

# WHELEN<sup>®</sup>

## ENGINEERING COMPANY

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Installation Guide:  
L31-series / L32-series  
Super-LED<sup>®</sup> Beacon  
NFA

### 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.

**⚠ WARNING:** This product can expose you to chemicals including Methylene Chloride which is known to the State of California to cause cancer, and Bisphenol 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](http://www.P65Warnings.ca.gov).

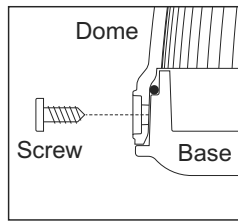
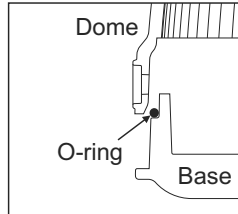
- Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.
- Whelen Engineering requires the use of waterproof butt splices and/or connectors if that connector could be exposed to moisture.
- Any holes, either created or 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 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:

1. Remove screws securing the dome to the base and remove the dome. Position the beacon in its proposed mounting location (See 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.



### Beacon Wire Functions:

Color	Function	Connect to:	Switch Type	Fuse @
RED	Power	+VBAT	SP/ST	5 Amp*
BLK	Ground	Chassis Ground	n/a	N/A
VIO	Low Power	+VBAT	SP/ST	1 Amp
GRY	SYNC	See text	n/a	N/A
WHT/VIO	Scan-Lock™	+VBAT	MOM (N.Open)	1 Amp
WHT/ORN	Cruise Light	+VBAT	SP/ST	1 Amp

\*use 3 Amp fuse with 24V models

**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!**

Refer to the "Operation" section for wire function information.

### Temporary Mount (Magnetic, Suction Cup, etc.)

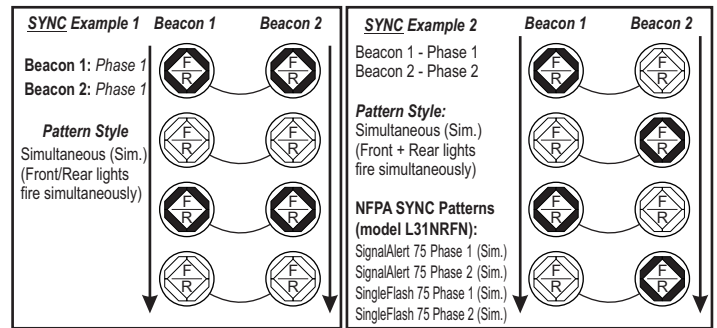
**WARNING:** The use of any magnetically mounted warning device on the outside of a vehicle in motion is not recommended and is at the sole risk and responsibility of the user.

**Magnetic/suction:** Thoroughly clean the proposed 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 Scan-Lock™, Cruise Light, Low Power or SYNC.

### 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 with the kit) 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 with kit) into the unused permanent mounting holes.



5. Screw the strobe beacon onto the pipe, being careful not to pinch or strain the wires. **Hand tighten** the unit onto pipe.

### Operation:

This beacon features variable intensity cruise light operation, low power operation, Scan-Lock pattern control and SYNCronization capabilities. These functions operate as outlined below.

**NOTE: THE TWO BRIGHTEST CRUISE LIGHT DISPLAYS WILL BE TEMPORARILY DISABLED WHILE FLASHING PATTERNS ARE ACTIVE!**

**Cruise Light** - Activate the WHT/ORN wire to turn on the cruise light. There are 4 intensity levels that are selected by momentarily activating the WHT/VIO wire.

**VIOLET - Low Power Mode:** Applying +VBAT to the VIO wire while Flash Mode is active sets the lighthouse to Low Power Mode. Low Power Mode flash pattern can be set to a different flash pattern than Flash Mode using Scan Lock. By default, Low Power Mode flash pattern is #68 DVI Single Flash 75 Hi intensity all on. **NOTE:** High and Low power patterns are chosen separately. Scan-Lock™ by Whelen can be used for easier pattern selection.

**Scan-Lock™** - Activate the RED wire to turn on the beacon. Activate the WHT/VIO wire for less than 1 second and release to cycle forward through patterns. Activating the WHT/VIO wire for more than 1 second will cause the lighthouse to cycle backward through patterns. When the desired pattern is displayed, allow it to run for more than 5 seconds. The lighthouse will now display this pattern when active. To reset to the factory default pattern, turn off power, activate WHT/VIO wire, turn power back on.

**NOTE: Scan-Lock™+ by Whelen can be used to make pattern selection easier**

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

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

This example will demonstrate how to use the SYNC feature with more than 2 lighthouses. In this sample system, there are 4 lighthouses. 2 are mounted on the rear, driver side of the vehicle and 2 mounted on the rear, passenger side of the vehicle.

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

To configure, for example, the passenger side lighthouses to alternate with the driver side lighthouses, change the flash patterns for either the passenger or driver side lighthouses to Phase 2 mode of the same pattern. **Up to 8 beacons can be SYNC'd**

High Power	SYNC Low Power	SYNC	High Power	SYNC Low Power	SYNC
1 SignalAlert 75 All On*	PH1 SignalAlert 75 All On	PH1	35 ActionFlash 50 Front/Rear	ActionFlash 50 Front/Rear	
2 SignalAlert 75 All On	PH2 SignalAlert 75 All On	PH2	36 ActionFlash 150 All On	ActionFlash 150 All On	
3 SignalAlert 75 Front/Rear	PH1 SignalAlert 75 Front/Rear	PH1	37 ActionFlash 150 Front/Rear	ActionFlash 150 Front/Rear	
4 CometFlash 75 All On	PH1 CometFlash 75 All On	PH1	38 ModuFlash All On	ModuFlash All On	
5 CometFlash 75 All On	PH2 CometFlash 75 All On	PH2	39 ModuFlash Front/Rear	ModuFlash Front/Rear	
6 CometFlash 75 Front/Rear	PH1 CometFlash 75 Front/Rear	PH1	40 DoubleFlash 120 All On	DoubleFlash 120 All On	
7 DoubleFlash 75 All On	PH1 DoubleFlash 75 All On	PH1	41 DoubleFlash 120 Front/Rear	DoubleFlash 120 Front/Rear	
8 DoubleFlash 75 All On	PH2 DoubleFlash 75 All On	PH2	42 PingPong 120 All On	PingPong 120 All On	
9 DoubleFlash 75 Front/Rear	PH1 DoubleFlash 75 Front/Rear	PH1	43 PingPong 120 Front/Rear	PingPong 120 Front/Rear	
10 SingleFlash 75 All On	PH1 SingleFlash 75 All On	PH1	44 TripleFlash 75 All On	PH1 TripleFlash 75 All On	PH1
11 SingleFlash 75 All On	PH2 SingleFlash 75 All On	PH2	45 TripleFlash 75 Front/Rear	PH1 TripleFlash 75 Front/Rear	PH1
12 SingleFlash 75 Front/Rear	PH1 SingleFlash 75 Front/Rear	PH1	46 TripleFlash 120 All On	TripleFlash 120 All On	
13 ComAlert 75 All On	PH1 ComAlert 75 All On	PH1	47 TripleFlash 120 Front/Rear	TripleFlash 120 Front/Rear	
14 ComAlert 75 All On	PH2 ComAlert 75 All On	PH2	48 ActionFlash 60 All On	ActionFlash 60 All On	
15 ComAlert 75 Front/Rear	PH1 ComAlert 75 Front/Rear	PH1	49 ActionFlash 60 Front/Rear	ActionFlash 60 Front/Rear	
16 LongBurst 75 All On	PH1 LongBurst 75 All On	PH1	50 ActionFlash 120 All On	ActionFlash 120 All On	
17 LongBurst 75 All On	PH2 LongBurst 75 All On	PH2	51 ActionFlash 120 Front/Rear	ActionFlash 120 Front/Rear	
18 LongBurst 75 Front/Rear	PH1 LongBurst 75 Front/Rear	PH1	52 50 RPM	50 RPM	
19 PingPong 75 All On	PH1 PingPong 75 All On	PH1	53 75 RPM	75 RPM	
20 PingPong 75 All On	PH2 PingPong 75 All On	PH2	54 118 RPM	118 RPM	
21 PingPong 75 Front/Rear	PH1 PingPong 75 Front/Rear	PH1	55 250 RPM	250 RPM	
22 SingleFlash 60 All On	PH1 SingleFlash 60 All On	PH1	56 CalScan	CalScan	
23 SingleFlash 60 Front/Rear	PH1 SingleFlash 60 Front/Rear	PH1	57 ActionScan	ActionScan	
24 SingleFlash 90 All On	PH1 SingleFlash 90 All On	PH1	58 SignalAlert Steady	SignalAlert Steady	
25 SingleFlash 90 Front/Rear	PH1 SingleFlash 90 Front/Rear	PH1	59 DVI SingleFlash 60 Hi Inten. Frnt/Rear	DVI SingleFlash 60 Hi Inten. Front/Rear	
26 SingleFlash 120 All On	PH1 SingleFlash 120 All On	PH1	60 DVI SingleFlash 60 Lo Inten. Front/Rear	DVI SingleFlash 60 Lo Inten. Front/Rear	
27 SingleFlash 120 Front/Rear	PH1 SingleFlash 120 Front/Rear	PH1	61 DVI SingleFlash 75 Hi Inten. Frnt/Rear	DVI SingleFlash 75 Hi Inten. All On	
28 SingleFlash 300 All On	PH1 SingleFlash 300 All On	PH1	62 DVI SingleFlash 75 Hi Intensity All On	PH2 DVI SingleFlash 60 Hi Intensity All On	
29 SingleFlash 300 Front/Rear	PH1 SingleFlash 300 Front/Rear	PH1	63 DVI SingleFlash 75 Hi Intensity All On	PH1 DVI SingleFlash 75 Hi Inten. Front/Rear	PH1
30 DoubleFlash 150 All On	PH1 DoubleFlash 150 All On	PH1	64 Steady On	DVI SingleFlash 75 Lo Inten. Front/Rear	PH1
31 DoubleFlash 150 Front/Rear	PH1 DoubleFlash 150 Front/Rear	PH1	65 N/A	DVI SingleFlash 75 Lo Inten. All On	PH2
32 ComAlert 150 All On	PH1 ComAlert 150 All On	PH1	66 N/A	DVI SingleFlash 75 Lo Inten. All On	PH1
33 ComAlert 150 Front/Rear	PH1 ComAlert 150 Front/Rear	PH1	67 N/A	Steady On	
34 ActionFlash 50 All On	PH1 ActionFlash 50 All On	PH1	68 N/A	<b>DVI SingleFlash 75 Hi Intensity All On*</b>	PH1
			69 N/A	DVI SingleFlash 75 Hi Intensity All On	PH2

\* = Default Pattern