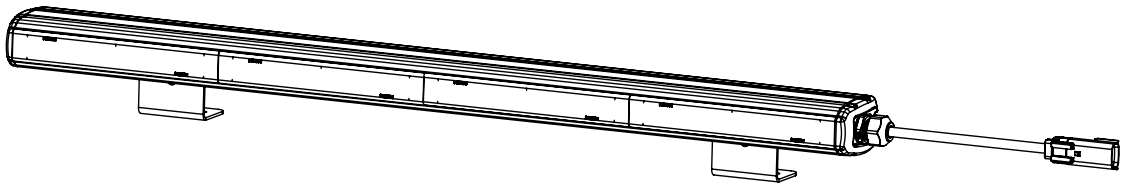




INSTALLATION INSTRUCTIONS

mpower[®] Traffic Controller

EMPTCxxxxx




IMPORTANT NOTICE TO INSTALLER:

- Make sure to read and understand all instructions and warnings before proceeding with the installation of this product. Ensure that the manual and any warning cards are delivered to the end user of this equipment. Proper installation of the lightbar requires the installer to have a thorough knowledge of automotive electronics, systems, and procedures.
- Lightbars provide an essential function of an effective visual warning system. The use of the lightbar does not insure that all drivers can or will abide by or react to an emergency warning signal, especially at high rates of speeds or long distances. The operator of the vehicle must never take the right of way for granted and it is the operator's responsibility to proceed safely.
- The effectiveness of the lightbar is highly dependent on the correct mounting and wiring. The installer must read and follow the manufacturer's installation instructions and warnings in the manual. The vehicle operator should verify daily that the lightbar is securely fastened to the vehicle and properly functioning before operating vehicle.
- The lightbar is intended for use by authorized personnel only. It is the user's responsibility to ensure they understand and operate the emergency warning devices in compliance with the applicable city, state and federal laws and regulations. SoundOff Signal assumes no liability for any loss resulting from the use of this warning device.


WARNING

- This product contains high intensity LED devices to prevent eye damage, DO NOT stare into the light beam at close range.

IMPORTANT INFORMATION:

- To view the full Software Revision History click the  in the lower left hand corner of the SoundOff Central Lightbar application.
- Warning devices are strictly regulated and governed by Federal, State and Municipal ordinances. These devices shall be used ONLY on approved vehicles. It is the sole responsibility of the user of these devices to ensure compliance.
- DO NOT install this product or route any wires in the Air Bag Deployment Zone. Refer to your vehicle Owner's Manual for the location of any air bag deployment zones.
- DO NOT connect this device to a strobe power supply. This product is self-contained and does not require an external power supply.


WARNING

- Route wires only in locations that are not subjected to potential wear. Make sure to avoid routing wires in the deployment area of your airbag. Refer to your vehicle's owner's manual for airbag deployment zone.
- All customer supplied power wires connecting to the positive (+) or negative (-) battery terminal or local chassis ground (-) must be sized to supply at least 125% of the maximum current and properly fused at the power source with appropriately rated fuse.

NOTICE:

- Installers and users must comply with all applicable federal, state and local laws regarding use and installation of warning devices.
- Improper use or installation may void warranty coverage.
- To review our Limited Warranty Statement & Return Policy for this or any SoundOff Signal product, visit our website at www.soundoffsignal.com/tech-services/returns/.
- If you have questions regarding this product, contact Technical Services, Monday - Friday, 8 a.m. to 5 p.m. ET at 1.800.338.7337 (press #4).
- Questions or comments that do not require immediate attention may be emailed to techgroup@soundoffsignal.com.

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|-------------------|---|
| QTY | COMPONENT |
| 1 | mpower® Traffic Controller built to your specifications |
| MOUNTING HARDWARE | |
| 2 | 4, 5, or 6 mod assembly |
| 3 | 8 mod assembly |
| 4 | 8 split or 10 mod assembly |

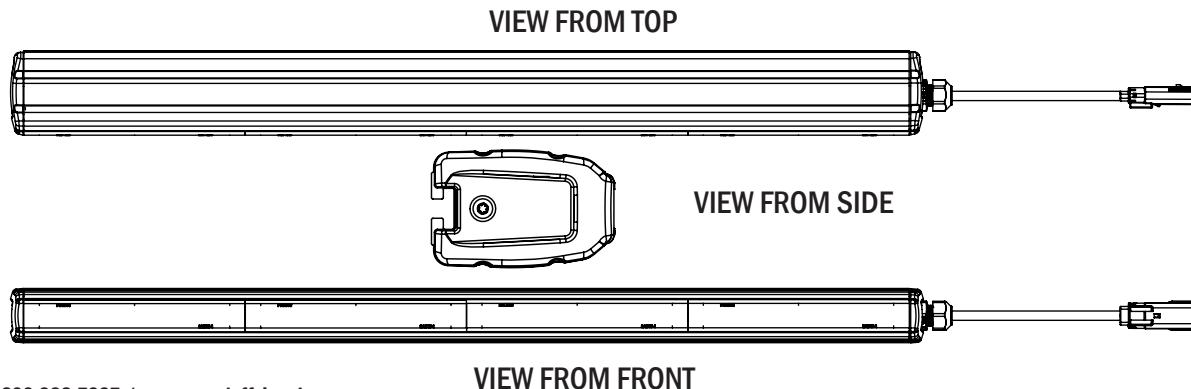
| OPTIONAL EQUIPMENT | | |
|---------------------|----------------------------------|------------------------------|
| COMPONENTS | Breakout Box LIN (Standard) Qty. | Breakout Box CAN System Qty. |
| Universal BOB (LIN) | 1 | 0 |
| Universal BOB (CAN) | 0 | 1 |
| 24 Pin Harness | 1 | 1 |
| 4 Pin Harness | 1 | 1 |
| 5 Pin Harness | 0 | 1 |

*Kits will vary with each Traffic Controller depending on vehicle specified on order form.

| TECHNICAL SPECIFICATIONS | | |
|------------------------------------|--|--|
| INPUT VOLTAGE RANGE | 10-32Vdc | |
| OPERATING TEMPERATURE | -40°C to +65°C (-40°F to +149°F) | |
| ELECTRICAL PROTECTION | Reverse Polarity Over-Voltage | Transient Voltage High-Temperature Thermal Fold-back |
| MATERIAL | Aluminum Alloy Housing, Silicone Lens | |
| STANDBY CURRENT(Per Module) | IGNITION ON: 0.20 Amps IGNITION OFF: 0.0002 Amps | |
| STANDBY POWER(Per Module) | IGNITION ON: 0.13 Watts IGNITION OFF: 0.03 Watts | |
| CURRENT / POWER(Per Module) | Current Draw | Power Consumption |
| @12Vdc | Flashing | 1.14 Amps |
| | Peak | 1.9 Amps |
| POWER CABLE | 3ft - 16 AWG wires 15ft - 14 AWG wires 25ft - 12 AWG wires | (+) Red (-) Black (Data) Green |
| OVERALL DIMENSIONS | 1.9H X 2.47"D X Chosen length | |
| NUMBER OF MODULES | TOTAL LENGTH | |
| 4 | 26.0" | |
| 5 | 32.5" | |
| 6 | 39.0" | |
| 8 | 52.0" | |
| 10 | 64.0" | |

Unpack Lightbar

1. Remove Traffic Controller from box and packaging.
2. Save packaging for later shipping.
3. Check components/contents.
4. Please reference these instructions for proper wiring and installation.



ELECTRICAL INSTALLATION

Featured Highlights & Terminology:

Cruise & Cruise 2 Mode: Allows the user to program any light group(s) to "Glow" when this feature is activated. For dual/tri color bars, the color for each light group is selectable.

Directional Arrow Built-in: The directional controller is built-in arrow patterns for each of the 3 modes (left arrow, right arrow, and center out arrow) and the color is selectable for dual/tri color bars

Scene Light Mode: Allows the user to program any Light Head Group(s) to turn on steady when this feature is activated to provide additional scene lighting. The activation of this input also activates the Takedown function

Stop / Tail / Turn Mode: Allows the user to program any Light Head Group(s) to turn operate in 2 levels of intensity for tail and stop/turn functions.

Low Power Mode: Operates lighting at reduced intensity.

Power Cables:

1. Route Traffic Controller power cables as close to vehicles power source (battery) as possible.
2. Install a maximum of 25Amp Fuse(8 & 10 module), 15AMP Fuse(4 & 6 module) (customer supplied) to the end of the RED wire of the Traffic Controller Power Cable.
 - a. Remove the fuse before connecting any wires to the battery.
 - b. DO NOT USE CIRCUIT BREAKER OR FUSIBLE LINK.
3. Connect the other end of the Fuse to the POSITIVE (+) terminal of the battery.
 - a. Do NOT use any more than 2ft of wire between the battery terminal and the fuse and ensure the wire is protected and secured from being cut into; this is non-fused wire.
4. Connect the BLACK wire to the factory chassis ground right next to the battery.

Control (Data) Cable:

1. Route Traffic Controller Control Cable to the location where all controlling equipment will be, i.e. switch box, center console area.
2. Locate the Breakout Box in the same area to connect jumpers from the switching equipment to the breakout box.
3. Refer to breakout box hookup table on page 11.

NOTE: Breakout Box must be mounted inside vehicle where it will not get wet.

Initial Power up Test:

1. Connect Green wire from Traffic Controller to Green LIN 1 (Front/Left mounted bars only), or Green/White LINE 2 (Rear/Right mounted bars only) of the 4-pin Breakout Box Harness as shown on page 11.
2. Connect the red and the black wire from Traffic Controller to red and black wire of the 4-pin Breakout Box Harness, as shown on Page 11.
3. Observe the GREEN Data Link indicator LED on the Breakout Box; the Green LED will be ON showing power is connected.
4. The Red indicator LED on the breakout box will be steady ON whenever any of the input wires, with the Ignition wire connected, are active or data is received from a siren.

Low Power (Standby) Mode (reduced standby current)

If there is no input to the breakout box the Traffic Controller will go into a "standby" mode. The standby mode is a low power mode that is used to extend the life of your battery. The Traffic Controller will awaken from the standby mode if any input is activated on the breakout box.

ELECTRICAL INSTALLATION (CONT.)

*fpm=Flashes per Minute

**fps=Flashes per Second

FLASH PATTERNS

| # | Name | SAE Compliant Timing | ECE Compliant Timing | California Title 13 Compliant Timing | Color | Sequence | fpm | fps |
|------|--------------------------------|----------------------------|----------------------------|---|-------|--------------|-----|-----|
| SC1 | Random 1 | Yes | No | No | #1 | Variable | - | - |
| SN2 | Random 2 | No | No | No | #1 | Variable | - | - |
| SC3 | Quint | Yes | No | No | #1 | Alternating | 70 | 1.2 |
| SC4 | Quad 2 | Yes | No | No | #1 | Variable | - | - |
| SC5 | Q-Switch | Yes | No | No | #1 | Variable | - | - |
| SC6 | Double | Yes | No | No | #1 | Alternating | 115 | 1.9 |
| SC7 | Power Pulse | Yes | No | No | #1 | Alternating | 180 | 3 |
| SC8 | Road Runner | Yes | No | Yes | #1 | Alternating | 115 | 1.9 |
| SC9 | Slow Runner | Yes | No | Yes | #1 | Alternating | 70 | 1.2 |
| SN10 | Warp | No | No | No | #1 | Alternating | 350 | 5.8 |
| SN11 | Inter-Cycle | No | No | No | #1 | Alternating | - | - |
| SN12 | Warp 1-2-3 | No | No | No | #1 | Alternating | - | - |
| SC13 | E-Single | Yes | Yes | No | #1 | Alternating | 125 | 2.1 |
| SC14 | E-Double | Yes | Yes | No | #1 | Alternating | 125 | 2.1 |
| SC15 | E-Triple | Yes | Yes | No | #1 | Alternating | 125 | 2.1 |
| SC16 | E-Single Sim | Yes | Yes | No | #1 | Simultaneous | 125 | 2.1 |
| SC17 | E-Double Sim | Yes | Yes | No | #1 | Simultaneous | 125 | 2.1 |
| SN18 | Super Slow Runner | No | No | No | #1 | Alternating | 55 | 0.9 |
| SC19 | Quint Simultaneous | Yes | No | No | #1 | Simultaneous | 70 | 1.2 |
| SC20 | Road Runner Simultaneous | Yes | No | No | #1 | Simultaneous | 114 | 1.9 |
| SC21 | Quint Pass/Steady Driver | Yes | No | No | #1 | - | 70 | 1.2 |
| SC22 | Road Runner Pass/Steady Driver | Yes | No | No | #1 | - | 114 | 1.9 |
| SC23 | Quint 2 | Yes | No | No | #1 | - | 70 | 1.2 |
| SN24 | Warp 2 | No | No | No | #1 | - | 350 | 5.8 |
| SN25 | Inter-Cycle 2 | No | No | No | #1 | - | - | - |
| SN26 | Flicker Brake | No | No | No | #1 | - | - | - |
| SN27 | Flicker Cruise | No | No | No | #1 | - | - | - |
| SN28 | Steady | No | No | No | #1 | - | - | - |
| SN29 | Manifesto | No | No | No | #1 | - | - | - |
| SN30 | Power Evert | No | No | No | #1 | - | - | - |
| SN31 | Dazzle | No | No | No | #1 | - | - | - |
| SN32 | Quiver | No | No | No | #1 | - | - | - |

NOTE: Takedown light patterns are limited to pattern #1 – 25

ELECTRICAL INSTALLATION (CONT.)

*fpm=Flashes per Minute

**fps=Flashes per Second

FLASH PATTERNS

| # | Name | SAE Compliant Timing | ECE Compliant Timing | California Title 13 Compliant Timing | Color | Sequence | fpm | fps |
|------|-------------------------|----------------------------|----------------------------|---|-------|--------------|-----|-----|
| SN33 | Power Sway | No | No | No | #1 | - | - | - |
| SN34 | Evert | No | No | No | #1 | - | - | - |
| SN35 | Alternating Rapid Flash | No | No | No | #1 | - | - | - |
| SN36 | Swift Impact | No | No | No | #1 | - | - | - |
| SN37 | Tango | No | No | No | #1 | - | - | - |
| SN38 | Tremble | No | No | No | #1 | - | - | - |
| SN39 | Shake | No | No | No | #1 | - | - | - |
| SN40 | Evolver | No | No | No | #1 | Simultaneous | - | - |
| SN41 | Corner Sweep | No | No | No | #1 | - | - | - |
| SN42 | Corner Sweep Slow | No | No | No | #1 | - | - | - |
| SN43 | Full/Sweep | No | No | No | #1 | - | - | - |
| SN44 | Full/Sweep Slow | No | No | No | #1 | - | - | - |
| SN45 | Center Sweep | No | No | No | #1 | - | - | - |
| SN46 | Center Sweep Slow | No | No | No | #1 | - | - | - |
| SN47 | Orbit | No | No | No | #1 | - | - | - |
| SN48 | Orbit Slow | No | No | No | #1 | - | - | - |
| SN49 | Double Orbit | No | No | No | #1 | - | - | - |
| SN50 | Slow Double Orbit | No | No | No | #1 | - | - | - |
| SN51 | Retrograde Orbit | No | No | No | #1 | - | - | - |
| SN52 | Slow Retrograde Orbit | No | No | No | #1 | - | - | - |
| SN53 | Progressive Alternate | No | No | No | #1 | - | - | - |
| SN54 | Recurrent | No | No | No | #1 | Simultaneous | - | - |
| SN55 | E-Scroll | No | Yes | No | #1 | Alternating | - | - |
| SN56 | ECE-Single - Aura | No | No | No | #1 | Alternating | - | - |
| SN57 | ECE-Single - Aura II | No | No | No | #1 | Alternating | - | - |
| DC1 | Random Dual #1 | Yes | No | No | #1/2 | Variable | - | - |
| DN2 | Random Dual #2 | No | No | No | #1/2 | Variable | - | - |
| DC3 | Quint Dual | Yes | No | No | #1/2 | Alternating | 70 | 1.2 |
| DC4 | Quad 2 Dual | Yes | No | No | #1/2 | Variable | - | - |
| DC5 | Q-Switch Dual | Yes | No | No | #1/2 | Variable | - | - |
| DC6 | Double Dual | Yes | No | No | #1/2 | Alternating | 115 | 1.9 |
| DC7 | Power Pulse Dual | Yes | No | No | #1/2 | Alternating | 180 | 3 |
| DC8 | Road Runner Dual | Yes | No | Yes | #1/2 | Alternating | 115 | 1.9 |
| DC9 | Slow Runner Dual | Yes | No | Yes | #1/2 | Alternating | 70 | 1.2 |
| DN10 | Warp Dual | No | No | No | #1/2 | Alternating | 350 | 5.8 |
| DN11 | Inter-Cycle Dual | No | No | No | #1/2 | Alternating | - | - |
| DN12 | Warp 1-2-3 Dual | No | No | No | #1/2 | Alternating | - | - |
| DN13 | Pattern #1 Dual | No | No | No | #1/2 | Variable | - | - |
| DN14 | Pattern #2 Dual | No | No | No | #1/2 | Variable | - | - |

ELECTRICAL INSTALLATION (CONT.)

*fpm=Flashes per Minute

**fps=Flashes per Second

FLASH PATTERNS

| # | Name | SAE Compliant Timing | ECE Compliant Timing | California Title 13 Compliant Timing | Color | Sequence | fpm | fps |
|------|------------------------------|----------------------------|----------------------------|---|-------|--------------|-----|-----|
| DN15 | Impact Dual | No | No | No | #1/2 | Variable | - | - |
| DN16 | Explosion Dual | No | No | No | #1/2 | Variable | - | - |
| DC17 | Quint Simultaneous Dual | Yes | No | No | #1/2 | Simultaneous | 70 | 1.2 |
| DC18 | Road Runner Sim. Dual | Yes | No | No | #1/2 | Simultaneous | 114 | 1.9 |
| DC19 | Quint 2 Dual | Yes | No | No | #1/2 | - | 70 | 1.2 |
| DN20 | Warp 2 Dual | No | No | No | #1/2 | - | 350 | 5.8 |
| DN21 | Inter-Cycle 2 Dual | No | No | No | #1/2 | - | - | - |
| DN22 | Super Slow Runner Dual | No | No | No | #1/2 | - | - | - |
| DN23 | Flicker Cruise Dual | No | No | No | #1/2 | - | - | - |
| DN24 | Manifesto Dual | No | No | No | #1/2 | - | - | - |
| DN25 | Power Evert Dual | No | No | No | #1/2 | - | - | - |
| DN26 | Dazzle Dual | No | No | No | #1/2 | - | - | - |
| DN27 | Quiver Dual | No | No | No | #1/2 | - | - | - |
| DN28 | Power Sway Dual | No | No | No | #1/2 | - | - | - |
| DN29 | Evert Dual | No | No | No | #1/2 | - | - | - |
| DN30 | Alternating Rapid Flash Dual | No | No | No | #1/2 | - | - | - |
| DN31 | Swift Impact Dual | No | No | No | #1/2 | - | - | - |
| DN32 | Tango Dual | No | No | No | #1/2 | - | - | - |
| DN33 | Tremble Dual | No | No | No | #1/2 | - | - | - |
| DN34 | Shake Dual | No | No | No | #1/2 | - | - | - |
| DN35 | Evolver Dual | No | No | No | #1/2 | Simultaneous | - | - |
| DN36 | Corner Sweep Dual | No | No | No | #1/2 | - | - | - |
| DN37 | Corner Sweep Slow Dual | No | No | No | #1/2 | - | - | - |
| DN38 | Full/Sweep Dual | No | No | No | #1/2 | - | - | - |
| DN39 | Full/Sweep Slow Dual | No | No | No | #1/2 | - | - | - |
| DN40 | Center Sweep Dual | No | No | No | #1/2 | - | - | - |
| DN41 | Center Sweep Slow Dual | No | No | No | #1/2 | - | - | - |
| DN42 | Orbit Dual | No | No | No | #1/2 | - | - | - |
| DN43 | Orbit Slow Dual | No | No | No | #1/2 | - | - | - |
| DN44 | Double Orbit Dual | No | No | No | #1/2 | - | - | - |
| DN45 | Slow Double Orbit Dual | No | No | No | #1/2 | - | - | - |
| DN46 | Retrograde Orbit Dual | No | No | No | #1/2 | - | - | - |
| DN47 | Slow Retrograde Orbit Dual | No | No | No | #1/2 | - | - | - |
| DN48 | Progressive Alternate Dual | No | No | No | #1/2 | - | - | - |
| DN49 | Recurrent Dual | | No | No | #1/2 | Simultaneous | - | - |
| DN50 | E-Scroll Dual | No | Yes | No | #1/2 | Alternating | - | - |
| DN51 | Road Runner Dual - Aura | No | No | No | #1/2 | Alternating | - | - |
| DN52 | Road Runner Dual - Aura II | No | No | No | #1/2 | Alternating | - | - |
| DN53 | Slow Runner Dual - Aura | No | No | No | #1/2 | Alternating | - | - |

ELECTRICAL INSTALLATION (CONT.)

*fpm=Flashes per Minute

**fps=Flashes per Second

FLASH PATTERNS

| # | Name | SAE Compliant Timing | ECE Compliant Timing | California Title 13 Compliant Timing | Color | Sequence | fpm | fps |
|------|--------------------------------------|----------------------|----------------------|--------------------------------------|--------|--------------|-----|-----|
| DN54 | Slow Runner Dual - Aura II | No | No | No | #1/2 | Alternating | - | - |
| DN55 | Super Slow Runner Dual - Aura | No | No | No | #1/2 | Alternating | - | - |
| DN56 | Super Slow Runner Dual - Aura II | No | No | No | #1/2 | Alternating | - | - |
| DN57 | Corner Sweep Slow Dual - Aura | No | No | No | #1/2 | - | - | - |
| DN58 | Full Sweep Slow Dual - Aura | No | No | No | #1/2 | - | - | - |
| DN59 | Center Sweep Slow Dual - Aura | No | No | No | #1/2 | - | - | - |
| DN60 | Orbit Slow Dual - Aura | No | No | No | #1/2 | - | - | - |
| DN61 | Double Orbit Slow Dual - Aura | No | No | No | #1/2 | - | - | - |
| DN62 | Retrograde Orbit Slow Dual - Aura | No | No | No | #1/2 | - | - | - |
| DN63 | Flicker Cruise alternate Dual - Aura | No | No | No | #1/2 | - | - | - |
| TN1 | Pattern 1 Tri | No | No | No | #1/2/3 | Alternating | - | - |
| TN2 | Random Tri | No | No | No | #1/2/3 | Alternating | - | - |
| TC3 | Quint Tri | Yes | No | No | #1/2/3 | Alternating | 70 | 1.2 |
| TC4 | Quad 2 Tri | Yes | No | No | #1/2/3 | Alternating | - | - |
| TN5 | Pattern 2 Tri | No | No | No | #1/2/3 | - | - | - |
| TC6 | Double Tri | Yes | No | No | #1/2/3 | Alternating | 115 | 1.9 |
| TC7 | Power Pulse Tri | Yes | No | No | #1/2/3 | Alternating | 180 | 3 |
| TC8 | Road Runner Tri | Yes | No | Yes | #1/2/3 | Alternating | 115 | 1.9 |
| TC9 | Slow Runner Tri | Yes | No | Yes | #1/2/3 | Alternating | 70 | 1.2 |
| TN10 | Warp Tri | No | No | No | #1/2/3 | Alternating | 350 | 5.8 |
| TN11 | Inter-Cycle Tri | No | No | No | #1/2/3 | Alternating | - | - |
| TN12 | Warp 1-2-3 Tri | No | No | No | #1/2/3 | Alternating | - | - |
| TN13 | Super Slow Runner Tri | No | No | No | #1/2/3 | Alternating | 55 | 0.9 |
| TC14 | Quint Simultaneous Tri | Yes | No | No | #1/2/3 | Simultaneous | 70 | 1.2 |
| TC15 | Road Runner Sim. Tri | Yes | No | No | #1/2/3 | Simultaneous | 114 | 1.9 |
| TC16 | Quint 2 Tri | Yes | No | No | #1/2/3 | Alternating | 70 | 1.2 |
| TN17 | Warp 2 Tri | No | No | No | #1/2/3 | Alternating | 350 | 5.8 |
| TN18 | Inter-Cycle 2 Tri | No | No | No | #1/2/3 | Alternating | - | - |
| TN19 | Pattern 3 Tri | No | No | No | #1/2/3 | - | - | - |
| TN20 | Flicker Cruise Tri | No | No | No | #1/2/3 | - | - | - |
| TN21 | Manifesto Tri | No | No | No | #1/2/3 | - | - | - |
| TN22 | Power Evert Tri | No | No | No | #1/2/3 | - | - | - |
| TN23 | Dazzle Tri | No | No | No | #1/2/3 | - | - | - |
| TN24 | Quiver Tri | No | No | No | #1/2/3 | - | - | - |
| TN25 | Power Sway Tri | No | No | No | #1/2/3 | - | - | - |
| TN26 | Evert Tri | No | No | No | #1/2/3 | - | - | - |
| TN27 | Alternating Rapid Flash Tri | No | No | No | #1/2/3 | - | - | - |
| TN28 | Swift Impact Tri | No | No | No | #1/2/3 | - | - | - |
| TN29 | Tango Tri | No | No | No | #1/2/3 | - | - | - |

ELECTRICAL INSTALLATION (CONT.)

*fpm=Flashes per Minute

**fps=Flashes per Second

FLASH PATTERNS

| # | Name | SAE Compliant Timing | ECE Compliant Timing | California Title 13 Compliant Timing | Color | Sequence | fpm | fps |
|------|----------------------------------|----------------------------|----------------------------|--|--------|--------------|-----|-----|
| TN30 | Tremble Tri | No | No | No | #1/2/3 | - | - | - |
| TN31 | Shake Tri | No | No | No | #1/2/3 | - | - | - |
| TN32 | Evolver Tri | No | No | No | #1/2/3 | Simultaneous | - | - |
| TN33 | Corner Sweep Tri | No | No | No | #1/2/3 | - | - | - |
| TN34 | Corner Sweep Slow Tri | No | No | No | #1/2/3 | - | - | - |
| TN35 | Full/Sweep Tri | No | No | No | #1/2/3 | - | - | - |
| TN36 | Full/Sweep Slow Tri | No | No | No | #1/2/3 | - | - | - |
| TN37 | Center Sweep Tri | No | No | No | #1/2/3 | - | - | - |
| TN38 | Center Sweep Slow Tri | No | No | No | #1/2/3 | - | - | - |
| TN39 | Orbit Tri | No | No | No | #1/2/3 | - | - | - |
| TN40 | Orbit Slow Tri | No | No | No | #1/2/3 | - | - | - |
| TN41 | Double Orbit Tri | No | No | No | #1/2/3 | - | - | - |
| TN42 | Double Orbit Slow Tri | No | No | No | #1/2/3 | - | - | - |
| TN43 | Retrograde Orbit Tri | No | No | No | #1/2/3 | - | - | - |
| TN44 | Retrograde Orbit Slow Tri | No | No | No | #1/2/3 | - | - | - |
| TN45 | Progressive Alternate Tri | No | No | No | #1/2/3 | - | - | - |
| TN46 | Recurrent Tri | No | No | No | #1/2/3 | Simultaneous | - | - |
| TN47 | E-Scroll Tri | No | Yes | No | #1/2/3 | Alternating | - | - |
| TN48 | Road Runner Tri - Aura | No | No | No | #1/2/3 | Alternating | - | - |
| TN49 | Road Runner Tri - Aura II | No | No | No | #1/2/3 | Alternating | - | - |
| TN50 | Slow Runner Tri - Aura | No | No | No | #1/2/3 | Alternating | - | - |
| TN51 | Slow Runner Tri - Aura II | No | No | No | #1/2/3 | Alternating | - | - |
| TN52 | Super Slow Runner Tri - Aura | No | No | No | #1/2/3 | Alternating | - | - |
| TN53 | Super Slow Runner Tri - Aura II | No | No | No | #1/2/3 | Alternating | - | - |
| TN54 | Corner Sweep Slow Tri - Aura | No | No | No | #1/2/3 | - | - | - |
| TN55 | Full Sweep Slow Tri - Aura | No | No | No | #1/2/3 | - | - | - |
| TN56 | Center Sweep Slow Tri - Aura | No | No | No | #1/2/3 | - | - | - |
| TN57 | Orbit Slow Tri - Aura | No | No | No | #1/2/3 | - | - | - |
| TN58 | Double Orbit Slow Tri - Aura | No | No | No | #1/2/3 | - | - | - |
| TN59 | Retrograde Orbit Slow Tri - Aura | No | No | No | #1/2/3 | - | - | - |

ELECTRICAL INSTALLATION (CONT.)

ARROW PATTERNS

| # | Name | SAE Compliant Timing | ECE Compliant Timing | California Title 13 Compliant Timing | Color | Sequence | fpm | fps |
|----|------------------------|----------------------------|----------------------------|--|-------|----------|-----|-----|
| 1 | Single Fast | No | No | No | #1 | - | - | - |
| 2 | Single Slow | No | No | No | #1 | - | - | - |
| 3 | Chaser Fast | No | No | No | #1 | - | - | - |
| 4 | Chaser Slow | No | No | No | #1 | - | - | - |
| 5 | Fill Fast | No | No | No | #1 | - | - | - |
| 6 | Fill Slow | No | No | No | #1 | - | - | - |
| 7 | Grow/Shrink | No | No | No | #1 | - | - | - |
| 8 | Warning w/Arrow | No | No | No | #1 | - | - | - |
| 9 | Warning w/Arrow Fill | No | No | No | #1 | - | - | - |
| 10 | Arrow Random 1 | No | No | No | #1 | - | - | - |
| 11 | Arrow Random 2 | No | No | No | #1 | - | - | - |
| 12 | Grow/Shrink 2 | No | No | No | #1 | - | - | - |
| 13 | Single Slow - Aura III | No | No | No | #1 | - | - | - |
| 14 | Fill Slow - Aura III | No | No | No | #1 | - | - | - |

TABLE 1

| Wire Pin # | Wire Color | Wire Function (defaults are most logical for a front or rear facing assembly) | Mods Affected | Color (If the color is not populated, it would be the next color listed) | Flash | CERT chosen |
|------------|------------|--|----------------------------------|---|--------|--------------------|
| | | | | | | SAE / None Pattern |
| 1 | BLU/WHT | Cruise 1 | Entire Bar | Color 1, not White | - | - |
| 2 | GRN/WHT | Warning | Entire Bar (Rear/Right facing) | Color 1 | Mode 2 | Slow Runner |
| 3 | GRY | Left Turn | Chosen at bar creation | Chosen at bar creation | - | - |
| 4 | BLK | Right Turn | Chosen at bar creation | Chosen at bar creation | - | - |
| 5 | LTGRN | Tail | Chosen at bar creation | Red→nothing | - | - |
| 6 | BRO/WHT | Unassigned | - | - | - | - |
| 7 | PUR | Unassigned | - | - | - | - |
| 8 | WHT | Unassigned | - | - | - | - |
| 9 | BLK/WHT | Low Power 1 | Entire Bar | - | - | - |
| 10 | GRY/WHT | *Left / Rearward Arrow | Entire Bar | Amber→Color 1 | - | - |
| 11 | PUR/WHT | *Right / Forward Arrow | Entire Bar | Amber→Color 1 | - | - |
| 12 | PNK/WHT | IGNITION | - | - | - | - |
| 13 | BLU | Warning | Entire Bar | Color 1 | Mode 1 | Flicker Cruise |
| 14 | GRN | Warning | Entire Bar (Front / Left facing) | Color 1 | Mode 2 | Slow Runner |
| 15 | YEL | Warning | Entire Bar | Color 1 | Mode 3 | Quint |
| 16 | ORG | Warning | Entire Bar | Color 1 | Mode 4 | Inter-cycle |
| 17 | RED | Warning | Entire Bar | Color 1 | Mode 5 | Warp |
| 18 | PNK | Warning with Cruise 1 behind | Entire Bar | Color 1 | Mode 6 | Super Slow Runner |
| 19 | RED/WHT | Flashing | Takedown / Work light | White→nothing | - | - |
| 20 | BRO | Unassigned | - | - | - | - |
| 21 | YEL/WHT | Unassigned | - | - | - | - |
| 22 | ORG/WHT | Takedown / Work light | Selected at Bar Creation | White | - | - |
| 23 | RED/BLK | Scene 1 | Selected at Bar Creation | White | - | - |
| 24 | LTGRN/WHT | VSS Input for Speed 1 and 2 | - | - | - | - |

**BREAKOUT BOX INSTRUCTIONS:
(LIN COMMUNICATION)**

- Securely snap in the 4-pin and 24-pin connectors
- Install a 2Amp Fuse (customer supplied) to the end of the Red wire of the 4-pin connector harness.
- If not connecting the BOB to a 400 or 500 Siren, install a 2Amp Fuse (customer supplied) to the end of the Pink/White wire of the 24-pin connector harness and then connect to a switched ignition source
- Hook up power, ground, and LIN to the corresponding wire on the 4-pin connector harness. (Table 2)
- Refer to Table 1 for the input wire's default function
- Follow the label for the wire color to connect to a +10-32Vdc source, which turns on that given light or lights
- Make sure your wire connections are secured and isolated from any other wire

4-PIN CONNECTOR HARNESS

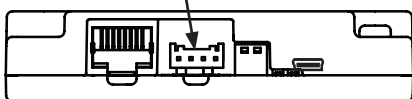


Table 2

| Wire Pin | Color | Function |
|----------|-------------|--|
| 1 | Black | Ground |
| 2 | Green/White | LIN 2 - Right or Rear mounted assemblies |
| 3 | Green | LIN 1 - Front or Left mounted assemblies |
| 4 | Red | Power |

***Based upon the mounting location of your lightbar.
CAN BREAKOUT BOX INSTRUCTIONS:
(CAN COMMUNICATION)**

- Securely snap in the 4-pin, 5-pin and 24-pin connectors
- Refer to Table 1 for the input wire default functions and to Table 3 for the CAN wire functions
- Install a 2Amp Fuse (customer supplied) to the end of the Red wire of the 4-pin connector harness.
- If not connecting the BOB to a 400 or 500 Siren, install a 2Amp Fuse (customer supplied) to the end of the Pink/White wire of the 24-pin connector harness and then connect to a switched ignition source
- Hook up power, ground, and LIN to the corresponding wire on the 4-pin connector harness. (Table 2)
- Follow the label for the wire color to connect to a 10-32 Vdc source, which turns on that given light or lights
- Make sure your wire connections are secured and isolated from any other wire
- If extending the 5-pin connector harness, a shielding wire running the length of the entire harness may be necessary

CONNECTOR PRESENT WITH CAN BOB

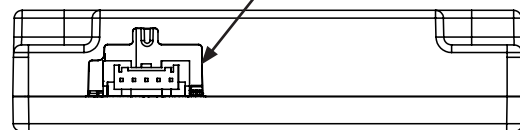
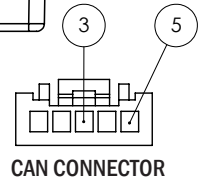
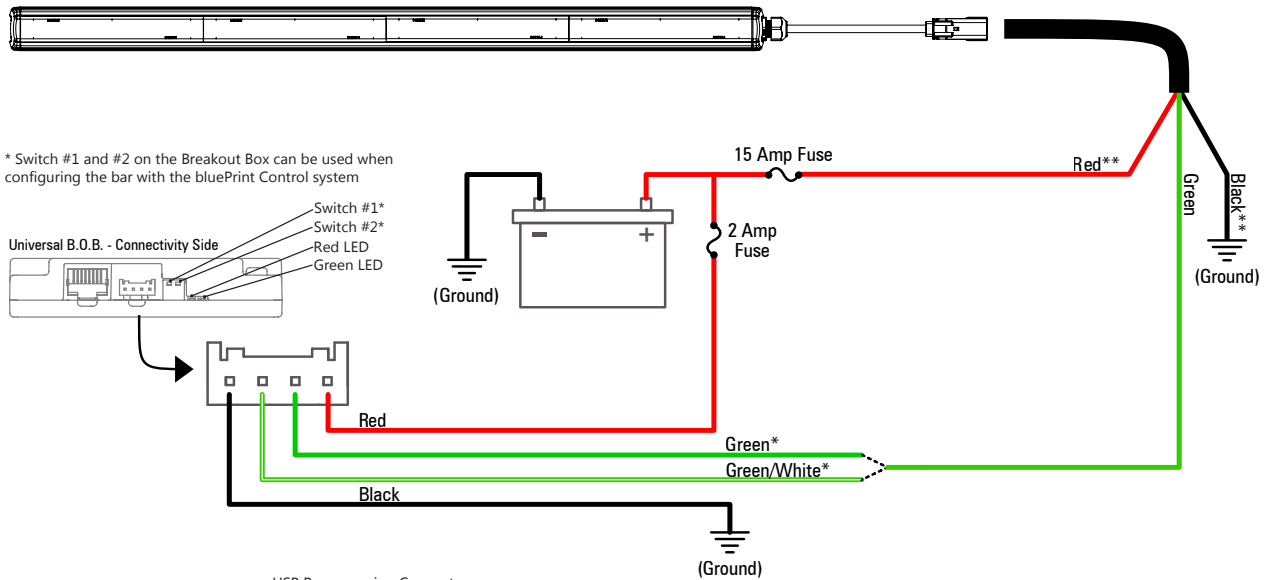


Table 3

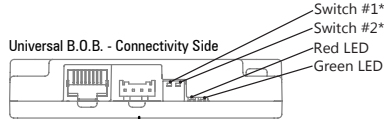
| Wire Pin | Color | Function |
|----------|--------|----------|
| 3 | Green | CAN Low |
| 5 | Yellow | CAN High |



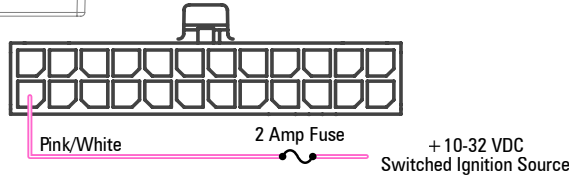
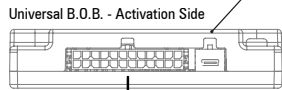
CONTROL / WIRE HARNESS DIAGRAM



* Switch #1 and #2 on the Breakout Box can be used when configuring the bar with the bluePRINT Control system



USB Programming Connector



Special Notes:

* For front or left mounted lightbars, use the green wire. For rear or right mounted lightbars, use the Green/White wire.

** Wire gauge depends on extension harness length:

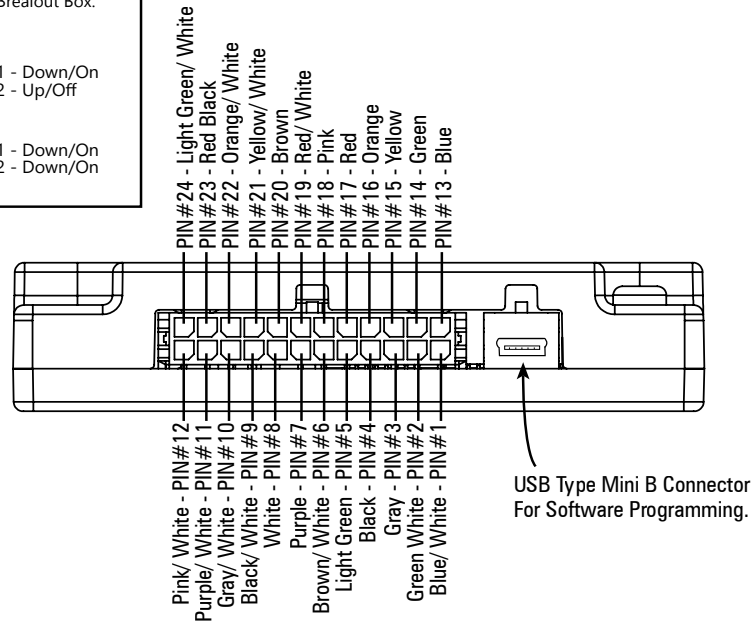
| | |
|---------|--------|
| 3 Foot | 18 AWG |
| 15 Foot | 16 AWG |
| 25 Foot | 14 AWG |

Universal Breakout Box Setting I.D.
*Only used with bluePRINT applications with more than 1 Universal Breakout Box.

| | | | |
|--|---------------------------------------|--|--|
| | ID 1 1 - Up/Off 2 - Up/Off | | ID 3 1 - Down/On 2 - Up/Off |
| | ID 2 1 - Up/Off 2 - Down/On | | ID 4 1 - Down/On 2 - Down/On |

Functional Inputs

Functional Inputs connect to your control head or switching unit. Applying +10-32Vdc to any functional Input will activate it's function (default-active high).



mpower® TRAFFIC CONTROLLER TROUBLESHOOTING

Normal Operation

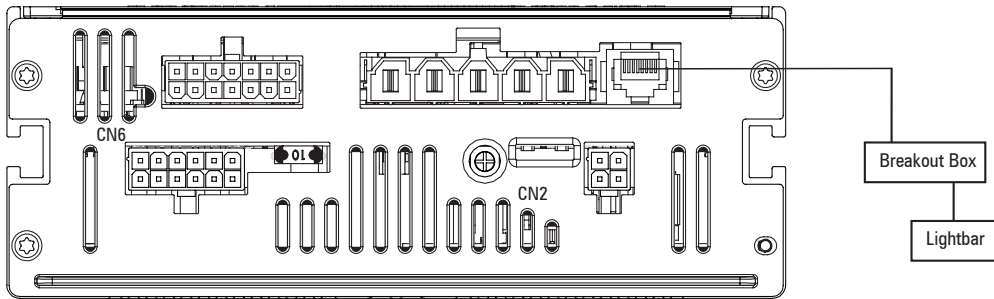
Under Normal operation with ignition input powered, the breakout box will have the Green LED ON and the Red LED light will be ON whenever an input is active and both switches are in the UP (off) position.

| GENERAL TROUBLESHOOTING | |
|--|--|
| Before further troubleshooting steps, start here: | <ul style="list-style-type: none"> • Check power source to the Traffic Controller and breakout box (red and red/white wires). • Check the ground source to the lightbar and breakout box (black and black/white wires). • Check ignition source to the lightbar and breakout box (pink/white wire). • Check any splice and butt connections for proper crimp integrity. • Check connectors for positive engagement. |
| NO OPERATION | |
| The green LED is not illuminated | <ul style="list-style-type: none"> • Check Power (Pin #4) and Ground (Pin #1) on the 4-pin connector. • If not connected to a 400 Series Siren or bluePRINT Controller, check Ignition (pin #12) on the 24-pin connector. |
| The red LED is not illuminated while inputs are active | <ul style="list-style-type: none"> • Verify there is proper voltage on the input wire. Many inputs are positive or negative selectable (through SoundOff Central). • Check lightbar program configuration using SoundOff Central. Verify any active inputs are mapped to activate lightbar functions. • Verify the DIP switches on the BOB are both in the up (off) position. |
| Green and red LEDs are illuminated properly | <ul style="list-style-type: none"> • Verify the lightbar data wires on the 4-pin connector (pins #2 or #3) are correctly connected to the Traffic Controller data wire. • Verify the data wire circuit (from the breakout box into the lightbar) is not damaged or shorted to power or ground. |
| INCORRECT WARNING LIGHTS | |
| | <ul style="list-style-type: none"> • Verify the configuration for proper lightbar operation. • Verify the lightbar data wires on the 4-pin connector (pins #2 or #3) are correctly connected to the Traffic Controller data wire. • Verify light module ID/positions. |
| INCORRECT OR NO ARROW OPERATION | |
| Breakout box LED's operating correctly | <ul style="list-style-type: none"> • Verify configuration and make sure light modules are configured for arrow function. |
| No steady Red LED on breakout box | <ul style="list-style-type: none"> • Check 24-pin connector at breakout box (ensure it is snapped into position correctly), check appropriate input to breakout box for output lights which should be on. |

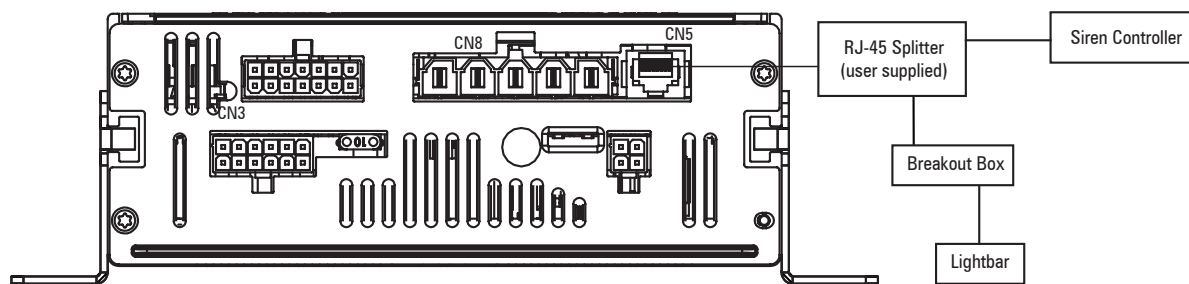
CONNECTION OF LIGHTBAR BREAKOUT BOX TO SOUNDOFF SIGNAL SIREN:

Note: Requires PC configuration app to map siren control switches to lightbar functions. Plug 1 end of RJ-45 cable to available jack on siren amplifier.

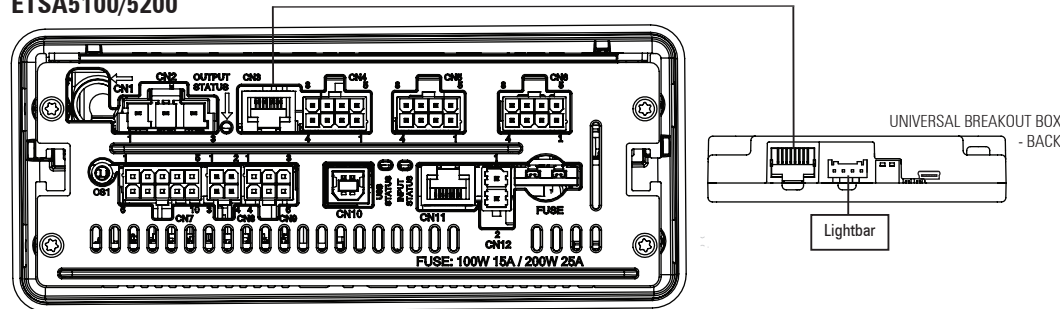
ETSA481CSR or ETSA482CSR



ETSA481RSP, ETSA482RSP, ETSA461HPP, ETSA462HPP



ETSA5100/5200



SoundOff Central® Software Universal Breakout Box ID Settings

When using more than one lightbar universal breakout box (UBOB) with SoundOff Central Software, set the ID number for each UBOB using the dip switches and then configure the light bars accordingly in the Software.

1. Select Lightbars Tab on the main SETUP Page.

2. Under Lightbars tab, select the EXTERNAL tab to see UBOB list. The number after the UBOB is the ID needed.

3. Hover cursor over the ? to open up Universal Breakout Box ID Information.

SIREN FUNCTIONS

| # | Button | Function | Mods affected | "Color (if the color is not populated, it would be the next color listed)" | Flash | CERT chosen | |
|-----|---------------------|----------------------|--------------------------|--|--------|--------------|------------|
| | | | | | | SAE/ NONE | ECE |
| | | | | | | Pattern | |
| S1 | Pushbutton 1 | *Left/Rearward Arrow | *Inboards (Rear/Right) | Amber→ Color 1 | - | - | - |
| S2 | Pushbutton 2 | - | - | - | - | - | - |
| S3 | Pushbutton 3 | - | - | - | - | - | - |
| S4 | Pushbutton 4 | Takedown | Selected at Bar Creation | White | - | - | - |
| S5 | Pushbutton 5 | Cruise 1 | Entire Bar | Color 1 | - | - | - |
| S6 | Pushbutton 6 | Low Power 1 | Entire Bar | - | - | - | - |
| S7 | Pushbutton 7 | Scene 1 | Selected at Bar Creation | White | - | - | - |
| S8 | Pushbutton 8 | - | | No | - | - | - |
| S9 | Single Button Arrow | *Right/Forward Arrow | *Inboards (Rear/Right) | Amber→ Color 1 | - | - | - |
| S10 | Slide Switch 1 | Warning | *Inboards (Rear/Right) | Color 1 | Mode 2 | Slow Runner | ECE Single |
| S11 | Slide Switch 2 | Warning | Entire Bar | Color 1 | Mode 3 | Quint | ECE Single |
| S12 | Slide Switch 3 | Warning | Entire Bar | Color 1 | Mode 4 | Inter-cycle | ECE Single |

***Based upon the mounting location of your bar**

NOTE: Requires PC configuration app to map siren control switches to Traffic Controller functions
 Plug 1 end of RJ-45 cable to available jack on siren amplifier. Plug other end of RJ-45 cable to 'siren'.

REPLACEMENT PARTS & ACCESSORIES

| PART# | DESCRIPTION |
|----------------|--|
| PMPTCHN04 | 4 MOD HARNESS W/ENDCAP |
| PMPTCHN05 | 5 MOD HARNESS W/ENDCAP |
| PMPTCHN06 | 6 MOD HARNESS W/ENDCAP |
| PMPTCHN08 | 8 MOD HARNESS W/ENDCAP |
| PMPTCHN10 | 10 MOD HARNESS W/ENDCAP |
| PMPTCHN03 | EXTERNAL EXTENSION HARNESS (3') |
| PMPTCHN04 | EXTERNAL EXTENSION HARNESS (15') |
| PMPTCHN05 | EXTERNAL EXTENSION HARNESS (25') |
| PMPTCEC01 | ENDCAP (CLOSED) |
| PMPTCLS206xC | 6" 6 LED SINGLE COLOR MODULE |
| PMPTCLD212xC | 6" 12 LED DUAL COLOR MODULE |
| PMPTCLT218xxxC | 6" 18 LED TRI COLOR MODULE |
| PEPL9BBHNS | BREAKOUT BOX HARNESS - SHORT |
| PEPL9BBHNL | BREAKOUT BOX HARNESS - LONG |
| PUVBBHNPW1 | UNIVERSAL BREAKOUT BOX 4-PIN HARNESS |
| PUVBBJ00 | UNIVERSAL LIN BREAKOUT BOX ASSEMBLY |
| PUVBBHNCN1 | UNIVERSAL CAN BREAKOUT BOX 5-PIN HARNESS |
| PUVBBJC1 | UNIVERSAL CAN BREAKOUT BOX ASSEMBLY |
| PMPTCM01 | MOUNTING KIT SHORT (1 HOLE) |
| PMPTCM02 | MOUNTING KIT MEDIUM (2 HOLE) |
| PMPTCM03 | MOUNTING KIT LONG (3 HOLE) |
| PMPTCM07 | MOUNTING KIT EXTRA LONG (7 HOLE) |

NOTES:

WARRANTY & RETURN GOODS PROCEDURE

CLEANING & CARE OF YOUR LIGHTBAR:

Keeping the lenses clean and scratch free will optimize the performance of the lightbar. The exterior of the lightbar including lenses should be cleaned with mild soapy water and a soft cotton cloth to remove dirt, grime and insects. Never use window cleaners or harsh chemicals on the lenses; this may cause failure of the lenses or reduce clarity resulting in the reduction of light output.

MOUNTING INTEGRITY:

A review of bolt/hardware/mounting bracket integrity should be performed at the beginning and end of each shift.

WARNING MESSAGES - PLEASE READ:

WARNING - DRILLING ANY HOLES INTO THE LIGHTBAR IS NOT RECOMMENDED! THE RISK OF DAMAGING INTERNAL COMPONENTS AND THE RESULTING FAILURE OF THE LIGHTBAR WILL VOID ANY WARRANTY OF THIS PRODUCT.

WARNING - CARE MUST BE TAKEN WHEN DRILLING THROUGH THE ROOF OF THE VEHICLE NOT TO DRILL INTO ANY EXISTING WIRING AND NOT TO DRILL THROUGH THE HEADLINER OR SUPPORT MEMBERS OF THE VEHICLE. CHECK BOTH SIDES OF THE MOUNTING SERVICE PRIOR TO DRILLING. DE-BURR ANY HOLES AND REMOVE ANY METAL SHARDS OR REMNANTS. INSTALL GROMMETS INTO ALL WIRE PASSAGE HOLES.

WARNING - ROUTE WIRES ONLY IN LOCATIONS THAT ARE NOT SUBJECTED TO POTENTIAL WEAR. MAKE SURE TO AVOID ROUTING WIRES IN THE DEPLOYMENT AREA OF YOUR AIR BAG. REFER TO YOUR VEHICLE OWNER'S MANUAL FOR AIR BAG DEPLOYMENT ZONES.

WARNING - ALL CUSTOMER SUPPLIED POWER WIRES CONNECTING TO THE POSITIVE (+) OR NEGATIVE (-) BATTERY TERMINAL OR LOCAL CHASSIS GROUND (-) MUST BE SIZED TO SUPPLY AT LEAST 125% OF THE MAXIMUM CURRENT AND PROPERLY FUSED AT THE POWER SOURCE WITH APPROPRIATELY RATED FUSE.

IMPORTANT: When passing cables through fire wall or other sheet metal, insert grommet to protect the cable!

WARRANTY RETURN PROCESS:

Please contact your SoundOff Signal Sales Representative, Customer Services staff or our Technical Department (800.338.7337) for a RMA #, Return Merchandise Authorization Number.

The following information is required for issuance of the RMA #:

- Reason for returning the product*
- Address where replacement product is to be shipped*
- Telephone number where you may be reached*
- SoundOff Signal invoice number on which product was purchased**
- SoundOff Signal part number and serial number**
- E-mail address where RMA # should be e-mailed**
- Fax number where RMA # should be faxed**

* RMA # will not be given without this information.

** If available, please provide this information.

SoundOff Signal will NOT accept returns without an RMA #. Each RMA # is good for only one (1) return and will expire (30) days after the date it was issued. Products must be shipped back to SoundOff Signal and the RMA # clearly marked on the outside of the package near the shipping label. Please use the following address on your shipping label:

SoundOff Signal
ATTN: RMA # / Technical Services
3900 Central Parkway
Hudsonville, MI 49426

WARRANTY EXCLUSIONS:

Shipping & Handling, labor and service fees are non-refundable. SoundOff Signal is not liable for any damage due to installation or personal injury as a result of using SoundOff Signal product.

WARRANTY FORFEITURE:

Warranty will not be granted if the Warranty Return Policy & Procedure rules are not strictly followed. Physical damage resulting from customer abuse will void warranty. Warranty will also be voided if any SoundOff Signal and/or manufacturer serial tags, product stickers, seals, or the like, are removed, altered or tampered with. Returned product that is damaged by shipping via the RMA # procedure is not the responsibility of SoundOff Signal.

Document effective date on cover and below supersedes previously dated policies and statements.

There are no other warranties, expressed or implied, including, but not limited to, any implied merchantability or fitness for a particular use. SoundOff Signal reserves the right to modify this warranty statement at any time; or to discontinue, modify, or upgrade any products of its manufacture with design improvements without prior notice.