



INSTRUO | SPECIALIST
SYNTHESIZERS

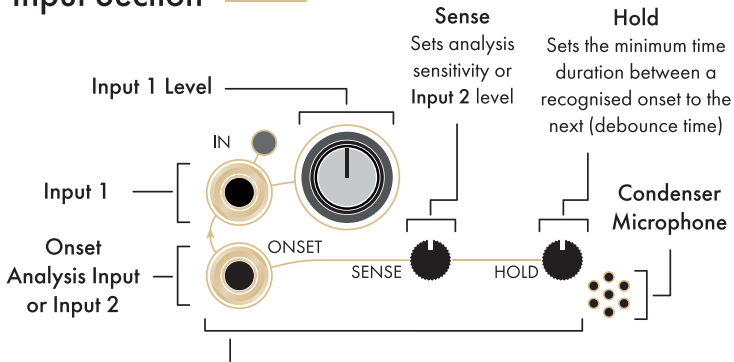


arbhar
(Version 2 Firmware)
Granular Audio Processor

arbhar

l 'ɑːr̩uːr̩ | noun (agricultural) a grain, a very small amount of a particular quantity, natural patterns or lines in the surface of wood or cloth

Input Section



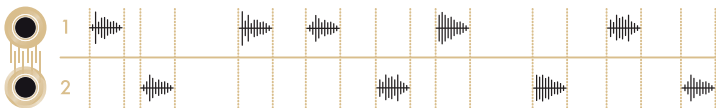
Onset Analysis Section: Takes an audio signal input and looks for 'attacks' defined by sharp spectral changes of the incoming sound. These 'attacks' are used to trigger **Capture**. **Note:** When in **Stereo Mode**, **Input 1** and **Input 2** pots are matched to unity gain in 12 o'clock positions.

Normalised Input Path



Output Section

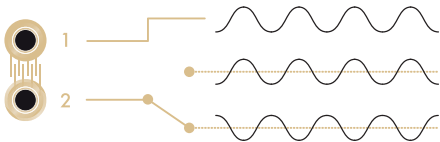
Mono: grains “coin-toss” between Output 1 and Output 2



Stereo: grains coin toss L/R or R/L

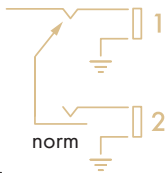


Phase Switch



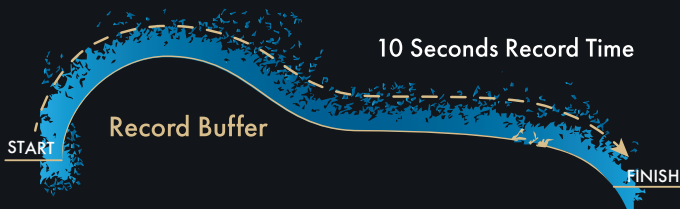
Hold Shift Button and Capture Button, turn Hold Knob.
Turn Hold Knob fully clockwise to Engage Phase Switch.
Turn Hold Knob fully anti-clockwise to Disengage Phase Switch.

Output 2 sums with
Output 1 when unpatched.



Audio Capture

Audio capture via the input can be triggered by the **Capture Button**, **Capture Pulse Input** or the **Onset Analysis Section**.



Dub

The dub knob defines sound on sound recording.



New audio capture destructively replaces previous audio.



New audio will sum with previous audio at full amplitude.

Erase and Undo



When pulsing orange.
To undo an overdub hold 1, press 2.

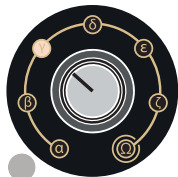


When pulsing white.
Doing this a second time will erase the buffer completely.

Layer Selection

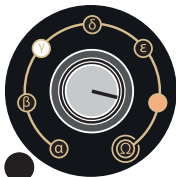


The **Layer Knob** allows you to navigate through the six buffer layers and omega (Ω). When 'omega' is selected, the **Scan Knob** can continuously sweep through all six layers.



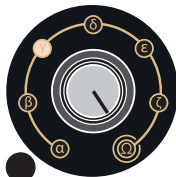
SHIFT

Turn the **Layer Knob** to desired location to select record and playback layer (illuminated off white).



SHIFT

Holding **Shift** and turning the **Layer Knob** will decouple **Record Layer** (illuminated amber) from **Playback Layer** (illuminated white).



SHIFT

Holding **Shift** and turning the **Layer Knob** to 'omega' will recouple the layers.

Note: Layer selection can be externally controlled via the expander. CV acts as a bipolar control over layer playback. When layers are externally controlled 'omega' (Ω) is left out, leaving the CV to cycle between the six layers.

Playback

Scan

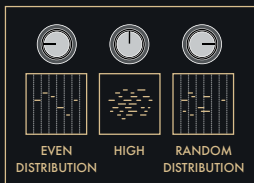
Determines the playhead position in the buffer.

Length

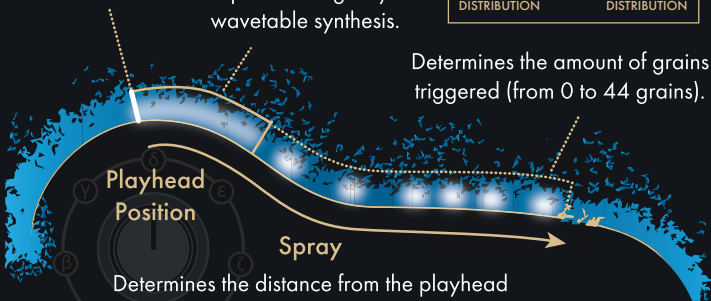
Determines the grain playback length (up to 3 seconds).

When very short, arbhar morphs into single cycle wavetable synthesis.

Intensity



Determines the amount of grains triggered (from 0 to 44 grains).



Playhead
Position

Spray

Determines the distance from the playhead that the grains can be triggered.

Strike

Fires additional grains that sum with **Intensity** settings. It is possible to fire up to 44 grains in addition to the original 44 grains.

GRAIN

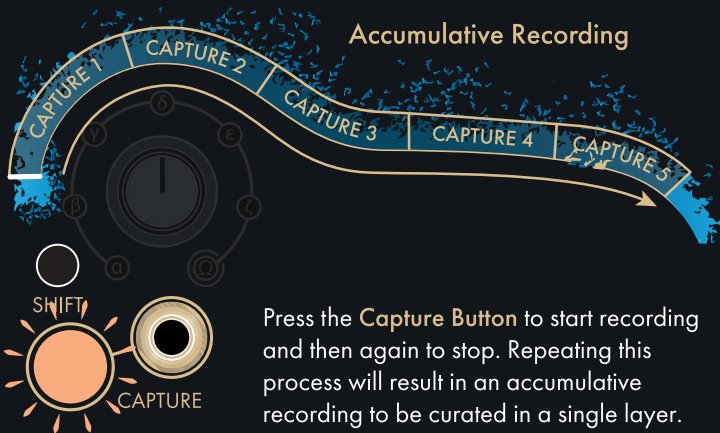


Accumulative Record ---

Allows users to capture a collage of accumulated audio recordings.

Press and hold the **Capture Button** and tap **Shift Button** to enter **Accumulative Record Mode**. **Capture Button** will pulse amber to indicate you are in this mode.

Accumulative Recording



Press the **Capture Button** to start recording and then again to stop. Repeating this process will result in an accumulative recording to be curated in a single layer.

Trigger Out and Onset Analysis Settings

arbar features 6 **Onset Control Modes** that analyse the incoming audio for significant spectral changes in order to estimate the start of new sonic events. By holding the **Shift Button** and **Capture Button** together and turning the **Layer Knob**, you can select which setup you want to use. Active setting will be lit white.

Beta

Onset detection of an audio signal triggers recording. A gate signal is generated at the **Pulse Output** and is held HIGH for a duration set by the **Hold Knob**.

Gamma

With every generated grain, a trigger signal is generated at the **Pulse Output**. An additional trigger signal is generated upon **Onset analysis**.

Delta

A gate signal is generated at the **Pulse Output** and is held HIGH for a duration set by the **Hold Knob**.

Epsilon

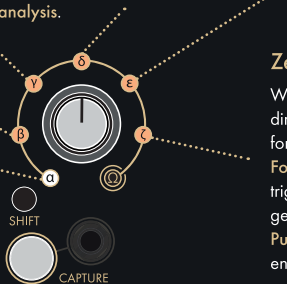
Pressing the **Strike Button** will generate a trigger signal at the **Pulse Output**.

Alpha

Onset detection of an audio signal triggers recording. With every generated grain, a trigger signal is generated at the **Pulse Output**.

Zeta

With playback direction set to forward in **Follow Mode**, a trigger signal is generated at the **Pulse Output** at the end of layer playback.



Note: In Stereo Capture Mode, the link between the onset detection and the capture triggering is disabled (i.e. alpha and beta become gamma and delta, but do not change visually).

Follow Mode

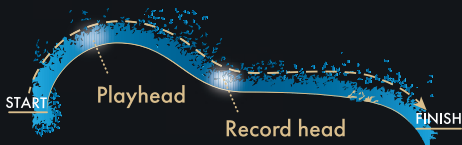
Follow Mode introduces automated movement of the **Playhead**. The speed of the **Playhead** is now determined by the **Scan Knob**.



To engage **Follow Mode**, press and hold 1 and 2. Turn 3 all the way to the left or right, twice.

4 will illuminate white to indicate that **Follow Mode** is engaged.

In **Follow Mode**, 2 resets both the **Record** and **Playheads** back to the start of the buffer. 4 resets only the **Playhead** back to the start of the **Buffer**.

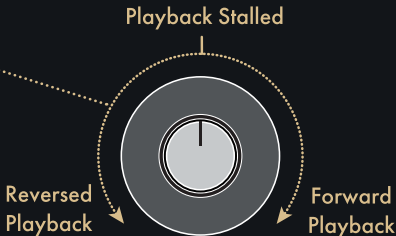


Scan Knob now controls the direction of the **Playhead**.

Hold sets the loop length.

HOLD  Shortest loop length

HOLD  Longest loop length

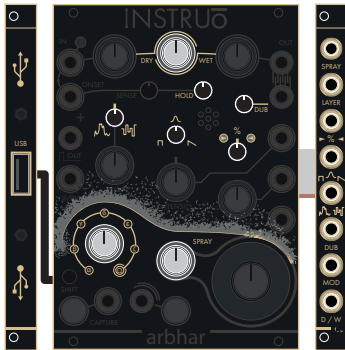


CV and USB Expanders

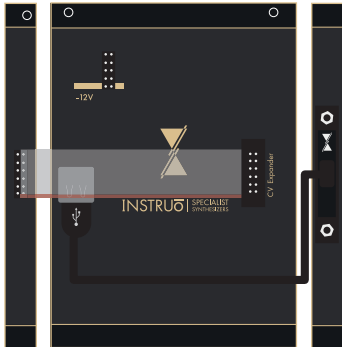
Included with the arbar is a CV Expander, which is connected to the module via a ribbon cable to the CV Expander Headers. The expander allows for additional CV control over all remaining parameters.

Also included is a USB Expander that connects to the USB port on the back of the module, allowing front mount USB capability.

Front



Back

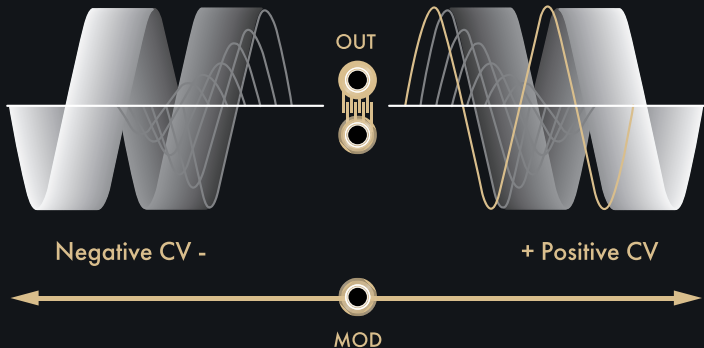


MOD CV Parameters

By default **Mod CV** is assigned to arbharr's internal reverb.
Mod CV controls the reverb amount.

Positive CV increases the reverb amount to the point of infinite decay. Dry signal level is **retained**.

Negative CV increases the reverb amount to the point of infinite decay. Dry signal level is **excluded**.



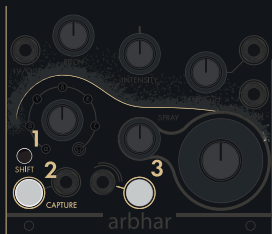
Track and Hold ————

Double tap and hold **Shift Button** to engage **Parameter Track and Hold**. Adjusting knobs while **Shift Button** is held will only update the parameters on release of the **Shift Button**. **Track and Hold** is indicated by green buffer LED's.



In **Track and Hold Mode** the **Pitch Knob** will quantise to semitones. The **Layer Indicators** depict offsets in semitones.

Clone/Load/Save Menu



Enter/Exit: Press and hold 1 and 2, tap 3

Page Left: Press 2 **Page Right:** Press 3

Execute: Double tap 1

Internal Storage



USB Storage



Page 1



Clone the active layer into the selected destination.

Load the selected sample from the USB library (if available).

Page 2



Load Scene from internal memory.

Load Scene from USB (if available).

Page 3



Save current Scene to the internal storage.

Save current Scene to USB storage (if available).

Lookup Table

Functions	Button Combinations
De-couple Record/Playback Layers	Hold Shift Button and turn Layer Knob to set recording layer
Track and Hold	Double tap and hold Shift Button
Onset Mode	Hold Shift Button and Capture Button, turn Layer Knob
Follow Mode On/Off	Hold Shift Button and Capture Button, turn Scan Knob
Phase Switch Engage / Disengage	Hold Shift Button and Capture Button, turn Hold Knob (Hold Knob clockwise to Engage) (Hold Knob anti-clockwise to Disengage)
Capture CV as Latching/Momentary	Hold Shift Button and Capture Button, turn Dub Knob (Dub Knob clockwise to Momentary) (Dub Knob anti-clockwise to Latching)
Input Section Stereo/Mono	Hold Shift Button and Capture Button, turn Grain Window Knob (Grain Window Knob clockwise to Input Section Stereo) (Grain Window Knob anti-clockwise to Input Section Mono)
Accumulative Rec On/Off	Hold Capture Button and press Shift Button
Enter Scene Menu	Hold Shift Button and Capture Button, press Strike Button (Use Capture Button and Strike Button for page selection)