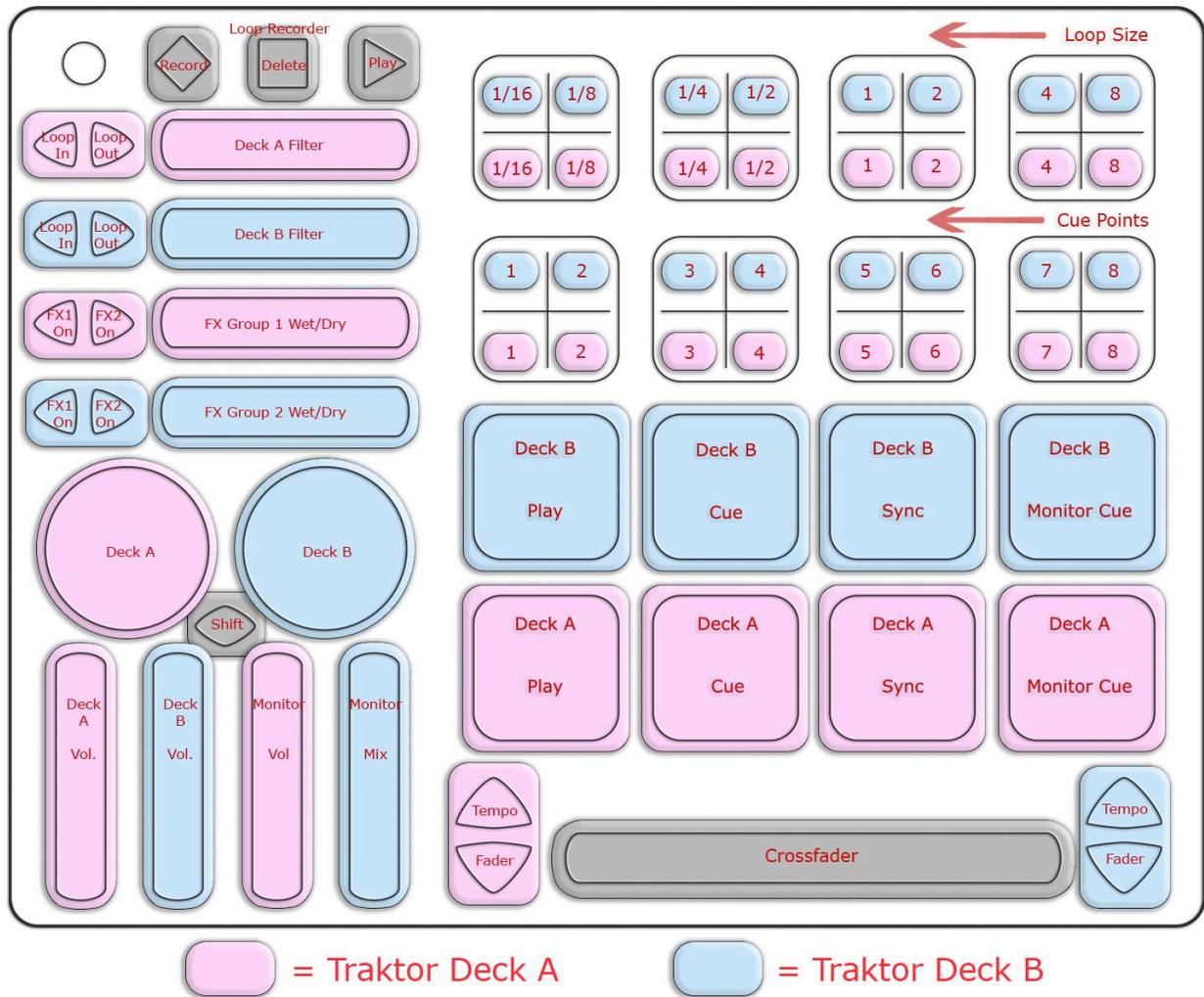


For more information about using the Logic Template read its Quickstart document in the QuNeo directory: "Documentation/Template Quickstarts".

Preset 12 (Traktor - DJ / Mixxx):

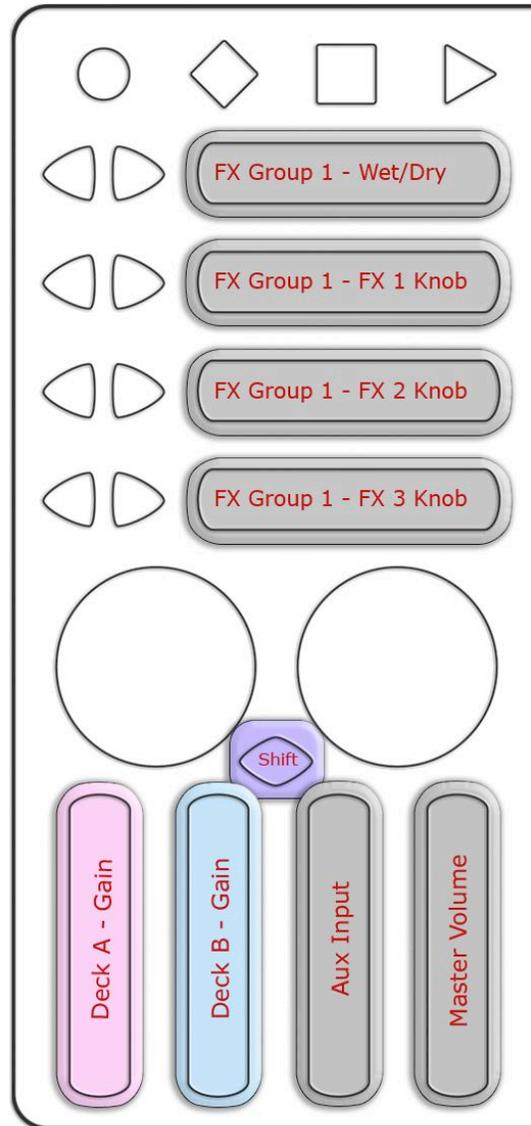
The Traktor DJ Preset turns QuNeo into a full-fledged DJ controller for Native Instruments' Traktor. This preset is designed with a more traditional approach to digital DJing in mind, with play, sync, cue, monitor, fx, filter, loop points, cue points, crossfading, deck control, and various volume controls 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):



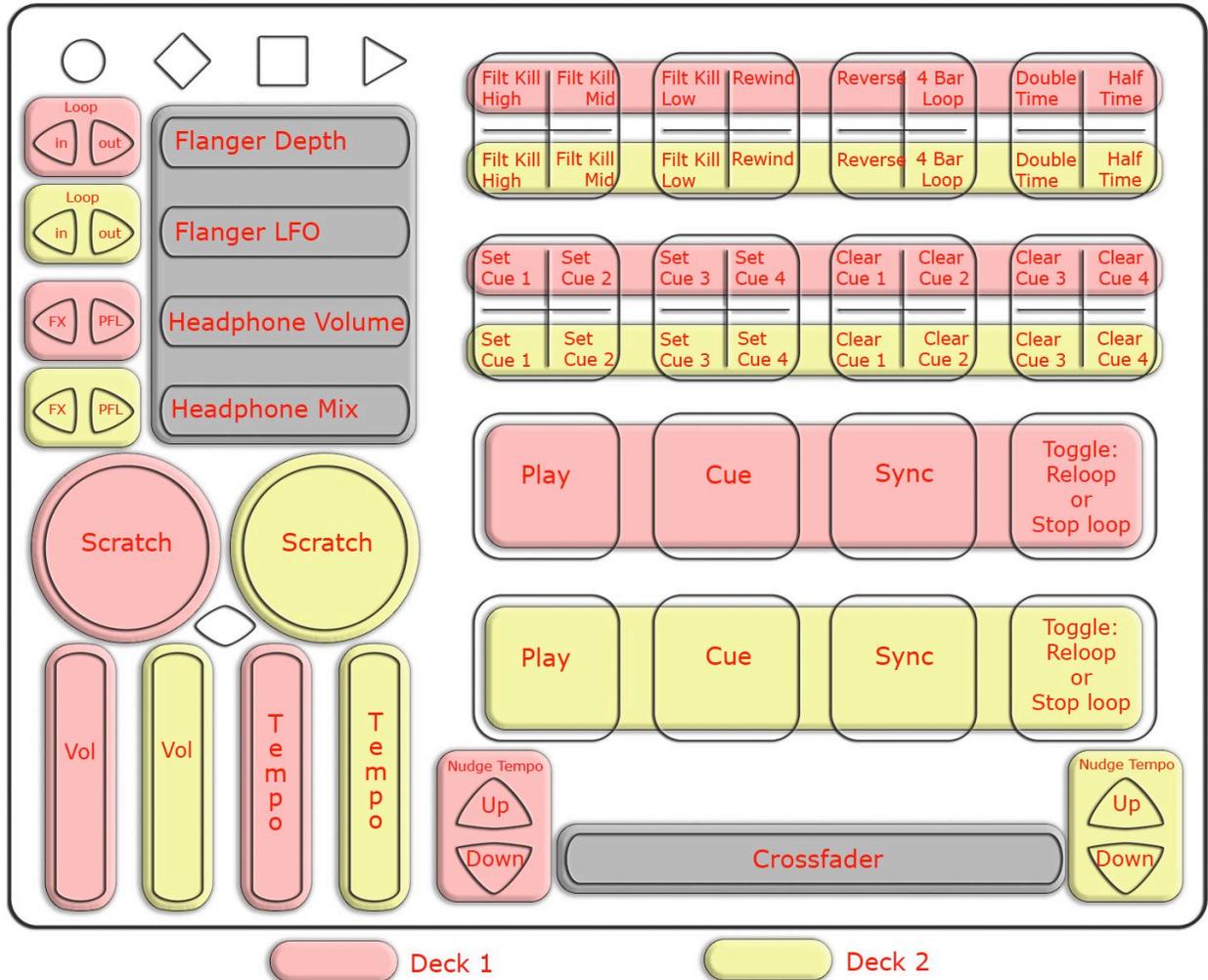
The image to the right shows how the Traktor template works when the Rhombus button (shift) is held down.

Only the Horizontal and Vertical Sliders' behavior changes in shift mode. All other sensors work the same way as they do outside of shift mode.

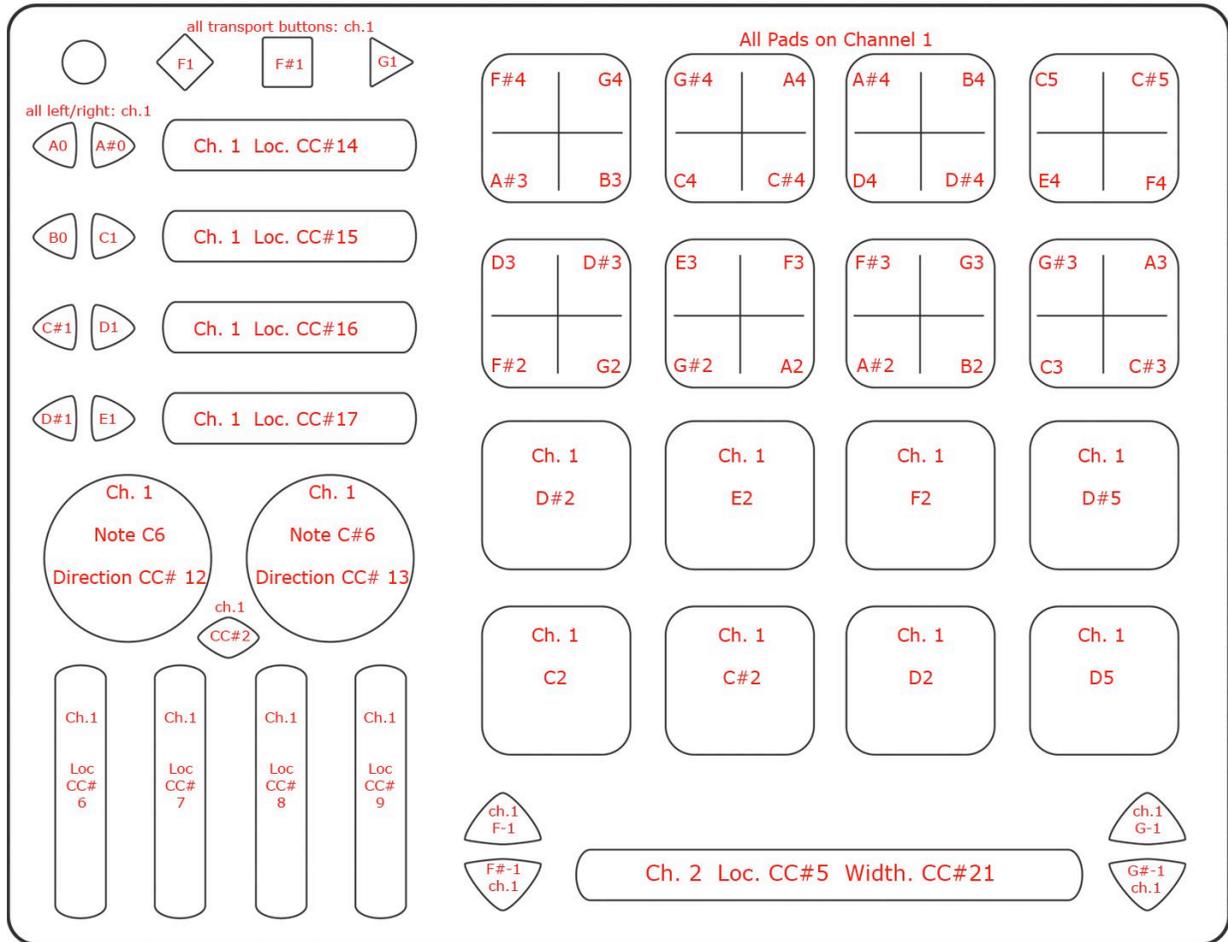


This preset turns QuNeo into a full-fledged DJ controller using Mixxx as well. It includes controls for 2 players: play, sync, cue, tempo controls, crossfading, scratching, and various volume controls accessible from QuNeo.

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. All Pressure sources send out continuous CC values.

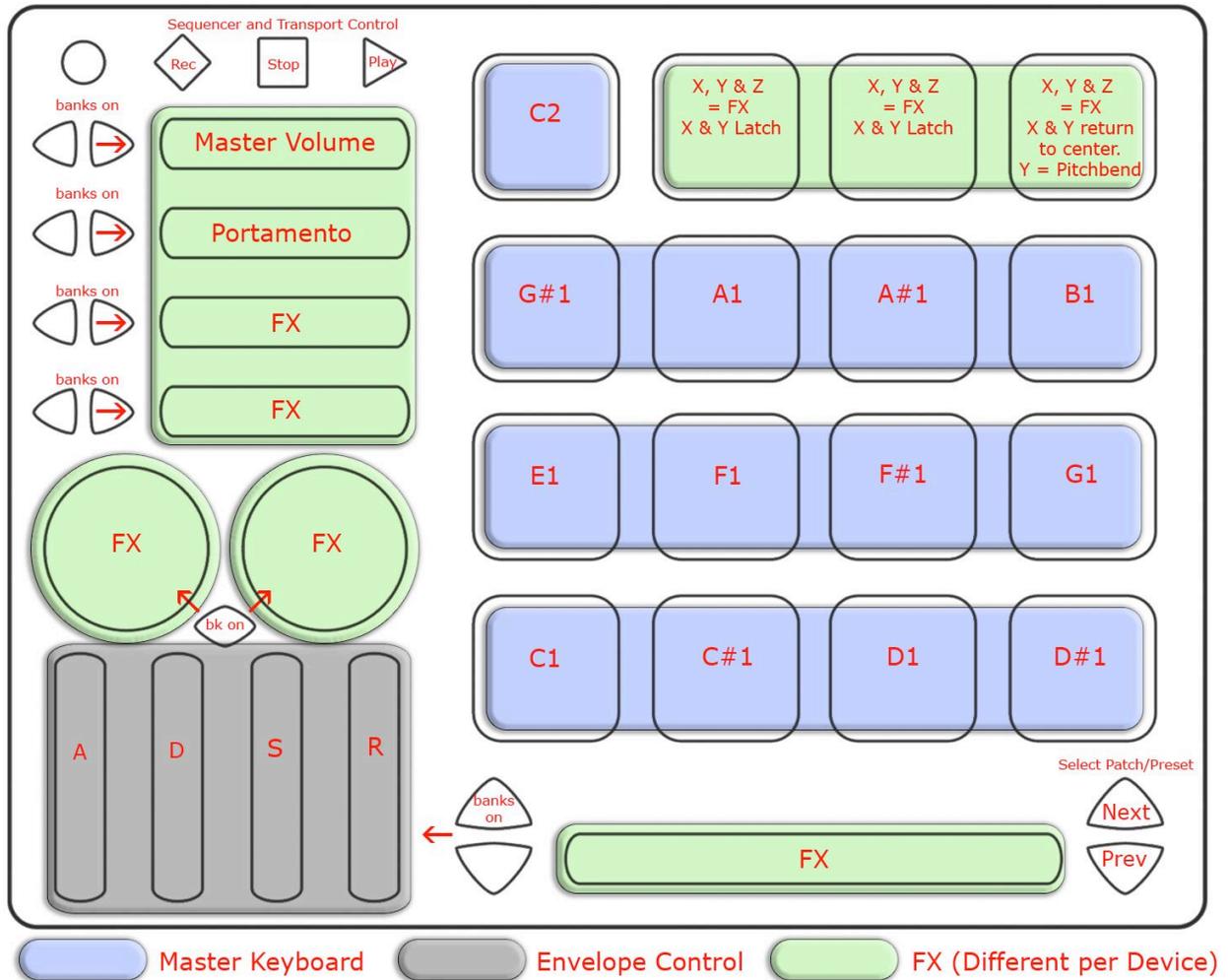


For more information about using the Traktor or the Mixxx Template read their Quickstart documents in the QuNeo directory: “Documentation/Template Quickstarts”.

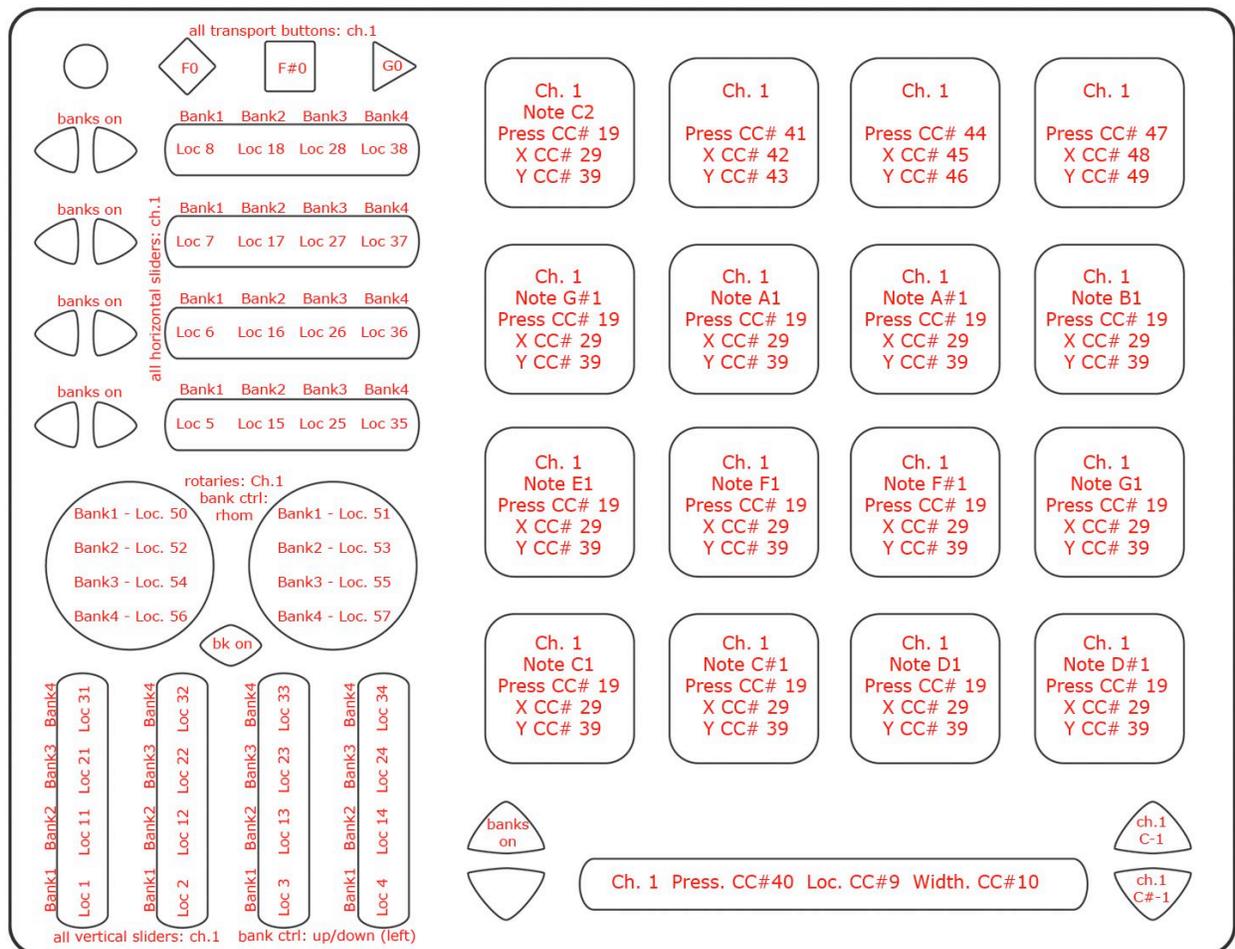
Preset 13 (Reason):

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 variable for the Pads and fixed at 127 for the Buttons. All Pressure sources send out continuous CC values.

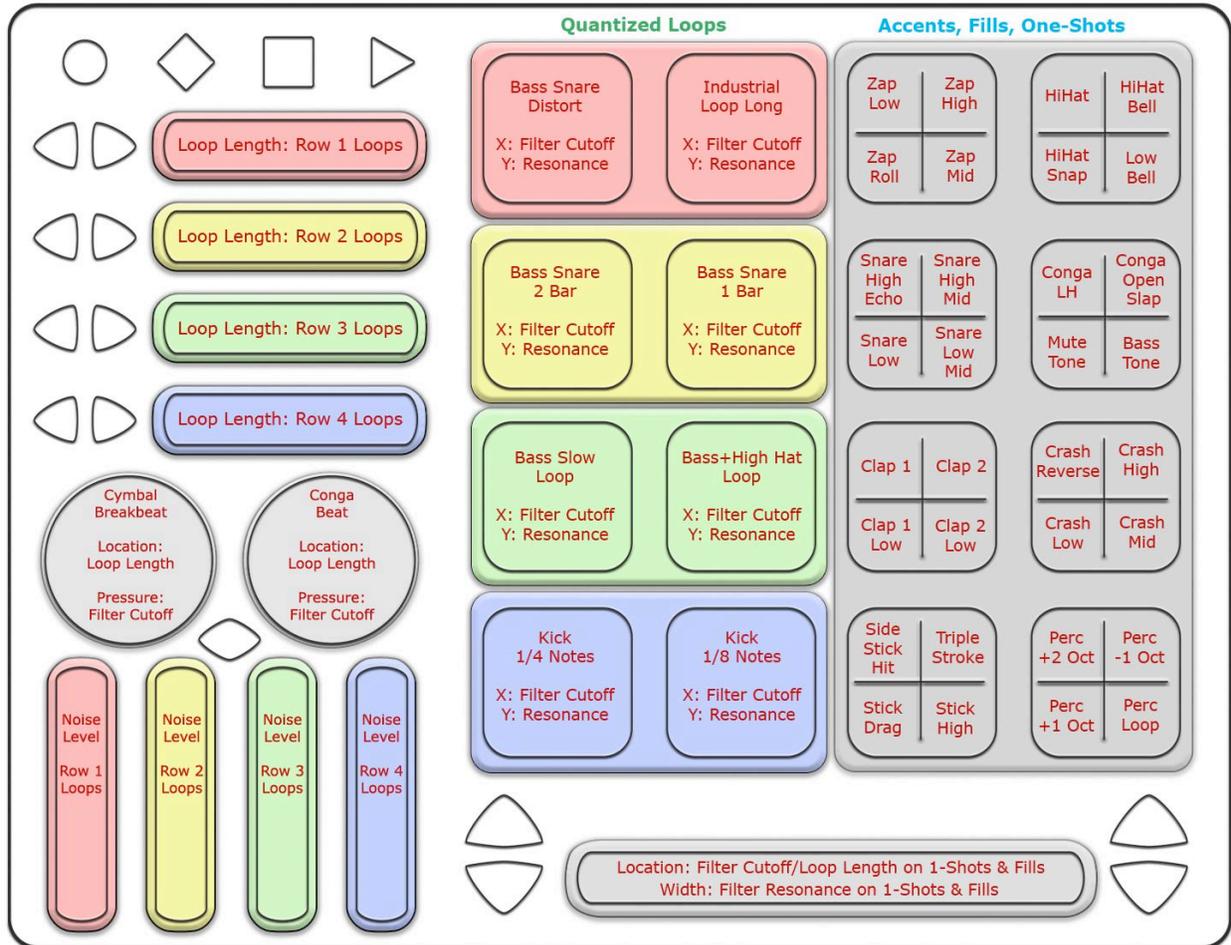


For more information about using the Reason Template read the Reason Template Quickstart document in the QuNeo directory: "Documentation/Template Quickstarts".

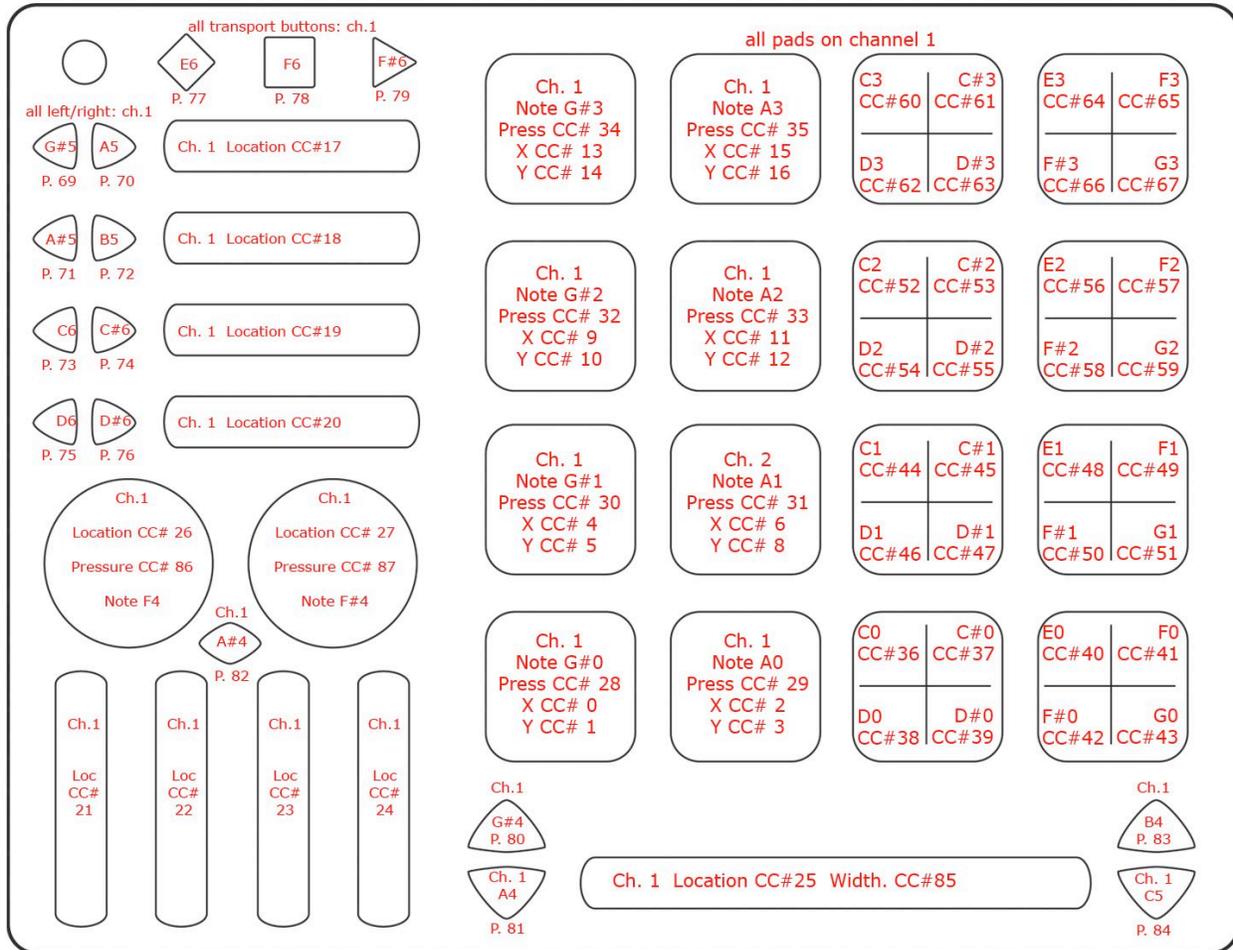
Preset 14 (Battery):

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 variable for notes on Pads and Rotaries. Velocity is fixed at 127 for notes on the Buttons. All Pressure sources send out continuous CC values.



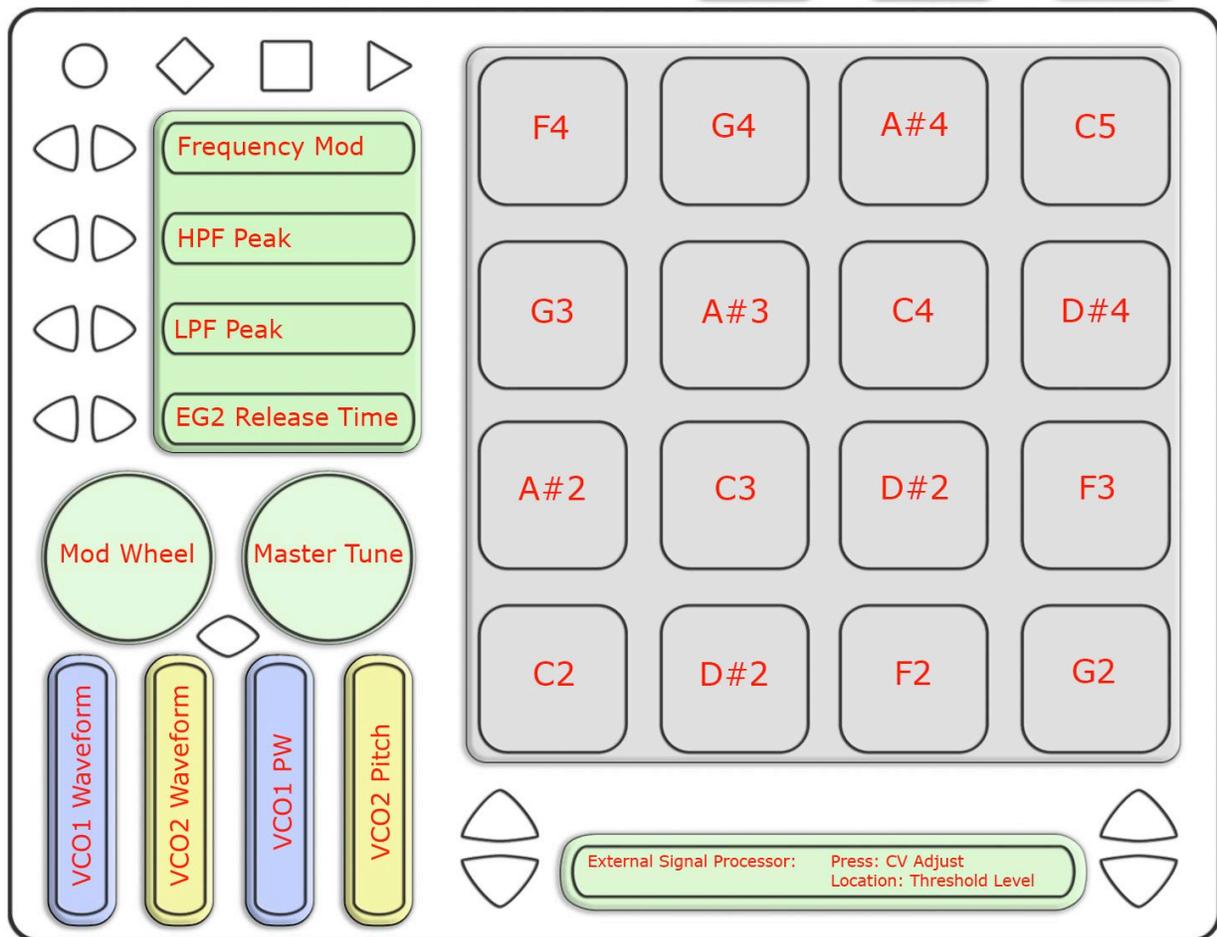
For more information about using the Battery Template read the Battery Template Quickstart document in the QuNeo directory: "Documentation/Template Quickstarts".

Presets 15 (Korg iMS-20 - iPad):

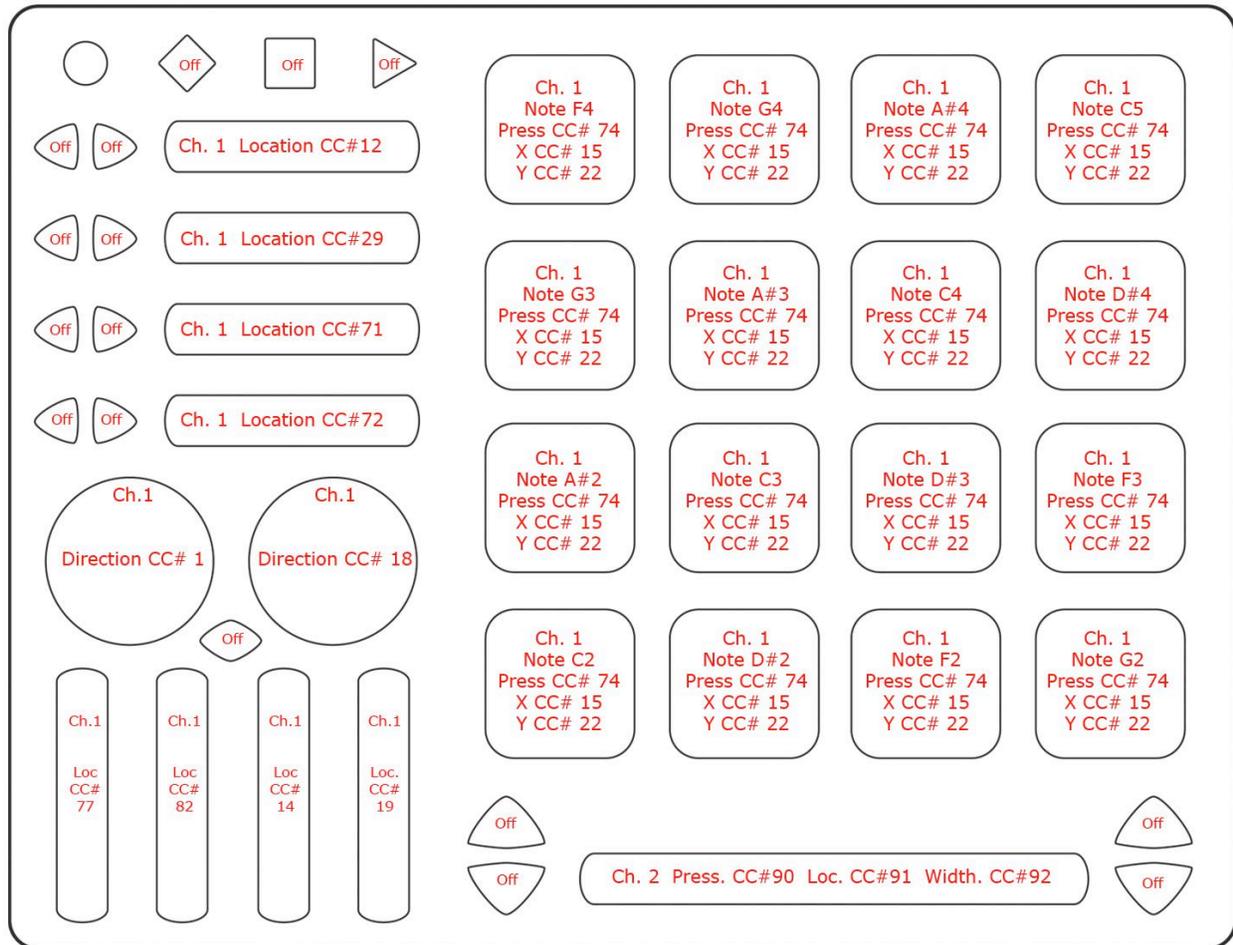
This preset is for use with Korg's iMS-20 synthesizer for iPad. This allows the QuNeo to play minor pentatonic notes from the iMS-20 and adjust voltage controlled oscillators and effects. Each pad will send out the same pressure CC# to control a low pass filter cutoff frequency. The X axis of each pad will control Pitch Bend. 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



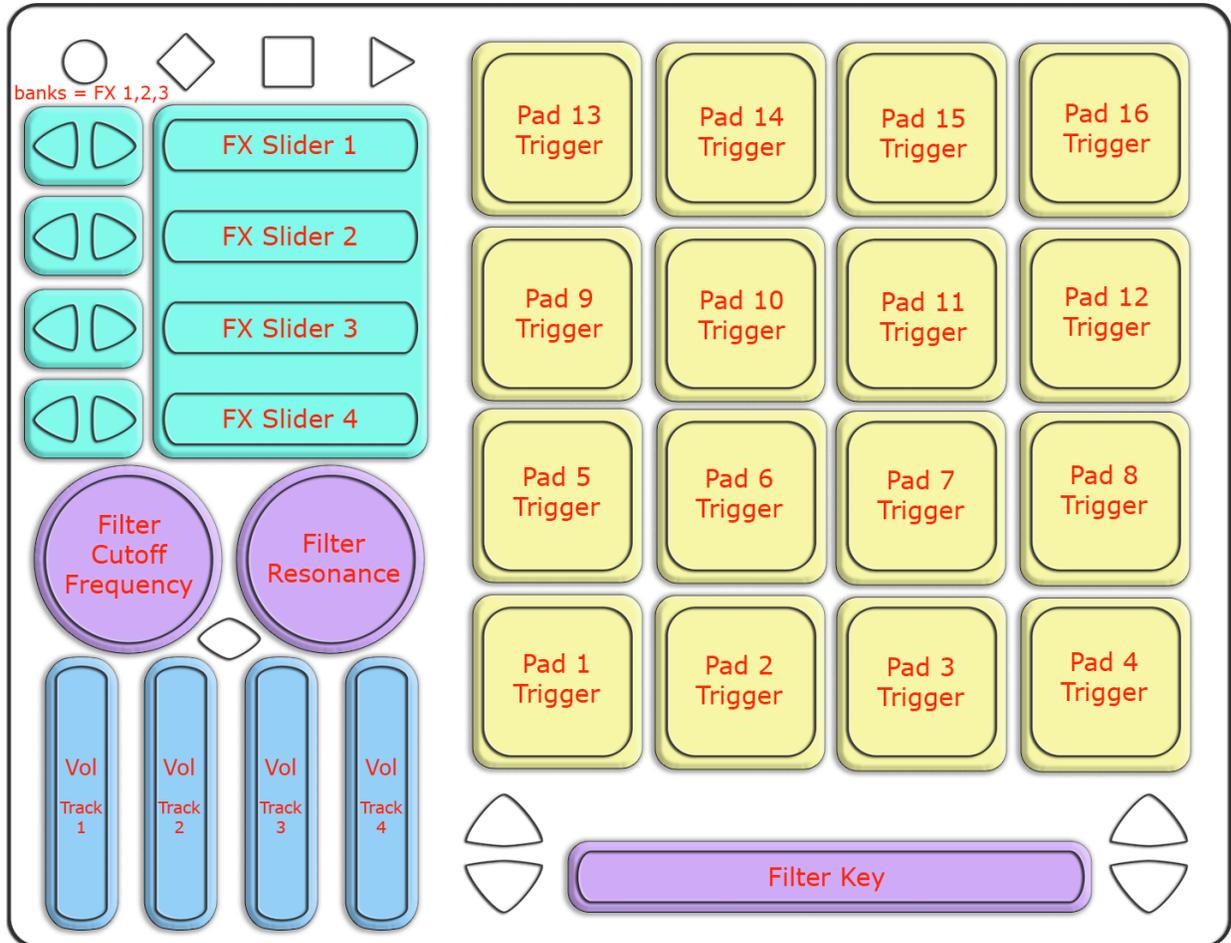
This image shows what MIDI data will output for each sensor in the “Korg iMS-20 - iPad” preset. In this preset the Pads use Drum Mode. Banks are not enabled. Rotaries are set to use Direction instead of Location. X/Y sources on the Pads are set to return to 63. Velocity response is variable for notes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



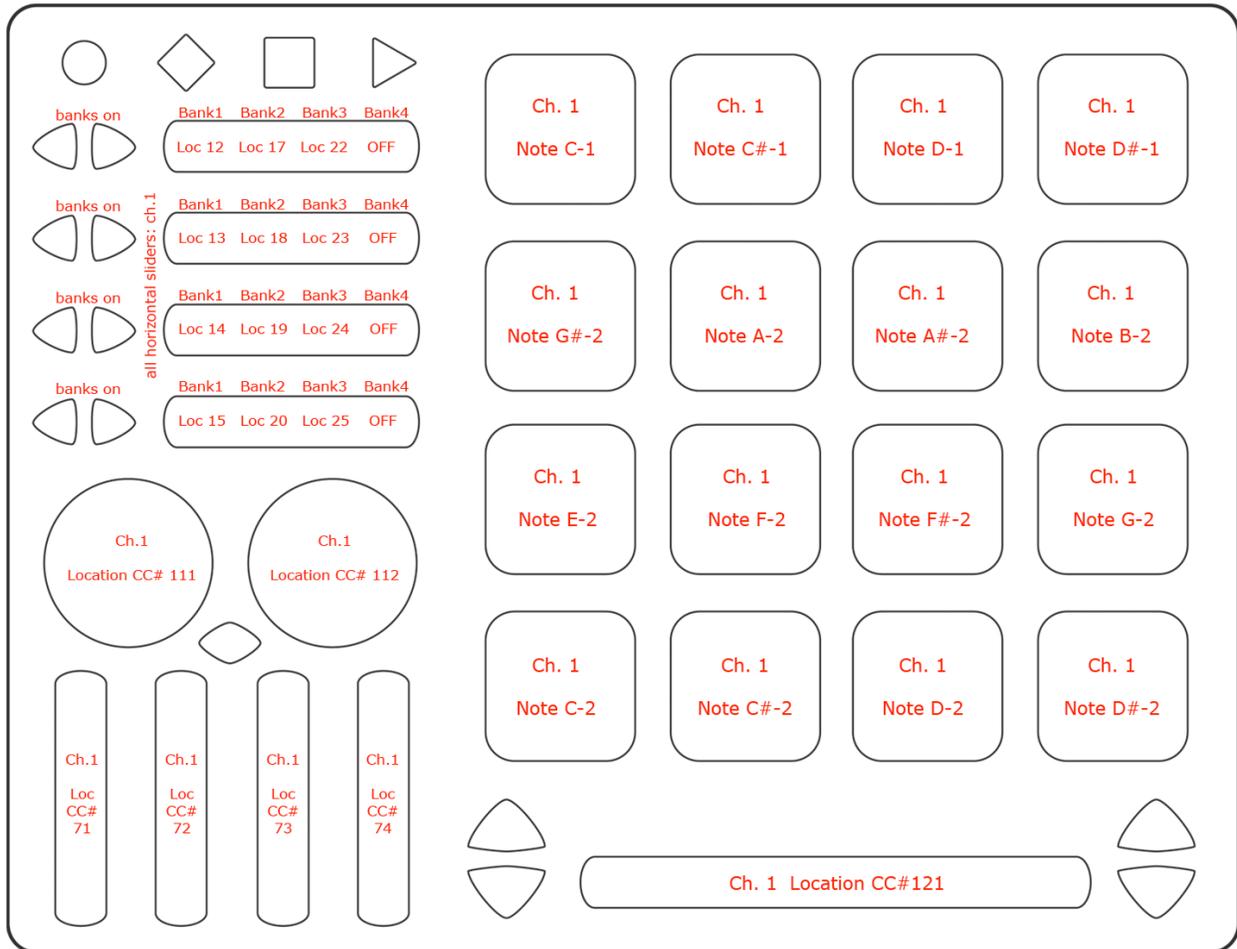
For more information about using the iMS-20 Template read the iMS-20 Template Quickstart document in the QuNeo directory: "Documentation/Template Quickstarts".

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 variable for all notes. All Pressure sources send out continuous CC values.

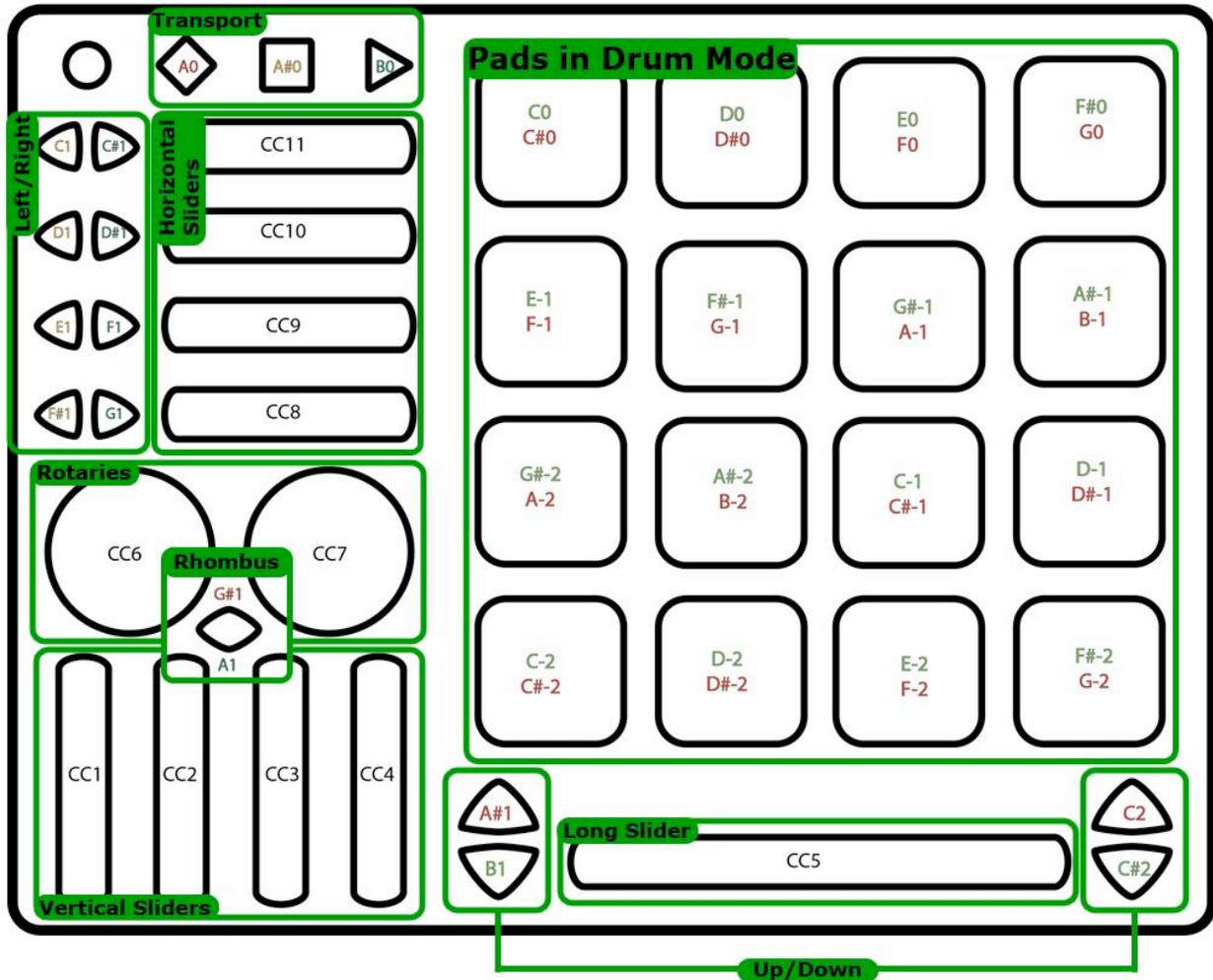


For more information about using the BeatMaker Template read the BeatMaker Template Quickstart document in the QuNeo directory: "Documentation/Template Quickstarts".

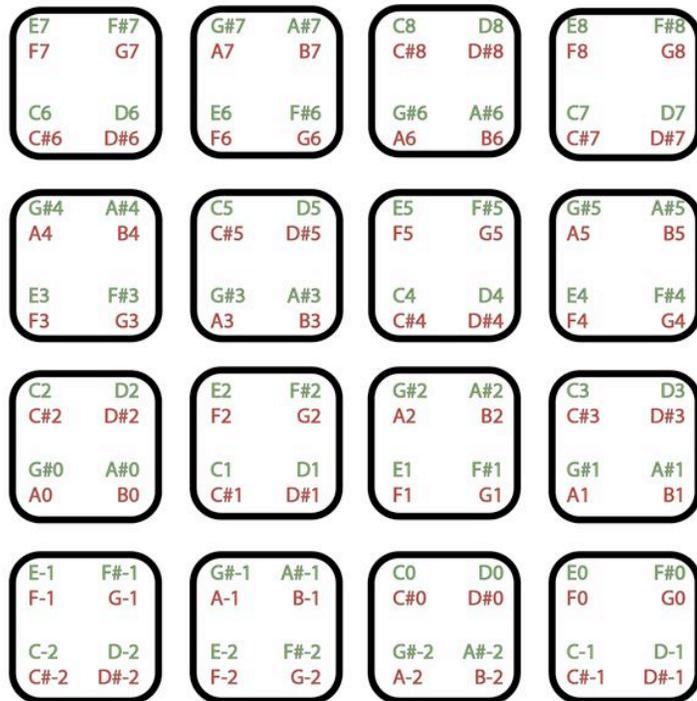
MIDI Input

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.

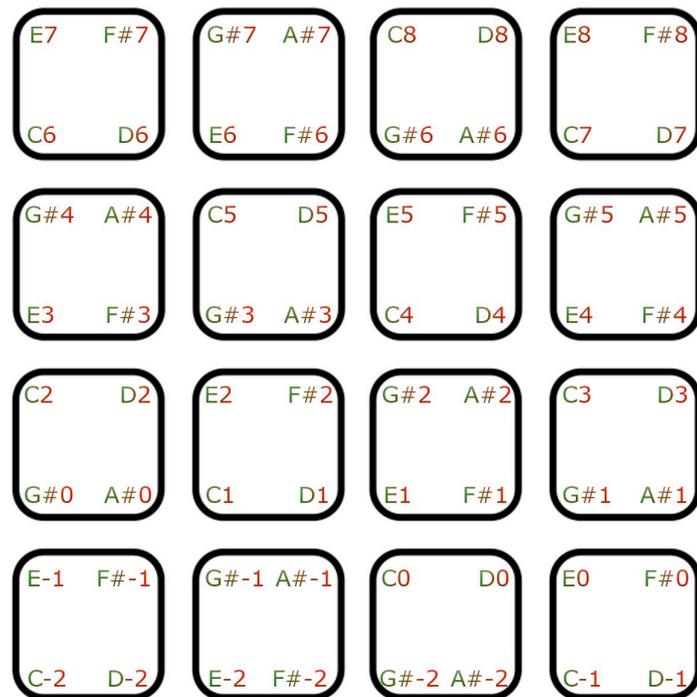
All presets (except the Ableton presets) use **Channel 1** as the default LED channel for Pads in drum mode and all other sensor types.



All presets (except the Ableton Presets) use **Channel 2** as the default LED channel for Pads in grid mode. The Image to the left shows what note numbers control each individual LED.



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. All presets (except the Ableton presets) use **Channel 3** for this behavior.



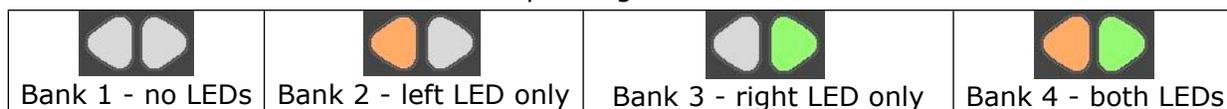
QuNeo LED Behavior

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

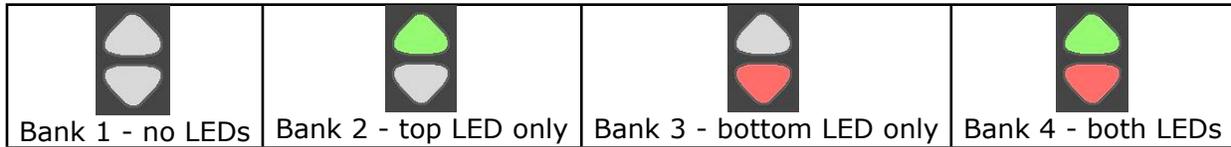
Without sending LED messages to the QuNeo from another application or device, the QuNeo's LEDs will automatically respond to touch. Local LED Control is the QuNeo's built-in LED behavior and will override any currently incoming Remote messages. Here is how the LEDs will behave for each sensor.

- **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.



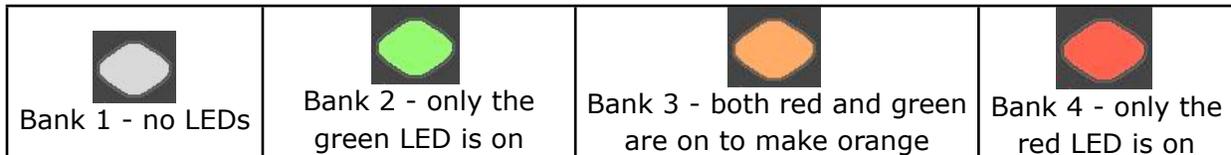
- **Up/Down Button LEDs**

- 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.



- **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.



- **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 rotary 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 with 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 with 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 (sending both notes will turn the LED orange). 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 with 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/>

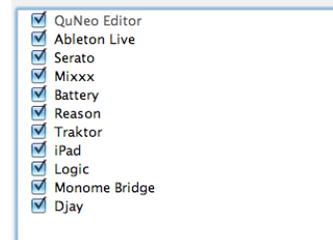
The Software Installer contains template files that go with QuNeo presets for Ableton Live, Traktor, Battery, Reason, Mixxxx, djay, and BeatMaker (iPad). All of these can be automatically copied onto a computer by running the QuNeo Automatic Installer. There is also a QuNeo Manual Installer, which will 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.

Automatic Installer Instructions (Mac and Windows XP & 7)

1. Double-click on the .dmg file to open the disk image, and then double-click on the QuNeo Software Installer.
2. Type the admin password for your computer and click ok (Mac). Then click next.

3. Either choose a new directory where QuNeo will be installed or accept the default directory. Click next.
4. Name the installation folder or accept the default. Click Next.
5. On the "Select Components" page, select the software you want to use with QuNeo (as shown in the image to the right). Click next.

Select the components you want to install; clear the boxes for components you do not want to install. Click Next when you are ready to continue.



6. If you checked any boxes for using QuNeo with other music software you will be prompted to check the installation directories to make sure they are correct. If you are warned that your path is incorrect you must follow the instructions to go back and choose the correct path (otherwise there will be an installation error).
7. Finish up with the installer and a QuNeo folder will now appear in the Applications (Mac) or C: drive (Windows) directory on your computer. Any Software Templates you selected will also be installed in the correct locations.

Manual Installer Instructions (Mac and Windows XP & 7)

To install the Manual Installer just unzip the file after downloading and move the whole folder anywhere. If using any of the software templates, look inside the "Software Templates" folder and the folder for the desired software to find a README file and/or a Quickstart guide. The README files contain instructions for manually placing the necessary template files. The Quickstart guides contain instructions for getting QuNeo up and running with the software.

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. Use the QuNeo Editor to make changes to QuNeo's presets. 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.

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
- 100 MB free hard disk space

WINDOWS:

- Windows XP, or Windows 7
- Intel Core 2 processor or greater
- 1GB of RAM with 100 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.

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.



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

Updating Presets

To update your presets to the current version follow these steps:

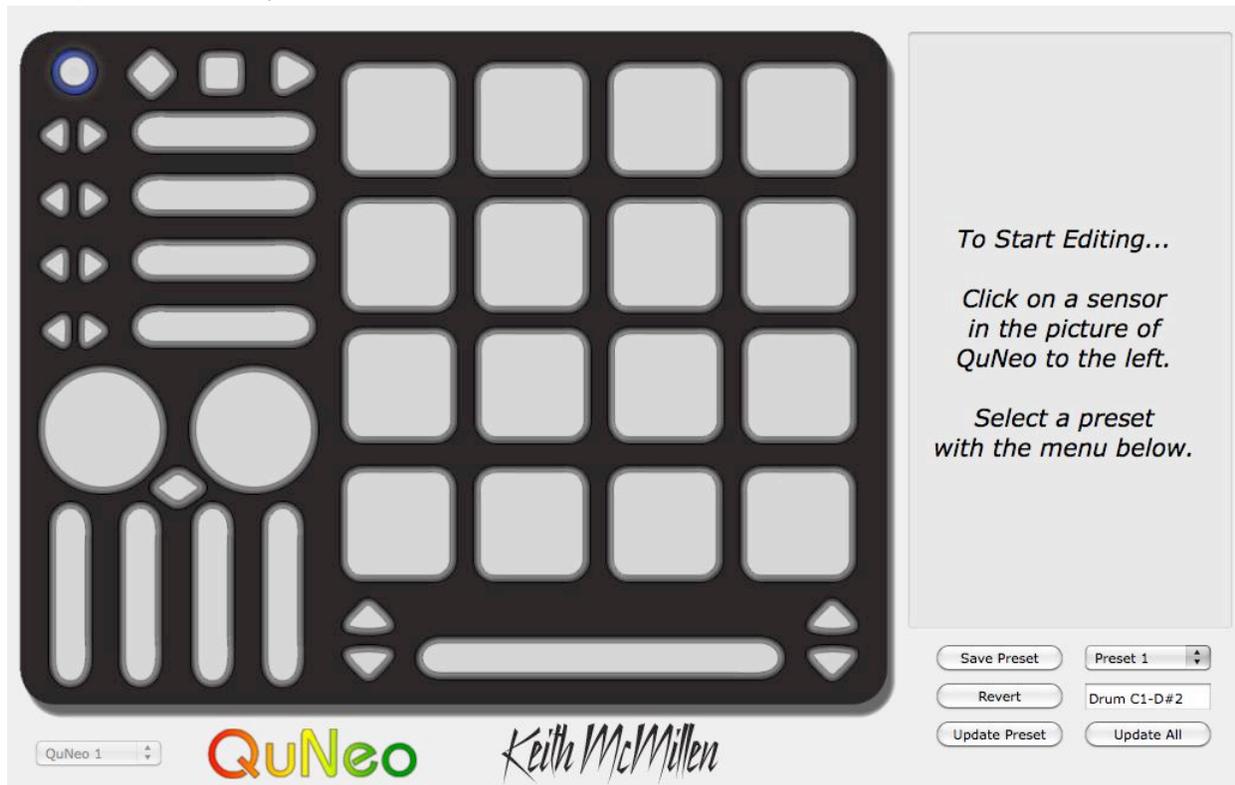
1. Open up the previous version of the QuNeo Editor, where you made the presets you wish to use.
2. Export each preset using the File menu.
3. Exit the previous version of the QuNeo Editor and open up QuNeo 1.2.2.
4. Go to a factory preset you wish to import your old preset to.
5. Go to the File menu and select "Import Preset"
6. Locate your .quneopreset file and import it.
7. Save the preset and update your QuNeo.
8. Repeat steps 4-7 for any other presets you wish to update.



Tip: When updating older presets to the new version, new parameters will be set to default values. Be sure to check out the new features and make sure they are set up how you would want them.

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.

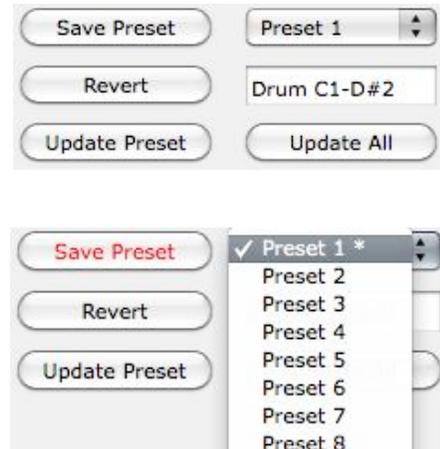
Saving

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. **“Save Preset”** exists here as well as **“Save All Presets”**. **“Import Presets”** opens previously exported presets into the currently selected preset slot. **“Export Presets”** will save a file containing the currently selected preset for safe keeping or sharing.

“Export All Presets” will save 16 files, 1 for each preset. 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, it is necessary to save it. **“Revert Current Preset to Factory”** reloads the original preset into the current preset slot. **“Revert All Presets to Factory”** reloads all of the original presets. After reverting to the factory presets, save to keep the factory versions.

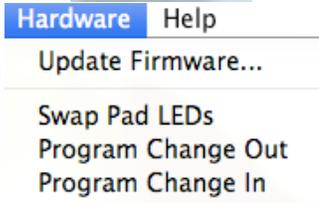
“Edit Next Sensor” and **“Edit Prev Sensor”** allows the use of key commands to move to the next edit pane.



The **Drum Styles** menu contains options that auto-adjust the Pad sensitivities and advanced parameters to create different “feels” when playing the pads.

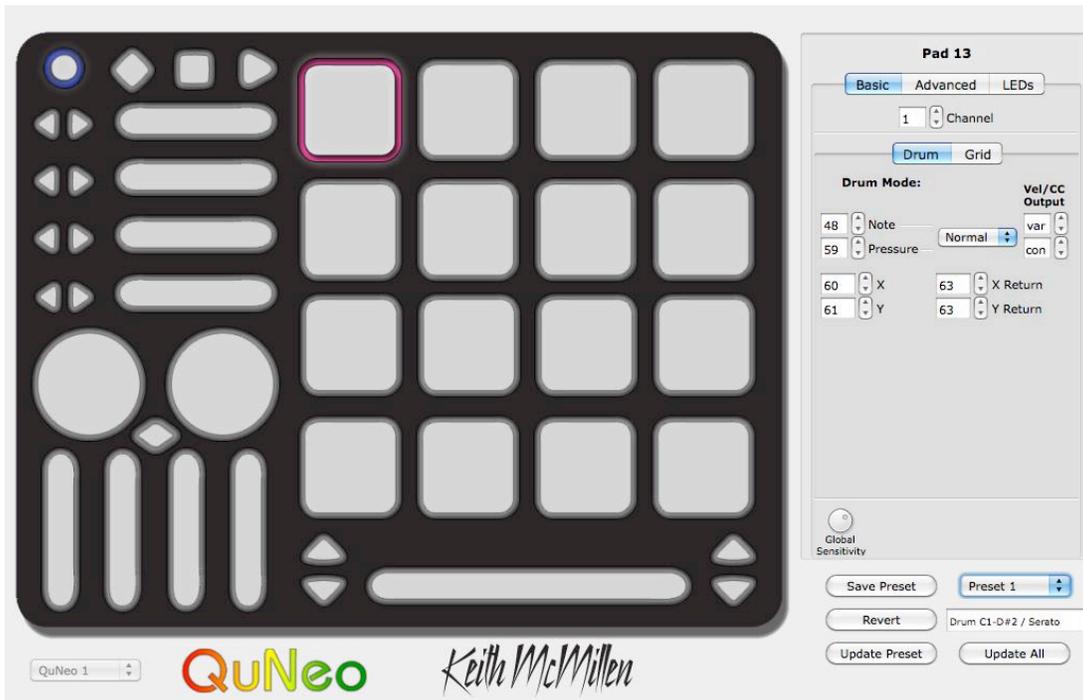


The **Hardware** menu contains a couple options that will affect the QuNeo hardware. The “**Update Firmware...**” option will open up a firmware update prompt. Click ok and the firmware will update. (See the “[Updating the Firmware](#)” chapter of this manual for more information).



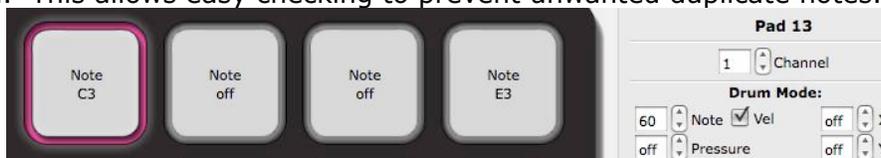
The “**Swap Pad LEDs**” option will switch the red and green LEDs on the QuNeo. Use “**Program Change Out**” and “**Program Change In**” to enable and disable program changing. Enabling Program Change In causes Presets to change when sending a Program Change to QuNeo. Enabling Program Change Out causes QuNeo to send Program Changes when a new Preset is selected.

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 this way for all sensor types.

To select multiple sensors to edit simultaneously, hold shift while clicking on another sensor. You can only do this with sensors of the same type. For Example: If a Pad is selected you can shift-click another pad to edit them together (you cannot shift-click to edit a Pad with a Horizontal Slider or Rotary).

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

Pad Edit Pane - Basic

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 the Grid tab and checking 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 X and Y Return values.

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



To disable a source, set the number box below 0 to "off" (-1). X or Y can be set below off to "bend" (-2) in order to use pitch bend instead of a CC#.

Notes and Pressure CC#s can be set to Normal or Toggle mode and utilize Velocity/CC output number boxes for added functionality. See the [Normal and Toggle Modes](#) chapter for more information.

X and Y Return values are the CC value that X and Y will return to when the Pad is released. If the number box is set below 0 the values will "latch" (-1), staying where they are left when the pad is released.

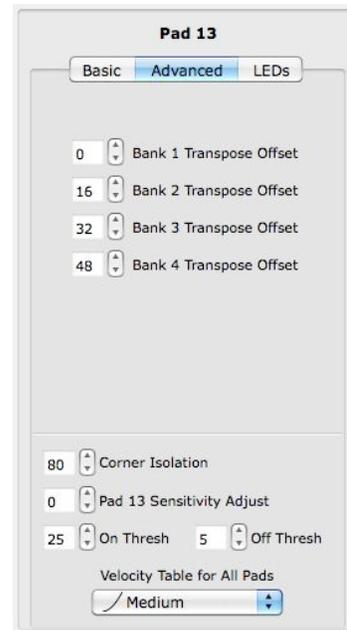
Global Sensitivity is at the very bottom of the edit pane. For more information on this please reference the [Sensitivity](#) chapter.

Pad Edit Pane - Advanced

There are 4 banks available for the notes of the Pads. The note banks of the Pads 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 Pad notes for each bank can be adjusted here in the Advanced tab of the Pad edit pane. Here you would set transpose intervals for the notes in each bank (as shown in the image to the right). Take note that Bank 1 Transpose Offset is set to 0 so that bank 1 will not offset the notes programmed in the basic tab. Changing Pad banks will not affect the CCs of the other Pad sources (X, Y, Pressure, etc.).

Located in the bottom of the Advanced tab is the **Corner Isolation** parameter. This parameter adjusts how sensitive the other corners of a 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. The higher the corner isolation value, the greater the isolation is between corners.



Pad [#] Sensitivity Adjust - The higher the sensitivity, the easier it will be to get pressure and velocity to the higher value ranges. The lower the sensitivity, the more difficult or impossible it will be to get the pressure and velocity to the higher value ranges. This sensitivity setting is per Pad, which makes it easy to set each pad to a specific sensitivity. Use **Global Sensitivity** to tweak the sensitivity of all Pads simultaneously.

On Thresh - The pressure value at which a note on will register. **Example:** If set to 10, the Pad pressure has to reach a value of 10 before a note on is sent. This is global for all Pads.

Off Thresh - The pressure value at which a note off will register. **Example:** If set to 5, the Pad pressure would have to be 5 or lower for a note off to register. This cannot be set higher than the on threshold. This is global for all Pads.

Velocity Tables - When using the editor, there are five velocity tables. These tables shape the velocity output of the QuNeo.

- 1 **None** - This table is linear and has no effect on the velocity output.
- 2 **Medium** - This table gives the most precision in the 0-100 velocity range. As long as the sensitivities aren't set low, hitting the Pads at Medium strength will give you access to the higher velocity values.
- 3 **Light** - This table emphasizes the mid range. Light taps reliably give a range of 50-100 but it is still necessary to hit harder to get to 127.
- 4 **Hard** - This table expands the lower range and makes it more difficult to hit the higher velocity values.

Dynamic - This table is good for getting varied velocity values with very little change in pressure.

Playing Styles

The Pad's global sensitivity and advanced parameters allow users to fine tune the playing style of their QuNeo. Default values have been carefully chosen but we have also put together a few suggestions to accommodate other playing styles:

- For the user who wants to hit very hard to reach a velocity of 127 - try setting the velocity table to "Hard" and the global sensitivity dial down to 11 o'clock.
- For the user who wants high or low values, with very little middle range - try using the "Hard" or "Medium" velocity table with the global sensitivity dial at 12 o'clock.
- For the user who wants to tap very lightly and still get lots of dynamic range - try turning the on threshold up to 20 and the off threshold to 15. Set the global sensitivity dial to just past 12 o'clock and select the "Dynamic" or "Light" velocity table.

Pad Edit Pane - LEDs

The LED tab of the Pad edit pane allows you to choose individual LED channels for Drum mode and both of Grid mode's LED behaviors.

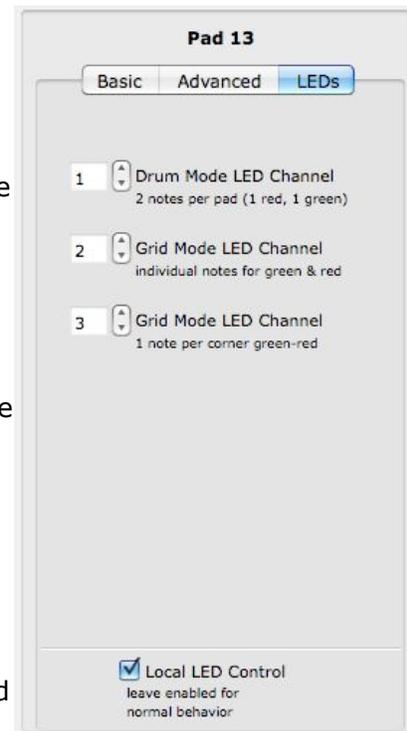
Drum Mode LED behavior - Pads can receive a note for the green LEDs and a note for the red LEDs. The velocity of the note will determine the brightness.

Grid Mode LED behavior (individual notes) - 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.

Grid Mode LED behavior (1 note per corner) - 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.

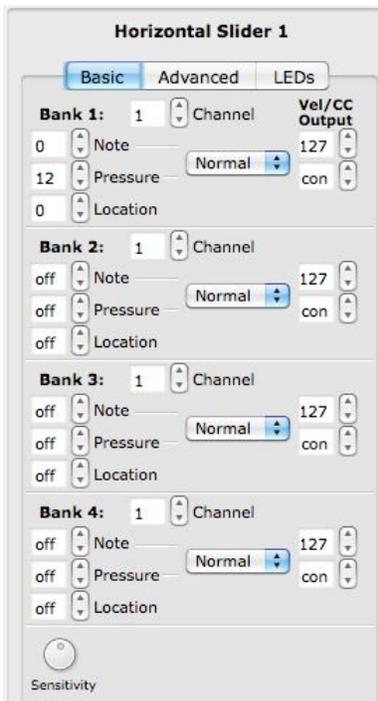
The input Channels for these LED behaviors are adjustable (as shown in the image to the right). For a map of the hard coded notes and CC#s that control the LEDs, see the [MIDI Input](#) chapter of this manual.

There is a Local LED Control check box at the very bottom of the edit pane. For more information on this please reference the [Local LED Control](#) chapter.



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.

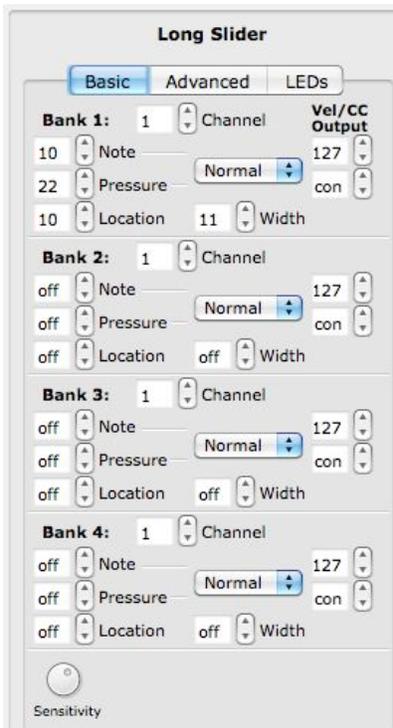
The Slider Edit Pane parameters include a Note, Pressure CC#, and Location CC# for each bank. To disable a source, set the number box below 0 to "off" (-1).

Notes and Pressure CC#s can be set to Normal or Toggle mode and utilize Velocity/CC output number boxes for added functionality. See the [Normal and Toggle Modes](#) chapter for more information.

Sensitivity can be adjusted at the very bottom of the edit pane (see the [Sensitivity](#) chapter).

For information about the Advanced and LEDs tab, reference the [Advanced Tab \(Sliders\)](#) chapter and the [LEDs Tab](#) chapter.

Long Slider Edit Pane



There are 4 Long Slider banks available. They 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.

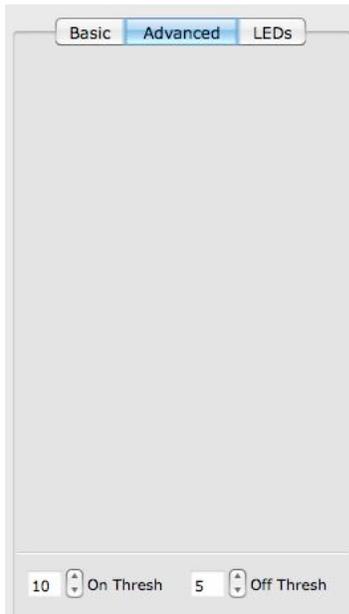
The Long Slider Edit Pane parameters include a Note, Pressure CC#, Location CC#, and Width CC# for each bank. To disable a source, set the number box below 0 to "off" (-1).

Notes and Pressure CC#s can be set to Normal or Toggle mode and utilize Velocity/CC output number boxes for added functionality. See the [Normal and Toggle Modes](#) chapter for more information.

Sensitivity can be adjusted at the very bottom of the edit pane (see the [Sensitivity](#) chapter).

For information about the Advanced and LEDs tab, reference the [Advanced Tab \(Sliders\)](#) chapter and the [LEDs Tab](#) chapter.

Advanced Tab (Sliders)



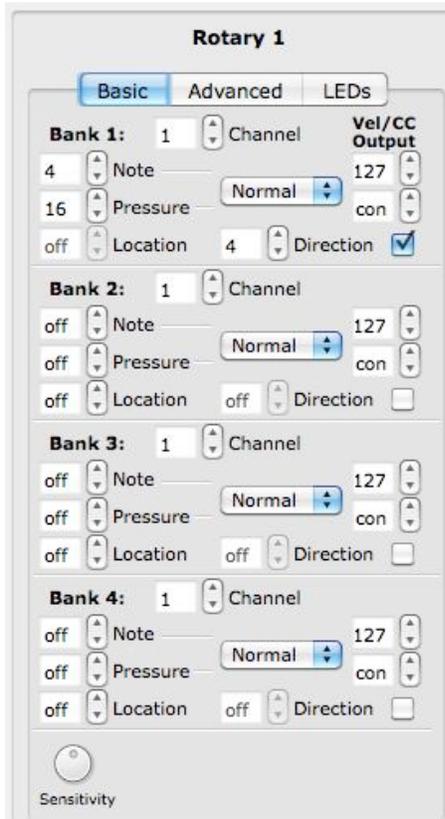
The Horizontal, Vertical, and Long Sliders all have the same Advanced tab. There isn't much in here just yet except for On and Off threshold adjustment parameters.

On Threshold - The pressure value at which a note on will register. **Example:** If set to 10, the Slider pressure has to reach a value of 10 before a note on is sent.

Off Threshold - The pressure value at which a note off will register. **Example:** If set to 5, the Slider pressure would have to be 5 or lower for a note off to register. This cannot be set higher than the on threshold.

These two parameters are global for their respective slider types.

Rotary Edit Pane



There are 4 Rotary banks available. Either the Rhombus button, or one of the Up/Down button pairs can select the Rotary banks. 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 in the Basic tab include a Note, Pressure CC#, Location CC#, and Direction CC#, for each bank. To disable a source, set the number box below 0 to "off" (-1).

Notes and Pressure CC#s can be set to Normal or Toggle mode and utilize Velocity/CC output number boxes for added functionality. See the [Normal and Toggle Modes](#) chapter for more information.

The **Direction** CC# will repeatedly send out a 1 if finger movement is clockwise. If finger movement is counterclockwise, the CC# will repeatedly send out a 127. We refer to this repeated CC# as a tick. The faster a finger is moved, the faster the ticks will output.

Direction and Location cannot be used at the same time. Use the checkbox next to Direction to enable one or the other.

Sensitivity can be adjusted at the very bottom of the edit pane (see the [Sensitivity](#) chapter).

The Advanced tab of the Rotary edit pane contains a few more useful features.



The Pass Thru Width parameter works in conjunction with the Location parameter (editable in the Basic tab). A variation of what is often called Pass Thru Mode is used when the location parameter is enabled. Normally, in pass through mode, MIDI will not be sent until one passes through the value that the rotary was left at. **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.

The Speed parameter works in conjunction with the Direction parameter (editable in the Basic tab). The Direction CC# will repeatedly send out a 1 if finger movement is clockwise. If finger movement is counterclockwise, the CC# will repeatedly send out a 127. We refer to this repeated CC# as a tick. The faster a finger is moved, the faster the ticks will output. **Speed** controls the number of direction ticks per degree of the rotary.

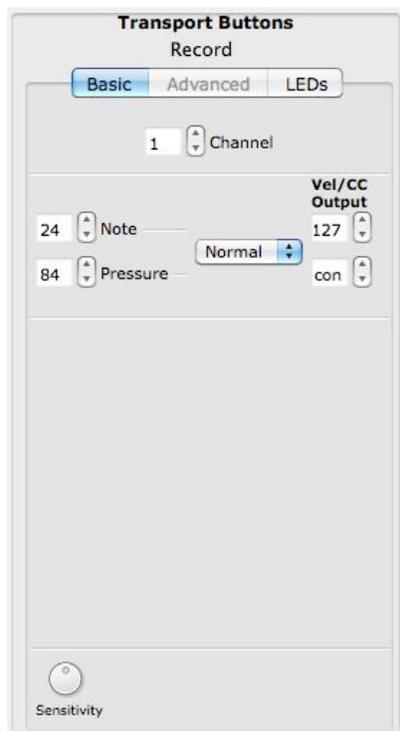
The on and off thresholds can also be adjusted in the Advanced tab. These are global for both Rotaries.

On Thresh - The pressure value at which a note on will register. **Example:** If set to 10, the Rotary pressure has to reach a value of 10 before a note on is sent.

Off Thresh - The pressure value at which a note off will register. **Example:** If set to 5, the Rotary pressure would have to be 5 or lower for a note off to register. This cannot be set higher than the on threshold.

For information about the LEDs tab for the Rotaries, reference the [LEDs Tab](#) chapter.

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.

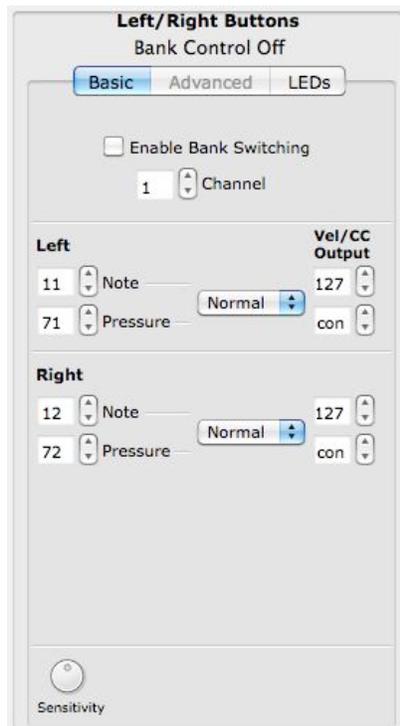
Assign the Channel, Note, and Pressure CC# for each Transport button in the Basic tab. To disable a source, set the number box below 0 to "off" (-1).

Notes and Pressure CC#s can be set to Normal or Toggle mode and utilize Velocity/CC output number boxes for added functionality. See the [Normal and Toggle Modes](#) chapter for more information.

Sensitivity can be adjusted at the very bottom of the edit pane (see the [Sensitivity](#) chapter).

The Transport buttons do not have Advanced tabs. For information about the LEDs tab, reference the [LEDs Tab](#) chapter.

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 [Banks](#) chapter of this manual.

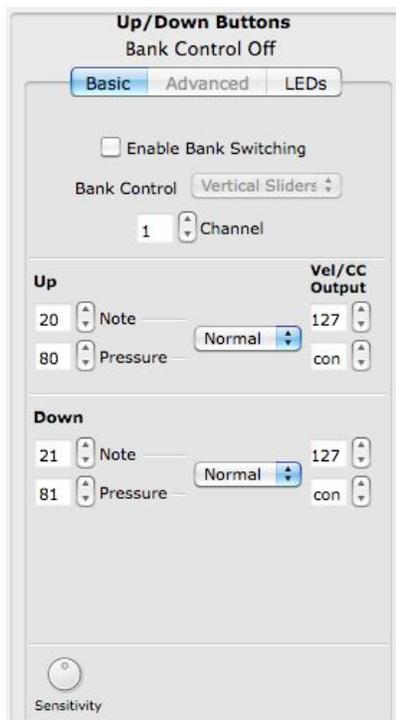
If Bank Switching is disabled, each button can output an assigned Note or Pressure CC#. To disable a source, set the number box below 0 to "off" (-1).

Notes and Pressure CC#s can be set to Normal or Toggle mode and utilize Velocity/CC output number boxes for added functionality. See the [Normal and Toggle Modes](#) chapter for more information.

Sensitivity can be adjusted at the very bottom of the edit pane (see the [Sensitivity](#) chapter).

The Left/Right buttons do not have Advanced tabs. For information about the LEDs tab, reference the [LEDs Tab](#) chapter.

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, Long Slider, or Pad notes. See the [Vertical and Horizontal Slider Edit Pane](#), [Long Slider Edit Pane](#), [Rotary Edit Pane](#), or [Pad Edit Pane - Advanced](#) 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 [Banks](#) chapter of this manual.

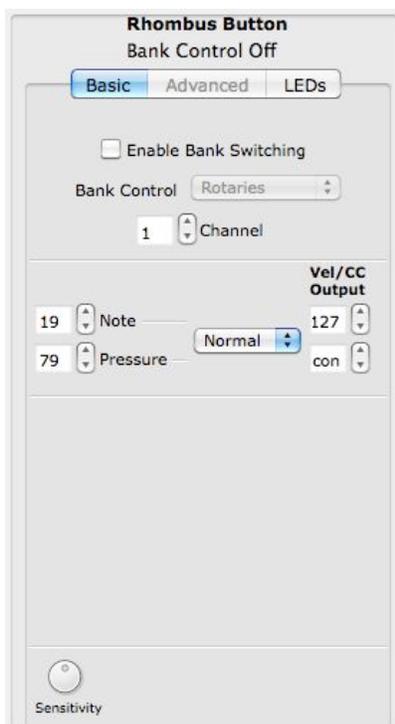
If Bank Switching is disabled, each button can output an assigned Note or Pressure CC#. To disable a source, set the number box below 0 to “off” (-1).

Notes and Pressure CC#s can be set to Normal or Toggle mode and utilize Velocity/CC output number boxes for added functionality. See the [Normal and Toggle Modes](#) chapter for more information.

Sensitivity can be adjusted at the very bottom of the edit pane (see the [Sensitivity](#) chapter).

The Up/Down buttons do not have advanced tabs. For information about the LEDs tab, reference the [LEDs Tab](#) chapter.

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, Long Slider or Pad notes. See the [Vertical and Horizontal Slider Edit Pane](#), [Long Slider Edit Pane](#), [Rotary Edit Pane](#), or [Pad Edit Pane - Advanced](#) 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 [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” (-1).

Notes and Pressure CC#s can be set to Normal or Toggle mode and utilize Velocity/CC output number boxes for added functionality. See the [Normal and Toggle Modes](#) chapter for more information.

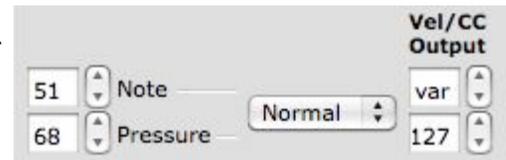
Sensitivity can be adjusted at the very bottom of the edit pane (see the [Sensitivity](#) chapter).

The Rhombus button does not have an Advanced tab. For information about the LEDs tab, reference the [LEDs Tab](#) chapter.

Normal and Toggle Modes

All sensors now utilize a drop down menu that selects Normal or Toggle mode for the note and pressure sources.

To the right of the menu are "Vel/CC Output" number boxes where you can specify the velocity and CC value output for the note and pressure CC#.



Here are some examples for how these can be used:

- To get notes with velocity and CCs with continuous pressure behavior, set the drop down menu to "Normal" and set the "Vel/CC output" boxes to "var" (variable) and "con" (continuous). "Var" and "con" appear in the number box in place of 0.
- Normal mode can also be used to get notes and pressure to output like momentary switches. The "Vel/CC output" boxes can be set to a value which will output when you press down and go back to 0 when you let go.
- In Toggle mode the "Vel/CC output" boxes set a value for the note or CC# to toggle on to (always toggles off to 0).
- Set the "Vel/CC output" boxes to "var" (variable) or "con" (continuous) while in Toggle mode to make the "on" toggle output variable velocity (for notes) or the initial pressure value (for pressure CC#s). "Var" and "con" appear in the number box in place of 0.

Sensitivity

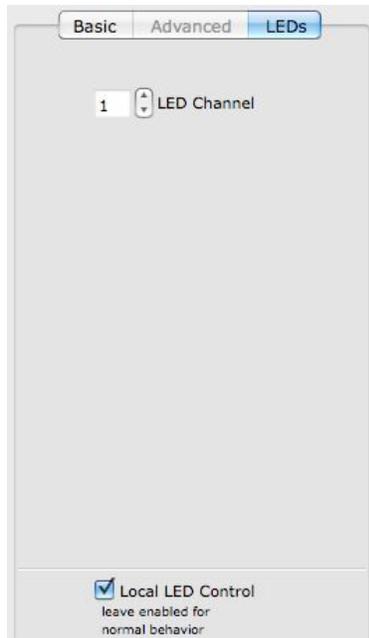
To edit the sensitivity of the various sensors, use the **sensitivity** dial at the bottom of each of the edit panes. Sensitivity controls how easy it is to get higher value ranges when controlling pressure and velocity. The higher the sensitivity, the easier it will be to reach the upper range of values. The lower the sensitivity, the more difficult or impossible it will be to get higher value ranges.

The sensitivity dial in the Pad Edit Pane is called **Global Sensitivity**. This differentiates it from the **Pad [#] Sensitivity Adjust** parameter, visible from the Advanced tab.

The Sensitivity dials are global for all controls of that sensor type.

Example: Adjusting the sensitivity in one of the Pad Edit Panes will adjust the sensitivity for all pads. The Sensitivity dials for the Horizontal Sliders are linked, the Vertical Sliders, the Left/Right Buttons, etc.

LEDs Tab



The Slider, Rotary, and Button edit panes all use essentially the same LEDs tab.

You can adjust each sensor type's **LED channel**. All of the Factory Presets default to 1 as the LED channel for Pads in drum mode and all other sensor types.

This parameter is global per sensor type so if editing the LED channel in a Horizontal Slider edit pane, all of the Horizontal Sliders will change to the same channel.

The LEDs tabs also contain a checkbox at the bottom called Local LED Control.

Local LED Control

The QuNeo's LEDs will automatically respond to touch without having to receive LED messages from another device. Unchecking the Local LED Control check box can disable this built-in LED behavior.

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.

Example: Changing the Local LED Control in one of the Pad Edit Panes will change it 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 all of 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. To make things much faster it is helpful if you include the following when submitting a support question:

- 1 Your operating system
- 2 Your computer's specs (processor speed, amount of RAM, etc)
- 3 Firmware version on your QuNeo
- 4 Version number of the QuNeo Editor you are using
- 5 A detailed description of your problem
- 6 Steps taken to produce this problem
- 7 Steps you have taken to try and solve your problem

Also, please think about whether or not your question is actually a QuNeo question or a question about the software you're using your QuNeo with.

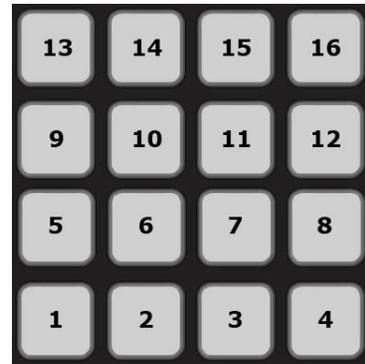
DAW/Host Application Trouble

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.
 - d Check that you are not using QuNeo with an unpowered USB hub — sometimes these hubs are not able to provide enough power to connected

devices. Try plugging your QuNeo into another USB port on your computer or a powered USB hub and see if that changes anything.

- 2 Make sure your QuNeo is on the correct preset. To enter preset select mode, quickly tap the Mode button so that it begins to flash blue. 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 right shows how the pads are numbered and which pad to select for which preset number.



- 3 If using Ableton Live you may need to reselect the Control Script in Live's MIDI Sync preferences. Try this:
 - 1 Open Ableton's Preferences
 - 2 Go to the **MIDI Sync** tab
 - 3 Under **Control Surface**, select something other than **QuNeo**, then switch it back
 - 4 Under **Input** and **Output**, select something other than **QUNEO**, then switch it back
 - 5 Now see if it is behaving properly
 - 6 If it's still not working, try restarting Ableton Live
- 4 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.
- 5 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 setup.
- 6 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. Please refer to that software's manual or support for more information on how this is done.

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 expected firmware version is (1.2.17). The expected bootloader version is (1.3). The actual QuNeo firmware and bootloader versions should match these numbers.
- 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.

If, while updating your firmware, the update bar freezes, you likely just need to restart the update. Try the following:

- 1 Unplug the QuNeo (it's ok, you won't hurt anything).
- 2 Close the firmware update progress bar using the red 'X' button (Win) or restart the Editor (Mac).
- 3 Plug your QuNeo back in
- 4 The QuNeo Editor should prompt you to update your firmware again, click OK to start the update again
- 5 This time the update should work — the Mode button will light up blue and should start flashing if the firmware update has started
- 6 Wait for the update to finish and then you're good to go

The QuNeo documentation now includes an extremely thorough document devoted entirely to Firmware Troubleshooting. Locate the Documentation folder in the QuNeo directory and open "QuNeo_Firmware_Troubleshooting.pdf".

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.

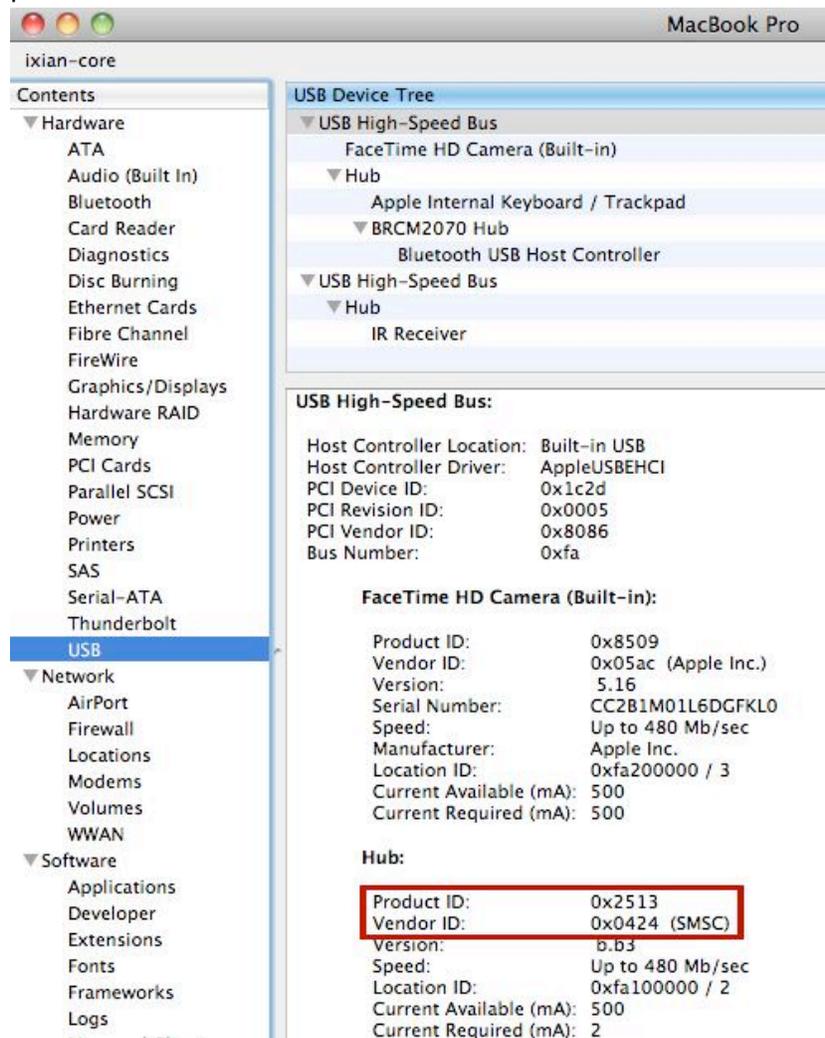
C3 = 60

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 ---> Utilities ---> 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).



The screenshot shows the System Profiler window on a MacBook Pro. The left sidebar is titled "Contents" and has "USB" selected under the "Hardware" section. The main pane is titled "USB Device Tree" and shows a hierarchy: "USB High-Speed Bus" -> "FaceTime HD Camera (Built-in)" -> "Hub" -> "Apple Internal Keyboard / Trackpad" -> "BRCM2070 Hub" -> "Bluetooth USB Host Controller" -> "USB High-Speed Bus" -> "Hub" -> "IR Receiver". Below this tree, the "USB High-Speed Bus:" section displays the following information:

Host Controller Location:	Built-in USB
Host Controller Driver:	AppleUSBHCI
PCI Device ID:	0x1c2d
PCI Revision ID:	0x0005
PCI Vendor ID:	0x8086
Bus Number:	0xfa

The "FaceTime HD Camera (Built-in):" section displays the following information:

Product ID:	0x8509
Vendor ID:	0x05ac (Apple Inc.)
Version:	5.16
Serial Number:	CC2B1M01L6DGFKL0
Speed:	Up to 480 Mb/sec
Manufacturer:	Apple Inc.
Location ID:	0xfa200000 / 3
Current Available (mA):	500
Current Required (mA):	500

The "Hub:" section displays the following information:

Product ID:	0x2513
Vendor ID:	0x0424 (SMSC)
Version:	0.03
Speed:	Up to 480 Mb/sec
Location ID:	0xfa100000 / 2
Current Available (mA):	500
Current Required (mA):	2

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:

16. Shut down the computer.
17. Plug in the MagSafe power adapter to a power source, connecting it to the Mac if it is not already connected.
18. On the built-in keyboard, press the (left side's) Shift-Control-Option keys and the power button at the same time.
19. Release all the keys and the power button at the same time.
20. Press the power button to turn on the computer.

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