

# E-Prism Model EP2021A User Manual



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## 1. Safety Instruction

Avoid staring at the LEDs for a long period of time when the lamp is on.

**CAUTION!**

Be careful with operation. With dangerous voltages, you can suffer electrocution when touching wires!

Only use the device in operating environments between -10°C and 40°C.

Do not expose the device to water or wet conditions. Water will damage electronics.

Do not expose the device to dusty environments. Dust will degrade the light transmission.

The device is designed for indoor use only. If one wants to use it outdoor, cover with waterproof material to prevent water and dust getting inside.

Do not place the device in hot surfaces.

Do not drop or strike the device with heavy objects intentionally. This will void the warranty.

For safety reasons, do not attempt to open the device. This will void the warranty.

This device left the factory in perfect condition. To maintain this condition and ensure safe operation, it is necessary for the user to follow safety instructions and warning notes written in this manual.

**\*IMPORTANT!**

Damages caused by disregarding of this user manual are not subject to warranty. The dealer will not accept liability for any resulting defects or problems.

If the clear plastic window is broken or comes off, do not plug in. Ship it back to the seller.

If the device has been exposed to temperature changes due to environmental changes, do not switch it on for some time. The resulting condensation can damage the device. Leave the device switched off until it has reached room temperature.

The device shall only be used with rated voltage and frequency.

Make sure the available voltage is not higher than specified.

Make sure the power cord is not crimped or damaged by sharp edges.

Always disconnect from the mains when the device is not in use or before cleaning.

Only handle the power cord by the plug. Never pull out the plug by tugging the power cord.

The fixture cannot be installed on combustible substances.

If the external flexible cable or cord of this lamp is damaged, it shall be exclusively replaced by the manufacturer or its service agent or a similar qualified person to avoid hazards.

## 1. Unpacking

Thank you for choosing E-Prism.

When you open the box, you will find a fully assembly lamp, a 12V power supply, and a cardboard plate with laser cut art.

The lamp composed of three RGB LEDs with heatsinks and a pyramid mirror as illustrated in Figure 1B. There are three RGB touch sensors for controlling colors locating below the logo as illustrated in Figure 1A. The lamp has a stand that allows it to point in any direction. One can accomplished this by loosening the knob, pointing the lamp at the desired direction, and then tightening the knob as illustrated in Figure 1C. The laser-cut art cardboard as illustrated in Figure 1D is for color image projection. The 12V power supply is shown in Figure 1E. A circuit board inside the casing controls the LEDs, communicating with controllers locally through touch sensors and remotely through smartphones via Bluetooth. The controlling of E-Prism on a smartphone is accomplished through an App available from Apple store and android stores.

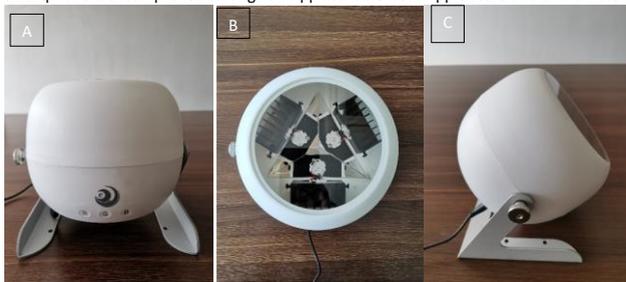


Figure 1A to 1C. E-Prism's composition



Figure 1D to 1E. Other components

## 1. Features and specifications

### 3.1 Features

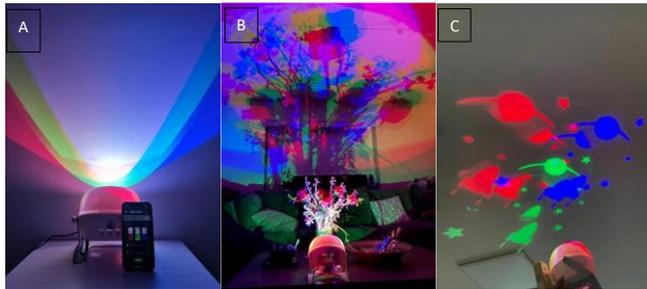


Figure 2A to 2C

3.1.1 It simultaneously outputs multiple colors (up to seven colors) as illustrated by Figure 2A.

3.1.2 The colors produced are results of color mixing as shown in Figure 2A. 3-color RGB mixing occurs at the central region. 2-color RG, GB, and RB mixings take place in regions adjacent to the central. No color mixing exists for single-color R, G, and B in the outermost regions.

3.1.3 Color shadows of any object are created when it is illuminated as shown in Figure 2B. A painting-like colorful image can be produced on a white surface. Each object can have up to three color shadows. Color shadows of neighboring objects can mix to create new colors. The resulted image is rich in colors.

3.1.4 It can create color image projection with hole pattern of many shapes as illustrated by Figure 2C.

3.1.5 Colors of the lamp can be controlled by using touch sensors on the lamp. No smartphone or remote control is needed.

3.1.6 Colors of the lamp can be controlled from smartphone App.

3.1.7 The app has two manual modes: A) color bar mode in which colors are changed by sliding the RGB color bars as illustrated in Figure 3B; B) button mode in which colors are changed by pressing the preset or saved color buttons above the color bars as illustrated in Figure 3A; there are some preset color buttons on the App; one can add or delete preset buttons discussed in details in the App operation section.

3.1.8 The App has two automatic modes: A) random mode in which color settings can be selected randomly as illustrated in Figure 4A; B) favorite mode in which color settings can be selected using preset color settings as illustrated in Figure 4B.

3.1.9 The automatic modes allow color settings to have delay between two consecutive settings; the default delay is 5 seconds as illustrated in Figure 5A. C) The automatic

mode uses fade mode to make color transitions smoother; the default fade time is 2 seconds as illustrated in Figure 5B.



Figure 3A to 3B

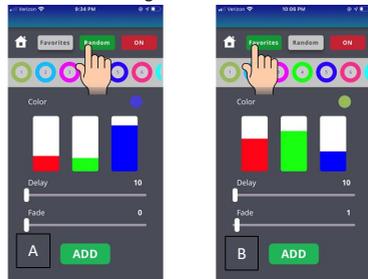


Figure 4A to 4B



Figure 5A to 5B

### 3.2 Specifications

LED quantities: 3

LED colors: red, green, and blue

Forward voltage(V):2.65, 3.7, 3.4

Corresponding lumen output: 67.2, 107, ~~31.5~~(525mW)

Input Voltage: AC90V-220V, 50/60 HZ

Power consumption: 12watts

Illumination angle: 120°

Maximum number of colors displayed: 7

Pointing direction: pivotable

Portability: Yes

Casing material: plastic

Base material: aluminum

Packing & weight

Size: 7.04" \*7.04\*6.74"

Net weight 1.9 lbs

Packing:10.87" \* 8.46" \* 7.40"

Gross Weight: 3lbs

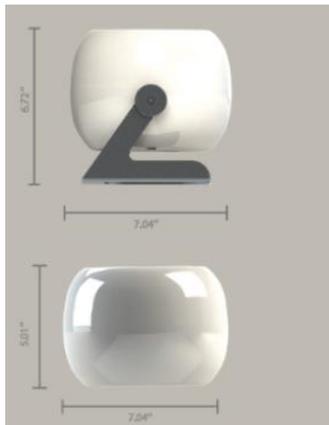


Figure 6

1. Quick Start

Plug in the power, you will see the multicolor mixing in Figure 2A. Pivot the lamp by loosening and tightening the knob in Figure 1C. Project objects onto a white wall, and you will see color shadows and color shadow mixing creating a color rich image as shown in Figure 2B. Vary the lamp to object distance and the object to wall distance to see changes in color shadows. Using the RGB touch sensors below the logo, you will be able to change colors of the image.

Download ColorfulLight, E-Green App from Apple Store or Google Play. Open the App, tap the Bluetooth icon to connect. If it does not automatically connect, then follow the steps in Figure 12 and Figure 13 to connect. Once you are in the control panel, you can use the color sliders to change colors as illustrated in Figure 3B. There are some favorite color buttons above the color bars as shown in Figure 3A. You can press any button to change the color. To change the color automatically and continuously, tap either the random or favorite button as illustrated in Figure 4A and 4B. In random mode, colors are changed randomly. In favorite mode, colors are selected from the favorite mode buttons. The default delay time is 5 seconds. The default fade duration is 2 seconds.

To play with the color image projection, pivot the lamp to vertical position with its window facing the ceiling. Place the laser-cut art on the lamp window, you will see color images of the cutouts as shown in Figure 2C. Each cutout can have up to 6 color images. Color images from different cutouts will mix.

## **1. Operation Instruction**

### **5.1 Multicolor display**

When E-Prism is turned on, the default setting is RGB brightness is at 50% of the maximum for all LEDs. You will see seven colors simultaneously. Choose your desired color setting using either touch switches or the App (see App operation section). The display can be projected onto any reflective surface (wall or ceiling) by pivoting the lamp.

### **5.2 Color Shadows**

Place any object in front of E-Prism, multiple color shadows of the object can be created and projected onto a diffused reflected surface such as a wall or ceiling. The size of the shadows depends on the distance between E-Prism and the object as illustrated in Figure 7. Shorter distance will produce larger color shadows. Vice versa. Figure 8 shows E-Prism projecting color shadows of fake flower plants on the walls. Colors of color shadows can be changed by changing the color setting using the App or touch switches.



Figure 7

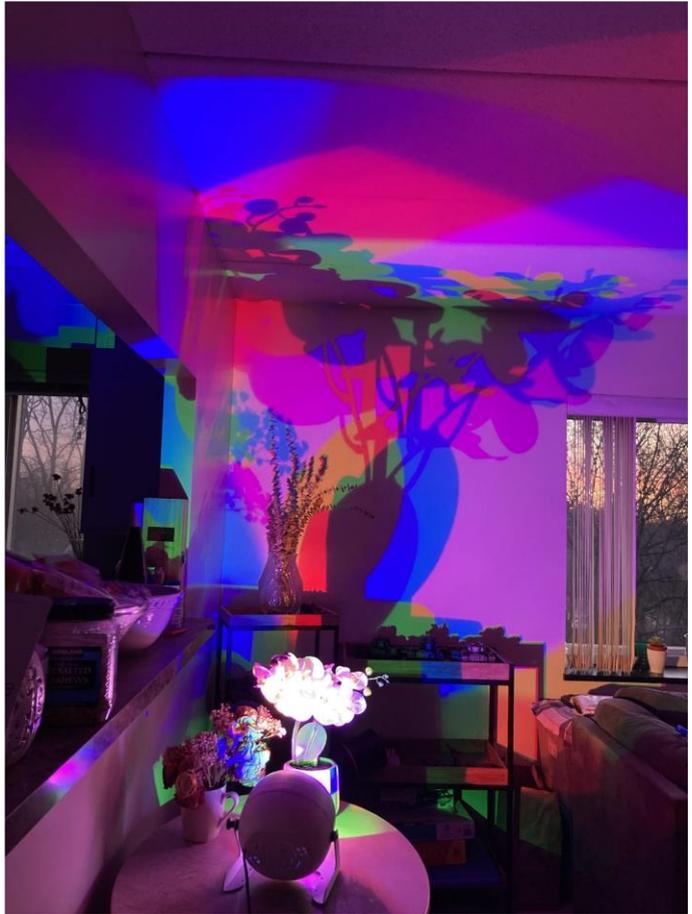


Figure 8

### 5.3 Color Image Projection

Color shadows are created when an object blocks the color light beam. In contrast, color image projection produces color images through cut outs on an opaque plate placed in front of E-Prism. The image shapes match the shapes of cut outs. A projection system usually produces one image per cut out. E-Prism can produce as many as 6 color images per cut out. Color images from different cutouts will color mix to create new color when they overlap or cross each other. Color mixing takes place more often in E-Prism's color image projection because there are more color images produced per cutout. Cutout can be any shape. Kids can trace and cut out animals and flowers on a piece of plate and place on top of E-Prism to create their own color projection. Rotate the paper, they will see color images of moving on the ceiling. When images cross each other, image colors will change due to color mixing. A laser cut cardboard plate shown in Figure 1D comes with E-Prism. It can be placed on top of the lamp as illustrated by Figure 9. Figure 10 shows the color images it projects.



Figure9

Figure 10

### 5.4 Color Control

#### 5.4.1 Touch Sensors

RGB touch sensors located below the logo can be used to change the colors of the lamp. Each sensor has 10 steps from minimum to maximum. Because E-Prism is based on color mixing technologies, changing one color will affect the color mixing ratio. Other mixed colors are also changed. Figure 11 shows the RGB touch sensors below the logo.



Figure 11

## 6 App Operation

### 6.1 Connecting To Device

To connect your smartphone to E-Prism, (1) tap on the ColorfulLight App as shown in Figure 12A. It will bring you to a new window illustrated by Figure 12B. Next tap on the Bluetooth icon as shown in (2). A new window will appear as shown in Figure 12C. Tap on the Scan Bluetooth button as indicated by (3). A list of Bluetooth names will appear. Select the Bluetooth name as shown in (4). Your smartphone is now connected to E-Prism. Tap the home button as illustrated in (5). This will bring back the Colorful Light window of Figure 13A. Tap the colored button in (6). The control panel window will appear as shown in Figure 13B.



Figure 12A to 12C

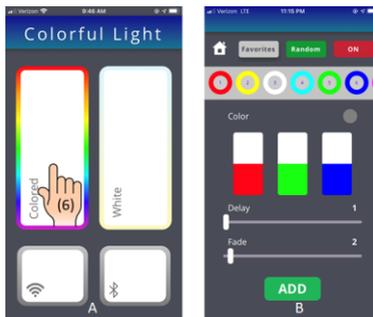


Figure 13A to 13B.

## 6.2 Default settings

There are some default settings E-Prism for convenience. The power level is set at 50% for all LEDs when it is plugged in. This is illustrated by the color bars in Figure 13B. It allows user to see the color mixing effect right away. There are some default favorite color buttons appear directly above the color bars as shown in Figure 13B. This allows users to press and play right away. The default delay is 5 seconds and the default fade duration is 2 seconds. This allows user to see the color transition effect when pressing the favorite or random mode buttons. The default operation allows user to experience the functions of different buttons without even reading the user manual.

## 6.3 Manual Modes

### 6.3.1 Color Slider Mode

To change the color of an LED simply slide the red, green, or blue slider up and down as shown in Figure 13. The current mixing color is shown in a circle above the sliders that corresponds to the mixing color from the three color sliders.

### 6.3.2 Favorite Mode

As mentioned earlier, there are some default favorite mode buttons saved in the lamp. These are color circular buttons appeared directly above the color bars. The color of each button corresponds to the three-color mixing from the RGB color sliders as shown in Figure 14. A user can select any of these colors by pressing the corresponding color button as shown in Figure 15. This mode allows the user to change color settings instantly. This is the ideal tool for situations that require quick color change. One can add or delete a favorite color button. To add a favorite button, use the sliders to find the color you like and press the ADD button below the Fade bar as illustrated in Figure 16. The color button will appear at the end of the list. To delete a favorite button, simply hold down the button. A delete tab will

appear as shown in Figure 17. Click OK to delete the button. The favorite mode sequence will get shifted downward above the deleted color button. For example, if favorite mode 5 is deleted, favorite mode 6 will become the new favorite mode 5, favorite mode 7 become new favorite mode 6. The list will get repeated until the end of the favorite mode list.

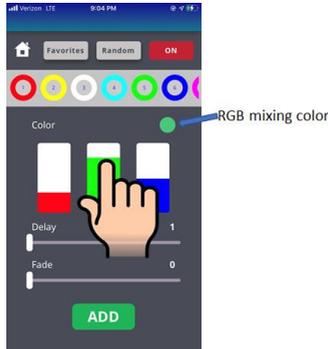


Figure 14



Figure 15



Figure 16

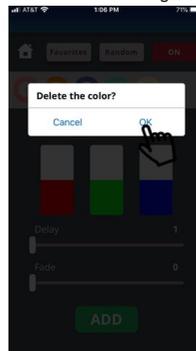


Figure 17

#### 6.4 Automatic modes

Color settings can be automatically selected in the App. There are two automatic modes, random mode and favorite mode. In random mode, the three RGB intensity levels are randomly selected based on the random number generator. The operation will run continuously until the user presses the random button again. In the favorite mode, the RGB intensity levels are selected from the favorite color settings.

If there are 16 favorite color buttons, then the E-Prism will keep cycle through the favorite mode sequence continuously. The operation will run continuously until the user press the favorite button again. Figure 18 and Figure 19 show the random mode and favorite mode respectively.

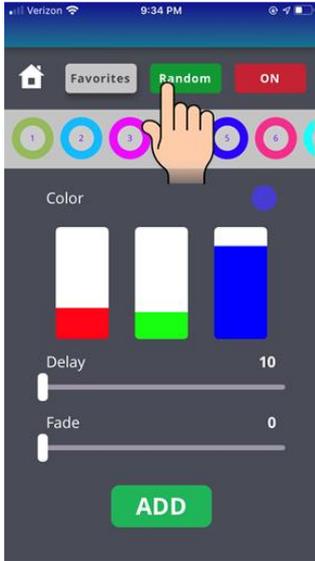


Figure 18



Figure 19

### 6.5 Color Setting Transition: Delay and Fade Sliders

The delay time is the time that a color is on in random and favorite color mode. Setting the delay time to 5 will display each color for 5 seconds before changing. The fade time is the time it takes to gradually change after the delay time is up. Setting the fade time to 2 seconds will fade the LEDs to the next color over the course of 2 seconds. The default delay and fade are 5 seconds and 2 seconds respectively.

Delay and fade times can be changed by sliding the appropriate slider left and right showing the set time to the right above the slider as illustrated in Figure 20 and Figure 21.



Figure 20: Set Delay Time



Figure 21: Set Fade Time

### 6.6 Mode Buttons

At the top of the screen are buttons for different modes the E-Prism can be in. You can access different buttons by swiping left and right shown in [Figure 22a](#) and [Figure 22b](#). All the way to the right is the power button that turns the LEDs on and off. The random mode button displays a sequence of random colors. The favorites button cycles through your favorite saved colors. And to come in the next version the Sync mode will follow the beat of your favorite music. The modes that are selected are highlighted in green. Lastly the home button to the left will take you back to the home screen.



Figure 22a: Mode Buttons



Figure 22b: Sliding Through Mode Buttons

## 7. Maintenance and Cleaning

Clean the window regularly. Clean dust from window first with clean cloth or napkin. Then use acetone to clean the residue.

The following must be considered during inspection.

1. There must not be any deformation on housing when the lamp is hung.
2. The electrical power supply cables must not show any damage, material fatigue or sediments.
3. The window should not be loose or damaged.
4. The mirrors must not be loose or fall off.

### **\*CAUTION!**

#### **Disconnect power before starting maintenance operation**

In order to keep the lamp in good condition and extend its lifetime, we suggest cleaning the lamp regularly.

1. Clean the window weekly to avoid dust from accumulating and depositing on the window.
2. Use a moist, lint-free cloth. Never use alcohol or solvents.

If you need any spare parts, please order them from your local dealers.

**7. Limited Warranty**

E-Green offers one year warranty for the lamp to operate 5 hours daily. If the device becomes not functional, a new device or refund of the original purchase price will be sent to you upon receipt of the returned device [support@e-green.us](mailto:support@e-green.us).

**8. Certifications.**

This Device Complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This Device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC ID:

Contains: FCC ID: 2AKS8DX-BT24

 Certificate No: STS2101096RE

CMIIT ID: 2021DP6828