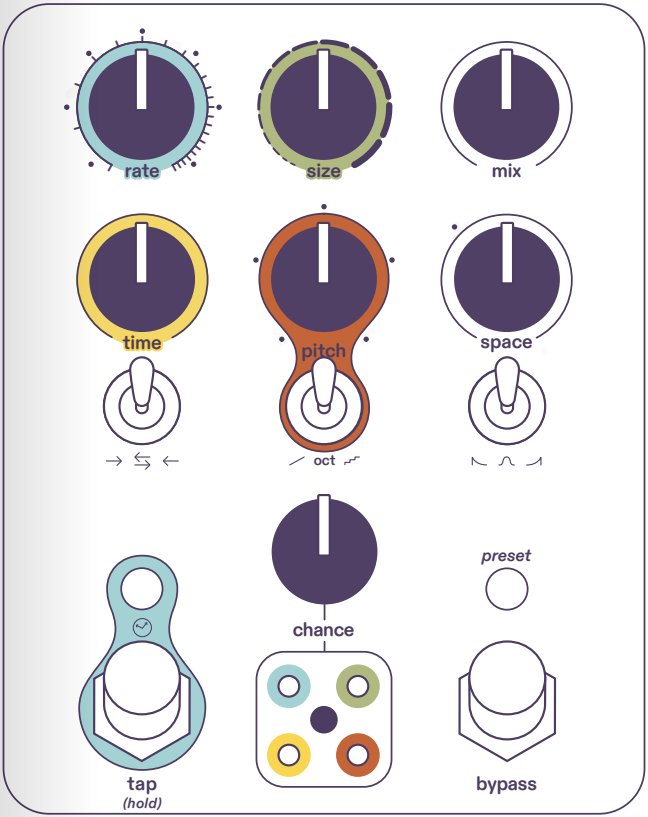
butterfly effects

dokko

user manual – v 1.2



Hi!

Welcome to Dobbo: our first habitat, made for playful discovery. Dive into lush clouds or listen to rhythmic crystals forming.

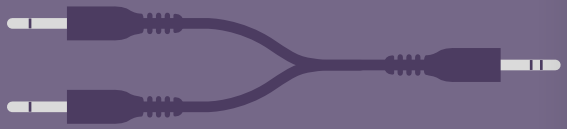
Dobbo is a granular effect. It takes small bits of sound and rearranges them. Dobbo can stretch, pitch and blur the bits, or transform them into rhythmic textures.

What makes Dobbo special is that you can decide to let it take control. Based on chance, it finds infinitely new and exciting ways to interact with your sound. It's a creative partner with endless surprises up its sleeve.

In this manual, we explore Dobbo's many possibilities and help you get the best experience with yours.

First of all
To wake up Dobbo, use a standard 9V center negative guitar pedal power supply.

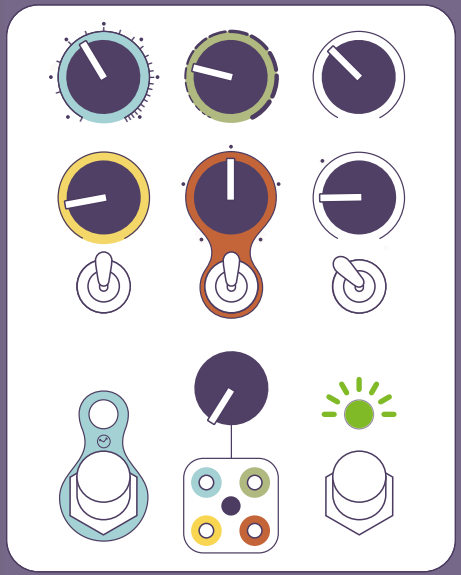
Plug into the input jack with a TS cable when using a mono instrument. To use Dobbo with a stereo source, you might have to use a splitter cable like the one shown below.



To hear Dobbo in mono, use the left output jack. Use both the left and right outputs for a lush stereo image.

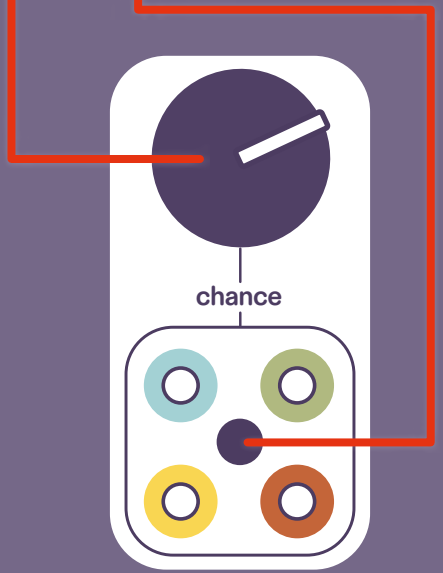
Small talk
Time to get to know Dobbo a little better. Here's a suggestion. Set the knobs and toggle switches to the position shown below. Feed Dobbo any kind of sound and twist one knob at a time.

Find any exciting positions?



Now try giving Dobbo some control by turning the chance knob.

Push the black button in the middle of the dice to change which of the four color coded parameters is being randomized. The brighter the LED glows, the more the parameter is being randomized.



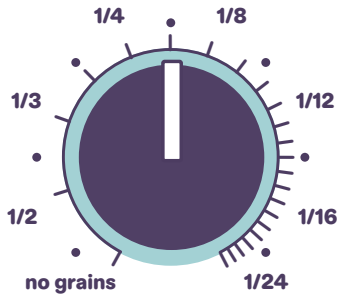
happy turning!

contents

main controls
in depth

❶ Rate
This knob controls the speed at which the grains are triggered. In the main clock mode, this knob ranges from no grains to twenty grains per second. In tap tempo mode or in midi clock mode, this knob sets the subdivision of the tempo. The knob now ranges from 1/2th note to 1/24th note in the tempo set by either tap tempo or midi clock.

see p.20 – clock mode



❷ Time
This knob sets the delay time of the grains. When set all the way to the left, the grains are read and played back in real time. When turned fully clockwise the grains are delayed by five seconds.

❸ Size
This knob sets the size of the grains. The size ranges from ten milliseconds to one second.

❹ Pitch
This knob controls the pitch of the grains. It has a four octave range: from -2 octaves to +2 octaves. The way the knob pitches the grains is controlled by the pitch mode toggle switch Ⓑ.

see p.23 – pitch mode

❺ Mix
This knob controls the blend between the input signal and what Dobbo does to your sound.

⑥ Space

This knob affects the spatial character of the grains.

Until that little dot, the grains are panned randomly when using the stereo output.

After this point a reverb kicks in while the stereo panning or volume changes keep increasing.

The volume of the grains changes randomly when you are using the left output only.

⑦ Chance knob

This knob controls the level of randomisation applied to the four main parameters.

see p.16 – chance section

Ⓐ Direction

This switch controls the direction in which the grains are played back. When set to the left position, all grains are playing forward →. When set to the right, all grains play back in reverse ←. In the middle position, the play-back direction is randomised ⇆.

Ⓑ Pitch mode

This switch controls the way the pitch knob ④ pitches the grains. When set to the left position, you have smooth control over the pitch of the grains ⟋. In the middle position, grains are only transposed in octaves oct. When set to the right, the grains are quanti-zed to semitones ⌐.

see p.23 – pitch mode

Ⓒ Envelope

This switch controls the shape of the grains. When set to the left position, the envelope has a fast attack and long decay ◺. In the center position the envelope has a smooth curve ∩. When set to the right, the envelope has a long attack and short decay ◿.

Ⓓ Clock

When pulsing green this LED indicates you are in live mode. The speed of the pulsing shows the tempo of Dobbo's clock. When red, it shows freeze mode is active.

see p.29 – hold mode

Click the button to exit tap tempo mode and go back to main clock mode.

see p.20 – clock mode

Ⓔ Preset

When this LED is either green or red, it shows you Dobbo is active. When green, all the parameters are set to the values of the controls on the pedal. When some or all values are controlled by a preset, an expression pedal or a midi control change, the LED will turn red. Press and hold the button until the led color changes to toggle between the preset parameters and the values of the knobs. To enter the preset menu, short press the button. Both LED buttons Ⓓ and Ⓔ will blink red.

see p.32 – preset menu

Ⓕ Dice

Click the black button to select which parameter to randomize. In the preset menu, this button selects the preset slot. The LEDs indicate which randomisation parameter (green pulsing) / preset (red) is selected.

see p.16 – chance section

see p.32 – preset menu

Ⓖ Tap (hold)

Tap a tempo on this switch to make Dobbo follow you. Hold down the footswitch until the LED above it lights up red if you want Dobbo to remember the last 5 seconds of what you played. It now processes that chunck of sound only, instead of your real-time input sound. This is called hold mode.

see p.29 – hold mode

Ⓗ Bypass

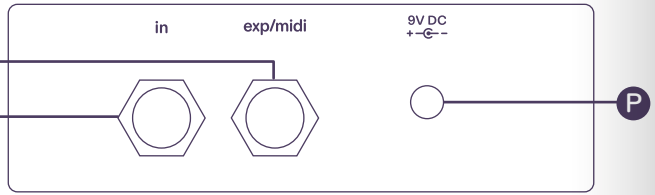
Use this foot switch to engage and bypass Dobbo.

jacks

I Input jack
High impedance audio input jack. Use a TRS jack cable for stereo input.

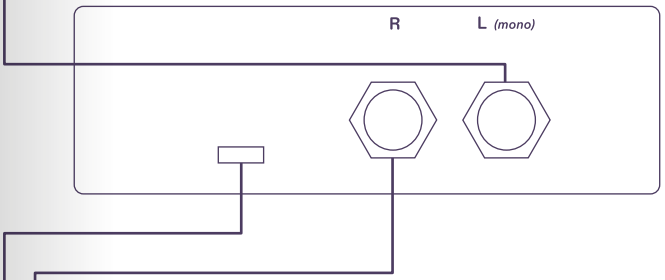
M midi/exp jack
This jack's functionality can be set in the global menu see p.40 – global menu . The expression mode allows you to control Dobbo's knobs, toggle switches and chance amounts with an external expression pedal. The midi mode allows you to control all of Dobbo's parameters and presets using midi messages. It also lets you sync Dobbo's clock to any external midi device.

see p.35 – external control



P Power jack
Center-negative 9VDC power supply. Make sure to use a power supply that has a minimum of 300mA current rating.

L Left output
Use this output when you're sending Dobbo's output to an amp or mono speaker.

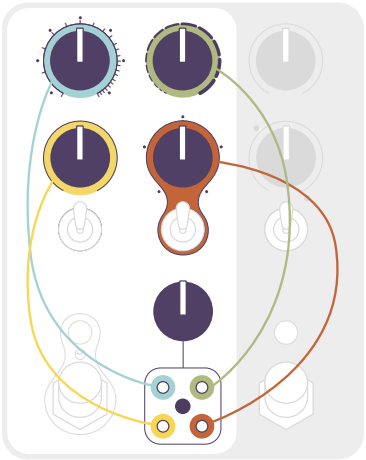


R Right output
Use this output together with the left one in a stereo setup.

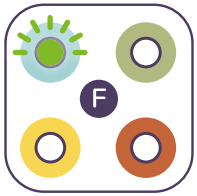
U USB-C port
This port will be used for future software updates.

chance section

The chance knob ❼ and the dice Ⓕ make up the chance section. It's a tool that allows you to individually randomize the rate, size, time and pitch parameters. Almost as if Dobbo is wiggling the knobs for you. The colors around the LEDs in the dice correspond to the colors around the knobs ❶, ❷, ❸ & ❹.

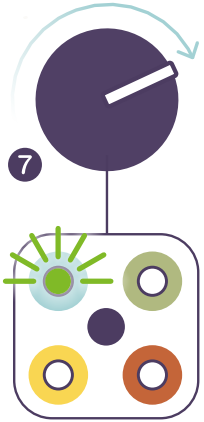


Press button Ⓕ to select the parameter you want to randomize. The selected parameter's LED will pulse green.



Here we selected the blue parameter: Dobbo will apply randomization to the rate of the grains.

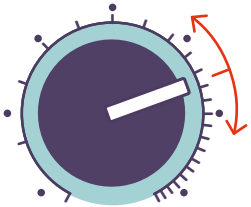
Turn the chance knob ❼ to set the amount of randomisation on this parameter. The more randomisation is applied to a parameter, the brighter its corresponding LED becomes.



The positions of the knobs ❶, ❷, ❸ & ❹ serve as the central point for this randomisation.

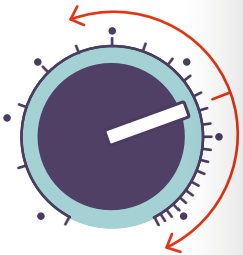
That means that if you set the chance knob ❼ like this...

...and the rate knob is in this position...



...Dobbo will wiggle the value randomly around where you set the knob.

The further you turn the chance knob up, the wider Dobbo wiggles the knob around its center.



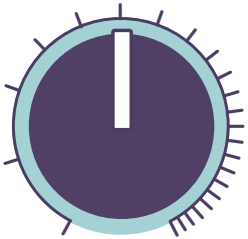
You can set the amount of randomization for each of the four colored knobs individually. That means you could decide to keep the rate at which the grains play back nice and steady, while letting Dobbo go all out with the pitch knob.

To turn off randomisation on all parameters at once, hold button Ⓕ until all LED's turn off.

clock mode

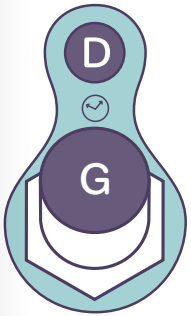
Dobbo has three clock modes controlling how often grains are triggered:

Main clock mode (unquantized)
Dobbo will automatically start up in the main clock mode. In the main clock mode, the rate knob is a smooth control over the tempo of the clock: from no grains to twenty grains per second. The clock LED (D) shows the speed of the clock.



Tap tempo mode (quantized)
This mode allows you to give Dobbo a tempo to follow. Tap the tap (hold) footswitch (G) at least twice within two seconds to enter this mode. Dobbo follows tempos ranging from 30 BPM to 450 BPM. If you tap a faster tempo, Dobbo will snap to 450 BPM.

The rate knob controls the subdivision of the tapped clock, ranging from a half note to sixteenth-note triplets. The clock LED (D) shows the quarter note pulses of the tapped clock. To exit this mode and return to the main clock mode, press the clock button (D).



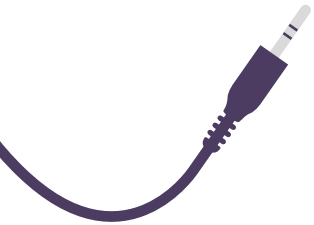
tap
(hold)

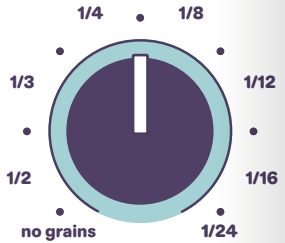
Midi clock mode (quantized)

When the external control is set to midi mode and Dobbo receives a midi clock signal, the midi clock mode activates automatically. For proper functionality of this mode, make sure the midi jack is connected before activating a midi clock.

see p.35 – external control

Just like in tap tempo mode, the rate knob controls the subdivision of the midi clock, ranging from half notes to sixteenth-note triplets. The clock LED (D) shows the quarter note pulses of the midi clock. If no midi clock is detected for over two seconds, Dobbo will return to the main clock mode.





pitch mode

Dobbo has three different modes to affect the pitch of the grains. The modes are selected by the pitch mode toggle switch (B).

Smooth pitch mode

In this mode, the pitch of the grains is not quantized to any scale or tuning. The knob has smooth control over the pitch. The octave points have slightly larger zones to make them easier to find. The range of the randomisation applied by the chance section is one semitone

above and below the pitch set by the pitch knob 4. This results in a chorusing effect.

see p.16 – chance section

oct Octave pitch mode

Here, the pitch of the grains is quantized to octaves. Applying randomisation introduces random octave jumps.

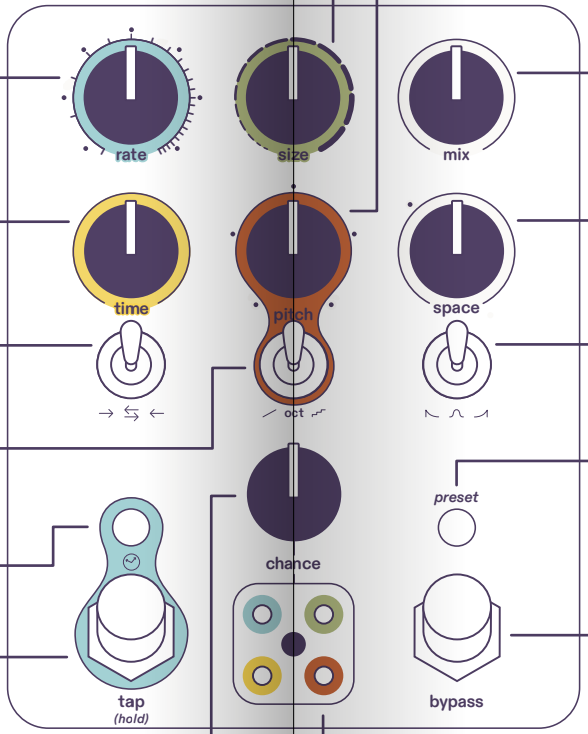
Semitone pitch mode

In this mode, the pitch of the grains moves in quantized steps. By default, these steps are semitones. You can also change the steps to move in fifths in the global menu.

see p.40 – global menu

main controls

from up close



Rate 1

Controls the speed at which the grains are triggered.

Time 2

Sets the delay time of the grains.

Direction A

Sets the direction of the grains.

Pitch mode B

Selects between three different pitch modes.

Clock D

Shows Dobbo's internal clock.

Tap (hold) G

Used to tap a tempo and enter hold mode.

Chance knob 7

Controls the level of random-isation applied to the four main parameters.

3 Size

Sets the size of the grains.

4 Pitch

Sets the pitch of the grains.

5 Mix

Controls the blend between the input signal and what Dobbo does to your sound.

6 Space

Sets the panning of the grains and mixes in a reverb.

C Envelope

Controls the amplitude envelope of each grain.

E Preset

Shows if Dobbo is either active or bypassed.
Shows if Dobbo is in preset mode.
Used to enter the preset menu.

H Bypass

Controls if Dobbo is active or bypassed.

F Dice

The way to navigate the randomisation of the four main parameters.

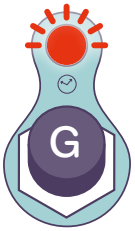
We call these two the chance section – we'll tell you more about that later.

hold mode

By default, Dobbo constantly records the incoming audio and scans the last five seconds of input signal. The hold mode allows you to temporarily store these five seconds of audio.

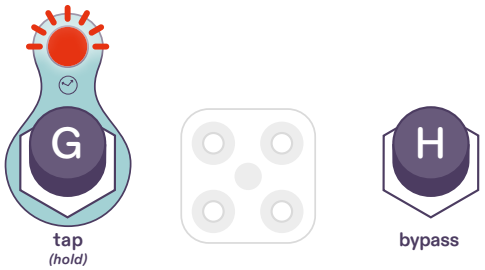
Hold mode can be entered in two ways:

The first way: Hold down the tap (hold) footswitch G to momentarily store the most recently remembered input signal. Once you release the footswitch, Dobbo forgets the stored audio and goes back to scanning the incoming audio signal.



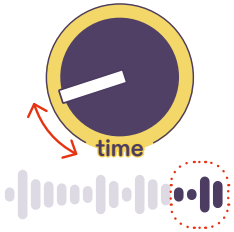
tap
(hold)

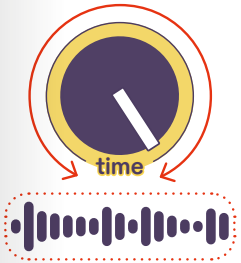
And the second way: If you want Dobbo to store the last five seconds without having to hold down the tap (hold) footswitch, hold down both footswitches G and H until the clock LED D lights up red. Hold mode will remain active until you hold and release both footswitches G and H again.



In hold mode Dobbo is constantly scanning the currently stored audio. The time knob 2 changes the region that is being scanned and used to create grains.

Set all the way to the left, only the latest part of the stored audio is being used.





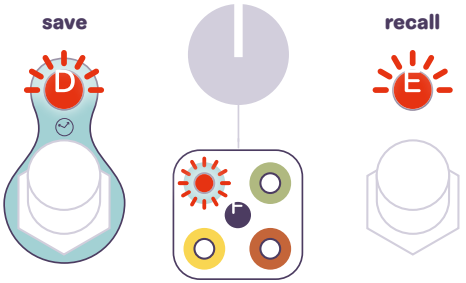
And when turned fully clockwise, the full five seconds are being scanned.

Dobbo repitches your audio just like a tape recorder would—speed it up, and the pitch goes up; slow it down, and the pitch drops. For example, when you set the pitch to +2 octaves, Dobbo scans through the audio 4 times faster than normal. That means if you want a one second grain at this setting, Dobbo actually needs 4 seconds of recorded audio to pull it off. So, when cranking the size and pitch up, you might hear the full five seconds Dobbo is scanning.

preset menu

Dobbo has 8 preset slots for you to store your favourite settings. To enter the preset menu, press the preset button E.

In the preset menu, the two LED-buttons D and E will blink red. The LEDs in the dice show the currently active preset. Preset 1 – 4 are shown in red, while preset 5 – 8 light up orange.



To navigate the presets, press button F. The LEDs will indicate the selected preset slot. To save the current settings to a preset slot, press clock button D. To recall the settings

stored in the currently selected preset, press the preset button E. To exit the preset menu without saving or recalling, hold button F until the LED-buttons D and E stop blinking red.

The following parameters are stored in the presets:

- All values of the rate, size, time, pitch, mix and space knobs (1 – 6).
- All positions of toggle switches A, B, and C.
- All chance amounts applied to the rate, size, time and pitch parameters.
- The current clock mode and tempo if in tap tempo mode.
- The expression pedal setup

see p.35 – external control

When recalling a preset, the preset LED E will light up red to indicate the position of the knobs and toggle switches don't correspond to the currently set control. To return a parameter to a knob or toggle switch's position, move the control. To return all the parameters

to the current position of the controls, hold the preset button Ⓔ until the LED returns to green.

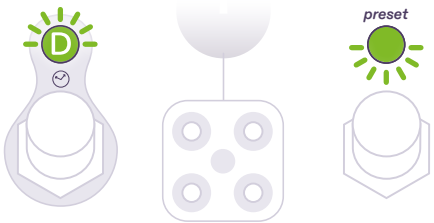
If the preset LED Ⓔ is green, you can return to the currently selected preset by long pressing the preset button Ⓔ until it lights up red.

external control

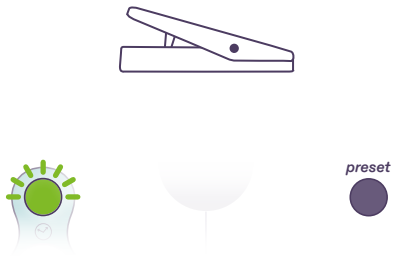
Expression pedal

You can use an expression pedal to morph between two different settings for Dobbo's knobs, toggle switches and chance amounts. Only the knobs, toggle switches and chance amounts you change during the setup will be included in the morph. These settings can be saved per preset, enabling you to essentially have three different settings per saved preset: the preset itself and the heel and tip position settings of the expression pedal.

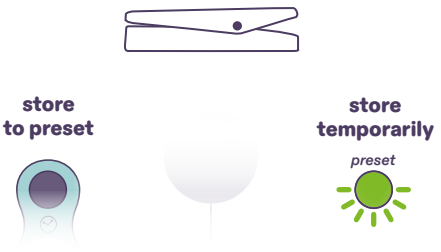
To enter the expression pedal setup menu, hold the clock button Ⓓ until the LED buttons alternate blinking green.



Set the expression pedal in the heel position.
Only the left LED D will continue to blink.
Turn the knobs, toggle switches and chance amounts to the positions you want to have with the expression pedal in the heel position.



Set the expression pedal in the tip position.
Now only the right LED E is blinking.
Set the controls to the setting you want to have in the tip position.



To confirm the expression pedal setup, and save it to the current preset slot, press the clock button D.

To confirm the setup temporarily and continue without overwriting the current preset expression setup, press the preset button E.

If you want to cancel and exit at any point during the setup process, just press and hold the clock button D until Dobbo returns to the main state.

When using an expression pedal, the preset button E will light up red to indicate that some parameters don't correspond to the values set on the knobs and toggle switches. To return all the settings to the positions on the knobs/toggle switches, press the preset button E until it lights green.

Midi: Channel

By default, Dobbo listens to midi messages on Channel 1. To change the active midi channel, while in the Global menu, send a midi Program change message between 1 and 16 and Dobbo will change it's midi channel to the corresponding number.

Midi: Clock signal

When sending a midi clock signal, Dobbo will automatically listen and adapt its internal clock to follow it. This will make all Dobbo's grains line up with the other devices in your live set.

Midi: Program changes

Midi program messages allow you to recall the four stored presets. Simply send a program message 1 – 8 to Dobbo and the corresponding preset slot will be recalled.

Midi: Control changes

All of Dobbo's parameters can be controlled by midi control change messages.

CC#	Parameter	Range
12	bypass	0 = bypassed, 1 – 127 = engaged
13	rate	0 – 127
14	size	0 – 127
15	delay	0 – 127
16	pitch	0 – 127
17	mix	0 – 127
18	space	0 – 127
19	direction	0 – 41 = forwards, 42 – 83 = random, 84 – 127 = backwards
20	pitch mode	0 – 41 = smooth, 42 – 83 = octave, 84 – 127 = semitone
21	envelope	0 – 41 = decay, 42 – 83 = smooth, 84 – 127 = swell
22	rate random amount	0 – 127
23	size random amount	0 – 127
24	delay random amount	0 – 127
25	pitch random amount	0 – 127
26	hold	0 = off, 1 – 127 = on

global menu

The global menu allows you to adjust some of Dobbo's general settings:

- **External control selection**
- **Bypass mode**
- **Mono → stereo input**
- **Reverb on input signal**
- **Stepped pitch mode**

To enter the global menu, hold both LED buttons Ⓓ and Ⓔ until they blink green three times. All settings in this menu are maintained across power cycles and are not saved per preset.

→ **default settings are indicated by ✱.**

If you want to exit the menu without making any changes, press and hold the dice button Ⓕ until Dobbo returns to the default state.

To confirm the changes made in this menu, press and hold both led buttons Ⓓ and Ⓔ until the led buttons blink green three times.

External control selection
Push the clock button Ⓓ to toggle the input source of the exp/midi jack. The button's LED will indicate the state of this setting.

✱

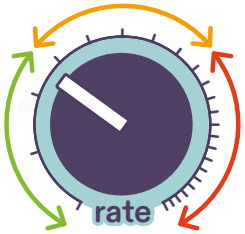
green
expression

red
midi

Bypass mode

Dobbo has an optional true bypass path that can be enabled in the global menu. Because the switch between the true bypass and the digital side of Dobbo can introduce some artifacts in the form of clicks and pops, we have decided to configure the default to be a buffered bypass, which gets rid of these artifacts. Additionally, you have a third bypass mode that is digital and allows you to let Dobbo finish all the playing grains and have the reverb tail when disengaging the effect.

To switch between the bypass modes, turn the rate knob ❶. The rate LED inside the dice will indicate the bypass mode.



green
true bypass

orange
buffered bypass

*

red
digital bypass
with tails

Mono → stereo input

In buffered bypass mode, it's possible to transform a mono input to stereo output. In this mode, the mono input signal will be doubled to the left and right outputs. This function is not available in true bypass mode.

*

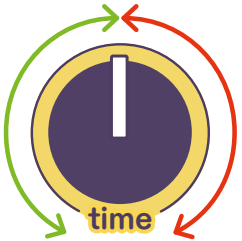
green
mono → mono
stereo → stereo

red
mono → stereo

To switch between the input modes, push the preset button E. The button's LED will indicate the selected mode.

Reverb on input signal

By default, only the grains that Dobbo creates are passing through the reverb that is mixed in using the space knob 6. You also have the option to add the reverb to your dry input signal. The amount of reverb on the dry signal is controlled by the space knob. Beware, the reverb will also be active when the mix knob is turned all the way down. Both the input signal and the grains will share the same reverb length and mix.



To add the reverb to the input signal, turn the time knob 2 to the right half of the range. For a dry input signal, turn the knob to the left half. The time LED in the dice will indicate the setting.


*

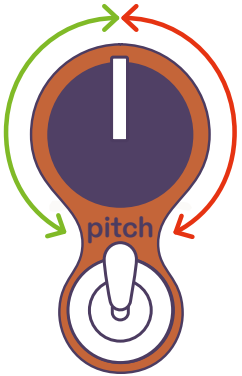
green
no reverb
on dry sound

red
reverb on
dry sound

Stepped pitch mode

When the pitch mode toggle switch B is set to the right, the grains are pitched in steps. By default these pitches are quantized to semitones. However, you can also choose to quantize the grains to fifths. In the global menu you can decide how Dobbo will repitch your input in this mode.

To quantize the grains to semitones, set the pitch knob ❹ to the left half of the range. If you want to quantize grains to fifths, turn the knob to the right side of the middle position. The pitch LED inside the dice will indicate the active mode.



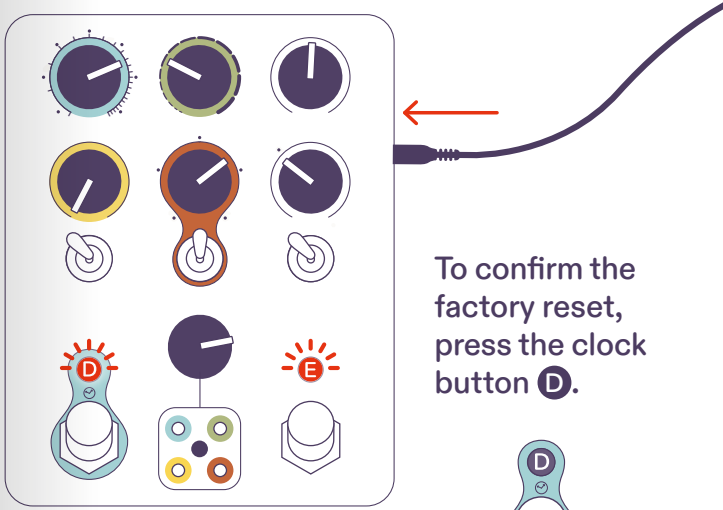
*

green
semitones

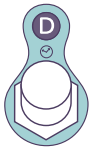
red
fifths

Factory reset

You can reset all the global menu settings and the presets of Dobbo to the factory default settings. Beware, this will overwrite all your saved presets with the factory ones. While plugging in the power cable, press and hold both LED buttons Ⓓ and Ⓔ until they start blinking red.

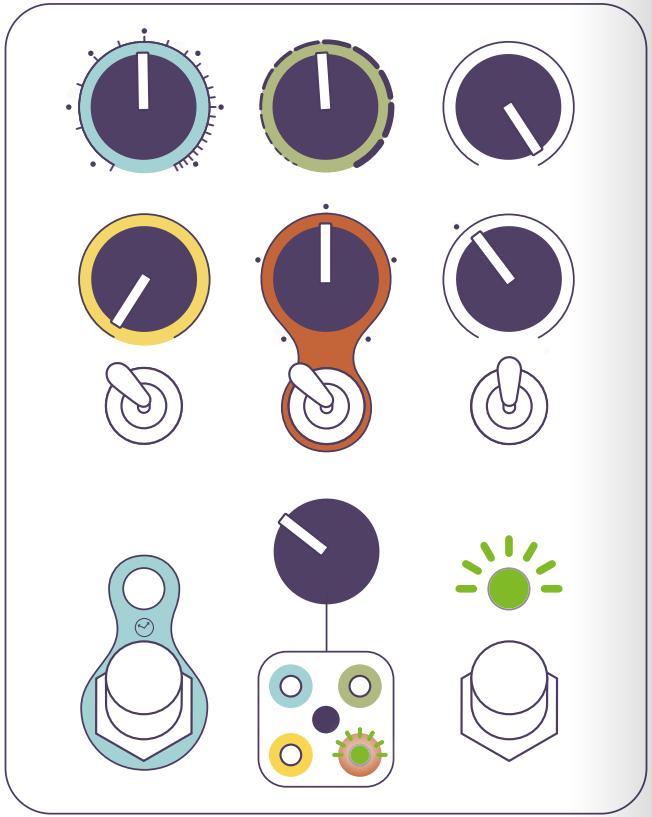


To confirm the factory reset, press the clock button Ⓓ.

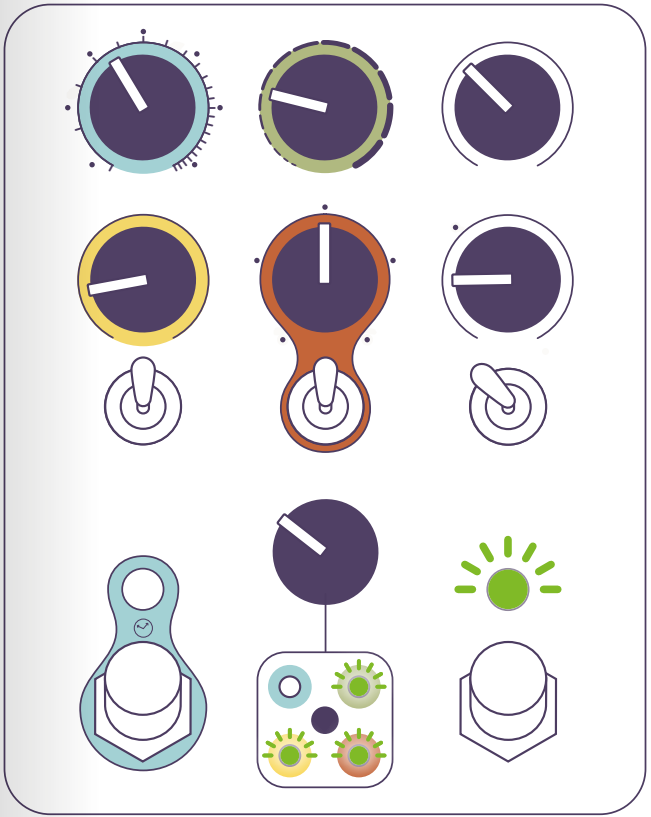


four presets

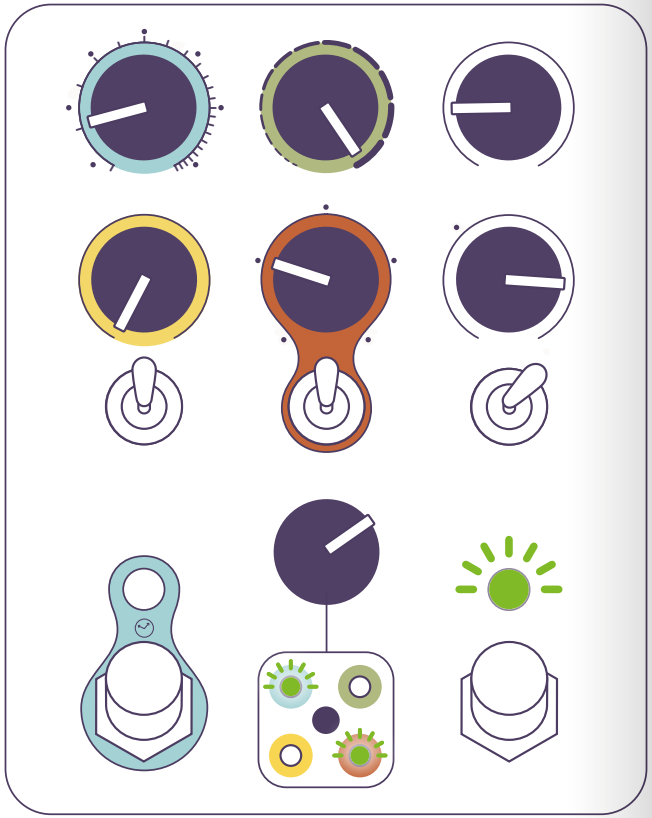
preset 1: rich chorus



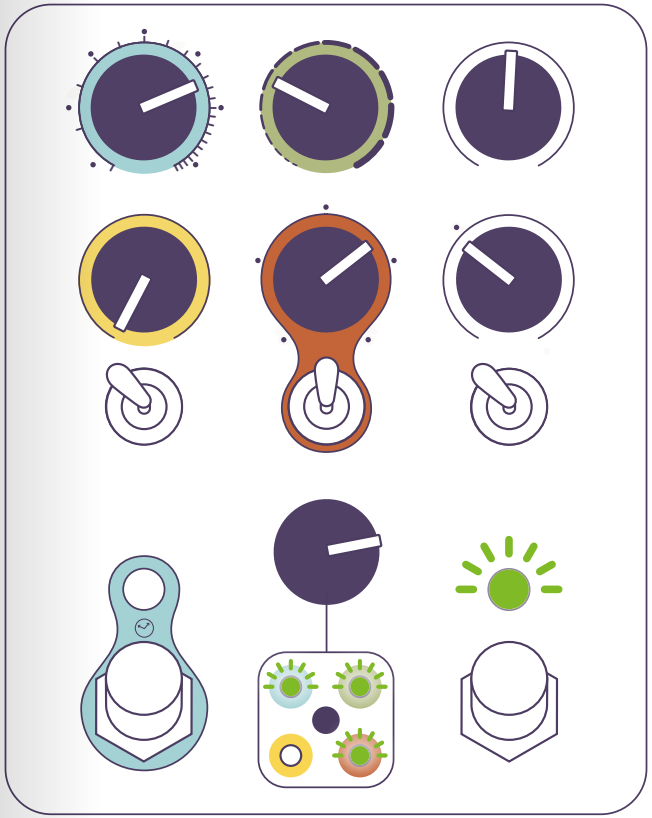
preset 2: scattered plucks



preset 3: whale song



preset 4: morning rain



Thank you for purchasing Dobbo! We truly appreciate your support.

If you have any questions, encounter any issues, or have suggestions for improving this pedal, please don't hesitate to reach out through butterflyeffects.world@gmail.com — we'd love to hear from you!

Enjoy your time with Dobbo!

Safety and Compliance

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

butterfly effects

Dobbo is developed, designed and assembled in Belgium. Built by Victor Khaddaj. Pedal, manual and identity design by Arne Nuyts.

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