Control Blocks (Live, Loop, Touch) Creator Manual

1 Introduction – Control Blocks (Live, Loop, Touch)

Introduction

Hello creator, and welcome to the Creator Manual for Control Blocks – including the Live Block, Loop Block, Touch Block, and Developer Kit Control Block. We think of the people who buy and use ROLI's products as creators more than customers. Our products are designed to expand the bandwidth of creative expression and thereby empower people as the creators they are.

Everyone who buys and uses BLOCKS is investing in this vision of creativity and therefore is also a co-creator of ROLI.

BLOCKS is the most accessible and versatile music creation system ever made. It is a modular music studio that lets anyone make music whether they're a professional musician or a total beginner. Each individual Block is powerful and intuitive, offering unique capabilities that let people make music in simple but far-reaching ways. The Blocks connect together to create customisable kits that suit any budget, skill level, and musical style. With a click of magnetic connectors, music-makers can build their own instruments as they go.

In the next section we have included a short list of terms specific to BLOCKS. We will refer to these terms throughout this Creator Manual.

Please note that this is a digital manual updated regularly to reflect software updates and other improvements. This manual is current up to **NOISE v2.4.0**.

Support and Feedback

We want you to have the best experience possible with our products and would love to hear your feedback. Should you have any questions, are experiencing any problems, or just want to say hello, please don't hesitate to get in touch.

The easiest way to reach us is to send a support enquiry from support.roli.com. We will respond as quickly as possible.

2 Glossary of Selected BLOCKS Terms

BLOCKS

A modular music studio built of individual Blocks, each with specific capabilities, that connect together physically through BLOCKS DNA connectors and wirelessly through Bluetooth.

Block(s)

The individual hardware components of the BLOCKS system including the Lightpad Block, Live Block, Loop Block, Seaboard Block, Touch Block, and Developer Kit Control Block.

BLOCKS Dashboard

A desktop application for modifying and customising the internal settings of Blocks, making it easy to use BLOCKS with third-party digital audio workstations and synthesizers.

BLOCKS DNA Connectors

Six-pin connectors that magnetically connect multiple Blocks and also transmit power and data between the Blocks. Each Control Block has six DNA Connectors.

Control Block

Any one of several different Blocks with ten buttons and a row of LEDs, designed to control NOISE functions. Control Blocks include the Live Block, Loop Block, Touch Block, and Developer Kit Control Block. Control Blocks can also send MIDI messages to third-party applications.

Equator Player

Based on **Equator** – ROLI's custom-built, multi-dimensional sound engine and software synthesizer – **Equator Player** is a Windows and MacOS app included with the Lightpad Block and Seaboard Block. Equator Player takes advantage of

the Seaboard Block's 5 dimensions of touch, maximizing your ability to express yourself using just the motions of your fingers on your Seaboard Block's keywaves and Lightpad Block's playing surface. It features a simplified user interface that allows you to easily modify the most important characteristics of a preset. If you'd like to create your own sounds and have full control of Equator you may upgrade to the full version of Equator.

The Five Dimensions of Touch (5D Touch)

The feature of real-time control and modulation of sound through the basic movements of **Strike, Press, Glide, Slide, and Lift.**

- **Strike:** The velocity and force with which a finger makes contact with the **Lightpad Surface**.
- **Press:** The pressure and continuous touch applied to the **Lightpad Surface** after the initial **Strike**.
- **Glide:** Horizontal left and right movements on **Lightpad Surface**.
- **Slide:** Vertical movements up and down the **Lightpad Surface**.
- **Lift:** The release velocity or speed of liftoff from **Lightpad Surface**.

Grid

A fixed configuration of pads on the NOISE interface and the Lightpad Block surface. Possible grid layouts include 2×2, 4×4, and 5×5. In each grid layout, the number of pads is the same on the X and Y axis.

Keywave

A wavelike element of the keywave surface of Seaboards that corresponds to a single key on a standard keyboard. Each of the Five Dimensions of Touch can be accessed on a single keywave.

Keywave surface

The entire playing Seaboard surface including all keywaves and the ribbons above and below them. The keywave surface corresponds to a keyboard.

Lightpad Block

A Master Block and the central Block in the BLOCKS system. The Lightpad Block features an illuminated tactile surface that enables creators to shape sound through Five Dimensions of Touch: Strike, Glide, Slide, Press, and Lift. When paired with NOISE it builds sequencing, looping, finger drumming and expressive control into one intuitive device. It can also be used with BLOCKS Dashboard to expressively control digital audio workstations and software and hardware synthesizers.

Lightpad Surface

The 15×15 LED matrix made up of individual cells (225) and covered with laser-etched silicone which makes up the surface of the Lightpad Block and enables users to play multidimensional or 5D Touch performances.

Live Block

A Control Block that provides quick access to music performance functions, so creators can be more expressive in real time. The Block’s 10 buttons include controls for switching scales and octaves, playing chords and arpeggios, and sustaining notes in NOISE. The Live Block can also be used with BLOCKS Dashboard to transmit MIDI CC messages in order to control digital audio workstations and software synthesizers.

Loop Block

A Control Block that provides quick access to music production functions so creators can easily layer sounds into a song in NOISE. The Block's 10 buttons include controls for setting a tempo, recording loops, and quantizing loops so they snap in time with the tempo. The Loop Block can also be used with BLOCKS Dashboard to send MMC messages to control the trasport functions of digital audio workstations, and it can also transmit MIDI CC messages in order to control digital audio workstations and software synthesizers.

Master Block

Master Blocks – including the Lightpad Block and Seaboard Block – are the central Blocks of the BLOCKS system. To use BLOCKS you need at least one Master Block. Additional Blocks, including Control Blocks, connect via DNA to the Master Block.

MPE

Multidimensional Polyphonic Expression (MPE) is a protocol for using standard MIDI messages to communicate with and enable the operation of multidimensional instruments such as the Seaboard and BLOCKS. MPE enables independent, per-note control of multiple sound parameters such as pitch and timbre.

NOISE

A free modular music app that lets anyone create beats, melodies and songs using simple, easy-to-learn gestures on the touch screens of mobile devices. The app's expressive power can be expanded with BLOCKS. It is at the heart of the BLOCKS system.

Pad

A square that corresponds to a note in the grid layout of the Lightpad Block and NOISE.

Seaboard Block

The Seaboard Block pairs the powerfully expressive keywave surface of the Seaboard GRAND and Seaboard RISE with the portability and modularity of BLOCKS. It is a Master Block and includes 24 keywaves as well as lower and upper octave switches. Multiple Seaboard Blocks can connect together to create an extended playing surface.

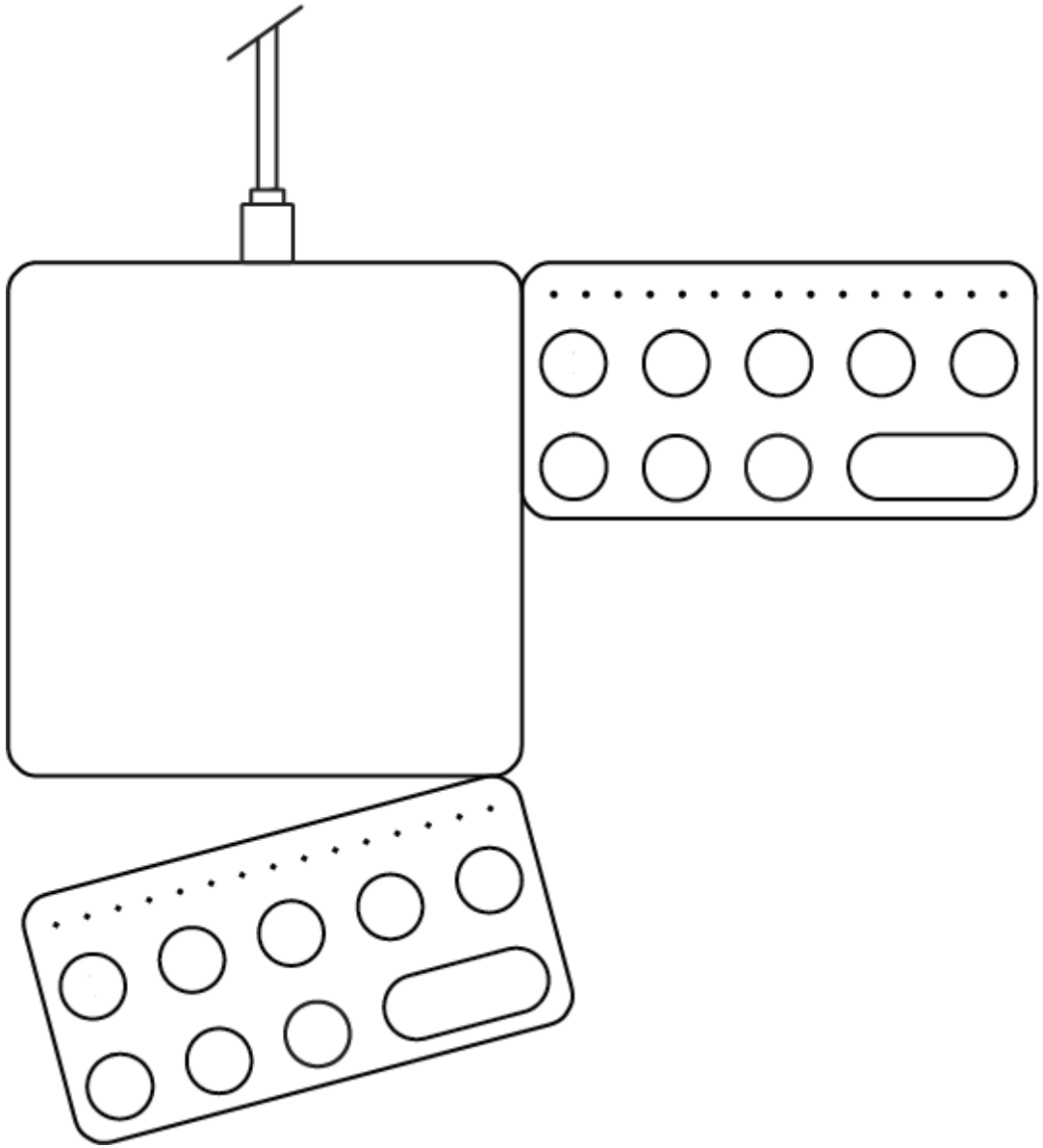
Touch Block

A Control Block that adjusts the responsiveness of the Seaboard Block's and Lightpad Block's 5D Touch when used with NOISE or desktop applications. The Touch Block's 10 buttons control the sensitivity of Strike, Glide, Slide, Press, and Lift, lock Strike or Glide, or put the Seaboard Block into "piano mode," by turning off Glide. The Touch Block can also be used with BLOCKS Dashboard to transmit MIDI CC messages in order to control digital audio workstations and software synthesizers.

USB-C

The type of USB connector used to connect and charge the Lightpad Block and Seaboard Block. There is a female connector on the block itself, and a male connector on the included USB-C-to-USB-A cable.

3 Start



3.1 What are Control Blocks?

Whether you’re playing live or in the studio, every second counts, and there’s no time for browsing through menus. Control Blocks make it even easier to

perform and produce music on BLOCKS with NOISE by putting the most frequently used functions for performance and production in immediate reach. In addition, each Control Block can be used with BLOCKS Dashboard to transmit MIDI CC messages in order to control digital audio workstations and software synthesizers.

Live Block

The Live Block's 10 buttons include controls for mode, volume, scales, chord, arpeggiator, sustain, octave, and favouriting NOISE presets.

Loop Block

The Loop Block's 10 buttons include controls for mode, volume, tempo, snap, undo, playing/recording loops, learn, and more.

Touch Block

The Touch Block's 10 buttons control the sensitivity of the five dimensions of touch, lock Strike or Glide settings, and put the Seaboard Block into "piano mode" by turning off dimensions of touch.

Developer Kit Control Block

The Developer Kit Control Block is part of the Developer Kit and allows developers to create apps for BLOCKS. The Developer Kit Control Block includes eight switches with RGB LEDs, numbered 0–7 and a –/+ dual button. When connected to NOISE, the Developer Kit Control Block behaves as a Loop Block.

3.2 System Requirements

For use with NOISE:

- Master Block (Lightpad Block or Seaboard Block)
- iOS 9 or higher
- One of the following iOS devices:
  - iPhone 6 or higher
  - iPhone SE
  - iPad Mini 4 or higher
  - iPad Air 2
  - iPad Pro (9.7 and 12.9 inches)
  - iPod Touch 6th Generation

What about Android?

NOISE is currently available in an early access beta version for Google Pixel and Samsung S8. More devices will be supported when NOISE for Android is fully released.

For use with BLOCKS Dashboard:

- Mac OSX 10.11 or later
- Windows 10*
- Minimum RAM: 4GB
- Recommended RAM: 8GB
- Processor: 2.5GHz Intel Core i5 or faster
- For Bluetooth connectivity: OSX 10.10+

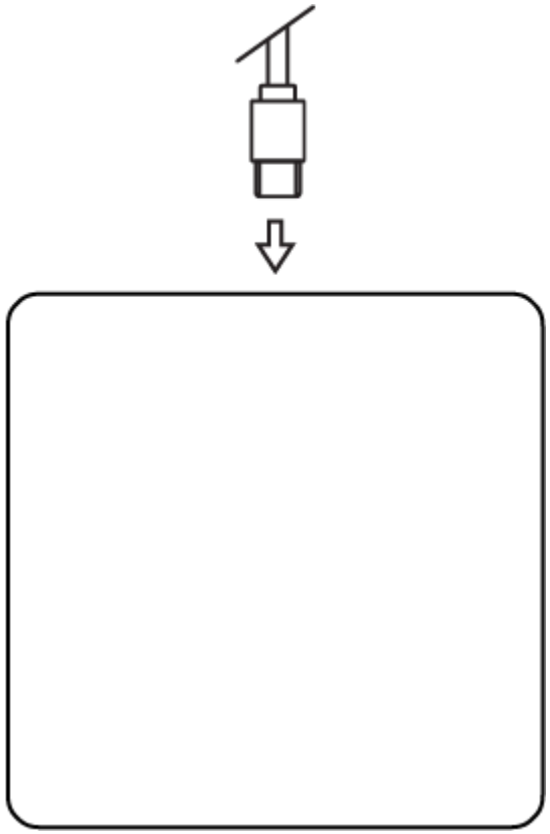
** BLOCKS Dashboard works with devices running Windows 10 and above. However, BLOCKS Dashboard beta does not currently support firmware updates via Windows due to technical limitations outside of our control.*

Creators who plan to use BLOCKS Dashboard beta with Windows 10 will need to update their Blocks either via NOISE on an iOS device or BLOCKS Dashboard on a MacOS device prior to using it with their PC.

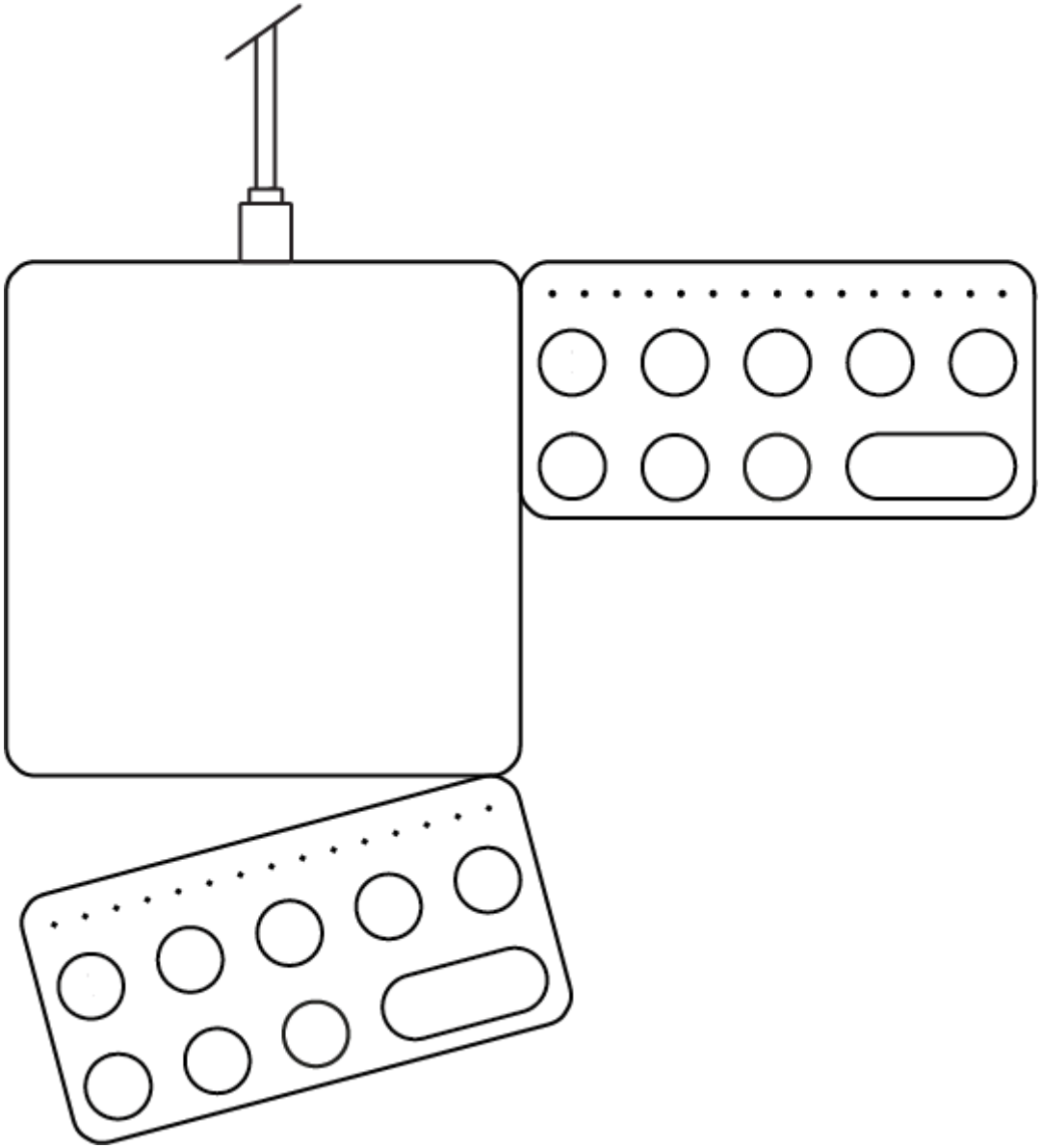
3.3 Charging Your Control Block

First, make sure that your Control Block is adequately charged. To charge your Control Block, connect it via DNA to a Master Block – either a Lightpad Block or Seaboard Block – that is connected to a USB 3 power source:

- Connect a Lightpad or Seaboard Block to a USB 3 power source (like an iPad charger or Macbook USB 3 port) with the included USB-C cable.



- Connect the Control Block to the Lightpad or Seaboard Block via DNA connectors to begin charging it.



- For fastest charging times, turn the Blocks off during charging.

In detail: The Lightpad Block requires 5 watts to charge while operating. Adding a Control Block will add 2.5 watts (7.5 watts total). A BLOCKS system including a Lightpad Block + Live Block + Loop Block, for example, requires 10 watts total. We recommend using an iPad charger or a USB 3 charger with an output of 10 watts or higher. Please refer to the table in the Appendix for charging times.

3.4 Connecting Your Blocks

After you've charged your Control Block you'll be ready to connect it to NOISE. There are two ways to connect a Control Block to NOISE:

1. Physically attach it to one of the available DNA connectors on a Master Block like the Lightpad or Seaboard Block, and connect the Master Block via Bluetooth to NOISE; or
2. Connect the Control Block to NOISE via Bluetooth and do *not* connect it physically via DNA to other Blocks.

Option 1: DNA Connection

- Switch your Blocks on. If you are registering additional Blocks you may turn them all on to register them simultaneously.
- Open NOISE, press the Settings cog in the top right corner of the NOISE app and select 'Connect BLOCKS'.
- Choose your 'Seaboard Block' or 'Lightpad Block' from the Bluetooth MIDI Devices screen to complete MIDI-over-Bluetooth pairing.
- Physically attach the Control Block to an available DNA connector on the Lightpad or Seaboard Block. *(Note: Control Blocks should be connected to NOISE either by DNA or by Bluetooth but not by both.)*

- *The Control Block will automatically turn on. If it does not, simultaneously press the two leftmost buttons.*

Option 2: Bluetooth Connection

- Turn your Control Block on by pressing the two leftmost buttons simultaneously.
- Open NOISE, press the Settings cog in the top right corner of NOISE's main screen, and select 'Connect BLOCKS'.
- Choose your Block from the Bluetooth MIDI Devices screen to complete MIDI-over-Bluetooth pairing.
- If you also purchased other Control Blocks you can connect them now following the same steps above.

3.5 Registering Your Block

Once your Block is connected, you'll want to register it. This will ensure you have access to any bundled soundpacks or software.

First, if you haven't already signed in to NOISE, go to the Settings menu and tap "Log In." If you haven't already created an account, tap "I don't have an account" and create a new account. Otherwise enter your email address and password to log in.

- Next, with your your Blocks are connected, go to NOISE's Settings menu and select "Register Block."

- Your Blocks will now be registered to your account.
- If you are prompted to update the firmware, you should do so now (see below).
- You are now connected and ready to make music.

If you are using Blocks with third-party applications rather than with NOISE, you may also register your Blocks on My ROLI. Once you've created a MyROLI account, click "Register a Product." Enter the serial number found on the bottom of your Block for both the "Product Registration Code" and "Serial Number" fields, and then click "Register."

3.6 Updating Firmware

You may be prompted to update the firmware during this setup. It's highly recommend that you update to the latest firmware as periodic updates improve functionality and introduce new features.

To update the firmware, launch NOISE and connect your Block. In NOISE's Settings menu, tap "Update Firmware." NOISE will look for BLOCKS updates. If there are new firmware updates, you may select "Update."

> *Note: only one Block at a time should be connected via Bluetooth to NOISE while updating the firmware, and Blocks should be disconnected from each other via DNA.*

The update will take a few minutes to process. When the update is finished, your Block will restart. After your Block restarts, reconnect it to NOISE by clicking "OK," and then in the Settings menu tapping on "Connect Blocks" and selecting the name of your Block.

Blocks need a certain amount of battery remaining in order to update the firmware. If you are not able to update your Block's firmware, make sure it is charged and try again.

To re-connect your Control Block to NOISE after updating the firmware simply use either option 1 or 2 above.

4 Control Block Features

4.1 The Front Panel

The Indicator Strip

The Indicator Strip comprises 15 LEDs along the top of each Control Block. The Indicator Strip provides visual feedback on parameters when used with NOISE. It also serves as a battery indicator for Control Blocks when they are disconnected from Bluetooth.

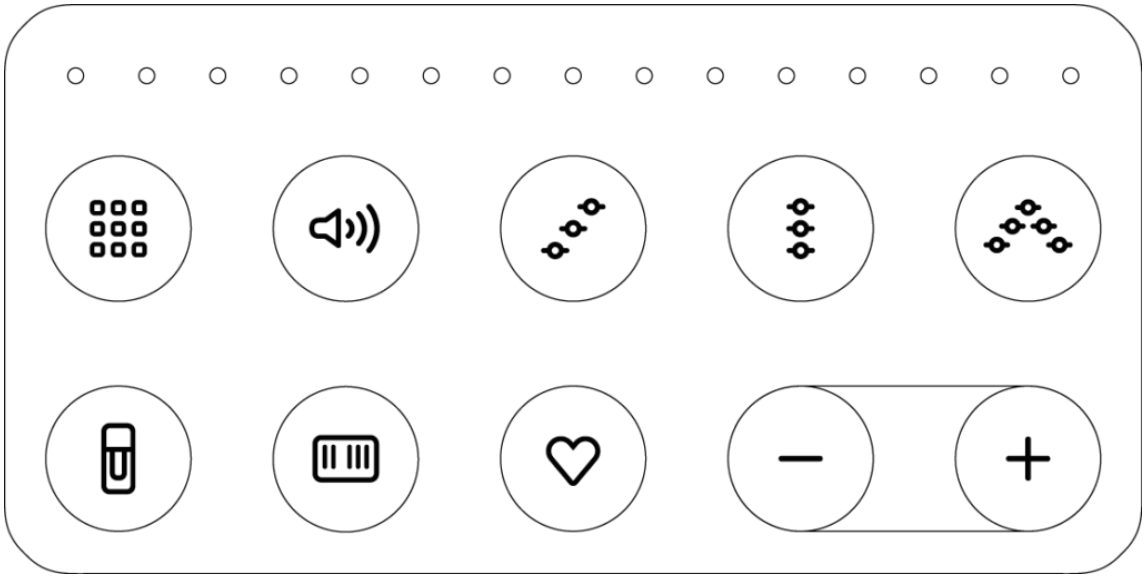
Power On / Power Off

To turn Control Blocks on or off, simultaneously press and hold the two buttons closest to the left edge.

Buttons

In addition to the Indicator Strip, each Control Block's front panel features 8 function buttons and a minus/plus button. The following sections describe what each button of each Control Block does when connected to NOISE. *(For information on using Control Blocks with BLOCKS Dashboard, please see the BLOCKS Dashboard Creator Manual.)*

4.2 Live Block Buttons



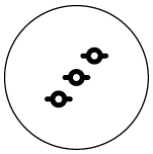
Mode

This button cycles through the four instrument slots. It can also be pressed with the Sustain button to power the Live Block on or off.

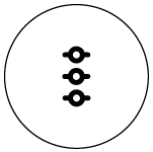
Volume

This button in conjunction with the + / – button controls volume.

Scale



This button turns Scale "ON" or "OFF". Use the – / + buttons to select a scale. Available scales include: Major, Minor, Harmonic Minor, Pentatonic Neutral, Pentatonic Major, Pentatonic Minor, Pentatonic Blues, Dorian, Phrygian, Lydian, Mixolydian, Locrian, Whole Tone, Arabic (A), Arabic (B), Japanese, Ryukyu, 8-Tone Spanish, and Chromatic. The LED Indicator displays the Scale as a combination of whole steps and half steps.



Chord

This button has 3 functions:

1.) Press once to turn Chord "ON" for the selected Solo Instrument. Then use – / + to select a chord.

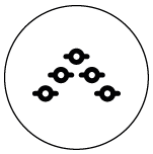
2.) Press a second time to lock the currently selected Chord. The – / + button will now return to their previous function of changing presets.

3.) Press a third time to turn Chord "OFF".

The available Chords include: Octave, 5th, Major, Minor, Sus4, Sus2, 7th, Major 7th, Minor 7th, 9th, Minor 9th, Diminished, Augmented, and Min7b5.

Note: *If Arp is switched "ON", Chord will directly determine the notes being played by the arpeggiator. This makes it possible to generate some very complex melodies with just one finger.*

Arp



This button has 3 functions. Pressing it 3 times successively will do the following:

1.) To turn the Arp "ON" for the selected Solo Instrument. Then use + / – to select a pattern.

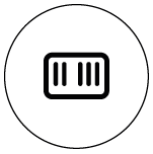
2.) To lock the currently selected Arp pattern. The + / – button will now return to their previous function of changing presets.

3.) To turn the Arp "OFF".

The available Arp patterns include: Up, Down, Up Down, Down Up, Up Up Down, Down Down Up, and Random arpeggiator patterns. The Indicator strip displays up to seven values to represent the 7 Arp pattern choices.

Sustain

This button sustains all notes for as long as you are holding it. Sustain is indicated by the Indicator Strip being fully illuminated.



Octave

This button in changes the octave of the currently selected Instrument. Press the Octave Button one and use the + / – button changes the octave up and down respectively across a 6-octave range. Press it again to exit Octave.

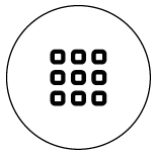
Love

This adds the currently selected preset to your list of favourites.

+ / –

The Plus / Minus buttons operate in conjunction with the rest of the buttons to add or subtract values from the selected parameter.

4.3 Loop Block Buttons

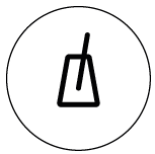


Mode

This button cycles through the four instrument slots. It also turns the Loop Block on or off when pressed simultaneously with the Play/Pause button below it.

Volume

This button in conjunction with the + / – button controls volume.

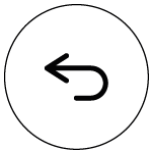


Click

This button controls the tempo of the project and to turn the Click "ON" or "OFF". When it is set to "ON" it the + / – buttons with increase or decrease the tempo respectively.

Snap

This button straightens the timing or “quantizes” your performances so they are perfectly in time.

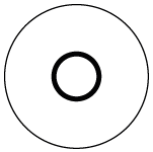


Undo

This button reverts one step back to the previous value.

Play/Pause

This button starts or stops playback of all selected loops in Song View.



Record

This button initiates the recording of a loop.

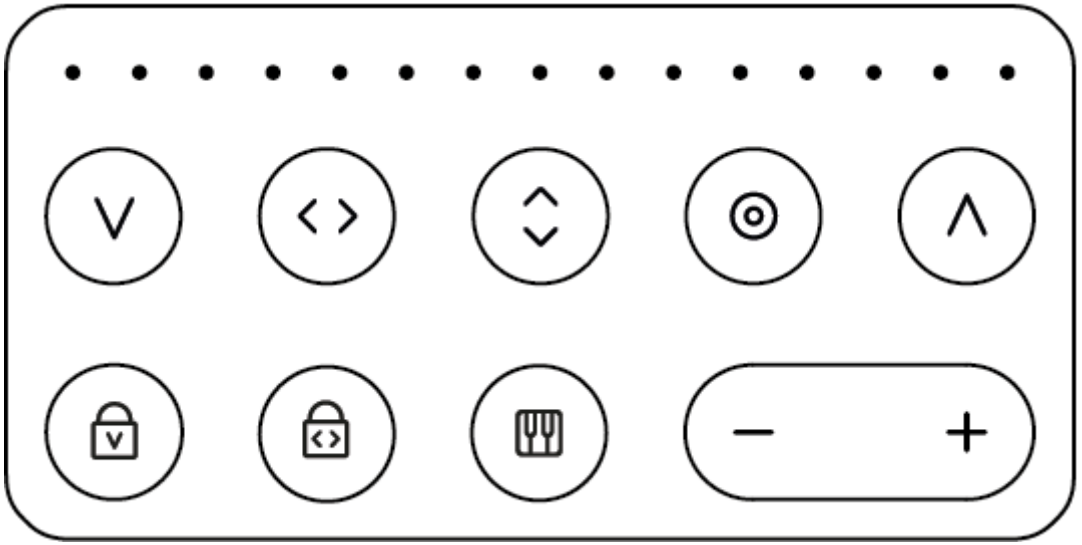
Learn

This button enables the “Learn” feature which shows you how to play the Lightpad Block.

+ / –

The Plus / Minus buttons operate in conjunction with the rest of the buttons to add or subtract values from the selected parameter.

4.4 Touch Block Buttons



Strike

Adjusts the sensitivity of Seaboard and Lightpad Blocks to your Strike gestures. When Strike is set to zero, the Blocks automatically play each note at maximum volume no matter how hard the surface is struck. Tap the Strike button and press the -/+ buttons to adjust the Strike sensitivity.

Glide

Adjusts the sensitivity of Seaboard and Lightpad Blocks to lateral finger movements (“Glide”). At maximum glide, the surfaces are completely continuous, like a violin’s fretboard, whereas at minimum glide the surfaces behave more like a piano keyboard, with discrete keys that are unresponsive to sideways movements.

Slide

Adjusts the sensitivity of Seaboard and Lightpad Blocks to up-down finger movements, allowing you to dictate whether you use the whole key for modulating a sound parameter, or just a slight finger movement.

Press

Adjusts the sensitivity of Seaboard and Lightpad Blocks to the pressure with which a note is held (“Press”), expanding or narrowing the spectrum of expression available through continuous pressure on the surface.

Lift

Adjusts the sensitivity of Seaboard and Lightpad Blocks to your fingers’ liftoff from the surface (“Lift”), which can affect the decay and other aspects of the sound.

Strike Lock

Fixes the strike (velocity) dimension to a specific value, which is adjustable using the -/+ buttons – perfect if you need to ensure you play every note at the same volume.

Glide Lock

Also known as “Portamento Mode”, this automatically glides the pitch between one note and the next note played, at a rate adjusted by the +/- buttons.

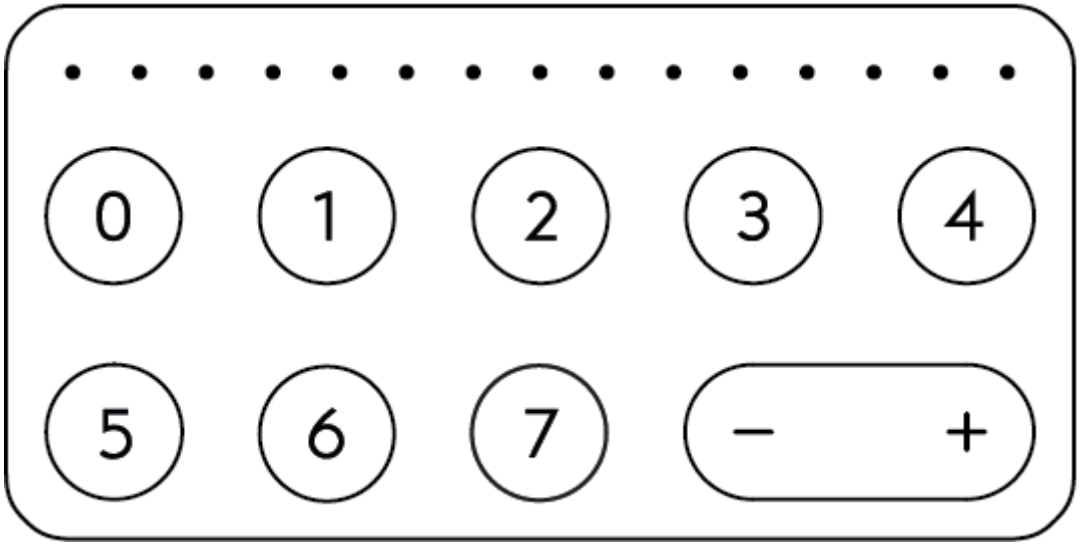
Piano Mode

Removes all touch response except for Strike (velocity) so your Block responds in just the same way a traditional piano does.

+ / –

The Plus / Minus buttons operate in conjunction with the rest of the buttons to add or subtract values from the selected parameter.

4.5 Developer Kit Control Block Buttons



0 — 7

The Developer Kit Control Block has 8 buttons labeled 0–7. When used with NOISE the Developer Kit Control Block behaves as a Loop Block.

+ / –

The Plus / Minus buttons operate in conjunction with the rest of the buttons to add or subtract values from the selected parameter.

5 Control Block Appendix

DNA Connectors

Control Blocks each feature 4 DNA connectors. These six-pin connectors magnetically connect multiple Blocks and also transmit power and data between the Blocks.

Information About the Battery

Control Blocks feature a 740mAh Li-po (Lithium polymer) battery with a nominal discharge voltage of 3.7 volts. The battery is capable of powering the Control Block for over three hours when used constantly and over one month when turned off. Refer to "Charging Your Block" for details on charging.

The battery will retain over 80% of its capacity for over 300 charge cycles. A charge cycle is defined as a complete discharge from 100% to 0%, and subsequent recharge back to 100%. For example, charging a device going from 50% charge up to 100% and back twice would be equivalent to one charge cycle.

The table below indicates charge times for common configurations with the Blocks turned off.

BLOCKS	*Watts*	*Time to charge*
Lightpad Block	*5W—12W*	*4 hours—3 hours*
Lightpad Block + Control Block	*10W—12W*	*4 hours—3 hours*
Lightpad Block + two Control Blocks	*10W—12W*	*4 hours—4 hours*

Cleaning Control Blocks

Basic care and attention will protect your Control Blocks and help them stay in optimal condition. Keep them away from direct sunlight, sharp objects or edges, corrosive solvents, and liquids.

To clean the Control Block's front panel you may use a damp, bleach-free and oil-free cleansing wipes. Do not use any abrasive cleansing agents on the Block.

Technical specifications

Battery Life	*3 hours in use; 1 month when off*
Bluetooth Range	*15 meters*
LEDs	*15 LED Indicator Strip, 10 backlit buttons*
Mass	*100g*
Dimensions	*94mm x 47mm x 20mm*
Connectivity	*Full MIDI compatibility over USB (when connected to Master Block) and Bluetooth LE*
DNA Connectors	*6*
Buttons	*10 backlit buttons*
Included in package	*Quickstart Guide and Warranty Information*