

## What is CANLight

CANLight is a controller to control RGB LED Strips using the roboRIO for FRC.

You can control the light intensity of the three colors (Red/Green/Blue) of the LED strip along with effects like flashes or color sequences. You can achieve this effects with very little effort and code. You just set the colors and what you want to display. The CANLight controller takes care of the timing, thereby freeing up resources on your RoboRIO for other important tasks.



### Features:

- Set any color in a single command!
- A memory bank of 8 values to store your favorite colors
- Store and load colors from the memory bank
- Flash a color in the memory bank with one command
- Edit timings with memory bank
- Cycle between a range of colors in the memory bank with one command

## Programming Environments

CANLight is supported for use in the following FRC programming languages.

### Java/C++:

Instructions for installing the library and running a sample program are available at:

<http://www.mindsensors.com/blog/how-to/how-to-use-sd540c-and-canlight-with-roborio>

**Note:** Ensure your roboRIO has the 2017 image and the Eclipse plugins are updated to 2017 as well.

### LabVIEW:

Instructions for adding the VI palettes and running sample VIs are available at:

<http://www.mindsensors.com/blog/how-to/how-to-use-sd540c-and-canlight-with-labview>



## Connecting CANLight

### Wiring for CANLight

CANLight uses the CAN protocol. Like I2C and SPI, this is a method of communication between the roboRIO and devices. The CAN port can be found at the upper-left corner of the roboRIO. CAN only uses 2 wires for all communication. Connect your roboRIO to the CANLight using the included CAN wire. Make sure the colors match: black (low) and red (high), or green (low) and yellow (high).



### Powering LEDs

For Powering LEDs use the XT60 port to connect the CANLight to the Power Distribution Panel.

CANLight Kit comes with an XT60 Connector for your power input, follow tutorial here for soldering instructions for this connector:

<http://www.mindsensors.com/blog/how-to/tutorial-soldering-xt60-connectors>

If you are using a different LED strip, be sure to match the Power rating of your LED strip with the power adapter you choose.



### Connecting LED Strip to CANLight

Remove and discard the 4 pin connector that comes with some LED strips, and connect the wires directly in the screw-in terminals on CANLight.

While connecting LED strip be sure to match 'R', 'G', 'B' and Power pins of your strip with the markings on the CANLight device.

## Factory Defaults:

Factory default CAN address: 3

Factory default name: "CANLight"

## Power Consumption:

CANLight itself doesn't take much power to operate, but the LED strip takes 12 volts, the amperage will vary based on the length of your strip.

As a general guideline for most commonly used LED strips, 4 amps are required for every 5 meters, but be sure to refer to the specs of your strip.



**NOTE:** CANLight is designed with built in fuse to prevent overload. If you are using the full length of 5 meters of LED strip on your robot, do not light up the LEDs for extended period of time, doing so may cause overload on the device and your battery (and the fuse will be activated).

### **Configuration Using the mindsensors Configuration Tool:**

The mindsensors Configuration Tool can be used to change the parameters of your SD540C devices and CANLights. This includes changing the ID, name, finding version number and using the debugging LED. For the CANLight it also features a live-updating color test mode. The mindsensors Configuration Tool will also allow you to update firmware. Read more on how to download and use this tool on our blog post:

<http://www.mindsensors.com/blog/how-to/using-the-mindsensors-configuration-tool>

