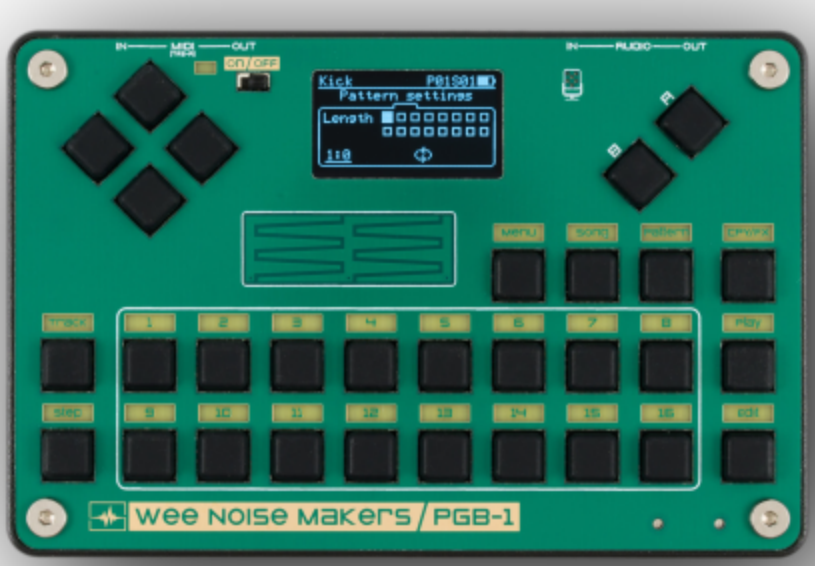
PGB-1 User Manual

Release 1.3.0



wee noise makers

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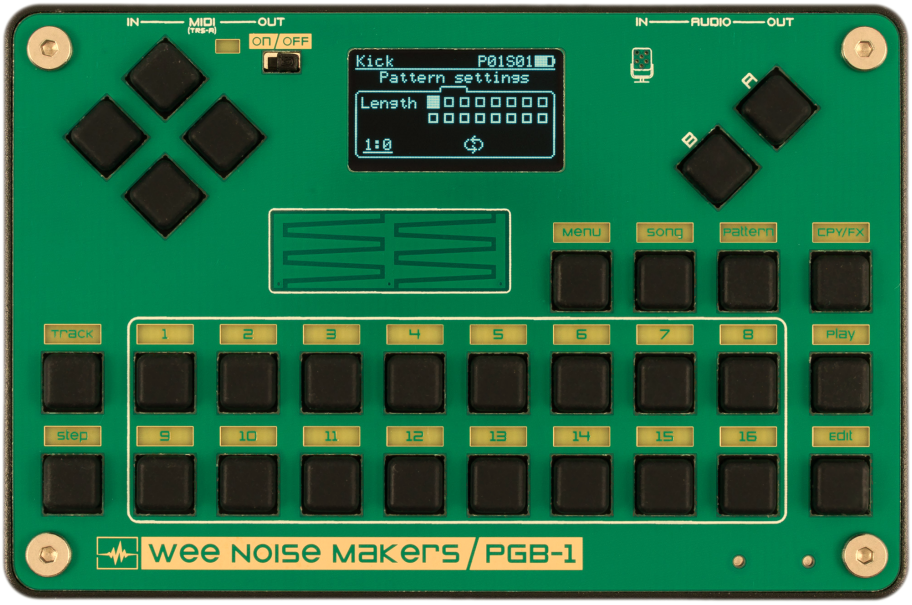
Welcome to the official user manual for the **Wee Noise Makers PGB-1**.

The PGB-1 is a portable, battery-powered music production device designed for creating beats, melodies, and complete tracks on the go. With its intuitive interface, powerful synth engines, and comprehensive sequencing capabilities, the PGB-1 puts professional music production in your pocket.



Key Features

- **16 Tracks** - 6 synth tracks, 2 sample tracks, 3 audio FX tracks, and 5 MIDI tracks
- **16-Step Sequencer** - Create patterns up to 256 steps with pattern linking
- **Multiple Synth Engines** - Dozens of sound engines for kicks, snares, hi-hats, bass, leads, and chords
- **12 Song Parts** - Arrange your tracks into complete songs
- **Chord Progressions** - Built-in chord system with automatic note mapping
- **Live Performance FX** - Real-time effects for dynamic performances
- **Sample Recording** - Record and edit samples directly on the device
- **Battery Powered** - Create music anywhere with the built-in rechargeable battery

Getting Started

New to the PGB-1? Start here:

1. *Hardware Layout* - Learn the buttons and controls
2. *Power & Charging* - Set up your device
3. *Navigation Basics* - Understand the interface
4. *Rhythm Basics* - fundamental concepts of rhythm and sequencing
5. *Your First Project* - Create your first beat

Join the Community

Connect with other PGB-1 users and stay updated:

- **Discord**: Join the Wee Noise Makers Discord to share tips, tricks, and music
- **Social Media**: Follow @weenoisemakers and tag us in your creations

Demo Projects

The PGB-1 comes with built-in demo projects to help you explore its capabilities:

- **"Lost1"** (Lost one) by AA Battery Music
- **"Noxis"** in collaboration with Technoval
- **"Dark (#1)"** based on BroBeatzTV's dark trap tutorial
- **"Echo (#2)"** based on Alice Efe's downtempo tutorial

Load a demo project from the menu: `Menu` > **Projects** > **Load**. Once the project is loaded, you can press the `Play` button to start the sequencer. Most demo projects contain several "song parts", these are sections of a song with different patterns, chords, or instruments enabled (intro, chorus, break, outro, etc.).

To change the song part, press the `Song` button to enter *Song mode*, then press button `2` to queue part two. It can take some time for the new part to start playing as the sequencer will wait for the full run of the current part before switching to the new one. Get familiar with each part and perform your own version of the track. You can also jump in *Track mode* and tweak the synths parameters.

Firmware Updates

Keep your PGB-1 up to date with the latest features and improvements. Check the *Firmware Updates* section for instructions.

CHAPTER

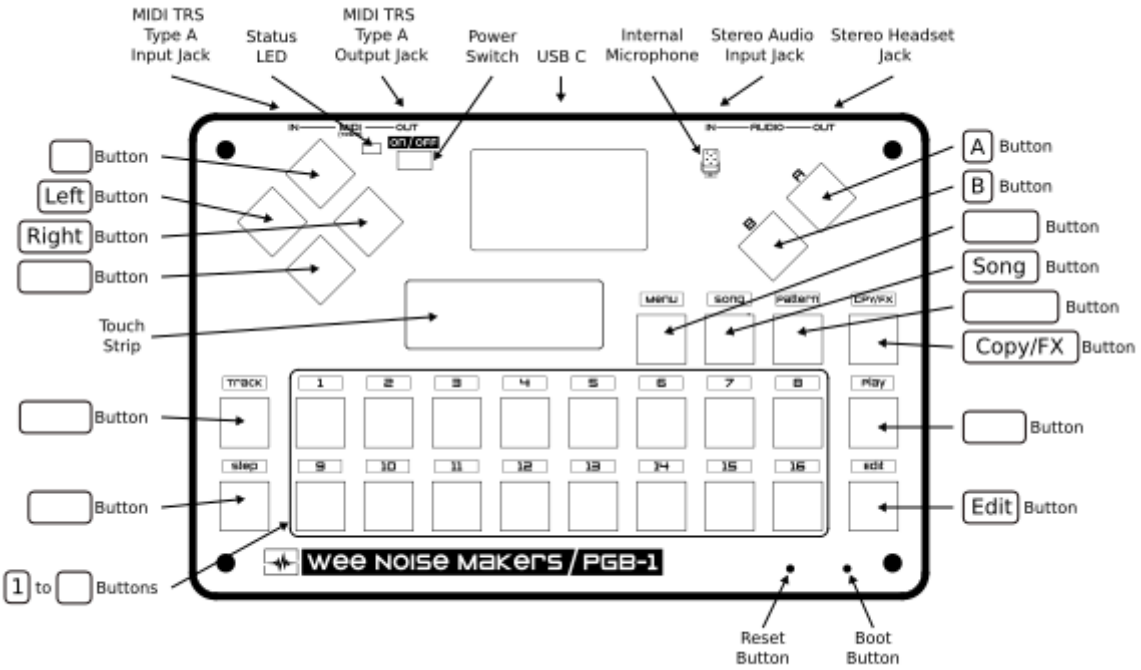
ONE

GETTING STARTED

This section covers everything you need to know to start making music with your PGB-1.

- *Hardware Layout* - Learn the physical controls and connectors
- *Power & Charging* - Powering up and charging your device
- *Navigation Basics* - Understanding menus and navigation
- *Rhythm Basics* - Fundamental concepts of rhythm and sequencing
- *Your First Project* - Create your first beat step by step

1.1 Hardware Layout



1.1.1 Front Panel

Power

- **Power Switch** (side) - Slide left to turn on, right to turn off
- **Power On LED** (top left, cyan) - Lit when the device is powered on
- **Battery Charge LED** (top left, red) - Lit when the battery is charging

Navigation Buttons

- ← → - Navigate between settings pages
- ↑ ↓ - Change parameter values
- `A` - Confirm / Select / Enable
- `B` - Back / Cancel / Disable

Mode Buttons

- `Track` - Enter *Track Mode* (configure instruments and sounds)
- `Step` - Enter *Step Mode* (configure individual step parameters)
- `Pattern` - Enter *Pattern Mode* (configure pattern length and linking)
- `Song` - Enter *Song Mode* (arrange parts and chord progressions)

Keyboard Section

The 16 numbered buttons (`1` to `16`) serve multiple purposes depending on the current mode (see *Main Modes*).

Control Buttons

- `Menu` - Open the main menu
- `Play` - Start/Stop the sequencer (also used for shortcuts when held)
- `Edit` - Toggle pattern edit mode / Hold for chromatic keyboard
- `Cpy/FX` - Hold for Live FX access and copy/paste operations

Touch Strip

The capacitive touch strip at the bottom of the device allows for:

- Quick parameter value adjustment
- Live performance expression

1.1.2 Connectors

From right to left:

- **Headphone/headset** (3.5mm stereo jack) - Connect headphone/headset or external speakers
- **Line Input** (3.5mm stereo jack) - Connect external audio sources
- **USB** (type-C) - For charging and firmware updates
- **MIDI Output** (3.5mm stereo jack, TRS type A) - Control external gear via MIDI protocol
- **MIDI Input** (3.5mm stereo jack, TRS type A) - Control the PGB-1 with external gear (MIDI keyboard or sequencer, Digital Audio Workstation (DAW), etc.)

1.1.3 Internal Components

- **Built-in Speaker** - For monitoring without headphones
- **Internal Microphone** - For recording samples
- **Rechargeable Battery** - Provides portable operation

1.1.4 Recovery

- **Reset Button** (small hole) - Use a paperclip to reset the device
- **Boot Button** (small hole) - For forced firmware update procedure

1.2 Power & Charging

1.2.1 Powering On

To turn on the PGB-1, slide the **Power Switch** to the left. The device will boot up and the status LED will glow **cyan blue**.

To turn off the device, slide the Power Switch to the right.

1.2.2 Charging

The PGB-1 features a built-in rechargeable battery that can be charged via USB Type-C.

How to Charge

1. Connect a USB Type-C cable to the PGB-1
2. Connect the other end to:
    - A computer USB port
    - A USB power adapter
    - A USB power bank
3. The status LED will glow **red** while charging
4. When fully charged, the red LED will turn off

Battery Level Display

During charging, the on-screen battery level indicator does not provide valid information about the state of charge. Only the red status LED indicates whether charging is in progress or complete.

1.2.3 Power Tips

- Always use good quality USB cables and power sources
- The device can be used while charging
- If using a laptop to charge, ensure the laptop is plugged in or has sufficient battery

1.2.4 Troubleshooting Power Issues

Device Won't Turn On

If the device doesn't power on:

1. Ensure the battery is charged (connect to USB and check for red LED)
2. Try the reset button with a paperclip
3. If issues persist, contact support

Device Won't Turn Off

If the device doesn't respond to the power switch:

1. This indicates an unrecoverable software malfunction
2. Use the *Reset Procedure* to recover

1.3 Navigation Basics

1.3.1 Button Controls

The PGB-1 uses a consistent navigation scheme across all menus and modes:

Button	Function
← / →	Navigate between settings pages
↑ / ↓	Change the value of the selected setting
A	Positive actions (select, accept, enable, confirm)
B	Negative actions (go back, reject, disable, cancel)

1.3.2 Screen Layout

Page Indicator

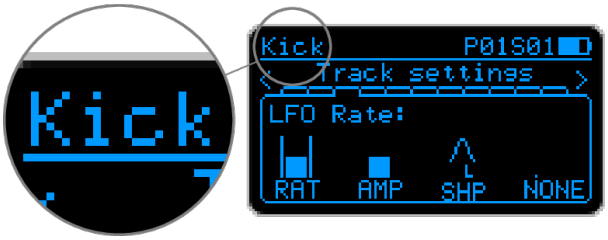
At the top of the screen, a **page indicator** shows:

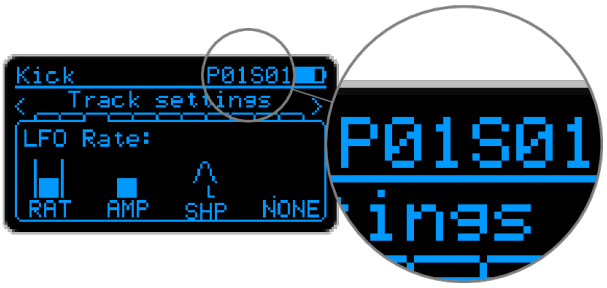
- How many pages of settings are available (dots)
- Which page is currently displayed (larger dot)
- Arrows indicating more pages to the left or right

Track and Pattern Display

In most modes, the screen displays:

- **Top left**: Current track name
- **Top right**: Current pattern and step numbers





1.3.3 Menu Navigation

Opening the Main Menu

Press `Menu` to open the main menu. Use ← and → to browse menu items, and press `A` to enter a sub-menu.

Menu Structure

The main menu contains:

- **Projects** - Save, load, and create projects
- **Custom Waveform** - Draw and edit waveforms
- **Inputs** - Configure audio inputs
- **MIDI Settings** - Configure MIDI interface
- **Update Mode** - Enter firmware update mode
- **System Info** - View firmware version

1.3.4 Mode Selection

Entering Main Modes

Press and release a mode button to enter that mode:

- `Track` - Track Mode
- `Step` - Step Mode
- `Pattern` - Pattern Mode
- `Song` - Song Mode

The corresponding LED will light up to indicate the active mode.

Quick Selection Without Mode Change

You can select items without changing the current mode by **holding** the mode button:

Action	Result
Hold `Track` + Press 1-16	Select track without entering Track Mode
Hold `Step` + Press 1-16	Select step without entering Step Mode
Hold `Pattern` + Press 1-16	Select pattern without entering Pattern Mode
Hold `Song` + Press 1-12	Select song part without entering Song Mode

1.3.5 Edit Mode

In Track or Step mode, press `Edit` to toggle pattern edit mode. When edit mode is active:

- The keyboard buttons (1 to 16) toggle steps on/off in the current pattern
- Press `Edit` again to exit edit mode

Chromatic Keyboard

Hold `Edit` to access the chromatic keyboard:

- Play notes on the selected track
- Press `1` to go down an octave
- Press `4` to return to center octave
- Press `8` to go up an octave

1.3.6 Using the Touch Strip

The touch strip provides analog control for parameters:

1. Navigate to a parameter using ← / →
2. Touch and slide on the touch strip to adjust the value
3. The value changes smoothly as you slide

Tip

Hold `Cpy/FX` to access a quick parameter that can be controlled with the touch strip during performance.

1.4 Rhythm Basics

This chapter introduces the fundamental concepts of rhythm and sequencing.

1.4.1 What is Rhythm?

Rhythm is simply a pattern of sounds over time. When you tap your foot to music, you're following its rhythm. Every song has a rhythm that repeats, making it predictable and easy to follow.

1.4.2 Tempo and BPM

Tempo is how fast or slow the music plays. It's measured in **BPM** (Beats Per Minute).

BPM Range	Feel	Common Genres
60-80	Slow, relaxed	Ballads, ambient
80-100	Moderate	Hip-hop, R&B
100-120	Upbeat	Pop, house
120-140	Energetic	Techno, EDM
140+	Fast, intense	Drum & bass, hardcore

On the PGB-1, you can adjust tempo by holding `Play` and pressing ← or →.

1.4.3 Beats and Bars

Music is organized into **beats** and **bars** (also called measures):

- A **beat** is a single pulse in the music - like one tap of your foot
- A **bar** contains a fixed number of beats grouped together
- Most electronic music uses **4 beats per bar** (called 4/4 time)

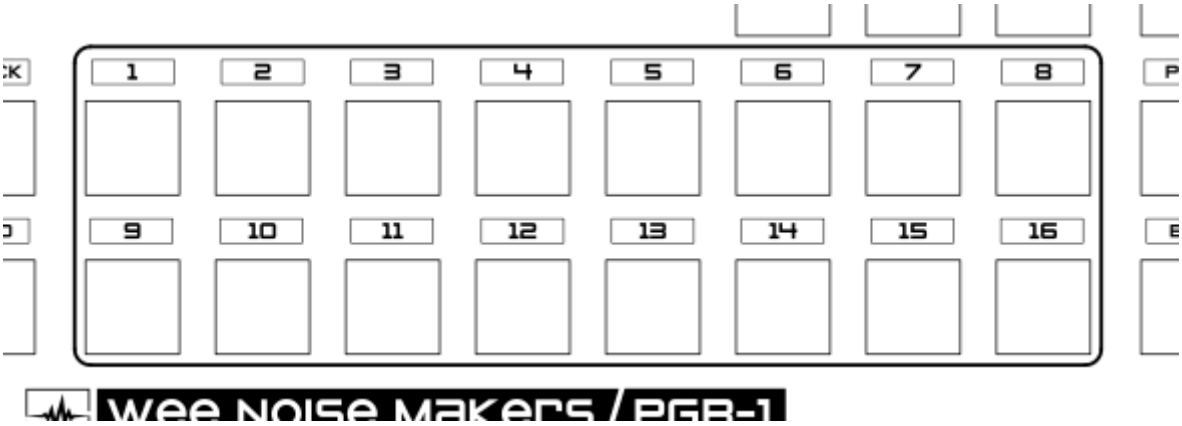
When you count "1, 2, 3, 4, 1, 2, 3, 4…" along with music, each number is a beat, and each group of four is one bar.

1.4.4 Steps on a Sequencer

The PGB-1 features a **step sequencer**. Instead of recording music in real-time, you place notes on a patterns of **steps** and the sequencer will play the steps one after the other give the selected tempo (BPM).

The default length of a pattern is one bar, divided into 16 steps:

On the PGB-1 they are aranged in two lines 8 steps. Each of the buttons 1 to 16 represent a step of the pattern.



Steps	Position in Bar
1, 5, 9, 13	On the beat (downbeat)
2, 6, 10, 14	Second sixteenth note
3, 7, 11, 15	Third sixteenth note (off-beat)
4, 8, 12, 16	Fourth sixteenth note

Note

Musicians often count sixteenth notes as “1-e-and-a, 2-e-and-a, 3-e-and-a, 4-e-and-a”. Steps 1, 5, 9, 13 are the numbers; steps 3, 7, 11, 15 are the “and”s.

1.4.5 Common Drum Patterns

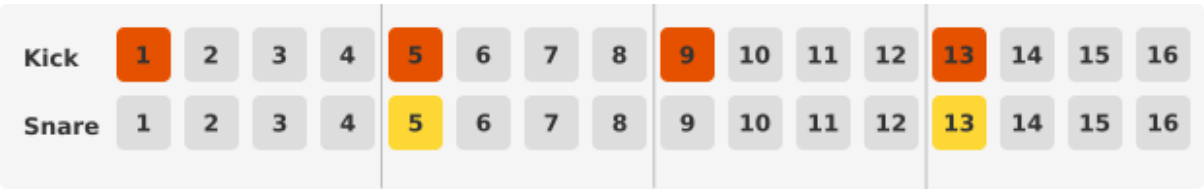
Here are some classic patterns to get you started. Each diagram shows 16 steps across one bar, with colored cells indicating active steps. Vertical lines separate the four beats.

Four on the Floor (Kick on every beat)

This is the foundation of house, techno, and disco - a kick drum on every beat (steps 1, 5, 9, 13):

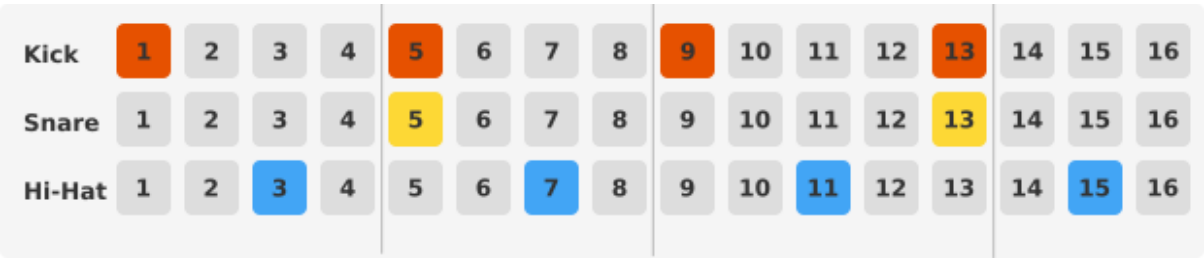
Backbeat

Add snare on beats 2 and 4 (steps 5 and 13) for a driving feel:



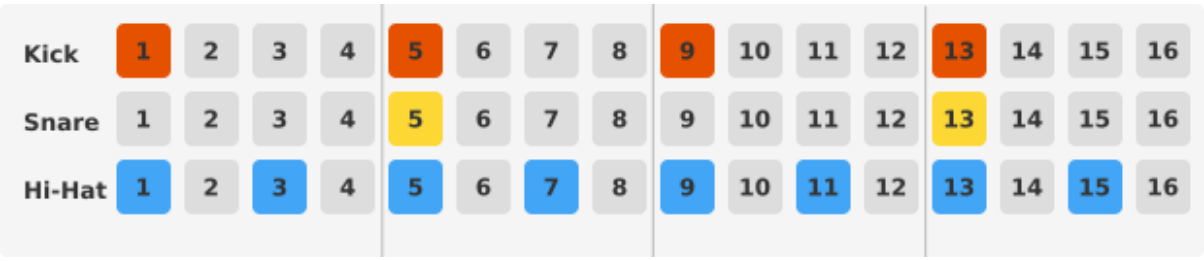
Off-Beat Hi-Hats

Hi-hats on the off-beats (steps 3, 7, 11, 15) create movement and groove:



Eighth-Note Hi-Hats

For a busier feel, add hi-hats on every other step (1, 3, 5, 7, 9, 11, 13, 15):



1.4.6 Shuffle and Swing

Real drummers don't play with perfect timing. **Shuffle** (or swing) slightly delays the off-beat notes, making the rhythm feel more human and groovy.

On the PGB-1, you can add shuffle to any track in *Track Mode*:

1. Press `Track` to enter Track Mode
2. Navigate to the **Shuffle** page using →
3. Use ↑ to increase the shuffle amount

> **Tip**
>
> A little shuffle goes a long way. Start with low values and increase until you feel the groove.

1.4.7 Patterns and Songs

The PGB-1 organizes music at multiple levels:

Level	Description	PGB-1 Feature
Step	A single note placement	Buttons 1-16 in *Step Mode*
Pattern	16 steps that repeat (can be linked for longer motifs)	*Pattern Mode*
Song Part	Multiple patterns playing together	*Song Mode*

This hierarchy lets you build complex music from simple building blocks.

1.4.8 Next Steps

Now that you understand rhythm basics, you're ready to learn more:

- *Your First Project* - Step-by-step guide to making a beat

1.5 Your First Project

Follow this step-by-step guide to create your first beat on the PGB-1.

1.5.1 Starting Fresh

1. Press `Menu`
2. Navigate to **Projects** and press `A`
3. Select **New** and press `A`
4. Confirm to create a new empty project

1.5.2 Programming the Kick Drum

1. Press `Track` to enter Track Mode
2. Press `1` to select the Kick track
3. Press `Edit` to enable pattern edit mode
4. Press these buttons to place kick notes: `1`, `5`, `9`, `13`

You now have a basic four-on-the-floor kick pattern!

1.5.3 Adding the Snare

1. Hold `Track` and press `2` to switch to the Snare track
2. Press `5` and `13` to place snare hits on beats 2 and 4

1.5.4 Creating a Hi-Hat Pattern

1. Hold `Track` and press `3` to switch to the Hi-Hat track
2. Press `3`, `5`, `7`, `8`, `11`, `15`, `16` to create an interesting hi-hat rhythm

1.5.5 Adding Variation with Step Settings

Let's make the hi-hats more dynamic:

1. Press `Step` to enter Step Mode
2. Press `1` to select step 1
3. Use ← to navigate to the **Condition** setting
4. Press ↑ multiple times to set condition to **75%**
5. Press → three times to reach the **Velocity** setting

6. Use the touch strip to lower the velocity to about one third

1.5.6 Copying Steps

Copy the configured step to create consistent variation:

1. Hold `Cpy/FX`
2. Press `Step` to enter step copy mode
3. Press `1` to select the source step
4. Press `2`, `6`, `9`, `10`, `13`, `14` to paste to those steps

1.5.7 Adding Shuffle

1. Press `Track` to return to Track Mode
2. Press → multiple times until you reach the **Shuffle** page
3. Press ↑ to increase the shuffle amount to taste

1.5.8 Play Your Beat!

Press `Play` to hear your creation!

1.5.9 Next Steps

Now that you've created your first beat, try:

- *Adding a bass line* on Track 4
- *Creating a melody* on Track 5
- *Setting up chord progressions*
- *Using Live FX* for performance

1.5.10 Quick Reference

Action	Buttons
Select track	Hold `Track` + `1-16`
Toggle step	`Edit` then `1-16`
Copy step	Hold `Cpy/FX` + `Step` + source + destination
Play/Stop	`Play`
Adjust volume	Hold `Play` + ↑ / ↓
Adjust BPM	Hold `Play` + ← / →

CHAPTER

TWO

MAIN MODES

The PGB-1 interface operates in four main modes, plus a special Sample Mode. Each mode affects what is displayed on screen, how the keyboard LEDs behave, and the function of the buttons.

2.1 Overview

Mode	Button	Purpose
Track Mode	`Track`	Configure instrument sounds and settings
Step Mode	`Step`	Configure individual step parameters
Pattern Mode	`Pattern`	Configure pattern length and linking
Song Mode	`Song`	Arrange song parts and chord progressions
Sample Mode	Hold `Cpy/FX` + `Edit`	Create and edit samples

2.2 Switching Modes

To enter a mode, press and release the corresponding mode button. The LED next to the button will light up to indicate the active mode.

2.3 Quick Selection

You can select items without changing modes by holding the mode button:

- **Hold** `Track` + press `1-16` to select a track
- **Hold** `Step` + press `1-16` to select a step
- **Hold** `Pattern` + press `1-16` to select a pattern
- **Hold** `Song` + press `1-12` to select a song part

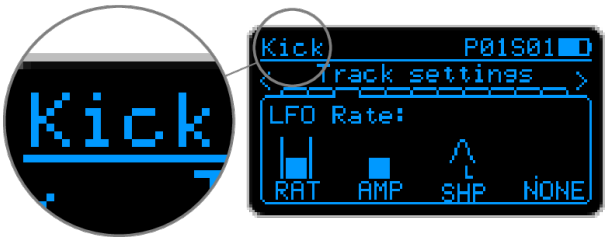
This is useful when you want to change what you're working on while staying in your current mode.

2.4 Mode Details

- *Track Mode* - Sound design and track configuration
- *Step Mode* - Step parameters and sequencing
- *Pattern Mode* - Pattern length and chaining
- *Song Mode* - Song arrangement and chords
- *Sample Mode* - Sample recording and editing

2.4.1 Track Mode

Track mode allows you to configure the 16 tracks of the PGB-1. By default, tracks 1 to 6 are synths tracks (Kick, Snare, Hihat, Bass, Lead, Chords), tracks 7 and 8 are sample tracks, tracks 9 to 11 are audio FX tracks, and tracks 12 to 16 are MIDI tracks. Note that all tracks can be configured to MIDI mode and control external devices (*more details here*). In Track mode, pressing one of the 1 to 16 buttons will select the corresponding track and trigger a "preview" note for this track. The name of the selected track is shown at the top left of the screen.



Entering Track Mode

Press `Track` to enter Track Mode. The Track LED will light up.

Default Track Assignment

Track	Default Instrument
1	Kick
2	Snare
3	Hi-Hat
4	Bass
5	Lead
6	Chords
7-8	Sample
9-11	Audio FX
12-16	MIDI

Track Flexibility

All tracks can be configured for MIDI mode to control external devices.

Selecting Tracks

In Track Mode:

- Press 1 to 16 to select a track and trigger a preview note
- The selected track name appears at the top left of the screen

To select a track **without** playing a preview:

- Hold `Track` and press 1 to 16

Track Settings Pages

Navigate between pages using ← and →. Each track has multiple settings pages, and different pages depending on the track type (synth, FX, MIDI).

Here is the list of pages for synth tracks:

Page 1: Synth Engine

Select the sound engine for the track. Use ↑ and ↓ to scroll through available engines. See *Synth Engines* for a complete list.

Page 2: Engine Parameters

Four parameters specific to the selected synth engine. Parameters vary by engine (e.g., Shape, Decay, Cutoff, Resonance).

Page 3: LFO

Configure the *Low Frequency Oscillator*:

Parameter	Description
Rate	Speed of the LFO
Amplitude	Intensity of modulation
Shape	Waveform shape + Sync (S) and Loop (L) options
Target	Which parameter the LFO modulates

Page 4: Volume

Set the track volume level.

Page 5: Pan

Set the stereo position of the track.

Page 6: Effect

Select a global mixing effect for the track:

- None (bypass)
- Overdrive
- Reverb
- Bitcrusher

Page 7: Octave

Shift every notes of the track up or down by octaves.

Page 8: Shuffle

Add swing to the track timing. Higher values delay even-numbered steps.

Page 9: Arpeggiator Mode

Set how the *arpeggiator* plays chord notes:

- Up
- Down
- Up/Down
- Random
- Order

Page 10: Arpeggiator Notes

Configure which notes the *arpeggiator* uses.

Page 11: Track Mode

Switch between internal synth mode and external MIDI controller mode.

Tips

- Use the touch strip for precise parameter adjustment
- Preview sounds while adjusting parameters by pressing track buttons

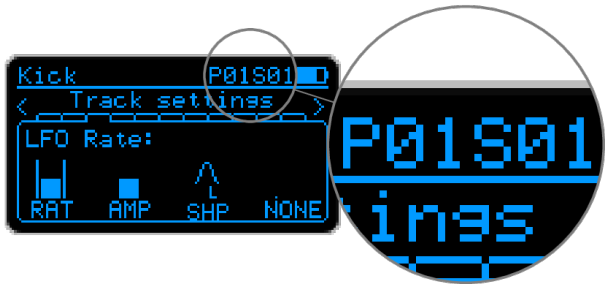
See Also

- *Synth Engines* - Complete engine list
- *Mixing* - Volume, panning, and effects
- *Sound Path* - How audio flows through the PGB-1

2.4.2 Step Mode

Step mode allows you to configure each of the 16 steps for the selected pattern of the selected track, giving you detailed control over each note's parameters. In Step mode, pressing one of the 1 to 16 buttons will select the corresponding step and trigger it at the same time.

In step mode, you are always editing steps of the selected pattern (see *Pattern mode*) The numbers of the selected pattern and step is shown at the top right of the screen:



Entering Step Mode

Press `Step` to enter Step Mode. The Step LED will light up.

Selecting Steps

In Step Mode:

- Press 1 to 16 to select a step and trigger it
- The selected pattern and step numbers appear at the top right of the screen

To select a step **without** triggering it:

- Hold `Step` and press 1 to 16

Step Settings Pages

Navigate between pages using ← and →:

Page 1: Trigger Condition

Determines when the step plays.

Condition	Description
Never	Step never plays
Percent (25%, 50%, 75%)	Random chance to play
Always	Step always plays
Fill	Plays when Fill FX is active
Not Fill	Plays when Fill FX is not active
X:Y (1:2, 2:2, 1:3, 2:3, etc.)	Plays on the Xth occurrence within every Y pattern loops

Some examples of Xth within Y pattern loops:

Condition	Loop 1	Loop 2	Loop 3	Loop 4	Loop 5	Loop 6
1:2	✓	·	✓	·	✓	·
2:2	·	✓	·	✓	·	✓
1:3	✓	·	·	✓	·	·
2:3	·	✓	·	·	✓	·

(✓ = step plays, · = step is skipped)

Page 2: Note Settings

Note

Set what note the step plays:

Option	Description
Fixed Note	Play a specific MIDI note regardless of current chord
Note in Chord (1-4)	Play specific note from the currernt chord
Arpeggiator	Use the track's arpeggiator setting
Chord	Play the full current chord

Use `A` to cycle through note modes.

Default Track Behavior:

- **Bass Track**: Steps play the chord root note by default
- **Lead Track**: Steps use the arpeggiator by default
- **Chords Track**: Steps play the full chord

Octave Offset

In note modes "Note in Chord", "Arpeggiator", and "Chord", the notes can be shifted up or down by one or multiple octaves. This is shown as, for example, `+1oct` or `-2oct`.

Playing full chords

From the internal synth engines, only the Chord track can play multiple notes simultaneously (polyphony). Therefore it's the only internal track where the "Chord" note mode makes sense. However, you can use "Chord" note mode with external polyphonic MIDI instruments.

Duration

Set how long the note plays.

Velocity

Set the note's intensity/volume. Use the touch strip for precise control.

Page 3: Repeat

Create note repeats (retrigs) within the step:

Parameter	Description
Count	Number of repeats
Rate	Speed of repeats

Page 4: Parameter Locks

Parameter locks allow you to set different synth parameters for individual steps, enabling sound variations within a single pattern. Normally, all steps in a pattern use the track's synth settings, parameter locks let you override specific parameters on a per-step basis.

This is especialy powerful for sample tracks where you can select different samples per step.

Press ↑/↓ or use the touch strip to set the value of the selected parameter lock. Use `B` to disable the selected parameter lock on the step.

Working with Steps

Enabling/Disabling Steps

1. Press `Edit` to enter edit mode
2. Press `1` to `16` to toggle steps on/off
3. Press `Edit` again to exit edit mode

Tips

- Use velocity variations to create groove and dynamics Use parameter locks to
- play different samples on each step of a *sample track*
- Use Fill conditions to add controlled complexity during performance
- Creates subtle, varying ghost notes:
  - Add hi-hat or snare steps
  - Set condition to 50% or 75%
  - Set velocity low

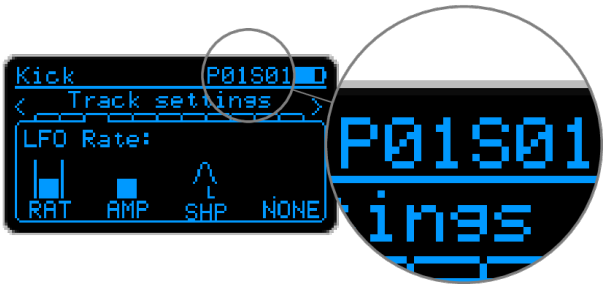
2.4.3 Pattern Mode

Pattern Mode allows you to configure the length of patterns and link multiple patterns together for longer sequences.

- Each track has **16 patterns**
- Each pattern has up to **16 steps**
- Patterns can be linked together to create sequences up to **256 steps** (16 patterns x 16 steps)

It's important to keep in mind the selected pattern as it is the one edited in Step mode and. The selected pattern doesn't change when selecting another track. For example, if you enter steps in pattern 4 with the kick track selected and then switch to the bass track, you will now edit pattern 4 of the bass track.

The numbers of the selected pattern is shown at the top right of the screen:



Entering Pattern Mode

Press `Pattern` to enter Pattern Mode. The Pattern LED will light up.

Selecting Patterns

Important

Selecting a pattern does not play it. Which pattern plays for each track is determined in *Song Mode*. The LED corresponding to currently playing pattern is blinking in green.

In Pattern Mode:

- Press `1` to `16` to select a pattern
- The selected pattern number appears at the top right of the screen

To select a pattern without changing mode:

- Hold `Pattern` and press `1` to `16`

Pattern Settings

Length

Set how many steps the pattern contains (1-16 steps).

Navigate to the length setting and use ↑ / ↓ to adjust.

Link

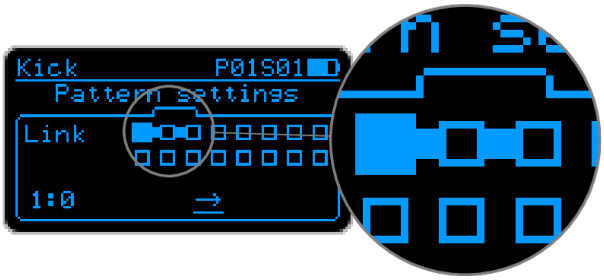
Link this pattern to the next pattern. When enabled, the next pattern will automatically play after this one completes.

Use ↑/↓ to enable/ disable linking.

Pattern Linking Visualization

On Screen

- The two lines of small boxes at the top right of the page represent the 16 patterns.
- The bigger box represents the selected pattern
- A line between two boxes is visible when they are linked together
- The box corresponding to the currently playing pattern is blinking



LED Indicators

- **Blue LED**: Currently selected pattern
- **Cyan LEDs**: Patterns linked to the selected pattern
- **Blinking Green LED**: Currently playing pattern

Creating Long Patterns

To create patterns longer than 16 steps:

1. Enter Pattern Mode
2. Select the first pattern (e.g., Pattern 1)
3. Set length to 16
4. Enable Link to connect to Pattern 2
5. Select Pattern 2
6. Set its length
7. Continue linking patterns as needed

Link all 16 patterns together for a maximum of 256 steps (16 x 16).

Example: 24-Step Pattern

1. Pattern 1: Length 16, Link enabled
2. Pattern 2: Length 8, Link disabled

This creates a 24-step sequence that plays Pattern 1 followed by Pattern 2.

2.4.4 Song Mode

Song Mode is unique because it controls two things: **Song Parts** (arrangement) and **Chord Progressions** (harmony).

Entering Song Mode

Press Song to enter Song Mode. The Song LED will light up.

Song Parts (Buttons 1-12)

Song Parts are sections (intro, chorus, etc.) of your song where you can specify which patterns play on which tracks, and which track to mute.

Selecting Song Parts

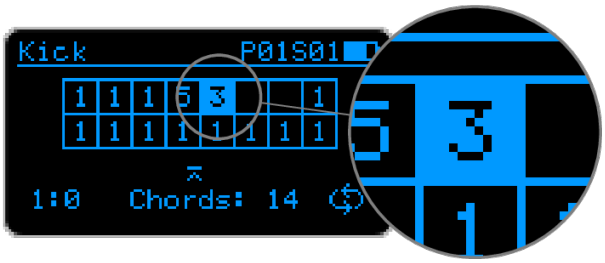
- Press 1 to 12 to select and **queue** a song part
- The queued part will start playing after the current part completes

- Hold Song and press 1 to 12 to select **without** queuing

Song Part Settings

Pattern Grid

The screen displays a 16-cell grid representing all tracks:



Each cell shows which pattern will play for that track:

- **Number (1-16)**: The pattern that will play
- **Empty**: Track is muted for this part

Use ↑ / ↓ to change the pattern number. Press B to go to the bottom line of cells, A to go up

Song Part Settings (Bottom of Screen)

Press B to move focus to the bottom settings:

Setting	Description
Length	How many times the part repeats before allowing change
Chords	Which chord progression to use (13-16)
Link	Auto-advance to next part when complete, got back to queued part, or loop on the this part

Chord Progressions (Buttons 13-16)

The PGB-1 has four chord progression slots (13, 14, 15, 16).

Selecting Chord Progressions

Press 13 to 16 to enter chord progression editing.

Chord Settings

Each chord in the progression has:

Setting	Description
Root	The root note (C, C#, D, etc.)
Quality	Chord type (Major, Minor, etc.)
Length	Duration in steps

Adding Chords

1. Navigate to the last chord in the progression
2. Press → to go past the last setting
3. Press A to add a new chord

Removing Chords

1. Navigate to a chord
2. Go to the add/remove page
3. Press `B` to remove the chord

Random Generation

The last page offers random chord progression generation:

1. Use ↑ / ↓ to select a scale (Major, Minor, Modal)
2. Press `A` to generate a random progression
3. Press `A` again to try different progressions

Chord Progression Indicator

While playing, small dots and an arrow on screen show your position in the chord progression. This helps you time part changes to land on specific chords.

The indicator also appears in the Cpy/FX menu for timing live effects.

Tips

- Use the random chord generator for inspiration
- Use different chord progressions for different song sections
- The bass track automatically follows chord root notes
- Lead tracks use the arpeggiator over the current chord
- Chords track is the only polyphonic track that plays full chords

2.4.5 Sample Mode

Sample Mode allows you to record and edit samples directly on the PGB-1.

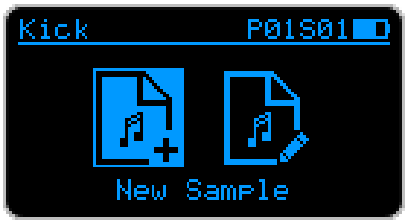
Entering Sample Mode

Hold `Cpy/FX` and press `Edit` to enter Sample Mode.

Sample Mode Options

When entering Sample Mode, you can choose:

- **New Sample**: Record a new sample
- **Edit Sample**: Modify an existing sample's start/end points and name



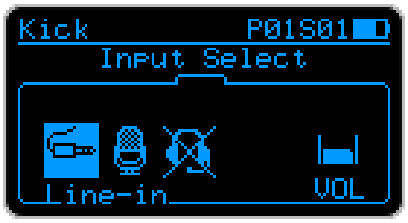
Recording a New Sample

Step 1: Select Input Source

Choose which input to record from using the ← and → buttons:

Input	Description	Best For
Line In	3.5mm stereo jack input	External devices, synths, phones
Internal Mic	Built-in microphone	Voice, ambient sounds
Headset Mic	Microphone on connected headset	Voice recording

Use ↑ / ↓ to adjust the input volume before recording.



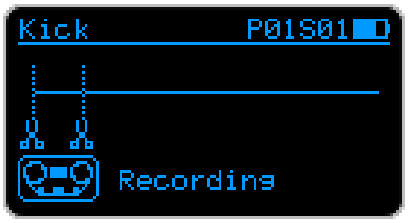
Best Practice

For line input, keep the PGB-1 gain low and increase the volume on your source device. This provides more headroom and less noise.

Step 2: Start Recording

Press `A` to begin recording. The PGB-1 uses a **2-second rolling buffer**:

- Recording continuously captures audio
- When buffer is full, new audio overwrites the oldest
- This lets you capture a sound even slightly after it happens

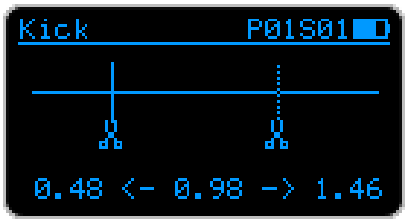


Step 3: Stop Recording

Press `A` again to stop recording. The captured audio is displayed as a waveform.

Step 4: Edit Start/End Points

- Use ← / → to move the start point
- Use ↑ / ↓ to move the end point



The keyboard lights up showing available preview keys:

Button	Action
1	Preview one octave down
4	Preview at original pitch
8	Preview one octave up
Other keys	Preview at different pitches

Press `A` to continue, or `B` discard the current sample and start recording again.

Step 6: Set Name

Enter a name for the sample (up to 15 characters).

Press `A` to continue.

Step 7: Save

2. Select a sample slot (1-64)
3. Press `A` to confirm
4. Navigate to **Yes** and confirm

Warning

Saving to a slot will overwrite any existing sample in that slot.

Editing Existing Samples

1. Enter Sample Mode
2. Select **Edit Sample**
3. Choose the sample to edit
4. Adjust start point, end point, and name
5. Save when finished

Sample Tips

Recording Quality

- Use line in when possible for cleaner signals
- For line input, keep PGB-1 gain low and increase volume on the source device. This provides better headroom and less noise
- Use the waveform display to check levels

Multiple Sounds in One Sample

You can record multiple sounds in a single sample:

1. Start recording
2. Play sound 1
3. Wait briefly
4. Play sound 2
5. Stop recording

Then use *parameter locks* to set different start points per step, effectively getting multiple samples from one slot. This technique helps maximize usage of the sample memory.

Sample Slots

The PGB-1 has 64 sample slots. Samples are shared across projects and persist when the device is turned off.

Converting Audio Files

You can import audio files from your computer using the online converter tool. See *Importing Samples* for details.

CHAPTER

THREE

DEEP DIVE

- *Lfo*
- *Live Fx*
- *Copy Paste*
- *Mixing*
- *Arpeggiator*
- *Projects*
- *Importing Samples*
- *Sample Tracks*
- *Custom Waveforms*
- *Shortcuts*

3.1 LFO (Low Frequency Oscillator)

Each synth and FX track has its own LFO that can automatically modulate one parameter over time, adding movement and expression to your sounds.

3.1.1 Accessing LFO Settings

1. Enter Track Mode (press `Track`)
2. Select a track
3. Navigate to page LFO settings page (3rd for synth tracks, 2nd for FX tracks)

3.1.2 LFO Parameters

Rate

Controls the speed of the LFO oscillation.

- Lower values = slower modulation
- Higher values = faster modulation

When using the `Random` shape (see below), the `LFO Rate` controls how fast the LFO switches from one random value to the other.

Amplitude

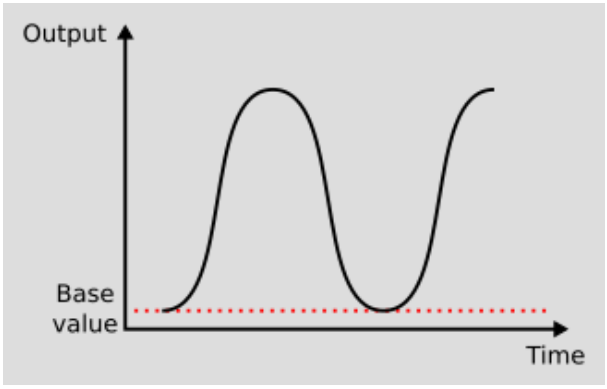
Controls how much the LFO affects the target parameter.

- 0 = No effect
- Higher values = More dramatic modulation

There are three modes that control the direction and range of modulation (`Add`, `Bipolar`, `Sub`). Press `A` to switch to the next mode, press `B` to switch to the previous mode.

Add (Positive)

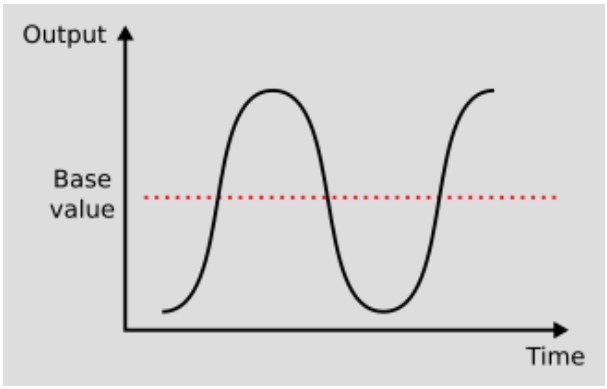
Modulation adds to the target parameter value. The LFO output ranges from the base value upward.



Use this when you want the parameter to increase from its set value. For example, if filter cutoff is set to 50%, the LFO will sweep from 50% up toward 100%.

Bipolar (Center)

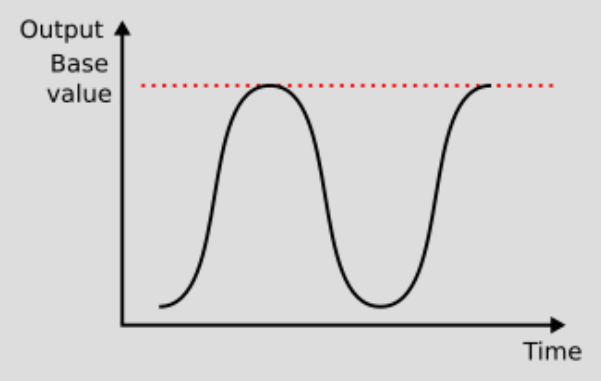
Modulation oscillates around the target parameter value, going both above and below.



Use this for classic vibrato and tremolo effects where the parameter swings symmetrically around its set value. For example, if pitch is set to a note, the LFO will create vibrato by going sharp and flat around that pitch.

Sub (Negative)

Modulation subtracts from the target parameter value. The LFO output ranges from the base value downward.



Use this when you want the parameter to decrease from its set value. For example, if filter cutoff is set to 80%, the LFO will sweep from 80% down toward 0%.

Shape

Selects the waveform shape used for modulation:

Shape	Description
Sine	Smooth, natural modulation
Triangle	Linear rise and fall
Ramp Up	Rising linear ramp
Ramp Down	Falling linear ramp
Expo Up	Rising exponential ramp
Expo Down	Falling exponential ramp
Random	Random values

Shape Modifiers

The Shape setting also includes two important modifiers indicated by small letters:

L - Loop

- Enabled with button `A`
- When enabled, the LFO continuously cycles
- When disabled, the LFO runs once per note (like an envelope)
- When disable and the `Random` shape is selected, a new

S - Sync

- Enabled with button `B`
- When enabled, the LFO resets every time a note is played
- Useful for consistent modulation at note (like an envelope)
- Combined with the `Random` shape and **loop** disabled, a new random value is generated only when a note is played providing a “sample and hold” effect.

Target

Selects which parameter the LFO modulates:

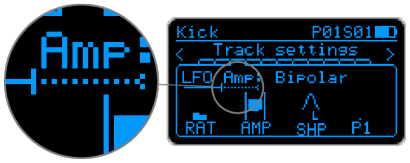
Target	Effect
P1	Modulates engine parameter 1
P2	Modulates engine parameter 2
P3	Modulates engine parameter 3
P4	Modulates engine parameter 4
Volume	Modulates track volume (tremolo)
Pan	Modulates stereo position (auto-pan)

3.1.3 LFO Modulation Visualization

On the LFO page, when a target is selected, an LFO visualization bar is displayed. A continuous line, starting from left of the screen, shows the current base value of the target parameter. On top of it, a dotted line shows the effect of the LFO on the target parameter.

The LFO can add to the base value (`Add` and `Bipolar` modes):

The LFO can substract from the base value (`Sub` and `Bipolar` modes):



The LFO effect can push the parameter value to the minimum or maximum limits. In such cases an arrow is displayed either at the begining or the end of the bar.

This visualization can be used to understand and finely tune the LFO settings.

3.1.4 LFO Modes

By combining Sync and Loop settings, you can create different behaviors:

Sync	Loop	Behavior
Off	On	Free-running continuous LFO
On	On	LFO resets on each note, then loops
On	Off	**Envelope mode** - runs once per note
Off	Off	LFO is disabled at the end of the running cycle

3.2 Live FX

The PGB-1 features 16 live effects that can be activated during playback for dynamic performances.

3.2.1 Accessing Live FX

Hold `Cpy/FX` and press `1` to `16` to toggle effects.

3.2.2 Effect Categories

Effects are split into two categories:

- **Sequencing Effects** (left side: `1-4`, `9-12`) - Affect pattern playback
- **Mixing Effects** (right side: `5-8`, `13-16`) - Affect audio output

3.2.3 Sequencing Effects

Roll Effects

Create note repeats at different speeds:

Button	Effect	Description
1	Roll 16th	Fast rolls (16th notes)
2	Roll 8th	Medium rolls (8th notes)
3	Roll Quarter	Slow rolls (quarter notes)
4	Roll Beat	Slowest rolls (whole beat)

Press the button to start the effect, press again to stop. When a roll effect is enable, you can press another roll effect button to directly switch to another speed.

Fill Effects

Add or modify steps automatically:

Button	Effect	Description
9	Fill Steps	Triggers steps with *"Fill" condition* on any tracks
10	Auto-fill Low	Random fills on drum tracks, lower probability
11	Auto-fill High	Random fills on drum tracks, higher probability
12	Auto-fill Build-up	Increasing random fill intensity on drum tracks

Important

The auto-fill effects work on selected tracks (Kick, Snare, Hihat by default) while the Fill Steps can be used on any track.

Tip

You can configure the auto-fill tracks in `Menu -> Live FX Settings`.

3.2.4 Mixing Effects

Filter Effects

Apply filters to the master output:

Button	Effect	Description
5	Low Pass Filter	Removes high frequencies
6	Band Pass Filter	Removes highs and lows
7	High Pass Filter	Removes low frequencies

Tip

You can configure the cutoff frequency and resonance of each filter in `Menu -> Live FX Settings`.

Filter Sweeps

Animated filter effects:

Button	Effect	Description
13	LP Sweep	Low pass filter that sweeps
14	BP Sweep	Band pass filter that sweeps
15	HP Sweep	High pass filter that sweeps

Tip

You can configure the frequency and amplitude of filter sweep in `Menu -> Live FX Settings`.

Stutter Effects

Button	Effect	Description
8	Stutter A	Short audio repeat effect
16	Stutter B	Variation of stutter

Tip

You can configure the stutter patterns in `Menu -> Live FX Settings`.

3.2.5 Live FX Settings

Available from firmware 1.3.0

You can configure various parameters of the live effects in a dedicated menu. Press `menu` and navigate to the `Live FX Settings` page, press `A`.

Navigate between the different pages to customize live effects:

- **Auto-Fill Tracks**: Select which track is triggered by the auto-fill effects (`10`, `11`, `12`). Press `A` to start editing the selected tracks, use ← and → to navigate between the different track, use ↑ to enable auto-fill for the selected track, use ↓ to disable auto-fill on the selected track, press `A` or `B` to end the edit.
- **Auto-Fill Low*: Change the trigger probability of auto-fill low effect (`10`)
- **Auto-Fill High**: Change the trigger probability of auto-fill high effect (`11`)
- **Auto-Fill Build-up**: Change the start trigger probability of auto-fill build-up effect(`12`)
- **Low-Pass**: Change the cutoff frequency and resonance of the low-pass (`5`) and low-pass-sweep (`13`) effects
- **Band-Pass**: Change the cutoff frequency and resonance of the band-pass (`6`) and band-pass-sweep (`14`) effects
- **High-Pass**: Change the cutoff frequency and resonance of the high-pass (`7`) and high-pass-sweep (`15`) effects
- **Auto-Filter Sweep**: Change the rate and amplitude of filter sweeps effects (`13`, `14`, `15`)
- **Stutter A**: Change the pattern of the first stutter effect (`8`). Press `A` to start editing the pattern, use ← and → to navigate between the different steps, use ↑ to unmute the selected step, use ↓ to mute the selected step, press `A` or `B` to end the edit.
- **Stutter B**: Change the pattern of the second stutter effect (`16`). See **Stutter A** just above for edit instructions.
- **Stutter Envelope**: Change the attack (how fast the volume drops) and release (how fast sound comes back up) of the two sutter effects (`8` and `16`)

3.2.6 One Effect Per Category

Only one effect of the same type can be active at a time:

- Enabling a filter cancels other filters
- Enabling a roll cancels other rolls
- Enabling a fill cancels other fills

3.2.7 Combining Effect Categories

You can combine effects from different categories:

- Roll + Filter
- Fill + Stutter
- Filter Sweep + Roll
- Etc.

3.2.8 Chord Progression Indicator

While holding `Cpy/FX`, the *chord progression* indicator appears on screen. Use this to time your effects to land on specific chord changes.

3.2.9 Quick Parameter Control

While holding `Cpy/FX`, the touch strip controls a single parameter for a selected track. This gives you quick and direct access to one parameter for live performance without having to navigate in the track settings.

With this feature you can control one of:

- Synth parameter 1
- Synth parameter 2
- Synth parameter 3
- Synth parameter 4
- LFO Rate
- LFO Amplitude
- Volume
- Stereo Pan
- Shuffle

To change the selected track, use the ← or → buttons while holding `Cpy/FX`.

To change the selected parameter, use the ↑ or ↓ buttons while holding `Cpy/FX`.

Use the touch strip to change the value of the selected parameter.

3.2.10 Performance Tips

Plan Your FX

- Map out when to use effects in your arrangement
- Practice transitions between song parts
- Know which effects complement each other

Less Is More

- Subtle filter movements can be very effective
- Don't overuse rolls - save them for impact moments
- Brief stutters are often more effective than sustained ones

Build and Release

- Use filters and fills to build tension
- Release effects on strong beats
- Combine with song part changes for maximum impact

3.2.11 See Also

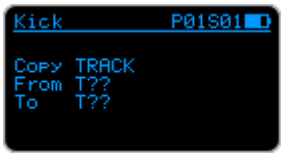
- *Sound Path* - Where Live FX fit in the audio chain
- *Trigger Conditions* - Setting up Fill conditions
- *Chord Progressions* - Using the chord indicator
- *Shortcuts* - Quick reference for all controls

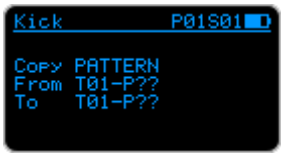
3.3 Copy & Paste

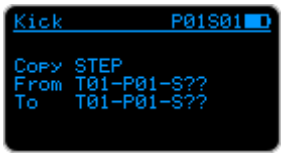
There are four elements that can be copied and pasted on the PGB-1 : Song Parts, Tracks, Patterns, and Steps. Copying tracks means copying all patterns of a track to another track, but this **does not** include track settings. Copying patterns means copying all steps of a pattern to another pattern, this **does** include pattern settings.

3.3.1 Procedure

Start the copy/paste procedure, by holding the `Cpy/FX` button down, and keep it down during the entire procedure. Then select which kind of item you want to copy by pressing one of the `Step`, `Pattern`, `Track`, or `Song` buttons. The screen will now display the kind of element to copy, and two "addresses": `From` and `To`. Addresses have between 1 and 3 identifiers: 1 for song parts, and tracks, 2 for patterns (Track and Pattern), 3 for steps (Track, Pattern, and Step).







Element	Address Format	On screen
Song Part	Part number	e.g. `01`
Track	Track number	e.g. `T01`
Pattern	Track + Pattern	e.g. `T01-P03`
Step	Track + Pattern + Step	e.g. `T01-P03-S05`

In the `From` address, two blinking question marks (??) indicate the identifier to enter, press one button from 1 to 16 to set it. This is what will be copied. Now, there are two blinking question marks on the `To` address, press one button from 1 to 16 to select where to copy. The copy/paste is done immediately.

After the first paste, the "To" address shows blinking question marks again. You can immediately paste to another destination without re-selecting the source.

3.3.2 Changing Address Components

When copying patterns or steps, the addresses starts with your current track and pattern automatically set. Blinking question marks indicate what to enter next.

You may need to change the track or pattern before entering the final number:

- Press `Track` to enter/change the track number
- Press `Pattern` to enter/change the pattern number

For example the following sequence will copy step 2 from pattern 5 of track 7, to step 9 from pattern 3 of track 1:

`Cpy/FX` -> `Step`, `Track`, `5`, `7`, `2`, `Track`, `7`, `3`, `9`

3.3.3 Examples

Copy Step 2 to Steps 4, 6, and 8 (Same Pattern)

1. Hold `Cpy/FX` + press `Step`
2. Press 2 (source step)
3. Press 4 (first destination)
4. Press 6 (second destination)
5. Press 8 (third destination)
6. Release `Cpy/FX`

Copy Step from Track 7, Pattern 5, Step 2 to Track 1, Pattern 3, Step 9

1. Hold `Cpy/FX` + press `Step`
2. Press `Track`, then 7 (source track)
3. Press 5 (source pattern)
4. Press 2 (source step)
5. Press `Track`, then 1 (dest track)
6. Press 3 (dest pattern)
7. Press 9 (dest step)
8. Release `Cpy/FX`

Copy Pattern 1 to Patterns 2, 3, 4 (Same Track)

1. Hold `Cpy/FX` + press `Pattern`
2. Press 1 (source pattern)
3. Press 2 (first destination)
4. Press 3 (second destination)
5. Press 4 (third destination)
6. Release `Cpy/FX`

3.3.4 Tips

Step Templates

1. Configure a step with desired settings
2. Copy to multiple steps quickly
3. Adjust notes/conditions as needed

3.4 Mixing

The PGB-1 provides essential mixing controls for each track, allowing you to balance your sounds and add effects.

3.4.1 Volume

Track Volume

Located on page 4 of synth track settings.

- Controls the overall level of the track

- Use ↑ / ↓ or the touch strip to adjust

3.4.2 Pan (Stereo Position)

Located on page 5 of synth track settings.

Value	Position
Left	Sound in left channel
Center	Sound in both channels equally
Right	Sound in right channel

Use panning to create width and separation in your mix.

Master Volume

Hold `Play` and press ↑ / ↓ to adjust the master output volume.

Hearing Safety

Maximum volume can be very loud, especially with headphones. Prolonged exposure to high volume may damage your hearing.

3.4.3 Track Effects

Located on page 6 of track settings. Each track can have one insert effect applied. Effects are shared by all tracks.

- None (Bypass): No effect applied. Use when you want the dry sound.
- Reverb: Adds space and ambience. Creates a sense of room or hall.
- Overdrive: Adds harmonic distortion and warmth.
- Bitcrusher: Reduces bit depth and sample rate for lo-fi effects. Creates digital distortion.

3.4.4 Effect controls

Mixing effects are controlled in *Track mode* on tracks 9 to 11.

Press and release `Track` to enter Track mode, then press one of `9`, `10`, `11` to select an effect track.

Effects parameters can be modulated with a dedicated *LFO (Low Frequency Oscillator)*. Program *steps* on effects tracks to trigger the LFO synchronization.

Reverb (Track 9)

The reverb is based on the Dattorro plate reverb algorithm, providing lush spatial effects.

Parameter	Description
Amount	Wet/dry mix. Controls how much reverb is blended with the original signal. At minimum, you hear only the dry signal; at maximum, mostly reverb.
Time	Reverb decay time. Controls how long the reverb tail lasts before fading out. Higher values create longer, more sustained reverb.
Diffusion	Controls how the reflections are scattered. Low values create distinct echoes; high values create smoother, more diffuse reverb.
LP Cutoff	Low-pass filter on the reverb tail. Lower values darken the reverb by removing high frequencies, creating a warmer sound.

Overdrive (Track 10)

The overdrive uses waveshaping to add harmonic distortion and warmth to sounds.

Parameter	Description
Pre-Gain	Input gain applied before distortion. Boosts the signal going into the overdrive, affecting how hard the distortion is driven.
Drive	Amount of distortion. Controls the intensity of the waveshaping effect. Higher values create more aggressive, saturated tones.
Pan	Stereo distribution of the drive effect. Center applies equal drive to both channels; left/right applies more drive to that channel while keeping the other cleaner.
Output Level	Final output gain. Use to compensate for volume changes caused by the drive settings.

Bitcrusher (Track 11)

The bitcrusher creates lo-fi digital distortion by reducing bit depth and sample rate.

Parameter	Description
Depth	Bit depth reduction. Highervalues use fewer bits to represent the audio, creating more quantization noise and digital grit.
Down-sampling	Sample rate reduction. Higher values skip more samples, creating aliasing artifacts and a more degraded, retro digital sound.
Cutoff	Low-pass filter applied to the crushed signal. Use to tame harsh high-frequency aliasing or shape the tone of the effect.
Mix	Wet/dry mix. Controls how much crushed signal is blended with the original. At minimum, you hear only the dry signal; at maximum, only the bitcrushed signal.

Use LFO modulation on the Downsampling parameter to create a robotic sound effect.

3.4.5 Project Mixer Settings

Available from firmware 1.3.0

A dedicated menu page provides visualisation on audio levels and clipping, as well as quick edit of various track and track effects controls.

Press `menu` and navigate to the `Project Mixer` page, press `A`.

In the `Project Mixer` pages, use ← and → to navigate between the different settings, ↑ and ↓ to change values.

For each of the output levels (track effect, mixer output, synth tracks) two bars represent peak audio signal values for left and right channels with a cross `X` at the top if the signal is clipping (i.e. the sound is too loud to handle and may generate harsh digital distortion).

- **1st page**: gain control for the four track effects and mixer output
- **2nd page**: volume control for each of the synth tracks
- **3rd page**: stereo pan control for each of the synth tracks
- **4th page**: send effect control for each of the synth tracks

3.4.6 Mixing Tips

Creating Space

1. Keep kick and bass centered

2. Pan hi-hats slightly off-center
3. Spread melodic elements across the stereo field
4. Use reverb sparingly on low frequencies

Balance

1. Start with all tracks at similar volumes
2. Adjust kick and snare as your foundation
3. Bring in bass to complement the kick
4. Add melodic elements at appropriate levels

Using Effects

- Drive works well on kicks and bass for punch
- Reverb on snares adds depth
- Bitcrusher can make drums sound gritty
- Not every track needs an effect, sometimes dry is best

3.5 Arpeggiator

The arpeggiator automatically plays notes from the current chord in a pattern, adding melodic movement to your tracks.

3.5.1 How It Works

When a step is set to use the arpeggiator (in *Step Mode*), instead of playing a fixed note, it plays notes from the current chord according to the arpeggiator settings.

3.5.2 Arpeggiator and Chord Progressions

The arpeggiator automatically follows chord progressions:

1. Set up a chord progression in *Song Mode*
2. Steps set to Arpeggiator will play notes from whatever chord is currently active
3. Your melody automatically harmonizes with the chords

3.5.3 Arpeggiator Settings

Located on pages 9 and 10 of track settings.

Mode (Page 9)

Determines the pattern of notes played:

Mode	Description
Up	Plays notes from lowest to highest
Down	Plays notes from highest to lowest
Up and Down	Alternates between up and down
Pattern 1	Plays notes in set order: 1, 4, 3, 4, 2, 4, 3, 4
Pattern 2	Plays notes in set order: 1, 2, 3, 4, 1, 4, 3, 4
Pattern 3	Plays notes in set order: 1, 3, 2, 4, 3, 2, 3
Random	Plays notes in random order

Notes (Page 10)

Select which notes the arpeggiator uses. Currently, chord notes are the only option.

3.5.4 Using the Arpeggiator

In Step Settings

Each step can be set to use different note modes:

1. Enter *Step Mode*
2. Select a step
3. Navigate to the Note setting
4. Press `A` to cycle through modes until "Arpeggiator" is selected

Default Track Behavior

- **Bass Track**: Steps play the chord root note by default
- **Lead Track**: Steps use the arpeggiator by default
- **Chords Track**: Steps play the full chord

3.5.5 Creative Uses

Melodic Leads

1. Select Lead track
2. Set Arpeggiator Mode to Random
3. Create a pattern with multiple steps
4. The melody will vary with each chord change

Controlled Melodies

Mix arpeggiator steps with fixed note steps:

1. Set important melody notes (step 1, 5, etc.) to specific chord notes
2. Set fill notes to Arpeggiator
3. This creates melodies that always land on key notes

3.5.6 Tips

- Use Random arpeggiator mode for generative melodies
- Set key melody notes to specific chord notes for control
- The arpeggiator respects the track's octave setting
- Combine with *step conditions* for even more variation

3.6 Projects

A project is a complete musical workspace on the PGB-1. It contains everything needed to recreate your song or performance.

3.6.1 What's Inside a Project

Component	Description
16 Tracks	Synth engine selection, volume, pan, effects routing, LFO, arpeggiator settings
16 Patterns per track	Step sequences with notes, velocities, conditions, and parameter locks
Song arrangement	Chain of song parts that play patterns in sequence
Chord progressions	The chords assigned to each song part
Tempo	The BPM setting
Custom Waveform	A user drawn waveform specific to the project

When you power on the PGB-1, you're always working inside a project. Changes you make (adding notes, adjusting synth parameters, recording samples) happen in the current project.

The current project is automatically saved when powering off, or entering update mode.

Data Loss

The PGB-1 does not auto-save until you power off. If the battery runs low, the device will shutdown without saving your current project. Remember to save your project regularly (see below), especially when the battery is low.

3.6.2 Managing Projects

Press `Menu` and navigate to the `Projects` page (1st), press `A` to enter.

Option	Description
Save	Save current project to a slot
Load	Load a project from storage
New	Create a new empty project
Rename	Change the name of a project
Delete	Delete a project

Saving a Project

1. Select **Save**
2. Choose a project slot
3. Confirm to save

Loading a Project

1. Select **Load**
2. Use ↑ / ↓ to browse projects
3. Press `A` to select
4. Confirm the action

Data Loss

Loading a project will erase the current project's patterns, steps, tracks, and song settings.

New Project

Creates an empty project with default settings.

Data Loss

Creating a new project will erase the current project's patterns, steps, tracks, and song settings.

Rename Project

Change the name of the project in the project list without any modification to its content.

Delete Project

Remove the project from project list and discard all of its content.

Data Loss

There is no way to recover a project once it is deleted.

3.7 Importing Samples

You can convert audio files from your computer into PGB-1 compatible samples using the online converter tool.

3.7.1 Using the Online Converter

Step 1: Access the Tool

Visit the Wee Noise Makers website: weenoisemakers.com/pgb-1

Scroll to the bottom of the page to find the sample converter widget.

Step 2: Select Your Audio File

1. Click **Choose File**
2. Select an audio file from your computer
3. Supported formats include WAV, MP3, and other common formats

Step 3: Preview and Adjust

- The waveform displays on screen
- Click the play button to preview
- Adjust the name field if desired

Step 4: Select Sample Slot

Choose which slot (1-64) to save the sample to.

Warning

The selected slot will be overwritten when you transfer to the PGB-1.

Step 5: Export

Click **Export** to download the converted file.

The file will be have a `.pgb1sampleuf2` extension.

3.7.2 Transferring to PGB-1

Step 1: Enter Update Mode

1. Connect PGB-1 to your computer with a USB cable
2. Turn on the device
3. Press `Menu`
4. Navigate to **Update Mode**
5. Press `A` to enter, then confirm

The PGB-1 displays "UP" on the keyboard LEDs.

Step 2: Transfer the File

1. The PGB-1 appears as a USB drive called **RPI-RP2**
2. Drag and drop the `.pgb1sampleuf2` file into the drive
3. Wait for the PGB-1 to reboot

Step 3: Verify

1. Go to a sample track (7 or 8)
2. Navigate to the sample selection
3. Your new sample should be in the slot you selected

3.7.3 Converting Tips

Audio Preparation

Before converting, consider:

- **Trim** your audio to remove silence
- **Normalize** levels for consistent volume
- Keep samples **under 2 seconds** (the widget will trucate it for you)

3.7.4 Troubleshooting

Sample Doesn't Appear

- Ensure you selected the correct slot
- Check that the transfer completed (PGB-1 rebooted)
- Try the transfer again with a different cable

3.8 Sample Tracks

The PGB-1 has two dedicated sample tracks (Tracks 7 and 8) that play audio samples instead of synthesized sounds.

3.8.1 Track Default Sample

1. Enter Track Mode (`Track`)
2. Select track 7 or 8
3. Navigate to the sample selection page (page 2, first parameter)
4. Use ↑ / ↓ to choose a sample (1-64)

This sets the default sample for the track.

3.8.2 Per-Step Sample Selection

Using *parameter locks*, each step can play a different sample:

1. Enter Step Mode (`Step`)
2. Select a step
3. Navigate to the 4th page
4. Choose a sample for this step

Use this technique to maximize the usage of sample tracks.

3.8.3 Multiple Sounds in One Sample

You can create samples with multiple sounds in them. Either *directly on the PGB-1* or using a sound editing software and *importing the sample*.

Use start point *parameter locks* to select different sounds for each step.

3.8.4 Extended Sample Length Technique

The PGB-1 samples have a fixed length of 2 seconds. However, you can effectively double the available length using a speed/pitch trick.

How It Works

1. Take a sample between 2 and 4 seconds (e.g. a drump loop)
2. On your computer, use an audio software (such as Audacity) to double the playback speed of your sample (200% speed or +12 semitones pitch shift with time correction disabled). The sped-up sample now fits in half the time/memory.
3. *Import to PGB-1*
4. Play one octave down. Set the sample track's Octave setting to -1, or use note settings to play at half the original pitch

The result: the sample plays back at its original pitch and length, but uses only half the sample slot memory.

Trade-offs

- Advantage: Double the effective sample length. Fit longer loops, vocals, or pads.
- Disadvantage: Reduced audio quality (half the sample rate). High frequencies may sound duller or aliased.

3.8.5 See Also

- *Recording Samples* - How to record your own samples
- *Importing Samples* - Load samples from your computer
- *Parameter Locks* - Per-step sample selection
- *Sound Path* - How sample audio is processed

3.9 Custom Waveforms

Available from firmware 1.2.0

The PGB-1 allows you to draw and edit custom single-cycle waveforms that can be used with various synth engines.

3.9.1 Accessing Custom Waveform Editor

1. Press `Menu`
2. Navigate right to **Custom Waveform**
3. Press `A` to enter

3.9.2 Editor Options

Draw Your Own

Edit the waveform manually:

- Use ← / → to move the cursor horizontally
- Use ↑ / ↓ to adjust the waveform value at that point
- Use the **touch strip** to set the value directly
- Hold ← while moving the touch strip to draw continuously

Load Preset

Load from built-in waveform presets:

1. Navigate to the **Load** option
2. Use ↑ / ↓ to browse presets
3. Press `A` to load

Available presets include various classic waveform shapes that serve as starting points for your designs.

3.9.3 Using Custom Waveforms

Custom waveforms are available in specific synth engines. Look for engines with "Custom Waveform" in the name:

Bass/Lead Engines

- Custom Waveform Glide
- Custom Waveform Phaser
- Custom Waveform Pluck
- Custom Waveform Echo
- Custom Waveform PDR (Phase Distortion Resonance)

Kick Engines

- Custom Waveform Kick
- Custom Click Kick (custom waveform with click)

Chord Engines

- Custom Waveform (4-voice polyphonic using custom waveform)

3.9.4 Live Editing

One powerful feature is the ability to edit the waveform while playback is running:

1. Start a sequence with a track using a custom waveform engine
2. Enter the Custom Waveform menu
3. Draw or load new waveforms
4. Changes take effect immediately

This enables real-time sound design during performance.

3.9.5 Waveform Storage

- One custom waveform per project
- The waveform is saved with the project
- Different projects can have different custom waveforms

3.9.6 Basic Shapes

- **Sine-like**: Smooth curves for soft, warm sounds
- **Square-like**: Flat tops/bottoms for hollow, reedy sounds
- **Sawtooth-like**: Diagonal slopes for bright, buzzy sounds
- **Triangle-like**: Symmetrical slopes for smooth, flute-like sounds

3.9.7 Tips

- Use the touch strip for quick, expressive drawing

3.10 Shortcuts

Quick reference for all PGB-1 keyboard shortcuts.

3.10.1 Volume and BPM

Action	Shortcut
Increase Volume	Hold `Play` + Press ↑
Decrease Volume	Hold `Play` + Press ↓
Increase BPM	Hold `Play` + Press →
Decrease BPM	Hold `Play` + Press ←

3.10.2 Mute/Solo

Action	Shortcut
Mute/Unmute Track	Hold `Play` + Press 1-16
Solo Track	Hold `Play` + Press `Track`, then 1-16

3.10.3 Mode Selection

Action	Shortcut
Enter Track Mode	Press `Track`
Enter Step Mode	Press `Step`
Enter Pattern Mode	Press `Pattern`
Enter Song Mode	Press `Song`
Enter Sample Mode	Hold `Cpy/FX` + Press `Edit`

3.10.4 Quick Selection (Without Mode Change)

Action	Shortcut
Select Track	Hold `Track` + Press 1-16
Select Step	Hold `Step` + Press 1-16
Select Pattern	Hold `Pattern` + Press 1-16
Select Song Part	Hold `Song` + Press 1-12

3.10.5 Pattern Editing

Action	Shortcut
Toggle Edit Mode	Press `Edit`
Toggle Step On/Off	(In Edit Mode) Press 1-16
Chromatic Keyboard	Hold `Edit` + Press keys
Octave Down (Keyboard)	Hold `Edit` + Press `1`
Center Octave (Keyboard)	Hold `Edit` + Press `4`
Octave Up (Keyboard)	Hold `Edit` + Press `8`

3.10.6 Live FX

Action	Shortcut
Toggle Live FX	Hold `Cpy/FX` + Press 1-16

Sequencing FX (Left Side)

Button	Effect
`1`	Roll 16th
`2`	Roll 8th
`3`	Roll Quarter
`4`	Roll Beat
`9`	Fill Steps
`10`	Auto-fill Low
`11`	Auto-fill High
`12`	Auto-fill Build-up

Mixing FX (Right Side)

Button	Effect
5	Low Pass Filter
6	Band Pass Filter
7	High Pass Filter
8	Stutter 1
13	LP Filter Sweep
14	BP Filter Sweep
15	HP Filter Sweep
16	Stutter 2

3.10.7 Copy/Paste

Action	Shortcut
Copy Song Part	Hold `Cpy/FX` + `Song` + source + dest
Copy Track	Hold `Cpy/FX` + `Track` + source + dest
Copy Pattern	Hold `Cpy/FX` + `Pattern` + source + dest
Copy Step	Hold `Cpy/FX` + `Step` + source + dest

3.10.8 Quick Parameter Control

Action	Shortcut
Live Parameter Adjustment	Hold `Cpy/FX` + Use Touch Strip

CHAPTER

FOUR

AUDIO & MIDI

- *Output*
- *Input*
- *Sound Path*
- *Midi*

4.1 Audio Output

The PGB-1 provides multiple audio output options for different listening situations.

4.1.1 Output Options

Internal Speaker

The built-in speaker allows you to hear your music without any external equipment.

- Automatically used when no headphones are connected
- Good for casual listening and sound design
- Limited bass response compared to headphones

Headphone/Line Output

The 3.5mm stereo jack on the top of the device:

- Connect headphones for private listening
- Connect to mixers, speakers, or audio interfaces
- Automatically switches from internal speaker when connected

Hearing Safety

Maximum volume can be very loud, especially with headphones or earbuds. Extended exposure to high volume may damage your hearing.

4.1.2 Volume Control

Adjusting Master Volume

Hold `Play` and press ↑ or ↓ to adjust the master output volume.

- Press once for single step changes
- Hold for continuous adjustment
- Applies to both speaker and headphone output

Track Volume

Each track has its own volume setting in *Track Mode (page 4)*.

4.2 Audio Input

The PGB-1 features multiple audio inputs for recording samples and processing external audio.

4.2.1 Input Sources

Line Input (Stereo)

The 3.5mm stereo jack next to the headphone output:

- Connect external synthesizers
- Connect audio players, phones, or tablets
- Connect other groove boxes

Internal Microphone (Mono)

Built into the device:

- Record ambient sounds
- Capture voice or acoustic sources
- Always available without external equipment

Headset Microphone (Mono)

When using a headset with microphone:

- Record voice
- Hands-free recording
- Requires compatible headset

4.2.2 Configuring Audio Input

Accessing Input Settings

1. Press `Menu`
2. Navigate to **Inputs**
3. Press `A` to enter

Page 1: Input Selection

Toggle each input on or off using ↑/↓:

Setting	Description
Line In	Enable/disable line input
Int. Mic	Enable/disable internal microphone
Headset Mic	Enable/disable headset microphone

The last parameter (`Input Volume`) controls a common gain for all inputs.

Best Practice

Keep the PGB-1 input gain low and increase volume on your source device. This provides better headroom and less noise.

Page 2: Input Effects

Apply effects to the input signal:

Effect	Description
Bypass	No effect (clean input)
Overdrive	Distortion/saturation
Bitcrusher	Lo-fi digital effect
Reverb	Space and ambience

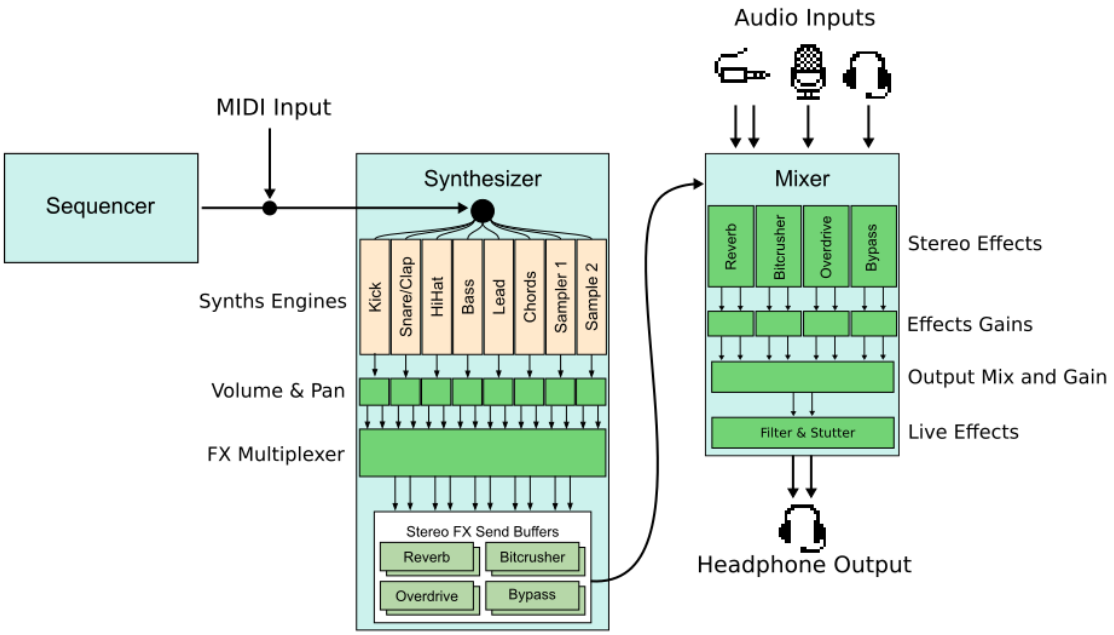
4.2.3 See Also

- *Recording Samples* - How to record your own samples
- *Sound Path* - How sample audio is processed

4.3 Sound Path

Understanding how audio flows through the PGB-1 helps you make better mixing and sound design decisions. This page explains the complete signal path from note trigger to audio output.

4.3.1 Overview Diagram



4.3.2 The 8 Tracks

The PGB-1 has 8 internal tracks, each with a dedicated sound type:

Track	Type	Description
1	Kick	Bass drum sounds
2	Snare	Snare and clap sounds
3	Hi-Hat	Hi-hat and cymbal sounds
4	Bass	Bass synthesizer
5	Lead	Lead synthesizer
6	Chords	Polyphonic chord synthesizer
7	Sampler 1	First sample playback track
8	Sampler 2	Second sample playback track

Each track follows the same signal path but has different synth engines available.

4.3.3 Signal Path Stages

1. Step Sequencer

The journey begins with the **step sequencer**. When a step is active and its conditions are met, it sends a note trigger with:

- Note pitch (fixed, from the *arpeggiator*, or
- *chord progression*) Velocity (how hard the note is
- played) Any *parameter locks* for that
- step

2. Synth Engine

The *synth engine* converts note triggers and parameters into actual audio. Each track type has multiple engines to choose from (sine kicks, FM basses, etc.). The engine produces a **mono** audio signal.

The *LFO* (Low Frequency Oscillator) can modulate synth parameters at this stage, creating movement and variation in the sound.

3. Volume and Panning

After synthesis, the audio passes through *mixing controls*:

- **Volume control** - Sets the track's loudness in the mix
- **Stereo panning** - Places the sound left, right, or center

The *LFO* can also modulate volume and panning for tremolo and auto-pan effects.

4. FX Routing

Each track routes to one of **4 effect buses**:

Effect	Description
Bypass	No effect applied (clean signal)
Overdrive	Adds warmth and distortion
Reverb	Adds space and ambience
Bitcrusher	Adds digital lo-fi character

One Effect Per Track

Each track can only use one global effect at a time. Choose the effect that best suits each sound.

Each effect bus has a gain stage at its output controlled from the *Project Mixer menu*.

5. Final Mix

All 4 effect buses are mixed together into a single stereo output. A last gain stage is available on the stereo output.

6. Live FX

After the final mix, the audio passes through the **Live FX** stage. These are performance effects controlled in real-time holding `Cpy/FX`:

Effect	Description
Filter	Sweepable low-pass/high-pass filter applied to the entire mix
Stutter	Rhythmic repeat/glitch effect for build-ups and transitions

Unlike the per-track FX routing, Live FX affect the entire mix and are meant for real-time performance.

4.3.4 Audio Inputs

The PGB-1 has three audio inputs:

- **Line Input** - 3.5mm stereo jack for external audio devices
- **Internal Microphone** - Built-in microphone
- **Headset Microphone** - For use with headsets that have a built-in mic

All three inputs can:

- Pass through to the output with one effect applied
- Be *recorded as samples* for the sampler tracks

Audio inputs route to the same FX buses as the internal tracks, allowing you to apply reverb or other effects to incoming audio.

4.3.5 Next Steps

- *Your First Project* - Apply this knowledge to create a beat
- *Track Settings* - Deep dive into synth engines and mixing
- *Live FX* - Learn to control effects during performance

4.4 MIDI

The PGB-1 features a hardware MIDI interface (TRS type A input and output) for connecting to external synthesizers, drum machines, and controllers, allowing you to integrate it into larger setups.

4.4.1 Output

Sending notes and CC to external gear

Tracks 12 to 16 are assigned to external MIDI by default, but any of the 16 tracks can be switched to **MIDI mode** in the track settings. When a track is in MIDI mode, its sequencer data is sent as standard MIDI messages through the MIDI output port instead of being routed to the internal synthesizer.

Each MIDI mode track has the following configurable parameters:

Parameter	Description
MIDI Channel	Output channel (1-16) for notes and CC messages
CC A-D	Four assignable CC controller numbers (0-127)
CC Labels	User labels for each CC controller

CC messages: Each step has four CC slots (A, B, C, D). When a CC slot is enabled on a step, the corresponding CC message is sent using the controller number configured in the track settings. This allows per-step automation of external synth parameters.

All the standard sequencer features work in MIDI mode: note modes (single note, chord, note-in-chord, arpeggiator), trigger conditions (always, fill, probability, x-of-y patterns), note repeats, and shuffle.

Enabling MIDI Mode

To switch a track to MIDI mode:

1. Enter Track Mode (`Track`)
2. Select the track to configure
3. Navigate to the last settings page (Track Mode)
4. Use ↑ / ↓ to select MIDI

MIDI Clock Output

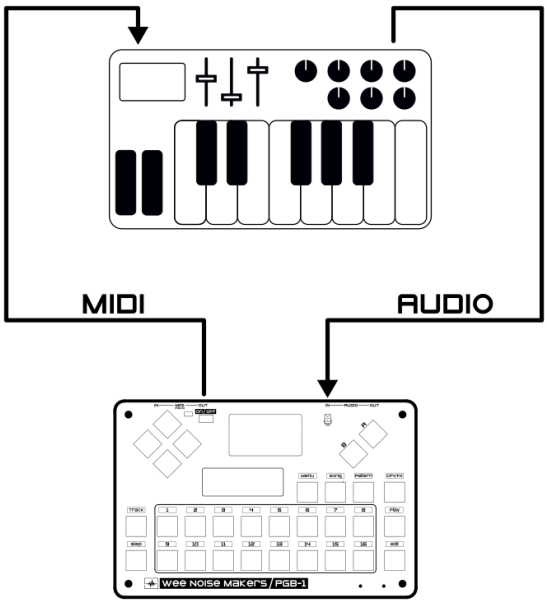
PGB-1 sends MIDI clock messages through the MIDI output port:

- **Timing Clock** (24 pulses per quarter note)
- **Start** when playback begins
- **Stop** when playback is stopped

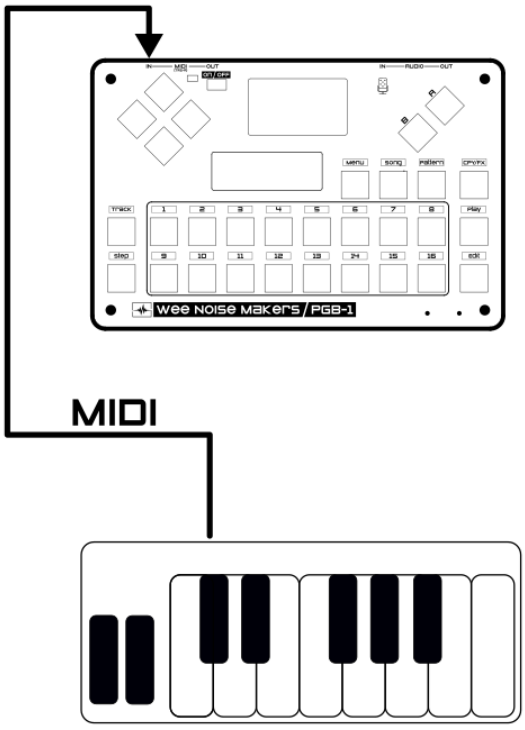
MIDI clock output is enabled by default and can be toggled in the MIDI settings menu. Non-clock messages (notes, CC) are always sent regardless of this setting.

Hybrid Setup

Connect the audio output of an external MIDI synths to the stereo line input of the PGB-1. The external synth sound will be mixed with the internal sound engines in a seamless hybrid setup. You can send the line input to one of the internal FX (Reverb, Overdrive, Bitcrusher).



4.4.2 Input



MIDI Clock Input

PGB-1 can synchronize its sequencer to an external MIDI clock source. Upon receiving a **Start** or **Continue** message, the PGB-1 switches to external clock mode and follows incoming **Timing Clock** ticks until a **Stop** message is received. When using external clock, the play/stop actions and internal BPM settings are ignored.

MIDI clock input is enabled by default and can be toggled in the **MIDI settings** menu.

Playing and recording notes

Incoming MIDI **Note On**, **Note Off**, and **CC** messages are handled based on the MIDI channel:

Channel 1 – Messages are routed to the currently selected (editing) track:

- In **step edit mode**, a Note On writes the note value and velocity into the current step. If the step had no trigger set, it is automatically set to "Always".
- In **performance mode**, notes and CC messages are played live through the editing track's voice.

Channels 2-16 – Messages are forwarded directly to the internal synthesizer. Each internal synth voice listens on a fixed channel:

Channel	Voice
2	Kick
3	Snare
4	Cymbal
5	Bass
6	Lead
7	Chord
8	Sample 1
9	Sample 2
10	Reverb
11	Overdrive
12	Bitcrusher

This allows an external MIDI controller or DAW to play any of the PGB-1's synth voices directly by sending on the appropriate channel.

Internal synth voices also support Control Change messages:

Setting	Control Change	Values
Parameter 1	0	0-127
Parameter 2	1	0-127
Parameter 3	2	0-127
Parameter 4	3	0-127
Volume	4	0-100
Pan	5	0-100
Engine	6	0-127 (depending on the list of engines implemented for the track)
FX Send	7	0: Bypass, 1: Overdrive, 2: Reverb, 3: Bitcrusher
LFO Rate	8	0-127
LFO Amplitude	9	0-127
LFO Amplitude Mode	10	0: Positive, 1: Center, 2: Negative
LFO Target	11	0: Param1, 1: Param2, 2: Param3, 3: Param4, 4: Volume, 5: Pan
LFO Shape	12	0: Sine, 1: Triangle, 2: Ramp Up, 3: Ramp Down, 4: Exponential Up, 5 Exponential Down
LFO Loop	13	0: Repeat, 1: One Shot
LFO Sync	14	0: Disable, 1-127: Enable

Note that Volume, Pan, Engine and FX Send settings are not available for the FX tracks (Reverb, Overdrve, Bitcrusher)

4.4.3 Tips

Recording Tracks as MIDI

Any synth track can be converted to MIDI, this means you can use MIDI output to record beats, melody, and patterns in your DAW.

1. Connect PGB-1 MIDI output to your computer
2. Turn every track in "MIDI mode" and assign a different MIDI channel to each of them
3. Record the incoming MIDI in your DAW
4. Press play to start internal sequencer

If you want to only record a single track, set this track to solo (hold `Play`, press `Track`, press the number of the track you want to record (`1-16`)).

CHAPTER

FIVE

SYSTEM

- *Menu*
- *Firmware*
- *Troubleshooting*

5.1 Main Menu

The main menu provides access to system functions, project management, and device settings.

5.1.1 Accessing the Menu

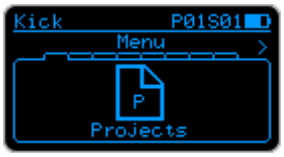
Press `Menu` to open the main menu.

Navigate with ← / → and select with `A`.

5.1.2 Menu Items

Projects

Save, load, create, delete *projects*



Project Mixer

Per project settings of gains and audio levels for tracks and track effects. See *Mixing*.

Available from firmware 1.2.0

Custom Waveform

Draw and edit custom waveforms. See *Custom Waveforms*.

Available from firmware 1.2.0

Live FX Settings

Customize live sequencing and mixing effects. See *Live FX*.

Available from firmware 1.3.0

Inputs

Configure *audio inputs and FX*.

MIDI Settings

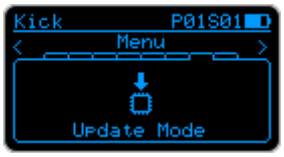
Configure *MIDI input and output*.

Update Mode

Enter firmware update mode. See *Firmware Updates*.

Warning

Entering update mode will save the current project and reboot the device.



System Info

View device information:

- Firmware version
- Other system details

Useful for:

- Checking if you need to update
- Support requests
- Troubleshooting

5.2 Firmware Updates

Keep your PGB-1 up to date with the latest features and improvements.

5.2.1 Checking Your Version

1. Press `Menu`
2. Navigate to **System Info**
3. Press `A` to view
4. Note your current firmware version

5.2.2 Getting Updates

Check for new firmware at:

- weenoisemakers.com/pgb-1
- Discord server: discord.gg/EAmAgsmV5V
- Social media: @weenoisemakers

5.2.3 Standard Update Procedure

Prerequisites

- Good quality USB cable
- Computer that won't restart during update
- Latest firmware .uf2 file downloaded

Danger

Never turn off the PGB-1 or unplug the USB cable during a firmware update. This may leave the device in an invalid and **unrecoverable** state.

Step 1: Connect and Enter Update Mode

1. Connect PGB-1 to your computer via USB
2. Turn on the device
3. Press `Menu`
4. Navigate to **Update Mode**
5. Press `A` to enter

6. Press → then `A` to confirm

The device reboots into update mode. The LEDs display "UP" in green.

Added in version 1.2.0: Starting with firmware version 1.2.0, it is possible to enter Update mode by holding the `Menu` button while powering on the device. The LEDs display "UP" in red.

Step 2: Transfer the Firmware

1. A USB drive named **RPI-RP2** appears on your computer
2. Drag and drop the `.uf2` firmware file into this drive
3. Wait for the transfer to complete
4. The PGB-1 automatically reboots when finished

Step 3: Verify

1. Press `Menu` → **System Info**
2. Confirm the new version number

5.2.4 User Data

Note

Data Preserved Firmware updates do not erase your projects or samples. Your data remains intact after updating.

5.2.5 Reset Procedure

Use when the device is unresponsive or won't turn off.

1. Locate the Reset button (leftmost hole on the bottom edge)
2. Use a paperclip to press the button
3. The device will restart

Data Loss

Changes to the current project will not be saved when resetting.

5.2.6 Forced Firmware Update Procedure

Data Loss

Because of a hardware glitch, this procedure is not available for the first batch of PGB-1. However, starting with firmware version 1.2.0, it is possible to enter Update mode by holding the `Menu` button while powering on the device.

Use when the device won't boot normally, standard update procedure fails, or the device is stuck or froze.

Prerequisites

1. Make sure the device is **off** (power switch to right, cyan LED off)
2. If the device won't turn off, use the *Reset Procedure* first
3. Have USB cable and firmware file ready

Procedure

1. Connect PGB-1 to computer via USB
2. **Hold the Boot button** (rightmost hole on bottom, use a paperclip)
3. While holding Boot, turn on the device (power switch left)
4. Release the Boot button
5. The **RPI-RP2** drive should appear
6. Drag and drop the firmware file
7. Wait for reboot

5.2.7 Troubleshooting Updates

RPI-RP2 Drive Doesn't Appear

- Try a different USB cable
- Try a different USB port
- Ensure you're in Update Mode (LEDs show "UP")
- Try the Forced Update procedure

Update Seems Stuck

- Wait at least 5 minutes
- Do not unplug the cable
- If nothing happens, use Reset then try Forced Update

Version Doesn't Change After Update

- Verify you used the correct .uf2 file
- Check the file wasn't corrupted during download
- Try downloading the firmware again
- Try the update procedure again

Device Won't Start After Failed Update

Use the *Forced Firmware Update Procedure* to recover.

5.2.8 Best Practices

1. **Don't interrupt**: Let the update complete fully
2. **Use good cables**: Poor cables cause failed transfers
3. **Check power**: Ensure laptop is plugged in or has good battery
4. **Close applications**: Minimize computer activity during update
5. **Read release notes**: Know what's new before updating

5.3 Troubleshooting

Solutions for common issues with the PGB-1.

5.3.1 Device Issues

Device Won't Turn On

Symptoms: No response when power switch is moved to On position.

Solutions:

1. **Charge the battery**
   - Connect USB cable
   - Look for red charging LED
   - Wait for some charge before trying again
2. **Try reset**
   - Use a paperclip to press the Reset button
   - Located in the leftmost hole on the bottom edge
3. **Check power switch**
   - Ensure switch is fully to the left (On position)

Device Won't Turn Off

Symptoms: Device stays on when power switch is in Off position.

Cause: Unrecoverable software malfunction.

Solution: Use the Reset Procedure.

Device is Frozen/Unresponsive

Symptoms: Buttons don't respond, display frozen.

Solution:

1. Use the Reset Procedure (paperclip in reset hole)
2. Note: Unsaved changes will be lost

5.3.2 Audio Issues

No Sound from Speaker

Solutions:

1. Check volume - Hold `Play` + ↑
2. Ensure no headphones are connected (speaker mutes when headphones plugged in)
3. Check that tracks are not muted
4. Verify patterns have steps enabled

No Sound from Headphones

Solutions:

1. Check headphone connection
2. Check volume level
3. Try different headphones
4. Clean the headphone jack

Audio is Distorted

Solutions:

1. Lower the master volume
2. Lower individual track volumes
3. Reduce drive/effect levels
4. Check if sample levels are too hot

Audio Inputs Not Working

Solutions:

1. Ensure input is enabled in Menu → Inputs
2. Check input gain level
3. Verify cable connection
4. Try different input source

5.3.3 Sequencer Issues

Pattern Won't Play

Solutions:

1. Check the pattern is selected in Song Mode for the current part
2. Verify the track isn't muted (hold `Play` + track button)
3. Ensure steps are enabled in the pattern
4. Check step conditions aren't set to "Never"

Wrong Pattern Playing

Cause: Song Mode controls which patterns play.

Solution:

1. Enter Song Mode (`Song`)
2. Check which patterns are assigned to the current song part
3. Modify as needed

Steps Not Triggering

Solutions:

1. Check step condition (probability, fill, etc.)
2. Verify step is enabled
3. Check track isn't muted
4. Verify song part has the pattern assigned

5.3.4 Firmware Issues

Update Failed

See *Firmware Updates - Troubleshooting*.

Device Won't Enter Update Mode

Solutions:

1. Use the Forced Firmware Update Procedure
2. Hold Boot button while turning on
3. Try different USB cable

5.3.5 USB Issues

Computer Doesn't Recognize Device

Solutions:

1. Try different USB cable
2. Try different USB port
3. Restart the PGB-1
4. Check computer's USB drivers

RPI-RP2 Drive Not Appearing

Solutions:

1. Ensure device is in Update Mode
2. Try Forced Update procedure
3. Try different cable/port

5.3.6 Reset Procedure

Use when the device is unresponsive.

1. Locate Reset button (leftmost hole, bottom edge)
2. Insert paperclip and press
3. Device restarts

Data Loss

Unsaved project changes will be lost.

5.3.7 Forced Firmware Update Procedure

Use when normal update fails.

1. Turn off device completely
2. Connect USB cable to computer
3. Hold Boot button (rightmost hole) with paperclip
4. While holding, turn on device
5. Release Boot button
6. RPI-RP2 drive should appear
7. Transfer firmware file

5.3.8 Battery Issues

Battery Indicator Not Accurate While Charging

This is normal. During charging, the on-screen battery indicator doesn't show accurate charge state. Only the red LED indicates charging status.

Charge Doesn't Complete

Solutions:

1. Use a different USB cable
2. Try a different power source
3. Ensure power source provides adequate current

5.3.9 Getting Help

If problems persist:

1. Join the Discord: discord.gg/EAmAgsmV5V
2. Visit the website: weenoisemakers.com/pgb-1
3. Contact support via the website contact form

CHAPTER

SIX

REFERENCE

- *Changelogs*
- *Engines*
- *Warranty*

6.1 Firmware Changelogs

6.1.1 v1.3.0

New features

- Project Mixer menu
  - New audio FX gains and output gain
  - Visualization of peak signal values for all track and FX
  - Common view and control of volume and pan for all track
- Live FX settings menu
  - Select tracks controlled by auto-fill
  - Set auto-fill probabilities
  - Cutoff and resonance for low-pass, band-pass, and high-pass filters
  - Speed and amplitude of filter sweep
  - Stutter patterns
  - Stutter attack and decay
- LFO improvements
  - New shape: random
  - Graphical visualization of LFO modulation
  - Use A/B buttons to change amplitude mode and toggle loop/sync

New sound engines

- Hihat Track
  - 909 HiHat (low-pass)
  - 707 HiHat (low-pass)
  - 808 HiHat (low-pass)
  - 505 HiHat (low-pass)
  - LM2 HiHat (low-pass)

  - CR78 HiHat (low-pass)
  - MRK2 HiHat (low-pass)
  - Acoustic HiHat (low-pass)
  - 909 HiHat (band-pass)
  - 707 HiHat (band-pass)
  - 808 HiHat (band-pass)
  - 505 HiHat (band-pass)
  - LM2 HiHat (band-pass)
  - CR78 HiHat (band-pass)
  - MRK2 HiHat (band-pass)
  - Acoustic HiHat (band-pass)
  - 909 HiHat (high-pass)
  - 707 HiHat (high-pass)
  - 808 HiHat (high-pass)
  - 505 HiHat (high-pass)
  - LM2 HiHat (high-pass)
  - CR78 HiHat (high-pass)
  - MRK2 HiHat (high-pass)
  - Acoustic HiHat (high-pass)
- Sampler 1/2 Track
  - Glide (Fast)
  - Glide (Slow)
  - Pitch Down (1-Octave)
  - Pitch Down (2-Octave)
  - Pitch Up (1-Octave)
  - Pitch Up (2-Octave)

Bug fixes

- Fix octave offset for note repeats in ARP mode
- Fix LFO bipolar mode

6.1.2 v1.2.0

Update video here.

New features

The biggest change in 1.2.0 is the ability to draw a single cycle waveform (Menu -> Custom Waveform) with the addition of many new synth engines using this user drawn waveform (see below).

New sound engines

- Kick Track
  - Sine Click Kick (similar to the Sine Kick with an additional noise transient)
  - Custom Waveform Kick
  - Custom Waveform Click Kick
- Snare Track
  - Clap (high-pass)
  - Custom Waveform Snare
- Bass and Lead Tracks
  - Custom Waveform Glide
  - Custom Waveform Phaser
  - Custom Waveform Pluck
  - Custom Waveform Echo
  - Custom Waveform PDR (Phase Distortion Resonance)
- Chord Tracks
  - Mixed Waveforms (each oscillator has a different waveform)
  - Custom Waveform

Quality of Life

- Improved graphical interface with more icons in menus, and additional
- information for some settings
- A chromatic keyboard (activated by holding the "Edit" button in track and
- step mode) to play the selected track and change the notes of the current
- step when in edit mode

6.1.3 v1.1.0

New synth engines:

- PDR Square Full Sine (Phase Distortion Resonance)
- Triangle Phaser
- Sine Phaser
- Sine Pluck
- Triangle Pluck
- Chip Pluck

6.1.4 Quality of Life

- Better precision and stability of the touch strip values
- When a new chord is added to a progression, the view jumps automatically to edit that chord
- The chord progression hint is now displayed on the CPY/FX page. This is to help to time effects with chord changes.
- Reduced pop/click at startup

Bug fixes

- Fix stereo line-in (only the left channel was enabled)
- Fix sound quality for sample recording
- Fix synth engine names going outside the screen

6.2 Synth Engine Reference

Complete list of synth engines available on the PGB-1.

WORK IN PROGRESS…

6.3 Warranty & Support

6.3.1 Warranty

Devices purchased directly from Wee Noise Makers have a warranty of six months from the date of purchase. This warranty can be extended depending on local regulations.

This warranty covers any manufacturing defects in the device. It does not cover damage due to incorrect handling, storage, power, overvoltage events, or modifications.

Please use the Contact Form on our website if you are experiencing issues with your device. Devices returned under warranty will either be refunded, re- placed, or repaired at our discretion. User data may not be preserved. You will be responsible for the cost of returning the device to Wee Noise Makers.

6.3.2 Modding and Hacking

PGB-1 is open source and designed to be extended and modified by users. However, hardware modification or installation of third party firmware can lead to irreversible damage to the device. Wee Noise Makers will not be accountable for those damages. Any modification will void the warranty, and could void the user's authority to operate the equipment. We will not refund, repair, or replace any products that have been modified.

6.3.3 Support

Before Contacting Support

Please have ready:

- Order number or proof of purchase
- Firmware version (`Menu` → `System Info`)
- Description of the problem
- Steps to reproduce the issue
- What you've already tried

Official Support

For warranty claims or technical issues use the Contact Form on our website.

Community Support

Join the Discord server for community help: discord.gg/EAmAgsmV5V