

# MicroFreak

ARTURIA · FIRMWARE 5.0.1 · QUICK REFERENCE

PAGE 1 OF 6 · FRONT PANEL

## TOP PANEL CONTROLS

<b>Matrix Enc</b>	Turn=nav 35 pts; press=edit amt; hold 0.5s=reset pt
<b>Shift+Matrix long</b>	Clear ALL matrix routings
<b>Paraphonic</b>	4-voice (shared filter, ind. VCAs+envs)
<b>Shift+Para</b>	Unison mode (all voices detune together)
<b>Hold Para+chord</b>	Paraphonic Chord Mode (intervals locked)
<b>Panel</b>	Sync knob positions to preset (use once)
<b>Preset Enc</b>	Browse 512 presets; triple-click=Init
<b>Save</b>	Enter save mode; long press=quick save
<b>Utility</b>	Global + preset config menu
<b>Volume</b>	Master output (line out + headphone)

## MODULATION MATRIX GRID

### SOURCES (ROWS 1-5)

<b>1: CycEnv</b>	Cycling Envelope output
<b>2: ENV</b>	Standard Envelope output
<b>3: LFO</b>	LFO output
<b>4: Pressure</b>	Keyboard pressure or velocity
<b>5: Key/Arp</b>	Keyboard, arp, and sequencer

### DESTINATIONS (COLUMNS)

<b>1: Pitch</b>	Hardwired
<b>2: Wave</b>	Hardwired
<b>3: Timbre</b>	Hardwired
<b>4: Cutoff</b>	Hardwired
<b>5-7: Assign 1/2/3</b>	User-assignable

Hold AssignX + turn knob = assign all 5 sources to that column at once

## GLIDE

<b>Glide knob</b>	Portamento time 0 - ~10s
<b>Time mode</b>	Fixed glide time 0-10s
<b>Sync mode</b>	Tempo-synced glide
<b>Rate mode</b>	Rate-based 0-10ms/octave

## DIGITAL OSCILLATOR

<b>Type</b>	Selects model (22 types, see p.3). Modulatable
<b>Wave</b>	1st parameter (varies by type). Modulatable
<b>Timbre</b>	2nd parameter (varies by type). Modulatable
<b>Shape</b>	3rd parameter (varies by type). Modulatable
Shift+Wave/Timbre/Shape = reverse knob speed (Slow→Fast)	

## ANALOG FILTER (12 DB/OCT)

<b>Cutoff</b>	~30 Hz - >15 kHz. CC#23
<b>Resonance</b>	Peak; max = self-oscillation (sine). CC#83
<b>Filter Type</b>	Cycles: LPF → BPF → HPF

## SIGNAL FLOW

- Digital Oscillator** → waveform
- Analog Filter** → 12 dB/oct LP/BP/HP
- Analog VCA**  
Amp Mod OFF: gate = abrupt on/off  
Amp Mod ON: ENV shapes amplitude  
Paraphonic: digital VCA per voice
- Main ENV** → Filter Amt + VCA (Amp Mod ON)
- Matrix** → routes CycEnv/ENV/LFO/Pressure/Key

## CYCLING ENVELOPE

<b>Rise</b>	Attack time. CC#102. Shift+Rise=log/lin/exp
<b>Fall</b>	Decay time. CC#103. Shift+Fall=log/lin/exp
<b>Hold</b>	Hold/sustain level (Run/Loop). CC#28
<b>Amount</b>	Output attenuator → matrix. CC#24

## MODES (MODE BUTTON)

<b>ENV</b>	Fires once per gate; sustains while held
<b>RUN</b>	Free-running LFO; resets on MIDI Start
<b>LOOP</b>	Retriggeres on each keyboard/seq/arp gate

## LFO

### SHAPE

<b>Sine</b>	Smooth cycle
<b>Triangle</b>	Linear rise/fall
<b>Rising Saw</b>	Linear rise, instant drop
<b>Square</b>	50% duty, abrupt transitions
<b>Random</b>	S&H random steps
<b>Rnd Glide</b>	Smoothed random values
Rate: 0.06-100 Hz unsynced (CC#93) or 8/1-1/32 synced (CC#94). Press Rate enc = toggle sync. At 100 Hz = audio-rate FM.	
Retrig: Utility>Preset>LFO Retrig: Off/On/Legato	

## ENVELOPE GENERATOR (ADS)

<b>Attack</b>	0 ms - 10 s. CC#105
<b>Decay/Rel</b>	0 ms - 13 s. CC#106
<b>Sustain</b>	Level while key held. CC#29
<b>Filter Amt</b>	Bipolar env→filter cutoff. CC#26
<b>Amp Mod btn</b>	ON=env shapes VCA; OFF=gate on/off
Utility>Preset: Envelope Legato / Envelope Snap	

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## ARP/SEQ SECTION

Arp Seq btn	Press=Arp (white); Shift+press=Seq
Oct Mod btn	Arp: octave range 1-4; Seq: mod track 1-4
Rate knob	BPM/division; press=toggle sync. CC#91/92
Shift+Rate	Swing amount (50-75%)

## ARP PATTERNS (ICONS WHEN ARP ACTIVE)

Up A	Ascending pitch order
Order B	Order notes were pressed
Random O	Random order
Pattern >	Semi-random; regenerates on note change

## ICON STRIP (ABOVE KEYBOARD)

Hold	Latch notes/arp; step rec=tie/rest; rec=erase
Up A	Arp: ascending. Seq: Sequence A
Order B	Arp: by order. Seq: Sequence B
Random O	Arp: random. Seq: O = Record
Pattern >	Arp: pattern. Seq: > = Play/Stop
Spice	Touch strip: set randomization amount
Dice	Touch strip: apply randomization to gates
Bend	Touch strip: pitch bend. Mid=zero. ±12 semi default

## SPICE & DICE

Spice amt	Sets how much Dice can deviate gates/oct/vel
Dice apply	Right=more random. Each touch=new baseline
Capture	Shift+A B to freeze Spice/Dice into sequence

Not saved with preset. Requires Arp or Seq active.

## KEYBOARD

Keys	25 capacitive keys, 2-oct range
Pitch range	C-2 to G8 (±3 oct via Oct buttons)
Pressure	Aftertouch or velocity (Utility>Preset)
Oct ↓/↑ btns	±3 octaves. LED blink = distance from center
Shift btn	Blue: access all secondary functions

## PARAPHONY

Paraphonic	4-voice; shared analog filter, ind. digital VCAs
Unison	Shift+Para. Hold Para+Preset enc = spread
Chord Mode	Hold Para + play chord + release + release Para
Unison Count	2-4 voices (Utility>Preset)
Spread	0.001-12.000 (12 = one octave)

Type mod affects all voices. Wave/Timbre/Shape mod is per-voice in paraphonic mode.

## PRESET MANAGEMENT

Slots	512 total; 1-128 factory, 129-512 user
Save	Press Save → slot → category → name → Save
Quick save	Long press Save → current slot
Init reset	Triple-click Preset enc (not auto-saved)
Click to Load	Off/On: require click vs. scroll-to-load

## KNOB CATCH MODES

Jump	Value jumps to knob position immediately
Hook	Must sweep past stored value first
Scaled	(default) Increments relative to position

Saved: knobs, Seq A+B, 4 mod tracks, Utility>Preset settings, chord, octave. NOT saved: Hold, Spice/Dice.

## REAR PANEL (LEFT TO RIGHT)

JACK	FUNCTION
Headphone	3.5mm TRS mono. TRRS = Vocoder mic in
Line Out	6.35mm TRS mono, balanced
CV Pitch	3.5mm. 1V/Oct / Hz/V / 1.2V/Oct. 0-10V
Gate	3.5mm. S-Trig / V-Trig 5V / V-Trig 12V
Pressure CV	3.5mm. Vel or pressure. 1-10V range
Clock In/Out	3.5mm. TRS=clk+start; TS=clk. 1/2/24/48PPQ
MIDI In/Out	3.5mm TRS Type A. Grey adapters → 5-pin DIN
USB-B	MIDI class-compliant, MCC, firmware, power
DC In	5.5mm barrel. 5V DC. Use Arturia adapter.

CV Pitch out = lowest note of seq step. 10V may clip Eurorack modules.

## VOCODER SETUP

Mic input	Headphone TRRS jack (CTIA/AHJ standard)
Mic Gain	-12 to +59 dB or Auto Gain (Utility>Global)
Noise Gate	Off / -30 to -90 dB (default -70 dB)
Hiss Mode	Off / Switched / Pass (Utility>Preset)
Osc carrier	Select Vocoder osc type (type 22)

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PAGE 3 OF 6 · OSCILLATOR TYPES

## OSCILLATOR TYPES – WAVE / TIMBRE / SHAPE (ALL 22)

#	NAME	WAVE	TIMBRE	SHAPE
1	BasicWaves	Morph: square-saw-2 saws	Sym: pulse width / phase	Sub: sine sub-osc level
2	SuperWave	Waveform: Saw/Square/Tri/Sine	Detune between copies	Volume of detuned copies
3	Wavetable	Table: 1 of 16 wavetables	Position: scan 32 cycles	Chorus amount
4	Harmo	Content: harmonic richness	Sculpting: sine-triangle base	Chorus amount
5	KarplusStr	Bow: 0=decay, >0=sustain	Position: strike point	Decay: resonator damping
6	V.Analog	Detune between 2 osc copies	Shape: pulse-sq-hard sync	Wave: triangle-saw+notch
7	Waveshaper	Waveshaper waveform select	Amount: wavefolder amount	Asym: waveform asymmetry
8	Two Op.FM	Ratio: freq ratio osc1/osc2	Amount: modulation index	Feedback: osc2 self-mod
9	Formant	Interval: formant 1/2 ratio	Formant: formant frequency	Width/shape of formant
10	Chords	Type: Oct / 5th / sus4 / m / m7 / m9 / m11 / 6+9 / M9 / M7 / M	Inv/Transp: chord inversion	Waveform: strings-wavetable
11	Speech	Vowels 0-53 / Colors 54 / Nums 70 / Letters 85 / Phonetic 101 / Synth 116	Shifts formants up/down	Word: selects word
12	Modal	Inharm: inharmonicity/material	Excitation brightness+density	Decay: damping amount
13	Noise	Source: particle-white-metallic	Sample rate reduction/pitch	Noise-+sine-+tri-+square
14	Bass (NE)	Saturate: cosine saturation	Fold: 2-stage wavefold	Noise: PM noise level
15	Sawx (NE)	Saw Mod: gain of modulus stage	Shape: chorus amount	Noise: PM noise amount
16	Harm (NE)	Spread: partials (0=unison)	Rectification of partials	Noise: PM noise + clip
17	WaveUser	Table: 1 of 16 user tables	Position: scan 32 cycles	Bitdepth: lo-fi reduction
18	Sample	Start: start point 0-100	Length: -100=rev to +100=fwd	Loop: crossfade loop point
19	Scan Grains	Scan: speed/grain position	Density: grain rate	Chaos: random density/pitch
20	Cloud Grains	Start: grain start position	Density: grain rate	Chaos: randomness
21	Hit Grains	Start: grain start position	Density: grain rate	Grain size and envelope
22	Vocoder	CCW=saw; 11%=pulse; 91-100%=noise	Freq range (male/female)	Filter band bandwidth

Shift+Type (Sample/Grains): browse samples. NE = Noise Engineering. Cannot modulate Type when Vocoder active. Paraphony disabled in Chords mode.

## OSC NOTES & TIPS

<b>BasicWaves</b>	Max resonance → filter self-osc = pure sine
<b>Wavetable</b>	Modulate Wave with LFO for wavesequencing
<b>KarplusStr</b>	Set Bow=0 for pluck; Bow>0 for sustained bow
<b>Chords</b>	Mod Wave with random LFO = random chords
<b>Speech</b>	CC10=category, CC12=timbre, CC13=word
<b>Sample</b>	Shift+Type to browse/select samples
<b>V.Analog</b>	Key/Arp-Wave with scale for voice variations

## ASSIGNABLE MATRIX DESTINATIONS

Glide · Osc Type · Sample · Wave · Timbre · Shape · Filter Cutoff · Filter Res · Env Attack · Env Decay · Env Sustain · Env Filter Amt · LFO Rate · Arp&Seq Rate · CycEnv Rise · CycEnv Fall · CycEnv Hold · CycEnv Amt · Matrix Mod Amount

Cannot assign: Master Volume, Shift+Knob params, control/icon buttons.

## SPECS

<b>Oscillator</b>	Digital, 22 models
<b>Filter</b>	Analog 12 dB/oct LP/BP/HP
<b>Voices</b>	1 mono / 4 paraphonic
<b>Keyboard</b>	25 capacitive keys, 2 oct (±3)
<b>Presets</b>	512 slots (128 factory)
<b>Seq</b>	4-64 steps, 2 patterns A/B
<b>Matrix</b>	5 sources × 7 dests = 35 points
<b>Power</b>	5V DC or USB 500mA

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ARPEGGIATOR	SEQUENCER	SEQUENCER SHORTCUTS
<p><b>PATTERNS</b></p> <p>Up Ascending pitch order</p> <hr/> <p>Order Order notes were pressed</p> <hr/> <p>Random Random order</p> <hr/> <p>Pattern Semi-random; regenerates on note change</p> <p><b>CONTROLS</b></p> <p>Oct Mod Octave range 1-4 (1=held notes only)</p> <hr/> <p>Rate BPM or synced (1/1, 1/2, 1/4, 1/8, 1/16, 1/32+T)</p> <hr/> <p>Swing Shift+Rate enc: 50-75%. Default 50%</p> <hr/> <p>Hold Latch arpeggio</p> <p><b>SHORTCUTS</b></p> <p>Shift+key (arp playing) Transpose arpeggio</p> <hr/> <p>Shift+Up A Copy arp → Seq A (with Spice/Dice!)</p> <hr/> <p>Shift+Order B Copy arp → Seq B</p> <hr/> <p>Oct Up/Down while arping ADDS notes at new octave, does NOT transpose. Arp-Seq is the ONLY way to capture Spice/Dice.</p>	<p><b>OVERVIEW</b></p> <p>Patterns 2 (A and B), shared length 4-64 steps</p> <hr/> <p>Voices Up to 4 voices per step (paraphonic)</p> <hr/> <p>Mod tracks 4 tracks per pattern (1 knob per track)</p> <p><b>ICONS WHEN SEQ ACTIVE</b></p> <p>Hold Step rec: tie/rest. Rec: erase at playhead</p> <hr/> <p>Up A Select / play Sequence A</p> <hr/> <p>Order B Select / play Sequence B</p> <hr/> <p>Random O Record (step when stopped; realtime when playing)</p> <hr/> <p>Pattern &gt; Play / Stop</p> <p><b>STEP-TIME RECORDING</b></p> <ol style="list-style-type: none"> <li>1. Play OFF → press O (Record)</li> <li>2. Hold notes → stored. Release → advance step</li> <li>3. Hold icon = silent rest (advance)</li> <li>4. Note + Hold = tie (copies note to next step)</li> <li>5. At last step → auto-switch to Play</li> </ol> <p><b>REAL-TIME RECORDING</b></p> <p>Start Press &gt;, then O. Or press O while playing</p> <hr/> <p>Notes Overwrites on each loop pass</p> <hr/> <p>Mod Records one loop then auto-stops</p> <hr/> <p>Erase Press Hold during rec = erase at playhead</p>	<p><b>SEQUENCER SHORTCUTS</b></p> <p>Shift+Arp Seq Toggle arp ↔ seq</p> <hr/> <p>Shift+key (playing) Transpose sequence</p> <hr/> <p>Hold A + press B Copy Seq A to B</p> <hr/> <p>Hold B + press A Copy Seq B to A</p> <hr/> <p>Hold A + Hold (1s) Clear Sequence A</p> <hr/> <p>Hold B + Hold (1s) Clear Sequence B</p> <hr/> <p>Shift+A or B Undo: reload last-saved pattern</p> <hr/> <p>Shift+Rate (step rec) Change sequence length live</p> <hr/> <p>Scrub (step rec) Turn Rate enc to navigate steps</p> <p><b>SEQUENCE MODULATION TRACKS</b></p> <p>Count 4 tracks per pattern; 1 knob per track max</p> <hr/> <p>Max knobs 4 different knobs. 5th = "Memory full"</p> <hr/> <p>Smooth Utility&gt;Preset&gt;Seq 1-4 Smooth (slew)</p> <p><b>CLEAR MOD TRACKS</b></p> <p>Oct Mod (repeat) Cycle to target track (LED blinks)</p> <hr/> <p>Hold Oct Mod + Hold Erase current track. Repeat to clear all</p> <hr/> <p>Step-time mod tracks default to Smooth OFF. Real-time defaults to Smooth ON.</p>

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## MODULATION MATRIX (5×7 = 35 POINTS)

### SOURCES (ROWS 1-5)

1: CycEnv	Cycling Envelope output
2: ENV	Standard Envelope output
3: LFO	LFO output
4: Pressure	Keyboard pressure or velocity
5: Key/Arp	Keyboard pitch, arp, and sequencer

### DESTINATIONS (COLS 1-7)

1: Pitch · 2: Wave · 3: Timbre · 4: Cutoff	Hardwired
5: Assign 1 · 6: Assign 2 · 7: Assign 3	User-assignable

### MATRIX ENCODER OPERATIONS

Turn	Navigate all 35 patch points
Press	Enter edit mode; turn = set amt -100 to +100
Hold 0.5s	Reset current point to 0
Shift+long press	Reset ALL routings to 0

### ASSIGNING DESTINATIONS

All rows	Hold AssignX + turn target knob
One row	Nav to crossing → press enc → hold AssignX → turn knob
Meta-mod	Hold AssignX → move Matrix enc to target routing → press enc

LED: OFF=no routing/0 · ON=active · Blinking=selected for edit

## MIDI CC# REFERENCE

CC#	PARAMETER
2	Spice
5	Glide
9	Oscillator Type
10	Oscillator Wave
12	Oscillator Timbre
13	Oscillator Shape
23	Filter Cutoff
24	Cycling Env Amount
26	Filter/Env Amount
28	Cycling Env Hold
29	Envelope Sustain
64	Keyboard Hold (toggle)
83	Filter Resonance
91	Arp/Seq Rate (free)
92	Arp/Seq Rate (sync)
93	LFO Rate (free)
94	LFO Rate (sync)
102	Cycling Env Rise
103	Cycling Env Fall
105	Envelope Attack
106	Envelope Decay

Speech: CC10=category · CC12=timbre · CC13=word. All CC 0-127.

## MIDI SETTINGS (UTILITY>GLOBAL>MIDI)

Input Chan	All / 1-16 / None
Output Chan	1-16
Output Dest	None / USB / MIDI / Both
Local	On=engine; Off=MIDI only (DAW)
Arp/Seq Out	Off / On
Thru	Off / On (MIDI In → Out)
Knob Send CC	Off / On
Merge	USB+KBD / MIDI+KBD / BOTH+KBD

## SYNC & CV/GATE (UTILITY>GLOBAL)

### SYNC

Source	Int / USB / MIDI / Clock / Auto
Clock	1step / 2PPQ / 24PPQ / 48PPQ
Global Tempo	Off / On (ignore per-preset tempo)

### CV/GATE

Pitch Format	1V/Oct (def) / Hz/V / 1.2V/Oct (Buchla)
Gate Format	S-Trig / V-Trig 5V / V-Trig 12V
Pressure Range	1V-10V configurable
0V Reference	C-1 to G8 (for 1V/Oct)
1V Reference	C-1 to G8 (for Hz/V)

## GLOBAL SETTINGS (UTILITY>GLOBAL)

### CONTROLS

Knob Catch	Jump / Hook / Scaled (default)
Click to Load	Off / On
Osc Knob Speed	Slow (default) / Fast
KBD Sensitivity	10%-100%
AT Curve	Lin / Log / Exp
Vel Curve	Lin / Log / Exp
Relative Bend	Off / On (first touch = zero ref)

### TUNING, SCALE & MISC

Cent Offset	-50 to +50 cents
A Reference	427.47-453.89 Hz
Scale	off/major/minor/harmminor/dorian/mixolydian/blues/penta
Root Note	C - B
Mem Protect	Off / Factory Only / On
Reset	Yes = factory reset (erases all)

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PRESET SETTINGS (UTILITY>PRESET)	KEY SHORTCUTS	PRO TIPS																
<p><b>VOICE</b></p> <p><b>Bend Range</b> 0-24 semitones (0-2 octaves from center)</p> <hr/> <p><b>Glide Mode</b> Time / Sync / Rate</p> <hr/> <p><b>Unison Spread</b> 0.001-12.000 (12 = one octave)</p> <hr/> <p><b>Unison Count</b> 2-4 voices</p> <p><b>MODULATIONS</b></p> <p><b>Env Legato</b> Off / On (no retrigger on legato)</p> <hr/> <p><b>Env Snap</b> Off / On (sharper decay)</p> <hr/> <p><b>LFO Retrigger</b> Off / On / Legato</p> <hr/> <p><b>Press Mode</b> Aftertouch / Velocity</p> <hr/> <p><b>Key/Arp Mode</b> Linear / Random</p> <hr/> <p><b>Velo Amp Mod</b> 0-10 (velocity → volume)</p> <hr/> <p><b>Preset Volume</b> -12 to +12 dB</p> <p><b>SEQ/ARP</b></p> <p><b>Seq Length</b> 4-64 steps</p> <hr/> <p><b>Default Gate</b> 10-90% (default 50%)</p> <hr/> <p><b>Seq 1-4 Smooth</b> Off / On (slew per mod track)</p> <p><b>PER-PRESET SCALE</b></p> <p><b>Scale</b> global/off/major/minor/harmominor/dorian/mixolydian/blues/penta</p> <hr/> <p><b>Root Note</b> C - B</p>	<p><b>PRESET</b></p> <p><b>Long press Save</b> Quick save to current slot</p> <hr/> <p><b>Triple-click Preset enc</b> Reset to Init (not saved)</p> <hr/> <p><b>Shift+turn enc (name)</b> Fast scroll A/a/0/. ranges</p> <hr/> <p><b>Push+turn enc (name)</b> Edit char without advancing</p> <p><b>OSCILLATOR</b></p> <p><b>Shift+Wave/Timbre/Shape</b> Reverse knob speed</p> <hr/> <p><b>Shift+Type (sample osc)</b> Browse and select samples</p> <p><b>CYCLING ENVELOPE</b></p> <p><b>Shift+Rise</b> Rise curve: log → linear → exp</p> <hr/> <p><b>Shift+Fall</b> Fall curve: log → linear → exp</p> <p><b>MATRIX</b></p> <p><b>Hold enc 0.5s</b> Reset current point to 0</p> <hr/> <p><b>Shift+long press enc</b> Clear ALL matrix routings</p> <hr/> <p><b>Hold Assign1+knob</b> Assign all 5 sources → col 5</p> <hr/> <p><b>Hold Assign2+knob</b> Assign all 5 sources → col 6</p> <hr/> <p><b>Hold Assign3+knob</b> Assign all 5 sources → col 7</p> <hr/> <p><b>Hold Assign+Para btn</b> Assign Unison Spread as dest</p> <p><b>PARAPHONY</b></p> <p><b>Shift+Paraphonic</b> Activate Unison mode</p> <hr/> <p><b>Hold Para+Preset enc</b> Adjust Unison Spread</p> <hr/> <p><b>Hold Para+chord+release</b> Enter Paraphonic Chord Mode</p> <hr/> <p><b>Press Para (chord mode)</b> Exit Chord Mode</p> <p><b>RATES</b></p> <p><b>Press LFO Rate enc</b> Toggle LFO sync</p> <hr/> <p><b>Press Arp Rate enc</b> Toggle Arp/Seq sync</p> <hr/> <p><b>Shift+Rate enc</b> Set swing 50-75%</p>	<p><b>PRO TIPS</b></p> <p><b>Filter self-osc:</b> Resonance max on BPF/HPF → pure sine, blocks osc. Use as extra oscillator.</p> <hr/> <p><b>Audio-rate LFO:</b> LFO at 100 Hz → Pitch via matrix = FM-style harmonics.</p> <hr/> <p><b>Complex envs:</b> CycEnv (LOOP) → Env Attack/Decay = evolving ADSR. CycEnv → its own Amount = circular self-mod.</p> <hr/> <p><b>Freeze Spice/Dice:</b> Set Arp + Spice/Dice, then Shift+A or B to freeze into sequence permanently.</p> <hr/> <p><b>Chord progressions:</b> Chords osc + Key/Arp-Wave (Random mode) = auto-harmonization.</p> <hr/> <p><b>Paraphonic + Seq:</b> Hold 2 keyboard notes → seq uses remaining 2 voices for counter melody.</p> <hr/> <p><b>DAW integration:</b> Local OFF → keys/knobs → MIDI only → DAW sends back. No double-triggering.</p> <hr/> <p><b>Meta-modulation:</b> Use CycEnv to modulate the amount of LFO→Pitch for vibrato depth control.</p>																
		<p><b>GLOBAL SCALE MODES</b></p> <table border="1"> <thead> <tr> <th>SCALE</th> <th>NOTES (FROM C)</th> </tr> </thead> <tbody> <tr> <td>Major</td> <td>C D E F G A B</td> </tr> <tr> <td>Minor</td> <td>C D Eb F G Ab Bb</td> </tr> <tr> <td>Harm Minor</td> <td>C D Eb F G Ab B</td> </tr> <tr> <td>Dorian</td> <td>C D Eb F G A Bb</td> </tr> <tr> <td>Mixolydian</td> <td>C D E F G A Bb</td> </tr> <tr> <td>Blues</td> <td>C D Eb F Gb G Ab Bb</td> </tr> <tr> <td>Pentatonic</td> <td>C D E G A</td> </tr> </tbody> </table>	SCALE	NOTES (FROM C)	Major	C D E F G A B	Minor	C D Eb F G Ab Bb	Harm Minor	C D Eb F G Ab B	Dorian	C D Eb F G A Bb	Mixolydian	C D E F G A Bb	Blues	C D Eb F Gb G Ab Bb	Pentatonic	C D E G A
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