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Safety First

This document provides necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of this 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.
- Failure to use specified installation parts and/or hardware will void the product warranty!
- 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 any holes and remove any metal shards or remnants. Install grommets into all wire passage holes.
- 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!

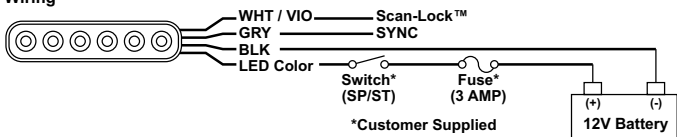
Mounting (Standard Bracket)

1. Place the bracket against the mounting surface and mark the two mounting hole locations. Confirm that no vehicle parts could be damaged by the drilling process.
2. Using an appropriately sized bit, drill two mounting holes sized for a #8 sheet metal screw. A wire passage hole may also be needed. De-burr this hole and install a grommet to protect the wires.
NOTE: VHB adhesive tape is provided as an alternative to securing the ION™ with screws. Remove the protective backing from this tape and press it firmly onto the bottom of the bracket as shown. Clean the mounting surface with a 50/50 mix of isopropyl alcohol and water and dry thoroughly before mounting the bracket onto the mounting surface.
3. Route the wires through the hole in the bracket and through the wire passage hole. Secure the ION™ to the bracket using the hardware provided. Wire as outlined below.

Mounting (Gripper Bracket)

1. Apply the protective pads to the bracket in the location shown (side view). Secure the ION™ to the bracket in the same fashion as outlined for the standard bracket.
2. Position the bracket onto the proposed mounting surface as shown. Apply a drop of Loctite 222 to the threads of the #6 x 1/2" PPHMS provided.
3. Thread these screws into the underside of the bracket as shown and secure the bracket to the mounting surface.

Wiring



Operation

Scan-Lock™ (WHT/VIO) - To advance to the next pattern, apply +VDC to the WHT/VIO wire for less than 1 second. To cycle backwards, apply +VDC for more than 1 second. To reset to the factory default pattern, turn off power to the lighthouse. While applying +VDC to the WHT/VIO, turn the lighthouse back on. Continue to apply voltage for 5 seconds.

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

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

To understand how to use the sync feature with more than two lighthoods, the principles will be applied to a sample system consisting of 4 lighthoods with 2 mounted on the rear, driver-side and 2 mounted on the rear, passenger-side. With all the wiring complete, turn on all 4 lighthoods. As shipped from factory, the lighthoods will all display SignalAlert™ 75 - Phase 1. To configure one side to alternate with the other side, change the pattern for either the passenger or driver side to Phase 2 mode for that pattern.

IMPORTANT! SYNC-capable LED lighthoods can be SYNCed to a SYNC-capable strobe power supply (such as the CS240S or UPS64LXA) by wiring their GREY wires together. When connected, LED lighthoods in Phase 1 of a pattern will flash **simultaneously** with strobe lighthoods connected to the GREEN wire outputs. LED lighthoods set to Phase 2 of a pattern will **alternate** with strobe lighthoods connected to the WHITE wire outputs. GREEN wire outputs always alternate with WHITE wire outputs.

Phase Operation:

PHASE 1
BOTH sides flash together (ON-OFF-ON).



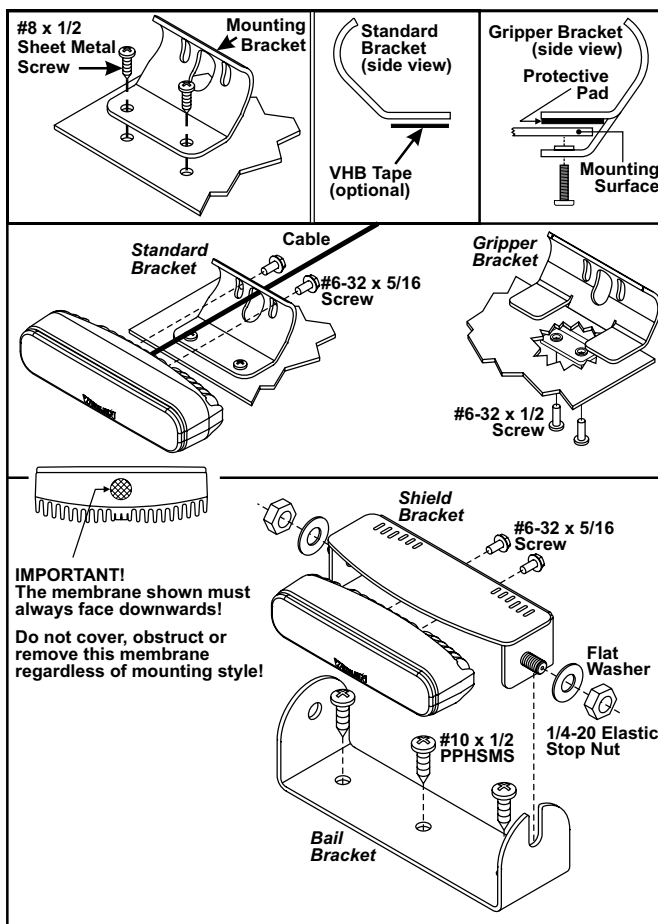
PHASE 2
BOTH sides flash together (OFF-ON-OFF).



Note:
Phases 1 & 2 are visually indential.

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

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



Flash Patterns:

NOTE: BOLD = California Title XIII Compliant Pattern

Italic = SYNC Pattern PH 1 = Phase 1 PH 2 = Phase 2

- | | | |
|-------------------------|------------------------|----------------------|
| 1. SignalAlert™ 75 PH 1 | 9. ComAlert™ 75 PH 1 | 17. SingleFlash 120 |
| 2. SignalAlert 75 PH 2 | 10. ComAlert 75 PH 2 | 18. SingleFlash 300 |
| 3. CometFlash® 75 PH 1 | 11. LongBurst™ 75 PH 1 | 19. DoubleFlash 150 |
| 4. CometFlash 75 PH 2 | 12. LongBurst 75 PH 2 | 20. ComAlert™ 150 |
| 5. DoubleFlash 75 PH 1 | 13. PingPong™ 75 PH 1 | 21. ActionFlash™ 50 |
| 6. DoubleFlash 75 PH 2 | 14. PingPong 75 PH 2 | 22. ActionFlash™ 150 |
| 7. SingleFlash 75 PH 1 | 15. SingleFlash 60 | 23. ModuFlash™ |
| 8. SingleFlash 75 PH 2 | 16. SingleFlash 90 | 24. ActionScan™ |
| | | 25. Steady |

IMPORTANT WARNING!

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