Automotive: Lightbars

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 devices 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 bags (SRS) 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 SRS 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 period 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 Biphencol 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 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 into all wire passage holes.
- If 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!

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Form No.14033E (120910)

For warranty information regarding this product, visit www.whelen.com/warranty

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Specifications:

- Input Voltage: 12.8 VDC +/- 20%
- Input Current: Peak - 400ma / Avg - 160ma
- Sync Phase: Phase I & II @ 400ms
- Input Scan-Lock™: +12 VDC

Installation:

Note: When routing the wires, it is very important that you choose a path that will keep the wires away from excessive heat or any vehicle equipment that could compromise the integrity of the wires (ex. trunk lids, door jams, etc.).

IMPORTANT! The lightbar should be located a minimum of 16" from any radio antennas!

1. Position the unit in its proposed mounting location. Draw a pencil line onto the mounting surface along the top and bottom of the extrusion and a “centerline” centered between the two.
2. Two 1/4” holes are required to mount this unit. These holes may be located anywhere along the horizontal centerline that you drew in step one. It’s best to locate the holes as far apart as possible. Mark the hole location onto the mounting surface.
3. Using a 1/4” drill bit, drill a hole in each of the areas scribbed in the previous step.
4. Slide the 2 carriage bolts (installed in the rear of the bar) over to the 2 mounting holes, install the rubber gaskets onto the bolts then insert them into the mounting holes.
5. Secure the unit by threading the flat washer and elastic stop nut onto each bolt and tightening them firmly.

Wiring: Refer to the wiring diagram on the next page.

WARNING: All customer supplied wires that connect to the positive terminal of the battery must be sized to supply at least 125% of the maximum operating current and FUSED at the battery to carry that load. DO NOT USE CIRCUIT BREAKERS WITH THIS PRODUCT!

Scan-Lock™ (White)

TIR3™ lightheads have flash patterns that are available in two modes: Phase 1 and Phase 2. The patterns are changed with the WHITE wire.

To advance to the next pattern, apply +12 VDC to the WHITE wire for less than 1 second. To cycle backwards to previous patterns, apply +12 VDC for more than 1 second.

SYNC Flash Patterns:

1. SignalAlert™ Phase 1
2. SignalAlert Phase 2
3. CometFlash® Phase 1
4. CometFlash Phase 2
5. DoubleFlash Phase 1
6. DoubleFlash Phase 2
7. SingleFlash Phase 1
8. SingleFlash Phase 2
9. ComAlert™ Phase 1
10. ComAlert Phase 2
11. LongBurst™ Phase 1
12. LongBurst Phase 2
13. PingPong™ Phase 1
14. PingPong Phase 2

Regular Flash Patterns:

1. SingleFlash 60°
2. SingleFlash 90°
3. SingleFlash 120°
4. SingleFlash 300
5. DoubleFlash 150
6. ComAlert™ 150
7. ActionFlash™ 1
8. ActionFlash™ 2
9. ModuFlash™
10. ActionScan™
11. Steady

Available Flash Patterns ( * = California Title XIII compliant)

SYNC Flash Patterns:

1. SingleFlash Phase 60°
2. SingleFlash Phase 90°
3. SingleFlash Phase 120°
4. SingleFlash Phase 300
5. DoubleFlash Phase 150
6. ComAlert™ Phase 150
7. ActionFlash™ 1
8. ActionFlash™ 2
9. ModuFlash™
10. ActionScan™
11. Steady

To reset to the factory default pattern, begin by turning off power to the lighthead. While applying +12 VDC to the WHITE wire, turn the lighthead back on. Continue to apply voltage to the WHITE wire for 5 seconds.

All lightheads configured to display the Phase 1 mode of a given pattern will flash simultaneously. Any lightheads configured to display the Phase 2 mode of a pattern will alternate with any Phase 1 lightheads with the same pattern.

Sync (Green)

To sync two lightheads, configure both lightheads to display the same pattern.

EXAMPLE:

<table>
<thead>
<tr>
<th>DRIVER SIDE</th>
<th>PASSENGER SIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>Phase 1</td>
</tr>
<tr>
<td>Phase 1</td>
<td>Phase 2</td>
</tr>
<tr>
<td>Phase 2</td>
<td>Phase 2</td>
</tr>
<tr>
<td>Phase 2</td>
<td>Phase 2</td>
</tr>
</tbody>
</table>

Phase 1 pattern. With the power off, connect the GREEN wire from each lighthead together. When the lightheads are activated, their patterns will be synchronized. To configure the two lightheads to alternate their patterns, advance the pattern of either lighthead to the Phase 2 mode of the current pattern.

To understand how to use the SYNC feature with more than 2 lightheads, the principles will be applied to a sample system consisting of 4 lightheads. Two are mounted on the rear, driver side of the vehicle and two are mounted on the rear, passenger side of the vehicle.

With all the wiring complete, turn on the 4 lightheads. As shipped from the factory, all the lightheads will simultaneously display the same pattern (Signal Alert™ 75 Phase 1).

To configure, for example, the passenger side lightheads to alternate with the driver side lightheads, change the flash patterns for either the passenger or driver side lightheads to Phase 2 of the same pattern.

IMPORTANT! Before returning this vehicle to active service, visually confirm the proper operation of this product, as well as all vehicle components/equipment.
RED: +12VDC  
GREEN: SYNC  
BLACK: Ground  
WHITE: Scan-Lock™

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**SPST switch** (customer supplied)

**Butt Splice** (customer supplied)

**Fuses - 3A each** (customer supplied)

*This connection is not necessary unless the lightbars are to be SYNC'd*

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**LED COLOR**

<table>
<thead>
<tr>
<th>QTY</th>
<th>ITEM PART NUMBER</th>
<th>DESCRIPTION</th>
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<tr>
<td>1</td>
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<td>LIGHT ASSY, DOM INTERIOR</td>
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<tr>
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<td>4C 18 GA 20&quot; STRIP BOTH ENDS 2&quot;</td>
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<td>2</td>
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<td>GROMMET, 3/8&quot; #905</td>
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<td>AR</td>
<td>01-026B494-24</td>
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<td>AR</td>
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<td>LTHEAD ASSY, 3TIR LED - WHT/FLASH</td>
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<td>AR</td>
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<td>WASHER, #10 FLAT .631 DIA. X .060</td>
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<td>CARRIAGE BOLT, #10-24 X 1/2 LG SS</td>
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<td>BUTT SPLICE, 22-18 RED WATERPROOF</td>
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<tr>
<td>17</td>
<td>36-0123288-00</td>
<td>GASKET, EXTRUSION MOUNT</td>
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</tbody>
</table>

**PART NO. KEY**

- 01-0684475-0

**LED COLOR**

1 - AMBER  
2 - BLUE  
3 - WHITE  
4 - GREEN  
5 - RED