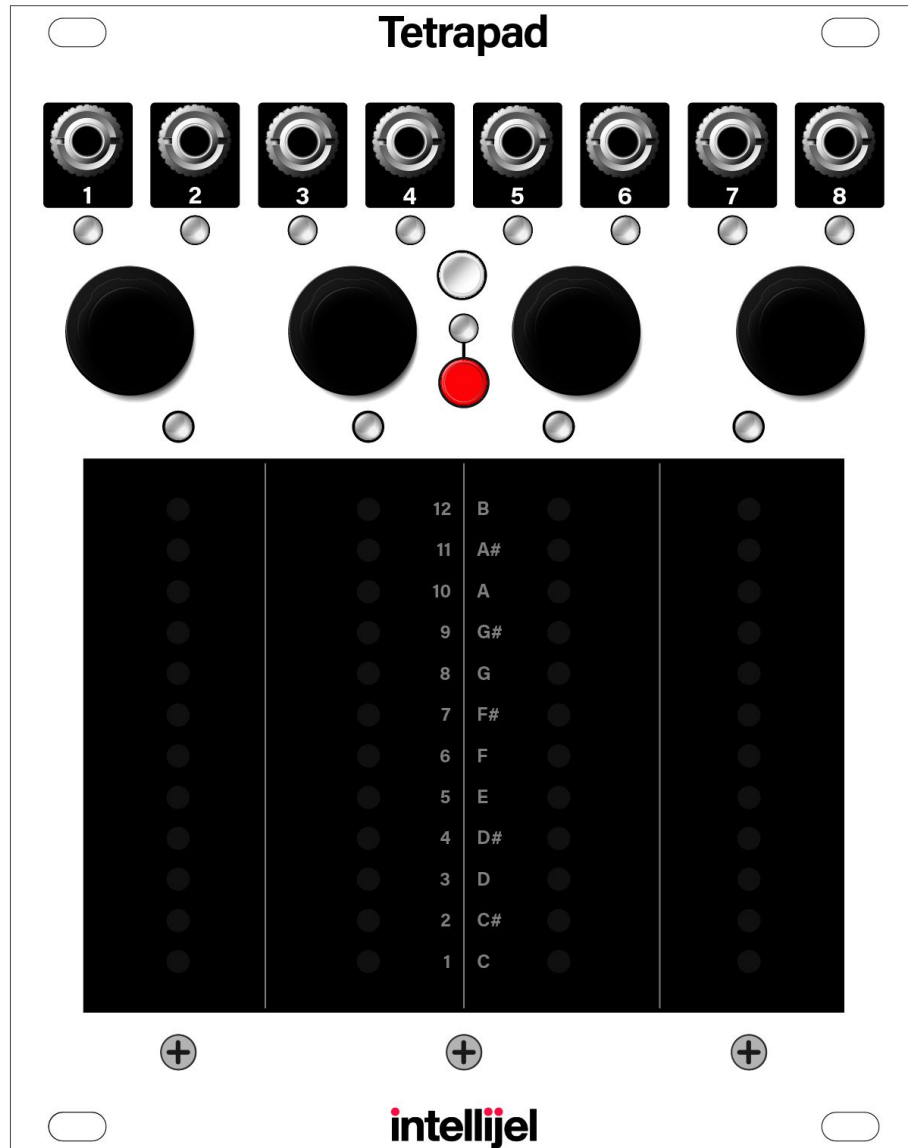# Tetrapad

Multi-Dimensional Performance Touch Controller

Firmware: 1.0

Manual Revision: 2017.12.21

Table of Contents

Overview

Tetrapad is a versatile, multi-dimensional, touch-sensitive control surface for Eurorack. Each of its four pads use force sensing resistors to respond to both the vertical position of your finger and its pressure. Four push encoders and a shift function give you even more tactile control over your modular system.

Tetrapad operates in numerous modes — each of which configures the module to perform a specific control task. Through these modes, Tetrapad can emulate a bank of faders; a voltage storage device; a finger drumming surface; a chord generator; an 8-key keyboard; four independent LFOs; or an 8-switch panel. The chosen mode determines what type of signal (CV, note, trigger, gate, etc.) is sent from each of Tetrapad's eight independent outputs, while its multitude of multi-colored LEDs keep you informed of exactly what's happening within each mode.

Tetrapad automatically remembers how you've configured each of its modes, and retains these settings when powered off. By default, Tetrapad automatically saves these settings every minute, or whenever you change modes. This makes Tetrapad ideal for live performance, since you know it will always power up with your configurations intact.

Installation

Intellijel Eurorack modules are designed to be used with a Eurorack-compatible case and power supply.

Before Your Start

Before installing a new module in your case you must ensure your case's power supply has sufficient available capacity to power the module:

- Sum up the specified +12V current draw for all modules, including the new one. Do the same for the -12 V and +5V current draw. The current draw will be specified in the manufacturer's technical specifications for each module.

- Compare each of the sums to specifications for your case's power supply.

- Only proceed with installation if none of the values exceeds the power supply's specifications. Otherwise you must remove modules to free up capacity or upgrade your power supply.

You will also need to ensure you have enough free space (hp) as well as free power headers in your case to fit the new module.

You can use a tool like ModularGrid to assist in your planning. Failure to adequately power your modules may result in damage to your modules or power supply. If you are unsure, please contact us before proceeding.

Installing Your Module

When installing or removing a module from your case always turn off the power to the case and disconnect the power cable. Failure to do so may result in serious injury or equipment damage.

Ensure the 10-pin connector on the power cable is connected correctly to the module before proceeding. The red stripe on the cable must line up with the -12V pins on the module's power connector. The pins are indicated with the label -12V, a white stripe next to the connector, the words "red stripe", or some combination of those indicators.
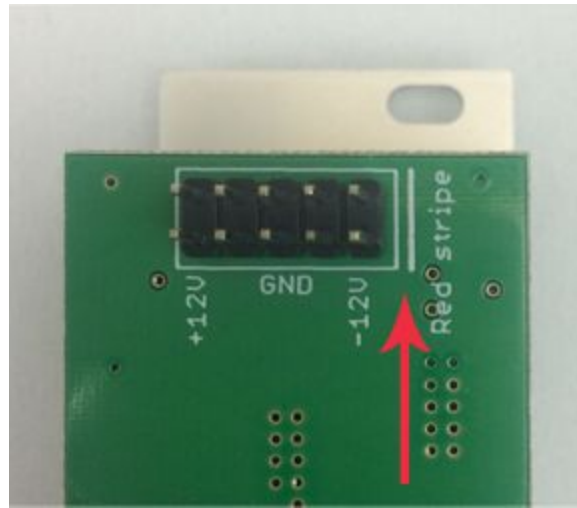
Most modules will come with the cable already connected but it is good to double check the orientation. Be aware that some modules may have headers that serve other purposes so ensure the cable is connected to the right one.

The other end of the cable, with a 16-pin connector, connects to the power bus board of your Eurorack case. Ensure the red stripe on the cable lines up with the -12V pins on the bus board. On Intellijel power supplies the pins are labelled with the label "-12V" and a thick white stripe:
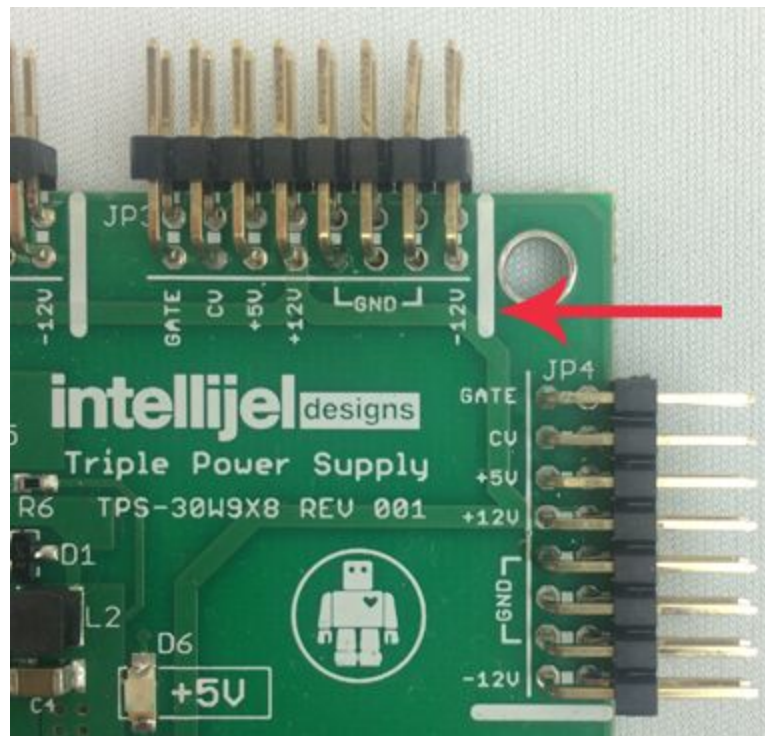
If you are using another manufacturer's power supply, check their documentation for instructions.

Once connected, the cabling between the module and power supply should resemble the picture below:
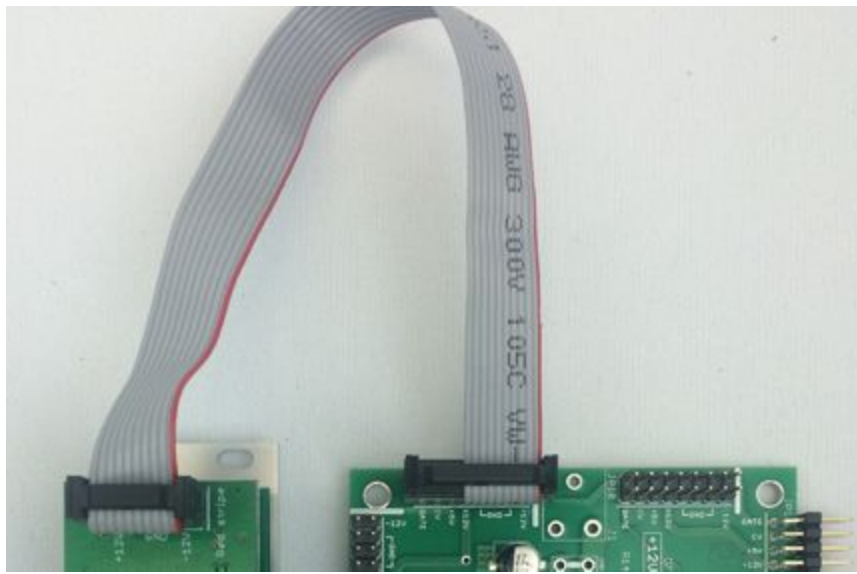
Before reconnecting power and turning on your modular system, double check that the ribbon cable is fully seated on both ends and that all the pins are correctly aligned. If the pins are misaligned in any direction or the ribbon is backwards you can cause damage to your module, power supply, or other modules.

After you have confirmed all the connections, you can reconnect the power cable and turn on your modular system. You should immediately check that all your modules have powered on and are functioning correctly. If you notice any anomalies, turn your system off right away and check your cabling again for mistakes.

Panel Reference
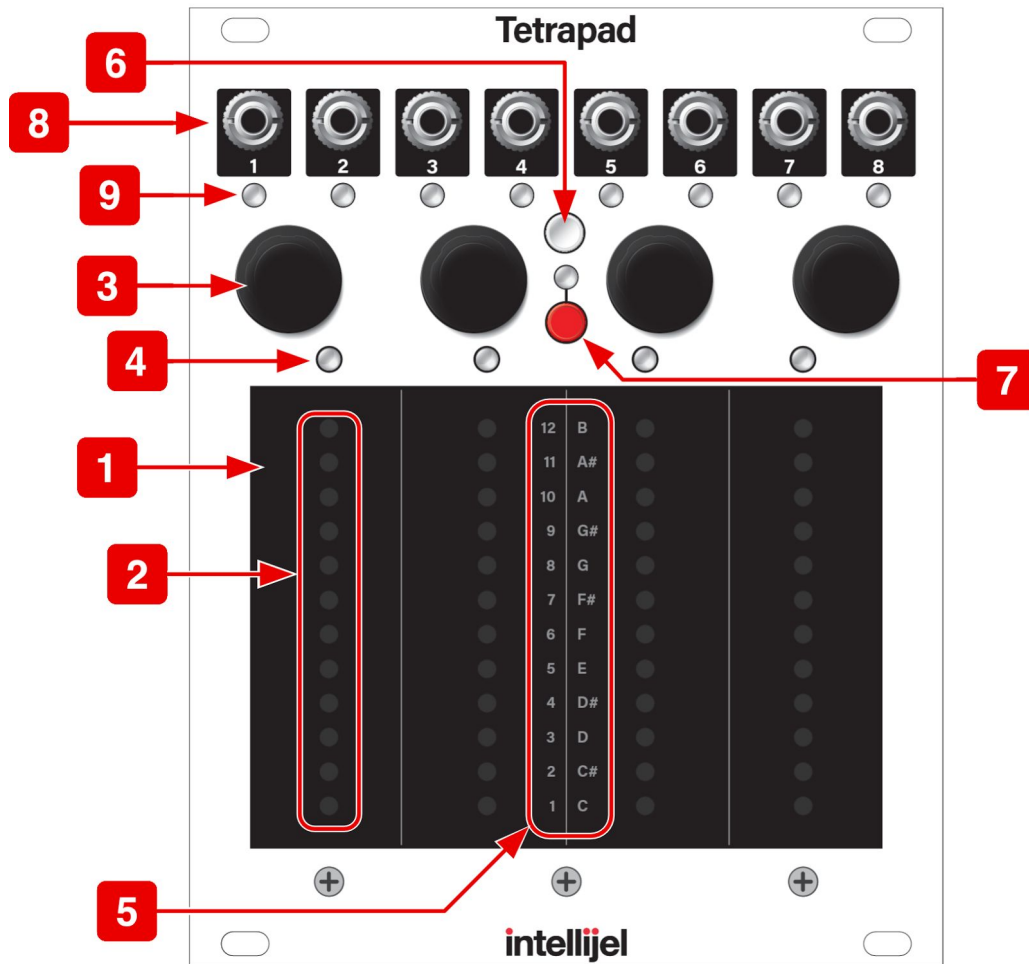
1. **Pads 1-4**

   Four identical touch strips, each of which is sensitive to both vertical position and finger pressure. Depending on Tetrapad's current mode, these pads can transmit trigger signals, gate signals, quantized note values or CV in real time.

2. **Level LEDs**

   Embedded beneath the surface of each pad is a 12 LED ladder. This ladder displays different parameter values in different modes. When operating as basic faders, the LEDs represent the level of each fader; when operating as note triggers, they represent the note value; when selecting modes, they represent the mode number.

3. **Push Encoders 1-4**

    Each of the four pads has its own associated push encoder, which functions differently depending on Tetrapad's current mode. For example, in Custom Chord Mode, the encoders assign a note value to each output. In LFO Mode, the encoders select the pad's waveform shape. Similarly, pressing the encoder has different functions depending on the mode. For example, in Faders Mode, pressing an encoder latches the corresponding fader's value. Not every pad uses the encoders, so please read the specific mode discussions to learn what functions are performed for each mode.

4. **Pad Status LEDs 1-4**

    Some modes use these LEDs to indicate a pad's status. For example, they may indicate whether or not a pad's fader level is latched; or to which octave a note belongs.

5. **Level Labels**

    This vertical column of text provides meaningful labels to each of the 12 vertically stacked Level LEDs. On the left are numbers 1-12, which indicate mode numbers. On the right are note names, which indicate pitch when appropriate to the selected mode.

6. **Mode Select Button**

    Toggles Mode selection on and off. When Mode Select is on, the eight Output Status LEDs light up, and the Level LEDs within each of the four pads also light to indicate which mode is currently selected. To select different modes, rotate any of the four encoders — all four Level LEDs move up/down to indicate the mode number. Press the Mode Select button again (or press any encoder) to exit mode selection.

7. **Shift Button & LED**

    Some modes offer additional feature sets, which are accessed by pressing the Shift Button. For example, LFO Mode's shift feature switches between Performance and Edit views. See the individual mode discussions to learn whether or not the Shift button is used, and what function it serves. The LED immediately above the Shift button glows green whenever a mode contains a shift feature, and it glows red when the shift feature is engaged. If the Shift LED is off, then the mode has no shift feature.

8. **Outputs 1-8**

   Outputs CV, pitch, gate or trigger signals depending on the active mode. See the Modes section to learn the function of each jack in each mode

9. **Output Status LEDs**

   These LEDs serve two functions, depending on whether you're selecting modes, or actually using a particular mode. When *selecting* modes, the color of these LEDs glow solid and indicate the type of signal appearing at the output jack for the selected mode:

●	Pitch CV	Blue
●	Gate/Trigger	Magenta
●	Vertical Position	Green
●	Pressure	Red
●	Other CV (i.e. LFO)	Cyan

   When *using* a mode, both the color and the brightness of the LEDs provide output status information. For example, a green (position) LED gets brighter when your finger is higher up the pad; a red (pressure) LED gets brighter the harder you press a pad; Other modes make additional use of these status LEDs, and will be discussed in the Modes section of this manual.

Modes Overview

We designed Tetrapad to provide you with tactile control of your modular synth, plus the ability to maximize the flexibility with which you wield that control. For this reason, Tetrapad is a mode-based control surface. Each mode reassigns the four touch pads, four rotary push encoders, eight outputs, numerous status LEDs and shift button.

Tetrapad currently supports nine different modes (plus a separate global configuration mode) — each designed to operate as a tactile control surface best-suited for its intended task. These modes are:

- **Mode 1: Faders Mode** - This mode gives you 4 pressure sensitive faders, which means each fader can generate two control voltages: one based on the vertical position of your finger; and one on pressure.

- **Mode 2: Voltages Mode** - Voltages Mode divides each pad into two regions — an upper and a lower — giving you access to 8 voltage banks, each of which can store 8 voltages (one for each output).

- **Mode 3: Keyboard Mode** - Keyboard Mode turns Tetrapad into an 8-key keyboard, with each key capable of sending a different note to Outs 1-4. This mode divides each of the four pads in two, creating an upper key and a lower key. Touching any pad also outputs both a trigger and a gate signal, and pads respond to both position and pressure. You define notes for each key by selecting a keyboard mapping from the built-in Scale Library and you set a root note with a twist of an encoder. Diatonically shifted versions of the root scale appear at each of the four outputs and you can rotate these assignments using another encoder.

- **Mode 4: Custom Keyboard Mode** - Custom Keyboard Mode is similar to Keyboard Mode (described above), only instead of automatically assigning keys to a particular scale, you manually assign a note to each of the eight keys (and for each of the four outputs, if you wish). Custom Keyboard Mode is for people who want direct control over the pitch of every key and output, and don't wish to be constrained by the scales included in Mode 3's Scale Library.

- **Mode 5: Drum Mode** - Drum Mode provides you with four positionally sensitive drum pads. Each pad generates a gate signal when touched, plus a second CV based on the vertical position of your finger. Since each pad generates a gate no matter where you tap it, this mode is ideal for "finger" drumming, but with the possibility of additional expression via the positional output CV.

- **Mode 6: LFO Mode** - LFO mode turns Tetrapad into four independent LFO's, each with its own rate and waveshape, and with each pad offering a pressure output for additional modulation options.

- **Mode 7: Switches Mode** - In this mode, Tetrapad becomes an 8-switch control panel, which you can configure as either toggle switches or momentary switches.

- **Mode 8: Chord Mode** - Chord Mode stores a unique 4-note chord for each of the four pads. Touching a pad transmits the four notes to the first four outputs, enabling you to play one-finger chords (if you use multiple oscillators). Touching any pad also outputs both a trigger and a gate signal, and pads respond to both position and pressure. Define a chord for each pad by selecting it from the built-in Chord Library, and alter the root note, inversion and chord rotations using the encoders.

- **Mode 9: Custom Chord Mode** - Custom Chord Mode is similar to Chord Mode (described above), only instead of using the encoders to select chords, roots, inversions and rotations, you manually assign — pad-by-pad and output-by-output — each note in each chord. Custom Chord Mode is for people with chord requirements that extend beyond those included in Mode 8's Chord Library.

In addition, there is a special global configuration mode (which is assigned to Mode 12), plus a hidden Output Calibration mode.

- **Mode 12: Global Configuration** - This is a "special" mode, which you use to configure Tetrapad's pressure response to match your own preferences. Unlike the first nine modes, Global Configuration mode is not meant for performance nor for controlling other modules.

- **Hidden Calibration Mode** - Use of this mode requires caution (not to mention an accurate volt meter), since it allows you to fine-tune the 8 output voltages. Tetrapads are calibrated at the factory prior to shipment, so it's unlikely you'll ever need to do this. But, just in case, the procedure is outlined at the end of this manual.

Selecting Modes

To select different modes on Tetrapad:

1. Press the white Mode Select button to enter Mode Selection.

2. Rotate any of the four encoders to select the desired mode.

   The Level LEDs embedded beneath each pad will move up or down the pads. The position number (as indicated by the Level Labels in the middle of the Tetrapad) corresponds to the mode. So if the row of Level LEDs next to Level Label 4 is lit, then you're selecting Mode 4; if the row of Level LEDs next to Level Label 7 is lit, then you're selecting Mode 7; etc.

   Note that the eight Output Status LEDs will change colors as you cycle through the modes. These colors indicate what type of signal appears at each output for each mode. These will be discussed in the mode-specific sections of this manual.

3. Press the white Mode Select button again to exit mode selection.

    Your Tetrapad will now operate in this mode. Note that you can also click any of the four encoders to exit mode selection.

TIP: If you forget what type of signal appears at each of the eight output jacks, simply press the white Mode Select button — the LEDs under each jack light to indicate the type of signal present at that jack (as discussed earlier, under "Output Status LEDs"). Press the Mode Select button again to exit mode selection.

Auto-Saving

Tetrapad retains all mode settings while powered on — thus ensuring that you can switch freely between modes in a performance, knowing that when you return to a mode, it will always be exactly as you left it.

In addition, Tetrapad remembers many of its settings when powered off. Specifically, it remembers all the critical configuration parameters for each mode (for example: slew rates; note assignments in keyboard mode; voltages in voltage mode; chord assignments in chord mode; etc) but it does not retain settings that might be specific to a performance, such as: fader values; LFO speeds; most-recently touch key or pad; etc).

By default, Tetrapad automatically saves its settings every minute, or whenever you change modes. This makes Tetrapad ideal for live performance, since it will always power up with your carefully configured modes still intact and ready to perform.

Mode Reset

In spite of the obvious advantages gained by Tetrapad's Auto-Save feature, you may sometimes prefer to program a mode "from scratch" rather than modifying a previously saved configuration. For this reason, Tetrapad provides a Mode Reset feature:

1. Press the white Mode Select button to enter Mode Selection, and rotate any of the four encoders to select the mode you wish to reset.

2. Press the red Shift button and, while holding it down, exit Mode Selection (by clicking either the white Mode Select button or any of the four push encoders).

    Tetrapad resets that mode to the factory default settings.

NOTE: You can also reset all Modes simultaneously (along with the Global Configuration Settings) by using this same technique with Mode 12 selected.

Mode 1: Faders Mode

Press the white Mode Select button and rotate any of the four encoders to select Mode 1, which occurs when the row of Level LEDs light next to Level Label 1. Press the white Mode Select button again (or press any encoder) to exit mode selection.

Rotate an encoder while holding the SHIFT button to set a Slew Rate for that fader. This is the rate at which fader values change from one level to the next.

Clockwise slows the change rate, allowing for gradual changes.

CCW speeds up the change rate, ultimately enabling instantaneous changes between fader levels (or tight tracking of finger movements on the fader).

Latch Mode On/Off

Fader Latched
Fader Not Latched
Slew Rate (unlatched)
Slew Rate (latched)

Press to freeze all fader values at the current level. Press again to unfreeze.

Press and hold while turning an encoder to set that fader's slew rate.

Pad 1 Position CV Out
Pad 1 Pressure CV Out
Pad 2 Position CV Out
Pad 2 Pressure CV Out
Pad 3 Position CV Out
Pad 3 Pressure CV Out
Pad 4 Position CV Out
Pad 4 Pressure CV Out

FADERS MODE

Visual indication of output voltage:

Fader Position Level. Brightness represents a higher absolute voltage.

Pressure Level. Brightness represents a higher absolute voltage.

In Use:

Level LEDs represent fader value.

Latched faders remain at the touched level when finger lifted.

Unlatched faders return to zero when finger lifted.

Values slew (ramp up/down) between touched levels at a rate set by each encoder.

Faders Mode gives you 4 pressure sensitive faders, which means each fader can generate two control voltages: one based on the vertical position of your finger; and one on pressure.

Using Faders Mode

1. Slide a finger up and down each pad, just as if you were moving an actual fader. Alternately, you can simply tap a pad anywhere along its vertical scale, and the fader will jump to that level directly (using a slew rate you define, as discussed shortly).

    Tetrapad sends each fader's vertical position CV to its odd numbered output. That is, Pad 1 sends fader values to Out 1; Pad 2 sends fader values to Out 3; etc. Each Output Status LED lights green to represent the presence of a CV signal, while the brightness of each LED indicates its absolute value, from 0 to +5V.

2. Press down on a pad to send an additional pressure-sensitive CV to the corresponding even numbered output.

    That is, Pad 1 sends its pressure value to Out 2; Pad 2 sends it to Out 4; etc. Each Output Status LED lights red to represent the presence of a pressure CV signal, while the brightness of each LED indicates its absolute value, from 0 to +5V.

3. Press a fader's corresponding encoder to latch that fader.

    Latched faders are indicated by a blue Pad Status LED and can be assigned on a fader-by-fader basis. When a fader is latched, it remains at the last level touched — much like a real fader on an analog mixing console. When a fader is unlatched (the Status LED is off), it snaps back to its minimum value when you release it — much like the spring-loaded modulation wheel used by some synths.

Slew Between Fader Settings

If you prefer to tap faders (rather than drag them) or if you use latch mode, you'll appreciate the ability to set the rate at which fader values move from one touched level to the next. Each of Tetrapad's four faders can have its own slew rate.

1. Hold down the red SHIFT button and rotate the encoder above each fader to set its slew rate.

   Clockwise turns increase the time it takes to move from one fader value to another (up to a maximum of about 4 sec to move between min/max levels). Counterclockwise turns decrease the amount of time it takes to move from one fader value to another (down to "instantaneous").

   Slew times are indicated by a red Pad Status LED above each fader — with an LED glowing increasingly brighter as the slew gets longer. Since latched faders cause the Pad Status LED to turn blue, slew rates applied to a latched fader cause increasing amounts of red to mix with the blue LED, ultimately resulting in a purple LED at maximum slew rate.

Freeze All Faders

You can freeze the position and pressure level of each fader at its current level.

1. Press the red Shift button to freeze the output of each fader (including its pressure value).

   The Shift LED will glow blue, and any faders currently slewing to a new value will be frozen mid-slew. Any currently unlatched faders will also freeze at the current position of your finger, regardless of whether they're latched or not.

2. Press the red Shift button again to unfreeze the faders.

Mode 2: Voltages Mode

Press the white Mode Select button and rotate any of the four encoders to select Mode 2, which occurs when the row of Level LEDs light next to Level Label 2. Press the white Mode Select button again (or press any encoder) to exit mode selection.

Voltages Mode divides each pad into two regions — an upper and a lower — giving you access to 8 stored voltages per OUTPUT! That's right, each of Tetrapad's eight outputs has its own bank of 8 virtual buttons, each of which can store a voltage value specifically for that output, meaning you have 64 voltage storage locations in total.
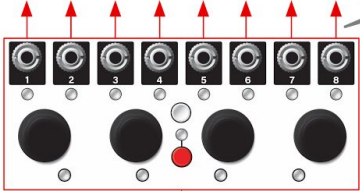
Imagine pushing a single button that sends one voltage to a filter's frequency, another voltage to resonance, a third to a Quadra Expander's attack CV and a fourth to its decay CV. You could use the fifth output to change waveshapes on a Shapeshifter, and the sixth to set the amount of wave folding. Output 7 could change the grain size in Rainmaker, while Out 8 could adjust its wet/dry mix. In other words, used this way, Voltages Mode is almost like having patch memory within Eurorack.

Using Voltages Mode

4) The voltage for each output is set by rotating an encoder.
Encoders 1-4 set voltages for Outs 1 - 4 when Shift LED is GREEN (●).
Encoders 1-4 set voltages for Outs 5 - 8 when Shift LED is RED (●).
Toggle between GREEN and RED states by pressing the SHIFT button.
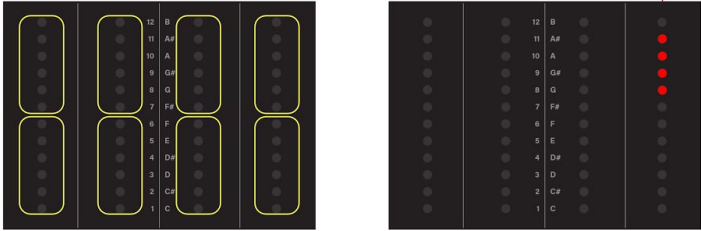
5) Relative voltage levels are indicated by each Output Status LED, where:
● RED = negative voltage. The brighter the LED, the greater the amount.
● GREEN = positive voltage. The brighter the LED, the greater the amount.

3) ... and sends up to 8 memorized voltages to the 8 outputs.

1) Each of Tetrapad's four pads is divided into two halves: an upper and a lower, which results in eight buttons...

2) ...Touching one of the eight buttons lights it...

Each pad is divided into two regions: an upper and a lower, meaning you have eight voltage storage locations, each accessed by its own virtual "button."

1. Touch one of the eight virtual buttons to transmit up to eight different voltage values from each of Tetrapad's eight outputs.

   Notice that a group of four Level LEDs light on the pad, indicating which virtual button you just touched.

Edit a Button's Stored Voltages

1. Touch one of Tetrapad's eight virtual buttons to select it for editing (each of the four pads is divided into two regions: an upper half and a lower half, giving eight virtual buttons).

2. To assign voltages to Outputs 1 - 4, make sure the Shift LED is green, then rotate encoders 1 - 4, which assigns voltages to Outputs 1 - 4 respectively.

   NOTE: If the Shift LED is currently red, push the Shift button to toggle it to the green state)

   Turning an encoder clockwise assigns increasingly higher positive voltages (up to +5 V), which are indicated by the intensity of the Output Status LED, which glows green to indicate that the voltage is positive.

   Turning an encoder counter-clockwise sets increasingly larger negative voltages (up to -5 V), which are indicated by the intensity of the Output Status LED, which glows red to indicate the voltage is negative.

3. To assign voltages to Outputs 5 - 8, make sure the Shift LED is red, then rotate encoders 1 - 4, which assigns voltages to Outputs 5 - 8 respectively.

   NOTE: If the Shift LED is currently green, push the Shift button to toggle it to the red state.

Randomize a Single Stored Voltage

Those of you who prefer the serendipity approach to sound design will appreciate Tetrapad's random voltage assignment feature. To randomize a single output voltage:

1. Touch and hold the desired button (do not release your finger from the pad). Then, with your finger still on the virtual button, rotate the encoder assigned to the output you wish to randomize.

   For example, if you hold your finger on the top left virtual button while turning Encoder #2, then with each click of the encoder, you will assign a new random voltage to Output 2 (or Output 6 if the Shift LED is red).

Randomize all 8 Stored Voltages for a Button

Those of you who prefer the serendipity approach to sound design and who like it applied judiciously will appreciate this feature, which lets you select a virtual button and randomize all 8 Outputs simultaneously.

1. Touch and hold the desired button (do not release your finger from the pad). Then, with your finger still on the virtual button, press Tetrapad's little red SHIFT button.

    A random voltage will be assigned to each of that button's 8 outputs. Each time you press the SHIFT button, you'll generate a new set of 8 output voltages.

Reset a Stored Voltage to 0V

1. Touch and hold the desired button (do not release your finger from the pad). Then with your finger still on the virtual button, press the encoder assigned to the output you wish to reset to 0V.

    For example, if you hold your finger on the top left virtual button while pressing Encoder #3, then Output 3 will reset to 0V (or Output 7 if the Shift LED is red).

Slew Between Stored Voltages

Normally, each time you tap a different button, Tetrapad instantly sends the corresponding voltages to the 8 outputs. But Tetrapad also give you the ability to slew this voltage change — meaning it's possible to "morph" between different collections of stored voltages, resulting in smooth (rather than instantaneou) changes.

1. Press the red Shift button and continue holding it while turning Encoder 1.

    Clockwise turns increase the time it takes to move from one voltage value to another (up to a maximum of about 4 sec to move between min/max levels). Counterclockwise turns decrease the amount of time it takes to move from one fader value to another (down to "instantaneous").

    Slew times are indicated by a red Pad Status LED above each fader — with an LED glowing increasingly brighter as the slew gets longer.

    Note that slew time is a global setting within Voltages Mode, meaning the rate of change affects all buttons and all outputs simultaneously.

Mode 3: Keyboard Mode

Press the white Mode Select button and rotate any of the four encoders to select Mode 3, which occurs when the row of Level LEDs light next to Level Label 3. Press the white Mode Select button again (or press any encoder) to exit mode selection.

Keyboard Mode turns Tetrapad into an 8-key keyboard, with each key capable of sending a different note to Outs 1-4. This mode divides each of the four pads in two, creating an upper key and a lower key.

Touching any pad outputs both a trigger and a gate signal, and pads respond to both position and pressure, giving you expressive CV control over anything you want (such as a VCA level or filter frequency).

You define notes for each key by selecting a keyboard mapping from the built-in Scale Library and you set a root note with a twist of an encoder. Diatonically shifted versions of the root scale appear at each of the four outputs and you can rotate these assignments using another encoder.

Using Keyboard Mode

In Keyboard Mode, the pads serve two purposes:

- In PERFORMANCE View: Touch one of the eight keys (each pad is divided into an upper key and a lower key) to send a programmable pitch out each of the four outputs, enabling you to play melodies (or chords) from the Tetrapad. Gate and trigger signals are also output, as well as pressure and position.

- In EDIT View: When the Shift Status LED is red (EDIT view), the middle two pads display the number of the selected scale and the root of that scale.

EDIT VIEW: Assigning Keys According to Scale

Use EDIT View to assign the eight keys to play notes from the built-in Scale Library, and to set that scale's root note.

1. If the Shift Status LED is green, push the SHIFT Button to change its color to red. A red Status LED indicates that Tetrapad is in EDIT View..

2. Touch any of the eight keys.

    Each of Tetrapad's four pads is divided into a top half and a bottom half, resulting in eight "keys." When you touch a key, four LEDs light beneath your finger, indicating which key you've pressed.

3. Release the key.

    The key's four indicator LEDs will dim (though remain slightly illuminated to indicate the most recently touched key). The brightly lit LED beneath Pad 2 indicates the current scale, and the brightly lit LED beneath Pad 3 represents the root of that scale.

4. Turn Encoder 2 to select the desired scale.

   Selecting a scale automatically assigns a different note within that scale to a different key. There are 12 built-in scales corresponding to the 12 LEDs on Pad 2. Tetrapad's scale library has the following scales:

Memory	Scale	Intervals
1	Major	0, 2, 4, 5, 7, 9, 11
2	Minor	0, 2, 3, 5, 7, 8, 10
3	Dorian	0, 2, 3, 5, 7, 9, 10
4	Lydian	0, 2, 4, 5, 7, 9, 11
5	Phrygian	0, 1, 3, 5, 7, 8, 10
6	Locrian	0, 1, 3, 5, 6, 8, 10
7	Melodic Minor	0, 2, 3, 5, 7, 9, 11
8	Harmonic Minor	0, 2, 3, 5, 7, 8, 11
9	Super Locrian	0, 1, 3, 4, 6, 8, 10
10	Bhairav	0, 1, 4, 5, 7, 8, 11
11	Hungarian	0, 2, 3, 6, 7, 8, 11
12	Enigmatic	0, 1, 4, 6, 8, 10, 11

   Furthermore, selecting a scale assigns it to each of the three additional pitch outputs, but rotates their notes diatonically. This means the notes appearing at Out 2 are diatonically shifted +2; the notes appearing at Out 3 are diatonically shifted by +4; and the notes appearing at Out 4 are diatonically shifted by +6.

5. Turn Encoder 3 to set the root note of the scale.

   The root note is indicated by the LED position beneath Pad 3.

Keyboard Mode places the root note on the lower half of Pad 1, then maps ascending pitches L-to-R across the bottom of each pad, then L-to-R across the top of each pad, as shown in the following example:

**KEYBOARD LAYOUT - SCALE LIBRARY MODE
- C MAJOR EXAMPLE -**
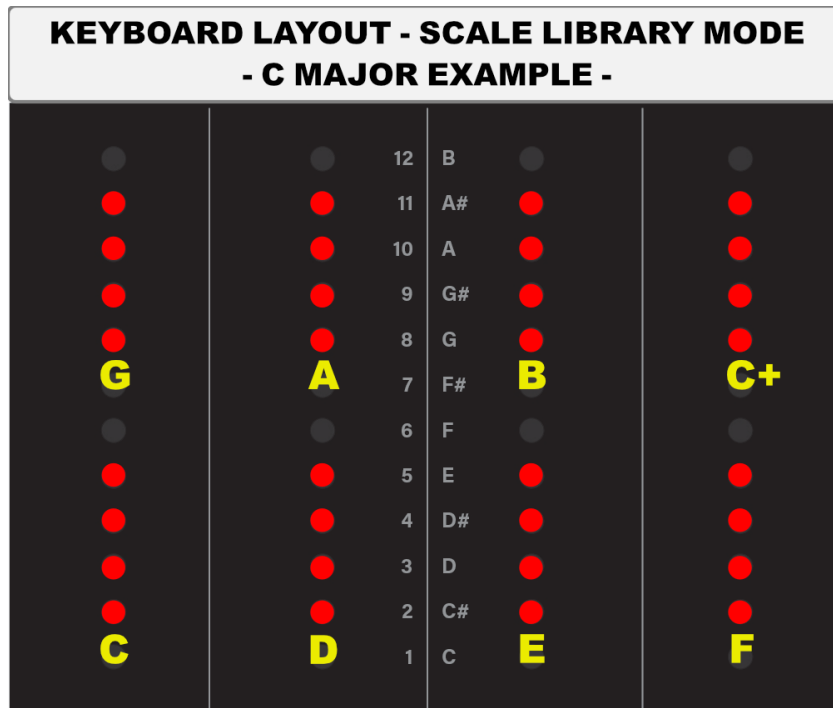
PERFORMANCE VIEW: Playing the Keyboard

1. If the Shift Status LED is red, push the SHIFT Button to change its color to green. A green Status LED indicates that Tetrapad is in PERFORMANCE View.

2. Tap any of the eight keys to send the notes (as assigned in EDIT View, discussed earlier) to Output 1.

   In addition, Tetrapad sends diatonically shifted versions of the scale to each of the three remaining outputs. Specifically, Out 2 is diatonically shifted +2; Out 3 is diatonically shifted by +4; and the notes appearing at Out 4 are diatonically shifted by +6.

   CV representing the vertical position of your tap on the key is sent to Out 5. CV representing the pressure you apply to any key is sent to Out 6. A trigger signal is sent to Out 7, and a Gate is sent to Out 8.

3. Rotate Encoder 1 to change the octave the keyboard's octave.

Rotate clockwise to increase the octave. Octave settings above the default cause the Pad Status LED to glow green. With each subsequent octave increase, the LED will brighten. Rotate counterclockwise to decrease the octave. Octave settings below the default cause the Pad Status LED to glow red. With each subsequent octave decrease, the LED will brighten. Tetrapad gives you a 10 octave range.

4. Rotate Encoder 3 to rotate the output assignments.

With each clockwise rotation, the output assignments shift to the right by 1. So if you rotate Encoder 3 one turn clockwise, the unshifted scale will appear at Out 2 (rather than Out 1); the +2 scale moves to Out 3; the +4 scale moves to Out 4; and the +6 scale moves to Out 1.

NOTE: The brightest of the four blue Output Status LEDs indicates which output is currently assigned to the unshifted scale.

5. If you're using Keyboard mode to play multiple oscillators (connected to Outputs 1-4), then you can rotate Encoder 4 to invert the chord that appears at those Outputs.

Clockwise rotation inverts the chord upward; counterclockwise rotation inverts the chord downward. For example, one CW turn transposes Out 1 up one octave; a second CW turn transposes Out 2 up one octave, and so on. Similarly, one CCW turn transposes Out 4 down one octave; etc.

The following flow diagram illustrates these instructions graphically:

3) ... sending a pitch from within a chosen scale to Out 1, while sending rotated scales to Outs 2-4 (where Out 2 is a diatonic +2 rotation of Out 1; Out 3 is a +4 rotation; and Out 4 a +6). Position, pressure, trigger and gate appear at Outs 5-8.

4) In PERFORMANCE View, the four encoders perform the following functions:
    1: Sets keyboard octave note of all keys/outputs
    2: Does nothing
    3: Rotates output assignment.
    4: Inverts chord being set to Outs 1-4.

5) In EDIT VIEW (shown here), Encoders 2 & 3 change to perform the following functions:
    2: Selects Scale from Library
    3: Selects Root note of Scale.

1) Each of Tetrapad's four pads is divided into two halves: an upper and a lower, which results in eight keys...

2) ...Touching one of the eight keys lights it beneath your finger. LEDs remain dimly lit when you lift your finger, indicating the selected key...

Slew Between Notes

Tetrapad also gives you the ability to slew between notes. To do so, press the red SHIFT button and continue holding it while turning Encoder 1.

Clockwise turns increase the time it takes to move from one note to another (up to a maximum of about 30 sec for a 10 octave glide). Counterclockwise turns decrease the amount of time (down to "instantaneous").

Slew times are indicated by a red Pad Status LED above each fader — with an LED glowing increasingly brighter as the slew gets longer.

Slew time is a global setting within Keyboard Mode, meaning the rate of change affects all notes equally.

Mode 4: Custom Keyboard Mode

Press the white Mode Select button and rotate any of the four encoders to select Mode 4, which occurs when the row of Level LEDs light next to Level Label 4. Press the white Mode Select button again (or press any encoder) to exit mode selection.

CUSTOM KEYBOARD MODE

(note-by-note entry)

1: Sets Out 1 Note
2: Sets Out 2 Note
3: Sets Out 3 Note
4: Sets Out 4 Note

(These values are set for each of the 8 keys. You must touch a key to select it for editing).

1-4: Reset Out to C (0V) for the selected key.

Keybd Note Out 1 set with Encoder 1
Keybd Note Out 2 set with Encoder 2
Keybd Note Out 3 set with Encoder 3
Keybd Note Out 4 set with Encoder 4
Position CV Out from any Pad
Pressure CV Out from any Pad
Trigger Out from any Pad
Gate Out from any Pad

Visual indication of output voltage:

Outs 1-4: Notes

Out 5: Position (any Pad) Brightness represents a higher absolute voltage.

Out 6: Pressure (any Pad) (brightness = amount)

Out 7: Trigger (any Pad)
Out 8: Gate (any Pad)

Visual indication of octave:

Higher octaves. (Brightness = oct height, up to 5 octaves above)

Lower octaves. (Brightness = oct depth, up to 5 octaves below.)

If you hold SHIFT and turn Encoder 1, this LED displays slew rate rather than octave. The longer the slew time, the brighter the LED:

If you press and hold SHIFT while turning Encoder 1, you can set a slew time between all notes.

In Use:

Each pad is split into two keys: an upper key and a lower key (giving you eight playable keys).

Tap a key to play a note. Each key can send a different note value to Outs 1-4.

All Ladder LEDs remain dimly lit on the most recently touched (and active) key.

Custom Keyboard Mode turns Tetrapad into an 8-key keyboard, with each key capable of sending a different note to Outs 1-4. This mode divides each of the four pads in two, creating an upper key and a lower key.

Touching any pad outputs both a trigger and a gate signal, and pads respond to both position and pressure, giving you expressive CV control over anything you want (such as a VCA level or filter frequency).

Unlike Mode 3, Custom Keyboard Mode lets you define each and every note for each and every pad on all four outputs. This allows for scales and note assignments beyond those included in Mode 3's Scale Library.

Using Custom Keyboard Mode

In Custom Keyboard Mode, the pads serve two purposes:

● As a performance controller: touching one of the eight keys (each pad is divided into an upper key and a lower key) sends a programmable pitch out each of the four outputs, enabling you to play melodies from the Tetrapad. Gate and trigger signals are also output, as well as pressure and position.
● As an edit display: When you touch a key, you select it for editing (as indicated by the four dim LEDs beneath the key's surface). The four pads then display the pitch value assigned to outputs 1-4, which you edit with the corresponding encoders as discussed below.

Manual Note Assignment

1. Touch one of the eight keys to "play it," and to enable it for note assignment.

   Each of Tetrapad's four pads is divided into a top half and a bottom half, resulting in eight "keys."

   When you touch a key, four LEDs will light beneath your finger, indicating which key you've pressed.

2. Release the key.

   The key's four indicator LEDs will dim (though remain slightly illuminated to indicate the most recently touched and editable key).

   Notice that beneath the surface of each pad is a single brightly lit LED, whose vertical position indicates the note value that will be sent to the corresponding Output. That is, the bright LED shown beneath Pad 1 represents the note that appears at Out 1; the bright LED shown beneath Pad 2 represents the note that appears at Out 2; etc.

3. Rotate encoder 1 to change the pitch sent to Out 1. If desired, rotate encoders 2-4 to change pitch assignments for outputs 2-4.
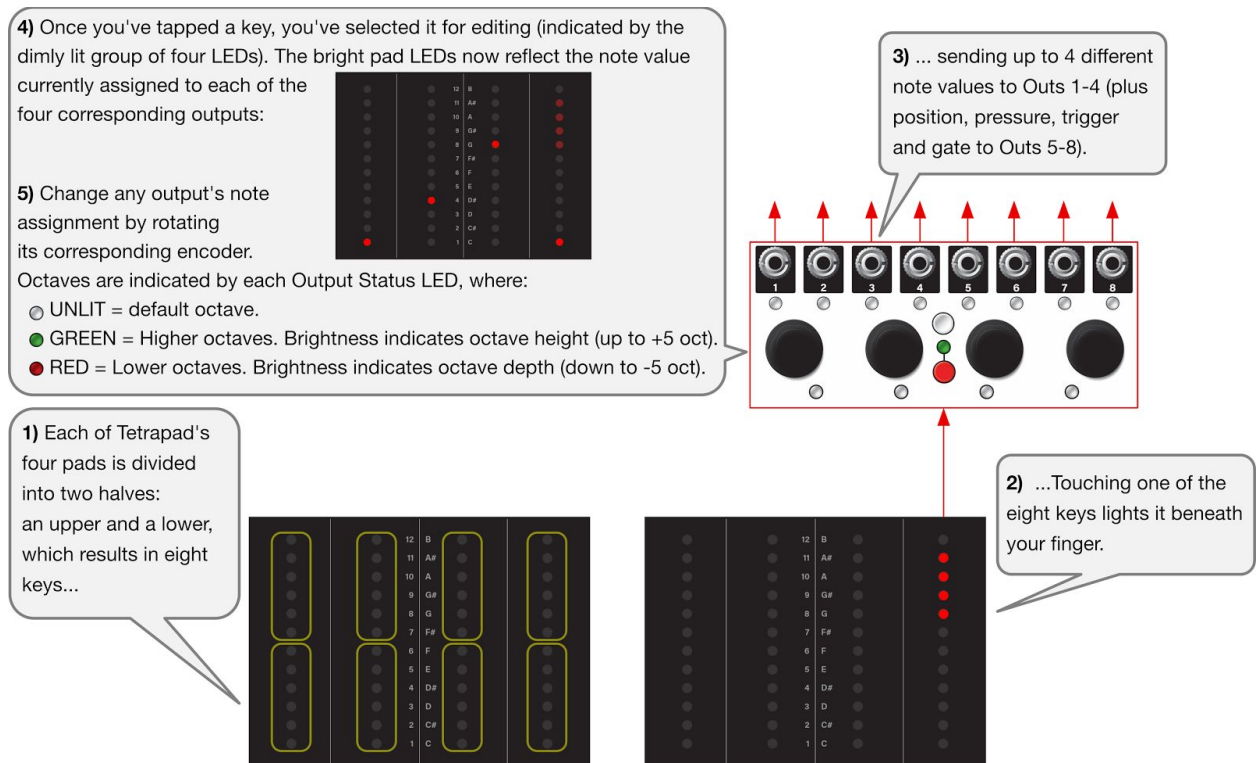
   When you set a pitch that's an octave higher than default, the Pad Status LED will glow green. With each subsequent octave increase, the LED will brighten. When the pitch is an octave lower than default, the Pad Status LED will glow red. With each

subsequent octave decrease, the LED will brighten. Pitch can be set over a 10 octave range.

4. Touch each of the remaining seven keys and repeat step 3 to define note values for all eight keys, and for all four outputs.

TIP: Reset any note to its default C (0 V) value by pressing the corresponding encoder.

The following flow diagram illustrates these instructions graphically:

4) Once you've tapped a key, you've selected it for editing (indicated by the dimly lit group of four LEDs). The bright pad LEDs now reflect the note value currently assigned to each of the four corresponding outputs:

5) Change any output's note assignment by rotating its corresponding encoder.
Octaves are indicated by each Output Status LED, where:
- UNLIT = default octave.
- GREEN = Higher octaves. Brightness indicates octave height (up to +5 oct).
- RED = Lower octaves. Brightness indicates octave depth (down to -5 oct).

3) ... sending up to 4 different note values to Outs 1-4 (plus position, pressure, trigger and gate to Outs 5-8).

1) Each of Tetrapad's four pads is divided into two halves: an upper and a lower, which results in eight keys...

2) ...Touching one of the eight keys lights it beneath your finger.

Slew Between Notes

Tetrapad also gives you the ability to slew between notes. To do so, press the red Shift button and continue holding it while turning Encoder 1.

Clockwise turns increase the time it takes to move from one note to another (up to a maximum of about 30 sec for a 10 octave glide). Counterclockwise turns decrease the amount of time (down to "instantaneous").

Slew times are indicated by a red Pad Status LED above each fader — with an LED glowing increasingly brighter as the slew gets longer.

Slew time is a global setting within Keyboard Mode, meaning the rate of change affects all notes equally.

Playing the Keyboard

1. Tap any of the eight keys to send the custom assigned notes to Outputs 1-4.

   That's it. There is no step 2.

   But you're free to manually reassign any note at any time using the encoders and the technique discussed earlier, in Manual Note Assignment.

Mode 5: Drum Mode

Press the white Mode Select button and rotate any of the four encoders to select Mode 5, which occurs when the row of Level LEDs light next to Level Label 5. Press the white Mode Select button again (or press any encoder) to exit mode selection.
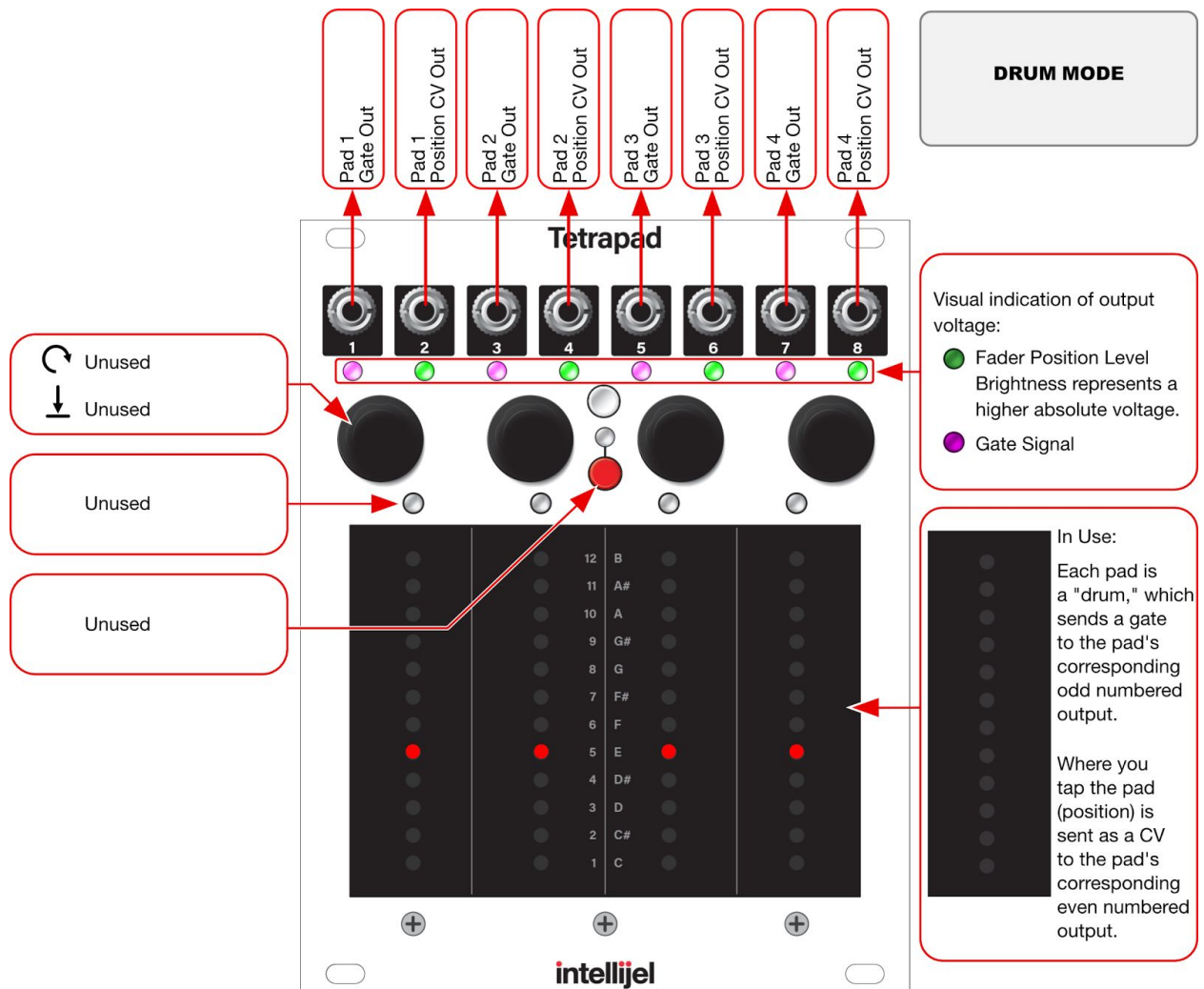
Drum Mode gives you 4 positionally sensitive drum pads. Each pad generates a gate signal when touched, plus a second CV based on the vertical position of your finger. Since each pad generates a gate no matter where you tap it, this mode is ideal for "finger" drumming. The even numbered outputs provide an additional source of position based modulation, which you can connect to a drum module's velocity or accent input, or anything else that benefits from CV control.

Using Drum Mode

To use Tetrapad in Drum Mode:

1. Tap a pad to send a gate signal to the corresponding pad's odd numbered output.

    That is, Pad 1 sends a gate to Out 1; Pad 2 to Out 3; Pad 3 to Out 5; etc. Each odd numbered Output Status LED glows magenta, indicating it's a gate output. The brightness of this LED does not change since pressure is irrelevant in this mode.

4. Slide a finger up and down each pad to generate an additional position-sensitive CV at the corresponding pad's even numbered output.

    That is, Pad 1's position value is sent to Out 2; Pad 2's to out 4; etc. Each Output Status LED glows green to represent the presence of a position-based CV signal, while the brightness of each LED indicates its absolute value.

TIP: Although the positional CV generates continuous voltages as you slide your finger up and down the pad, you might find it particularly useful to patch this output into a drum module's accent or velocity input. In this way, you control a drum's velocity value by how high you tap a pad, adding additional nuance and control to your drum performance.

Mode 6: LFO Mode

Press the white Mode Select button and rotate any of the four encoders to select Mode 6, which occurs when the row of Level LEDs light next to Level Label 6. Press the white Mode Select button again (or press any encoder) to exit mode selection.

LFO mode turns Tetrapad into four independent LFOs, each with its own rate and waveshape, and with each pad offering a pressure output for additional modulation options.

Using LFO Mode

In LFO Mode, Tetrapad continuously sends four programmable LFOs from its Odd numbered outputs. Specifically, LFO 1 appears at Out 1; LFO 2 appears at Out 3; LFO 3 appears at Out 5; and LFO 4 appears at Out 6. You can see this visually, since the Output Status LEDs for these four output are blinking (green/red; green/off; or red/off depending on LFO polarity). Pressure is sent to the Even numbered outputs.

LFO Mode operates in one of two views: PERFORMANCE View (Status LED is Green) and EDIT View (Status LED is Red). We'll start by discussing EDIT View.

Using LFO EDIT View

1. If the Shift Status LED is green, push the SHIFT Button to change its color to red. A red Status LED indicates the LFO is in EDIT View.

2. Adjust the rate of any LFO by touching its corresponding pad. The higher up you touch a pad, the faster the LFO rate, which is indicated by the rate at which the corresponding Output Status LED flashes.

3. Select the LFO shape by rotating its corresponding encoder. This cycles the LFO shape between Triangle, Sawtooth, Ramp (inverse saw), Square and Random.

4. Set the LFO's polarity by pressing its corresponding encoder. This cycles through three LFO polarities: bipolar; unipolar (positive only); unipolar (negative only).

    You can tell which polarity each LFO is currently using by monitoring the Output Status LEDs: A bipolar LFO will switch between green & red. A positive unipolar wave will switch between green & off. A negative unipolar wave will switch between red & off.

5. Press harder on a pad to send an additional pressure-sensitive CV to the corresponding Even numbered output.

    Note that, in LFO EDIT View, it can be difficult to transmit pressure values without accidentally changing the LFO rate. For this reason, there's also an LFO PERFORMANCE Mode…

Using LFO PERFORMANCE Mode

1. If the Shift Status LED is red, push the SHIFT Button to change its color to green. A green Status LED indicates the LFO is in PERFORMANCE View:

    In LFO PERFORMANCE View, each LFO uses the waveshape and polarity defined in LFO EDIT View. So if you want to modify either of those values for an LFO, you need to temporarily switch back into LFO EDIT View.

2. As in LFO EDIT View, adjust the rate of any LFO by touching its corresponding pad. The higher up you touch the pad, the faster the LFO rate — which is indicated by the rate at which the corresponding Output Status LED flashes.

3. In LFO PERFORMANCE View, you can latch an LFO rate so it doesn't change value when you touch a pad. To do this, first use the pad to set the desired LFO rate, then press the corresponding encoder button.

    The corresponding Pad Status LED turns blue, indicating the LFO rate is latched. Now when you touch a pad, the value does not change.

    This is particularly useful when you want to use the pads to transmit pressure CV without accidentally affecting the LFO rate.

4. To unlatch an LFO, simply press the encoder again, turning off its blue Pad Status LED.

Mode 7: Switches Mode

Press the white Mode Select button and rotate any of the four encoders to select Mode 7, which occurs when the Level LEDs light next to Level Label 7. Press the white Mode Select button again (or press any encoder) to exit mode selection.
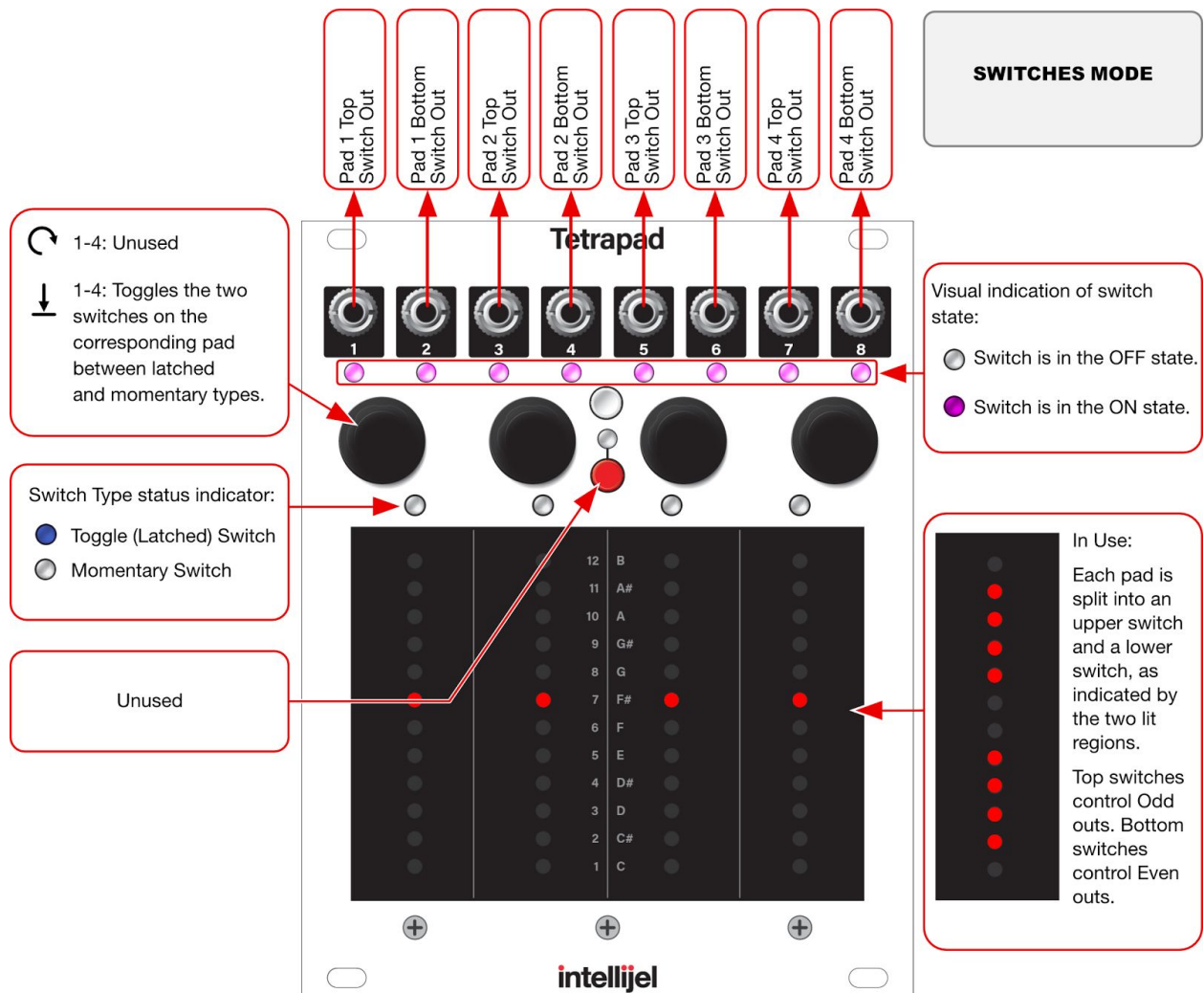
In this mode, Tetrapad becomes a panel containing eight switches, which you can configure, per pad, as either toggle switches or momentary switches.

Using Switches Mode

1. Touch the switch to send +5V to the corresponding Out jack.

   Each pad is divided into two switches — one assigned to the top half of a pad, and the other assigned to the bottom.

   The top row of switches controls the odd numbered outputs. The bottom row of switches controls the even numbered outputs. For example, the top half of Pad 1 controls Out 1; the bottom half of Pad 3 control Out 6; etc.

   Four LEDs light beneath the surface of the pad indicating which switch is currently active.

2. Press an encoder to change whether the two switches on the corresponding pad act as *momentary* switches or *toggle* switches.

   Toggle switches stay on until you press them again to turn them off.

   Momentary switches stay on only as long as your finger is on the switch. Removing your finger automatically turns the switch back off.

   In both cases, the Output Status LEDs indicates whether the switch is currently on (+5V = lit) or off (0V = off).

Mode 8: Chord Mode

Press the white Mode Select button and rotate any of the four encoders to select Mode 8, which occurs when the row of Level LEDs light next to Level Label 8. Press the white Mode Select button again (or press any encoder) to exit mode selection.

Chord Mode stores a unique 4-note chord for each of the four pads, which you select from a built-in Chord Library. Touching a pad transmits the four notes to the first four outputs, enabling you to play one-finger chords (if you use multiple oscillators). Pads also output both a trigger and a gate signal, and they respond to both position and pressure, giving you expressive CV control over anything you want (such as a VCA level or filter frequency). Root note changes, inversions and rotations are just an encoder turn away.

Using Chord Mode

In Chord mode, the pads serve two purposes:

- As a performance controller: Touching Pad 1 sends four memorized notes (a chord) to Outputs 1-4; touching Pad 2 sends a different set of notes out the same Outputs; etc.
- As a note/chord display: When you touch Pad 1, the notes it sends to Outs 1-4 are displayed on Pads 1-4. When you touch Pad 2, the notes it sends to Outs 1-4 are then displayed on the four pads.

The notes within each chord are selected from a built-in Chord Library and assigned root, rotation and inversion features as described below:

Chord Selection

Define a chord for each pad by selecting it from the built-in Chord Library, and alter the root note, inversion and chord rotations using the encoders:

1. Touch a pad to select which of the four chords you want to define.

   All the ladder LEDs beneath the pad's surface light dimly to indicate that it's the active and editable pad.

2. Rotate Encoder 1 to set the root note of the chord, as it appears on Out 1. If you push Encoder 1 while rotating it, you will change the root's octave.

3. Rotate encoder 2 to scroll through different chords in Tetrapad's library. Selecting different chords changes the note assignments for Outs 2, 3 and 4.

   Tetrapad's internal library contains 12 chords, which encoder 2 rotates through continuously, and which are shown in the table on the following page.

4. Rotate encoder 3 to rotate the output assignment of each note.

   With each clockwise rotation, the output assignments shift to the right by 1. So if you rotate Encoder 3 one turn CW, the root note moves to Out 2 and all the other output assignments shift to the right by 1, with note 4 now appearing at Out 1.

   NOTE: The brightest of the four blue Output Status LEDs indicates which output is currently assigned to the root note. So, as you rotate encoder 3, the bright blue Output Status LED will rotate among the outputs as the chord rotates.

5. Rotate encoder 4 to invert the chord. Clockwise rotation of Encoder 4 inverts the chord upward; Counterclockwise rotation inverts the chord downward.

For example, one CW turn transposes the root note up 1 octave; a second CW turn transposes the second note up 1 octave, and so on. Similarly, one CCW turn transposes the fourth note down 1 octave; etc.

6. Touch each of the remaining three pads and repeat steps 3-6 to define 4-note chords for each of the four pads.

Chord Name	Intervals
Unison	0, 0, 0, 0
Major w/octave	0, 4, 7, 12
Minor w/octave	0, 3, 7, 12
Major 7th	0, 4, 7, 11
Minor 7th	0, 3, 7, 10
Dominant 7th	0, 4, 7, 10
Diminished 7th	0, 3, 6, 9
Half-Diminished 7th	0, 3, 6, 10
Minor Major 7th	0, 3, 7, 11
Augmented Major 7th	0, 4, 8, 11
Augmented 7th	0, 4, 8, 10
Diminished Major 7th	0, 3, 6, 11
Dominant 7th flat 5th	0, 4, 6, 10

Slew Between Chords

Tetrapad gives you the ability to slew between chord changes. To do so, press the red Shift button and continue holding it while turning Encoder 1.

Clockwise turns increase the time it takes to move from one chord to another (up to a maximum of about 30 sec for a 10 octave glide). Counterclockwise turns decrease the amount of time it takes to move from one chord to another (down to "instantaneous").
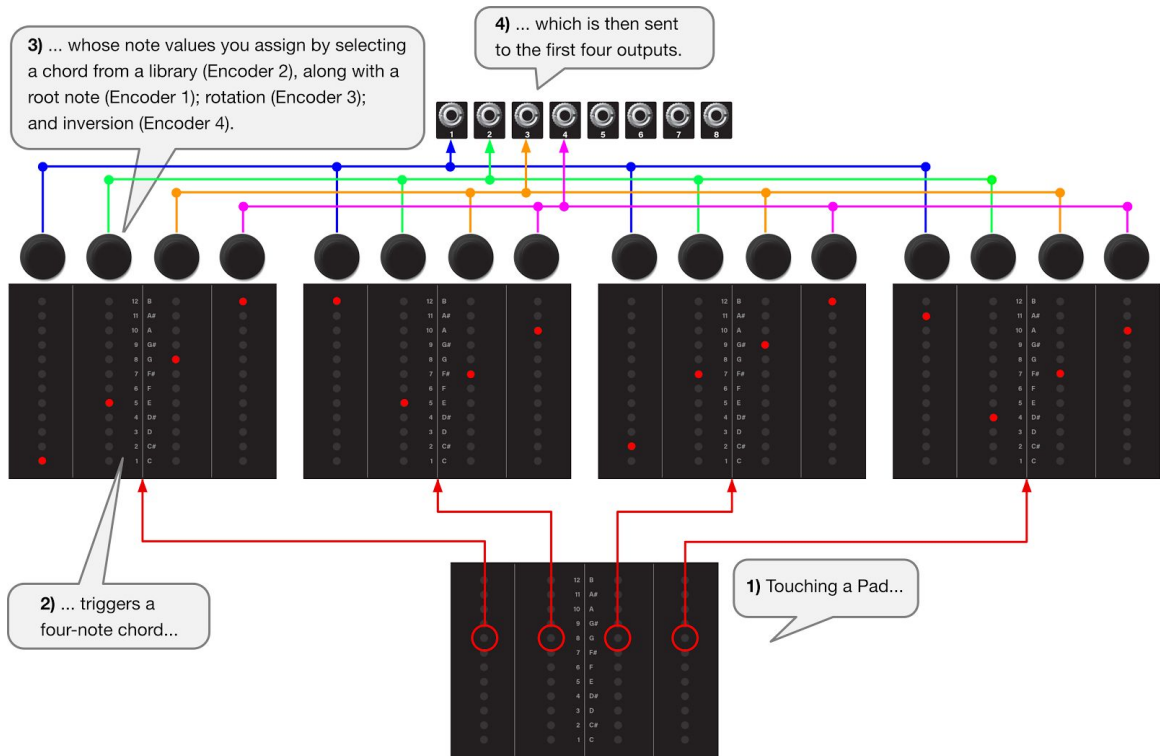
Slew times are indicated by a red Pad Status LED above each fader — with an LED glowing increasingly brighter as the slew gets longer.

Note that slew time is a global setting within Chord Mode, meaning the rate of change affects all chords equally.

Performing in Chord Mode

Once you've assigned chords to all four pads, you're ready to perform.

1. Route Tetrapad's first four outputs to four different oscillators.

2. Press one of the four pads to send a four-note chord to those four oscillators.

3. Press another pad to send another four-note chord, etc.

4. Chord mode also features gate, trigger, position and pressure outputs. These are assigned as follows:

    Out 5: Vertical Position of whichever pad you're currently touching. Brightness of green Output Status LED indicates absolute level.

    Out 6: Pressure of whichever pad you're currently touching. Brightness of red Output Status LED indicates absolute level.

    Out 7: Trigger value sent any time you touch any pad. The red Output Status LED turns on, then immediately turns off when a pad is touched — indicating a trigger output.

    Out 8: Gate signal sent any time you touch any pad. The red Output Status LED turns on and stays on as long as a pad is touched — indicating a gate output.

5. Route these last four outputs to envelopes or control voltage inputs on other modules to enable more expressive and organic performances.

Mode 9: Custom Chord Mode

Press the white Mode Select button and rotate any of the four encoders to select Mode 9, which occurs when the row of Level LEDs light next to Level Label 9. Press the white Mode Select button again (or press any encoder) to exit mode selection.

Custom Chord Mode stores a unique 4-note chord for each of the four pads. Touching a pad transmits the four notes to the first four outputs, enabling you to play one-finger chords (if you use multiple oscillators). Pads also output both a trigger and a gate signal, and they respond to both position and pressure, giving you expressive CV control over anything you want (such as a VCA level or filter frequency). Unlike Mode 4, Custom Chord Mode lets you define your own chord patterns, allowing for harmonic structures beyond those included in Mode 4's Chord Library.

Using Custom Chord Mode

In Custom Chord mode, the pads serve two purposes:

- As a performance controller: Touching Pad 1 sends four memorized notes (a chord) out of outputs 1-4; touching Pad 2 sends a different set of notes out the same outputs; etc.
- As a note/chord display: When you touch Pad 1, the notes it sends to Outs 1-4 are displayed on Pads 1-4. When you touch Pad 2, the notes it sends to Outs 1-4 are then displayed on the four pads.

The notes within each chord are edited directly by turning the four encoders, as described below.

Chord Entry

1. Touch one of the four pads to select it for chord editing.

   All the ladder LEDs beneath the pad's surface light dimly to indicate that it's the active and editable pad.

2. Rotate Encoder 1 to set the chord's root note, which is sent to Out 1. Rotate encoders 2-4 to set the interval values, which Tetrapad sends to Outputs 2-4.

   Beneath the surface of each pad is a brightly lit LED, indicating the note value assigned to the corresponding Output number (as seen with the Level Label in the center of the four pads). That is, the bright LED beneath Pad 1 shows the note sent to Out 1; the bright LED beneath Pad 2 shows the note sent to Out 2; etc.

3. Press & turn an encoder to increment or decrement its note assignment by octave.

   The Pad Status LED glows an increasingly brighter green for each octave higher than default. It glows increasingly brighter red for each octave lower than the default. Notes can be set over a 10 octave range.

4. To transpose the chord, simply rotate Encoder 1 to change the root note, shifting all four Outs up/down accordingly.

   Similarly, push-turning Encoder 1 transposes the entire chord up/down by octave.

5. Press an encoder if you want to reset its output to C (0V). Pressing Encoder 1 transposes the entire chord to the root of C.

6. Touch each of the remaining three pads and repeat steps 2-5 to define 4-note chords for each of the four pads.

Slew Between Chords

Tetrapad gives you the ability to slew between chord changes. To do so, press the red Shift button and continue holding it while turning Encoder 1.

Clockwise turns increase the time it takes to move from one chord to another (up to a maximum of about 30 sec for a 10 octave glide). Counterclockwise turns decrease the amount of time it takes to move from one chord to another (down to "instantaneous").

Slew times are indicated by a red Pad Status LED above each fader — with an LED glowing increasingly brighter as the slew gets longer.

Note that slew time is a global setting within Chord Mode, meaning the rate of change affects all chords equally.

Performing in Custom Chord Mode

Once you've assigned chords to all four pads, you're ready to perform.

1. Route Tetrapad's first four outputs to four different oscillators.

2. Press one of the four pads to send a four-note chord to those four oscillators.

3. Press another pad to send another four-note chord, etc.

4. Chord mode also features gate, trigger, position and pressure outputs. These are assigned as follows:

   Out 5: Vertical Position of whichever pad you're currently touching. Brightness of green Output Status LED indicates absolute level.

   Out 6: Pressure of whichever pad you're currently touching. Brightness of red Output Status LED indicates absolute level.

   Out 7: Trigger value sent any time you touch any pad. The red Output Status LED turns on, then immediately turns off when a pad is touched — indicating a trigger output.

   Out 8: Gate signal sent any time you touch any pad. The red Output Status LED turns on and stays on as long as a pad is touched — indicating a gate output.

5. Route these last four outputs to envelopes or control voltage inputs on other modules to enable more expressive and organic performances.

By way of example, look at the following illustration. We see that touching Pad 1 sends C-E-G-B to Outputs 1-4; touching Pad 2 sends a B-E-F#-A to Outputs 1-4; Pad 3 sends C#-F#-G#-B to Outs 1-4; and Pad 4 sends A#-D#-F#-A to Outs 1-4:
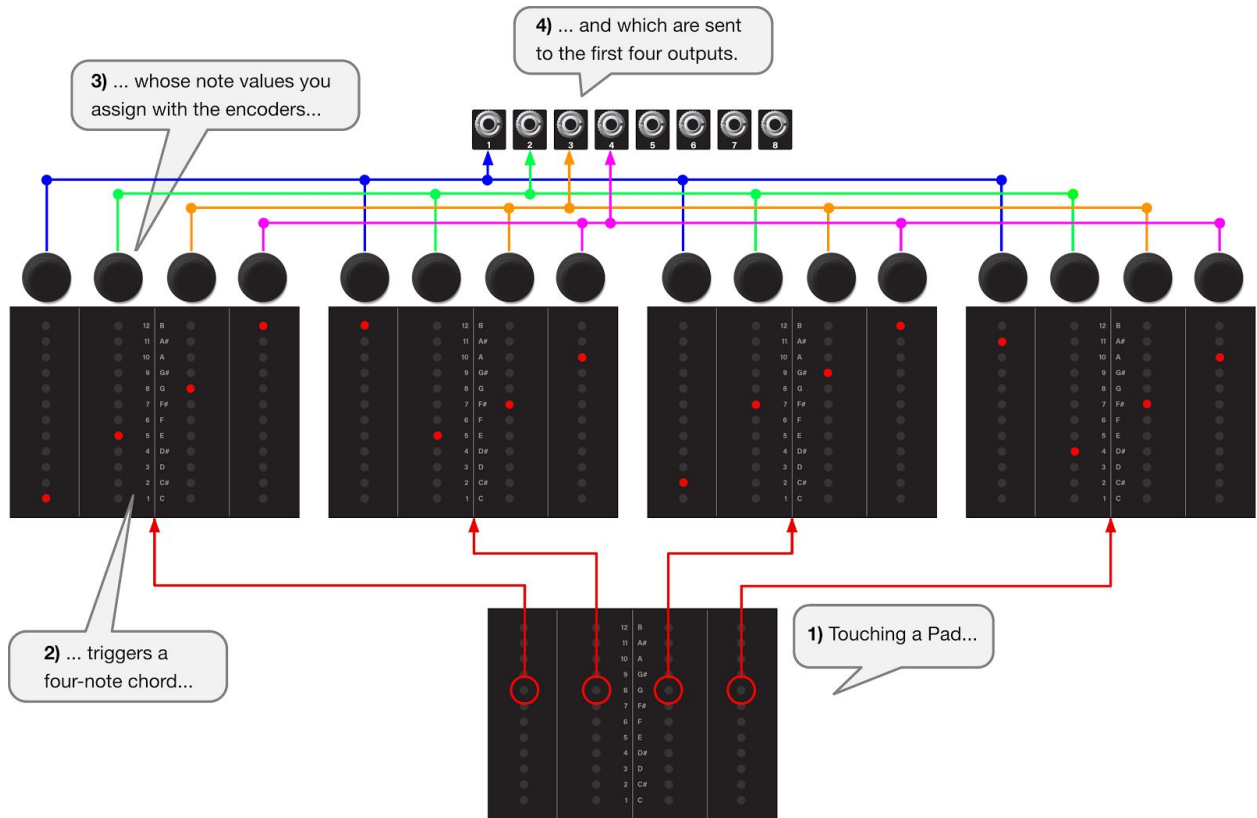
Mode 12: Global Configuration

Press the white Mode Select button and rotate any of the four encoders to select Mode 12, which occurs when the row of Level LEDs light next to Level Label 12. Press the white Mode Select button again (or press any encoder) to exit mode selection.
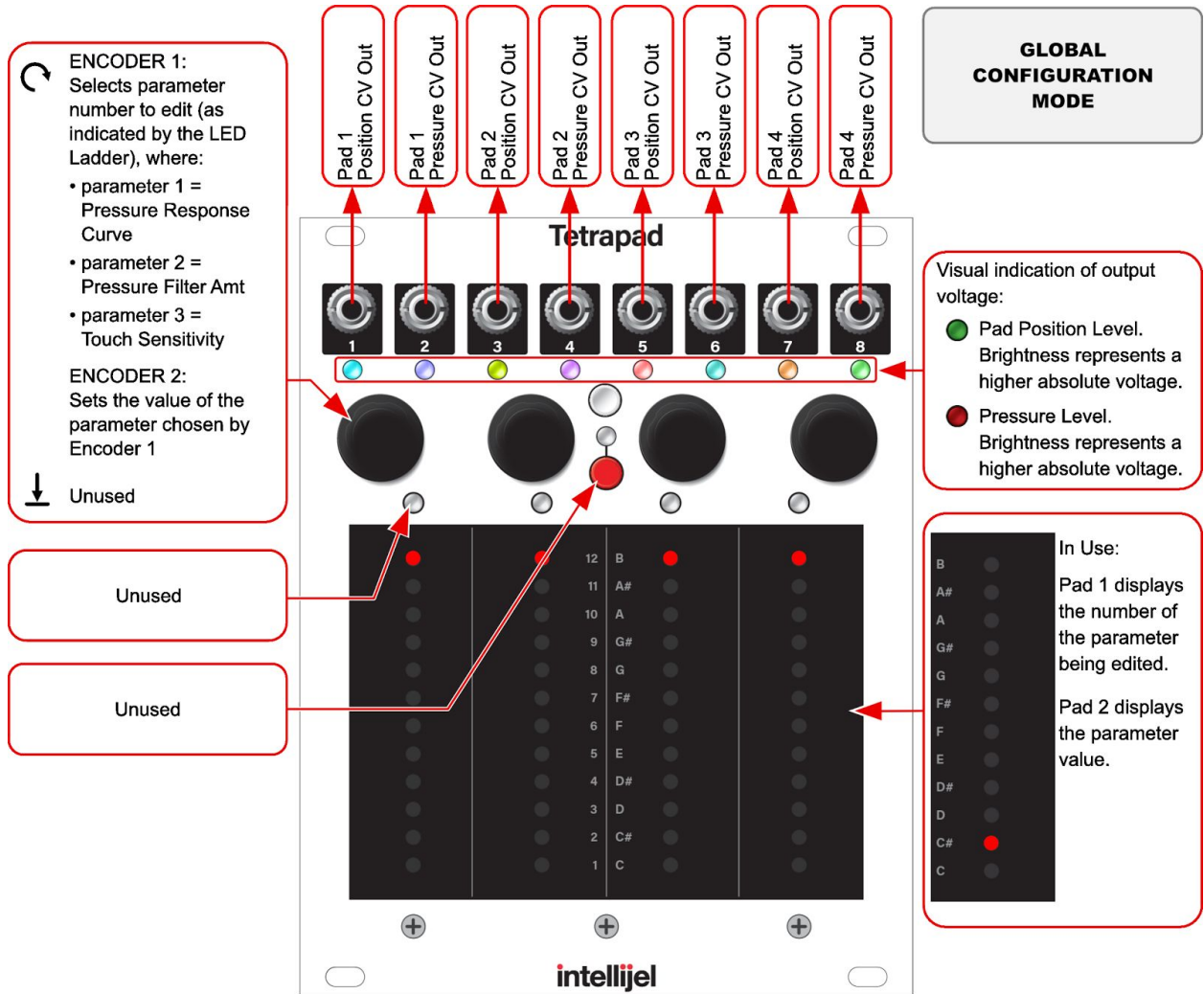
In Global Configuration Mode, each pad has a corresponding pair of active outputs, so you can test the effect of your settings while still in Configuration Mode. Each pad's position CV appears at its odd numbered out, and its pressure CV appears at the even.

Using Global Configuration Mode

To adjust the pressure response curve:

1. Rotate Encoder 1 until the first LED is lit beneath the surface of Pad 1.

    The first LED indicates that you're editing Parameter #1, which is the Pressure Response Curve parameter.

2. Rotate Encoder 2 to select the desired pressure response curve.

    There are four options, numbered 1-4 (as indicated by the LEDs beneath the pad's surface). These are: 1: Square (factory default); 2: Linear; 3: Exponential; and 4: Logarithmic.

    These are indicated graphically in the following illustration:

To adjust the pressure filter:

1. Rotate Encoder 1 until the second LED is lit beneath the surface of Pad 1.

   The second LED indicates that you're editing Parameter #2, which is the Pressure Filter parameter.

2. Rotate Encoder 2 to select the desired filter.

   There are 12 filtration levels, numbered 1-12 (as indicated by the LEDs beneath the pad's surface). Higher numbers are more sensitive to pressure variation than lower numbers. Tetrapad ships with a default level of 7.
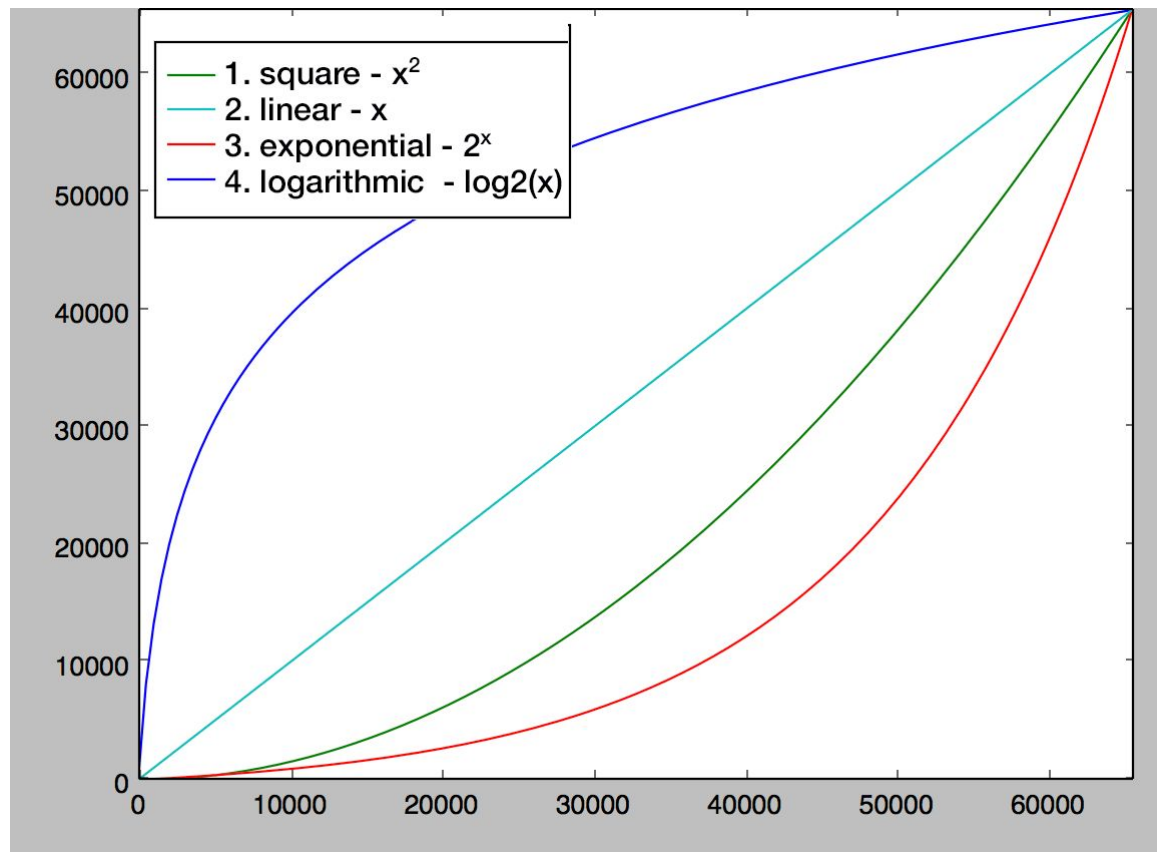
To adjust the touch sensitivity:

1. Rotate Encoder 1 until the third LED is lit beneath the surface of Pad 1.

   The third LED indicates that you're editing Parameter #3, which is the Touch Sensitivity parameter.

2. Rotate Encoder 2 to select the desired touch sensitivity.

   There are 12 sensitivity levels, numbered 1-12 (as indicated by the LEDs beneath the pad's surface). Higher numbers are more sensitive to the touch of your finger but slightly less sensitive to its position, while lower numbers are less sensitive to touch, but more sensitive to position. Touch sensitivity has the most obvious effect in highly-reactive modes, like Mode 1: Faders Mode, where the way in which you touch a fader has the most effect on the CV values it transmits. Tetrapad ships with a default value level of 7.

Output Voltage Calibration Mode

Press the white Mode Select button as you would normally do to select a mode, then press and hold the Mode Select button again until a single red LED lights beneath one of the 8 output jacks. Press the white Mode select button again to exit Output Voltage Calibration mode (returning Tetrapad to standard Mode Select view).

ENCODER 4:
Selects which of the 8 outputs you wish to calibrate.

ENCODER 3:
Coarse tuning of the indicated Output's voltage

ENCODER 2:
Medium tuning of the indicated Output's voltage

ENCODER 1:
Fine tuning of the indicated Output's voltage

PUSH any encoder to switch between calibrating the 0V output and the 1V output of the indicated (lit) output. A RED LED indicates 0V and a GREEN LED indicates 1V.

Unused

Press to Save current calibration settings.

Out 1 (use voltage meter to calibrate)
Out 2 (use voltage meter to calibrate)
Out 3 (use voltage meter to calibrate)
Out 4 (use voltage meter to calibrate)
Out 5 (use voltage meter to calibrate)
Out 6 (use voltage meter to calibrate)
Out 7 (use voltage meter to calibrate)
Out 8 (use voltage meter to calibrate)

OUTPUT VOLTAGE CALIBRATION MODE

Tetrapad

1 2 3 4 5 6 7 8

12 B
11 A#
10 A
9 G#
8 G
7 F#
6 F
5 E
4 D#
3 D
2 C#
1 C

intellijel

A single lit LED indicates which Output the encoders are affecting for the purpose of calibration. The color of the LED indicates whether the Output is being calibrated for 0V or 1V. Specifically:

0V is being sent to the corresponding Output.

1V is being sent to the corresponding Output.

Press to EXIT *Output Voltage Calibration Mode*, and return to standard Mode Select functionality.

Unused

Tetrapads are calibrated at the factory prior to shipment, so it's unlikely you'll ever need to perform a custom calibration. But if you do, this mode (in conjunction with an external voltage meter) are all you need to calibrate each of the Tetrapad's eight outputs.

Using Output Voltage Calibration Mode

To enter Output Voltage Calibration Mode:

1. Press the white Mode Select button as you would normally do to enter mode selection.

2. Instead of rotating an encoder to select a numbered mode, press and hold the white Mode Select button until a single red LED lights beneath one of the 8 output jacks. Tetrapad is now in the hidden Output Voltage Calibration Mode.

To Calibrate an Output:

1. Rotate the right-most encoder (Encoder 4) to select which of the 8 output voltages you wish to calibrate. The single LED moves beneath the selected output jack to indicate which output is to be calibrated.

2. Plug a high resolution voltage meter into the Output jack whose LED is lit.

   You will calibrate an output to two different voltages: 0V (as indicated by a red Output Status LED) and 1V (as indicated by a green Output Status LED). Let's begin with the 0V calibration:

3. If the Output Status LED is currently green, push any of the four encoders to change its color to red. A red Output Status LED indicates 0V.

4. Rotate the three left encoders to set the output voltage as close to 0V as possible.

   The third encoder from the left (Encoder 3) is the coarse setting. The first encoder on the left (Encoder 1) is the fine setting. Between them is Encoder 2, which provides a voltage adjustment between fine and coarse.

5. Push any of the encoders to change the Output Status LED to green, indicating that 1V is now appearing at the corresponding output.

6. Rotate the three left-most encoders to set the output voltage as close to 1V as possible. Again, these three encoders are arranged with the finest control on the left.

7. To calibrate additional outputs, repeat steps 1-6.

8. Press the red SHIFT button to save the calibration.

To exit Output Voltage Calibration Mode:

1. Press the white Mode Select button, and Tetrapad will exit Output Voltage Calibration Mode, returning it to standard Mode Select view.

Firmware Version Display

When you first power up Tetrapad, all its LEDs blink rhythmically for a few seconds. After the light show completes and immediately before the module is ready to use, it displays (for about 1 second) the current firmware version using the Level LEDs embedded beneath each of the four pads.

Specifically, the four pads represent version xx.yy as follows:
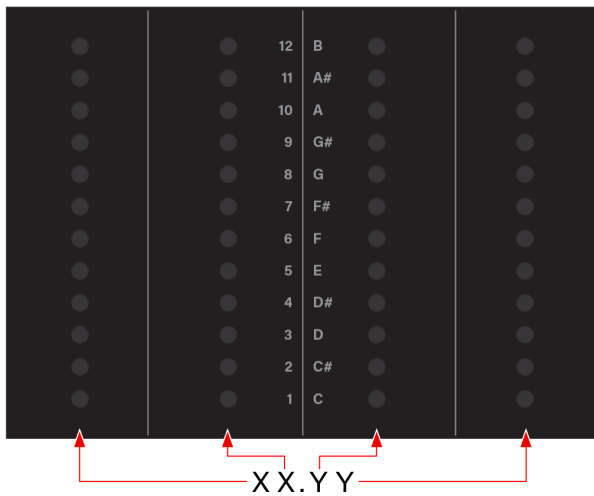
For example, version 1.00 would appear as shown on the left, and version 3.14 would appear as shown on the right:
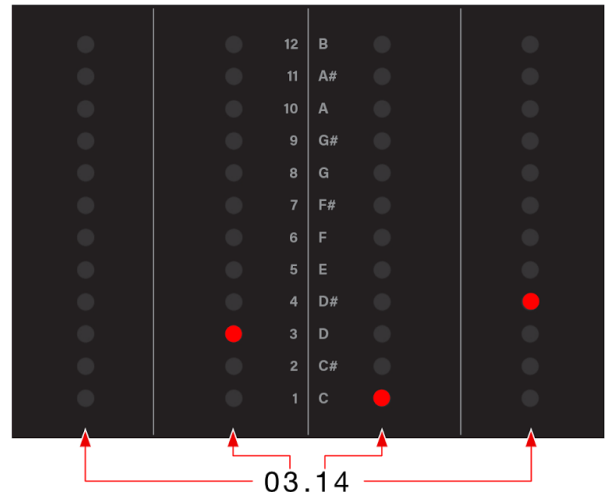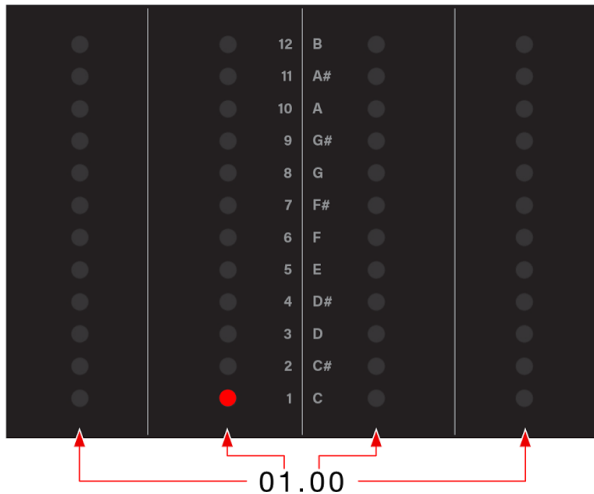
Firmware Change Log

1.0 (November 15, 2017)

- Initial Release

Technical Specifications

Width	20 hp
Maximum Depth	19 mm
Current Draw	130 mA @ +12V 15 mA @ -12V