Hydra Functions Cheat Sheet

Sources.

Function	Description	Example
osc(freq, sync, offset)	Oscillating wave pattern	osc(60, 0.1, 0).out()
noise(scale, offset)	Noise texture	noise(10, 0.1).out()
voronoi(scale, speed, blend)	Voronoi pattern	voronoi(5, 0.3, 0.3).out()
shape(sides, radius, smooth)	Geometric shape	shape(3, 0.3, 0.01).out()
gradient(speed)	Gradient pattern	gradient(0).out()
solid(r, g, b, a)	Solid color	solid(1, 0, 0, 1).out()

Modulation.

Function	Description	Example
modulate(amount)	Modulate with texture	osc().modulate(noise(), 0.1).out()
modulateScale(mult, offset)	Modulate scale	osc().modulateScale(noise(), 1, 1).out()
modulateRotate(mult, offset)	Modulate rotation	osc().modulateRotate(noise(), 1, 0).out()
modulatePixelate(mult, offset)	Modulate pixelation	osc().modulatePixelate(noise(), 10, 3).out()
modulateRepeat(rx, ry, ox, oy)	Modulate repetition	osc().modulateRepeat(noise(), 3, 3, 0.5, 0.5).out()
modulateScrollX(scrollX, speed)	Modulate horizontal scroll	osc().modulateScrollX(noise(), 0.5, 0).out()
modulateScrollY(scrollY, speed)	Modulate vertical scroll	osc().modulateScrollY(noise(), 0.5, 0).out()
modulateHue(amount)	Modulate hue	osc().modulateHue(noise(), 1).out()

Color.

Function	Description	Example
color(r, g, b, a)	Apply color	osc().color(1, 0, 0, 1).out()
colorama(amount)	Colorama effect	osc().colorama(0.005).out()
saturate(amount)	Adjust saturation	osc().saturate(2).out()
contrast(amount)	Adjust contrast	osc().contrast(1.6).out()
brightness(amount)	Adjust brightness	osc().brightness(0.4).out()
invert(amount)	Invert colors	osc().invert(1).out()
luma(threshold, tolerance)	Luma key	osc().luma(0.5, 0.1).out()
posterize(bins, gamma)	Posterization	osc().posterize(3, 0.6).out()

Geometry.

Function	Description	Example
rotate(angle, speed)	Rotate source	osc().rotate(10, 0).out()
scale(amount, xMult, yMult, ox, oy)	Scale source	osc().scale(1.5, 1, 1, 0.5, 0.5).out()
pixelate(pixelX, pixelY)	Pixelation effect	osc().pixelate(20, 20).out()
repeat(repeatX, repeatY, offsetX, offsetY)	Repeat source	osc().repeat(3, 3, 0, 0).out()
repeatX(reps, offset)	Horizontal repeat	osc().repeatX(3, 0).out()
repeatY(reps, offset)	Vertical repeat	osc().repeatY(3, 0).out()
scroll(scrollX, scrollY, speedX, speedY)	Scroll source	osc().scroll(0.5, 0.5, 0, 0).out()
scrollX(scrollX, speed)	Horizontal scroll	osc().scrollX(0.5, 0).out()
scrollY(scrollY, speed)	Vertical scroll	osc().scrollY(0.5, 0).out()
kaleid(nSides)	Kaleidoscope effect	osc().kaleid(4).out()

Blending.

Function	Description	Example
add(amount)	Add sources	osc().add(noise(), 1).out()
sub(amount)	Subtract sources	osc().sub(noise(), 1).out()
layer()	Overlay sources	osc().layer(noise()).out()
blend(amount)	Blend sources	osc().blend(noise(), 0.5).out()
mult(amount)	Multiply sources	osc().mult(noise(), 1).out()
diff()	Difference between sources	osc().diff(noise()).out()
mask()	Apply mask	osc().mask(shape(3)).out()

Utilities.

Function	Description	Example
out()	Output buffer	osc().out()
render()	Render buffer	render(o0)
initCam()	Initialize webcam	s0.initCam(); src(s0).out()
initVideo()	Initialize video	s0.initVideo("url"); src(s0).out()
initImage()	Initialize image	s0.initImage("path"); src(s0).out()
src(texture)	Set source	src(o0).out()

Global Variables.

Variable	Description	Example
time	Elapsed time	osc().rotate(() =¿ time).out()
speed	Playback speed	speed = 0.5
mouse	Mouse position	osc().rotate(() =¿ mouse.x * 0.01).out()
a.fft	Audio frequency data	osc().modulate(noise(() =¿ a.fft[0] * 10)).out()

Audio Functions.

Function	Description	Example
a.show()	Show FFT volume meter	a.show()
a.setSmooth()	Set audio smoothing	a.setSmooth(0.8)
a.setBins()	Set frequency bins	a.setBins(4)
a.setCutoff()	Set cutoff frequency	a.setCutoff(2)
a.setScale()	Set audio scale	a.setScale(2)

MIDI Integration.

Function	Description	Example
await loadScript('https://h.6120.eu/midi.js')	Load MIDI script	await loadScript('https://cdn.jsdelivr.net/npm/hydr midi@latest/dist/hydra-midi.js')
await midi.start().show()	Start MIDI & Display	await midi.start().show()
note('*')	MIDI note value	solid(note('*'), 0, 1).out()
cc(channel, controller)	MIDI CC value	osc(cc(0, 1) * 100).out()
aft(channel, controller)	MIDI aftertouch value	solid(aft('*'), 0, 1).out()

Useful Links.

- Hydra Functions - https://hydra.ojack.xyz/api/
- Hydra Book - https://hydra-book.glitches.me/
- MIDI - https://github.com/arnoson/hydra-midi
- Hydra collaborative editor - https://flok.cc/
- Discord - https://discord.com/invite/ZQjfHkNHXC
- Updated Cheat Sheet - https://6120.eu/workshop-hydra

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