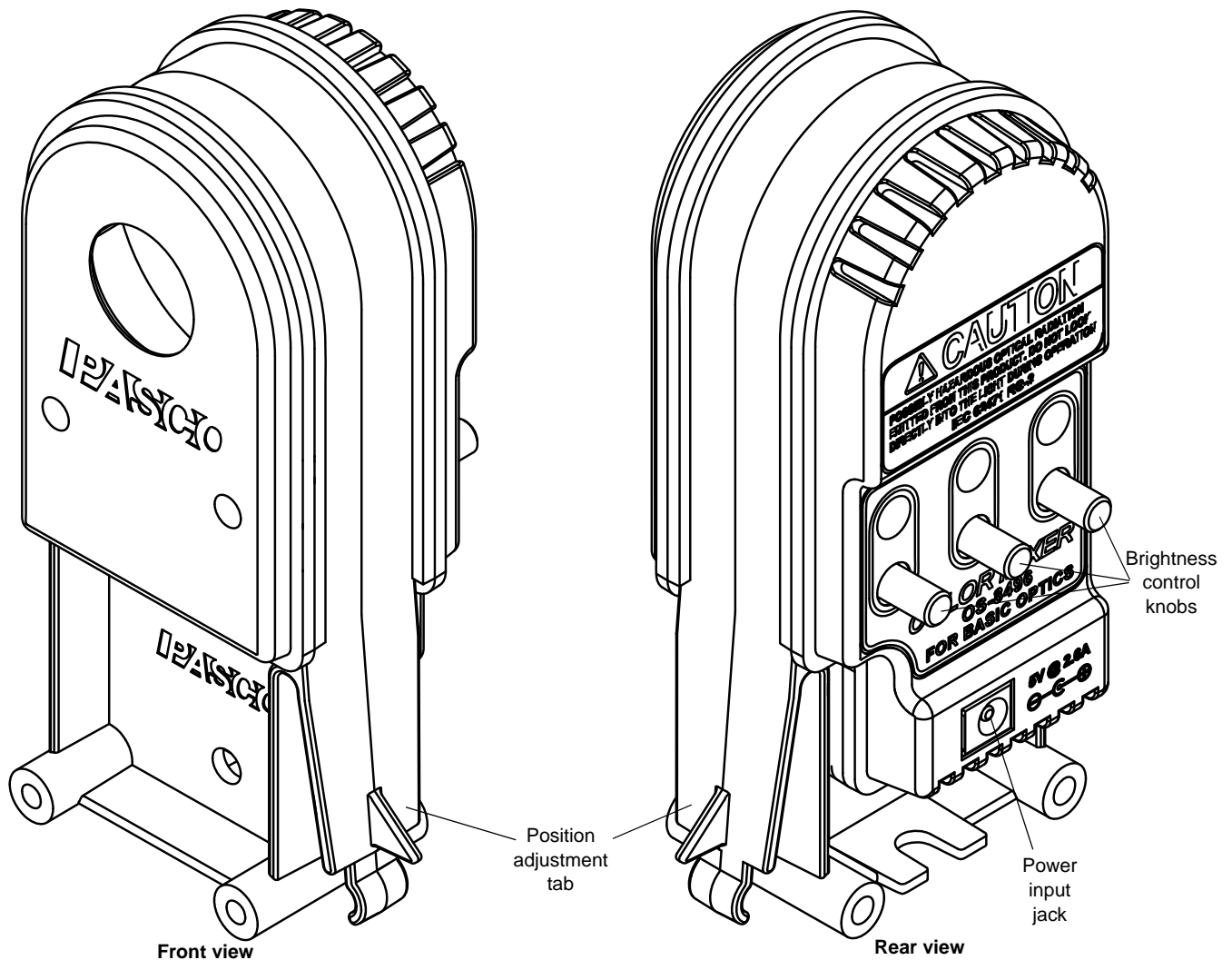




Color Mixer

OS-8496



Equipment

Included Item	Part number
Color Mixer Assembly	003-12392
AC Adapter (100 - 240 V AC to 5 V DC at 2.6 A)	540-103

Recommended Items	Part number
Basic Optics Geometric Lens Set	OS-8456
Viewing Screen	OS-8460
Optics Bench	OS-8508 (1.2 m) or OS-8541 (60 cm)

Recommended Systems	Part number
Beginning Optics System	OS-8459
Viewing Screen	OS-8460
Geometric Lens Set (100 mm, 200 mm, -150 mm)	OS-8466A
Light Source	OS-8470
Adjustable Lens Holder (2)	OS-8474
Optics Bench (1.2 m)	OS-8508
Basic Optics System	OS-8515C
Basic Optics Geometric Lens Set (100 mm, 200 mm)	OS-8456
Concave/Convex Mirror and Half Mirror Accessory	OS-8457
Viewing Screen	OS-8460
Ray Table with "D" Lens	OS-8465
Light Source	OS-8470
Adjustable Lens Holder	OS-8474
Optics Bench (1.2 m)	OS-8508
Ray Optics	OS-8516A
Accessory Lenses (250 mm, -150 mm)	OS-8519

Introduction

The OS-8496 Color Mixer is designed to be used with such systems as the OS-8459 Beginning Optics System or the OS-8515C Basic Optics System. The Color Mixer includes a power adapter (100 to 240 V AC to 5 V DC at 2.6 A). The mixer has three bright light-emitting diodes (LEDs) that produce red, green and blue light. When the colors of light are mixed with the right intensity, the combination appears as white light.

The Color Mixer fits on a PASCO Optics Bench such as the OS-8508 1.2 m Optics Bench or the OS-8541 60 cm Optics Bench. You can also mount the Color Mixer and other PASCO Optics System components on a PASCO Dynamics Track using the OS-8472 Dynamics Track Optics Carriage (set of three). The Color Mixer works best when used with the OS-8460 Viewing Screen.

About the Equipment

Color Mixer: The included color mixer can be used on a tabletop or mounted on an optics bench. It functions as a red, green, and blue (primary-color) light source and comes with a power adapter.

Other Equipment

Optics Bench: Beginning and Basic Optics components, such as the color mixer and view screen, snap into the wide central channel of the optics bench. Place the base of the component on the bench and push down firmly to snap it in place. To move it, squeeze the tab on the side of the component and slide the component along the bench.

Use the metric scale on the bench to measure the positions of components.

Viewing Screen: Mount the screen on the bench to view the individual and mixed colors of light from the color mixer

Geometric Lens Set: The lens set consists of two double convex lenses, each 50 mm in diameter, with focal lengths of +100 mm and +200 mm.

Usage

Optics Bench with Lens

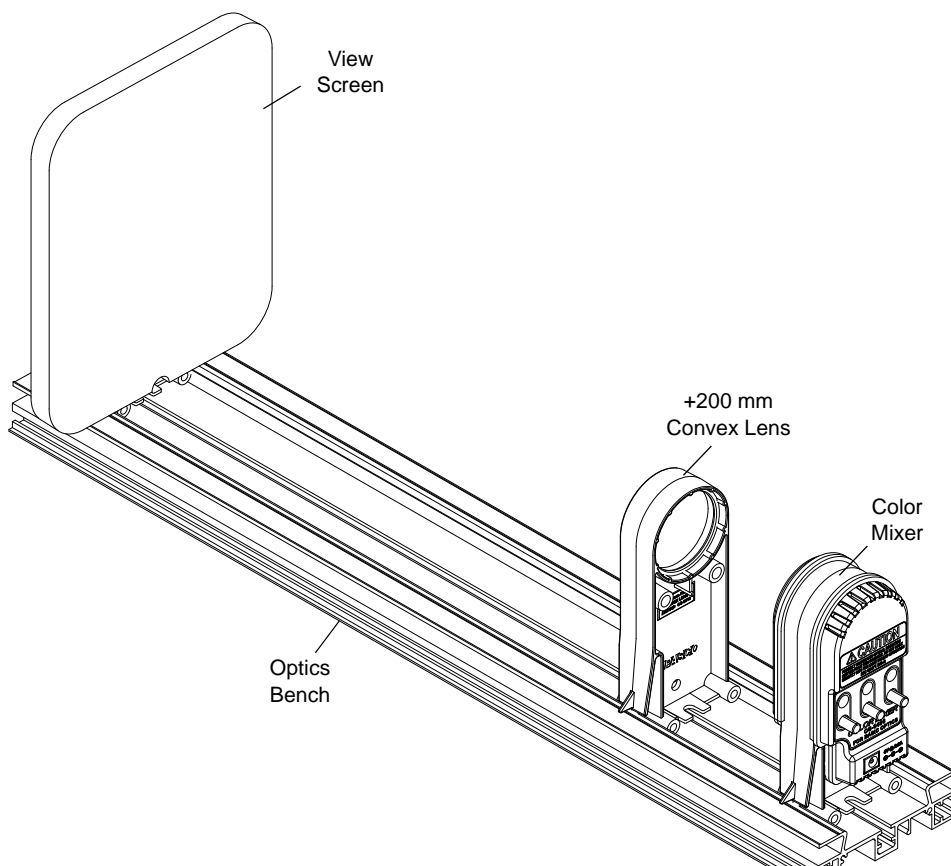
Mount the Color Mixer at one end of a PASCO Optics Bench. Connect the power supply to the back of the Color Mixer and plug the power supply into an electrical receptacle.

Mount a Viewing Screen near the other end of the optics bench. Mount a +200 mm focal length double convex lens near the Color Mixer.

Adjust the position of the lens and the viewing screen as needed in order to see the overlapping circles of red, green, and blue color as large as possible on the view screen.

Use the knobs on the back of the Color Mixer to adjust the light intensity for each color. For example, you may need to turn down the intensity of the red LED slightly in order to more clearly see white as the blended color in the center of the pattern. Turn the knob fully counter-clockwise (right-to-left) to turn off the color and turn the knob fully clockwise (left-to-right) to make the color as bright as possible.

CAUTION: The Color Mixer light-emitting diodes (LEDs) produce intense light. Do not look directly into the Color Mixer when it is turned on.



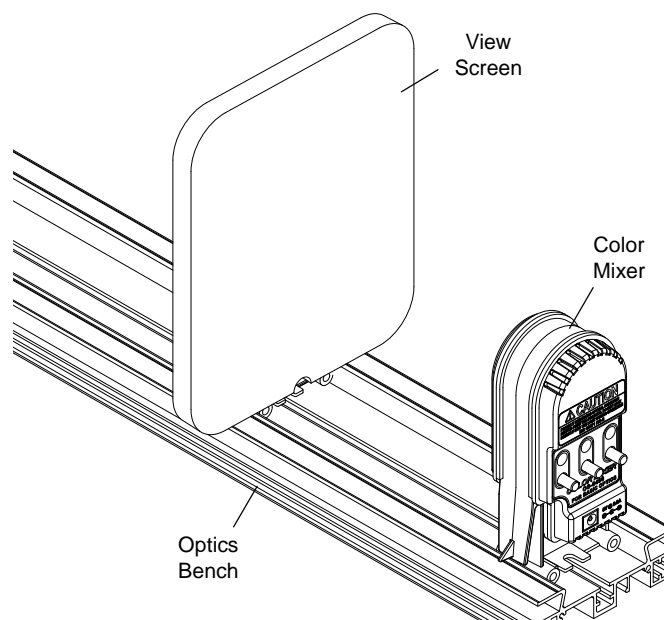
Optics Bench without Lens

Mount the Color Mixer at one end of a PASCO Optics Bench. Connect the power supply to the back of the Color Mixer and plug the power supply into an electrical receptacle.

Mount a Viewing Screen near the Color Mixer. Adjust the position of the viewing screen so that the overlapping circles of red, green, and blue color are as large as possible on the screen.

Use the knobs on the back of the Color Mixer to adjust the light intensity for each color. Turn the knob fully counter-clockwise (right-to-left) to turn off the color and turn the knob fully clockwise (left-to-right) to make the color as bright as possible.

CAUTION: The Color Mixer light-emitting diodes (LEDs) produce intense light. Do not look directly into the Color Mixer when it is turned on.



Standalone

Connect the power supply to the back of the Color Mixer and plug the power supply into an electrical receptacle.

Point the Color Mixer at a piece of white paper or another white surface so that the front of the Color Mixer is parallel to the white surface. Use the knobs on the back of the Color Mixer to adjust the light intensity for each color. Turn the knob fully counter-clockwise (right-to-left) to turn off the color and turn the knob fully clockwise (left-to-right) to make the color as bright as possible.

CAUTION: The Color Mixer light-emitting diodes (LEDs) produce intense light. Do not look directly into the Color Mixer when it is turned on.

Color Mixing

The three primary-color lights produce three “secondary-color” lights when mixed. The blue and red lights blend to form *magenta*, the blue and green lights blend to form *cyan*, and the red and green lights blend to form *yellow*. All three colors blend to form white. You may need to adjust the intensity of the individual colors in order to produce the white light.

Note that the blending of primary-color lights and the blending of primary-color pigments (such as paints) produce different results.

Other

The ventilation slots in the color mixer housing help the LEDs operate at a low temperature, and this extends their useful life. Typically, a light-emitting diode of the type in the color mixer has a life span of 50,000 hours. However, because of the efficiency of the circuitry in the color mixer, the LEDs may last much longer.

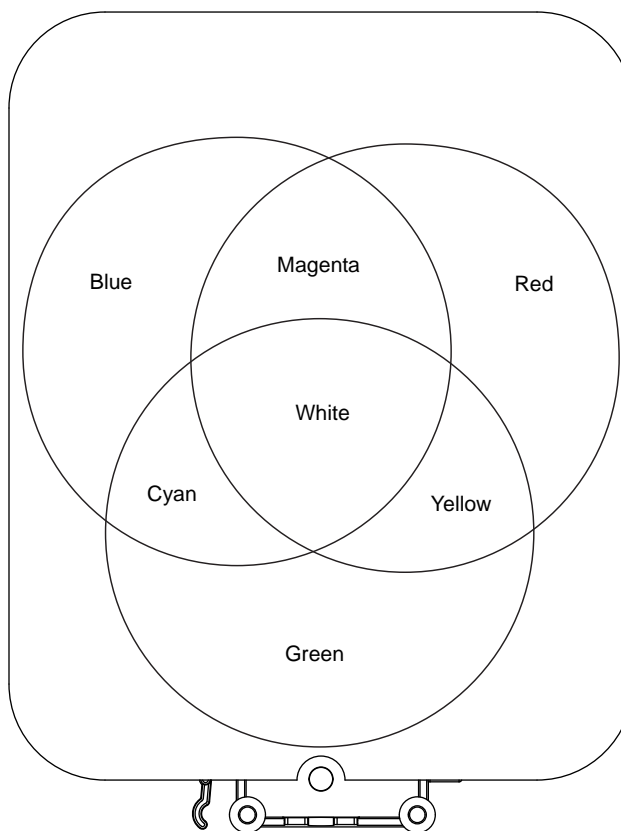
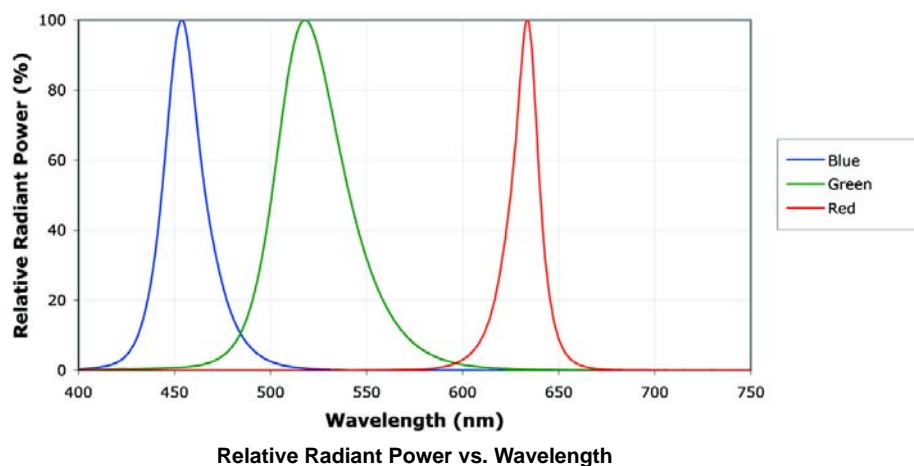


Figure: Typical Color Pattern

The individual color wavelengths will vary from unit to unit due to minor variations in the LEDs. The peak wavelength ranges are as follows:

Color	Peak Wavelength Range
Red	620 to 630 nanometers (nm)
Green	520 to 535 nm
Blue	450 to 465 nm

Note that the Color Mixer LEDs are adapted to a specific purpose and will probably not match the peak wavelength ranges shown.



Technical Support

For assistance with any PASCO product, contact PASCO at:

Address: PASCO scientific
10101 Foothills Blvd.
Roseville, CA 95747-7100

Phone: 916-786-3800 (worldwide)
800-772-8700 (U.S.)

Fax: (916) 786-7565

Web: www.pasco.com

Email: support@pasco.com

For more information about the Color Mixer and the latest revision of this Instruction Sheet, visit the PASCO web site at www.pasco.com and enter OS-8496 in the Search window.

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