

The **POLY SEQUENCER** is a MIDI based polyphonic step sequencer that records up to **128 steps**. The Poly Sequencer works by recording a sequence by a MIDI controller, and outputting the recorded sequence via an external MIDI enabled device. The Poly Sequencer's tempo is controlled by the **Internal Clock** by use of the **Tempo Knob** or **Tap Tempo**. However, the Poly Sequencer may also be synced to external gear by use of the **Gate In**, or receiving **MIDI Clock** messages. The rate at which the steps are sequenced is controlled by the **Division** section, representing the number of steps played per clock. By Default, the Poly Sequencer can store up to **5 notes per step** with **1 Velocity** and **1 CC** reading, however the user may choose to change the **Sequence Type** which varies the stored data depending on the mode selected. Additional functionality includes saving, auto generating blank sequences, as well as step override/ interrupt/ transpose during playback. Firmware versions may also be upgraded by **USB** connection.

9V DC Jack: DC power supply not included.
2.1 mm barrel plug (**Center Positive**)

MIDI IN Jack: Connect MIDI Controller/ keyboard MIDI OUT to the Poly Sequencer MIDI IN (**Channel 1**).

MIDI OUT Jack: Connect the external MIDI device MIDI IN to the Poly Sequencer MIDI OUT (**Channel 1**).

Internal Clock: The Poly Sequencer's tempo is by default controlled by the onboard Internal Clock. The tempo may be adjusted by the **TEMPO** Knob ranging from 30 BPM to 240 BPM (default). The **TAP** Tempo button may be used to *tap* a desired tempo before or during playback. At any point, the **TEMPO** Led will illuminate at the active clock rate of the device. The Min and Max BPM settings are adjustable by SysEx messages.

GATE IN Jack: 3.5 mm jack used to synchronize the Poly Sequencer with external gate source. The Poly Sequencer's Internal Clock is disabled once a 3.5 mm cable is plugged into the GATE IN Jack. The Internal Clock will be disabled for the duration of the session and is only re-enabled once the Poly Sequencer is restarted.

MIDI Clock In: MIDI clock may be used to sync the Poly Sequencer to other devices. The device will begin playback when it reads a Start/ Continue message, and will stop playing once the device reads a Stop message. In this mode, the play button is disabled.

MIDI Clock Out: The Poly Sequencer can be configured to send MIDI clock messages to other gear when using the Internal Clock. The device will send a Start message when the Play button is pressed, and a subsequent Stop message once the sequence is stopped.

RECORD: Starts Record Mode when pressed.

REST | TIE: Creates rest during recording of initial sequence or while in Override/ Interrupt Mode. May also be used to create a tie between two or more steps.

After connecting a MIDI Controller and external MIDI Device to the appropriate MIDI jacks, press the **RECORD** button to initiate Record Mode (as indicated by the Red Led). Play the note(s) you would like associated to the first step of sequence. The sequence will automatically increment to the next step when all notes are released (as indicated by the Green Led). While note(s) are held, you may also send **CC** messages. You may also add a **TIE** by pressing the **RECORD** button while continuing to hold the notes associated to the step. Continue adding notes to the sequence as desired. The **RECORD** button may also be used to add a **REST** to the sequence. When finished, press the **STOP | PLAY** button. The RED Led will blink three times indicating the sequence has been stored.

Saving a Sequence: Save the sequence by holding the **RECORD** button and pressing the **STOP | PLAY** button. Both Red and Green Led will flash indicating the save was successful. This sequence will now be available for playback after the Poly Sequencer is powered off.

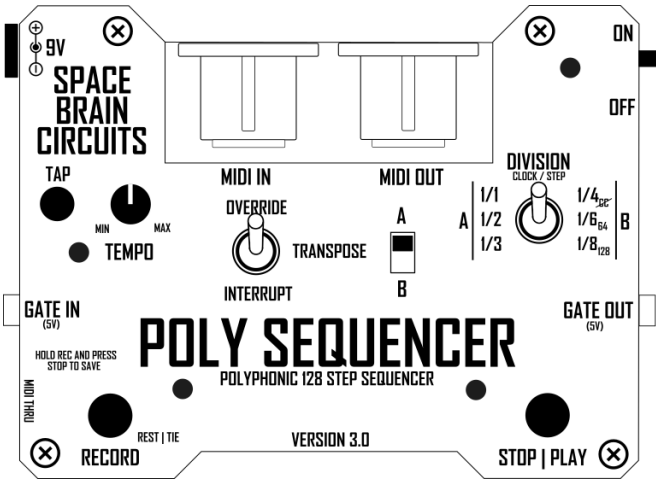
Global Settings: The following global settings may be adjusted by **SysEx** messages, which are available for download at the following URL:

www.github.com/SpaceBrainCircuits/PolySequencer

MIDI Channel Out: Outgoing MIDI Channel (1-16). **MIDI Channel In:** Incoming MIDI Channel (1-16).
Min BPM: The minimum BPM for TEMPO Knob. **Max BPM:** The maximum BPM for TEMPO Knob.
Reset Clock On Start: When using the Internal Clock, this parameter allows for the Sequence to immediately restart when pressing the STOP | PLAY button.
MIDI Clock Receive: The Poly Sequencer will only respond to MIDI Clock messages.
MIDI Clock Send: When using the Internal clock, the Poly Sequencer will send MIDI Clock messages.
Gate In Clock Division: The GATE In Jack may be divided by 1, 2, or 4. This allows the incoming clock to be pre-scaled prior to triggering the Poly Sequencer.

Sequence Type: The Poly Sequencer's operation may be adjusted depending on the Sequence Type selected. The Sequence Type defines what type of data is stored for each step. For Example, Mode 0 stores up to 5 notes, with 1 Velocity and 1 CC reading per step, while Mode 1 can only store up to 4 notes. However Mode 1 has the ability to store 2 CC messages per step. This list is subject to change by firmware edition.

| Mode | Description |
|-------------|---------------------------|
| 0 (Default) | 5 Notes, 1 Velocity, 1 CC |
| 1 | 4 Notes, 2 CC |
| 2 | 4 Notes, 4 Velocity |
| 3 | 1 Note, 1 Velocity, 3 CC |
| 4 | 0 Notes, 3 CC |
| 5 | 8 Notes |

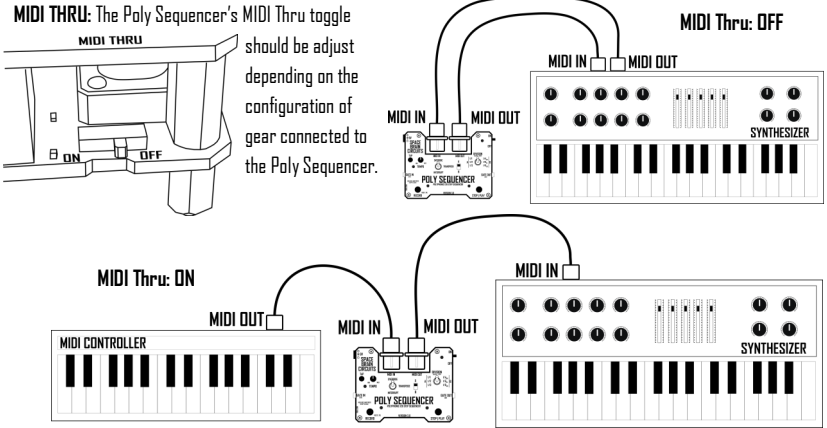


Override: At any point during playback of a sequence, notes associated to a step may be replaced by simply playing over the existing sequence (as indicated by the Green Led). The **RECORD** button may also be used to replace an associated note with a **REST**. The **CC** value may also be replaced.

Transpose: At any point during a sequence, any key press will transpose the sequence with reference to the first note of the Sequence.

Interrupt: At any point during playback of a sequence, any key press/ rest will mute the sequence and instead play the notes pressed. When all notes are released, the sequence will continue playing at the appropriate step.

Additional Functions: Hold the **RECORD** button for more than 3 seconds to access functions on **DIVISION** switch.
GC—Clears CC data on existing sequence. G4/ I28—Auto creates blank sequence of desired length.



Shift Mode: The Poly Sequencer's **TAP** tempo button also acts as a mechanism to enter Shift mode. Shift mode allows the user to see the current firmware version, as well as perform various global settings adjustments.

In order to enter Shift mode, first turn off the Poly Sequencer. Next, while holding down the **TAP** tempo button, turn the Poly Sequencer back on. Shift mode is exited once the **TAP** tempo button is released.

Once Shift mode has been entered, the Poly Sequencer's Red and Green Led will begin to flash. This pattern will denote the current version of Firmware loaded on the device. For example, if the Green Led flashes 3 times, and the Red Led flashes 1 time, the active firmware edition is 3.1. Shift mode allows the ability to change global settings as an alternative to sending **SysEx** messages. By pressing a note, a global setting parameter is toggled. When a parameter is toggled on, the Green and Red Led will blink corresponding to the state of the global setting. The following parameters may be adjusted by the following Notes. For all parameters other than the **Sequence Type** and **Gate In Clock Division**, On is denoted by blinking twice, and off is denoted by blinking once.

DIVISION Switch: Determines the tempo division from the **GATE IN** Jack. A division set at 1/4 will increment 4 steps for each pulse generated by the clock. The options are selectable by first choosing which column the division will access, as assigned by the **A | B** switch.

GATE OUT Jack: 3.5 mm jack used to synchronize external gear with the Poly Sequencer. The clock as shown by the Tempo Led will be duplicated to the GATE OUT Jack.

STOP: Ends Record Mode / Play Mode.

PLAY: Starts Play Mode.

Press **STOP | PLAY** to initiate Play Mode (start playback). The Poly Sequencer will increment through sequence at the tempo provided by the clock, and increment per the tempo division set on the **DIVISION** switch. The **A | B** switch and **DIVISION** switch may be changed at any point during playback.

Override, Transpose, and Interrupt are selectable during playback. This changes how the device behaves while playing notes while sequence is playing.

| Note | Parameter (Default) |
|------|------------------------------------|
| C | Reset Clock On Start (Off) |
| C# | MIDI Clock Receive (Off) |
| D | MIDI Clock Send (Off) |
| D# | Gate In Clock Division - (1), 2, 4 |
| E | Sequence Type - Mode 0 (Default) |
| F | Sequence Type - Mode 1 |
| F# | Sequence Type - Mode 2 |
| G | Sequence Type - Mode 3 |
| G# | Sequence Type - Mode 4 |
| A | Sequence Type - Mode 5 |
| A# | n/a |
| B | Reset Back to Factory Default |

SPACE BRAIN CIRCUITS

POLY SEQUENCER

USER MANUAL

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