

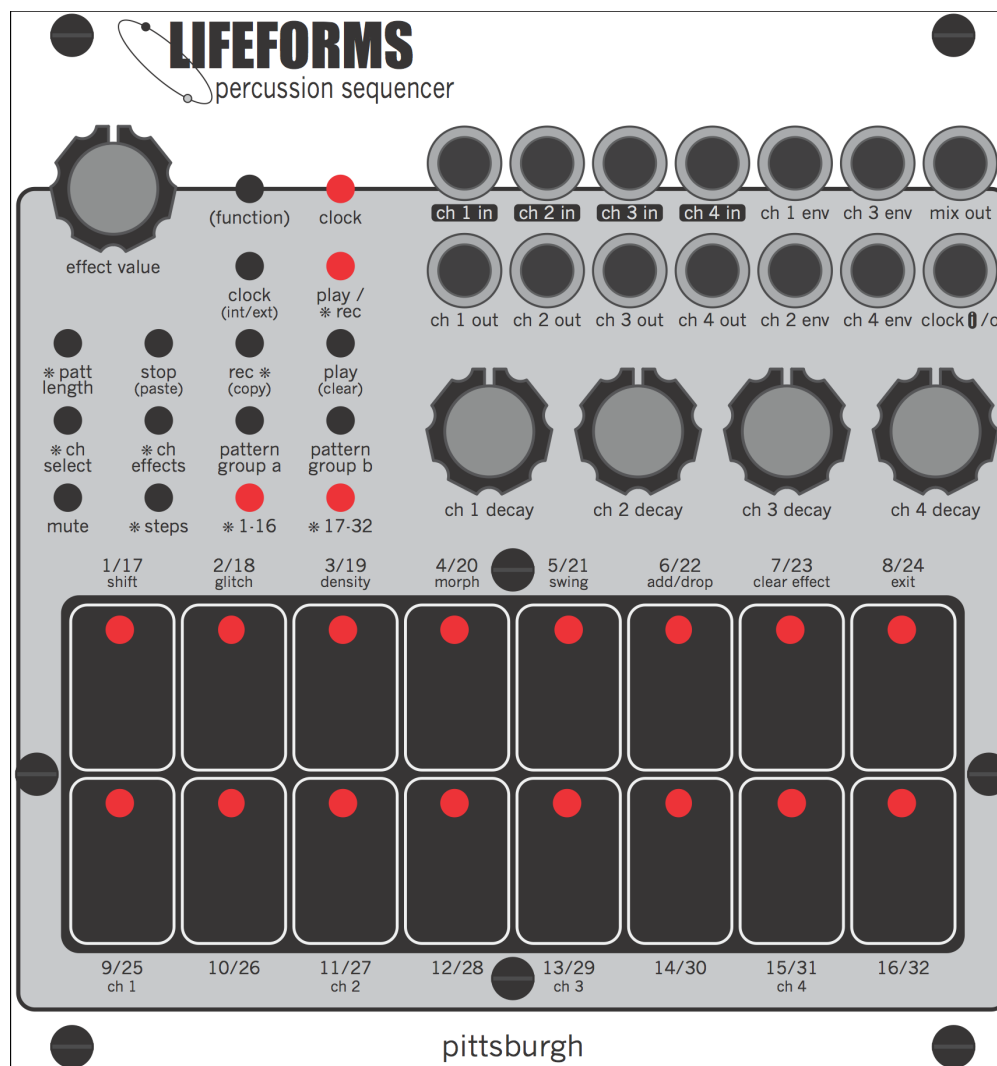
# pittsburgh modular synthesizers

## lifeforms percussion sequencer user manual v.1



## welcome to the eurorack drum machine

The Pittsburgh Modular Lifeforms Percussion Sequencer is a seriously featured, 4 channel eurorack beat programmer with a classic drum machine style interface. The familiar interface allows for quick mastery of all the features leaving the focus on the music. Seamlessly move around the module tweaking patterns and effects without ever stopping the beat. Easily create new patterns using the live performance or step recording modes then add one of the powerful pattern effects to each channel to take the sequence to a new level. Eurorack drum programming has come to life.



# table of contents

---

## table of contents

- 1 important power information** - page 3
- 2 user interface** - page 4
- 3 manual dictionary** - page 5
  - 3.1 list of terms used in the manual** - page 5
- 4 patching the percussion sequencer** - page 6
  - 4.1 patching overview** - page 6
  - 4.2 patching up a drum voice-** page 6
  - 4.3 using the envelope as the drum sound** - page 6
- 5 select a pattern** - page 7
  - 5.1 select a pattern overview** - page 7
  - 5.2 how to select a pattern** - page 7
- 6 record a new beat** - page 8- 11
  - 6.1 record a new beat overview** - page 8
  - 6.2 how to record a beat in live performance mode** - page 9
  - 6.3 how to record a beat in step record mode** - page 10
  - 6.4 saving a pattern** - page 11

- 
- 7 muting channels** - page 12
    - 7.1 muting and unmuting channels** - page 12
  - 8 channel effects** - page 13-15
    - 8.1 effects overview** - page 13
    - 8.2 how to set up an effect** - page 14
    - 8.3 modifying an effect** - page 15
    - 8.4 turning off an effect** - page 15
  - 9 pattern length** - page 16
    - 9.1 pattern length overview** - page 16
    - 9.2 changing pattern length** - page 16
  - 10 copy, paste, and clear** - page 17
  - 11 clock source** - page 18
  - 12 troubleshooting** - page 19
  - 13 eurorack specs** - page 20
  - 14 warranty** - page 21
  - 15 service and other information** - page 22

# 1. important information

## 1.1 important power information

### Read Instructions:

Please read the Lifeforms Percussion Sequencer manual completely before use and retain for future reference.

### IMPORTANT Ribbon Cable Power Information:

The Lifeforms Percussion Sequencer is a eurorack format synthesizer module. The module can be installed, rearranged, removed, and replaced in any compatible eurorack enclosure from Pittsburgh Modular or other manufacturers.

The Lifeforms Percussion Sequencer uses a standard 10 to 16 pin eurorack ribbon cable to connect the module to a bipolar +/-12v power supply. Please pay very close attention to the orientation of the ribbon cable when adding and removing modules. The stripe on the ribbon cable marks -12v. This stripe needs to line up with the -12v pins on the power rail and the -12v pins on the module. The Lifeforms Percussion Sequencer includes reverse polarity protection so it will not be damaged when plugged in incorrectly; however, as a general rule, failure to match up the pins correctly can result in damage to one or all the modules in a case. On a Pittsburgh Modular enclosure power rail, the -12v pins are clearly labeled. On the Lifeforms Percussion Sequencer module, the positive side of the pin connector is on top, and the negative sides of the pin connector is on the bottom so the red stripe should be toward the bottom of the module.

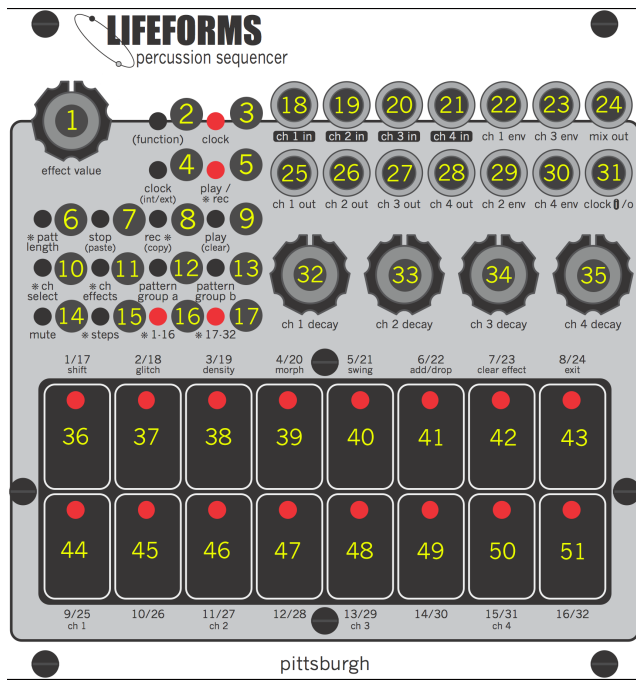
**Do NOT remove the Lifeforms Percussion Sequencer module from any case while it is plugged in.**

**Do NOT unplug ribbon cables from the Lifeforms Percussion Sequencer or case while the case is plugged in.**



# 2. user interface

1. **effect value knob** - modify active effect parameter.
2. **function button** - press and hold to enable alternate button functionality.
3. **clock led** - blinks in sync with the active clock tempo.
4. **clock button** - internal clock tap tempo or external clock divider button.
5. **play/record led** - lit when playing, blinks when record is enabled.
6. **pattern length button** - opens or closes pattern length screen.
7. **stop button** - stops the sequencer.
8. **record button** - enable or disable record mode.
9. **play button** - starts the sequencer.
10. **channel select button** - opens or closes channel select screen.
11. **channel effects button** - opens or closes effects select screen.
12. **pattern group a button** - opens or closes pattern group a selection screen.
13. **pattern group b button** - opens or closes pattern group b selection screen.
14. **mute button** - opens or closes channel mute screen.
15. **steps button** - switches between steps 1-16 and steps 17-32 screens.
16. **page 1-16 led** - indicates steps 1-16 are visible.
17. **page 17-32 led** - indicates steps 17-32 are visible.



18. **channel 1 in jack** - channel 1 vca audio signal input jack.
19. **channel 2 in jack** - channel 2 vca audio signal input jack.
20. **channel 3 in jack** - channel 3 vca audio signal input jack.
21. **channel 4 in jack** - channel 4 vca audio signal input jack.
22. **channel 1 envelope jack** - channel 1 envelope output jack.
23. **channel 3 envelope jack** - channel 3 envelope output jack.
24. **mix out jack** - mix of channel 1 through 4 output jack.
25. **channel 1 out jack** - channel 1 vca audio signal output jack.
26. **channel 2 out jack** - channel 2 vca audio signal output jack.
27. **channel 3 out jack** - channel 3 vca audio signal output jack.
28. **channel 4 out jack** - channel 4 vca audio signal output jack.
29. **channel 2 envelope jack** - channel 2 envelope output jack.
30. **channel 4 envelope jack** - channel 4 envelope output jack.
31. **clock in/out jack** - clock signal input or output jack
32. **channel 1 decay knob** - channel 1 envelope decay/release controller knob.
33. **channel 2 decay knob** - channel 2 envelope decay/release controller knob.
34. **channel 3 decay knob** - channel 3 envelope decay/release controller knob.
35. **channel 4 decay knob** - channel 4 envelope decay/release controller knob.
36. **pad 1/17 [shift]** - sequencer pad.
37. **pad 2/18 [glitch]** - sequencer pad.
38. **pad 3/19 [density]** - sequencer pad.
39. **pad 4/20 [morph]** - sequencer pad.
40. **pad 5/21 [swing]** - sequencer pad.
41. **pad 6/22 [add/drop]** - sequencer pad.
42. **pad 7/23 [clear effect]** - sequencer pad.
43. **pad 8/24 [exit]** - sequencer pad.
44. **pad 9/25 [channel 1]** - sequencer pad.
45. **pad 10/26** - sequencer pad.
46. **pad 11/27 [channel 2]** - sequencer pad.
47. **pad 12/28** - sequencer pad.
48. **pad 13/29 [channel 3]** - sequencer pad.
49. **pad 14/30** - sequencer pad.
50. **pad 15/31 [channel 4]** - sequencer pad.
51. **pad 16/32** - sequencer pad.

# 3. manual dictionary

## 3.1 list of terms used in the manual

**Active Pattern** - The pattern currently loaded into the sequencer.

**Active Step** - The step within a pattern currently used by the sequencer.

**Clipboard** - An area of memory used to copy and paste patterns.

**Keypad** - A single touch sensitive button on the touchpad.

**Page** - Using the keypad and keypad LEDs to display and select parameters.

**Touchpad** - The large touch surface with 16 keypads and 16 corresponding LEDs.

\* - Part of panel graphics that indicates the button or LED only works in record mode.

() - Indicates the functionality of the button while the [function button] is pressed.

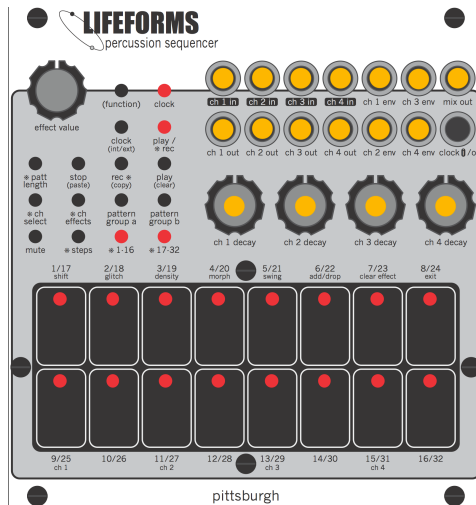
# 4. patching the percussion sequencer

## 4.1 patching overview

The Pittsburgh Modular Lifeforms Percussion Sequencer utilizes an internal sequencer, touch sensitive drum pads, and analog envelopes and VCAs to control an array of functions and outputs. This guide will walk through the basics of patching up the drum voices.

## 4.2 patching up a drum voice

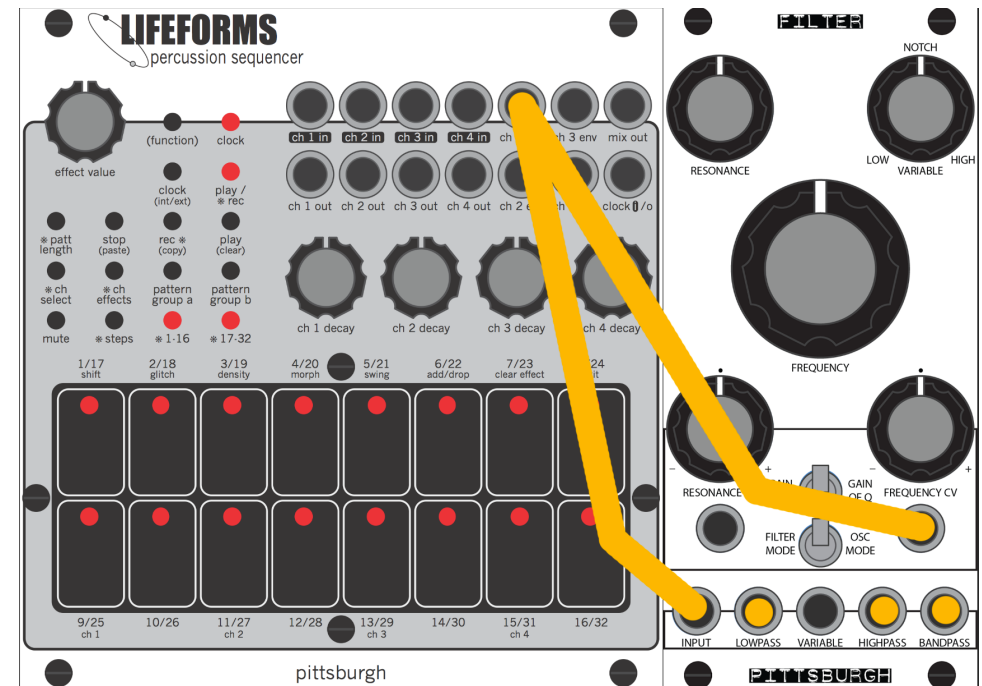
Each channel has an audio input, audio output, envelope decay/release control, and envelope output. Patching an audio source such as an oscillator or noise source into a channel input jack will route the audio through the internal VCA. The envelope decay/release knob controls the rate that the VCA closes after it has been triggered turning the external audio source into a percussive hit. The individual outputs use switched jacks so that if the channel output jack is used, the channel audio is removed from the mix output jack.



## 4.3 using the envelope as the drum sound

For a simple percussion sound, the envelope output jack can be used as an audio source. Unfiltered, the envelope produces a kick drum type sound.

For a more flexible percussion sound, patch the output of the envelope into a multiple to split the signal and then patch into a filter audio input and filter frequency cutoff cv input. A multimode filter that offers low pass, band pass, and high pass options will provide a nice array of percussive sounds.



# 5. select a pattern

## 5.1 select a pattern overview

The Percussion Sequencer stores 32 user created sequences in 2 groups of 16. Pattern Group A and Pattern Group B.

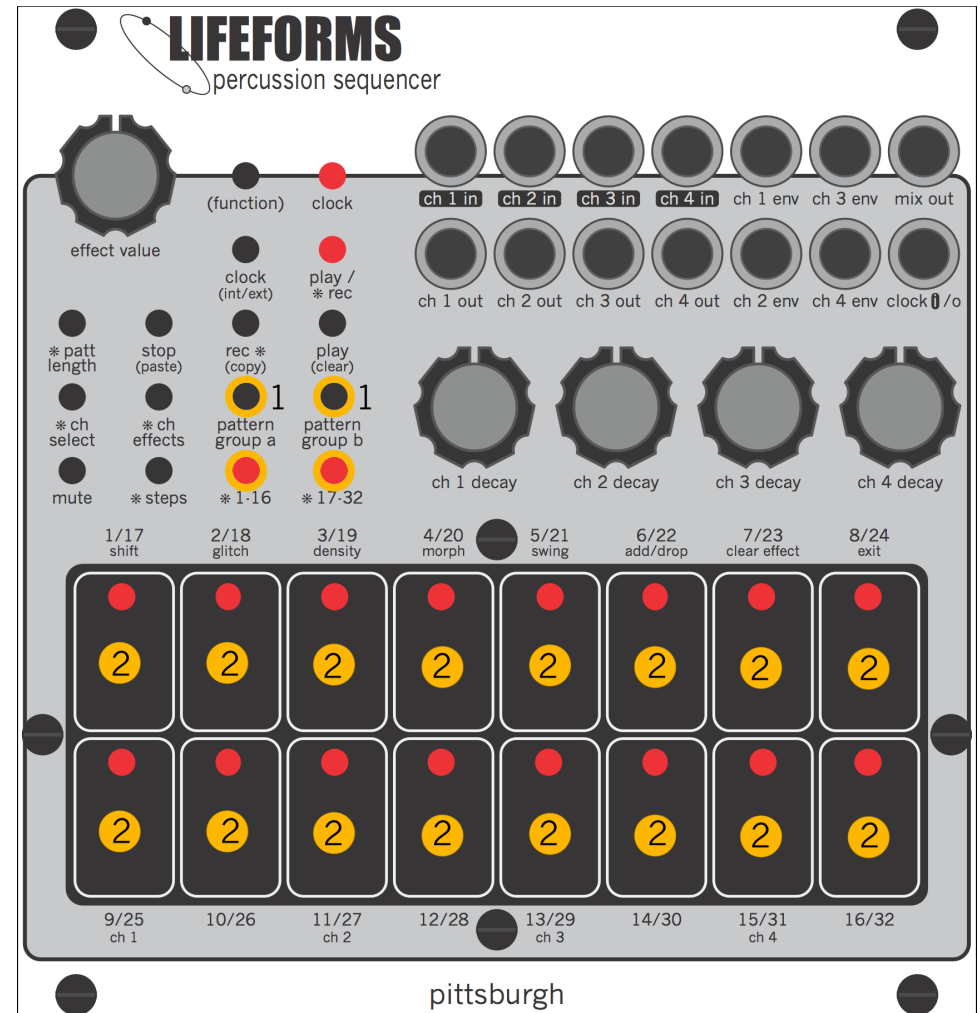
## 5.2 how to select a pattern

**Step 1. Press the [pattern group a button] or [pattern group b button] to activate one of the pattern select pages on the touchpad.**

The corresponding group LED ([1-16] or [17-32]) will turn on to show the selected pattern group page. The [pattern group a] page contains patterns 1 through 16. The [pattern group b] page contains patterns 17 through 32. This page will time out 4 seconds after the [pattern group a] or [pattern group b] button or the last keypad is pressed. Empty patterns are shown with the corresponding keypad LED off. Recorded Patterns are shown with the corresponding keypad LED solid on. The active pattern LED will blink slowly.

**Step 2. Select a pattern by pressing one of the the 16 keypads.**

The sequencer switches to the selected pattern after the final step of the active pattern. The selected pattern LED will blink quickly until it becomes the active pattern.



# 6. record a new beat

## 6.1 record a new beat overview

There are 2 ways to record a pattern. Live Performance Mode and Step Record Mode.

In Live Performance Mode, the pattern is created by tapping in the pattern using the [9/25 ch 1 keypad], [11/27 ch 2 keypad], [13/29 ch 3 keypad], and [15/31 ch 4 keypad]. The tapped performance is quantized to the nearest beat.

In Step Record Mode, the pattern is created by using the touchpad to edit the pattern of one channel at a time. Each of the keypads represent one step of the pattern and can be turned on or off by touching the keypad.



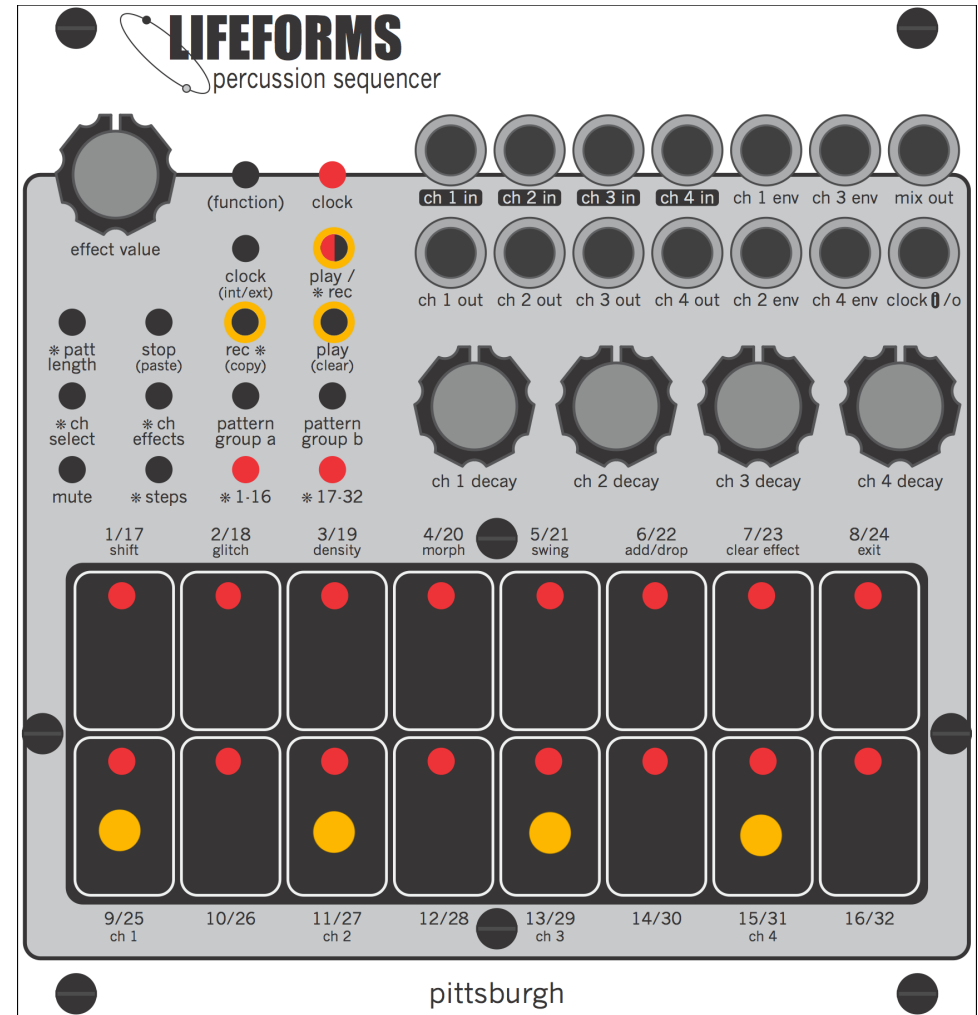


# 6. record a new beat (cont.)

## 6.2 how to record a beat in live performance mode

Use this mode to tap in a beat in real time on all 4 channels.

1. Select an empty pattern to record to.
2. Press [play button] to start sequencer.  
The [play record LED] will turn on solid.
3. Press [record button] to start recording.  
The [play record LED] will start blinking.
4. Press the [channel select button] to activate the channel select page on the touchpad. The [9/25 ch 1 keypad], [11/27 ch 2 keypad], [13/29 ch 3 keypad], [15/31 ch 4 keypad], and [8/24 exit keypad] LEDs will turn on to show selection choices. This page will time out 4 seconds after the [channel select button] is pressed.
5. Touch the [pad 8/24 exit keypad] to activate Live Performance Mode.
6. Tap a pattern on the [pad 9/25 channel 1 keypad], [pad 11/27 channel 2 keypad], [pad 13/29 channel 3 keypad], [15/31 channel 4 keypad] to program a beat as the sequencer cycles. As long as record is enabled, additional taps will be added to the active sequence regardless of how many times the sequence has played through.
3. Press [record button] to stop recording.  
The [play record LED] will stop blinking and the sequence will be saved.



# 6. record a new beat (cont.)

## 6.3 how to record a beat in step record mode

Use this mode to program a beat one channel at a time using the touchpad.

**1. Select an empty pattern to record to.**

**2. Press [play button] to start sequencer.**

The [play record LED] will turn on solid.

**3. Press [record button] to start recording.**

The [play record LED] will start blinking.

**4. Press the [channel select button] to activate the channel select page on the touchpad.** The [9/25 ch 1 keypad], [11/27 ch 2 keypad], [13/29 ch 3 keypad], [15/31 ch 4 keypad], and [8/24 exit keypad] LEDs will turn on to show selection choices. This page will time out 4 seconds after the [channel select button] is pressed.

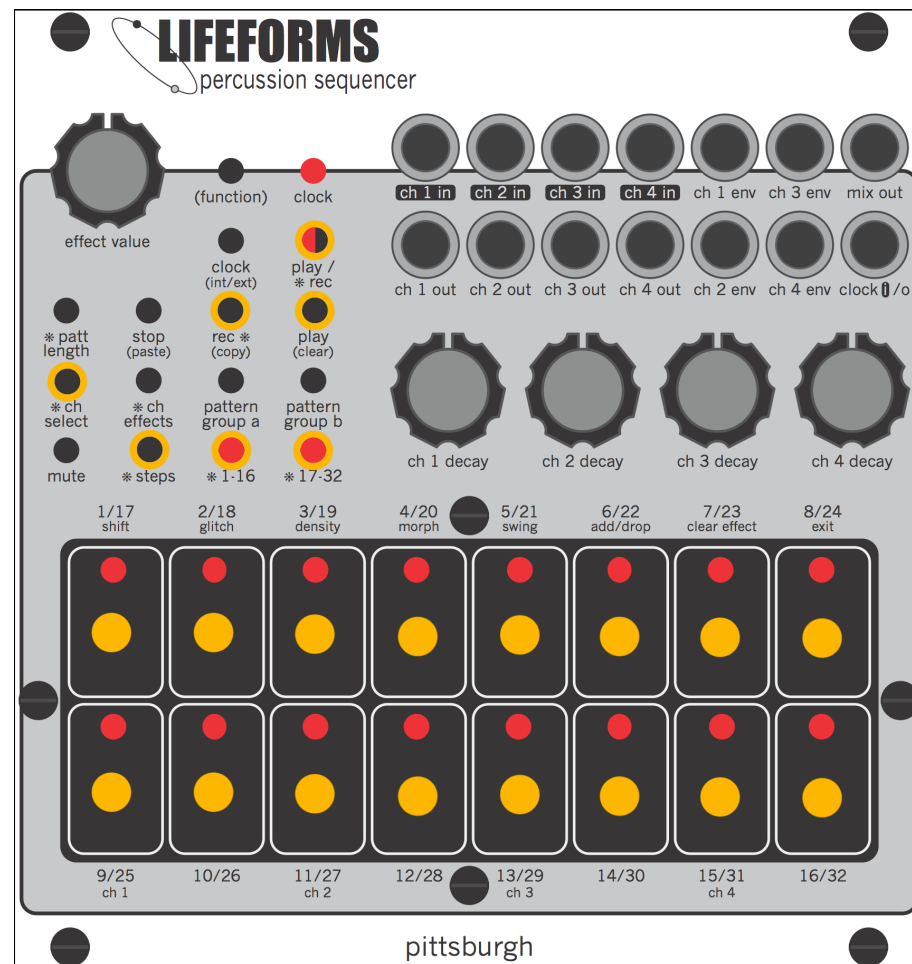
**5. Select a channel to edit.** Press the [9/25 ch 1 keypad] to select channel 1 to edit. Press the [11/27 ch 2 keypad] to select channel 2 to edit. Press the [13/29 ch 3 keypad] to select channel 3 to edit. Press the [15/31 ch 4 keypad] to select channel 4 to edit. By default, there are 32 steps in a sequence. By default, the touchpad will automatically switch between pages to always show the active step. Pressing the [steps button] will switch between step groups 1-16 and 17-32. The corresponding group LED ([1-16] or [17-32]) will turn on to show the active group page. This page will time out 4 seconds after the [steps button] or the last keypad is pressed. The active step controlled by the clock is designated using a solid LED on the keypad corresponding to the active step of the beat.

**6. Enter a pattern by touching the 16 keypads.**

**4. Once you are happy with the pattern, select a different channel to program.**

**5. Press [record button] to stop recording.**

The [play record LED] will stop blinking and the sequence will be saved.



# 6. record a new beat (cont.)

---

## 6.4 saving the pattern

•Patterns are saved to non-volatile memory automatically in the background after any one of the following events.

- Record mode is turned off.
- Switching to a different pattern while record mode is active.
- Pattern is cleared.
- Pattern is pasted.

To ensure a pattern is saved before turning off the module, **press [record button] to stop recording.**

The [play record LED] will stop blinking and the sequence will be saved.

# 7. muting channels

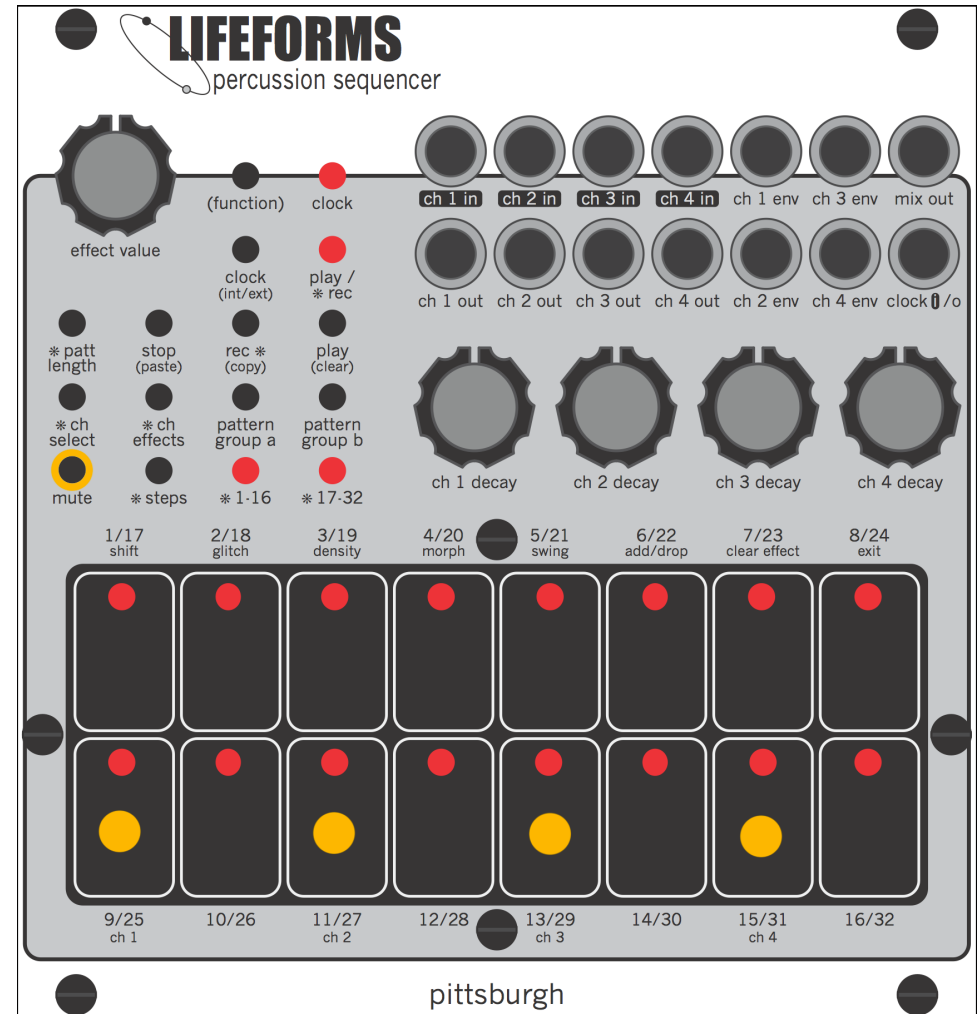
## 7.1 muting and un-muting channels

1. Press the [mute button] to activate the channel mute page on the touchpad.

The [9/25 ch 1 keypad], [11/27 ch 2 keypad], [13/29 ch 3 keypad], [15/31 ch 4 keypad], and [8/24 exit keypad] LEDs will turn on if the corresponding channel is active. The [9/25 ch 1 keypad], [11/27 ch 2 keypad], [13/29 ch 3 keypad], [15/31 ch 4 keypad], and [8/24 exit keypad] LEDs will remain off if the corresponding channel is muted. This page will time out 4 seconds after the [mute button] or the last keypad is pressed.

2. Select channels to mute or un-mute.

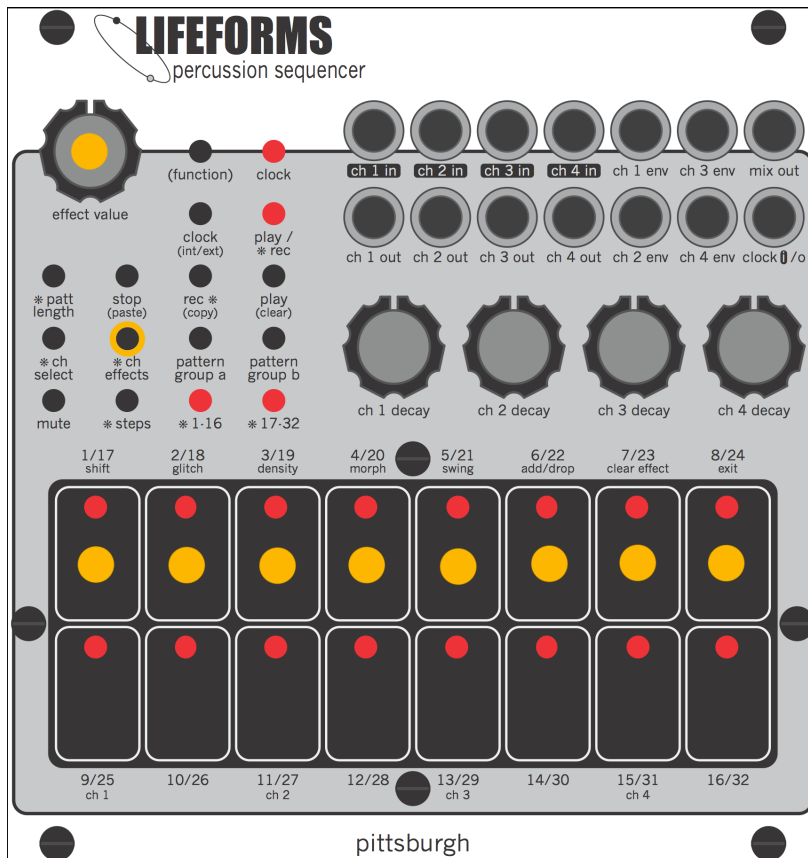
- Press the [9/25 ch 1] keypad to mute or un-mute channel 1.
- Press the [11/27 ch 2] keypad to mute or un-mute channel 2.
- Press the [13/29 ch 3] keypad to mute or un-mute channel 3.
- Press the [15/31 ch 4] keypad to mute or un-mute channel 4.



# 8. channel effects

## 8.1 effects overview

The Lifeforms Percussion Sequencer includes 6 unique pattern effects to expand the musical possibilities of traditional grid style beat programming. Each channel can run a unique instance of 1 pattern effect at a time. A master pattern effect channel is also available that affects all 4 channels of the sequencer. The combination of the channel effect and the master effect allows for up to 2 effects at a time on each channel. Each effect has 1 parameter that can be set to a value between 1 - 7 to dial in the perfect response.



### Shift Effect

Delays the trigger output of a channel by small divisions of the tempo. Use this effect to create half-step or stutter-step drum triggers. Effect knob controls the amount of channel shift. The range of shift is 1/8th to 7/8ths of a beat.

### Glitch Effect

Probability based glitch effect that creates chaotic gates based on a cascading chance algorithm. The resulting patterns are always in sync with some division of the clock, allowing for stuttering but not disjointed patterns. The probability is set using the effect knob. The range of the glitch effect is minimal to absolute chaos.

### Density Effect

Sets the number and timing of triggers created for each active step. The result can be anything from a doubling of the trigger to a rolling effect. The effect knob controls the trigger density.

### Morph Effect

Create evolving patterns. The morph effect is a probability based algorithm that modifies an existing pattern by adding or removing active steps. The effect knob sets the probability that the pattern will morph.

### Swing Effect

A classic drum machine effect meant to mimic the feel of a real drummer by shifting the timing of every other step. The effect knob controls the amount of swing.

### Add/Drop Effect

Temporarily add or drop steps from a pattern. The results are similar to the morph effect but changes to the pattern are not compounded as the pattern plays allowing the resulting pattern to stay anchored to the original sequence. The effect knob sets the probability that a step will be modified.

# 8. channel effects (cont.)

## 8.2 how to set up an effect

### 1. Ensure record is enabled.

The [play record LED] will be blinking.

### 2. Press the [channel select button] to activate the channel select page on the touchpad.

The [9/25 ch 1 keypad], [11/27 ch 2 keypad], [13/29 ch 3 keypad], [15/31 ch 4 keypad], and [8/24 exit keypad] LEDs will turn on to show selection choices. This page will time out 4 seconds after the [\*ch select] button is pressed.

### 3. Select a channel.

- Press the [8/24 exit keypad] to select the global effects channel.
- Press the [9/25 ch 1 keypad] to select channel 1.
- Press the [11/27 ch 2 keypad] to select channel 2.
- Press the [13/29 ch 3 keypad] to select channel 3.
- Press the [15/31 ch 4 keypad] to select channel 4.

### 4. Press the [channel effects button] to activate the effects select page on the touchpad.

The [1/17 shift keypad], [2/18 glitch keypad], [3/19 density keypad], [4/20 morph keypad], [5/21 swing keypad], [6/21 add/drop keypad], and [8/24 exit keypad] LEDs will turn on to show selection options. The [9/25 ch 1 keypad], [11/27 ch 2 keypad], [13/29 ch 3 keypad], [15/31 ch 4 keypad] LEDs will turn on to show the selected channel or channels.

### 4. Select the effect.

- Touch the [1/17 shift keypad] to activate the shift effect.
- Touch the [2/18 glitch keypad] to activate the glitch effect.
- Touch the [3/19 density keypad] to activate the density effect.
- Touch the [4/20 morph keypad] to activate the morph effect.
- Touch the [5/21 swing keypad] to activate the swing effect.
- Touch the [6/22 add/drop keypad] to activate the add/drop effect.
- Touch the [8/24 exit keypad] to exit the channel effects page.

The LED corresponding to the selected effect will remain on. The LEDs corresponding to the unselected effects will turn off. The [7/23 clear effect keypad] LED will turn on activating the clear effect keypad.

### 5. Use the [effects value knob] to set the effect value.

The selected effect value will be shown on the bottom row of the touchpad. Turning the [effects value knob] to the right will increase the effect. Turning the [effects value knob] to the left will reduce the effect. Setting the effects value to the lowest value will turn off the effect. Touching [7/23 clear effect keypad] will turn off the effect.

# 8. channel effects (cont.)

---

## 8.3 modifying an effect

1. Ensure record is enabled.

The [play record LED] will start blinking.

2. Select the single channel or global effects channel you want to edit.
3. Press [channel effects button] or turn the [effect value knob] to open the effects select page.
4. Use the [effects value knob] to set the effect value.

---

## 8.4 turning off an effect

1. Ensure record is enabled.

The [play record LED] will start blinking.

2. Select the single channel or global effects channel you want to edit.
3. Press [channel effects button] or turn the [effect value knob] to open the effects select page.
4. Press [7/23 clear effect keypad] or turn the [effect value knob] full left to disable the selected effect.

# 9. pattern length

## 9.1 pattern length overview

The default pattern length is 32 steps. However, pattern length can be set individually for each channel and globally for the pattern. The length of each channel can be set independently overriding the global pattern length to create polyrhythms. The global pattern length controls the length of the pattern for channels that have not been independently set. The global pattern length is also used to set the end point of the pattern when switching to a new pattern.

## 9.2 changing pattern length

### 1. Ensure record is enabled.

The [play record LED] will start blinking.

### 2. Press the [channel select button] to activate the channel select page on the touchpad.

The [9/25 ch 1 keypad], [11/27 ch 2 keypad], [13/29 ch 3 keypad], [15/31 ch 4 keypad], and [8/24 exit keypad] LEDs will turn on to show selection choices. This page will time out 4 seconds after the [channel select button] is pressed.

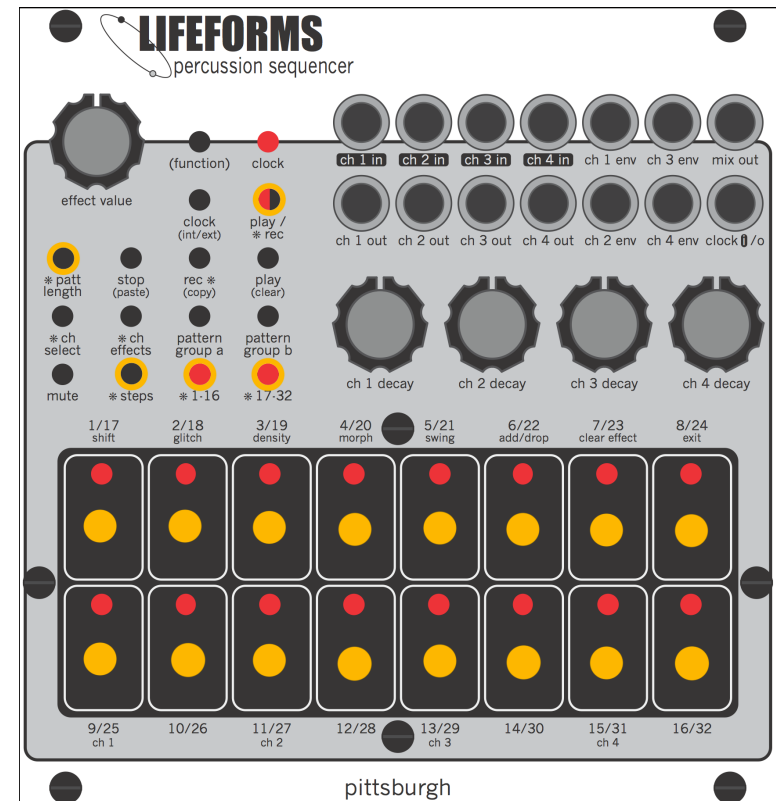
### 3. Select a channel.

- Press the [8/24 exit keypad] to select the global pattern length channel.
- Press the [9/25 ch 1 keypad] to select channel 1.
- Press the [11/27 ch 2 keypad] to select channel 2.
- Press the [13/29 ch 3 keypad] to select channel 3.
- Press the [15/31 ch 4 keypad] to select channel 4..

### 4. Press the [pattern length button] to activate the selected channel pattern length page on the touchpad.

The touchpad will default to the pattern length page showing the current selected channel pattern length value. Pressing the [steps button] will switch between pattern length groups 1-16 and 17-32. The corresponding group LED ([1-16] or [17-32]) will turn on to show the active group page. This page will time out 4 seconds after the [steps button] or the last keypad is pressed. The current pattern length value is designated using a solid LED on keypad corresponding to the current value.

### 4. Touch a keypad to change the selected channel pattern length.





# 10. pattern copy, paste, & clear

## 10.1 copying a pattern

Copy the active pattern to the clipboard.

1. Press and hold the the [function button].
2. Press the [record button] to copy the pattern.

## 10.2 pasting a pattern

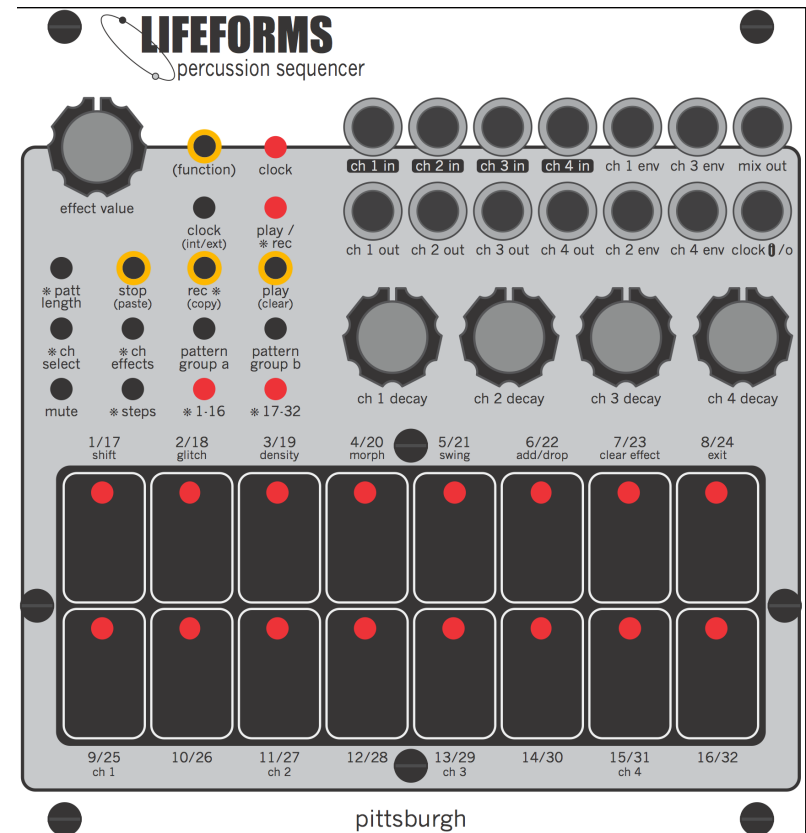
Paste the pattern stored in the clipboard to the active pattern. This action can NOT be undone.

1. Select the pattern you wish to paste the clipboard to.
2. Press and hold the the [function button].
3. Press the [stop button] to paste the pattern.

## 10.3 clearing a pattern

Erase the active pattern. This action can NOT be undone.

1. Select the pattern you wish to clear.
2. Press and hold the the [function button].
3. Press the [play button] to clear the pattern.



# 11. clock source

## 11.1 selecting the clock source

Switch between internal and external clock.

1. Press and hold the the [function button].
2. Press the [clock button].

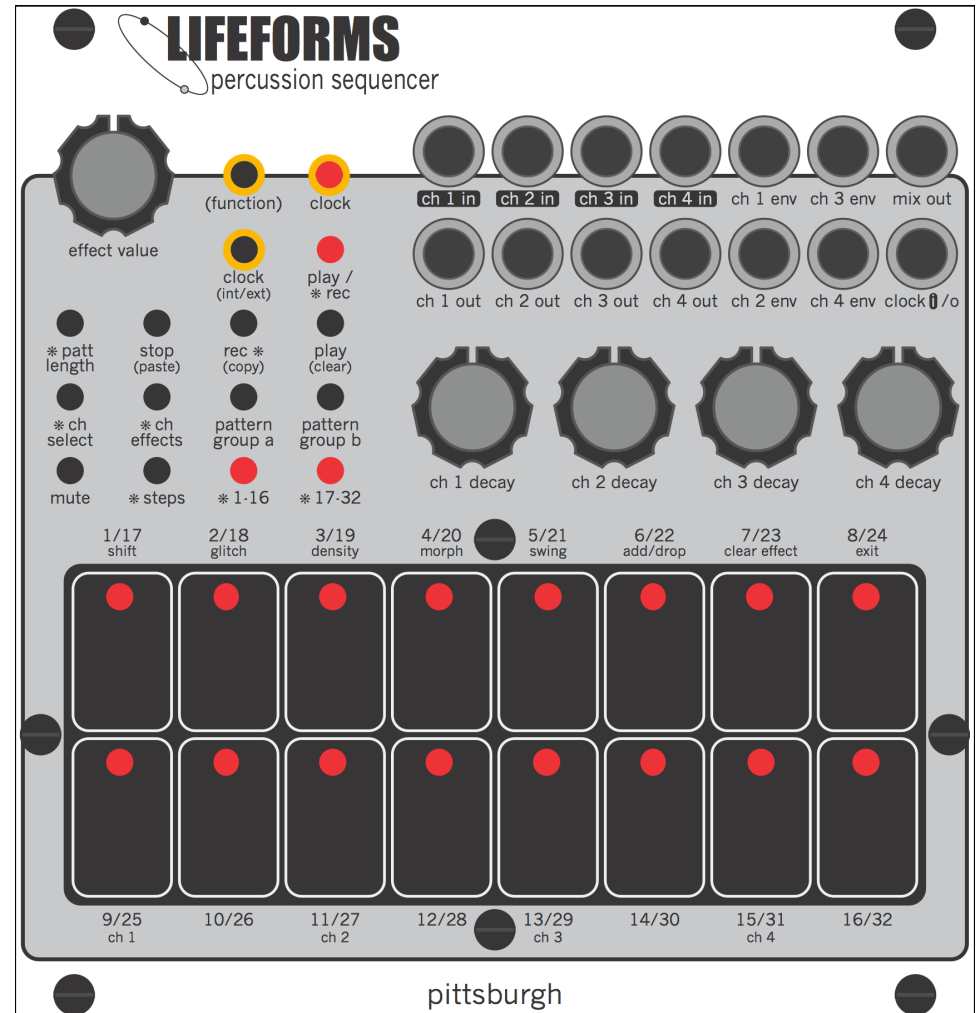
The clock LED will blink once to indicate internal clock is selected.  
The clock LED will blink twice to indicate external clock is selected.

## 11.2 using the internal clock

The [clock button] is used to tap in a tempo. The [clock in/out jack] is used to output the internal clock.

## 11.3 using the external clock

The [clock button] is used as a clock divider for the external clock signal. The [clock button] cycles through  $/1$ ,  $/2$ ,  $/4$ ,  $/8$ . The [clock in/out jack] is used to input the external clock.

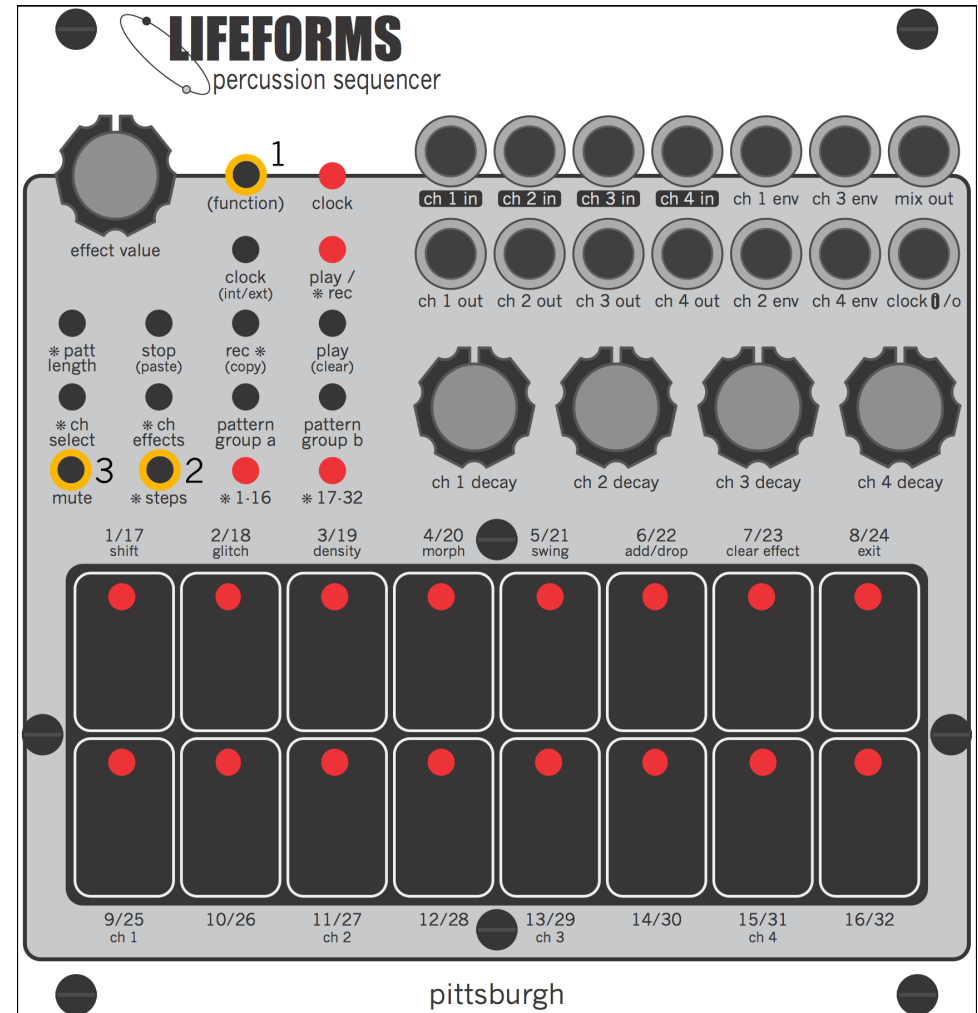


# 12. troubleshooting

## 12.1 factory reset procedure

1. Press [stop button] to stop the sequencer.
2. Make sure record mode is off.
3. Press and hold the the [function button].
4. Press and hold the [steps button].
5. Press and hold the [mute button].
6. Release all buttons after 1 second.

The LEDs will turn off and the [16/32 keypad LED] will start blinking after a few seconds. After a few more seconds, the module will reboot and be ready to use.



# 13. eurorack specs

---

## 13.1 Lifeforms Percussion Sequencer module specs

Panel size 24hp.

Module depth 28mm.

Power consumption +12v 150mA, -12v 45mA. Does not require +5v. Includes reversed power polarity protection..

# 14. warranty

---

## 14.1 one year limited warranty

For a period of one year after the date of original purchase, the Lifeforms Percussion Sequencer manufactured by Pittsburgh Modular Synthesizers LLC, is warranted to function properly and be free of defects in materials and workmanship. Should a factory installed hardware fail during the warranty period, contact Pittsburgh Modular Synthesizers LLC. We will repair it (or at our option, replace it) at no charge, and pay the cost of shipping it back to you.

This warranty is void if in our opinion the Lifeforms Percussion Sequencer has been damaged by accident, mishandled, altered, improperly serviced, or repaired by the customer where such treatment has affected its performance or reliability. This includes but is not limited to damage related to incorrectly attaching power ribbon cables. In the event of such misuse/abuse by the customer, costs for repairs plus two-way shipping costs will be borne by the customer. Products found defective should be returned to the factory carefully packed, as the customer will be responsible for freight damage.

Incidental or consequential damages or costs incurred as a result of product malfunction are not the responsibility of Pittsburgh Modular Synthesizers LLC.

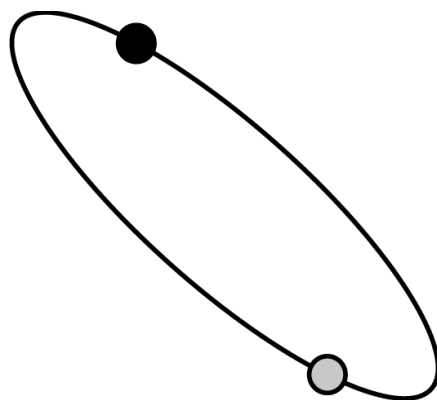
# 15. service and other information

---

## 15.1 contact info

Please contact us for service or other information related to the Lifeforms Percussion Sequencer or any other Pittsburgh Modular product.

[www.pittsburghmodular.com/contact](http://www.pittsburghmodular.com/contact)



**pittsburgh modular synthesizers**