



CY3265-RGB Evaluation Kit Quick Start

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WARNING: HIGH BRIGHTNESS LEDs CAN CAUSE PERMANENT EYE DAMAGE!

Do not look at the LEDs if they are not covered by the protective enclosure. The LEDs illuminate at a very high intensity and can cause permanent eye damage if they are viewed without the protective enclosure.

Getting Started

1. [Review Kit Contents](#)
2. [Install Software](#)
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The CY3265-RGB evaluation board demonstrates the ability of an EZ-Color™ controller to control three primary, high brightness LEDs and create accurate, mixed-color output. The three LEDs on the CY3265 evaluation board use the primary colors red, green, and blue, although any three primary color LEDs can be used in a design, depending upon the application and the desired color gamut.

Right out of the box, CY3265-RGB can be used to evaluate and demonstrate EZ-Color intelligent lighting, including color mixing and temperature feedback. Part of evaluating RGB allows using a PC Intelligent Lighting Control to monitor and control RGB functionality (see Section 4. Use the Board as Factory Programmed).

1. Review Kit Contents

The CY3265-RGB Evaluation Kit includes:

- CY3265-RGB Evaluation Board
- Tools CD, which includes:
 - RSoC Programmer

- ❑ Kit Documents (Quick Start, Kit Guide, Release Note, Application Note, Datasheets, Schematics, and Layouts)
- ❑ Firmware
- Retractable USB Cable (A to Mini-B)
- PSoC MiniProg Programmer
- Power Supply Adapter

2. Install Software

Install the CY3265-RGB Kit Software

- 2.1. Insert the CY3265-RGB Kit CD.
- 2.2. Open *Intelligent Lighting Control.msi*
- 2.3. Follow the Setup Wizard instructions.

3. Board Layout

The On/Off Button

For a demonstration without using a PC, push this button to turn the LEDs on and off.

The Color Selection Button

For a demonstration without using a PC, push this button to cycle through seven preset colors (white, red, green, blue, yellow, magenta, and cyan).

The Liquid Crystal Display

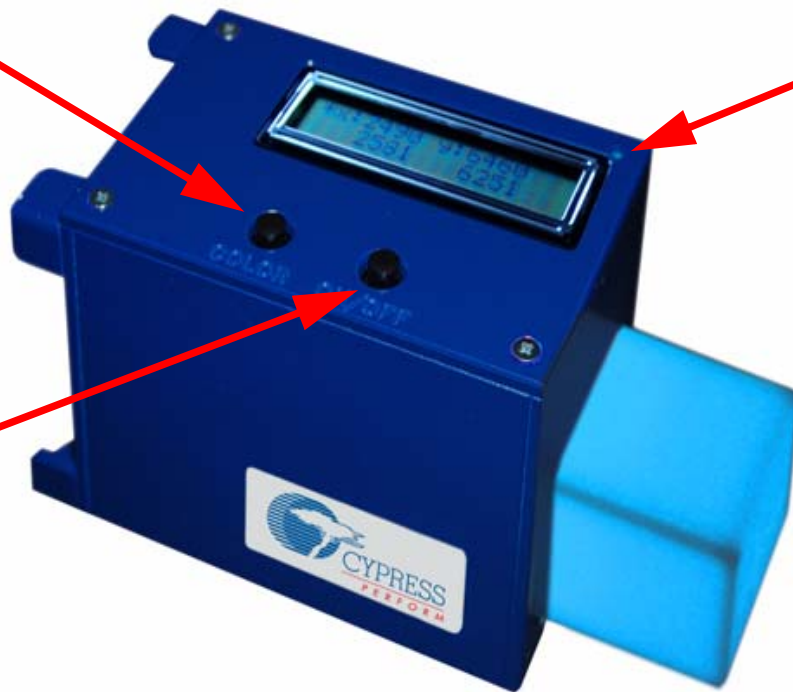
The top line of the display shows CIE 1931 X and Y coordinate labels. The bottom line of the display shows current target 1931 CIE color coordinates.

Figure 1 RGB Selection Button

Color Button

LCD

On/Off Button



4. Use the Board as Factory Programmed

The board can be controlled using the Intelligent Lighting Control application provided on the kit's CD. This application can be installed on a personal computer running either the Windows XP 32-bit or Windows Vista 32-bit operating systems. (**Note** The application might run on earlier versions of Windows, but it has not been tested for those versions.) See the CY3265-RGB Evaluation Kit Guide for detailed instructions on the CY3265 Intelligent Lighting Control application.

When using the board with the Intelligent Lighting Control application, the board must be attached to the computer using a USB cable (included). The board can be attached to the computer before or after the application is started. Once the hardware is attached, the status field located on the bottom edge of the display on the left-hand side indicates that the hardware is present

Setup the CY3265-RGB Kit

- 4.1. Power the CY3265-RGB unit using the provided AC power adapter.
- 4.2. Press the **On/Off** button and notice that the translucent viewing cube lights.
- 4.3. Press the **Color** button to cycle through the preset colors.
- 4.4. Plug the USB cable into the side of the case and also into a USB port on the PC.
- 4.5. If a popup window appears asking to install a driver, follow the steps labeled Recommended.
- 4.6. Open the Intelligent Lighting Control application. This stand alone Intelligent Lighting Control enables you to adjust various settings on the CY3265-RGB Evaluation unit.
- 4.7. Ensure the unit is recognized by the Intelligent Lighting Control application by observing the status message field located in the bottom left portion of the window.

Use the Intelligent Lighting Control Application


- 4.8. Click the **On** button, displayed on the bottom part of the right-hand pane of the Intelligent Lighting Control application. If the currently selected color coordinate is within the color gamut for the LEDs, the LEDs illuminate.
- 4.9. Observe that the Intelligent Lighting Control application window opens with **CIE Color Selection Mode**.
- 4.10. In **CIE Color Selection Mode** tab, click anywhere within the color gamut triangle to select the corresponding CIE coordinates. The selected coordinates are displayed in the **CIE Coordinates** panel on the upper right corner of the window and are also transmitted to the board.
- 4.11. Use the **Requested Luminous Flux** slider to vary the luminous flux of the mixed color output.
- 4.12. To enable the black body curve in the CIE color chart, select the **Enable** check box in the **Color Temperature Control** panel. Note that enabling the color temperature control disables the controls used to specify mixed color CIE color chart.
- 4.13. Use the color temperature slider to select the color temperature value in Kelvin.
- 4.14. If you want to display colors by using sliders instead of the color chart, click the **Direct LED Control Mode** tab.
- 4.15. In the **Direct LED Control Mode** tab, move any of the three sliders from bottom to top to light the corresponding LED from zero to 100 percent. Note that when you enable direct LED con-

5. Review Additional RGB EZ-Color Resources

Cypress provides a wealth of information about RGB EZ-Color and PSoC Express, and more is frequently added. Many sample documents, schematics, layouts, guidelines, and other RGB EZ-Color documents are available on the CD and at www.cypress.com.

Note This quick start guide is available on the CD (\documents) as a PDF and has working links to all the following resources.

To find documentation online (without using the CD):

- a. Go to www.cypress.com.
- b. Click on the **Documentation** link.
- c. Select the type of documentation you are looking for from the **Resource Types** list.
- d. Type the part number or document number into the **Search in Design Resources** field.
- e. Click the **Search** button .

RGB EZ-Color DataSheets

- [CY8CLED04](#), 4 LED Dimming Channels, PrISM Dimming, DMX512, CapSense, 68-pin QFN
- [CY8CLED08](#), 8 LED Dimming Channels, PrISM Dimming, DMX512, 48-pin QFN or SSOP
- [CY8CLED16](#), 16 LED Dimming Channels, PrISM Dimming, DMX512, 48-pin QFN or SSOP and 28-pin SSOP

RGB EZ-Color Application Notes

- [AN15733](#), RGB Color Mixing Hardware for EZ-Color™ HB LED Controller
- [AN16035](#), RGB Color Mixing Firmware for EZ-Color™ HB LED Controller
- [AN14406](#), Temperature Compensation for High Brightness LEDs using EZ-Color™ and PSoC Express
- [AN33640](#), Color Mixing Accuracy with EZ-Color™ High Brightness LED Controllers
- [AN44533](#), ColorLock Optical Feedback for EZ-Color™
- [AN2402](#), Design Aids - PSoC® & EZ-Color™ Development Tools Selector Guide
- [AN13948](#), Multichannel LED Dimmer with CapSense Control

RGB EZ-Color Technical Articles

- [Using Optical Feedback to Design a More Robust High-Brightness-LED System](#)
- [How to Design a Three-Channel LED Driver](#)
- [EZ-Color and PSoC Express: Bridging the Knowledge Gap for Intelligent Lighting and the Semiconductor Market](#)
- [Automated LED Testing and Control](#)
- [Thermal Design Considerations for High-Power LED Systems](#)
- [Programmable Analog for High Power LED Color Mixing Applications](#)

RGB EZ-Color Online Courses

- [EZ-Color 100: Introduction to HB LEDs and Color Science](#). This introductory online module will give you the background needed for color mixing and high brightness LEDs which will enable you to complete and understand color mix designs using Cypress' EZ-Color HB LED Controller. The module is in three sections: The module first describes the composition of color, tristimulus values, and the CIE 1931 color space. Secondly, the module will describe what LEDs are and how they work. Finally the module will lead into HB LEDs and basic color mixing.
- [EZ-Color 101: Using PSoC Express and Temperature Feedback](#). The EZ-Color 101 module will introduce you to the EZ-Color HB LED Controller solution as well as PSoC Express. The module contains two labs enabling you to navigate PSoC Express as well as enable you to begin creating intelligent lighting designs in PSoC Express using binning specifications and temperature feedback.

Design Support and Resources

PSoC and EZ-Color Development Software Online

All PSoC development software tools are available for download online. For PSoC Express visit www.cypress.com/psocexpress. For PSoC Designer visit www.cypress.com/psocdesigner. For PSoC Programmer visit www.cypress.com/psocprogrammer.

EZ-Color Data Sheets and Application Notes

For all EZ-Color device data sheets and detailed application notes, many with complete starter projects, visit www.cypress.com/ez-color. For datasheets, select **Products**, and then select an EZ-Color part. For application notes, select **Support** → **Application Notes**.

EZ-Color Device Selector Guide

For a list of all EZ-Color devices, visit www.cypress.com/ez-color and select **Products**.

EZ-Color Development Tools Selector Guide

For a description of EZ-Color development tools visit www.cypress.com/ez-color, select **Support** → **Software Development Tools**.

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