Instruo — Arbhar

- [Manual PDF](#)

Instruō Arbhar Granular Audio Processor – User Manual (Firmware 2.0)

Instruō arbhar Granular Audio Processor

Quick Reference & Cheat Sheet (Firmware 2.0)

Basic Usage Overview

- **Record Audio:**
  Press the **Capture** button to record audio into the selected layer. Each layer holds up to 10s audio.
- **Granular Playback:**
  Audio is broken into "grains" which can be scattered, reversed, repitched, panned, and layered for textural manipulation.
- **Layers:**
  6 layers (Alpha, Beta, Gamma, Delta, Epsilon, Zeta), each with a dedicated buffer. Omega mode links all layers for simultaneous access.
- **Granular Modes:**
- **Scan Mode:** Use the **Scan** knob to "scrub"/freeze through audio.
- **Follow Mode: Scan** knob controls speed/direction through audio (playback independent from pitch).

Panel Controls Reference

Knobs

Name	Function	CV Input (Range)
Input Level	Sets input/preamp gain, includes analog saturation	No CV
Output Level	Sets output level	No CV
Dry/Wet	Crossfades dry vs granular audio	Yes (±5V summed, 10V total)
Intensity	Number/density/rate of grains	Yes (±5V summed, 10V total)
Grain Window	Grain envelope (Square ↔ Gaussian ↔ Saw)	Yes (±5V summed, 10V total)
Grain Direction	Probability (FWD↔REV) playback	Yes (±5V summed, 10V total)
Length	Grain duration (~4ms−3s, exp distribution)	Yes (±5V summed, 10V total)
Scan	Grain position in buffer	Yes (±5V summed, 10V total)
Spray	Range of randomization from scan position	

Name	Function	CV Input (Range)
		Yes (±5V summed, 10V total)
Pitch	Grain pitch	Yes (1V/Oct; ±5V)
Pitch Deviation	Random/quantized per-grain pitch deviation (semitones)	Yes (±5V summed, 10V total)
Sensitivity (Sense)	Sensitivity of onset detection OR input 2 level (stereo mode)	No CV
Hold	Debounce/Min-record or min time between onsets/gates (5ms–10s)	Yes (via Mod CV input)
Dub	Sound-on-Sound: Blend level of prior layer value when overdubbing	Yes (±5V summed, 10V total)
Layer	Select the active layer (alpha–zeta/omega)	Yes (±5V summed, 10V total)

Buttons

Name	Function
Capture	Start/stop record (mode settable; see capture modes below)
Shift	Shift for alt/multi functions
Strike	Trigger a grain from Strike Granular Engine / accent / undo / erase etc.

Switches/Indicators

Name	Function
Layer Indicators	Show selected layer; omega = all layers linked
Granular Stream Display	Shows layer, scan, grain activities, record/play state
Grain Direction/LEDs	Direction of active grains, indicates mode
Onset Indicator/LED	Status of onset detection

Inputs & Outputs

Audio I/O

Jack	Function
Input (In)	Primary audio in (AC coupled); defaults to mic if unpatched
Onset Input	Audio in for onset detection, also becomes Right channel in Stereo mode
Outputs 1 & 2	Main outputs (coin toss/mix grains; stereo/mono operation)

Pulse & CV I/O

Jack	Function	CV Range
Capture Pulse In	Triggers/holds recording (mode selectable: Momentary/Latch/Retrigger)	Trigger/gate

Jack	Function	CV Range
Strike Input	Pulse in, triggers single grain (Strike Engine)	Trigger/gate
1V/Oct Input	Pitch CV	±5V (1V/Oct)
Intensity CV	Controls Intensity knob	±5V (10V total span)
Length CV	Controls grain Length	±5V (10V total span)
Scan CV	Controls Scan position (or speed in Follow Mode)	±5V (10V total span)
Spray CV	Controls grain Spray	±5V (10V total span)
Layer CV	Voltage control over which layer(s) are active	±5V (10V total span)
Grain Dir. CV	Per-grain direction probability	±5V (10V total span)
Grain Window CV	Envelope shape modulation	±5V (10V total span)
Pitch Deviation CV	Per-grain pitch deviation (random or quant)	±5V (10V total span)
Dub CV	Overdub Blend (0=replacement, 50%=mix, 100%=sum)	±5V (10V total span)
Dry/Wet CV	Modulate dry/wet balance	±5V (10V total span)

Jack	Function	CV Range
Mod CV (Expansion)	Assignable: Hold, Reverb, Delay, Panning (preset.txt settable)	±5V (10V total span)
Pulse Output	Trigger/gate based on onset/grain/strike/loop (mode settable)	+5V, 10ms trig/gate
USB Port	Load/Save audio, update firmware, access scenes/layers/presets	USB flash drive

Panel Inputs/Outputs Complete List

- **Audio Input (In)**
- **Onset Input (2nd input / right in stereo)**
- **Capture Pulse Input**
- **Strike Input**
- **1V/Oct Input**
- **Intensity CV**
- **Length CV**
- **Scan CV**
- **Spray CV (Expansion)**
- **Layer CV (Expansion)**
- **Grain Window CV (Expansion)**
- **Pitch Deviation CV (Expansion)**
- **Dub CV (Expansion)**
- **Dry/Wet CV (Expansion)**
- **Mod CV (Expansion)**
- **Pulse Output**
- **Audio Output 1/2**

Special Modes & Operations

Input & Output Modes

- **Mono Input:** Default. Input = mono, Onset = mono onset.

- **Stereo Input:** Input = L, Onset = R, Sensitivity knob = R level.
- **Mono Output:** Output 1 = mono mix; Output 2 is normalled unless patched.
- **Stereo Output:** Patch both outs for stereo; phase switch can change 2nd out polarity.

Recording Modes

- **Capture Modes:**
- *Momentary (default):* Records as long as pulse/Capture button held
- *Latching:* Start/stop with triggers
- *Retrigger:* (preset only) Each retrigger restarts record head
- **Accumulative (Optional):** Multiple passes add to one buffer position, rather than reset each time (toggle with Capture+Shift).

Synthesis Controls

- **Intensity Knob:** More grains (center) = denser, less (extreme) disables engine.
- **Strike Engine:** Fire grains one at a time (for accents, rhythm) via Strike input or button.
- **Length Knob:** Grain duration (~4ms–3s).
- **Scan Knob:** Position in audio buffer (or speed in Follow Mode).
- **Spray Knob:** Adds random offset to scan position (moving/randomness through audio).
- **Pitch/Pitch Dev.:** Main pitch and random or quantized deviation per grain.
- **Grain Window & Direction:** Envelope per grain and probability of forward/reverse playback.

File System & Scenes

- **USB Flash Drive:** Used for audio, scenes, presets, firmware.
  - `/arbhar_library/` for layers (36 x 10s files)
  - `/arbhar_scenes/` for full scenes (preset.txt + up to 6 files)

○ `_updater` for firmware
   - **Clone, Load, Save:** Use Shift+Capture+Strike to access and navigate menu (layer knob for slot), Shift to audition or confirm.
   - **Factory Reset:** Hold Shift+Capture, press Strike 7x rapidly.

CV Expansion & Voltage Ranges

   - **ALL CV Inputs:** Bipolar ±5V for full knob travel; summed with knob position.
     (i.e., -5V = min, 0V = knob only, +5V = max; total range from -5V to +5V = 10V travel).
   - **1V/Oct Input:** Proper 1V/oct response, ±5V range.
   - **Pulse Output:** +5V triggers/gates (10ms or as set by mode).

Quick Reference: Front Panel (Numbers from Manual)

#	Name	Function
1	Condenser Microphone	Onboard mic input
2	Input	Audio in (AC)
3	Input Level	Preamplifier / gain
4	Input Indicator	Input presence/level LED
5	Dry/Wet	Mix knob
6	Output Level	Output gain
7/8	Outputs 1/2	Audio outs (mono/stereo modes)
9	Capture Button	Start/stop recording
10	Capture Pulse Input	Pulse/gate record control

#	Name	Function
11	Shift Button	Alt/multi functions
12	Layer	Selects layer (alpha–zeta/omega)
13	Layer Indicators	Layer identification
14	Granular Stream Display	Layer/scan/grain/rec/play LED bar
15	Intensity	Granulation density knob
16	Intensity CV Input	Grain density CV
17	Strike Button	Accent grain/undo/erase
18	Strike Input	Trigger grain
19	Grain Window	Envelope shape
20	Grain Direction	FWD/REV probability
21	Grain Dir. Indicators	FWD/REV grain LED
22	Length	Grain duration
23	Length CV	Duration CV
24	Scan	Position (or speed in Follow)
25	Scan CV	Position CV
26	Spray	Random offset
27	Pulse Output	Grain/onset/loop trigger/gate out
28	Pitch	Grain pitch
29	1V/Oct	Pitch CV (1V/oct)
30	Pitch Deviation	Random/quant deviation

#	Name	Function
31	Onset Input	Audio onset detection input
32	Onset Indicator	Onset detection armed LED
33	Sensitivity (Sense)	Onset sens. or input 2 level
34	Hold	Min. time/gate length/loop time
35	Dub	Overdub/replacement ratio

Additional Tips

- **Shift + [Knob/button]:** Many alternate functions/modes (see manual for combinations).
- **Wavetable Mode:** Turn Length to full CCW—acts as a wavetable oscillator from the audio.
- **Accumulative Recording:** Capture + Shift toggles accumulative mode for overdub collaging.
- **Track & Hold:** Shift (dbl tap+hold), then adjust parameters, they only activate on release.

Full Manual PDF (Instruō official)

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