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 product is mounted with 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 LED’s 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!
Mounting your Lightbar
Refer to the Lightbar mounting guide included with your lightbar

Routing your Lightbar Cable(s)
1. To protect the headliner from damage caused by drilling the cable access hole through the vehicle roof, allow a 5” to 7” distance between roof and headliner by lowering the headliner before drilling.
2. Using a 1” hole saw, drill the cable access hole.

NOTE: There may be a roof support member that spans the distance between the driver’s and passenger’s side. DO NOT DRILL THROUGH THIS MEMBER! Adjust the location until the hole can be drilled without contacting this support member.

3. Use a round file to smooth and de-burr the edges of the hole.
4. Insert a 1” grommet (user supplied) into the cable access hole.
5. Insert the cable(s) through the cable access hole into the vehicle. Use RTV silicone to weatherproof the access hole after the cable(s) are pulled completely into the vehicle.
6. Route the cable(s) down through the B-pillar. The cable(s) must make a 90° turn to enter the B-pillar. Although routing the cable in this manner may be difficult, this has been determined to be the best procedure. It is up to the installation technicians discretion whether to route the cable(s) as recommended or use an alternative route. Pull the full length of the cable(s) out of the hole at the base of the B-pillar (Fig. 1) and route towards your switch panel. Refer to the instructions included with your switches for switch wiring information.

NOTE: The outer surfaces of this product may be cleaned with mild soap and water. Use of any other chemicals may void product warranty. Do not use a pressure washer.

Connecting the Cables
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 be fused at the battery to carry the load.

Power Cable:
1. Open the wiring shield lid (Fig. 4) and route the power cable into the wiring shield and towards the firewall.
2. Follow the factory wiring harness through the firewall. It may be necessary to drill a hole in the firewall. If so, be absolutely sure that there are no components that could be damaged by drilling. After the hole has been drilled, insert a grommet to protect the cable.
3. Route the cable along the factory wiring harness towards the battery.
4. Install a 30 amp fuse block (customer supplied) on the end of the RED wire in the power cable. Remove the fuse from the fuse block before connecting any wires to the battery.
5. Connect the fuse block to the POSITIVE (+) terminal on the battery. There can not be more than two (2) feet of wire between the fuse block and the battery. The wire between the fuse block and the battery is “unprotected”, do not allow this wire to come into contact with any other wires.
6. Connect the BLACK wire to the factory chassis ground adjacent to the battery.

Control Cable:
Extend the control cable to your switch panel and make the appropriate connections, using the information provided on Page 5. The control cable connects to your control head or switch box and is fused there. Typical fusing is 5 Amps. Applying +12VDC to a control wire will activate its function.

ScanLock Cable:
Extend the ScanLock™ cable to your switch panel and make the appropriate connections (see wiring diagram).
Using ScanLock™

TO CYCLE FORWARD THROUGH ALL PATTERNS: Choose the scanlock harness wire controlling the function you wish to change the flash pattern on and apply +12 volts to that wire for less than 1 second and release. This will change the pattern. Repeat to go to next pattern.

TO CHOOSE A PATTERN: While cycling through the patterns, when you find the pattern you want let it run for more than 5 seconds and it will lock in and become the default pattern.

TO RESET TO THE FACTORY DEFAULT PATTERN: Turn off the option you want to reset, apply +12 volts to the scanlock function wire of that option then turn the option back on.

Available Flash Patterns:

1 - Comet Flash 150 - Alternating  2 - Comet Flash 150 - Simultaneous  3 - Comet Flash 150 - California
4 - Double Flash 240 - Alternating  5 - Double Flash 240 - Simultaneous  6 - Double Flash 120 - Alternating
7 - Double Flash 120 - Simultaneous  8 - Single Flash 375 - Alternating  9 - Single Flash 375 - Simultaneous
10 - Single Flash 150 - Alternating  11 - Single Flash 150 - Simultaneous  12 - Single Flash 75 - Alternating
13 - Single Flash 75 - Simultaneous  14 - Signal Alert 150 - Alternating  15 - Signal Alert 150 - Simultaneous
16 - Action Flash - Alternating  17 - Action Flash - Alt. / Sim.  18 - Action Flash - Simultaneous
19 - Modu Flash - Alternating  20 - Modu Flash - Simultaneous  21 - Action Scan

Troubleshooting:

Your Lightbar should now be fully operational. If it is not functioning properly, check your connections for the following:

1. The positive wire (RED) is properly connected to the battery, by way of the user supplied fuse block.
2. A working fuse of the correct amperage (20 amp) is installed in the fuse block.
3. The ground wire (BLACK) is properly connected to the factory ground.

If all of these connections are good, contact your Whelen representative for further assistance.
Liberty Lightbar Wiring

The control cable connects to your control head or switch box and is fused there. Typical fusing is 5 Amps. Applying +12VDC to a control wire will activate its function.

1. **GREEN**: Front Corners (Ballast A)
2. **BLUE**: Rear Corners (Ballast A)
3. **GREEN/WHITE**: Front Inboard (Ballast B)*
4. **BLUE/WHITE**: Rear Inboard (Ballast B)*
5. **GREEN/BLACK**: Front Inboard (Ballast C)*
6. **BLUE/BLACK**: Rear Inboard (Ballast C)*
7. **WHITE/GREEN**: Front Inboard (Ballast D)*
8. **WHITE/BLUE**: Rear Inboard (Ballast D)*
9. **YELLOW**: Passenger Alley*
10. **WHITE**: Driver Alley*
11. **WHITE/BLACK**: Front Takedown*
12. **WHITE/ORANGE**: Aux.
13. **WHITE/YELLOW**: Flashing Take-Downs*
14. **WHITE/BROWN**: Flasher “A”
15. **VIOLET**: Low Power
16. **WHITE/VIOLET**: Not Used
17. **WHITE/RED**: Not Used

= Optional Equipment. May not be present on all Light Bars

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**Power Cable**

1. +12 VDC/8 AWG (RED)
2. Ground/8 AWG (BLACK)
3. RFI Shield Drain (NONE)

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**ScanLock Cable**

1. RED - ScanLock (Ballast A)
2. BLACK - ScanLock (Ballast B)
3. WHITE - ScanLock (Ballast C)
4. GREEN - ScanLock (Ballast D)
5. ORANGE - ScanLock Flashing Take-Downs

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**Control Cable**

*The control cable connects to your control head or switch box and is fused there. Typical fusing is 5 Amps. Applying +12VDC to a control wire will activate its function.*
**CONTROL CABLE**

1. **GREEN** - In the factory default configuration, this wire activates front corner LED's.
2. **BLUE** - In the factory default configuration, this wire activates rear corner LED’s.
3. **GREEN / WHITE** - In the factory default configuration, this wire activates front inboard LED’s.
4. **BLUE / WHITE** - In the factory default configuration, this wire activates rear inboard LED’s.
5. **GREEN / BLACK** - In the factory default configuration, this wire activates front inboard LED’s.
6. **BLUE / BLACK** - In the factory default configuration, this wire activates rear inboard LED’s.
7. **WHITE / GREEN** - In the factory default configuration, this wire activates front inboard LED’s.
8. **WHITE / BLUE** - In the factory default configuration, this wire activates rear inboard LED’s.
9. **YELLOW** - In the factory default configuration, this wire activates passenger-side alley lights.
10. **WHITE** - In the factory default configuration, this wire activates driver-side alley lights.
11. **WHITE / BLACK** - In the factory default configuration, this wire activates the Take-Down lights.
12. **WHITE / ORANGE** - AUX.
13. **WHITE / YELLOW** - In the factory default configuration, this wire activates the Take-Down lights in a flashing mode.
14. **WHITE / BROWN** - Flasher “A” (refer to your factory “Switch Operation” sheet).
15. **VIOLET** - When applied to 12 VDC, this will initiate low power operation of all strobes. Lightbar must be turned off, then on again to restart in high power mode.
17. **WHITE/RED** - Not Used.

**POWER CABLE**

1. **RED** - Provides power for all strobe lamps. Connect to POSITIVE battery terminal (12 VDC) and fuse @ 30 amps AT THE BATTERY.
2. **BLACK** - Provides ground for all strobe lamps. Connect to chassis ground.
3. **NONE** - RFI shield drain. Connect to chassis ground.

**ScanLock CABLE (optional)**

1. **RED** - When applied to +12VDC, this will initiate ScanLock™ Pattern Control for all LED’s connected to Ballast A.
2. **BLACK** - When applied to +12VDC, this will initiate ScanLock™ Pattern Control for all LED’s connected to Ballast B.
3. **WHITE** - When applied to +12VDC, this will initiate ScanLock™ Pattern Control for all LED’s connected to Ballast C.
4. **GREEN** - When applied to +12VDC, this will initiate ScanLock™ Pattern Control for all LED’s connected to Ballast D.
5. **ORANGE** - When applied to +12VDC, this will initiate ScanLock™ Pattern Control for flashing Take-Down lights.
Changing Flash Patterns Without a ScanLock Cable:
The 9M lightbar is capable of displaying a variety of flash patterns. These patterns can be changed at the users discretion using one of two different methods. The first (and easiest) is through the use of the optional scan-lock pattern cable. Because this allows the user to change patterns from within the vehicle, this method is preferred by customers who need to be able to easily change their flash patterns when the need arises.

For users who rarely or infrequently change patterns and therefore do not require a scan-lock cable, it is necessary to partially disassemble the lightbar so as to change patterns manually.

**WARNING! THIS PROCEDURE REQUIRES THE LIGHTBAR TO BE ACTIVE WHILE IN A PARTIALLY DISASSEMBLED STATE. DO NOT TOUCH ANY LIGHTBAR COMPONENTS EXCEPT FOR THOSE REFERENCED IN THIS PROCEDURE.**

1. Notice where the cable enters the bottom of the extrusion. If it enters on the driver side of the extrusion, the Power Distribution Board will be facing the rear of the vehicle. If it enters on the passenger side, it will be facing the front of the vehicle.

2. Remove the endcap nearest to the cable entry. On the appropriate side (front or rear) of the lightbar, remove lenses and move lightheads away from the extrusion until clear access to the Power Distribution Board has been gained.

**Note:** Be sure to record the exact position of each component to ensure proper re-assembly.

3. **Changing Strobe Lighthead Patterns** - Locate the 3-position connector indicated below. As shown, each of the three sockets control pattern selection for each of the lightbar’s three strobe power supplies (PS:A, PS:B and PS:C). In the default configuration, the corner strobes use Power Supply A, the inboard strobes use Power Supply B and the end strobes use Power Supply C. Activate the strobe lightheads that are to receive the new flash pattern. Momentarily applying +12VDC to the appropriate socket will cycle that power supply’s current flash pattern to the next flash pattern. Repeat this procedure until the desired pattern is displayed. Allowing this pattern to flash for a minimum of 5 seconds will make this pattern the default pattern.

4. **Changing Halogen Lighthead Patterns** - Locate the 4-position connector on the appropriate halogen flasher (A or B). As shown, the socket located in position 4 controls pattern selection for the halogen lightheads connected to that flasher. Momentarily applying +12VDC to this socket will cycle that halogen flasher’s current flash pattern to the next flash pattern. Repeat this procedure until the desired pattern is displayed. Allowing this pattern to flash for a minimum of 5 seconds will make this pattern the default pattern.

**Restoring the Factory Default Pattern** - To restore the factory default flash pattern, make sure that the lightheads to be restored are off. For strobe lightheads, apply +12VDC to the appropriate socket (see strobe lighthead procedure above) while powering up the corresponding lightheads. Allow pattern to be displayed for a minimum of 5 seconds to make this the default pattern.

For halogen lightheads, use the same procedure as outlined for strobe lightheads, substituting the halogen selection socket(s) where the strobe socket is referenced. Allow pattern to be displayed for a minimum of 5 seconds to make this the default pattern.