aurora

_travelers guide
_for spectral exploration

6 knobs	4 fft sizes	±3 octaves of warp

[shift] press [shift] hold › then noon = 12 o'clock cw / ccw = clockwise / counter

spectral reverb · phase vocoder at 48 khz · time-stretched tails, icy shimmers, whale songs

01 buttons · LEDs

au_01

[reverse]	plays the input backwards · LED ● · the LED pulse runs right to left · remembered
[freeze]	holds the current spectrum until pressed again · warp, time, blur, atmosphere, mix still move
[shift]	hold, then turn or press: the second jobs (03)
LED bar	your input is always ●

02 knobs

au_02 · all cv ±5 v

[warp]	pitch, ±3 octaves · noon = none · snaps to semitones · cv is 1 v/oct (fig.04)
[time]	blurs **amplitude**: smeared tails that follow the input
[blur]	blurs **frequency**: the alien, digitally stretched side
[reflect]	delay zones: none › early reflections › rhythmic taps
[mix]	dry ‹ › wet
[atmosphere]	noon flat · ccw whale-song filter · cw icy, then high pass

03 shift

au_03 · [shift] + …

[shift] + [mix]	**input level** –6 to +12 db · ● default, white = custom
[shift] + [reflect]	**stereo width** of the wet 0–100 % · default 75 % ●
[shift] + [reverse]	**fft size**: steps 4096 › 2048 › 1024 › 512 (fig.02)
[shift] + [reverse] 2 s	**factory reset**: fft 4096, reverse off, level 1× · white sweep
[shift] + [freeze]	reload the usb options (it also reloads by itself when the drive changes)

09 spectral, explained

au_09 · fft

phase vocoder	turns each slice of sound into sine waves, edits them, rebuilds it
why it matters	pitch and time come apart: warp moves pitch without speed, time stretches without pitch
the trade	bigger fft = finer pitch, smeared transients, more latency · smaller = the reverse

_fig.01 : time vs blur

two ways to smear a note



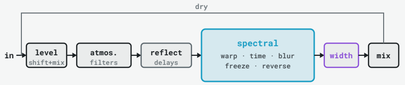
_fig.02 : fft size

shift + reverse



_fig.06 : signal path

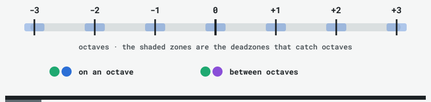
left to right



DSP_ORDER 1 (default): time domain first, then spectral, as drawn
DSP_ORDER 0: the spectral engine runs before the time-domain stage

_fig.04 : warp

±3 octaves · 1 v/oct



04 jacks

au_04

cv	[warp] 1 v/oct · [time] [blur] [reflect] [mix] [atmos] · all ±5 v, added to the knobs
[reverse] [freeze]	gates, 0.4 v threshold
audio in	left + right, 10 vpp ac-coupled · left alone feeds both
audio out	left + right, 10 vpp, true stereo

_fig.05 : atmosphere

three zones



05 usb · options.txt

au_05 · 1 = on, 0 = off

DSP_ORDER 1	1 = time domain into spectral · 0 = spectral into time domain
FREEZE_WET 0	1 = freeze jumps to full wet when mix is fully dry
LATENCY_COMP 0	1 = delays the dry to line up with the fft
ALWAYS_BLUR 1	0 = no blurring at all with time and blur fully ccw
QUANTIZE_WARP 1	semitones: 0 off · 1 knob · 2 knob and cv
WARP_DEADZONES 1	wide octave zones on the knob · 0 for smooth sweeps

any fat32 usb-a drive · the module runs without it · white LED over the port = settings loaded

10 experiments

au_10 · from the manual

spectral tear
[freeze] · time + blur high · sweep [warp] slowly
"timey-wimey frequency cacophony"

find a time zone
quarter-note chord stabs · time, blur down · turn [reflect] slowly · then add blur and time
reflect + blur = huge tails from short sounds

in sync
drums, no blur: set LATENCY_COMP 1 and ALWAYS_BLUR 0

06 firmware · calibration

au_06

update — or load an alternate firmware

1. one .bin on the drive, nothing else
2. power up with it inserted · it skips files it already has
3. check aurora_version.txt on the drive

calibrate warp — only if it tracks wrong

1. power up holding [reverse] until freeze pulses white
2. no other cv · 1 v into [warp] · press [freeze] (usb LED green)
3. 3 v into [warp] · press [freeze] · done · [shift] cancels

07 patches

au_07 · from the manual

basic reverb
time 50 % · mix 50 % · warp, atmosphere noon · fft ●
short sounds: add reflect for a longer tail

whale songs
slow, low sine in · mix 100 % · atmosphere 30 % · warp 65 % · time 50 % · blur 65 % · fft ●

arpeggiating reverb
sequencer cv into [warp] · time, blur 0 · mix 50 %
try reverse, or other warp intervals

note extender
an inverted envelope into [time] cv, fired with each note
tune its decay to catch the rich part, not the click

polyrhythm percussion
drums in · stepped random into [warp] · blur 75 % · reflect 40 % · fft ●

reversed swells
basic reverb settings · a gate at 2× the note rate into [reverse]
the tail pushes and pulls with each hit

_fig.07 : patch settings

the manual's knob positions

	warp	time	blur	refl.	mix	atmo.	fft
basic reverb	12	12	10	10	12	12	●
whale songs	10	12	10	10	14	14	●
arpeggiating	12	9	9	9	12	12	●
note extender	12	9	9	9	12	–	●
polyrhythm	12	9	14	15	12	15	●
reversed swells	12	12	10	10	12	12	●

note extender: an envelope on time cv does the work · reflect to taste

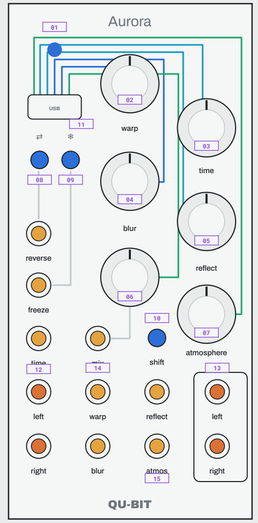
08 the module

au_08

size	12 hp · 22 mm · 215 mA +12 v · 6 mA –12 v · 48 khz, 24-bit · daisy
usb port	up to 500 mA for a device · counts against your supply

_fig.03 : front panel

01–11 = controls · 12–15 = jacks



[01]	**_LEDs :** light paths · status
[02]	**_warp :** ±3 oct
[03]	**_time :** amplitude blur
[04]	**_blur :** frequency blur
[05]	**_reflect :** delay zones
[06]	**_mix :** dry ‹› wet
[07]	**_atmosphere :** filters
[08]	**_reverse :** button + gate
[09]	**_freeze :** button + gate
[10]	**_shift :** second jobs
[11]	**_usb :** firmware · options
[12]	**_audio in :** left feeds both
[13]	**_audio out :** stereo
[14]	**_cv :** time · mix · warp · blur
[15]	**_cv :** reflect · atmos

_where things hide

au_11

held buttons

- **shift + mix** input level
- **shift + reflect** stereo width
- **shift + reverse** fft size · 2 s = reset
- **shift + freeze** reload usb

elsewhere

- **hold reverse at power on** calibrate warp
- **usb drive** options.txt · firmware
- **remembered** fft, reverse, level

LED codes

input	● always green
warp	● on an octave ● between
reverse	● on fft: ● ● ● ●
level · width	● default ○ custom
usb	○ flash = loaded ● calibration step