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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 electronic wiring, systems and procedures.
- Whelen Engineering requires the use of waterproof butt splices and/or connectors if that connection could be exposed to moisture.
- Failure to use specified installation parts and/or hardware will void the product warranty!
- The installer MUST be sure that no 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 any holes and remove any metal shards or remnants.
- 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.
- If this product uses a remote device to activate or control this product, make sure that this control is located in an area that allows both the vehicle and the control 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 high-intensity LEDs. 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.
- **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!**
- Failure to follow these precautions and instructions could result in damage to the product or vehicle and/or serious injury to you and your passengers!

Mounting:

1. Using the mounting diagram shown, mark the locations for the mounting holes and the wire passage hole. Drill the 4 mounting holes using a .250" bit. Using a hole saw, create a 1" wire passage hole in the area marked. Be sure to de-burr all 5 holes.
2. Install the seal (#1) onto the mounting frame (#2). Make sure that each of the seal's alignment pins are fully inserted through the appropriate holes in the frame.
3. Position the frame/seal assembly onto the mounting surface so that the mounting holes are aligned. While holding the assembly firmly against the mounting surface, install the 4 clip retainers (#3). While continuing to hold the assembly firmly, seat the clip retainers in the corner mounting holes and using a Phillips screwdriver, press the clip retainer button on each clip until they are firmly seated.
4. Locate the wire seal (#4). With the "MFG IN USA" text facing outward, install the seal onto the mounting frame in the area provided.
5. Snap the flange (#5) (optional) onto the lighthead (#6) from the rear as shown. Route wires from the lighthead through the wire passage hole and through the mounting surface. The lighthead and flange can now be 'snapped' into position on the mounting frame and secured using the included hardware (#7).

Wiring:

LED color (Power) - Extend to +12VDC via SP/ST switch and 3A fuse.

BLK (Ground) - Extend to Chassis Ground.

GRY (SYNC) - To SYNC 2 lighthead, configure both lighthead to display the same Phase 1 (Simultaneous) pattern. Turn power off and connect the GREY wire from each lighthead together. Activate the lighthead and their patterns will be synchronized. To configure 2 lighthead to alternate their patterns, advance either lighthead to Phase 2 (Alternating) of the current pattern. Cut and insulate this wire if not used.

WHT/VIO (ScanLock™) - This feature allows the user to select from several available flash patterns. Lighthead must be switched on for Scan-Lock to work.

Note that each pattern is certified compliant in up to 4 classifications, as shown in the "Cert" column: **1. SAE, 2. CA Title XIII, 3. NFPA & 4. KKK**

Pattern Lists:

Pattern #	Name	Cert.	Pattern #	Name	Cert.
1-6	SignalAlert™	1,2,3,4	70-72	PingPong 120	1,2,3,4
7-12	ComAlert™	1,2,3,4	73-75	ActionFlash™ 60	1,2, 4
13-18	Comet Flash®	1,2,3,4	76-78	ActionFlash 120	1,2,3,4
19-24	LongBurst™	1,2,3,4	79-81	Action SF #1	1,2, 4
25-30	PingPong™ 75	1,2,3,4	82-84	Action SF/TF #2	1,2,3,4
31-36	SingleFlash 75	1,2,3,4	85-87	ModuFlash™	
37-42	DoubleFlash 75	1,2,3,4	88-92	Cylon	
43-48	TripleFlash™ 75	1,2,3,4	93-97	In-Out (Fill)	
49-51	SingleFlash 60	1,2, 4	98-102	In-Out (Seq)	
52-54	SingleFlash 90	1,2,3,4	103-107	Cats Eye	
55-57	SingleFlash 120	1,2,3,4	108	CalScan™	1,2,3,4
58-60	SingleFlash 240	1, 3,4	109	ActionScan™	1, 3,4
61-63	DoubleFlash 120	1,2,3,4	110	SignalAlert Steady	
64-66	TripleFlash 120	1,2,3,4	111	Steady	
67-69	ComAlert 150	1, 3,4			

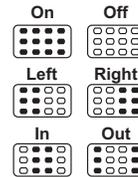
Bold = SYNC Pattern

Pattern Sequences (Except patterns 88-107):

These patterns have 3 sequences; **Solid, Left/Right and In/Out**. NOTE: SYNC patterns use Phase 1 and Phase 2 for each sequence, while non-SYNC patterns use Phase 1.

For example, pattern 1 (SignalAlert) is a SYNC-compatible pattern so it has 6 pattern sequences:

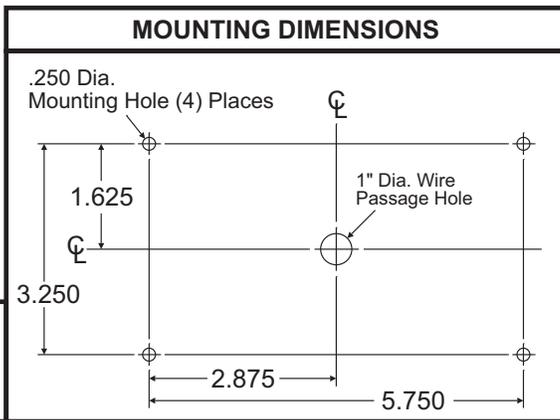
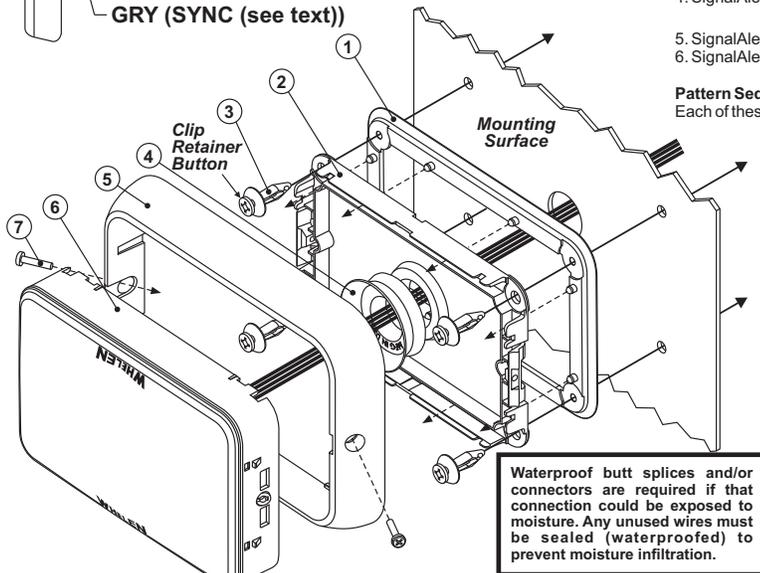
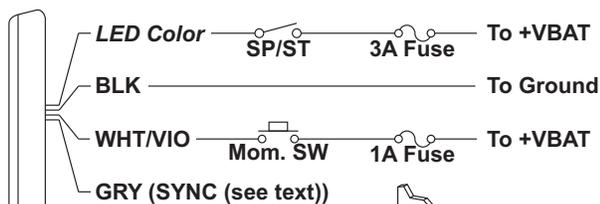
1. SignalAlert - On/Off - Phase 1
2. SignalAlert - Off/On - Phase 2
3. SignalAlert - Left/Right - Phase 1
4. SignalAlert - Right/Left - Phase 2
5. SignalAlert - In/Out - Phase 1
6. SignalAlert - Out/In - Phase 2



Pattern Sequences (Patterns 88-107):

Each of these patterns have 5 sequences; **Slow, Med, Fast, Variable and Med Solid**.

IMPORTANT WARNING!
CAUTION! DO NOT LOOK DIRECTLY AT THESE LEDs WHILE THEY ARE ON. MOMENTARY BLINDNESS AND/OR EYE DAMAGE COULD RESULT!



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 he can operate the system without taking his 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.