**Warnings to Installers**

Whelen’s emergency vehicle warning devices must be properly mounted and wired in order to be effective and safe. Read and follow all of Whelen’s written instructions when installing or using this device. Emergency vehicles are often operated under high speed stressful conditions which must be accounted for when installing all emergency warning devices. Controls should be placed within convenient reach of the operator so that they can operate the system without taking their eyes off the roadway. Emergency warning devices can require high electrical voltages and/or currents. Properly protect and use caution around live electrical connections. Grounding or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or vehicle damage, including fire. Many electronic devices used in emergency vehicles can create or be affected by electromagnetic interference. Therefore, after installation of any electronic device it is necessary to test all electronic equipment simultaneously to ensure that they operate free of interference from other components within the vehicle. Never power emergency warning equipment from the same circuit or share the same grounding circuit with radio communication equipment. All devices should be mounted in accordance with the manufacturer’s instructions and securely fastened to vehicle elements of sufficient strength to withstand the forces applied to the device. Driver and/or passenger air bag(s) (SRV) will affect the way equipment should be mounted. This device should be mounted by permanent installation and within the zones specified by the vehicle manufacturer, if any. Any device mounted in the deployment area of an air bag will damage or reduce the effectiveness of the air bag and may damage or dislodge the device. Installer must be sure that this device, its mounting hardware and electrical supply wiring does not interfere with the air bag or the SRV wiring or sensors. Mounting the unit inside the vehicle by a method other than permanent installation is not recommended as unit may become dislodged during swerving; sudden braking or collision. Failure to follow instructions can result in personal injury. Whelen assumes no liability for any loss resulting from the use of this warning device. PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO INSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.

**Warnings to Users**

Whelen’s emergency vehicle warning devices are intended to alert other operators and pedestrians to the presence and operation of emergency vehicles and personnel. However, the use of this or any other Whelen emergency warning device does not guarantee that you will have the right-of-way or that other drivers and pedestrians will properly heed an emergency warning signal. Never assume you have the right-of-way. It is your responsibility to proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes. Emergency vehicle warning devices should be tested on a daily basis to ensure that they operate properly. When in actual use, the operator must ensure that both visual and audible warnings are not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions. It is the user’s responsibility to understand and obey all laws regarding emergency warning devices. The user should be familiar with all applicable laws and regulations prior to the use of any emergency vehicle warning device. Whelen’s audible warning devices are designed to project sound in a forward direction away from the vehicle occupants. However, because sustained periodic exposure to loud sounds can cause hearing loss, all audible warning devices should be installed and operated in accordance with the standards established by the National Fire Protection Association.

**Safety First**

This document provides all the necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of your new product, the installation technician and operator must read this manual completely. Important information is contained herein that could prevent serious injury or damage.

**WARNING:** This product can expose you to chemicals including Methylene Chloride which is known to the State of California to cause cancer, and BPhenol A, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

- Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.
- Whelen Engineering requires the use of the waterproof butt splices and/or connectors if that connector could be exposed to moisture.
- Any holes, either created or utilized by this product, should be made both air- and watertight using a sealant recommended by your vehicle manufacturer.
- Failure to use specified installation parts and/or hardware will void the product warranty.
- If mounting this product requires drilling holes, the installer MUST be sure that no vehicle components or other vital parts could be damaged by the drilling process. Check both sides of the mounting surface before drilling begins. Also de-burr the holes and remove any metal shards or remnants. Install grommets in all wire passage holes.
- If this manual states that this product may be mounted with suction cups, magnets, tape or Velcro®, clean the mounting surface with a 50/50 mix of isopropyl alcohol and water and dry thoroughly.
- Do not install this product or route any wires in the deployment area of your air bag. Equipment mounted or located in the air bag deployment area will damage or reduce the effectiveness of the air bag, or become a projectile that could cause serious personal injury or death. Refer to your vehicle owner’s manual for the air bag deployment area. The User/Installer assumes full responsibility to determine proper mounting location, based on providing ultimate safety to all passengers inside the vehicle.
- For this product to operate at optimum efficiency, a good electrical connection to chassis ground must be made. The recommended procedure requires the product ground wire to be connected directly to the NEGATIVE (-) battery post (this does not include products that use cigar power cords).
- If this product uses a remote device for activation or control, make sure that this device is located in an area that allows both the vehicle and the device to be operated safely in any driving condition.
- Do not attempt to activate or control this device in a hazardous driving situation.
- This product contains either strobe light(s), halogen light(s), high-intensity LEDs or a combination of these lights. Do not stare directly into these lights. Momentary blindness and/or eye damage could result.
- Use only soap and water to clean the outer lens. Use of other chemicals could result in premature lens cracking (crazing) and discoloration.
- Lenses in this condition have significantly reduced effectiveness and should be replaced immediately. Inspect and operate this product regularly to confirm its proper operation and mounting condition. Do not use a pressure washer to clean this product.
- It is recommended that these instructions be stored in a safe place and referred to when performing maintenance and/or reinstallation of this product.
- FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE AND/OR SERIOUS INJURY TO YOU AND YOUR PASSENGERS!
Be sure power is off and the main fuse is removed. The diagrams above show which strobe power supplies control which strobe lightheads to identify which power supply controls the lightheads you wish to change.

**LFL Patriot:**
1. Remove the endcaps (T25 torx head) and unplug the alley lights if present. Also unplug and remove the corner lighthheads. Remove the 4 top extrusion torx screws (T20 torx head) and remove the top extrusion. (Slide the lenses out and place them on your work area in the order you removed them for easy re-installation.)
2. Unplug and remove the strobe power supply you wish to replace.
3. Plug the ballast interconnect harness into the ballast you are installing and install the ballast with the connectors on the ballast facing inward (the opposite way the power supply connectors faced). You may have to cut one or more ty-wraps from the main harness to allow you to turn the ballast around.
4. Plug the other end of the ballast’s interconnect harness into the lightbar ports you removed the power supply harness from. (The connectors will match the ones you removed).

**WARNING!** Use ty-wraps to hold the harness in its new position and make sure all wires are positioned out of the way of other components, so they will not get crushed during reassembly.
5. Unplug and remove the lighthheads you are replacing. Plug the LED retrofit adapters onto the LED lighthheads you are installing then install the LED lighthheads in the spots you removed the strobe lighthheads from. Reassemble and test the lightbar.
6. Unplug and remove the strobe lighthheads you are replacing. Plug the LED retrofit adapters onto the LED lighthheads you are installing then install the LED lighthheads in the spots you removed the strobe lighthheads from. Reassemble and test the lightbar.

**ULTRA:**
1. Remove the endcaps (T25 torx head) and unplug the alley lights if present.
2. Slide as many lenses and lighthheads out of the lightbar as is necessary to access the power supply you wish to replace. Place them on your work area in the order that you removed them for easy re-installation.
3. Unplug and remove the strobe power supply you wish to replace.
4. Plug the ballast interconnect harness into the ballast you are installing and install the ballast. Unlike the LFL, the ballast for the ULTRA will install in the same position as the power supply you removed (with connectors facing the outside of the lightbar).
5. Plug the other end of the ballast’s interconnect harness into the lightbar ports you removed the power supply harness from. (The connectors will match the ones you removed).
6. Unplug and remove the lighthheads you are replacing. Plug the LED retrofit adapters onto the LED lighthheads you are installing then install the LED lighthheads in the spots you removed the strobe lighthheads from. Reassemble and test the lightbar.

**WARNING!** Position all wires out of the way of other components, so they will not get crushed or pinched during reassembly.

**IMPORTANT:** The LED ballast for both the ULTRA and PATRIOT follows the basic function of the existing strobe power supplies. Some functions however, will not be possible. For proper performance, the ballast should be used in ALTERNATING MODE ONLY. This may require a change to your SC control head. SC modes such as SIMULTANEOUS, IN-OUT and RANDOM will cause errors and are not recommended. These ballasts are unique and should be treated as such. When changing patterns, the ballast needs to first detect the active pattern coming from the I.O. card and then sync up with it. This may take one or two cycles and some minor flash glitches may be seen in the pattern during this process. ACTION SCAN may display some minor flash glitches since the patterns change often.

**WARNING!** The strobe power supply is a high voltage device. Do not remove the strobe tubes or dismantle the strobe lighthheads in the system while the unit is in operation. Wait 10 minutes after turning off power before starting any work or trouble shooting on the system.