WHETHER

UNCERTAINTY
PROCESSOR

INSTRUCTION
MANUAL

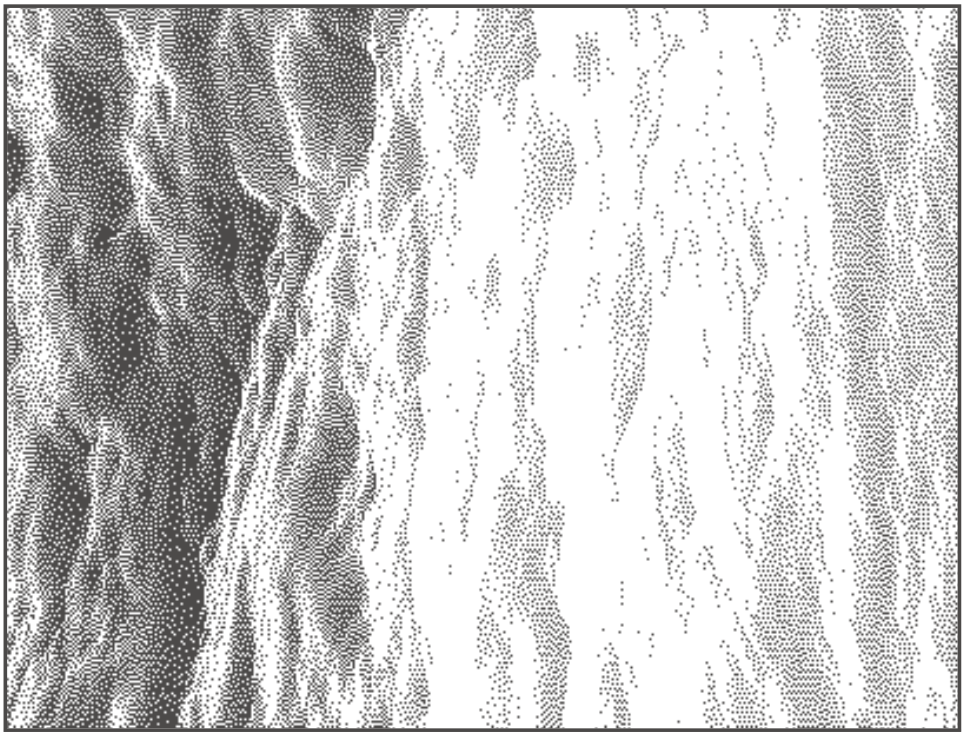
NORMAL
DEVICES

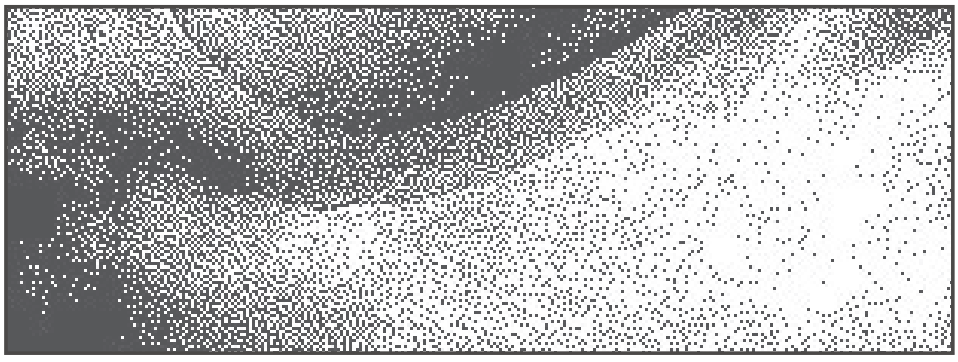


Whether is a stereo granular processor built around interacting uncertainties. It takes your signal apart and (sometimes) rebuilds it into new forms.

Explore subtly drifting textures, crumbling walls of sound, or a thorough deconstruction of the present moment. Whether can respond when you play, or be played as a polyphonic instrument in itself. All with direct, real-time control over every detail.





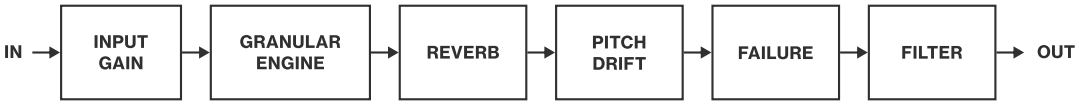


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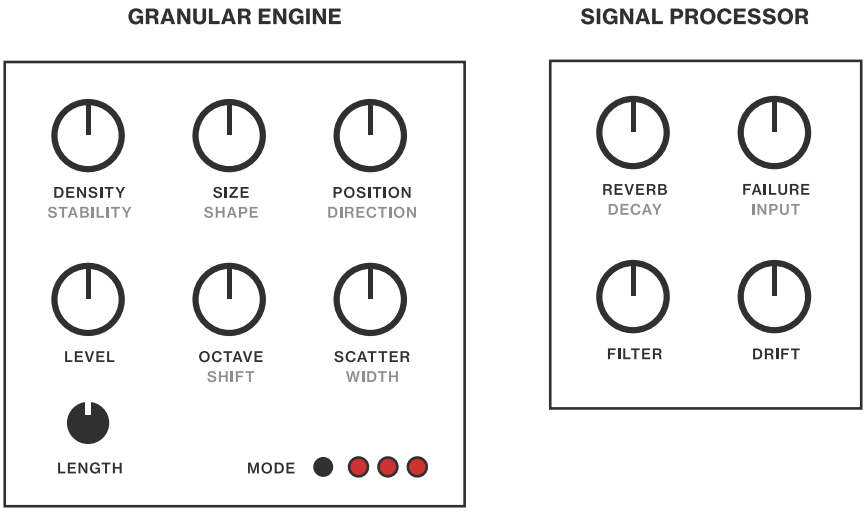
FIRMWARE UPDATES

How it works



Whether consists of a stereo signal processing chain built around a granular synth engine. It constantly records your input to a looped sample and plays short grains of sound from it. As the sample content changes, so do the grains.

The size, speed, shape, position etc. of the grains are all controllable, as well as the length of the sample itself. You can let the sample keep updating, or freeze and activate the grains in different ways.



You can set a blend of the grains and your dry input, and this goes into a processing chain of reverb, filter, pitch drift, and failure gate. Every parameter maps to expression/ CV and MIDI CC, allowing you to map multiple parameters to a single external controller for expressive macro changes in realtime.

Stereo Settings

The best place to start is to set up your desired signal routing. To change stereo/mono settings, hold the Left Footswitch and press the Mode button to cycle through the settings. The current setting is represented by which of the 3 LEDs are flashing:



Mono in, stereo out



Stereo in and out



Mono in and out

Inputs and Outputs

Input. TRS 6.35mm Mono or Stereo input.

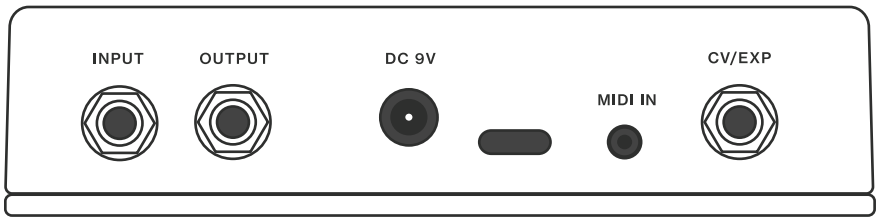
Output. TRS 6.35mm Mono or Stereo output.

MIDI In. TRS 3.5mm. Requires an A-type MIDI DIN to 3.5mm adapter.

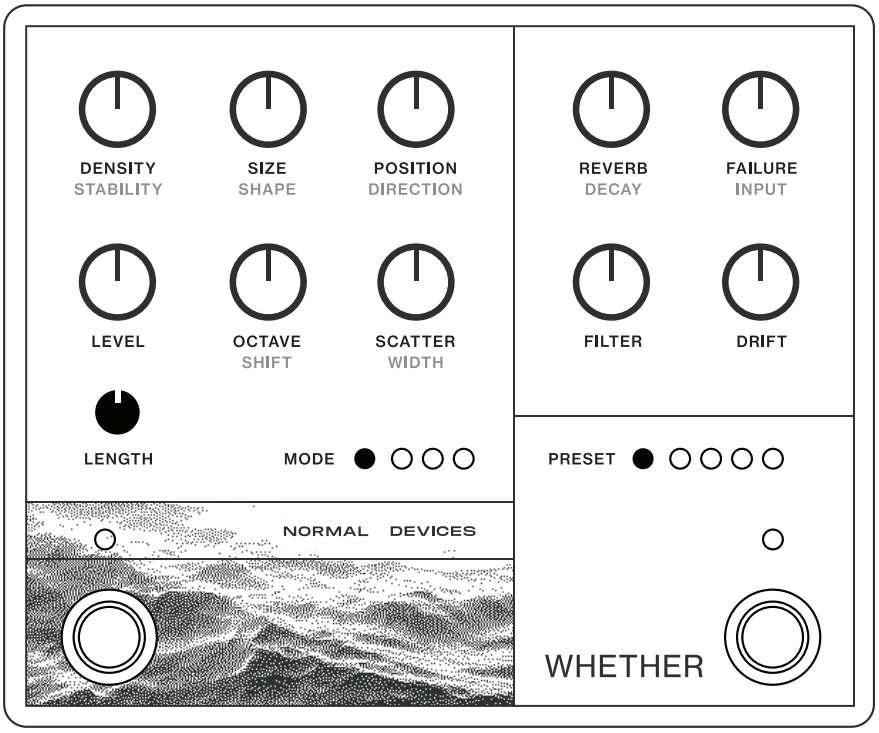
CV/EXP. TRS 6.35mm. Expression input or 0 to +5V control voltage.

DC 9V. Power with 2.1mm centre-negative +9V DC power at 200mA. A quality isolated power supply will protect this pedal and others alongside it from noise.

USB-C. For future firmware updates.



Controls



Secondary functions of knobs can be accessed by holding the **Mode** button.

FOOTSWITCHES

Right Footswitch - Bypass

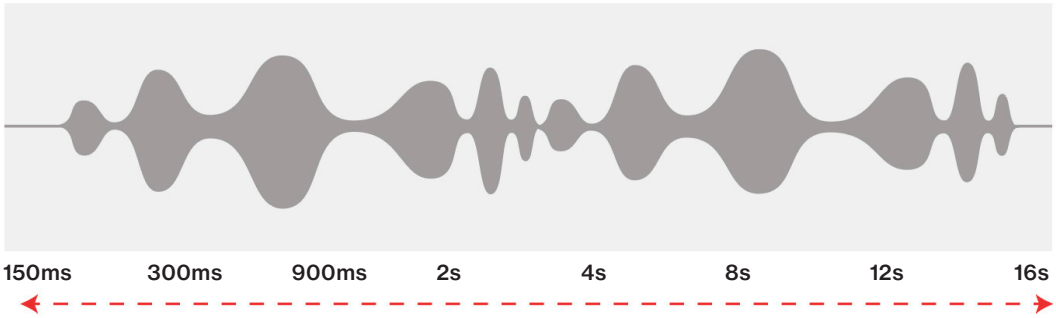
Bypass toggle. Can be set to use buffered bypass with trails, or true bypass. Tap to toggle, hold when bypassed for momentary activation.

Left Footswitch - Alt

Freeze, or other specific behaviour dependent on the current mode. Tap to toggle, hold when deactivated for momentary activation.

GRANULAR ENGINE CONTROLS

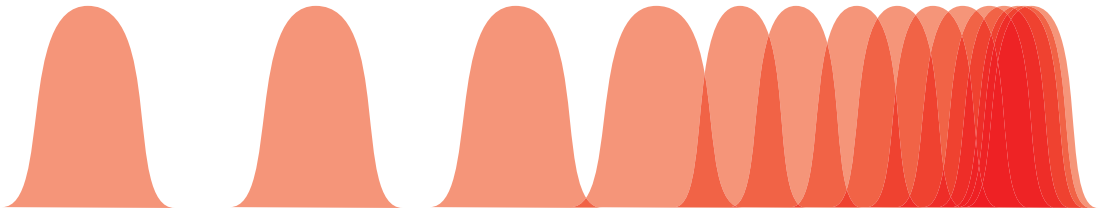
Length



Set the length of the audio sample that grains play from. 150ms minimum, to 16 seconds maximum, the middle of the knob is 2 seconds. The sample constantly records unless set to freeze with the left footswitch.

Shorter lengths fill up with sound fast and are great for more immediate effects. Longer lengths provide more material to manipulate but take longer to fill. Length affects the range of both the **Density** and **Size** grain controls, limiting maximum grain size so long grains don't attempt to play from a short sample.

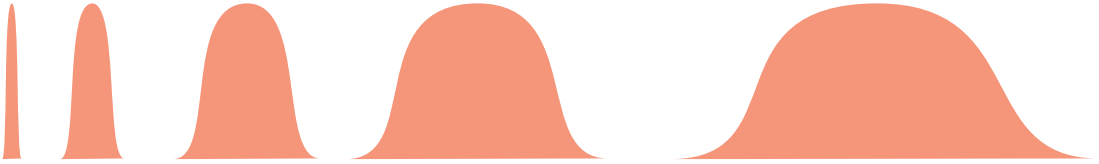
Density



How fast grains play. Ranging from 700ms to 10ms apart. Higher density means more overlap. MIDI clock input syncs density to divisions of the input tempo. From 0 to max:

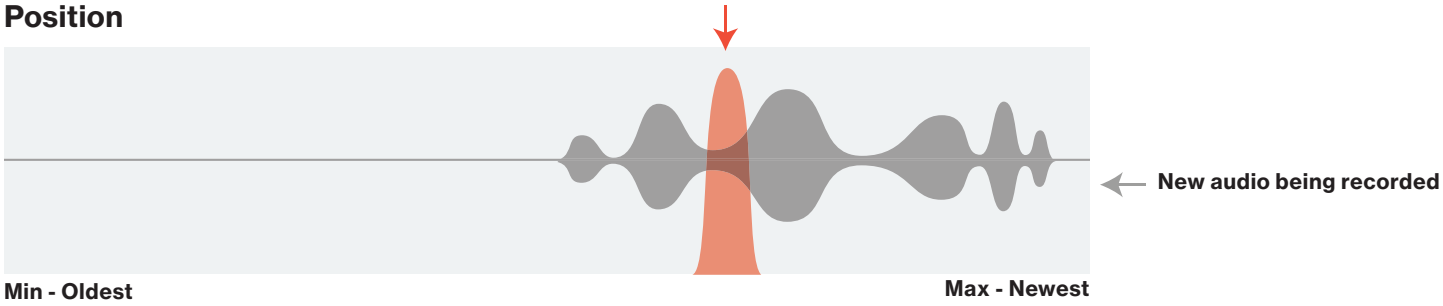
1/4 rate / whole note
1/2 rate / half note
1x rate / quarter note
2x rate / 8th note
4x rate / 16th note
8x rate / 32nd note

Size



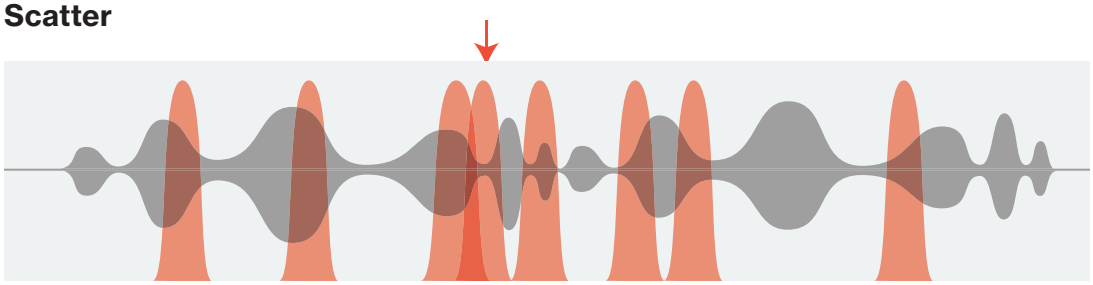
How long grains are. From 10ms up to 2 seconds. The range of **Size** is interactive with **Density** and **Length** settings.

Position



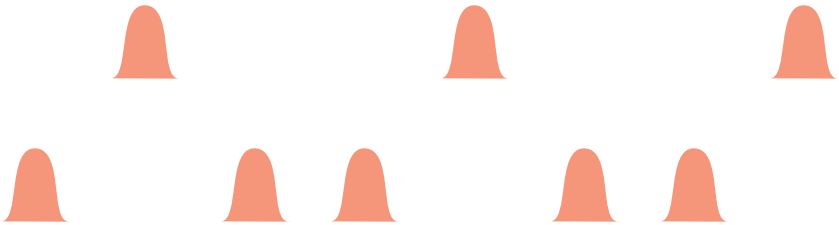
Set where grains play from in the sample recording, from the furthest back in time to the most recent. Starting from an empty sample, lower settings mean a longer delay before the sample fills up that far back in time. Higher settings mean a shorter delay to play more recently recorded input. You can move position around in real time whether the sample is frozen or not. Position at maximum is right off the newest point of the sample recording, reducing delay and grain playback down to effectively nothing. Position is randomized by Scatter.

Scatter



Add randomization to the position of each grain being played, relative to **Position**. The higher the setting, the wider the range.

Octave



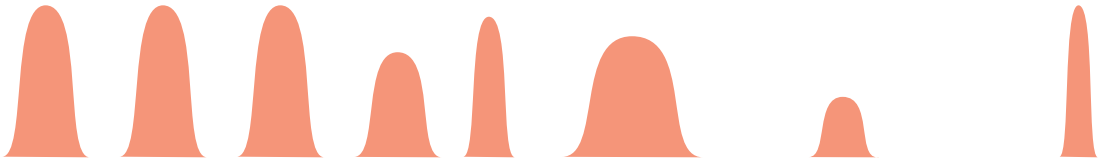
Increase the probability of octave up or down to grains. Center is 0. 3 o'clock is 100% +1 octave, maximum is 100% +2 octaves, minimum is 100% -1 octave, with probability blending in between.

Level

Overall signal mix between dry input and grains.

Hold **Mode** to access the secondary control functions of knobs:

Stability



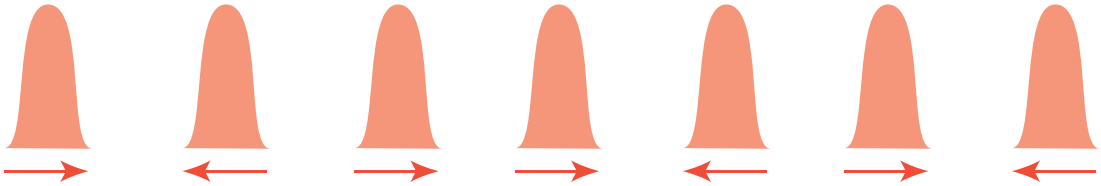
Overall randomization probability affecting grain size, volume, and density. Maximum setting is fully stable. Minimum setting is the opposite.

Shape



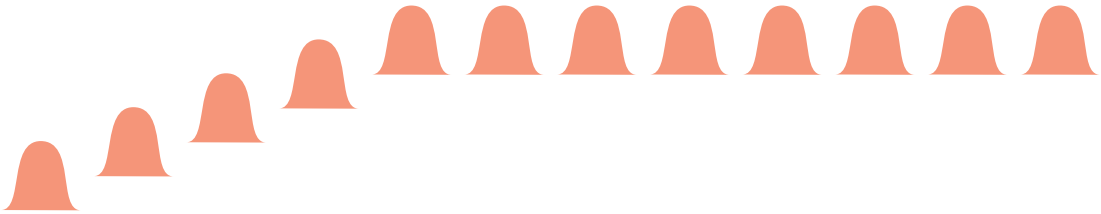
Morph the shape of the grains between 3 envelope shapes to change their sonic character. Ramp down, bell curve, or ramp up.

Direction



Set the probability of grains playing in reverse from 0 to 100%.

Shift



Shift the pitch of grain playback up to 12 semitones up or down from the original. Center is zero, minimum is -12, maximum is +12.

Width

Set the range of the stereo field grains are placed on at random. Minimum is mono, maximum is across the full stereo image.

MODES

Modes change how the grains behave.

1. Freeze



Whether listens and plays grains from ma sample of your signal. The **Left Footswitch** freezes the sample contents while grains continue to play from it. It can be used momentarily by holding, or toggles on and off by tapping. Ideal for grabbing a sound and then manipulating it or creating momentary effects.

2. Follow



Whether listens and plays grains from your signal, and freezes the sample whenever it detects silence, holding the last thing you did to play grains from. This creates a kind of auto-hold response. Short sample lengths produce synth-like pads, longer ones create unstable accompaniments. Experiment with different playing styles for different effects. Space is your friend.

The **Left Footswitch** toggles disabling the feature, indicated by the Mode 2 LED blinking.

3. Note



Freeze a sample of audio with the **Left Footswitch**. Grains will now only play when activated by MIDI or new audio.

Audio signal. Play audio, grains play as a note shaped by your input audio envelope.

MIDI. Send MIDI notes from a controller keyboard or other source and Whether is now a granular synth with 8 voice polyphony, note envelope control, and velocity sensitivity. Notes are made from the sample grains and pitched matching your midi notes. The original sound is at middle C.

Make sure the TRS MIDI is type A and sending on channel 1. You need to have a frozen audio sample to play grains from.

In Mode 3, the sample length usually set by Length is set at 4 seconds. The **Length** control then instead sets the decay of your notes. Tap the **Left Footswitch** to unfreeze and record new audio.

Reverb

Blend reverb into the overall signal mix (grains and dry, defined with **Level**) from 0 to 100% wet. The algorithm is inspired by early digital era reverbs and combined with a saturated feedback loop. Minimum setting is bypassed.

Decay

Set reverb decay time from short to almost infinite. Longer decay times will start to oscillate the mildly saturated feedback loop.

Failure

A signal gate effect that messily disintegrates below a chosen threshold. Sort of like what a noise gate is supposed to not do. Set the threshold point to find an interesting spot. Also affected by signal volume, which can also be modified by the **Input** control. Minimum setting is bypassed.

Drift

Introduce a slow, wandering pitch modulation to the entire audio signal, somewhere between wow and flutter and oscillator drift. The higher the setting, the wider and more unpredictable it becomes, with more artifacts starting to creep in. Minimum setting is bypassed.

Filter

A bandpass filter. At the center it's fully open. Higher cuts lows with a single-pole high pass. Lower cuts the highs with a 2-pole low pass.

Input

Boost or cut the input volume. Minimum is -24db. Noon is unity. Max is +3db. Useful for tweaking how Failure disintegrates the signal, or the signal detection aspects of Modes 2 and 3.

Bypass Modes

By default, Whether uses buffered bypass that allows effect trails and seamless transitions. You can also toggle to a true bypass mode that routes the audio directly from the in to the out jack on bypass. To toggle bypass modes, hold the **Right Footswitch** (bypass) and the **Mode** button together for 5 seconds until the footswitch LED flashes. Bypass mode is saved globally and persists when you disconnect power.

Expression Input

All parameters can be mapped to an expression input, allowing you to control multiple parameters at once including primary and secondary functions of the same knob.

MAP CONTROLS TO EXPRESSION

Hold the **Right Footswitch** and tap the **Left Footswitch** to enter expression mapping mode. This is indicated by both footswitch LEDs flashing. Turn any of the knobs. Any combination of knob turns in whatever direction or amount will be mapped to the full expression input range. If you turn the same knob twice while in expression mapping mode, the last turn will be used. To map secondary controls, hold the **Mode** button to access the secondary function of the knob.

Hold the **Right Footswitch** and tap the **Left footswitch** again to leave the mapping mode and save your selection. If you re-enter expression mapping mode, the mapping will be cleared and your new selection will overwrite it. Expression mapping is saved along with presets.

EXPRESSION DEVICES

You can connect any expression device like a standard expression pedal or a ramper pedal. Anything that uses TRS with Ring accepting the reference voltage and Tip supplying it back, will work.

You can also supply control voltage ranging from 0 to +5V. Do not supply negative voltage or exceed +5V as this could damage the pedal.

Presets

There are 4 preset slots indicated by 4 LEDs, plus a default live mode (no LED active). There are an additional 123 presets available to access and write to via MIDI (See **MIDI**). Presets contain all control settings plus expression mappings. Whether does not come preloaded with presets.



SAVE A PRESET

Hold the Preset button for 3 seconds. The first Preset LED will start flashing. Press the Preset button again to cycle through the 3 available slots. Hold Preset again to save to that slot.

RECALL A PRESET

Cycle through preset slots by pressing the preset button.

MIDI

MIDI is accepted over channel 1 by default. See **Modes** for details about MIDI granular synth functionality. Grain density can be controlled with MIDI clock, which makes density set the subdivisions within whatever tempo is being set. See **Density** under Controls for more details.

Recall and save presets with either MIDI PC or CC (PC Requires firmware 1.1.0 or later, get it here). To recall a preset, send a value over PC or CC 102. 0–3 are the four preset slots on the pedal; values 4–126 are MIDI-only presets and have no LED. 127 is live mode. To save a preset, hold the Preset button for 3 seconds until the preset LED begins blinking, send the PC value where you want to save it, then hold the Preset button for 3 seconds again to save to that location. Alternatively, send the preset save CC (106) with the preset number (0-126) to save directly.

MIDI CC MESSAGES

Control	CC	Value Mapping
Sample Length	21	0-14 = 150ms 15-28 = 300ms 29-42 = 600ms 43-56 = 1 second 57-71 = 2 seconds 72-85 = 4 seconds 86-99 = 8 seconds 100-113 = 12 seconds 114-127 = 16 seconds
Grain Rate	3	0 = slowest (~700ms), 127 = fastest (~6ms)
Grain Size	9	0 = minimum, 127 = maximum
Grain Position	17	0 = minimum, 127 = maximum
Grain Shape	22	0 = ramp down 1-62 = blend ramp down to bell curve 63-64 = bell curve 65-126 = blend bell curve to ramp up 127 = ramp up
Wet/Dry Mix	14	0 = dry, 127 = fully wet
Octave	12	0-12 = -1 octave 13-57 = blend between -1 and 0 octave 58-69 = 0 octaves (center) 70-101 = blend between 0 and +1 octave 102-114 = +1 octave 115-120 = blend between +1 and +2 octaves 121-127 = +2 octaves
Scatter	16	0 = minimum, 127 = maximum
Instability	19	0 = minimum, 127 = maximum
Grain Stereo Width	26	0 = minimum, 127 = maximum

CONTINUES NEXT PAGE

Control	CC	Value Mapping
Grain Direction	25	0-6 = always forward 7-120 = probability blend from less to more backward 121-127 = always backward
Shift	27	0-6 = -12 semitones 7-57 = stepped semitones below center 58-69 = 0 semitones (center) 70-120 = stepped semitones above center 121-127 = +12 semitones
Reverb Mix	13	0 = dry, 127 = fully wet
Reverb Decay	24	0 = minimum, 127 = maximum
Failure	18	0 = minimum, 127 = maximum (logarithmic curve)
Filter Cutoff	20	0 = 40Hz, 127 = 20kHz (logarithmic curve)
Input Gain	7	0 = minimum, 127 = maximum
Pitch Drift	23	0 = minimum, 127 = maximum
Expression	11	0 = minimum, 127 = maximum (controls any parameters mapped to expression)
Preset Recall	102	0-127 = selects preset number directly
Preset Save	106	0-127 = saves to preset number directly
Mode Change	103	0-42 = Mode 1, 43-84 = Mode 2, 85-127 = Mode 3
Freeze	104	0-63 = off, 64-127 = on
Bypass	105	0-63 = DSP active, 64-127 = bypassed
Audio Mode	107	0-42 = Stereo, 43-84 = Miso, 85-127 = Mono
Bypass Type	108	0-63 = Buffered, 64-127 = True Bypass
MIDI Channel	109	1-16 = sets MIDI channel 1-16; 0 or above 16 = ignored

Factory Reset

Hold both footswitches for 10 seconds to perform a factory reset. This erases all presets. When complete, all LEDs will flash.

Warranty

We will repair or replace any malfunctioning pedal at any time after the purchase date. If your product shows any issues, reach out and we can help. All you need to do is provide proof of purchase and mail your pedal to us. Please contact us first. Modifications or misuse void this warranty. You are responsible for shipping expenses.

Contact us: info@normaldevices.com.

INTENDED USE

This device is designed as an effects processor for musical instrument signals. Any operation of this effects unit outside of intended operating conditions may result in injury or equipment damage. No liability will be taken for any harm resulting from misuse. Misuse includes modifications or anything else outside of the described intended use.

WARNINGS

Possible hearing damage

When amplified through speakers or headphones, this device can produce volumes that could cause temporary or permanent hearing damage. Prolonged exposure even to seemingly moderate levels of any sound can damage hearing. Avoid sustained operation at high volumes. If you experience tinnitus or hearing changes, reduce volume immediately and consult a medical professional.

Choking hazard

Keep packaging materials away from infants and young children. Small components including knobs and other hardware present choking risks if detached and ingested.

ENVIRONMENTAL AND DIRECTIVES



Packaging uses recyclable materials suitable for standard recycling streams. Separate packaging from household waste and follow local recycling guidelines indicated on materials.



This product falls under the European Waste Electrical and Electronic Equipment Directive (WEEE). Do not discard with household refuse. Return through authorized electronics recyclers or municipal facilities following regional regulations. Contact us regarding product return if needed.



Les matériaux d’emballage sont recyclables. Points de collecte sur www.quefairmesdechet.fr Privilégiez la réparation ou le don de votre appareil.



Normal Devices confirms compliance with European Union Directive 2011/65/EU on Restriction of Hazardous Substances (RoHS) and applicable California Health and Safety Code sections 25214.10, 25214.10.2, and 58012, plus Public Resources Code Section 42475.2.



This product complies with Electromagnetic Compatibility (EMC) directive 2014/30/EU.



This product meets requirements for UKCA marking.