



WHELEN AEROSPACE TECHNOLOGIES

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**Installation Guide:
Advisory Lightbar / Model: FLAVA**

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.

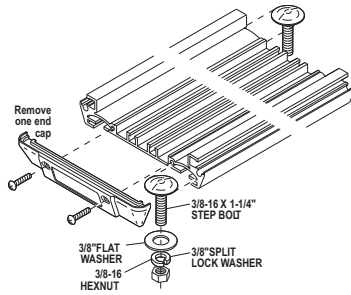
⚠ WARNING: This product can expose you to chemicals including Methylene Chloride which is known to the State of California to cause cancer, and Bisphenol A, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

- **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®, 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!**

IMPORTANT! The lightbar should be a minimum of 16" from any radio antennas!

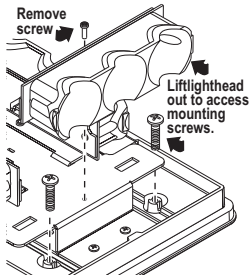
Permanent Mounting:

This mounting style requires removal of the headliner. There may be a roof support member that runs from the drivers to the passengers side of the vehicle. **Do not drill through this member.**



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. When the mounting location has been determined, slide the 2 mounting bolts into the lightbar extrusion, one bolt in each track. Position these bolts so that they are at opposite ends of the extrusion and as far apart as possible.
2. Place the lightbar on the vehicle in its proposed mounting location. Mark the location of the 2 mounting bolts onto the mounting surface. Also, mark the area for the wire passage hole. This hole should be located directly below where the wires exit the extrusion.
3. Remove the lightbar and drill two, 5/16" dia. mounting holes and a 5/16" dia. wire passage hole. De-burr all three holes and install a rubber grommet (customer supplied) into the wire passage hole.
4. Route the wires through the grommet and to the necessary switches and power source as shown in the diagram below.
5. Secure the lightbar to the vehicle using the hardware provided. From the underside of the mounting surface, apply RTV around each mounting hole and the grommets wire passage hole to prevent water from entering these openings.



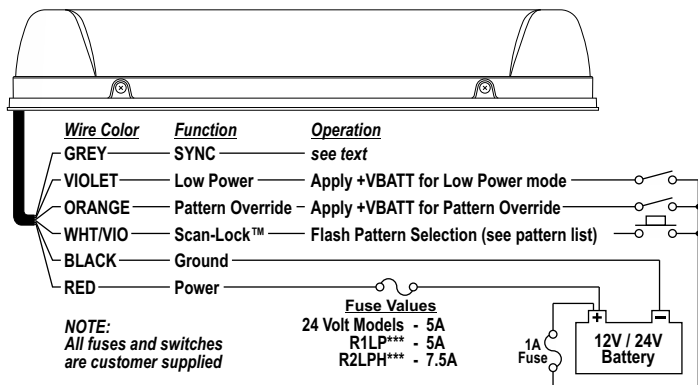
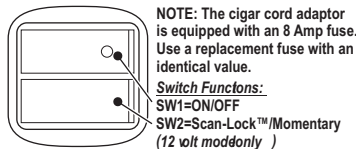
Permanent Mounting/Plastic Base

1. Remove the outer dome and the screws that hold down the endcap lightheads (use a T-10 TORX bit) and lift the (2) lightheads out.
2. Install the #10 screws into the 4 mounting holes to open up the holes.
3. Remove the screws, position the base on the proposed mounting location then scribe the mounting surface where the mounting holes are to be drilled.
4. Remove the base and drill the 4 mounting holes using a #16 drill bit.
5. Install the lightbar. Replace the lightheads & dome.

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

WARNING: The use of a 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 cleanplace 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:** Place lightbar onto the mounting surface and plug it into the vehicle cigar lighter.



Wiring:

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 the load. DO NOT USE CIRCUIT BREAKERS WITH THIS PRODUCT!

Scan-Lock™:

To operate Scan-Lock, switch the lightbar on. The Scan-Lock will be either WHT/VIO or WHT (See wiring) Magnetic and Suction mount models use a momentary switch on the cigar plug instead of a wire (12 volt only).

TO CHANGE PATTERNS: To cycle forward to the next pattern apply +VBAT to the Scan-Lock wire (or switch) for less than 1 second and release. To cycle back to the previous pattern apply +VBAT to Scan-Lock™ wire for over 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: With power off, apply +VBAT to the Scan-Lock™ wire (or switch). While continuing to apply power to Scan-Lock turn lighthead(s) on. The factory default pattern will be displayed.

A Normally Open momentary switch can be used to control Scan-Lock. See below for available flash patterns.

IMPORTANT WARNING!

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

Available Flash Patterns:

- | | | |
|------------------------------|-------------------------------|----------------------------|
| 1. ActionScan™ | 19. SingleFl. 60 (Alt-Sim) CA | 38. ModuFlash (Sim) |
| 2. SignalAlert™ (Alt) | 20. SingleFlash 90 (Alt) CA | 39. Steady 2.5% |
| 3. SignalAlert (Sim) | 21. SingleFlash 90 (Sim) CA | 40. Steady 4% |
| 4. SignalAlert (Alt/Sim) | 22. SingleFl. 90 (Alt-Sim) CA | 41. Steady 6% |
| 5. CometFlash® (Alt) | 23. SingleFlash 120 (Alt) CA | 42. Steady 8% |
| 6. CometFlash (Sim) | 24. SingleFlash 120 (Sim) CA | 43. Steady 12% |
| 7. CometFlash (Alt-Sim) | 25. SingleFl. 120(Alt-Sim) CA | 44. Steady 40% |
| 8. DoubleFlash 75 (Alt) | 26. SingleFlash 240 (Alt) | 45. InOut |
| 9. DoubleFlash 75 (Sim) | 27. SingleFlash 240 (Sim) | 46. Sweep |
| 10. DoubleFlash 75 (Alt-Sim) | 28. SingleFlash 240 (Alt-Sim) | 47. LongBurst Sweep |
| 11. SingleFlash 75 (Alt) | 29. MicroBurst™ (Alt) | 48. InOut Blast |
| 12. SingleFlash 75 (Sim) | 30. MicroBurst (Sim) | 49. Sequence On/Off |
| 13. SingleFlash 75 (Alt-Sim) | 31. MicroBurst (Alt-Sim) | 50. ZigZag |
| 14. LongBurst™ (Alt) | 32. ActionFlash™ (Alt) | 51. Rotator 90 |
| 15. LongBurst (Sim) | 33. ActionFlash (Sim) | 52. Rotator 120 |
| 16. LongBurst (Alt-Sim) | 34. ActionFlash (Alt-Sim) | 53. Rotator 150 |
| 17. SingleFlash 60 (Alt) CA | 35. PingPong™ | 54. Rotator 250 |
| 18. SingleFlash. 60 (Sim) CA | 36. FlimFlam (Alt.) | 55. CalTrans SimSeq (Alt.) |
| | 37. ModuFlash™ (Alt) | |

CA = Calif. Title XIII Compliant Alt = Alternating Sim = Simultaneous Alt-Sim = Alternating-Simultaneous BOLD = SYNC Pattern

Sync:

To SYNC two lightbars, configure both lightbars to display the same flash pattern. With the power off, connect the GREY wire from each lightbar together. When the lightbars are activated, their patterns will be synchronized. Only the flash patterns designated for SYNC in the flash pattern list may be used.

Hi/Low Power:

Allows user to step the unit down to low power for nighttime use.

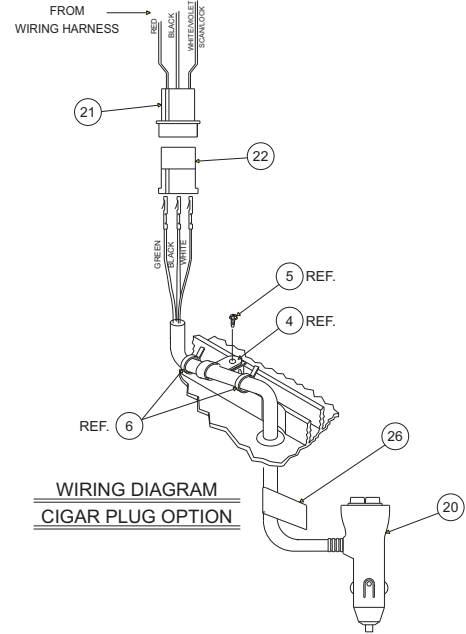
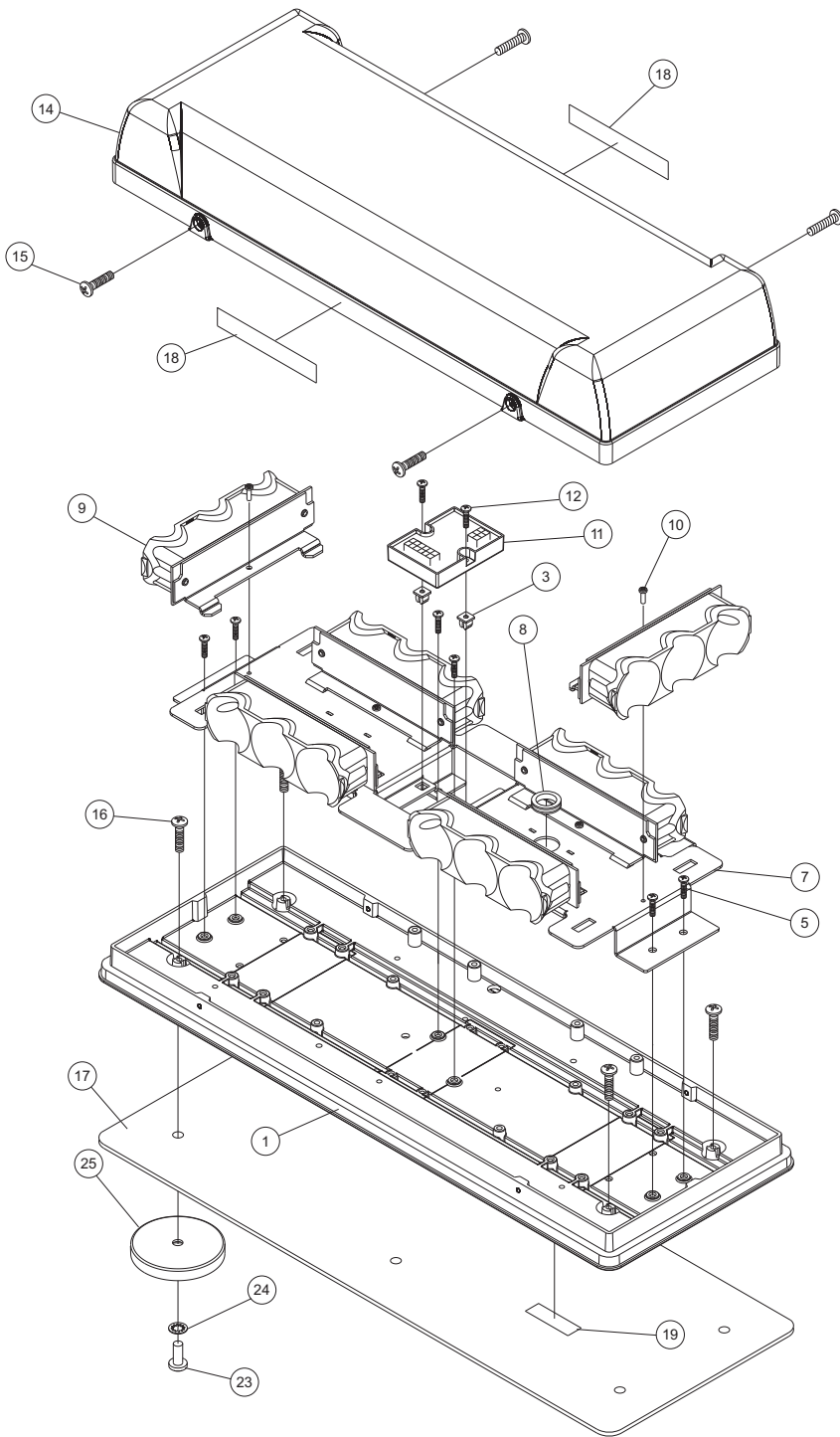
Latching Mode: By applying +VBAT to the VIOLET wire for less than 1 second, the lightbar is "latched" into low power. The unit must be turned off and then back on to restore normal high power operation (Momentary switch).

Level Mode: Applying +VBAT to the VIOLET wire for more than 1 second holds the lightbar in low power mode until voltage is removed (Toggle switch).

Pattern Override:

Applying +VBAT to the ORANGE wire while lightheads are activated, will change the flash pattern to whatever pattern override is programmed for. To program the flash pattern activate the lightbar then activate pattern override by applying +VBAT to the ORANGE wire and select a flash pattern using Scan-Lock.

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



QTY	QTY	ITEM	PART NUMBER	DESCRIPTION
	*		01-0690 885-00	ADVISORY,AMBER, PERMANENTM T, WATGSE
	*		01-0690 885-01	ADVISORY,AMBER, MAGNETM T, WATGSE
1	1	1	11-381890-000	BASE, HOUSING RESPONDER 2
-	1	2	46-076A 219-00	ASS'Y, HARNESS INPUT RESPONDER LP
2	2	3	13-062C40-16J	SCREW GROMMET, #6/#8 FASTEX FASTEX
1	1	4	26-0115037-04	CABLE CLAMP, 1/4"D, 3/8"W .203" MTG HOLE, BLACK
7	7	5	15-081416-060	SCREW, 8 X 3/8 PPHSMS 410 SSTYPE A
4	4	6	26-0215001-06	TY WRAP, 6" BLACK
1	1	7	11-386602-000	BASE, MTG LIGHTHEADS RESPONDER LP
1	1	8	21-11263204-0	GROMMET, 1" SLIM LINE
6	6	9	01-026B568-10	SUB ASSY CON3 HINGE AMB AMP JUICE
6	6	10	14-040285-063	SCREW, 4-40 X 3/8TORX PHTRILOBULAR 410 SS, BLK OX.
1	1	11	01-026A213-00	ASS'Y, PCB RESPONDER FLASHER 6 CHANNEL
2	2	12	15-081416-080	SCREW, 8 X 1/2 PPHSMS 410 SS
1	1	13	46-076A2 39-00	ASS'Y, HARNESS 6 OUTPUT RESPONDER LP
1	1	14	68-2986618-10	DOME,AMBER OPTIC RESPONDER LP WØ MTG DETAILS
4	4	15	15-061416-080	SCREW, 6 X 1/2 PPHSMS SSTYPE A
-	4	16	15-101416-160	SCREW, 10 X 1 PPHSMSTYPE A
-	1	17	38-026A402-00	GASKET, MOUNTING RESPONDER 2
2	2	18	10-0531569 -00	LABEL,ADVISORY ASSEMBLY WATGSE
1	1	19	10-0531570-**	LABEL, MODEL / SERIAL NUMBER,ADVISORY, WATGSE
1	-	20	02-0243725-00	CORD, CIGAR PLUG DUAL SWITCH
1	-	21	46-0743503-00	ASSY, HARNESS INPUTPOWER CORD DUAL SWRESPONDER LP
1	-	22	39-0403023-04	HOUSING, 3 POS SOCKETCOMM MATE-N-LOK
4	-	23	15-101416-100	SCREW, 10 X 5/8 PPHSMS 410 SS
4	-	24	16-1021220-45	WASHER, #10 INT TOOTH LOCK STAINLESS STEEL
4	-	25	65-0010191-00	MAGNET, X-50 RESPONDER (RB-50) NICKLE PLATED
1	-	26	10-0322783-02	LABEL,AIRBAG & MAG MT WARNING