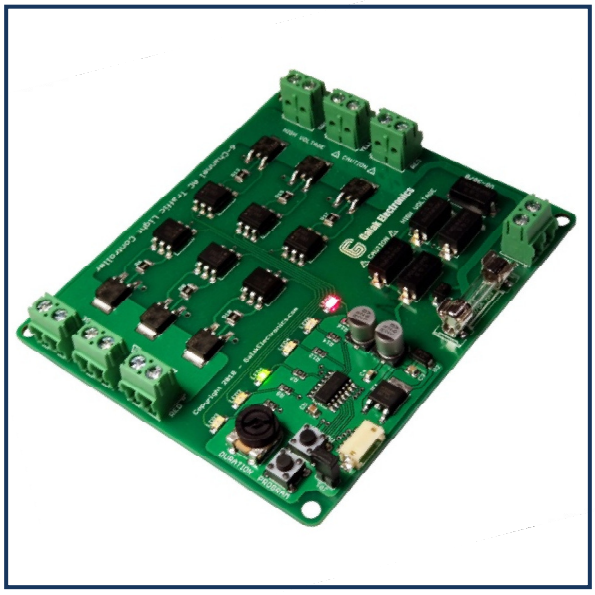
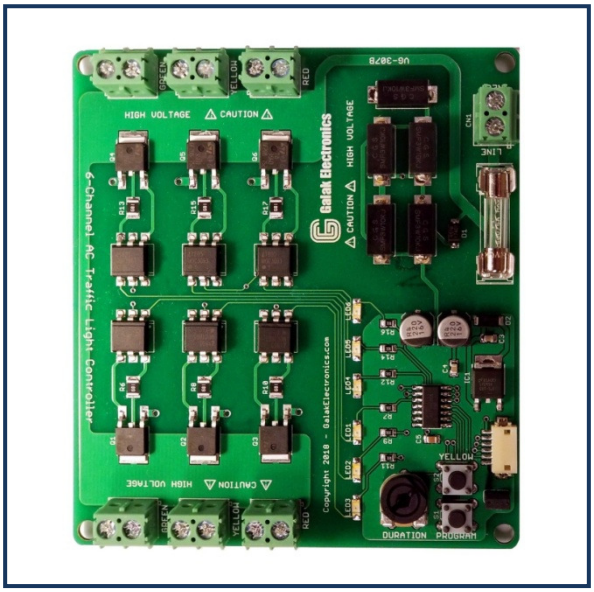
Galak Electronics
Electronic kits and components

Website: GalakElectronics.com
Email: sales@galakelectronics.com
Phone: (302) 832-1978

VG-307 6-Channel Traffic Light Controller Kit





Thank you for your purchase of the 6-Channel Traffic Light Controller kit. Our kits are engineered to provide key elements for understanding electronics design and theory. In fact, we make it our goal to produce kits that will apply important electronic principles using analog and digital technology, and easy to find off-the-shelf components.

Our Programmable series of kits incorporate microcontroller technology due to the simplicity of the electronics and ease of assembly. It allows for a greater range of functionality, while maintaining a cost effective solution for some of today's more challenging electronics needs and requirements.

The 6-Channel Traffic Light Controller uses a simple algorithm to access the selected pattern and timing in its internal ROM and sequences this information to the LEDs. Each pattern uses 16 bytes for each step of the unique pattern. If you are interested in learning more about the program feel free to email us at the address listed below.

Before getting starting, make sure you have a VG-305B Traffic Light controller and four (4) adhesive standoffs. If any of the listed items are missing, please contact us toll free at (302) 832-1978 or online at sales@galakelectronics.com.

We appreciate your business, so feel free to provide us with any suggestions or comments you may have regarding this kit or any other Galak Electronics kit.

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FEATURES:

- Easy to program mode selection with pushbutton control. •
- Four modes: full intersection, traffic light with crosswalk, traffic light with arrows.
- Separate digital control for "YELLOW" allows for realistic operation (1 to 8s).
- User selectable duration from 1 second to 2 minutes (per RED or GREEN light).
- Wide input voltage range, accepts from 90 to 130VAC with input fuse protection.
- Highly efficient power conversion draws less than 0.5 watts from the logic side.
- Independent outputs channels for operating LEDs or Incandescent lamps.
- Solid state switching for silent operation (no clicking mechanical relays).
- Snubberless™ technology to protect against reverse voltage spikes.
- Onboard LEDs to show current output states for easy programming and setup.
- Compatible with all traffic lights & bulbs (non-dimmable LED bulbs included).
- Four adhesive standoffs to allow for effortless mounting.

Powering up the 6-Channel Traffic Light Controller

IMPORTANT NOTICE: Please observe all applicable electrical wiring codes when utilizing this product. This device is fused with a 10/250VAC fast acting fuse. Replace only with an equally rated UL approved fuse. The user understands that Galak Electronics is not liable for any damages (including shock, fire, property damage or death) due to the improper use or installation of this product. Please contact us if you have concerns about safe and proper installation of this product.

After double-checking your wiring, attach your AC power leads to CN1. The neutral wire (white) connects to the terminal marked **NEUT** and the hot wire (black) connects to the terminal marked **LINE**. Make sure that both terminals are sufficiently tight to ensure that the wires don't come loose. Do not power the unit on at this point. Make sure the unit is on a non-conductive surface or securely mounted. It is not necessary to connect the outputs at this point.

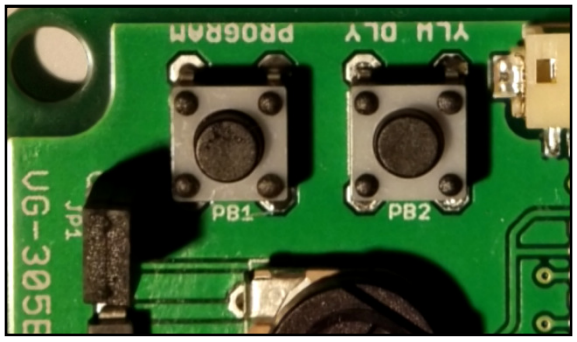
Using a screwdriver, turn VR1 (DURATION) all the way counter-clockwise to set the sequencing speed to the minimum. Apply AC power to the unit. A Red and Green LED should illuminate immediately. After about 5 seconds the Green LED will switch to Yellow and eventually the change to Red. The other Red LED will remain red for about a second before changing to Green. To increase the duration of the Yellow LED simply press the button marked "YELLOW." The default yellow duration is 3 seconds. With each press of the button, the duration will increase by one second. When the maximum duration of 8 seconds is reached, the next press of the button will return the yellow duration to 1 second. Experiment with VR1 and the yellow duration to get the right combination of cycle time and yellow light time.

If you don't get any response from the LEDs after applying power, disconnect your AC power source and check all your connections. If you still don't get any response or if the fuse has blown please contact Galak Electronics. In the event that the problem can't be resolved, we will be happy to repair your unit free of charge in most cases. You just pay the shipping costs.

Modes of Operation

Mode 1: Traffic Lights Full Intersection						
Mode 2: Traffic Light With Crosswalk						
Mode 3: Traffic Light With Arrows Sequence 1						
Mode 4: Traffic Light With Arrows Sequence 2						

Mode Selection



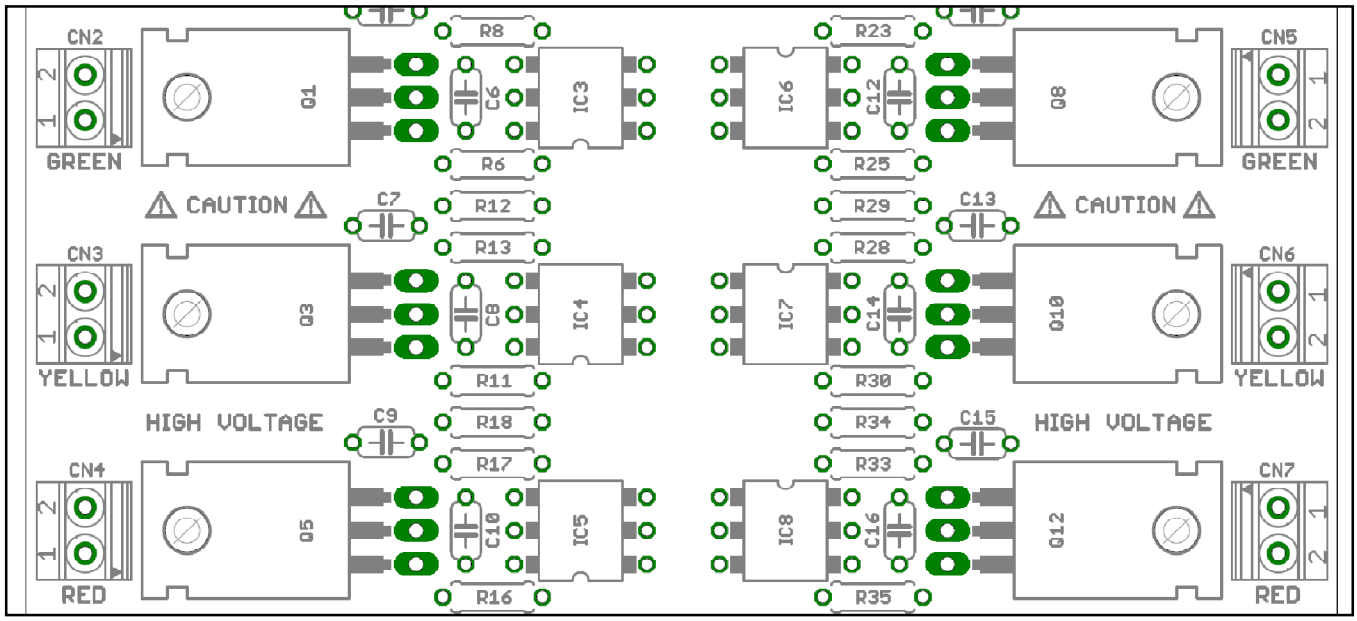
To select one of the four modes, first remove the JP1 jumper (pictured right). Push the PROGRAM button to cycle through each pattern shown in the table above. When the button is pressed, the Red, Yellow and Green LEDs will alternate from the left side to the right side. Count the number of times the LEDs flash to determine the selected sequence. For example, if mode 3 is selected, the outputs will flash Red, Yellow, Green from left to right three (3) times to indicate mode 3. Once the desire mode has been selected, you can replace JP1 to exit the program mode.

Yellow Light Duration

The yellow light duration can be adjusted independently from the main duration control when one of the standard traffic light modes is selected. Press the button marked "YELLOW" (pictured above) to increase the duration by 1 second. Only the yellow LEDs will flash to indicate the number of seconds. When 8 seconds has been reached the next button press will revert the duration back to 1 second. Please note that JP1 has no effect on the yellow duration set.

Connecting to the Outputs

Now that you have verified that the logic is functioning properly, you can connect up your AC loads. First, make sure the AC power is disconnected before making any connections. Regardless of the mode, outputs CN5-CN7 are the primary traffic light outputs (shown below).



Insert the neutral wire (white) from your GREEN light into terminal “1” of CN5 and insert the hot wire (green) from your GREEN light into terminal “2” of CN5.

Next, Insert the neutral wire (white) from your YELLOW light into terminal “1” of CN6 and insert the hot wire (yellow or brown) from your YELLOW light into terminal “2” of CN6

Next, Insert the neutral wire (white) from your RED light into terminal “1” of CN7 and insert the hot wire (red) from your RED light into terminal “2” of CN7. Please note: if you have one common neutral wire, it can be connected to CN5, CN6 or CN7.

Depending on what mode your using, the remaining outputs will be connected in the same manners as those above with the neutral wire connecting to terminal “2” and the hot wire connecting to terminal “1”.

For Crosswalk signals, the "WALK" is connected to CN2 with the neutral wire (white) connecting to terminal “2” of CN2 and the hot wire (typically blue) connecting to terminal “1” of CN2. The remaining "DON'T WALK" wire (typically orange) connects to terminal "1" of CN4. The YELLOW light output is not used .

Make sure that all terminals are sufficiently tight to ensure that the wires don’t come loose. At this point you are ready to power up your 6-Channel Traffic Light Controller. If everything is functioning properly, your traffic light should follow the LEDs on the controller. Please note that the power resistors R1-R4 will get warm (up to 50℃ or 122℉). This is normal.

IMPORTANT NOTICE: If the enclosure in which you are installing this unit is metal, the enclosure must be properly grounded. If you are connected directly to a junction box, make sure to use a 3-conductor UL approved cable. The green wire should be connected to the junction box ground and the other end should be connected to the traffic light enclosure via a ground stud or self-tapping screw. Conversely, if using a power cable, ensure that the power cable has a ground prong and again connect the green wire to the traffic light enclosure via a ground stud or self-tapping screw. Failure to follow these precautions may lead shock, fire, property damage or even death. Please contact use at (302) 832-1978 if you have any questions or concerns.

SPECIFICATIONS:	
Supply Voltage	90VAC to 130VAC (180VAC to 260VAC for 240VAC version)
Max Output Rating	120VAC @ 4.2A per channel (fused at 5A)
Wattage Rating	4 Watts (minimum) 500 Watts (maximum) per channel
Input Connector	14-26AWG, 250VAC @ 16A screw terminals
Output Connectors	14-26AWG, 250VAC @ 16A screw terminals
Delay Range	VR1: 1-120 seconds (yellow 1 to 8 seconds via button)
Board Dimensions	3.94 x 3.60" (10 cm x 9.14 cm)
Board Material	0.062" (1.6 mm) FR-4, with green solder mask & silk screen
Finished Weight	1.9 ounces (54 grams)

Good luck and enjoy you new 6-Channel Traffic Light Controller. We appreciate your business.

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Warranty Certificate

Galak Electronics warrants that this product is free from manufacturers defects in material and workmanship.

WARRANTY PERIOD

For as long as you own this product we guaranteed it to operate properly under normal conditions.

CONTENTS OF THE WARRANTY

Should a Galak Electronics product fail at any time, return it to us using the contact information below. Galak Electronics will repair it, or at our discretion, replace it at no additional charge, and pay the return shipping cost. If the failure is found to be due to user negligence (i.e. exceeding maximum rated specifications, water damage, short circuits) you will be charged a maximum cost no more than the original purchase price.

RESTRICTIONS OF WARRANTY

This warranty has been given provided that the Galak Electronics Product is used in its normal intended use and that due care and compliance with the instructions given by Galak Electronics are observed. The obligations of Galak Electronics have been restricted to these warranty terms and conditions and the warranty thus does not cover losses incurred as a result of damage to other property or persons. The warranty does not cover defects which are the result of: transportation of the Galak Electronics Product; negligence by the user of the Galak Electronics Product or failure to observe the instructions given by Galak Electronics or proper care; circumstances outside the control of Galak Electronics, such as theft, fire, accidents or acts of vandalism; failure to observe the installation or operating instructions; and normal wear and tear. The warranty does not cover defects which do not hinder normal operation of the Galak Electronics Product, such as repair of superficial scratches.

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