

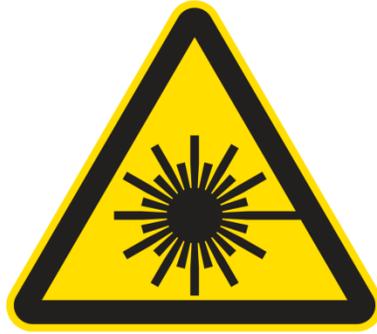
LC-1000



Laser Show System

Owner's Manual and User Guide

Magnum Lighting strongly recommends keeping this manual with your new laser projector at all times as a field reference.



WARNING!

**LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO
DIRECT OR SCATTERED RADIATION
CLASS 4 LASER PRODUCT**

**BEFORE USING THIS PRODUCT, READ AND FOLLOW ALL NOTICES AND
SAFETY INFORMATION THROUGHOUT THIS GUIDE.**

**AN FDA VARIANCE IS REQUIRED PRIOR TO OPERATION
OF ANY CLASS 4 LASER PROJECTOR.**

THIS LASER PRODUCT IS NOT TO BE USED OUTDOORS

**Some US states require additional licensing and/or registration. Many
locations require operation only under the supervision of a trained Laser
Safety Officer (LSO).**

MAGNUM
LIGHTING

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Phone: 076087566910

If you have any questions about any of the content of this manual
or the safe operation of your new laser projector, please do not hesitate
to contact Magnum Lighting directly.

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Introduction

Visuals play a huge role in the sensory experience of music. The synergy of lasers, lights, screens and strobes are why we go to clubs and festivals. The LC-1000 features over 100 built-in visualizers and a library of music laser shows.

The LC-1000 combines a portable laser projector, music visualizer and laser show software. Just connect a Mac, PC, or Android device and that's it. With it's compact size, bring the party everywhere with you.

With the easy-to-use LaserOS projector software, enjoy laser shows, games, clocks, social media, projection mapping and more...

“Caution – use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.”



2. LC-1000 Parts Diagram

1. Laser Aperture - Laser light is emitted from this opening.
2. Beam Block - Prevents laser emission and also restricts the laser scan from going into an audience.
3. Key Control LED indicators – shows if the LC-1000 is Locked/Unlocked and when the lasers are emitting.
4. Charge Status LED indicator – changes color from red to green to show battery charge
5. Power Switch LED indicator - shows if the LC-1000 is powered On/Off
6. Micro USB Port - Provides connection and control of the LC-1000 via a PC/Mac/Android device. The laser will turn off if it is disconnected.
7. Key Control - Prevents accidental operation. Resetting of the key control will be required if there is a power loss or remote interlock cycling.
8. Remote Interlock Connector- Provides a safety shut-off for terminating the laser emission via a jumper connection. A jumper is included with the product.
9. Power (DC) Input - Power connection/charging port via wall outlet.
10. Power Switch - Toggles the power ON or OFF.



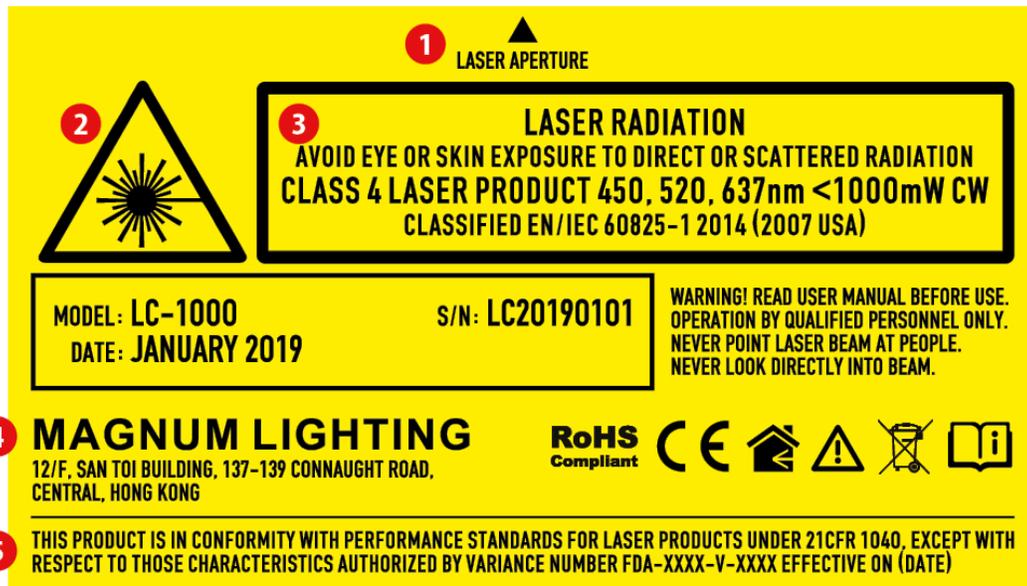
3. Technical Specifications:

Model:	Basic	Pro
Power:	800mW	1000mW
Battery:	10,000 mAh	14,000 mAh
Blue:	500mW	700mW
Green:	100mW	
Red:	150mW	
Modulation:	Analog 33kHz	
Scan speed:	>30,000pps @ 8 deg	
Max Scan Angle:	>32 degrees	
Size:	10 x 10 x 10 cm	
Weight:	1.4 kg	
Voltage:	100 - 240V	
Warranty:	1 year	
Software:	<u>LaserOS Included</u>	
Safety:	Features key, interlock, beam block, indicator LED. Complies with latest safety standard IEC 60825-1	

DAC / Software:

- MAC: OSX 10.6+
- PC: Windows 7+, 1GHz, 2GB of RAM
- ANDROID: Android 4.4+
- INPUT MODES: Line-in (25ms latency) or Microphone (40ms latency)
- LaserOS: Features an ILDA player with a selection of over 100 visualizers and various apps included.

4. Product Labeling and Placement



1. Laser Aperture
2. Hazard Warning Symbol
3. Explanatory
4. Manufacturer's Identification
5. Certification

Label Placement

Protective Housing Label
(Appears on underside of housing)



5. Safety Guidelines and Proper Usage

1. No scheduled maintenance necessary to keep the product in compliance. Simply keep the laser free from dust or other contaminants that could cloud or dirty the laser aperture. Cleaning the aperture window is the **ONLY** maintenance allowed and must be performed with the unit powered down and locked off. **Servicing by the user is not allowed. Any attempt to open or modify the unit is prohibited. Instant permanent blindness may result in case of an accidental eye exposure to the beam.**
2. Do not expose the human eye directly or indirectly to focused or scattered laser radiation as loss of vision, complete blindness, and/or other serious injuries may result. Lasers are capable of starting fires at great distances. Do not use around flammable materials.*
3. Do not take apart, modify or dismantle the laser or operate it under abnormal current load (doing so will void the warranty). Strictly no service is allowed. Servicing should only be handled by authorized factory trained technicians.
4. Always treat your laser with great care as some components are very fragile and must not be subjected to shock.
5. Avoid turning the laser on and off frequently as it will reduce the diode life. This device does not have a set duty cycle but we do not recommend using it for more than four hours continuously.
6. From time to time, clean the laser aperture with a dry tissue that does not pill. You may also use an alcohol prep wipe and compressed air to blow dust from the vents. **BE SURE** the alcohol has dried fully before activating the laser. **This is the only user maintenance allowed and can ONLY be performed with the unit powered down and locked off.**
7. Always keep all factory supplied labels on the unit and visible. These are required for legal compliance.
8. During use, be sure to leave an open space around all sides of the laser to facilitate airflow through the heatsink beneath the device.
9. Operate your laser only within the specified temperature range of 10°C (50°F) to 40°C (104°F). Failure to do so may result in weak output, overly strong output which will diminish the life of the unit and/or large output power swings. The LC-1000 is thermostatically monitored so we can determine if a failure was

temperature related. Such failures are NOT covered under our manufacturer's warranty. Extreme cold and hot temperatures WILL cause a diode failure. Keep this unit climate controlled at ALL times.

10. Always ensure that the main power supply is properly grounded before use. Do not use a 2 prong IEC cord with this projector. You should always hook up a laser system in such a way that you have both a primary and backup means of instantly terminating laser emissions.

11. DO NOT USE the laser device if you suspect that it contains a defect of any kind either from manufacturing, damage, general wear or has a broken manufacturer's seal. Contact Magnum Lighting to return the unit to the factory for service and/or maintenance immediately.

12. Should you have difficulty operating the laser properly and troubleshooting does not work, go to <http://www.magnumlighting.com> for support and RMA assistance if necessary. Do not attempt to service, modify or fix the laser yourself. You will be provided with instructions on how to send the laser projector back for repair.

13. Before using this product in any capacity, ensure that the unit is properly secured to prevent accidental beam shifts and that a safety cable is used for any aerial rigging.

14. This product is not a toy and should be kept inaccessible to unauthorized persons before, during, and after use. Keep away from minors.

15. Authorized persons should only be employees of an FDA variance holder. See the Magnum website: <http://variance.magnumlighting.com/> for obtaining a variance and to view online laser safety and operator training.

16. This product is not to be used outdoors. Do not allow laser light to escape indoor settings as this level of laser light can interfere with Aircraft operation at many miles. DO NOT allow lasers to hit aircraft or enter airspace. Shining a laser at an aircraft in the US is considered a federal crime punishable by fines or jail time.**

17. Before using this product, it is the responsibility of the user to be familiar with all Federal and State reporting and usage requirements. Laws vary by state, some US states require additional licensing and/or registration. Many locations require operation only under the supervision of a trained Laser Safety Officer (LSO). An FDA variance is required to operate this product in the United States.

18. For all venues you must designate safe and restricted areas of the venue where persons are or are not allowed to be respectively. The “safe areas” should not be subject to any laser radiation either directly or indirectly. By protocol, there must be at least a 3 meter buffer between safe and restricted areas on all sides. In other words, all laser beams must terminate (ie. not be reflected away) in the restricted areas to avoid human contact. The laser must never be aimed at or allowed to be directed or reflected toward other people or reflective objects.

19. Do not stand in front of the laser while active. All persons should wear protective eyewear while rigging, maintaining, or otherwise working with the laser.

*Failure to follow the above precautions and other precautions contained in this user manual, particularly with regard to human exposure to laser radiation and electrical safety, may result in serious injury, loss of vision, electric shock or skin damage. Class 4 lasers must be handled and operated with care and extreme caution.

**This product shall NOT be operated by persons who are not trained in proper laser safety procedures and/or do not know how to use all components of a laser system properly. The safety procedures outlined in this manual must be observed at all times to provide you with safe and fun laser displays. Please contact us if you have any questions about how to safely and effectively use our products!

**For more safety information & guidance please refer to ANSI Z136.1 (2007) Safe Use of Laser available at the Laser Institute of America website:
www.laserinstitute.org**

6. Setup Guide

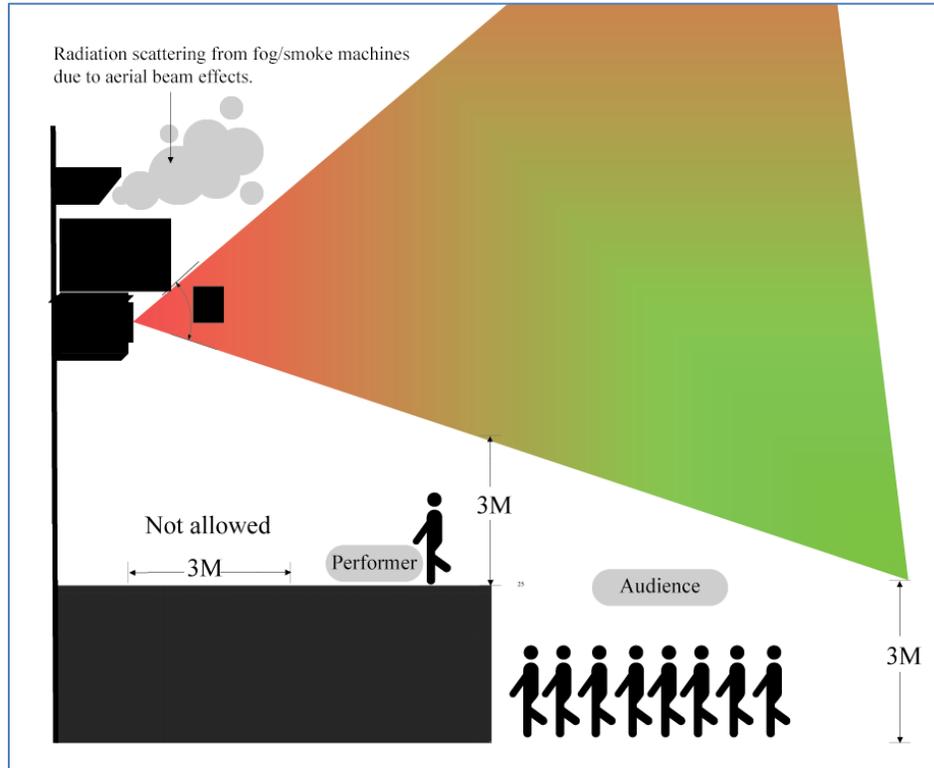
What you need:

- LC-1000 home laser system
- USB Micro cable
- An approved US FDA variance prior to use of the laser.
- View the online laser safety and operators training prior to powering on the laser. See “General Safety and Maintenance Guidelines” #15 for details.
- Mac OS X 10.6, Windows PC or Android device and the LaserOS app.
You can download a copy of the app from “www.laseros.com”.

Installation and Operation:

1. Adjust the beam block with the unit powered off, make sure the key is not connected, secure projector aiming, then make adjustments to the beam block.

Note: You may need to repeatedly power the laser back on to check for the proper beam block setting until it prevents any scanning into audience areas. All beams must be maintained at least 3 Meters (10 feet) above the floor level where people may be present. **Eye exposure to laser light can cause instant injury and permanent blindness.**



2. Place appropriate compliant ANSI area warning sign(s) in and around the laser show venue especially areas accessible to the audience.



3. Connect the USB cable, power cable (optional if LC-1000 is fully charged), interlock, key. Use the on/off switch to power the LC-1000 laser projector. Turn the Key Control to the run position to enable laser operations.



4. Connect the LC-1000 to your Mac, PC or Android device via USB cable.



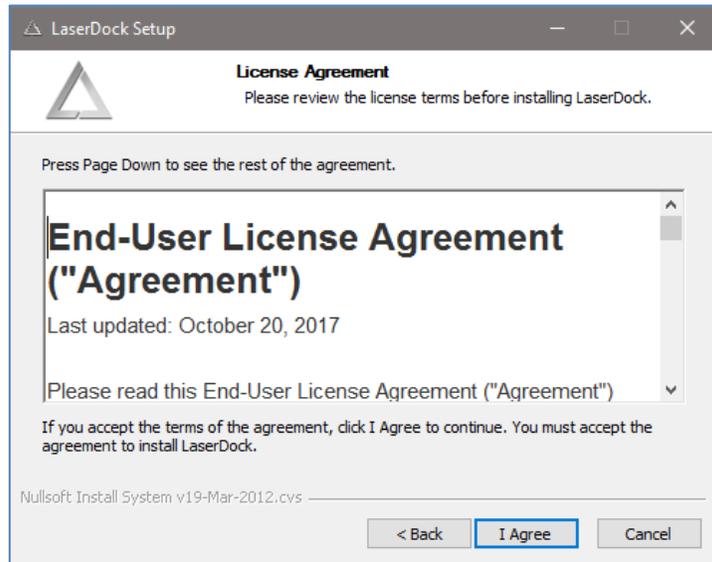
5. Download and install the app from “www.laseros.com”. The app is available for Windows, MAC or Android.



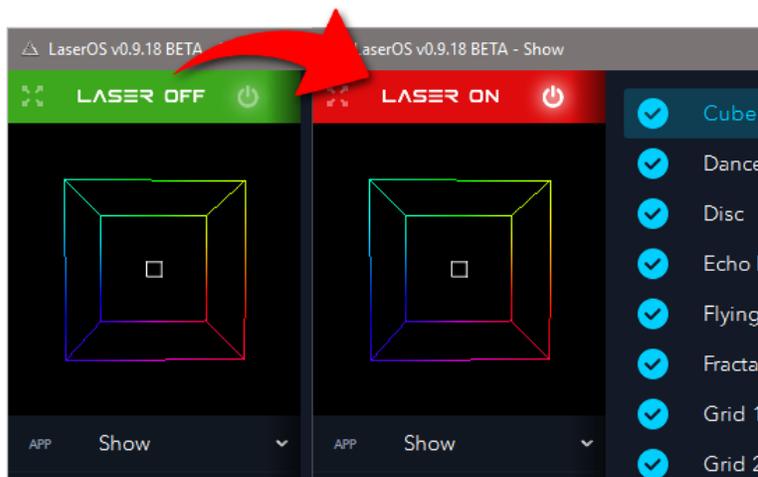
If you get an error with OSX security preferences, locate the app in Finder, right-click on the app file and choose "Open" to allow the app to run.

6. Run LaserOS installer and follow instructions carefully. You will need to accept the License Agreement to use the app.

After the installation is complete, look for the LaserOS icon and launch the program.

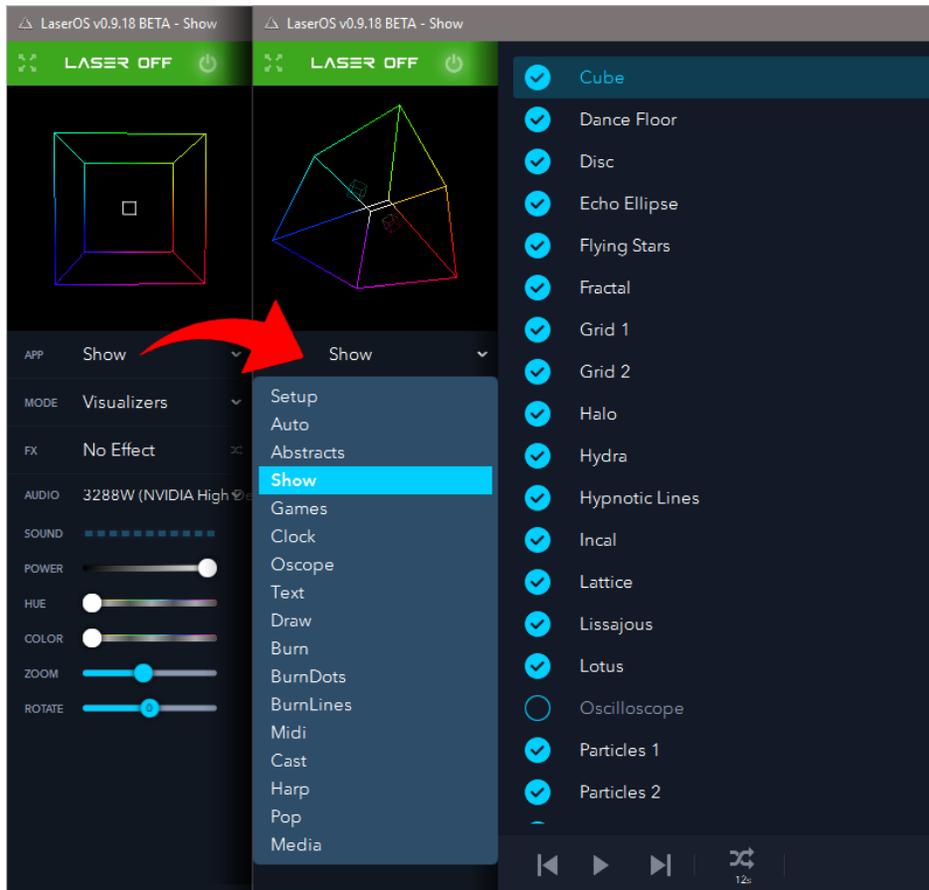


7. The LaserOS app will detect if the LC-1000 is connected. It can then be turned on or off from the power menu in the top left corner of the app. Pressing the ESC key will also turn off the laser.

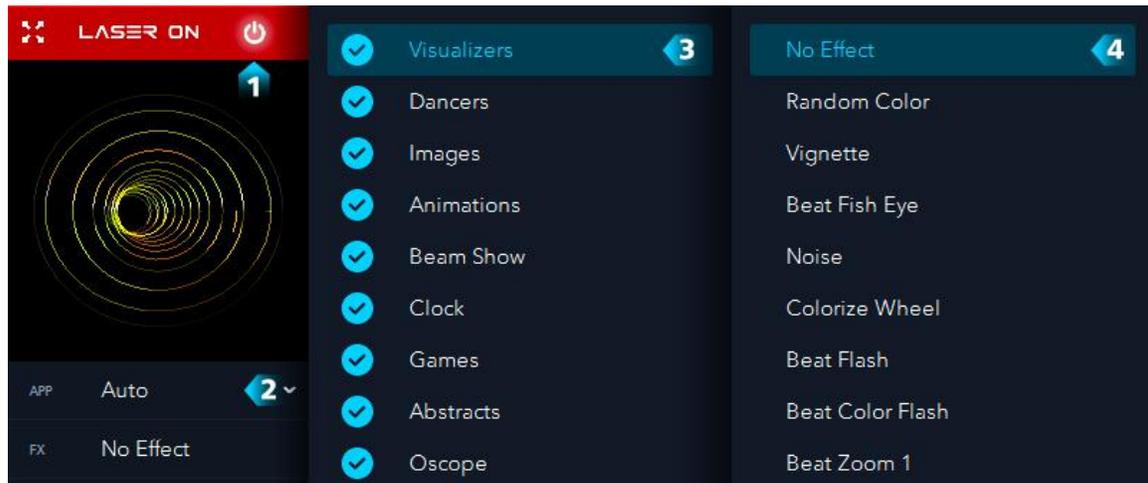


Note: While securing projector aiming, turn off the unit and remove the key. Check for the proper beam block setting. Repeat until beam block prevents any scanning into audience areas.

8. From the main menu, you can easily select from the different apps, modes and laser show effects available. Audio, power level, color/hue and other settings can also be adjusted from here.



7. LaserOS Quick Start Guide for PC, Mac



Autoplay

Animations, Beam Show, Images, Visualizers, and Clock apps use the same interface.

1. Click to turn the laser on and off. ESQ-key will disable laser.
2. Choose an app.
3. Scroll or use up/down keys to change selection.
4. Scroll or use left/right keys to select visual effect filter. Multiple effects can be layered.

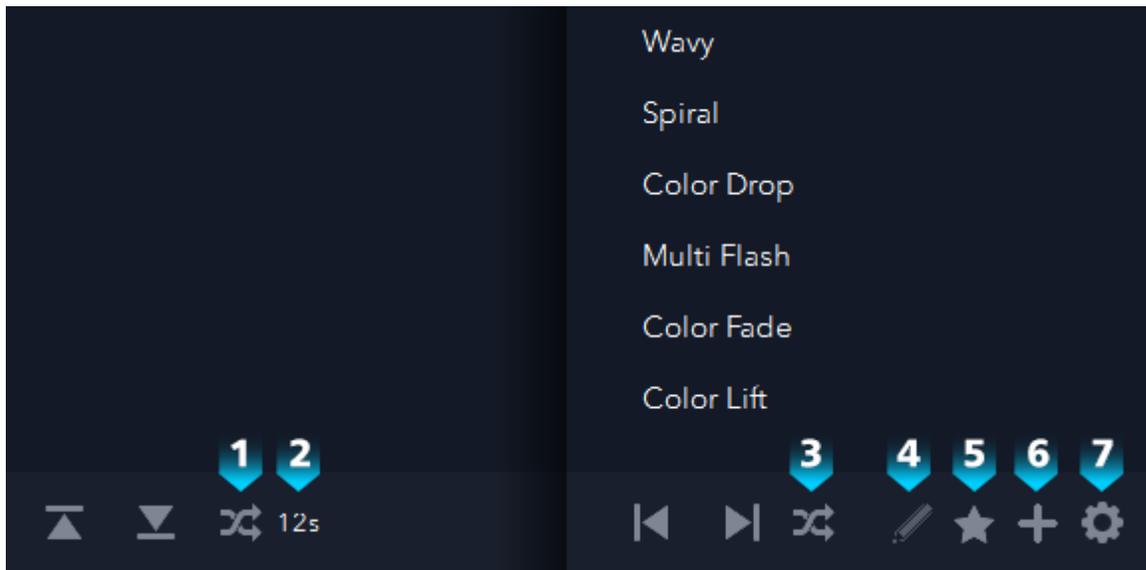


Control Panel

Pro-tip: Hold Shift to add sliders from other apps to this area.

1. Audio input is used to generate musically reactive visuals. Use digital system audio source (bypass audio) for best results.
2. Show levels when audio input is detected.
3. Auto detects BPM, double-click for more options.
4. Adjusts the laser output power of the LaserCube.
5. Adjust color theme of laser. Disable slider by dragging slider all the way left. Pro Tip: Double-click to sync to BPM.

6. Adjusts the color balance of the laser. Enable checkbox for monochrome color. Disable slider by dragging slider all the way left.
7. Adjusts the angle of the laser projection.
Pro Tip: To cover a wide area, use max zoom. For best image quality, use mid zoom or less.
8. Rotates the laser projection.



Options

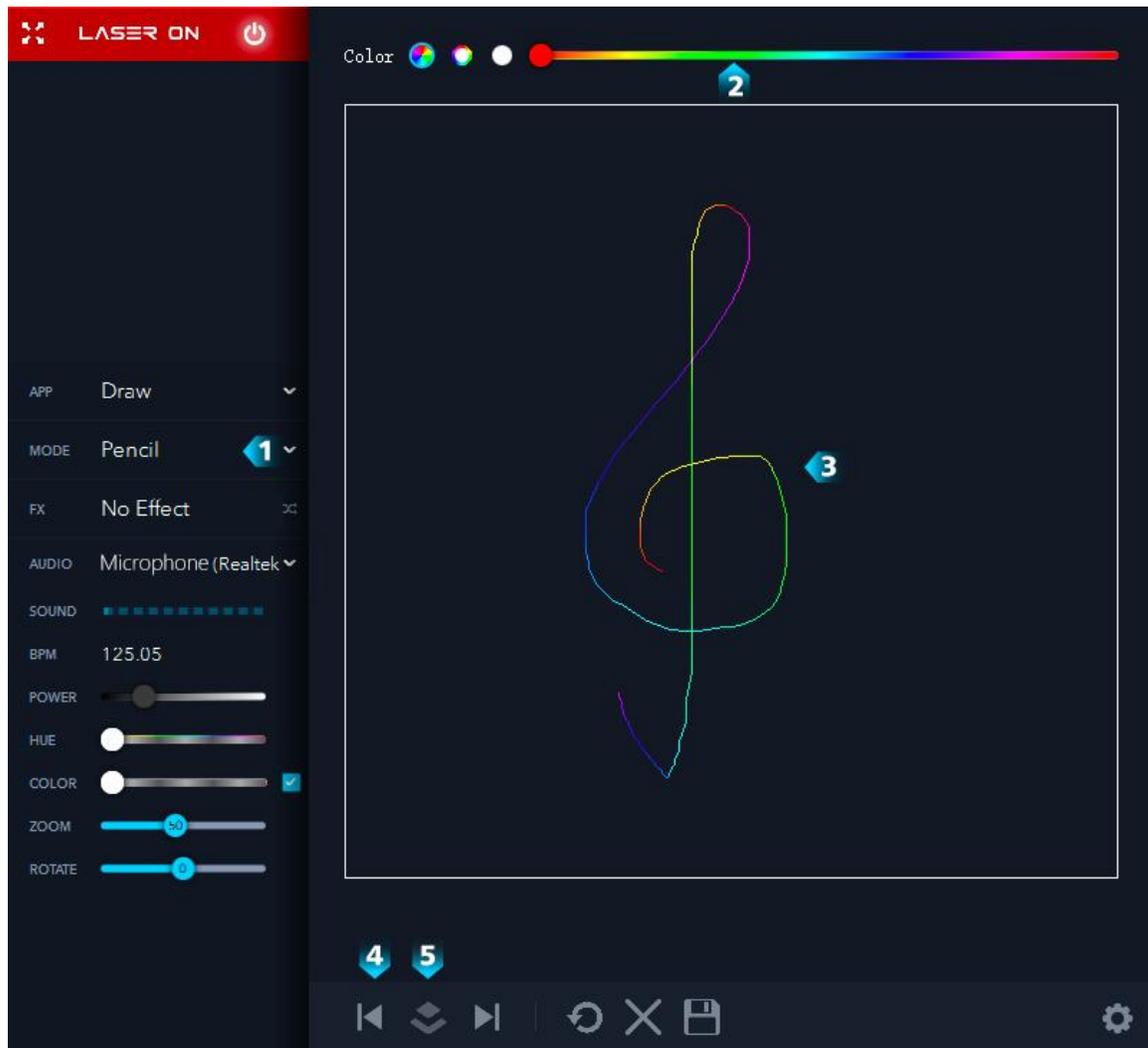
1. Click to cycle through autoplay options:
2. Sequential, Shuffle, Off.
3. Set autoplay duration in seconds or beats.
4. Toggle to enable Effects autoplay.
5. Adjust effect intensity.
Pro-tip: Double-click slider to link with the BPM.
6. Assign a keyboard/midi hotkey.
7. Add your favorites to a playlist.
8. Open laser settings menu.

Apps



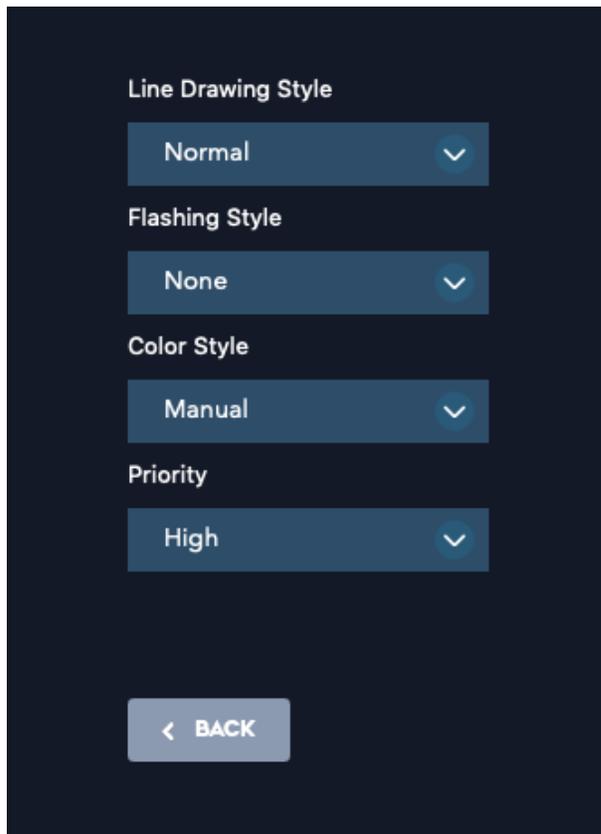
Abstracts app

1. Select from 3 abstract types.
2. Locked sections will not be randomized.
3. Change slider drawer.
4. Experiment by dragging some sliders. Double-click to lock slider from randomization.
5. Randomizes all values, use up/down arrows or autoplay. Save your favorites.
6. Goto Saved to access saved abstracts.



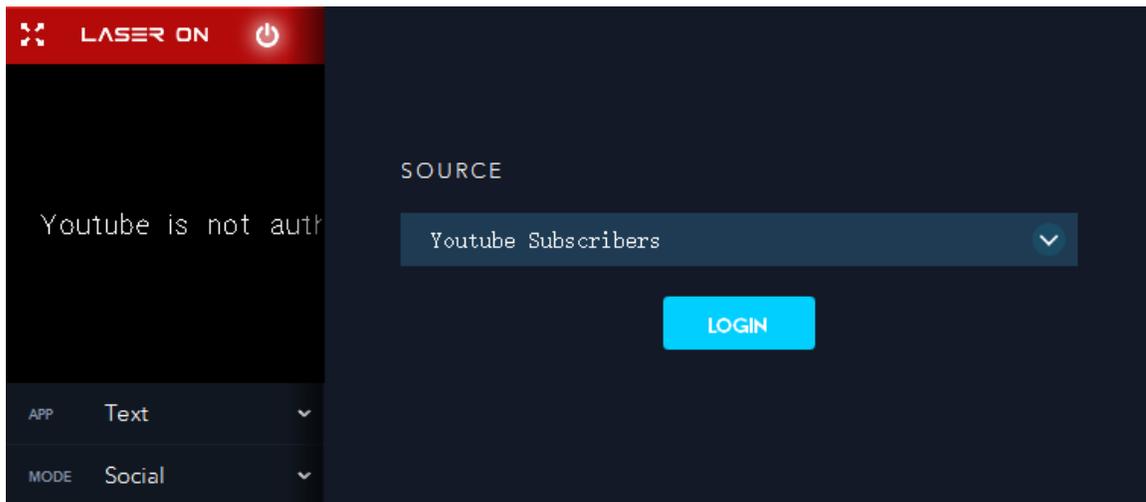
Draw app

1. Change brush mode or view saved drawings.
2. Pick a color or rainbow brush.
3. Draw here! Stylus input recommended.
4. Select a specific layer.
5. Projection mapping mode.



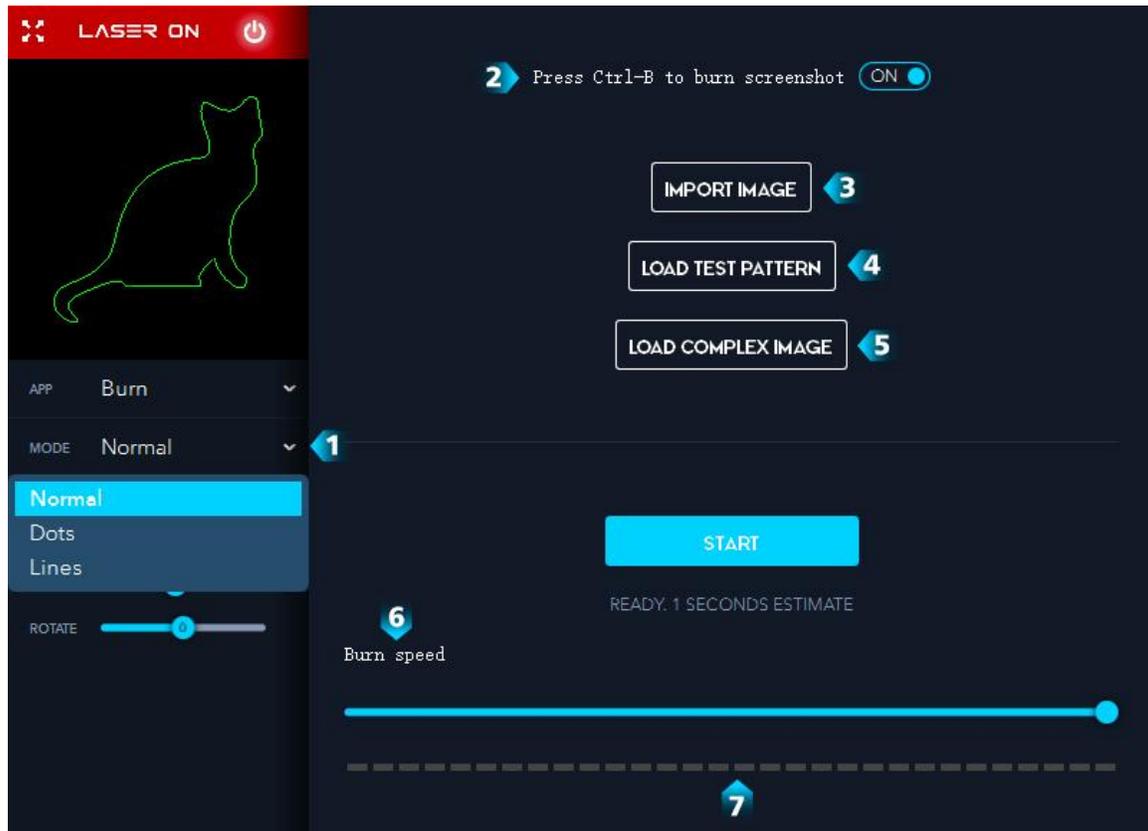
Projection Mapping

Experiment with various drawing, blinking, and color styles for each individual element.



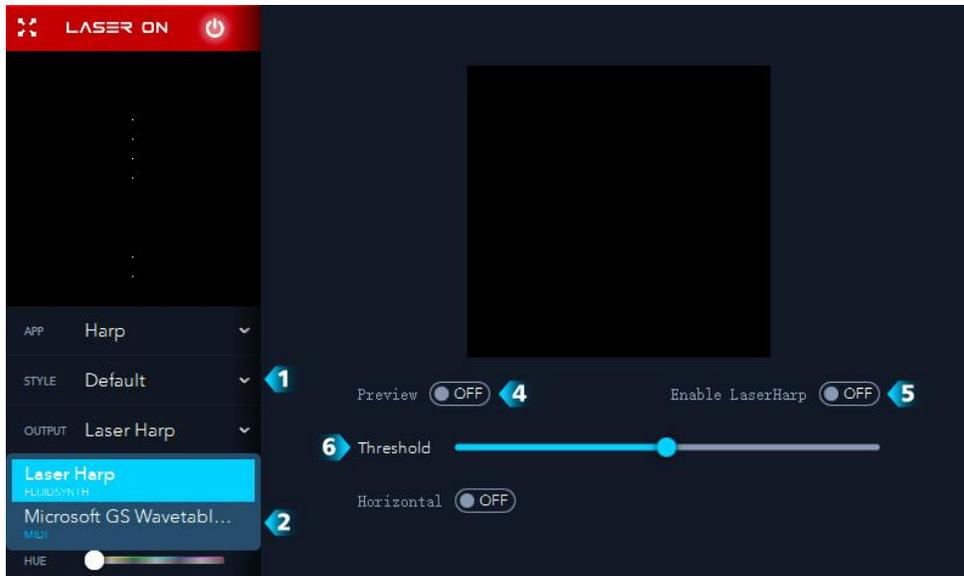
Youtube, Twitter, Gmail

Login to your Youtube, Twitter, and Gmail accounts to display subscriber/view counts, tweets, and new email messages.



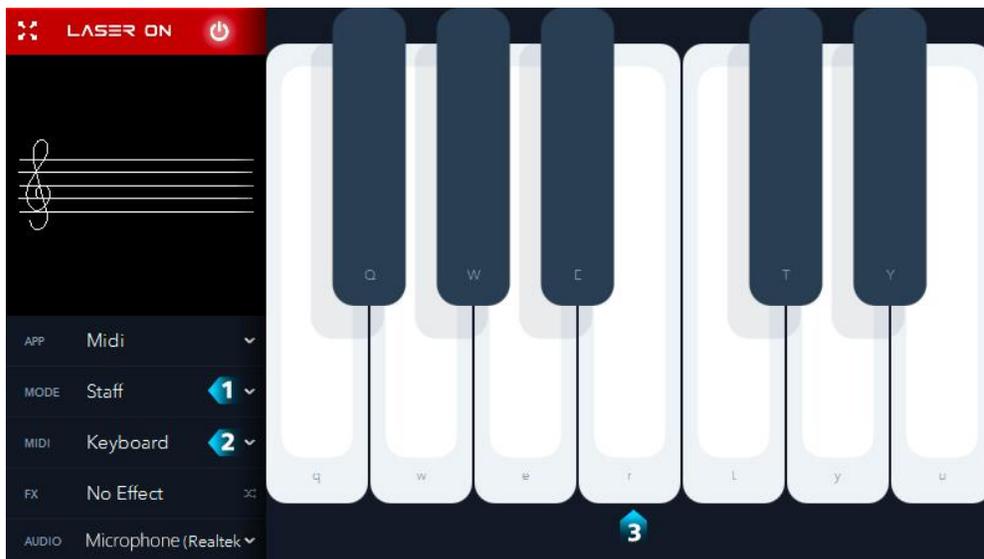
Burn app

1. Burn raster lines or dots instead of vector.
2. Use Ctrl-B hotkey to Burn any 'screenshot' from other apps.
3. Import a SVG, PNG, JPG, BMP file.
4. Used to calibrate laser speed.
5. Select from a list of complex detailed images for engraving.
6. Burn speed is how fast the laser engraves. Use a slower speed for thicker materials. If you are unsure, start by trying a higher burn speed. Optional accessory Engraving Lens is recommended. Use 15cm distance if using the lens.
7. Shows the progress of the engraving process.



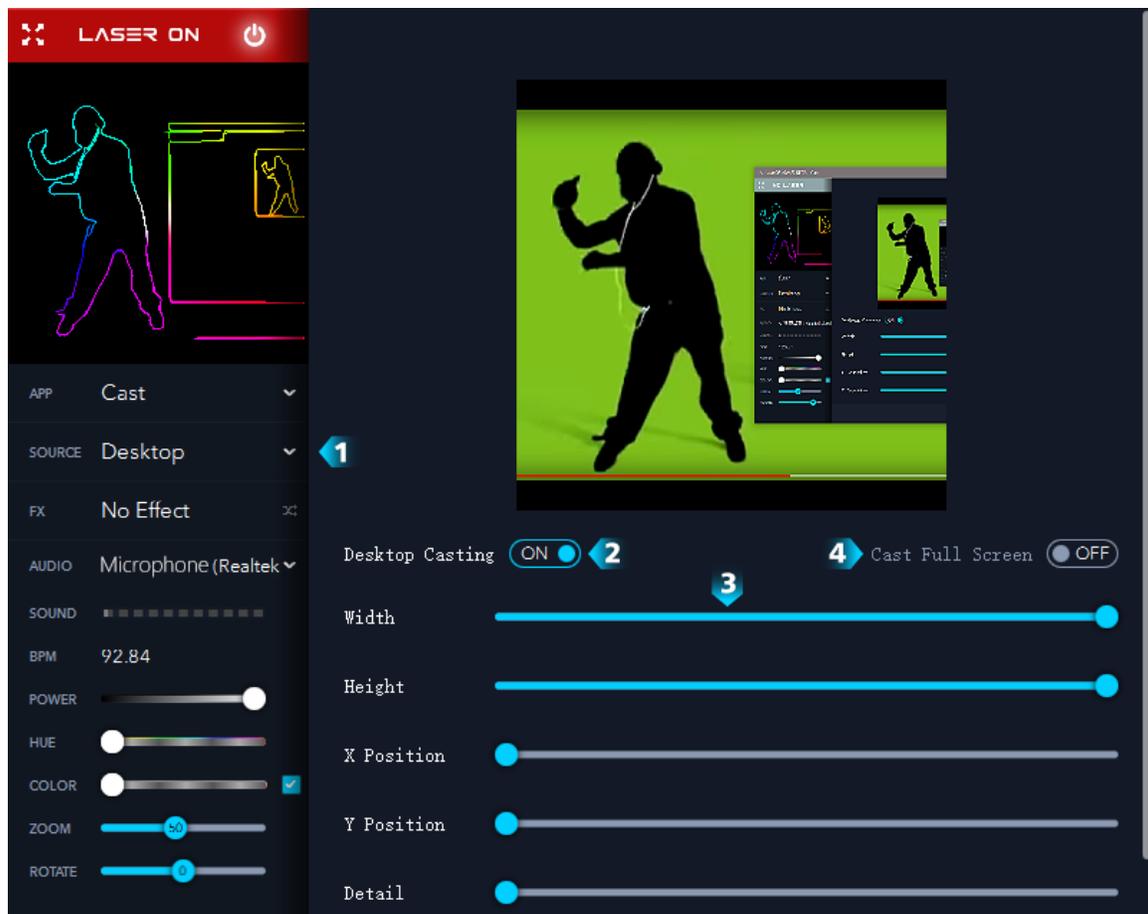
Harp app

1. Choose a visual style for the LaserHarp.
2. Connect a midi output to use LaserHarp as a midi controller.
3. Turn on preview to display the 13 dots.
4. Point your camera at the 13 dots, click to enable.
5. Adjust gamma threshold to help camera recognize the 13 dots.



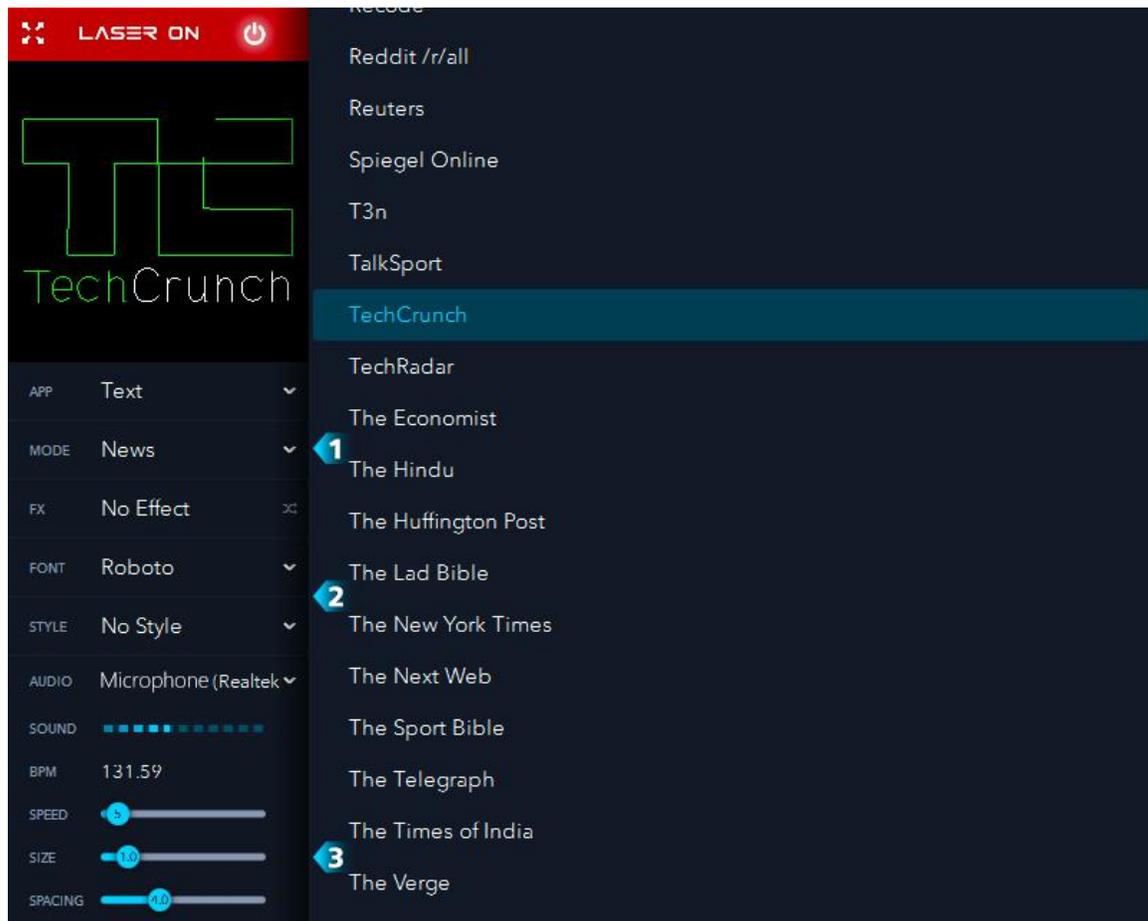
Midi app

1. Select appearance of Midi mode.
2. Connect a midi instrument, MiGic app can be used with electric guitars.
3. Play using your keyboard or mouse.



Cast App

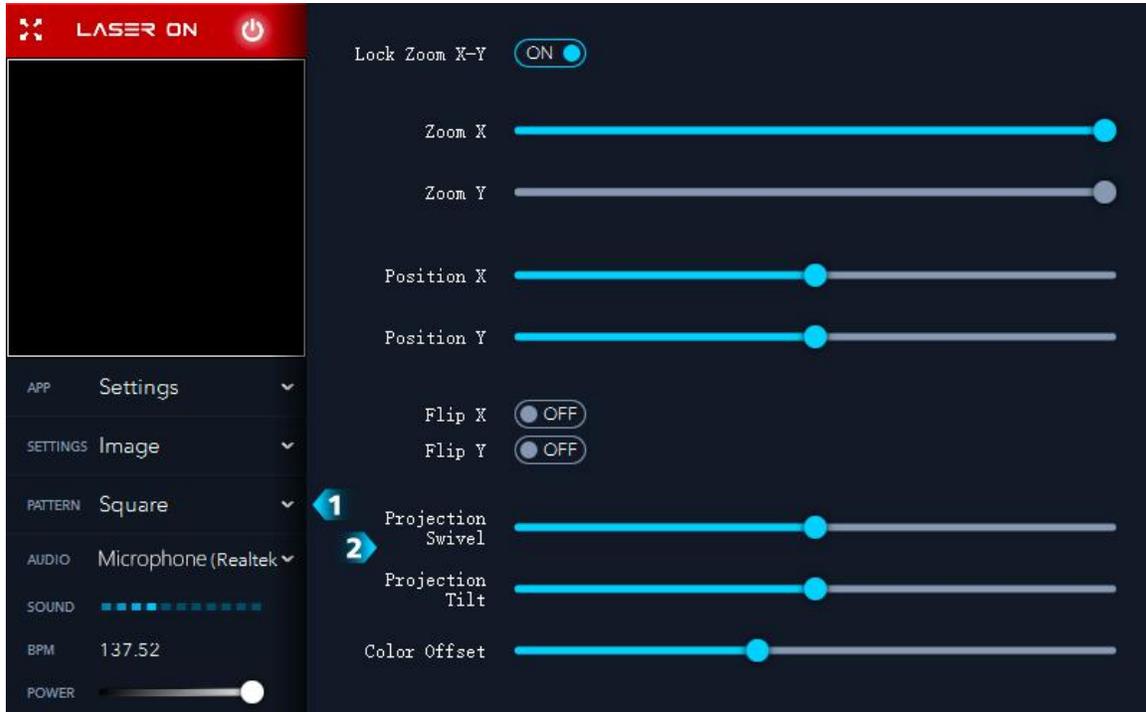
1. Toggle between casting webcam or desktop.
2. Enable casting of desktop.
3. Use these sliders to specify the area of desktop to cast.
4. Cast entire desktop.



Text app

1. Select Text mode.
2. Select text font and color style.
3. Adjust speed/size/spacing parameters.

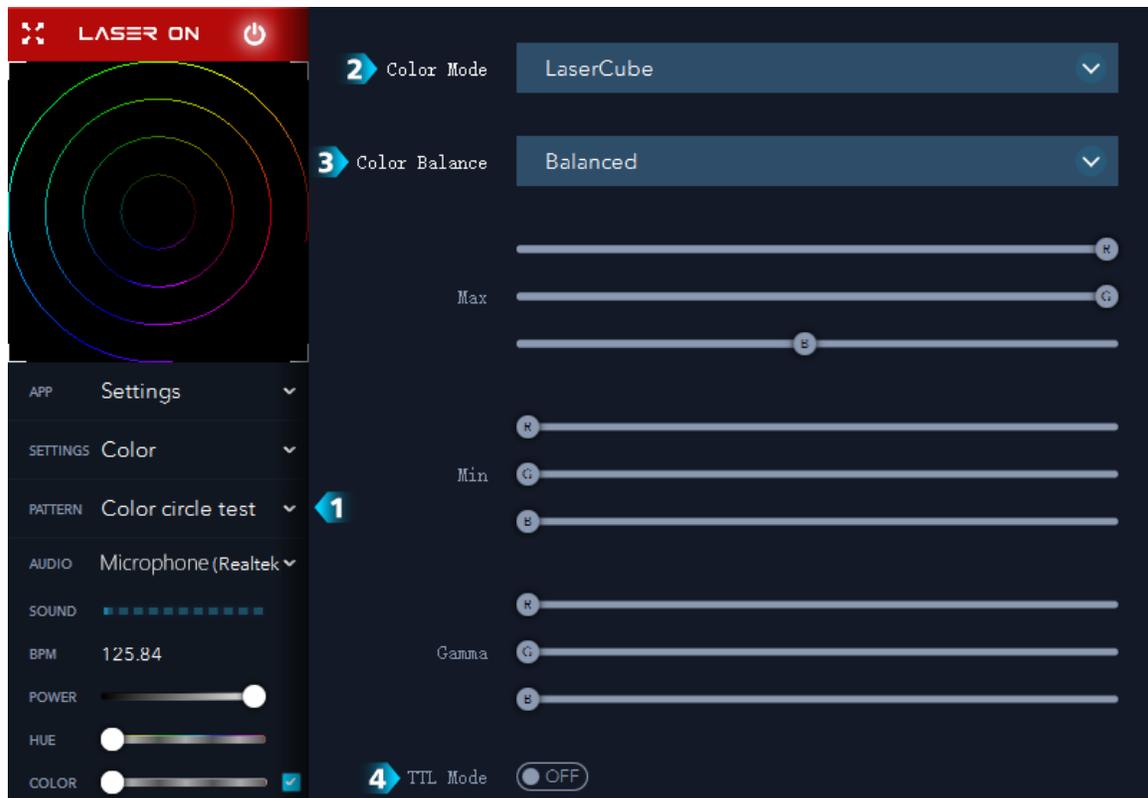
Settings



Image

Pro-tip: Lower zoom = better graphic quality. Reduce zoom to enable X/Y position adjustment.

1. Choose square to calibrate your laser.
2. Adjust Swivel, Tilt until square accurately matches desired projection area.



Color

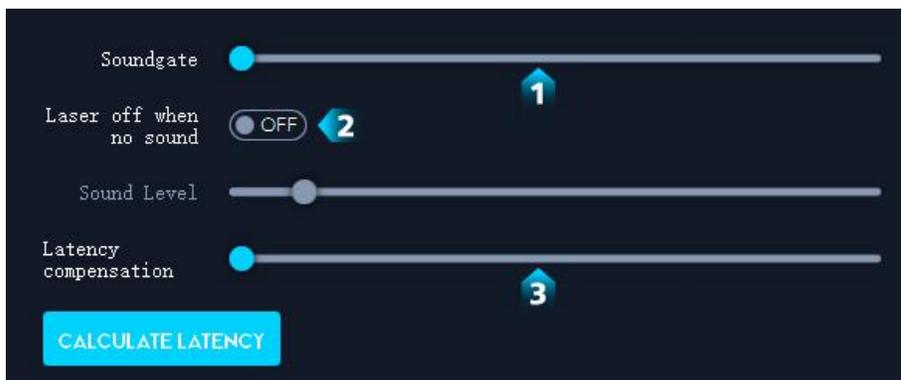
1. Choose Color Circle test
2. Choose your laser model here. Choose manual if using a 3rd party laser.
3. Choose balanced for more accurate whites, or max power for maximum brightness.
4. Select if your 3rd party laser only supports TTL.



Zones

Pro-tip: Add a safety zone to protect your camera sensor from the laser.

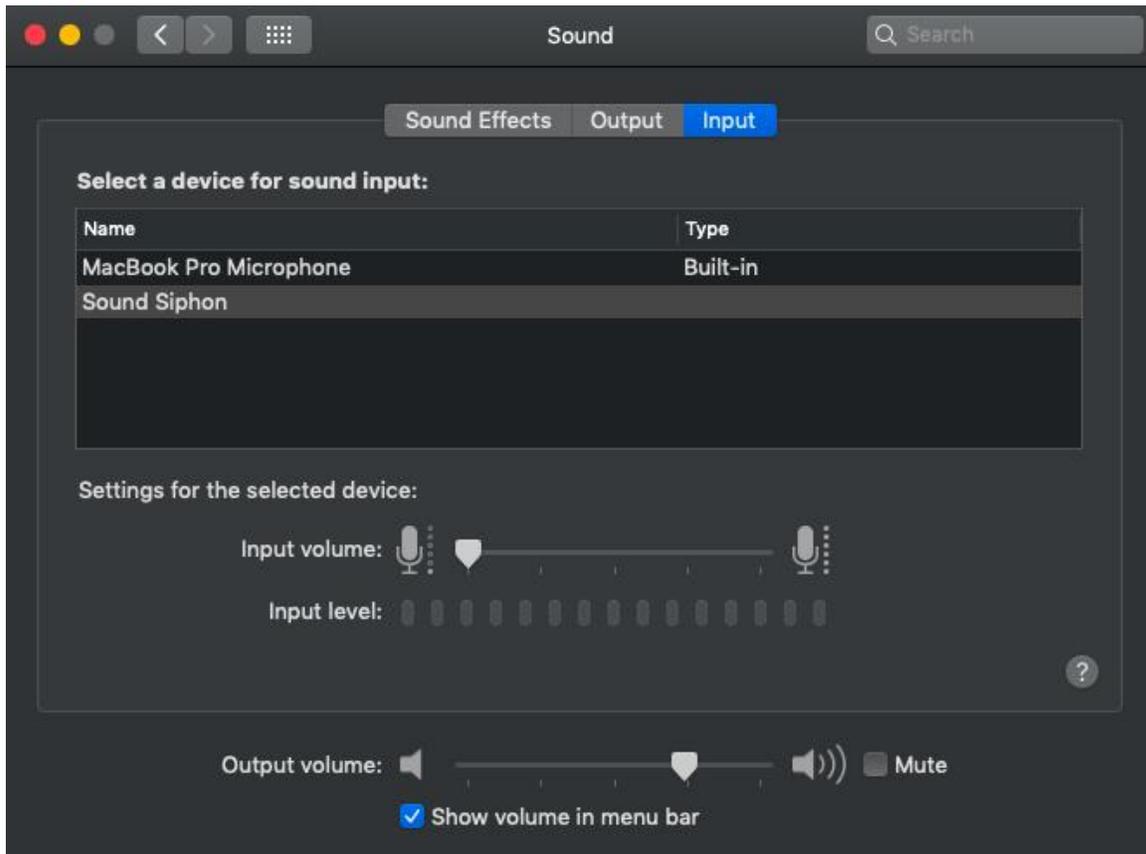
1. Enable safety zones.
2. Projecting an outline of the safety zones.
3. 100% means all laser output is blocked in the safety zone.
4. Adjust the area of the safety zone.
5. More than one safety zone can be added.



Audio

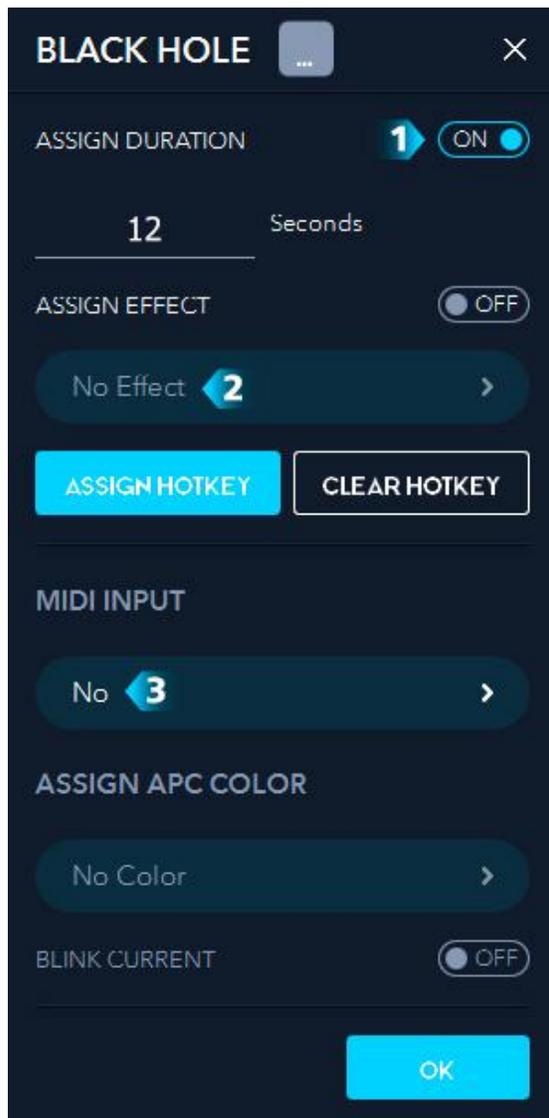
1. Sets minimum level for audio input.
2. Laser is off when sound is below threshold.
3. Adds latency to sync laser to wireless speakers.
4. Pro tip: Useful when using higher-latency
5. Bluetooth speakers.
6. Experimental utility to calculate speaker latency.

Advanced



Sound Siphon

(MacOS only) Install [Sound Siphon](#) (no need to purchase after free trial). Select 'Sound Siphon' as your Mac's audio output. Select 'Sound Siphon' as your sound input in LaserOS. Recommended if you are streaming or playing music while running LaserOS. Works great with Spotify, Youtube, Apple Music etc...



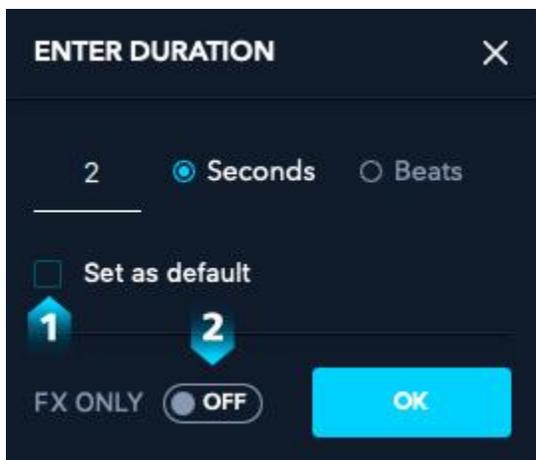
Hotkey options

1. Assign the duration in seconds or beats.
2. Assign an effect to trigger with the hotkey.
3. Connect a Midi controller, assign midi button color, and blinking status.



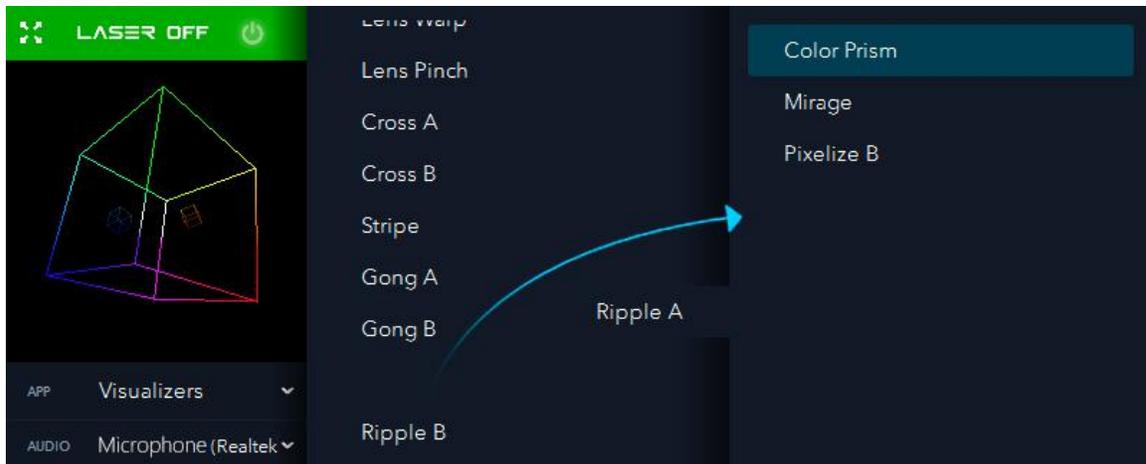
Adding sliders

Hold keyboard Shift-key to drag and drop sliders from any app onto your control panel.



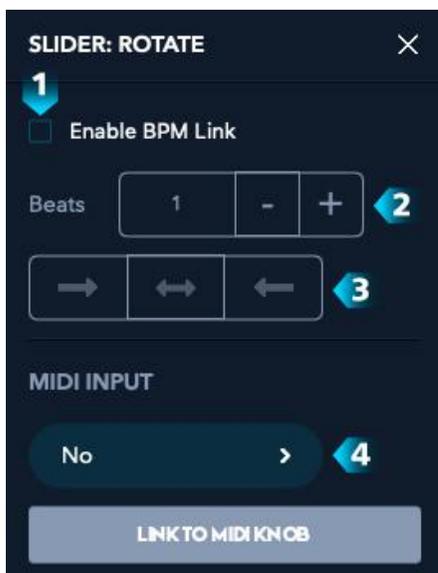
Duration options

1. Makes the selected duration apply for all apps.
2. Only Effects autoplay with this enabled.



Custom effects

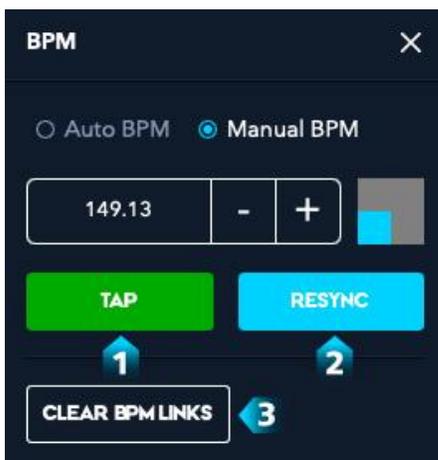
Drag & drop to the right side in order to create a custom effect. Order is important, effects are layered sequentially from the top. Once saved, your custom effect will be added to the bottom of the effects list.



Slider options

Double-click any slider to open slider options.

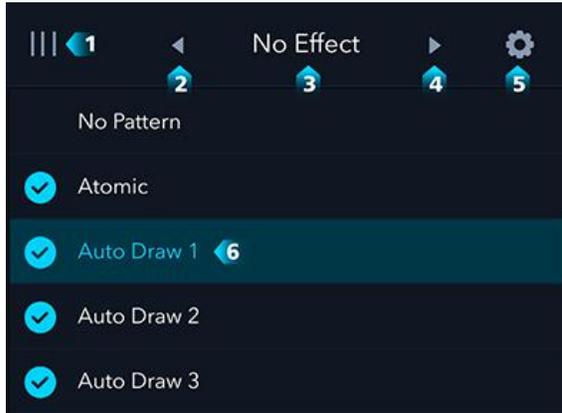
1. Links the value of the slider to the BPM value in real time. Useful for adding more audio
2. reactivity to your visuals.
3. Sets the amount of beats it takes to go from the min and max values of the slider.
4. Sets the direction of movement for the BPM-linked slider movement.
5. Links slider to a midi knob or fader.



BPM options

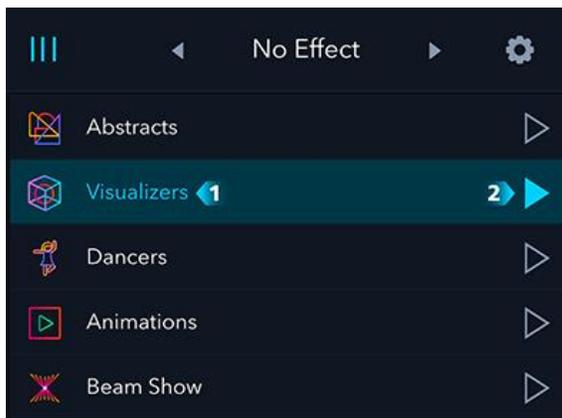
1. Tap to sync. Manual BPM must be enabled.
2. Restarts the beat.
3. Clears the BPM link on all sliders.

8. LaserOS Quick Start Guide for Android



Controls

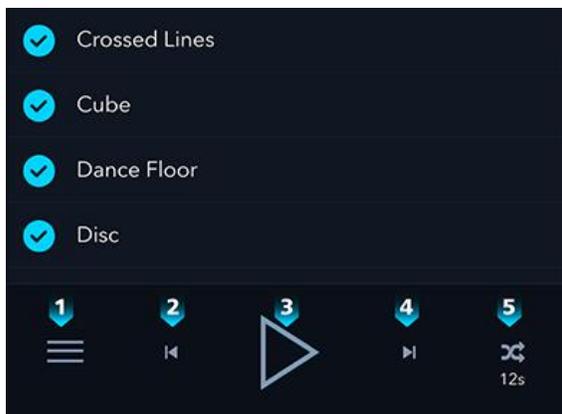
1. Tap to change app.
2. Select previous effect.
3. Go to visual effect filter list.
4. Select next effect.
5. Go to settings.
6. Tap to select / Double tap to enter simulator mode.



Autoplay

Available only for Abstracts, Visualizers, Dancers, Animations, Beam Show, Images, Oscoppe, Games and Clock apps.

1. Tap to select / Double tap to view list.
2. Tap to enable Autoplay mode.

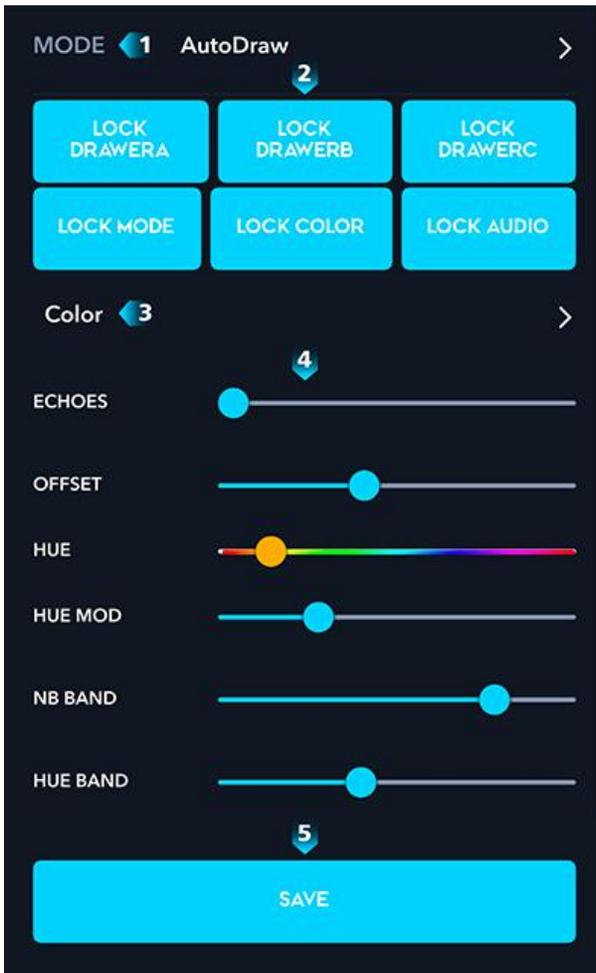


Options

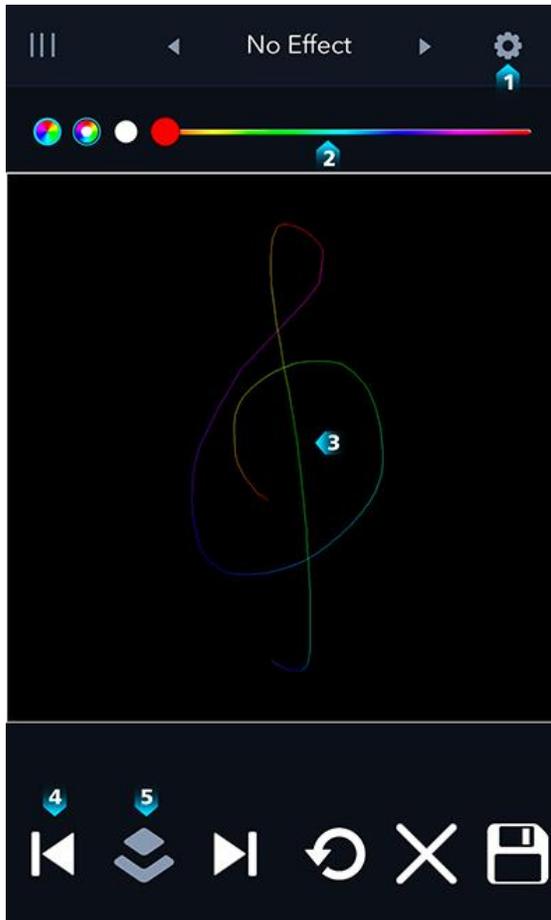
1. Tap for simulator mode.
2. Select previous content.
3. Turn on/Pause laser output.
4. Select next content.
5. Quick tap to cycle through autoplay options: Sequential, Shuffle, Off. Long tap to show duration menu.

Apps

Abstracts app

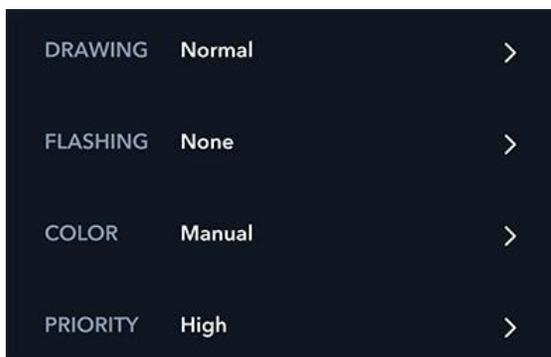


1. Select from 3 abstract types.
2. Locked sections will not be randomized.
3. Change slider drawer.
4. Experiment by dragging some sliders.
5. Save custom settings.



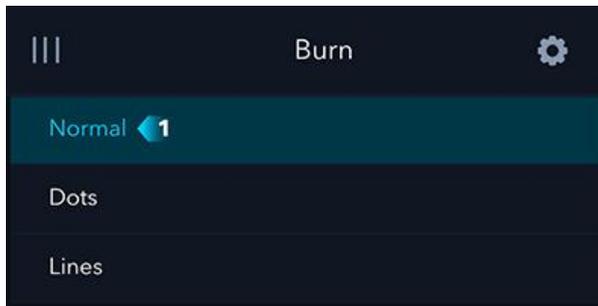
Draw app

1. Change brush mode or view saved drawings.
2. Pick a color or rainbow brush.
3. Draw here! Stylus input recommended.
4. Select a specific layer.
Projection mapping mode.



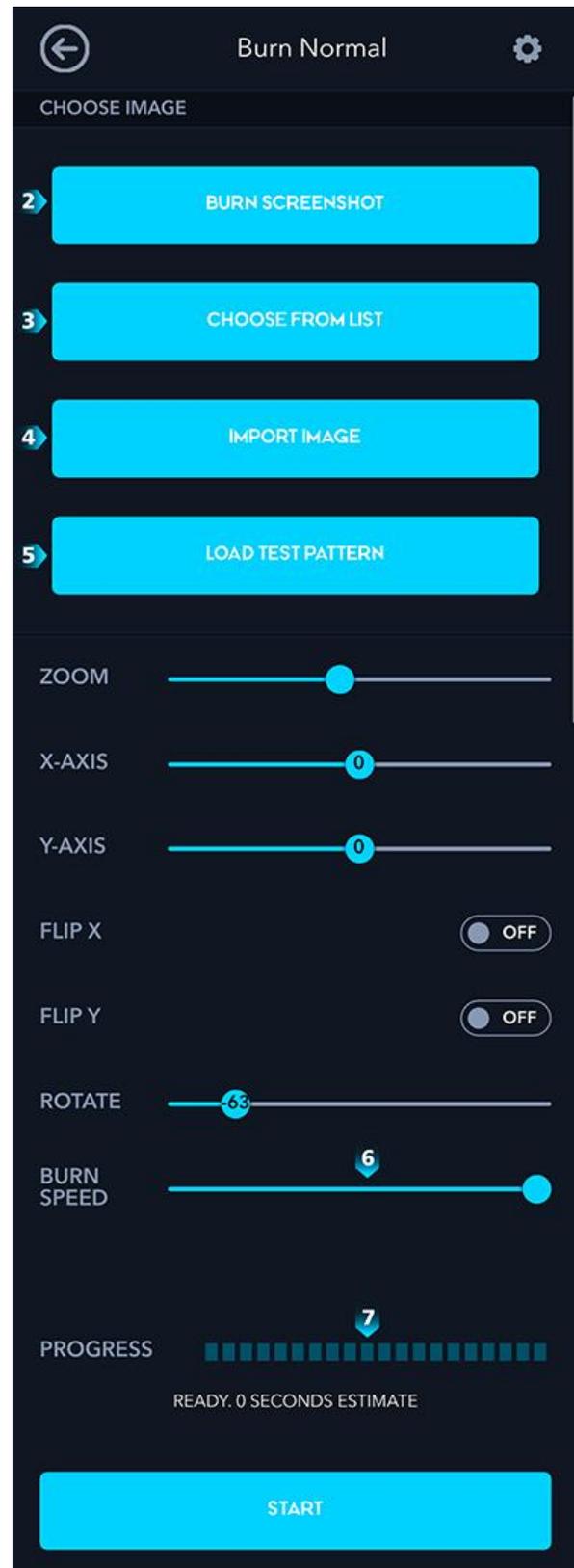
Projection Mapping

Experiment with various drawing, blinking, and color styles for each individual element.



Burn app

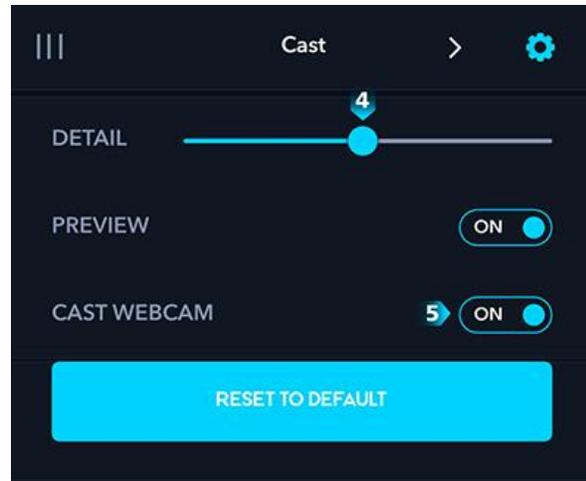
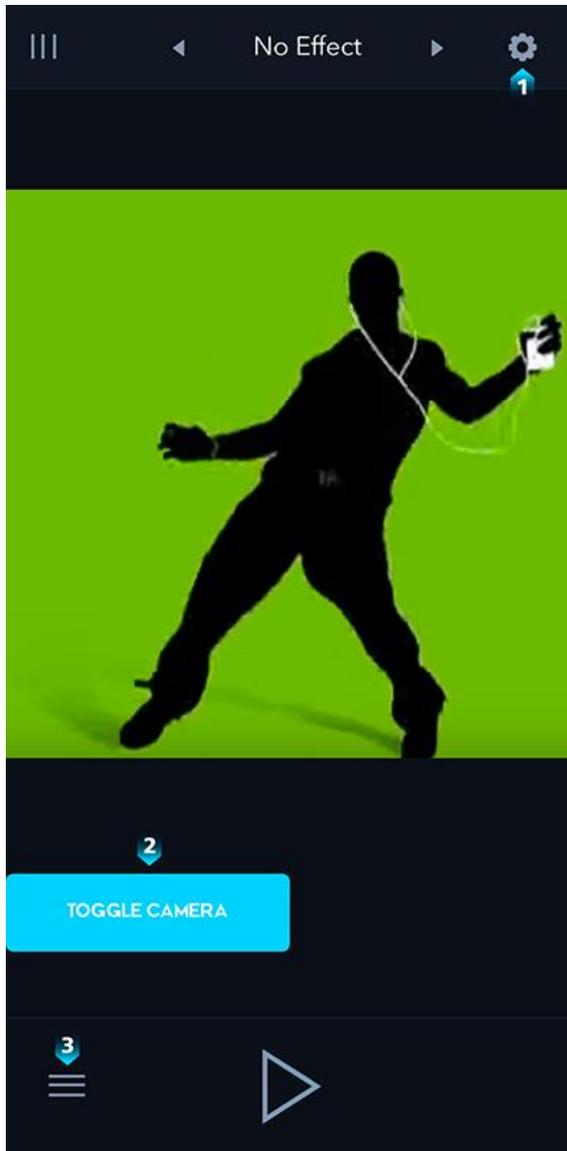
1. Burn raster lines or dots instead of vector.
2. Burn any 'screenshot' from other apps.
3. Select from a list of complex detailed images for engraving.
4. Import a SVG, PNG, JPG, BMP file.
5. Used to calibrate laser speed.
6. Burn speed is how fast the laser engraves. Use a slower speed for thicker materials. If you are unsure, start by trying a higher burn speed. Optional accessory Engraving Lens is recommended. Use 15cm distance if using the lens.
7. Shows the progress of the engraving process.





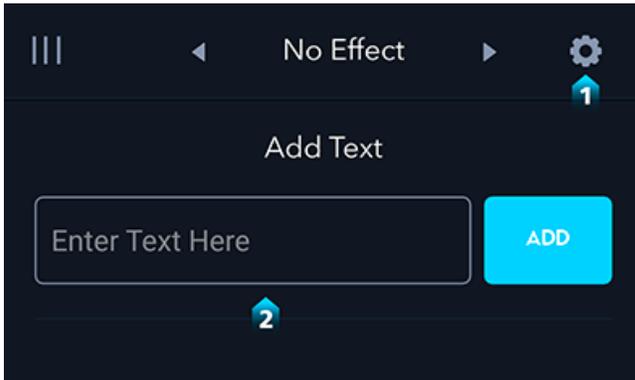
Midi app

Select appearance of Midi mode
Tap keys to play notes.



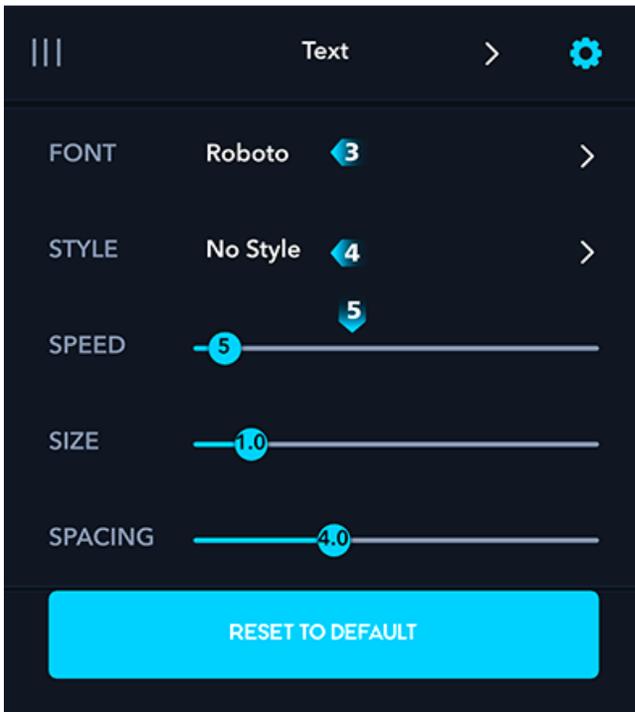
Cast app

1. Cast settings.
2. Toggle between casting from front or back camera.
3. Enable simulator mode.
4. Adjust image detail.
5. Enable casting from device camera.

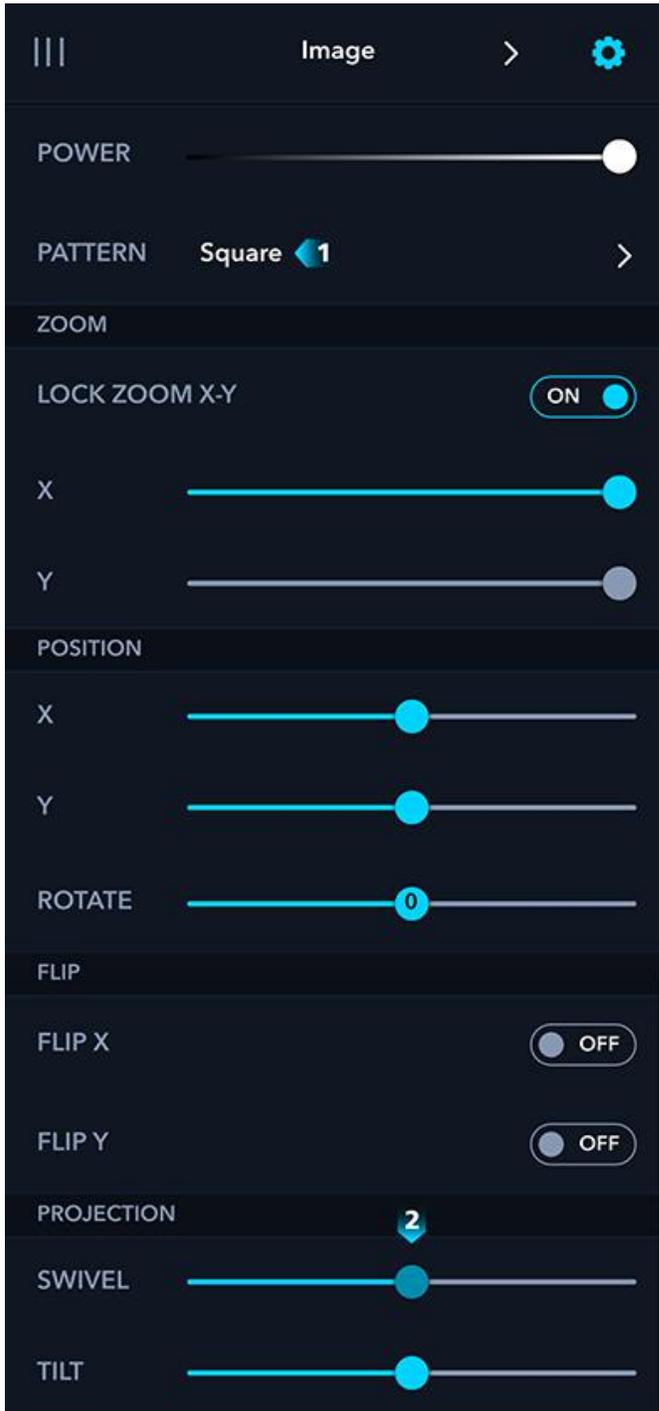


Text app

1. Go to Text app settings.
2. Type in desired text.
3. Select text font.
4. Select text color style.
5. Adjust speed/size/spacing parameters.

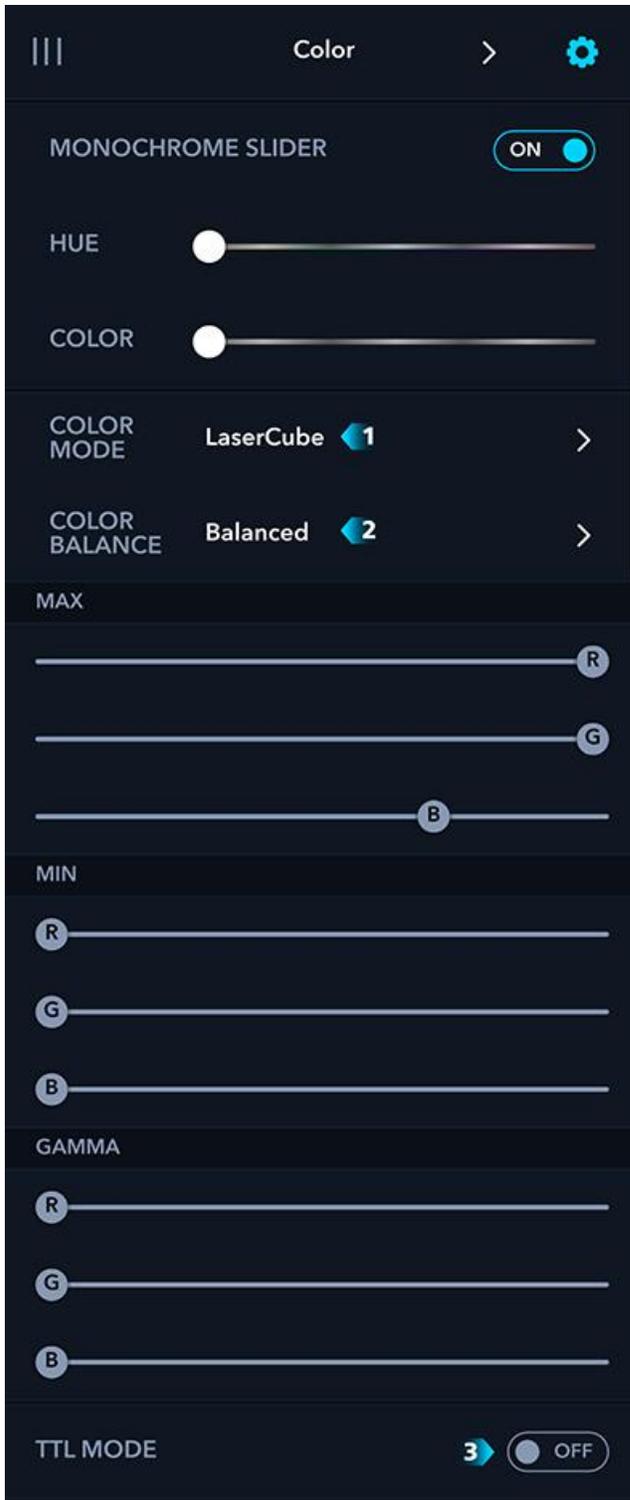


Settings



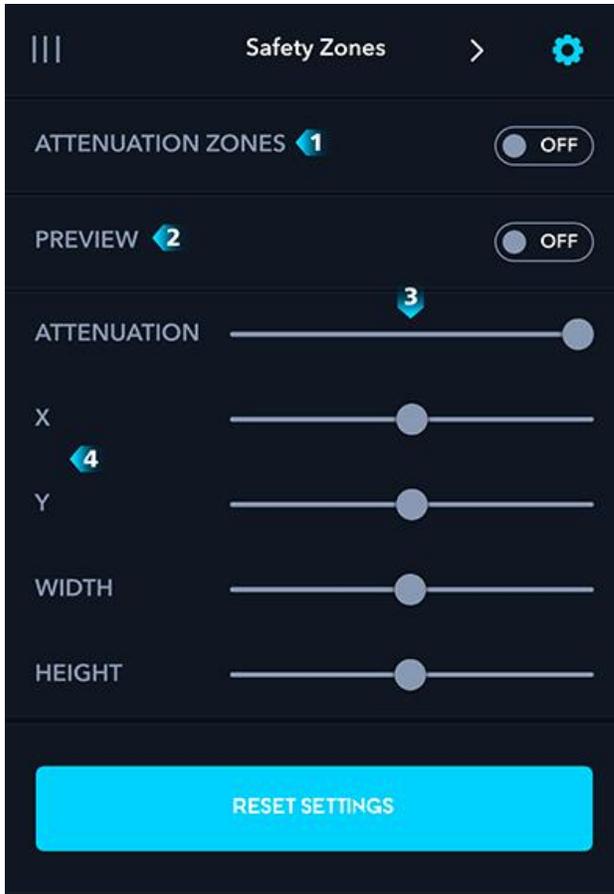
Image

1. Choose square to calibrate your laser.
2. Adjust Swivel, Tilt until square accurately matches desired projection area.



Color

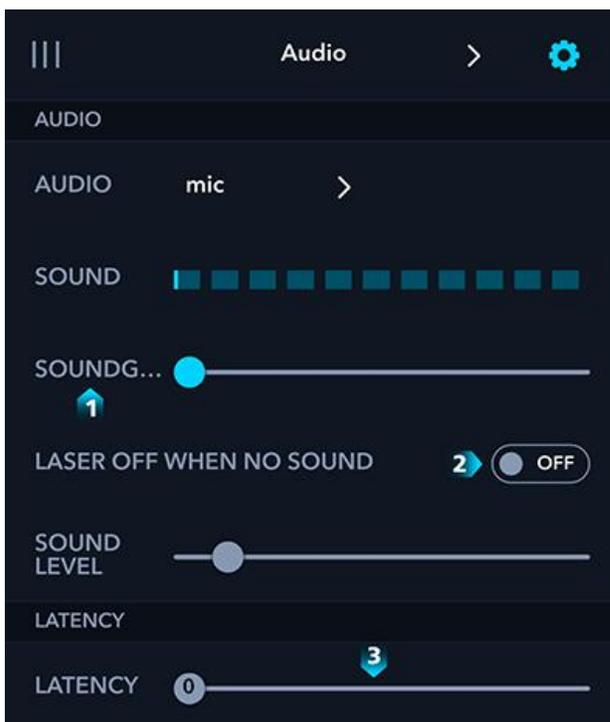
1. Choose your laser model here. Choose manual if using a 3rd party laser.
2. Choose balanced for more accurate whites, or max power for maximum brightness.
3. Select if your 3rd party laser only supports TTL.



Zones

Pro-tip: Add a safety zone to protect your camera sensor from the laser.

1. Enable safety zones.
2. Projecting an outline of the safety zones.
3. 100% means all laser output is blocked in the safety zone.
4. Adjust the area of the safety zone.



Audio

1. Sets minimum level for audio input.
2. Laser is off when sound is below threshold.
3. Adds latency to sync laser to wireless speakers.
4. Pro tip: Useful when using higher-latency
5. Bluetooth speakers.

9. Charging Guide

1. Plug the LC-1000's AC adapter to a power outlet.



2. Connect the power cable to the charging port (Power DC Input), the LED light will illuminate red to indicate that it is charging.



3. When the battery charge indicator turns green, it means the LC-1000 is fully charged and you can disconnect the power cable.



4. The initial charging time is approximately 2 to 3 hours.

Note: The LC-1000 can be operated while it is charging.

10. Troubleshooting

Here are a few simple solutions to common difficulties to try out first to get you up and running quickly. If you are having any difficulty with your laser projector, please feel free to contact us online, any time, at info@magnumlighting.com.

PROBLEM	SUGGESTED SOLUTION
The product doesn't switch on.	Power cable may not be properly connected. Re-connect the power cable. Power supply is damaged or abnormal. Call qualified personnel/technician for repair. If damage is suspected, call qualified personnel/technician for repair. DO NOT attempt to service it yourself.
The product can turn on but no light coming out.	USB cable may not be connected properly or the LaserOS APP is not running. Check steps outlined in the quick-start guide if anything was missed. If damage suspected, call qualified personnel/technician for repair. DO NOT attempt to service it yourself.
The beam appears dim.	The product is too hot. Take appropriate ventilation measures to keep it cool.

11. Limitation of Liability

In no event shall Magnum Lighting or any of its subsidiaries or affiliates be liable for any indirect, special, incidental or consequential injury to persons or damage to property caused by the use of any of our products. By purchasing from Magnum Lighting, you hereby indicate that it is your sole responsibility as the buyer and not Magnum Lighting to determine and obey all applicable local, state and federal laws governing the purchase, possession and/or use of the products sold by Magnum Lighting.

Magnum Lighting will not be responsible to you or any third party for any direct, indirect, special, incidental or consequential damages, arising out of use, misuse or inability to use any of our products. By purchasing the LC-1000 home laser system, the buyer represents that the products purchased will be used only in a lawful manner. Consult an attorney or law enforcement professional, regarding local, state and federal laws before using the product in a public setting.

NOTICE: All products sold by Magnum Lighting may not be used to violate the privacy rights of others. In no way shall Magnum Lighting or its or any of its subsidiaries or affiliates be held responsible for inappropriate use of its products.

IT IS THE SOLE RESPONSIBILITY OF THE BUYER TO CONSULT LEGAL COUNSEL FOR THE INTERPRETATION OF ANY LAWS APPLICABLE TO THE AREA OF INTENDED USE OF THIS PRODUCT.

WARNING: The LC-1000 should not be shone directly into anyone's eyes. It could cause eye damage or blindness.

12. Manufacturer's Warranty

The LC-1000 comes with a standard 12 Month Manufacturer's Warranty. Our warranty guarantees your laser projector to be free from defects in manufacture and workmanship.

All defective products will be replaced or repaired subject to the full discretion of Magnum Lighting.

Ownership of the warranty is not transferable and will expire exactly 12 months from the date of receiving the purchase.

This warranty does not include defects or damages attributable to misuse, normal surface weathering, or damages caused by accidents or fire or other casualty or force majeure or any other causes or occurrences beyond the manufacturer's control.

Questions? Feedback?

If you have any questions about any of the content of this manual or the safe operation of your new laser projector or would like to give us some feedback on our products or documentation, please do not hesitate to contact us at Magnum Lighting.



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