

# WHELEN<sup>®</sup>

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**Installation Guide:**  
**ECE 360° Class 1 LED Beacon**  
**ECE L31 & L32 Class 1 Super-LED<sup>®</sup> Beacon**  
**ECE L31 Class 2 Super-LED<sup>®</sup> Beacon**

### 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 insure 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 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.

- **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.**
- **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 manual states that this product may be mounted with suction cups, magnets, tape or Velcro<sup>®</sup>, 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!**

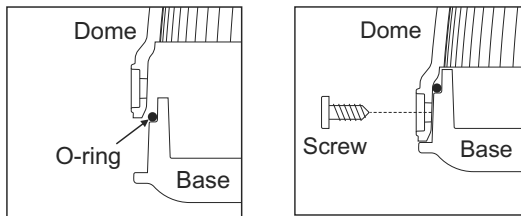
## Mounting:

This beacon uses a base that may be mounted one of three ways. It is designed to be mounted in a normal dome-up position.

### Permanent surface mount:

**CAUTION: Permanent mounting of this product will require drilling. It is absolutely necessary to make sure that no other vehicle components could be damaged by this process. Check both sides of the mounting surface before starting. If damage is likely, select a different mounting location.**

1. Remove the screws securing the dome to the base and remove the dome. Position the beacon in its proposed mounting location (refer to safety warnings on page 1).
2. Locate the 3, round mounting holes on the inside bottom of the base. Using the base as a template, mark the location of these holes onto the mounting surface. Remove the beacon and make a mark in the center of the beacon's mounted position for a wire passage hole.
3. Using an appropriately sized drill bit (based on the mounting hardware used and the thickness of the mounting surface), drill the three mounting holes marked in step 2. The wire access hole should be drilled using a 3/8" drill bit. Deburr all holes and install a rubber grommet (customer supplied) to protect the wires.
4. Turn the beacon upside-down so that the bottom of the base is facing up. Remove protective backing from the base gasket and apply to the beacon base. **It is critical that the gasket be centered on the base with its slot aligned with the base notch!** Make sure the gasket is flat against the base.
5. Feed the wires through the wire access hole in the mounting surface.
6. Align the base with the mounting holes and secure with 3 sheet metal screws. Position the O-ring onto the base as shown and carefully return the dome to its mounted position. After visually confirming that the gasket is properly seated, secure the dome to the base using the hardware removed in step 1.



### Temporary Mount / Magnetic, Suction Cup:

**WARNING: The use of any magnetically mounted warning device on the outside of a vehicle in motion is not recommended and is at the sole risk and responsibility of the user.**

**Magnetic/suction:** Thoroughly clean the mounting surface prior to mounting. For suction cup mounting, wipe the suction cup clean, place the beacon onto its mounting surface and apply gentle pressure to ensure a good seal has been achieved. The Magnetic/Suction Cups mount the same way as standard suction cups but are best suited to a flat, steel surface. **Magnetic:** Simply place the beacon onto the mounting surface and plug it into the vehicle cigar lighter.

**NOTE: The magnetic mount model does not offer SYNC or Low Power.**

### 1" N.P.T. Pipe Mount / optional:

1. Turn the beacon upside-down so the bottom of the base is facing up. Remove the base gasket from the base and discard. Install the grommets (included) into the three, square mounting holes in the bottom of the base.
2. Feed the beacon wires through the pipe mount base plate. Secure the base plate onto the beacon base using the provided hardware.
3. Feed the beacon wires through the pipe and connect the beacon wires as outlined in the Permanent Mount section.
4. Install the plugs (included) into the unused permanent mounting holes.
5. Screw the beacon onto the pipe, being careful not to pinch or strain the wires. *Hand tighten* the unit onto pipe.

**IMPORTANT! It is the responsibility of the installation technician to make sure that the installation and operation of this product will not interfere with or compromise the operation or efficiency of any vehicle equipment!**

## Wiring:

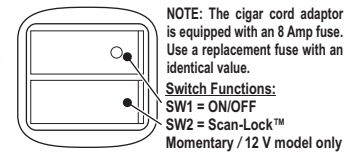
| Color | Function   | Connect To:                        | Switch Type   | Fuse @                    |
|-------|------------|------------------------------------|---------------|---------------------------|
| RED   | Power      | +VBAT                              | SP/ST         | 12V / 5 Amp - 24V / 3 Amp |
| BLK.  | Ground     | Chassis Gnd.                       | N/A           | N/A                       |
| GRY   | Sync       | See text                           | N/A           | N/A                       |
| WHT   | Scan-Lock™ | +VBAT                              | Normally Open | MOMENTARY: 1 Amp          |
| VIO   | Low Power  | See text (Only on Class 2 beacons) |               | 1 Amp                     |

**NOTE: The Scan-Lock™ wire may be WHT/VIO on your model. If you have a CLASS 1 beacon, the VIO and WHT/ORG wires exiting the beacon are unused and should be taped. If you have a CLASS 2 beacon the VOILET wire controls the Low Power feature.**

**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!**

## Operation:

**Scan-Lock™** - First activate the RED wire to turn on the beacon. The Scan-Lock™ wire will be WHT/VIO or WHT. Cigar cord models have a switch.



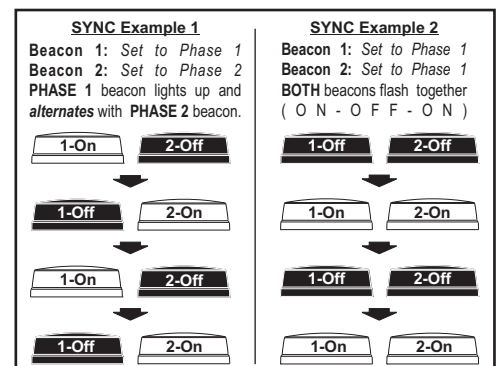
**To cycle forward through patterns:** Apply power to the Scan-Lock™ wire for less than 1 second and release.

**To cycle backward through patterns:** Apply power to the Scan-Lock™ wire for over 1 second and release. When the desired pattern is displayed, allow it to run for more than 5 seconds. The lighthouse will now display this pattern when active.

| Flash Pattern List |                      |  |
|--------------------|----------------------|--|
| Pattern            | Phase                |  |
| 1 DF125 ECE        | Simultaneous Phase 1 |  |
| 2 DF125 ECE        | Simultaneous Phase 2 |  |
| 3 SF125 ECE        | Simultaneous Phase 1 |  |
| 4 SF125 ECE        | Simultaneous Phase 2 |  |

**To reset to the factory default pattern:** Turn off power. Apply power to the Scan-Lock™ wire while turning power back on.

**Sync** - All beacons configured to display the Phase 1 mode of a flash pattern will flash simultaneously. Any beacons configured to display the Phase 2 mode of a pattern, will alternate with any Phase 1 beacons with the same pattern.



To sync two beacons, configure both to display the same Phase 1 pattern. With the power off, connect the GREY wires from each beacon together. When the beacons are activated, their patterns will be synchronized. To configure the two beacons to alternate patterns, advance the pattern of either beacon to Phase 2 of the current pattern.

**Low Power: Steps beacon down to low power for night use. Not available in cigar cord or CLASS 1 beacons.**

**Latching Mode:** By applying +VBAT to the VIOLET wire for less than 1 second, the light is "latched" into low power. The unit must be turned off and then back on to restore normal high power operation (*Momentary switch*).

**Level Mode:** Applying +VBAT to the VIOLET wire for more than 1 second holds the lightbar in low power mode until voltage is removed (*Toggle switch*).

**IMPORTANT! Before returning the vehicle to active service, visually confirm the proper operation of this product, as well as all vehicle components/equipment.**

## IMPORTANT WARNING!

**CAUTION! DO NOT LOOK DIRECTLY AT THESE LED'S WHILE THEY ARE ON. MOMENTARY BLINDNESS AND/OR EYE DAMAGE COULD RESULT!**