Welcome, and Thank You!

Thank you for purchasing this Brickstuff product. We hope you enjoy using it as much as we enjoyed creating it. The parts in this box are only part of our story, only part of what we're working hard to develop. Our goal is to create the most flexible and exciting line of hobby lighting and automation products for you to use in all of your fantastic creations. All of these products will work together, and you won't need to be an electronics expert to use them. So keep building amazing things—we'll help you bring them to life.

Thanks again for supporting us. We couldn't do this without you!

--- The Brickstuff Team
info@brickstuff.com

Lighting Effect Starter Kit
INSTRUCTIONS FOR USE

Carefully remove all parts from the included re-sealable anti-static bag:

* One Lighting Effect Controller (LEC) with 12 pre-programmed lighting effects
* Six Pico LED Boards with connecting cables
* Six Adapter boards (2x BRANCH04 and 4x BRANCH03)
* Six connecting cables and self-adhesive mounting squares

Depending on the specific kit purchased, there may also be a power supply in the box, or you may have purchased a kit without a power supply.

SOME NOTES ON USAGE:

The Lighting Effect Controller (LEC) is a sensitive electronic circuit. It should be handled with care, and it should be protected from static electricity and moisture. The LEC is for indoor use only. When not using the LEC, keep it stored in its re-sealable anti-static bag. The LEC will become damaged if exposed to static electricity or moisture.

Use care in handling the boards as they are fragile. Be especially careful when bending the connecting cable attached to the light board— the wires are soldered to the board but can come unattached with repeated bending and/or pulling. Make sure the light board will fit into the mounting area. If precise positioning is needed, use the included self-adhesive squares to secure the light board. If mounting in a LEGO® creation, make sure to thread the plug through any stud holes before mounting (the plug will fit through stud holes but the light board will not). Make sure all wires can reach their connecting adapter board without putting tension on the wires. If you are mounting the light boards into a creation that moves or has moving/articulated parts, make sure there is enough slack in the cables to allow the build to freely move without putting tension on the wires.

CONNECT:

Six adapter boards are provided with this kit: the light boards have micro connectors which plug into the two micro plugs on the BRANCH03 adapter boards (micro connectors "click" into place when fully inserted). The larger connector on each BRANCH03 board connects either to another adapter board (BRANCH04), an output on a Lighting Effect Controller, or to a power supply output. Use care when connecting plugs, as each will fit only one way. To remove micro plugs, pull gently while holding the red and black wire firmly.

> **WARNING: This product contains small parts and sharp parts. This product is not a toy. It is not intended for children under 13 years of age.**

LIGHTING EFFECT CONTROLLER FEATURES

The Brickstuff Single-Function Lighting Effect Controller (LEC) allows you to add any of 12 lighting effects to your installations. Each LEC has two independent channels of operation, and each channel can power a large number of lights. (100 or more total LEDs with a single LEC) The LEC also features manual brightness/speed adjustment (depending on the lighting effect selected) as well as a random on/off feature (depending on effect) that will turn the effect on and off at user-selectable random intervals. Figure 1 shows the LEC circuit board and its controls.

This instruction manual covers the basics for using the LEC and Pico Light Boards. More complete, illustrated documentation is available online at **http://bit.ly/brickguides**. Video examples of the various LEC effects are also available at this link.

Lighting Output Channel 1

Lighting Output Channel 2

Random On/Off Selector Switch

Four Holes for Mounting to LEGO® Studs

Lighting Effect Mode Selector Button

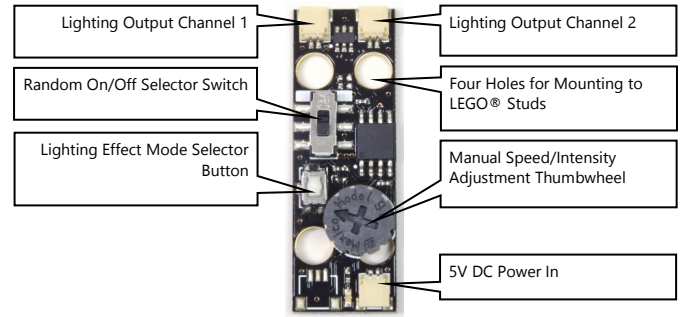Manual Speed/Intensity Adjustment Thumbwheel

5V DC Power In

Figure 1: The Lighting Effect Controller

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12 Pre-Programmed Lighting Effects:

1. On/off with selectable dimming
2. Flickering Fire
3. Pulse
4. Glimmer
5. Jet engines
6. Airport runway-style pulsing

7. Flash
8. Single strobe
9. Double strobe
10. "blinkylights" (great for spaceship control panels)
11. Laser cannon
12. Cannon with explosion

LIGHTING EFFECT CONTROLLER OPERATION

Changing Lighting Effects: Press and quickly release the Lighting Effect Mode Selector Button to change lighting effects. The LEC will cycle through its 12 effects. If you accidentally press the button for longer than three seconds, the LEC will enter PROGRAM mode (press again for at least three seconds to exit PROGRAM mode).

Turn the thumbwheel to change the speed or intensity of the active lighting effect.

Enabling Random On/Off Mode: Turn the Random On/Off Selector Switch to the UP position to enable the LEC's random on/off effect. This applies to all effects except the Laser Cannon and Cannon with Explosion effects. When the switch is UP, the selected effect will turn on and off at random intervals. Note that connected lights will initially start from an "off" state after the Random On/Off Selector Switch is turned to the UP position.

You can change advanced LEC functions by entering PROGRAM mode. To enter PROGRAM mode, make sure you have at least one light connected to each output channel. Press and HOLD the Lighting Effect Mode Selector Button for at least three seconds. Both output channels should blink three times to indicate you have entered PROGRAM mode. To exit PROGRAM mode, press and HOLD the Lighting Effect Mode Selector button again for at least three seconds.

Changing Maximum Brightness: Make sure the Random On/Off Selector Switch is in the DOWN position. Enter PROGRAM mode. Use the thumbwheel to set maximum brightness for both channels. When you have exited PROGRAM mode, the LEC will return to its last active lighting effect. The LEC ships from the factory with both output channels set at maximum brightness.

Changing the On/Off Interval: Make sure the Random On/Off Selector Switch is in the UP position. Enter PROGRAM mode. Both channels should blink repeatedly 0-10 times in sequence. Use the thumbwheel to select an on/off duration— both output channels will change their number of blinks. 10 times blinking equals 30 minutes, which means the effect may be on for up to 30 minutes, followed by up to 30 minutes of being off (both on and off durations are selected randomly each time a new on/off cycle begins). Anything less than 10 times blinking will result in random on/off times less than 30 minutes (each additional sequence blink adds 3 minutes to the possible on/off times). When you have exited PROGRAM mode (as instructed above), the LEC will begin a new random on/off sequence for the effect. The LEC ships from the factory with a random on/off duration of 24 minutes.