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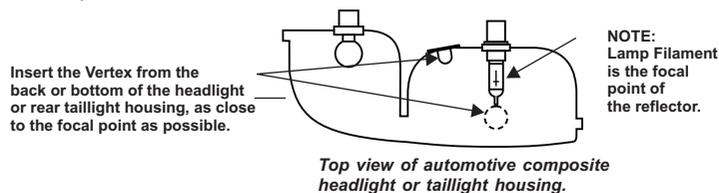**Customer Service:custserv@whelen.com**

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 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.**

• **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.**

• **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 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.**

• **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!**

Standard Mount (composite headlight or taillight housing) Installation:
1. Follow manufacturers instructions to remove the headlight (or taillight) reflector assembly from the vehicle.

Insert the Vertex from the back or bottom of the headlight or rear taillight housing, as close to the focal point as possible.

NOTE: Lamp Filament is the focal point of the reflector.

Top view of automotive composite headlight or taillight housing.

2. Select the mounting location for the Vertex, keeping in mind the following:
• **The Vertex may share the same reflector as the headlight, brake light, or signal light. Make sure the Vertex does not interfere with the operation of these lights.**
• **The Vertex must not be installed above the horizontal centerline of the reflector.**
• **The Vertex must not be installed above any OEM-supplied light.**

3. Choose a surface in the rear or bottom of the housing which is as flat as possible. Using a hole saw, cut a 1" hole in the housing as shown below and de-burr the hole.

4. Insert the LED lamp assembly into the reflector housing. Mark the location for the two mounting holes (3/32" dia.). Remove the lamp assembly and drill the holes.

5. Install the lamp assembly and gasket using the #4 sheet metal screws, installation disc and flat washers as shown to secure the lamp to the reflector assembly. **WARNING! Over-tightening these screws could damage the Vertex™ and/or housing assembly. Do not continue to tighten once the Vertex is secured against the housing.**

7. Remount both headlight assemblies to the vehicle and route the connector cables to their designated control switches (power and Scan-Lock™).

8. The lamp driver should now be secured to the vehicle using the double-sided adhesive tape provided.
IMPORTANT NOTE: If the Vertex is being used in an area previously occupied by an S30HA light assembly, it is important to seal the mounting holes used by the previous assembly with RTV or other suitable material.

Flange Mount Installation:
Using the dimensions shown, drill appropriately sized wire access and mounting holes. Refer the "FLANGE MOUNT" illustration shown for proper assembly order and secure the Vertex using the hardware provided. Route the connector cables to their designated control switches (power and Scan-Lock™) and secure the lamp driver to the vehicle using the double-sided tape provided.

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!

Wiring & Operation:

RED: Positive - To a +12V power source (fuse @ 3 amps). **Suggested Switch:** SP/ST.

ORANGE: Positive - To +12V power source (fuse @ 3 amps). **Suggested Switch:** SP/ST.

BLACK: Ground - Extend to the negative terminal of the battery.

GREEN: SYNC - Connect to other SYNC capable devices to synchronize their output. Cap this wire if it is not used.

WHITE: Scan-Lock™ - Extend the WHT wire to a customer supplied momentary switch (fuse @ 1 amp). See Scan-Lock section for operation. **Suggested Switch:** Normally Open Momentary Switch.

Scan-Lock
In order to program flash patterns, the lighthead must be on:

TO CHANGE PATTERNS: To advance to the next available pattern apply +12VDC to the WHT wire for less than 1 second and release. To cycle back to the previous pattern apply +12VDC to the WHT wire for more than 1 second and release.

TO CHANGE THE DEFAULT PATTERN: When the desired pattern is displayed, allow it to run for more than 5 seconds. The lighthead will now display this pattern when initially activated.

TO RESTORE THE FACTORY DEFAULT PATTERN: This will reset patterns back to their default settings. With the light turned off, apply power to the WHT wire. With power applied to the WHT wire, turn the light on and activate COLOR 1 Allow COLOR 1 to run for 3 seconds before removing power from the WHT wire and the COLOR 1 flash patterns will reset to their default pattern. Repeat for COLOR 2 and SPLIT to reset those to their default.

A normally open momentary switch should be used to control Scan-Lock operation.
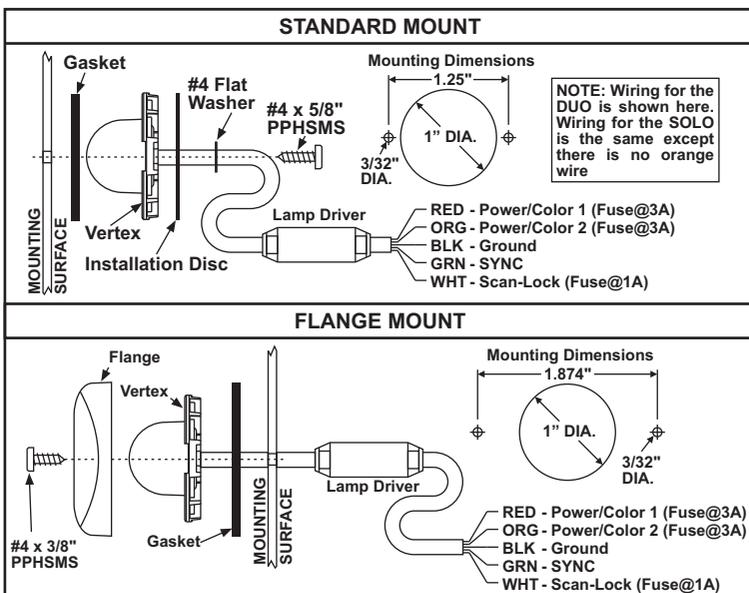
Flash Patterns -
Note: The Dual-color Vertex has 3 individual flash pattern buffers; one for Color 1, one for Color 2 and one for Color 1 + 2. For example, when only Color 1 is activated, it can be configured to flash SignalAlert 75. When only Color 2 is activated, it can be configured to flash LongBurst. When Color 1 and Color 2 are simultaneously activated, they can be congiured to flash ComAlert.

STANDARD MOUNT

Gasket
#4 Flat Washer
#4 x 5/8" PPHSMS
Vertex
Installation Disc
Lamp Driver
MOUNTING SURFACE

Mounting Dimensions
1.25"
1" DIA.
3/32" DIA.

NOTE: Wiring for the DUO is shown here. Wiring for the SOLO is the same except there is no orange wire

RED - Power/Color 1 (Fuse@3A)
ORG - Power/Color 2 (Fuse@3A)
BLK - Ground
GRN - SYNC
WHT - Scan-Lock (Fuse@1A)

FLANGE MOUNT

Flange
Vertex
#4 x 3/8" PPHSMS
Gasket
MOUNTING SURFACE
Lamp Driver

Mounting Dimensions
1.874"
1" DIA.
3/32" DIA.

RED - Power/Color 1 (Fuse@3A)
ORG - Power/Color 2 (Fuse@3A)
BLK - Ground
GRN - SYNC
WHT - Scan-Lock (Fuse@1A)

SYNC Patterns				
1. SignalAlert™75	PH.1	8. SingleFlash 75	PH.2	
2. SignalAlert 75	PH.2	9. ComAlert™	PH.1	
3. CometFlash®75	PH.1	10. ComAlert	PH.2	
4. CometFlash 75	PH.2	11. LongBurst™	PH.1	
5. DoubleFlash 75	PH.1	12. LongBurst	PH.2	
6. DoubleFlash 75	PH.2	13. PingPong™	PH.1	
7. SingleFlash 75	PH.1	14. PingPong	PH.2	

Non-SYNC Patterns
15. SingleFlash 60
16. SingleFlash 90
17. SingleFlash 120
18. SingleFlash 300
19. DoubleFlash 150
20. ComAlert 150
21. ActionFlash™1
22. ActionFlash 2
23. ModuFlash™
24. ActionScan™
25. Steady

Phase Operation
!Phase 1 (PH.1) flashes **simultaneously** with PH.1
!Phase 2 (PH.2) flashes **simultaneously** with PH.2
!PH.1 **alternates** with PH.2

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