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## Installation Guide: Raider™ LED Lightbar (Single Lighthead)

### 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.**
- **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.**
- **If this manual states that this product may be mounted with suction cups, magnets, tape or Velcro™, 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 owners 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.**
- **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!**

**For warranty information regarding this product, visit [www.whelen.com/warranty](http://www.whelen.com/warranty)**

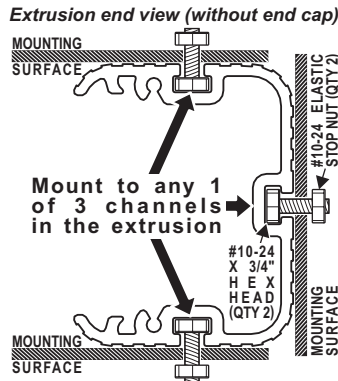
## Specifications:

**Input Voltage:** 12.8 VDC +/- 20%  
**Input Current:** Peak - 400ma / Avg - 160ma  
**Sync Phase:** Phase I & II @ 400ms  
**Input Scan-Lock™:** +12 VDC

## Installation:

**Note:** When routing wires, it is important that you choose a path that will keep the wires away from any excessive heat or any vehicle equipment that could compromise the integrity of the wires (ex. trunk lids, door jams, etc.).

**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. Position the unit in its proposed mounting location. Draw a pencil line onto the mounting surface along the top and bottom of the extrusion and a "centerline" centered between the two.
2. Two 1/4" holes are required to mount this unit. These holes may be located anywhere along the horizontal centerline that you drew in step one. It's best to locate the holes as far apart as possible. Mark the hole location onto the mounting surface.
3. Using a 1/4" drill bit, drill a hole in the areas scribed in step 2.
4. Insert the two hex-head mounting bolts (included) into one of the 3 channels in the housing. There is a hole in each channel.
5. Align these bolts with the 2 mounting holes and insert them into the mounting holes.
6. Install an elastic stop nut onto each bolt and tighten firmly.

**Wiring:** Refer to the wiring diagram on the next page.

**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!**

## Scan-Lock™ (Blue)

This lighthouse has 25 flash patterns (69 patterns for Split-LED) some of which are available in 2 or 4 modes; Phases 1, 2, 3 or 4 (See SYNC). The patterns are changed with the BLUE wire. **With the lighthouse on:**

**To advance to the next pattern,** apply +12 VDC to the BLUE wire for less than 1 second. To cycle backwards to previous patterns, apply +12 VDC for more than 1 second.

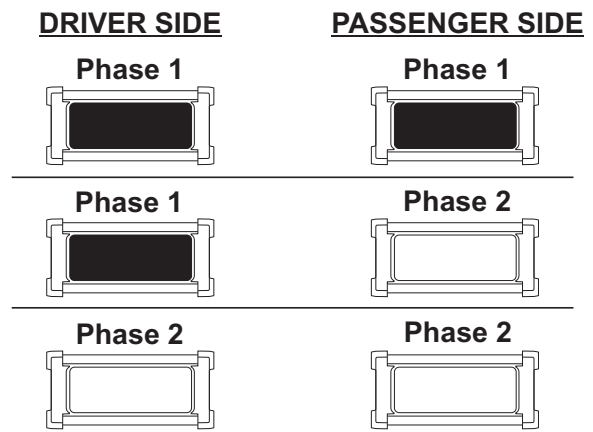
**To reset to the factory default pattern,** turn off power to the lighthouse. While applying +12 VDC to the BLUE wire, turn the lighthouse back on. Continue to apply voltage to the BLUE wire for 5 seconds.

With SYNC, 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 (Grey)

To sync two lighthouses, configure both lighthouses to display the same Phase 1 pattern. With the power off, connect the GREY wire 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 Phase 2 of the current pattern.

## EXAMPLE:



## Standard Lighthouse Patterns:

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

**NOTE: BOLD** = CA Title XIII Compliant Pattern

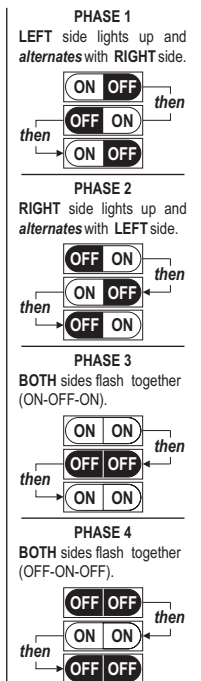
*Italic* = SYNC Pattern

## Split Lighthouse Patterns:

- |                             |                              |
|-----------------------------|------------------------------|
| 1. SignalAlert™75 ... PH.1  | 36. SingleFlash 120 ... SIM  |
| 2. SignalAlert™75 ... PH.2  | 37. SingleFlash 300 ... ALT  |
| 3. SignalAlert™75 ... PH.3  | 38. SingleFlash 300 ... SIM  |
| 4. SignalAlert™75 ... PH.4  | 39. DoubleFlash 150 ... ALT  |
| 5. CometFlash@75 ... PH.1   | 40. DoubleFlash 150 ... SIM  |
| 6. CometFlash@75 ... PH.2   | 41. ComAlert™150 ... ALT     |
| 7. CometFlash@75 ... PH.3   | 42. ComAlert™150 ... SIM     |
| 8. CometFlash@75 ... PH.4   | 43. ActionFlash™ 50 ... ALT  |
| 9. DoubleFlash 75 ... PH.1  | 44. ActionFlash™ 50 ... SIM  |
| 10. DoubleFlash 75 ... PH.2 | 45. ActionFlash™ 150 ... ALT |
| 11. DoubleFlash 75 ... PH.3 | 46. ActionFlash™ 150 ... SIM |
| 12. DoubleFlash 75 ... PH.4 | 47. ModuFlash™ ... ALT       |
| 13. SingleFlash 75 ... PH.1 | 48. ModuFlash™ ... SIM       |
| 14. SingleFlash 75 ... PH.2 | 49. DoubleFlash 120 ... ALT  |
| 15. SingleFlash 75 ... PH.3 | 50. DoubleFlash 120 ... SIM  |
| 16. SingleFlash 75 ... PH.4 | 51. PingPong™ 120 ... ALT    |
| 17. ComAlert™75 ... PH.1    | 52. PingPong™ 120 ... SIM    |
| 18. ComAlert™75 ... PH.2    | 53. TripleFlash 75 ... ALT   |
| 19. ComAlert™75 ... PH.3    | 54. TripleFlash 75 ... SIM   |
| 20. ComAlert™75 ... PH.4    | 55. TripleFlash 120 ... ALT  |
| 21. LongBurst™75 ... PH.1   | 56. TripleFlash 120 ... SIM  |
| 22. LongBurst™75 ... PH.2   | 57. SigAlert Cal.™ ... ALT   |
| 23. LongBurst™75 ... PH.3   | 58. SigAlert Cal.™ ... SIM   |
| 24. LongBurst™75 ... PH.4   | 59. Action 1 ... ALT         |
| 25. PingPong™75 ... PH.1    | 60. Action 1 ... SIM         |
| 26. PingPong™75 ... PH.2    | 61. Action 2 ... ALT         |
| 27. PingPong™75 ... PH.3    | 62. Action 2 ... SIM         |
| 28. PingPong™75 ... PH.4    | 63. CalScan™ ... Alt/Sim     |
| 29. SSNF 75 ... PH.1        | 64. ActionScan™ ... Alt/Sim  |
| 30. SSNF 75 ... PH.2        | 65. SteadyFlash 60           |
| 31. SingleFlash 60 ... ALT  | 66. SteadyFlash 75           |
| 32. SingleFlash 60 ... SIM  | 67. SteadyFlash 90           |
| 33. SingleFlash 90 ... ALT  | 68. SteadyFlash 120          |
| 34. SingleFlash 90 ... SIM  | 69. Steady & Steady          |
| 35. SingleFlash 120 ... ALT |                              |

**NOTE: BOLD** = CA Title XIII Compliant Pattern

*Italic* = SYNC Pattern

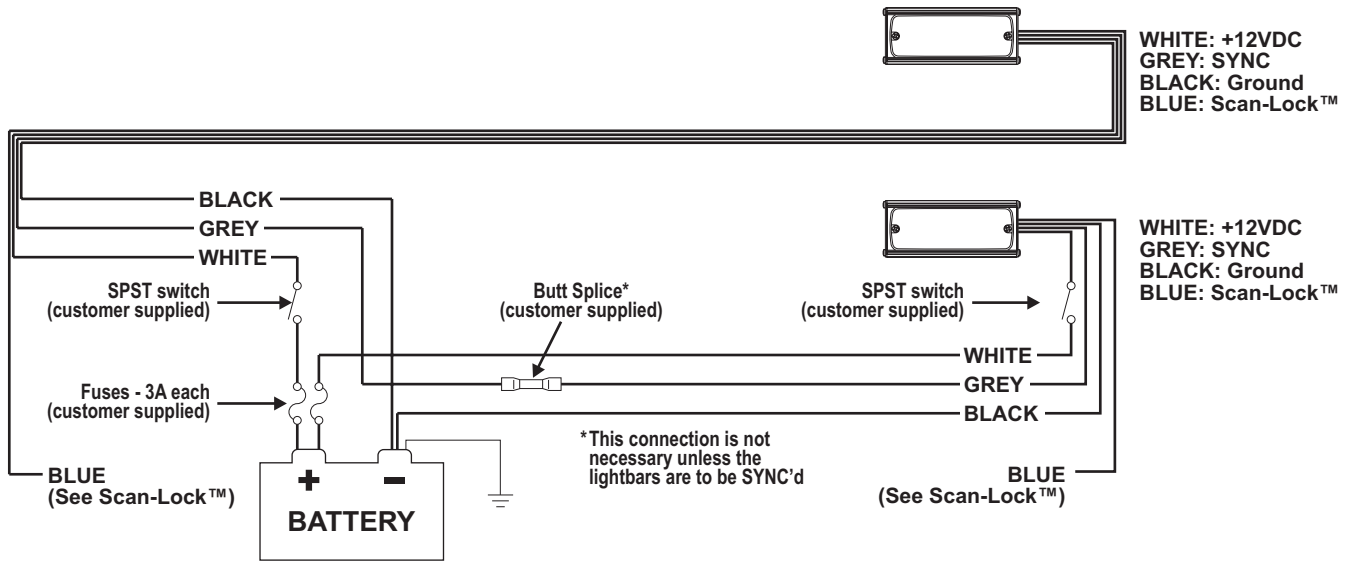


## IMPORTANT WARNING!

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

**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!

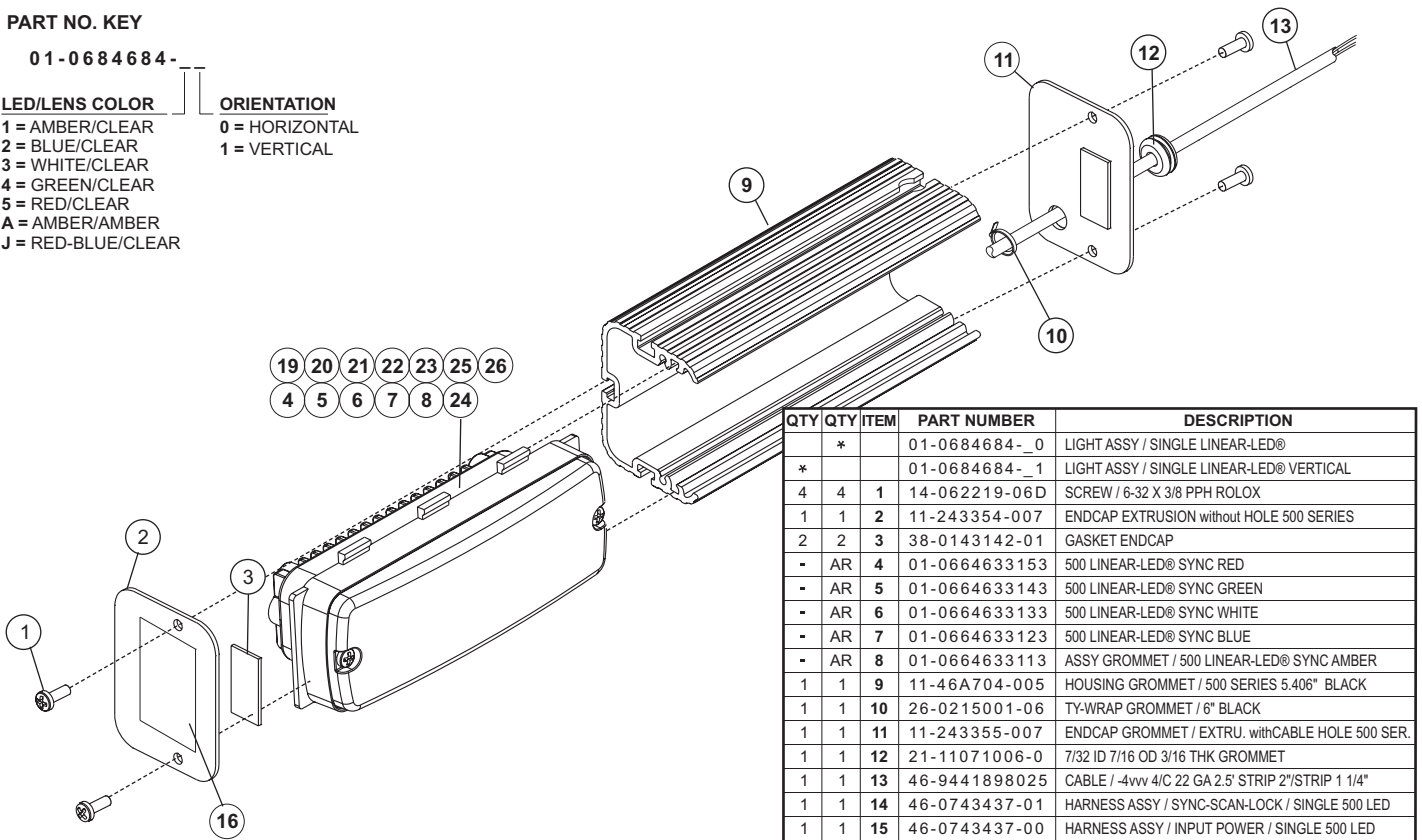
**IMPORTANT!** Before returning the vehicle to active service, visually confirm the proper operation of this product, as well as all vehicle components/equipment.



**PART NO. KEY**

01-0684684-

LED/LENS COLOR	ORIENTATION
1 = AMBER/CLEAR	0 = HORIZONTAL
2 = BLUE/CLEAR	1 = VERTICAL
3 = WHITE/CLEAR	
4 = GREEN/CLEAR	
5 = RED/CLEAR	
A = AMBER/AMBER	
J = RED-BLUE/CLEAR	



QTY	QTY	ITEM	PART NUMBER	DESCRIPTION
	*		01-0684684-_0	LIGHT ASSY / SINGLE LINEAR-LED®
*			01-0684684-_1	LIGHT ASSY / SINGLE LINEAR-LED® VERTICAL
4	4	1	14-062219-06D	SCREW / 6-32 X 3/8 PPH ROLOX
1	1	2	11-243354-007	ENDCAP EXTRUSION without HOLE 500 SERIES
2	2	3	38-0143142-01	GASKET ENDCAP
-	AR	4	01-0664633153	500 LINEAR-LED® SYNC RED
-	AR	5	01-0664633143	500 LINEAR-LED® SYNC GREEN
-	AR	6	01-0664633133	500 LINEAR-LED® SYNC WHITE
-	AR	7	01-0664633123	500 LINEAR-LED® SYNC BLUE
-	AR	8	01-0664633113	ASSY GROMMET / 500 LINEAR-LED® SYNC AMBER
1	1	9	11-46A704-005	HOUSING GROMMET / 500 SERIES 5.406" BLACK
1	1	10	26-0215001-06	TY-WRAP GROMMET / 6" BLACK
1	1	11	11-243355-007	ENDCAP GROMMET / EXTRU. withCABLE HOLE 500 SER.
1	1	12	21-11071006-0	7/32 ID 7/16 OD 3/16 THK GROMMET
1	1	13	46-9441898025	CABLE / 4vvv 4/C 22 GA 2.5' STRIP 2" / STRIP 1 1/4"
1	1	14	46-0743437-01	HARNESS ASSY / SYNC-SCAN-LOCK / SINGLE 500 LED
1	1	15	46-0743437-00	HARNESS ASSY / INPUT POWER / SINGLE 500 LED
1	1	16	10-0523317-__	LABEL
2	2	17	13-104120-062	NUT / 10-24 ELASTIC STOP
2	2	18	14-104436-120	SCREW / 10-24 X 3/4 HEX HD MS
AR	-	19	01-0664634153	500 LINEAR-LED® SYNC RED VERT
AR	-	20	01-0664634143	500 LINEAR-LED® SYNC GREEN VERT
AR	-	21	01-0664634133	500 LINEAR-LED® SYNC WHITE VERT
AR	-	22	01-0664634123	500 LINEAR-LED® SYNC BLUE VERT
AR	-	23	01-0664634113	500 LINEAR-LED® SYNC AMBER VERT
-	AR	24	01-06646331A3	500 LINEAR-LED® SYNC AMBER/AMBER
AR	-	25	01-06646341A3	500 LINEAR-LED® SYNC AMBER/AMBER VERT
-	AR	26	01-066A091-J3	500 LINEAR-LED® / SPLIT / SYNC RED/BLU