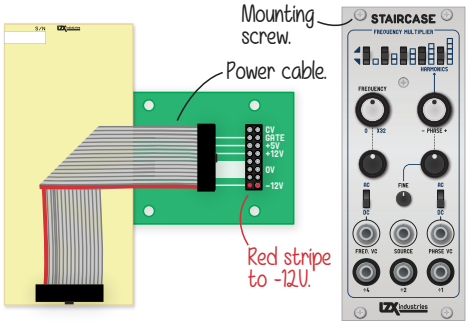
## BEFORE YOU BEGIN

Take a moment to familiarize yourself with our website lzxindustries.net. You'll find documentation, instructional videos, links to community forums, and other user resources. Register your product's serial number with us to aid any future technical support requests. Some synthesists will find everything they need to learn this module in this reference card, but don't forget there are videos and patch tips online. If you get stuck, have questions, or need help of any kind -- please write to us.

## INSTALLATION

Power down the EuroRack case and unplug it from the wall. Connect the provided EuroRack power cable to your module and then to your EuroRack power bus board as shown. Mount the module in your case using the mounting screws provided by your case's manufacturer.




## STAIRCASE SPECIFICATIONS

| FORMAT |
|---|
| 3U EuroRack Synth Module |

| WIDTH | DEPTH |
|---|---|
| 10HP | 32mm |

| MAX POWER DRAW | |
|---|---|
| +12V | 70mA |
| -12V | 70mA |
| +5V | N/A |

| OUTPUT LEVELS |
|---|
| 0-1V |

| VC CONTROL RANGE |
|---|
| 0-1V |

| MAX INPUT VOLTAGE |
|---|
| +/-12V |

| INPUT TERMINATION |
|---|
| 100K ohms |

| OUTPUT RESISTANCE |
|---|
| 499 ohms |

ONE YEAR LZX industries WARRANTY

MADE IN PORTLAND, OR USA

## TIPS & TECHNIQUES

- Staircase is one of the most versatile and exciting modules in our system. Revisit it with any possible input signal you have access to, it is designed to make just about anything more geometrically complex.
- Use Staircase to process horizontal and vertical ramp signals at various points along your shape generation patches, and then use the stage outputs to modulate the shape patch.

## YOUR NEXT MODULE?

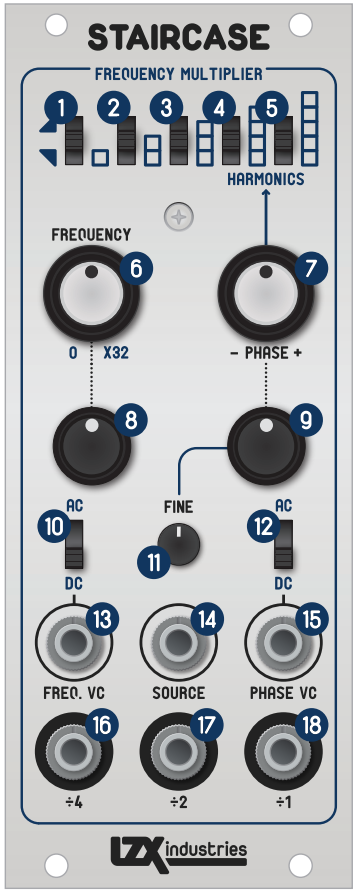

Staircase works wonderfully as a waveshaping expander to a video oscillator such as Prismatic Ray. By processing one of Prismatic Ray's waveshape outputs, it can multiply the oscillator's frequency and create additional outputs at fixed harmonic ratios.

LZX-SC-URC
Written by Lars Larsen
Illustrated by Dave Larsen
First Printing, Aug 2017


# STAIRCASE

## USER REFERENCE CARD

LZX industries




## CONTROLS & CONNECTIONS

| | PHASE | |
|---|---|---|
| 1 | Stage 1 | + OFF – |
| 2 | Stage 2 | + OFF – |
| 3 | Stage 3 | + OFF – |
| 4 | Stage 4 | + OFF – |
| 5 | Stage 5 | + OFF – |
| 7 | Phase | +/–1V |
| 9 | VC level | +/– 15 |
| 11 | VC fine tune | +/–10% |
| 12 | VC coupling | AC DC |
| 15 | VC input | 0–1V FS |

| | FREQUENCY | |
|---|---|---|
| 6 | Frequency | 0–X32 |
| 8 | VC level | +/– 13 |
| 10 | VC coupling | AC DC |
| 13 | VC input | 0–1V FS |

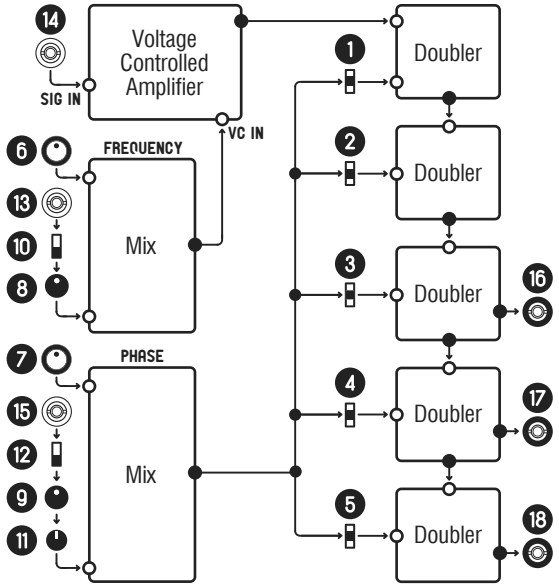
| | INPUTS | |
|---|---|---|
| 14 | Source | 0–1V FS |

| | OUTPUTS | |
|---|---|---|
| 16 | /4 (Stage 3) | 1V DC |
| 17 | /2 (Stage 4) | 1V DC |
| 18 | /1 (Stage 5) | 1V DC |

## FIRST STEPS

- Patch any kind of grayscale waveform or video into the Source input. The H+V ramp mix from Visual Cortex is a great signal to start with, but don't forget to experiment!
- Set all controls and switches to the positions shown in the frontpanel image to the left.
- View the /1 (Stage 5) output using your video output module.
- Adjust the Frequency control clockwise and counterclockwise to multiply the repetitions of the input waveform.
- Switch the Stage 1 switch up and play with the Phase control. Experiment with different combinations of Stage switch settings.
- Patch the three different stage outputs to different color channels to use Staircase as a colorizer.

## SIGNAL PATH BLOCK DIAGRAM




## VIDEO WAVESHAPING

Waveshapers have always been a function on the fringe of the norm in audio synthesizers, most often included as integrated functions of Voltage Controlled Oscillators. Staircase is a wide bandwidth waveshaper that, in visual terms, functions as a multi-stage image solarizer with continuous control.