



# Installation and Operation Instructions

## 12+ Pro Vantage™ Series Lightbars

**IMPORTANT!** Read all instructions before installing and using. Installer: This manual must be delivered to the end user.



### WARNING!

Failure to install or use this product according to manufacturer's recommendations may result in property damage, serious injury, and/or death to those you are seeking to protect!



**Do not install and/or operate this safety product unless you have read and understood the safety information contained in this manual.**

1. Proper installation combined with operator training in the use, care, and maintenance of emergency warning devices are essential to ensure the safety of emergency personnel and the public.
2. Emergency warning devices often require high electrical voltages and/or currents. Exercise caution when working with live electrical connections.
3. This product must be properly grounded. Inadequate grounding and/or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or severe vehicle damage, including fire.
4. Proper placement and installation is vital to the performance of this warning device. Install this product so that output performance of the system is maximized and the controls are placed within convenient reach of the operator so that they can operate the system without losing eye contact with the roadway.
5. Do not install this product or route any wires in the deployment area of an air bag. Equipment mounted or located in an air bag deployment area may reduce the effectiveness of the air bag or become a projectile that could cause serious personal injury or death. Refer to the vehicle owner's manual for the air bag deployment area. It is the responsibility of the user/operator to determine a suitable mounting location ensuring the safety of all passengers inside the vehicle particularly avoiding areas of potential head impact.
6. It is the responsibility of the vehicle operator to ensure daily that all features of this product work correctly. In use, the vehicle operator should ensure the projection of the warning signal is not blocked by vehicle components (i.e., open trunks or compartment doors), people, vehicles or other obstructions.
7. The use of this or any other warning device does not ensure all drivers can or will observe or react to an emergency warning signal. Never take the right-of-way for granted. It is the vehicle operator's responsibility to be sure they can proceed safely before entering an intersection, drive against traffic, respond at a high rate of speed, or walk on or around traffic lanes.
8. This equipment is intended for use by authorized personnel only. The user is responsible for understanding and obeying all laws regarding emergency warning devices. Therefore, the user should check all applicable city, state, and federal laws and regulations. The manufacturer assumes no liability for any loss resulting from the use of this warning device.

## Specifications

Length.....24", 30", 36", 42", 48", 54", 60", 72"  
Width.....11"  
Height.....2.5"  
Voltage.....12-24VDC  
Current Draw.....Single Color LED Module = 0.55A Avg. @ 12.8VDC  
Dual Color LED Module = 0.55A Avg. @ 12.8VDC  
LED STT (pair) = 1.2A Avg. @ 12.8VDC  
LED AL,TD,WL = 1.2A Avg. @ 12.8VDC  
Flash Patterns.....70

### Fuse Recommendation:

Calculate the total amp draw from all the LED Modules.  
Multiply the total amp draw by 1.25. Round up to the nearest fuse.

# Installation & Mounting

## Unpacking and Pre-Installation

Carefully remove the lightbar and place it on a flat surface. Examine the unit for transit damage and locate all parts. If damage is found or parts are missing, contact the transit company or Code 3. Do not use damaged or broken parts. Ensure the lightbar voltage is compatible with the planned installation.

## Mounting

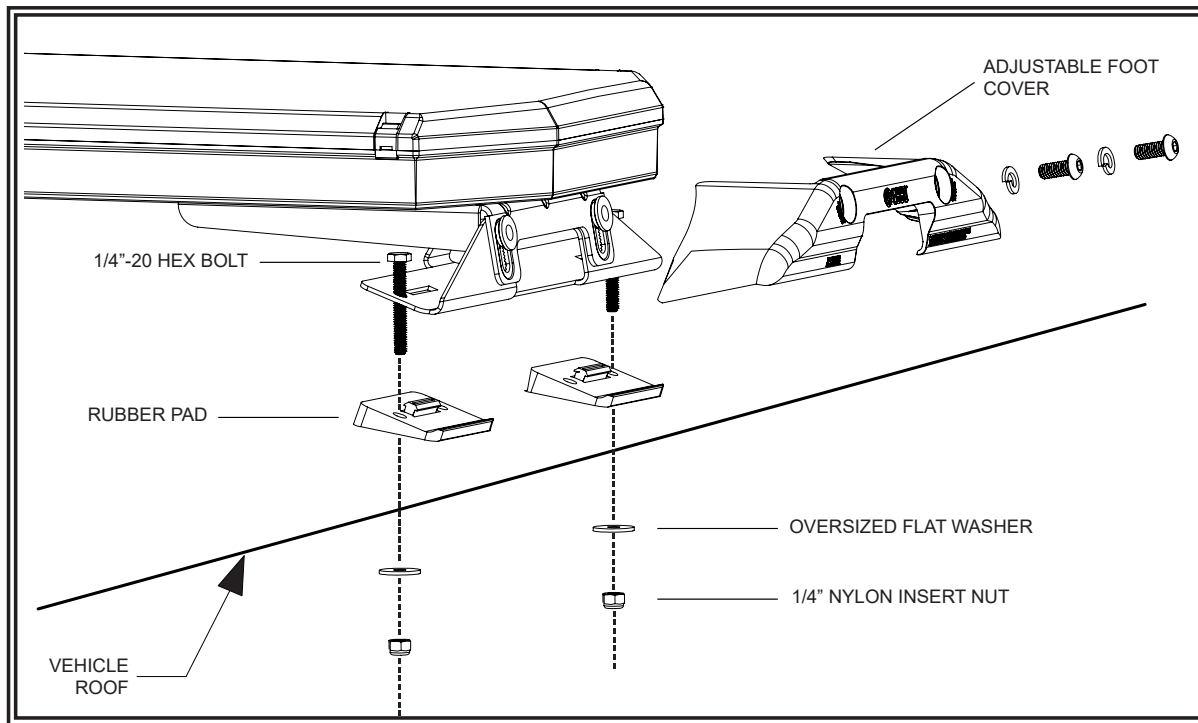
Before proceeding with installation, plan all wiring and cable routing. Select the mounting location for the lightbar on a flat, smooth surface and center the unit across the width of the vehicle. The mounting location for the lightbar should be chosen such that the lightbar is level and visibility to approaching traffic is optimized.



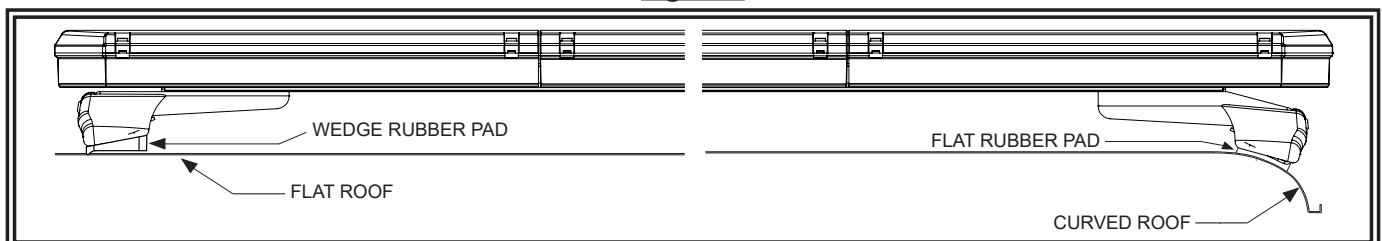
**CAUTION!**  
When drilling into any vehicle surface, make sure that the area is free from any electrical wires, fuel lines, vehicle upholstery, etc. that could be damaged.

### Permanent Mounting with Adjustable Mounting Feet

1. Loosen the 5/16" nuts to allow the mounting feet to slide along the base. Place the lightbar over the center of the vehicle and slide the mounting feet into position near the curved edges of the roof when possible.
2. Secure the feet in location on the lightbar by tightening the four nuts on each foot.
3. With the feet positioned, remove the adjustable foot cover and mark the location of the mounting hole centers on the roof of the vehicle. Remove the lightbar and drill the mounting holes as marked. Note: The center distance between the mounting holes in an adjustable mounting foot is 11.1" or 281.94 mm.
4. Attach the appropriate foot pad for the curvature of the roof surface per FIGURE 2. Secure the lightbar feet to the vehicle using the supplied 1/4"-20 hardware and reattach the adjustable foot cover as shown in FIGURE 1. See the Wiring section of this manual for further wiring instructions.



**Figure 1**

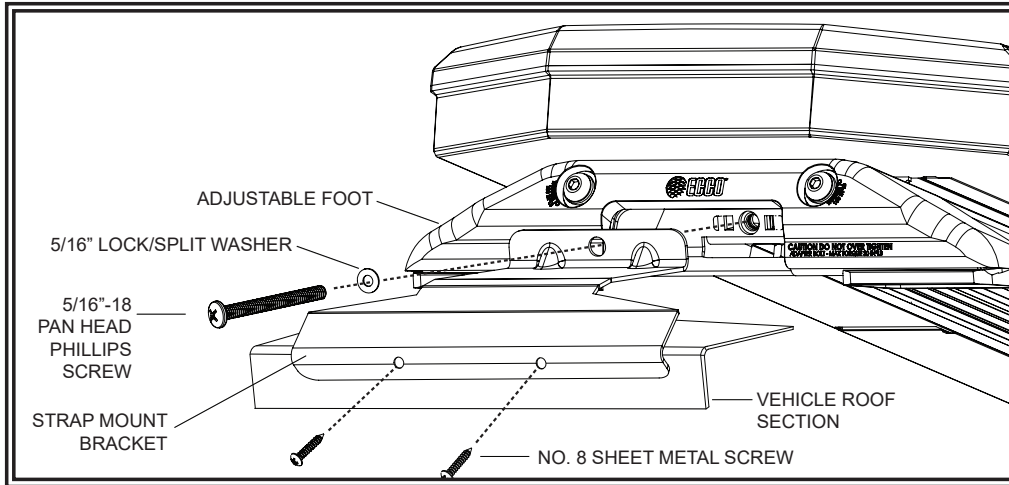


**Figure 2**

## Strap Kit Mounting

1. Loosen the 5/16" nuts to allow the mounting feet to slide along the base of the lightbar. Loosely attach the mounting strap to each foot using the supplied pan head phillips screws and lock washers.
2. Center the lightbar across the vehicle and align the strap mount brackets to hook into the gutter of the vehicles door frame as shown in FIGURE 3.
3. Secure the feet to the lightbar in location by tightening the four nuts on each foot.
4. Slowly tighten the pan head screws to secure the strap mount brackets to the lightbar feet and around the door gutters, keeping the lightbar centered and level. Ensure the doors close completely and secure each strap mount bracket to the door frame. Mounting geometry and parts will vary for different vehicles. See the Wiring section of this manual for further wiring instructions.

**IMPORTANT! Mounting brackets are specific to the vehicle model. Please make sure the brackets are suitable for the vehicle before installation.**



**Figure 3**

## Wiring Instructions

**IMPORTANT!** This unit is a safety device and it must be connected to its own separate, fused power point to assure its continued operation should any other electrical accessory fail.

### Notes:

1. Larger wires and tight connections will provide longer service life for components. For high current wires it is highly recommended that terminal blocks or soldered connections be used with shrink tubing to protect the connections. Do not use insulation displacement connectors (e.g., 3M Scotchlock type connectors).
2. Route wiring using grommets and sealant when passing through compartment walls. Minimize the number of splices to reduce voltage drop. All wiring should conform to the minimum wire size and other recommendations of the manufacturer and be protected from moving parts and hot surfaces. Looms, grommets, cable ties, and similar installation hardware should be used to anchor and protect all wiring.
3. Fuses or circuit breakers should be located as close to the power takeoff points as possible and properly sized to protect the wiring and devices.
4. Particular attention should be paid to the location and method of making electrical connections and splices to protect these points from corrosion and loss of conductivity.
5. Ground termination should only be made to substantial chassis components, preferably directly to the vehicle battery.
6. Circuit breakers are very sensitive to high temperatures and will “false trip” when mounted in hot environments or operated close to their capacity.



### CAUTION!

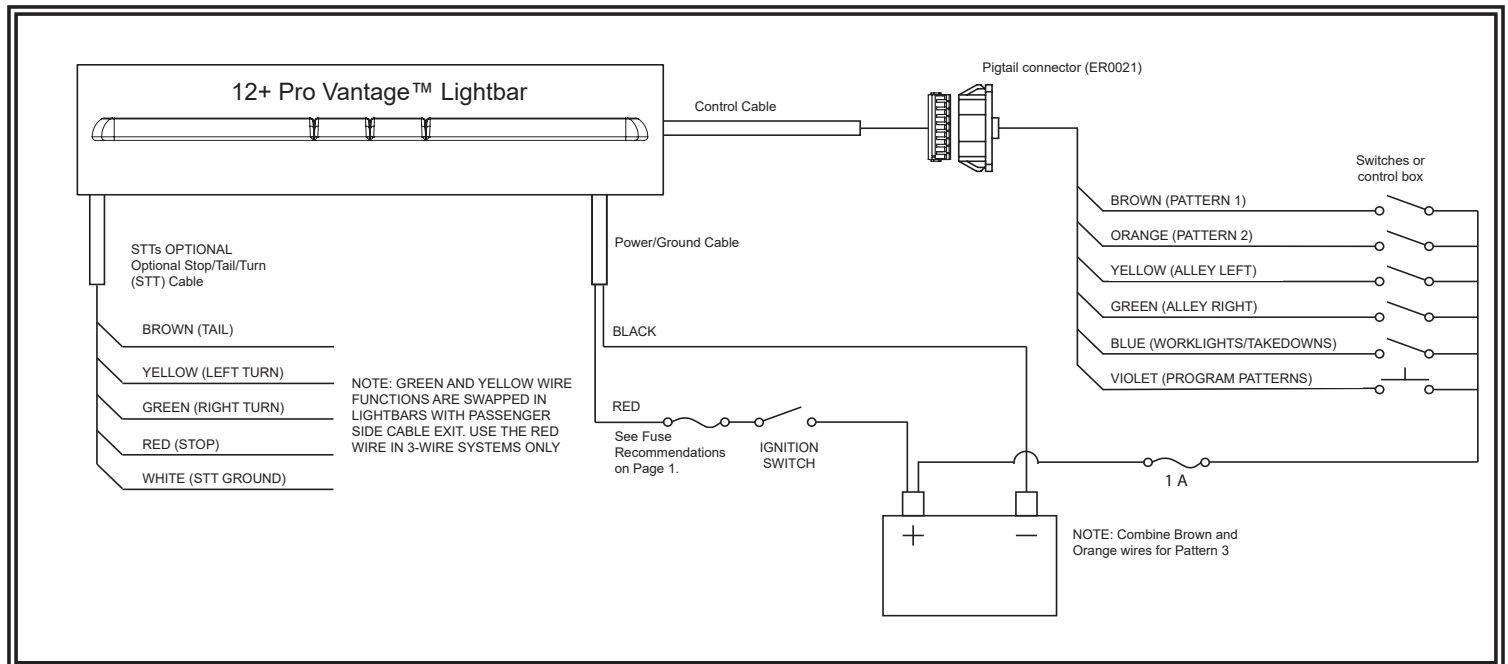
This strobe power supply is a high voltage device. To avoid the risk of electrical shock, wait 5 minutes after turning off power before removing the lens for access to internal parts of the strobe head.

## General Wiring Instructions

Before attempting to connect the lightbar wiring harness, refer to the wiring diagram illustrated below. The wiring diagram describes the function for each separate wire.

1. Route the lightbar power cable's red wire to a fused, ignition-switched power point. Connect the black wire to a solid ground connection on the vehicle (ideally, directly to the battery negative terminal). Use a fuse according to the wiring diagram.
2. After the lightbar has been mounted, route the control cable into the vehicle to the switch panel/controller location.
3. Connect the wires of the lightbar wiring harness to the switched side of each switch, or plug into optional controller. See the wiring diagram for wire color/function legend.
4. Use cable ties and grommets to secure and protect all cables and wires.

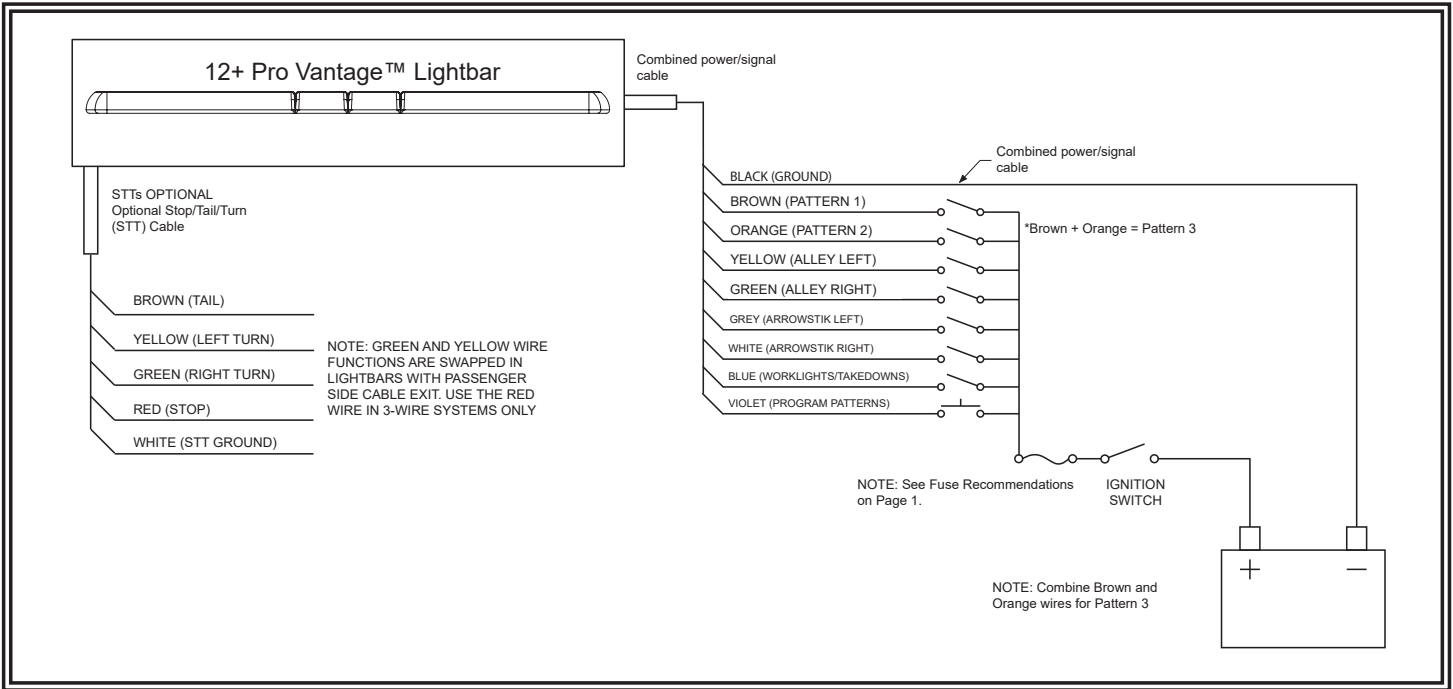
### STANDARD WIRING (Discrete cables for power/ground and control)



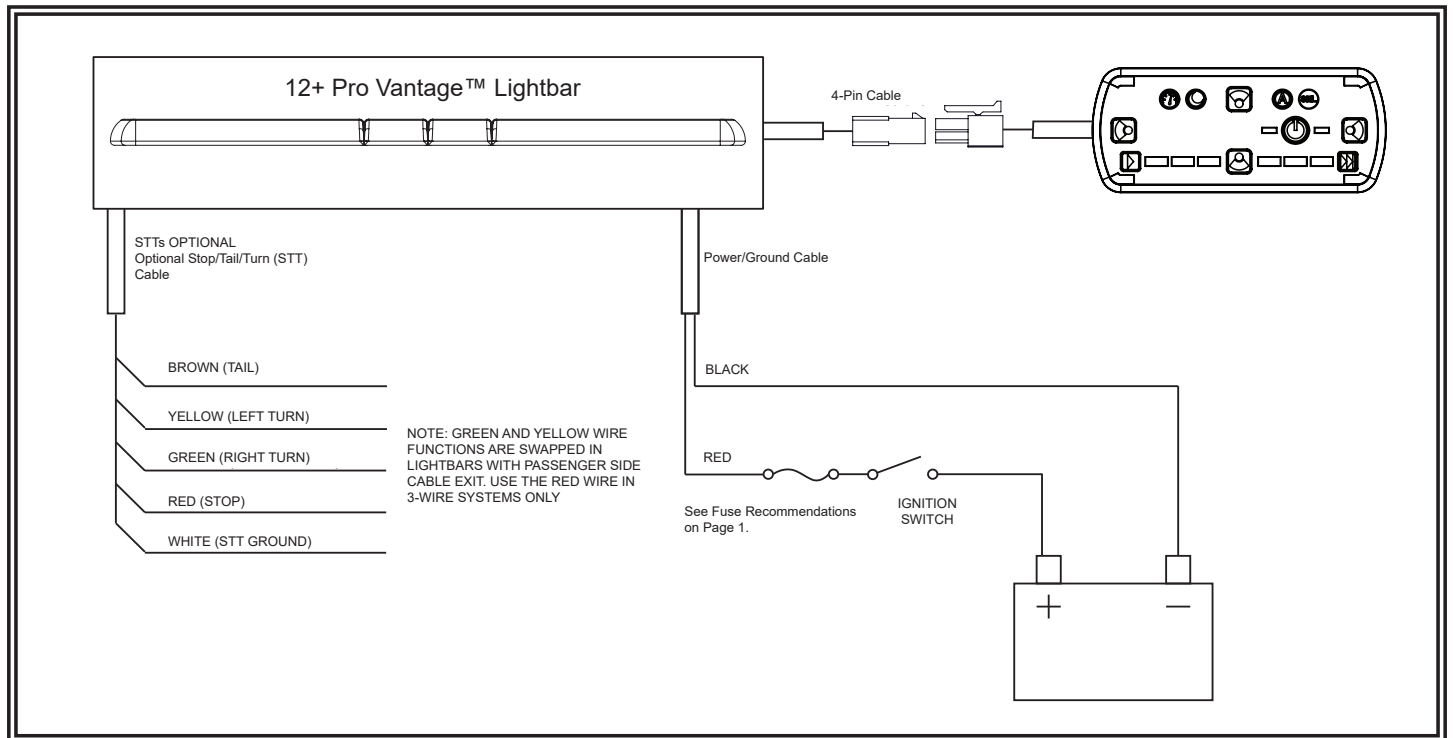
## Programming Standard and Combined Power/Signal Cables

To change the flash pattern, apply power to the desired Pattern Wire. Next, double-tap the violet wire to power to enter pattern selection mode. Single-tap the violet wire to power to cycle through flash patterns. Isolate the violet wire once pattern selections are complete.

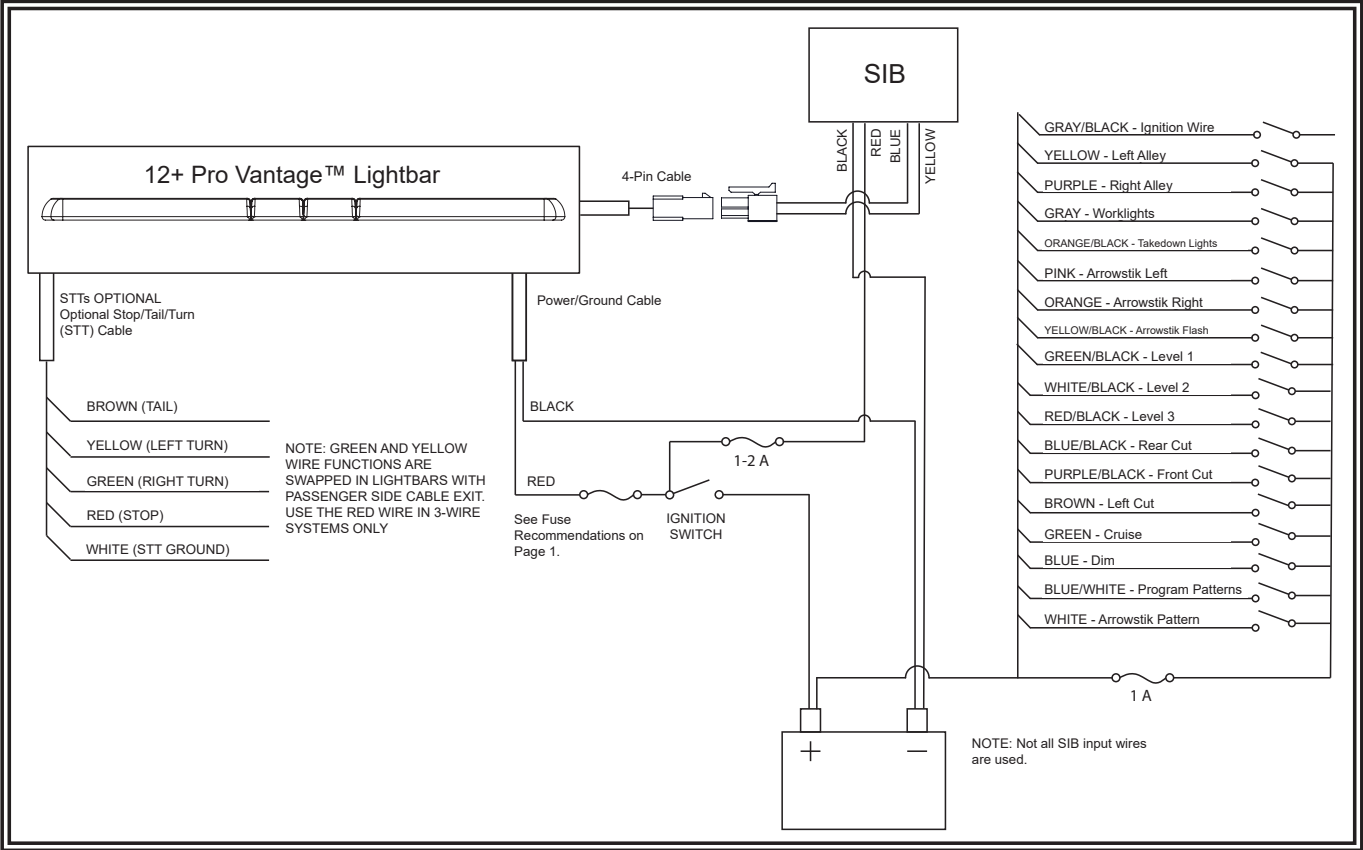
## COMBINED POWER/SIGNAL CABLE



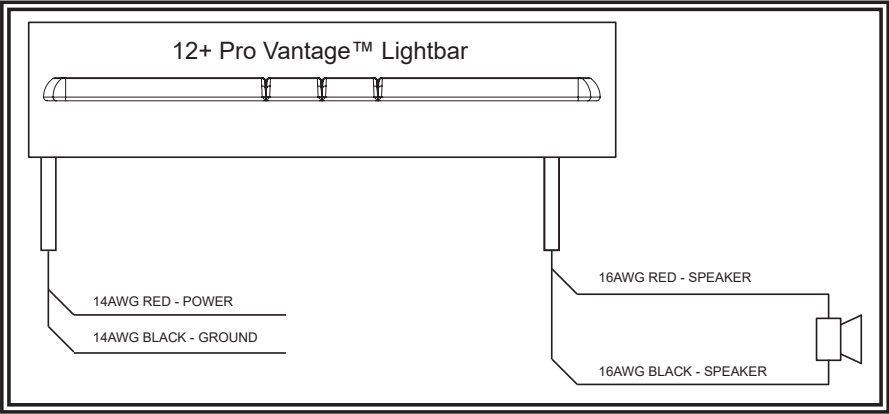
## ADVANCED CONTROLLER (CZ1202)



SERIAL INTERFACE BOX (EZMATSIB)



12+ SPEAKER

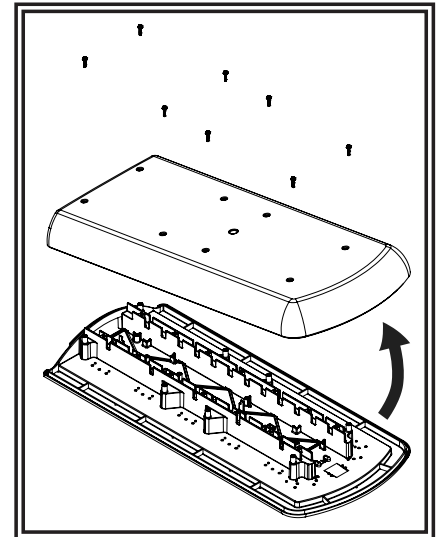


## Maintenance

Occasional cleaning of the lenses will ensure optimum light output. Take care when cleaning lenses – although tough, polycarbonate scratches easily. Clean the lens and base with soap and water or a lens polish using a soft cloth. Do not use solvents as they may damage the polycarbonate. Do not subject the lightbar to high-pressure washers or automatic car washers.

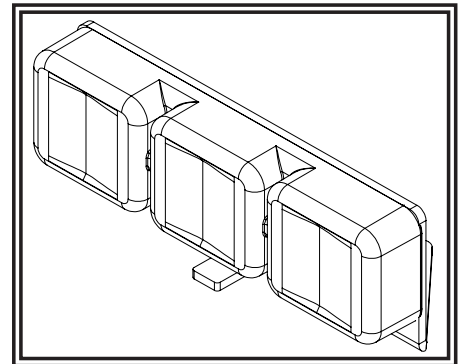
### Lens Removal and Installation

1. Remove the screws from the lenses. Starting at one edge, pull the lens off.
2. Carefully lift the lens off the seal – choose a suitable location to temporarily store the lens so as to not scratch the surface.
3. When reinstalling, gently apply pressure around the lens taking care not to damage the seal. Replace the screws.



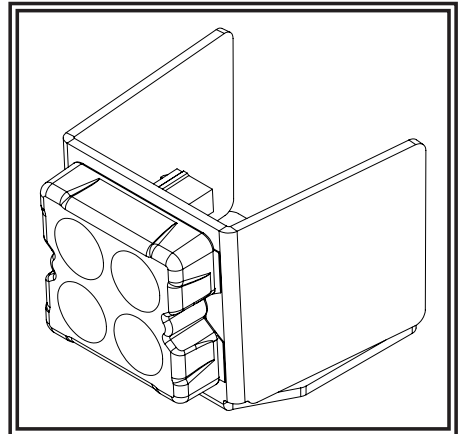
### Warning LED Modules (EZ1203X, EZ1206XX)

The LED lightheads have been designed to ensure long service life using high performance LEDs. The modules are low profile units that have a high intensity output with low current draw. The LED lightheads can be mounted in the front, rear and corners of the lightbar.



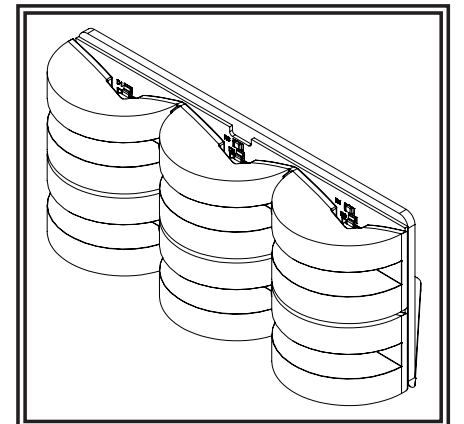
### Alley / Takedown / Worklight LED Modules (EZ0003)

Alley / Takedown / Worklight LED Module can be mounted anywhere in the lightbar.



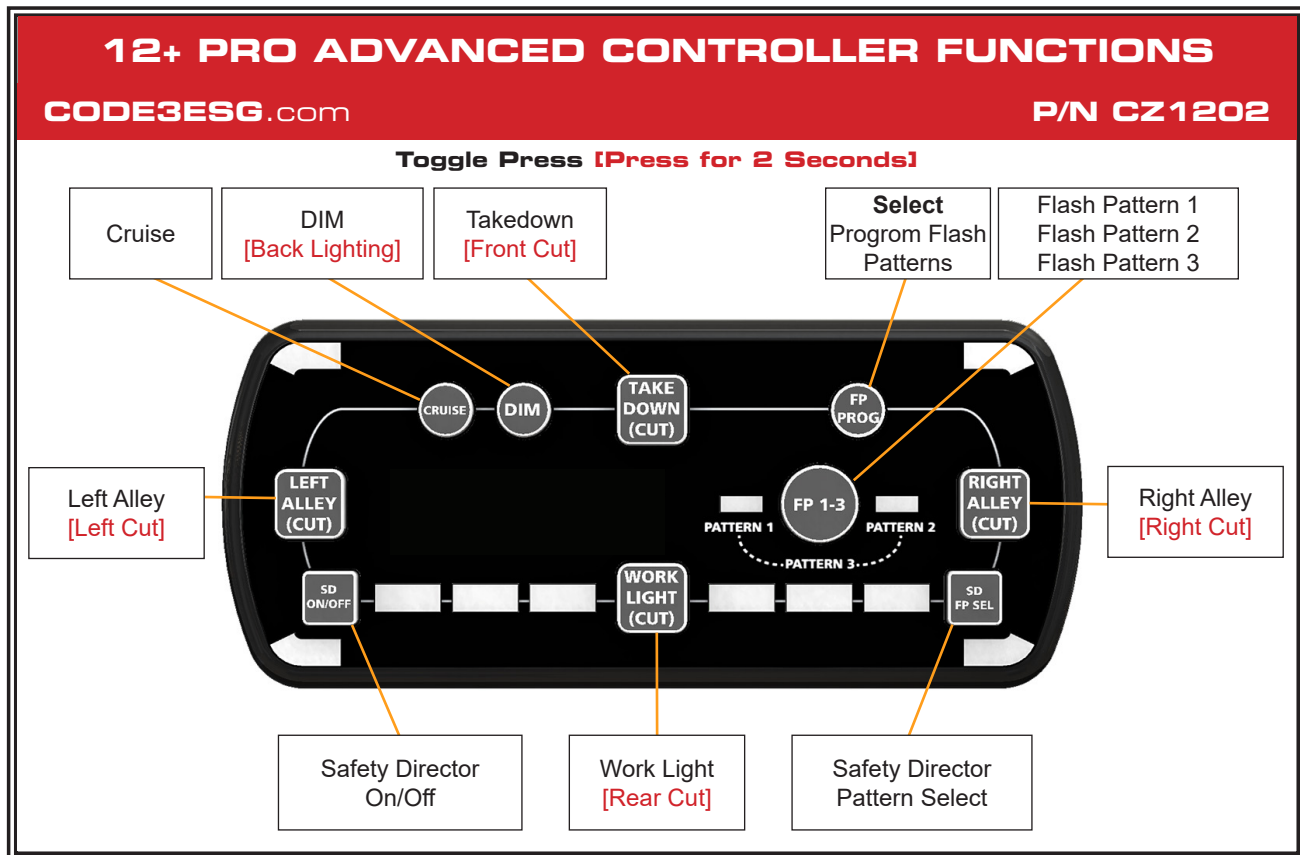
### Stop / Tail / Turn LED Modules (EZ1205)

Stop Tail Turn modules operate in conjunction with the vehicle tail, brake and direction indicator lights. Kit includes a pair of modules, installation hardware and wiring.

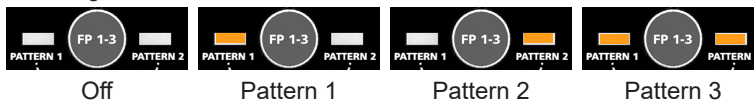


## Advanced Controller (CZ1202)

Provides convenient control of the lightbar's built-in flash patterns and features soft touch buttons and LED function indicator lights.



**"Power"** - Press to cycle through three programmable flash pattern presets. Hold button down to shut down all functions. Press again to resume.



**"Cruise"** - Press to illuminate all directional modules in steady burn mode.



**"Dim Mode"** - Toggle press to dim standard flash patterns. Note, this mode will not dim takedown, alley and worklights. Long-press this button for two seconds to activate or deactivate backlighting on the contrl head.



**"Flash Pattern Select"** - First, select Pattern 1, 2 or 3 to program by pushing the Power Button. Next, double press to enter flash pattern select mode and cycle one flash pattern. The 4 corner LEDs on the controller will mimic the lightbar to give pattern feedback. Press again once to cycle to the next flash pattern. Press and hold for 3 seconds to return to the prior flash pattern. The lightbar will store the last flash pattern used to the active preset. After 30 seconds of inactivity in Select mode, the control head will automatically exit Select mode.





**“Safety Director On/Off”** - Press once to turn the Safety Director on or off.



**“Safety Director Pattern Select”** - Once the Safety Director is activated, press this pattern select button to cycle to the next Safety Director flash pattern. There is a 5 second delay between the controller and the lightbar. Press and hold for 3 seconds to return to the prior flash pattern. The lightbar will store the last flash pattern used.



**“Front Worklight (Takedown)”** - Toggle press will activate/deactivate front worklight function. Long press for two seconds to activate/deactivate front cut.



**“Back Worklight”** - Toggle press will activate/deactivate rear worklight function. Long press for two seconds to activate/deactivate back cut.



**“Left Worklight (Alley)”** - Toggle press will activate/deactivate rear left worklight function. Long press for two seconds to activate/deactivate left cut.



**“Right Worklight (Alley)”** - Toggle press will activate/deactivate right worklight function. Long press for two seconds to activate/deactivate right cut.

## Special Features:

### Touchpad Backlight



**Reset the Lightbar back to Factory Setting:** Press SEL button 8 times. The lightbar will flash 3 times and will reset back to factory settings.

To limit the lightbar to R65 flash patterns, press SEL 5 times and bar will flash twice.

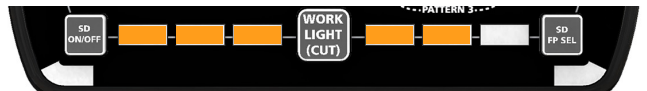
### Safety Director Module Selection



To change the number of modules used in the safety director, press and hold SD ON/OFF - tap SD FP SEL to select 5 to 10 modules. Example:



7 modules



9 modules

### Safety Director Front/Rear Selection

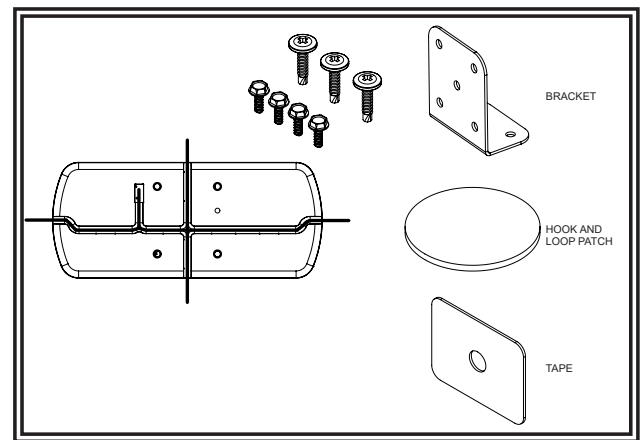


Press SD ON/OFF to turn on the safety director.

Press and hold SD ON/OFF, once the corner LEDs light, tap SD FP SEL to cycle front, rear or both.

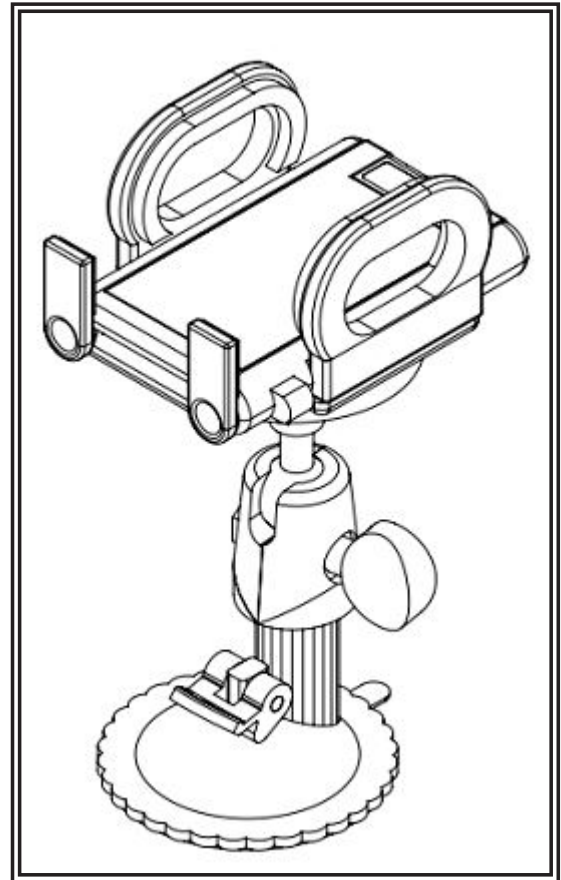
### Advanced Control Pad Mounting:

The advanced control pad is supplied with three mounting options: a bracket, VHB tape and hook and loop patch. The rear of the control pad is designed to allow for the cable exit to be routed five different ways to maximize installation locations. Mount the control pad in a location within convenient reach of the operator so that s/he can operate the system without losing eye contact with the roadway.



### Advanced Controller Mount (EZ1415):

This holder can easily be mounted in the cab of a vehicle using the attached suction cup. Control head is placed inside the grips. The angle of the holder can be changed using the adjustable knobs.



[illegible]

Safety Director™ Flash Patterns /Patrones de parpadeo Safety Director™ /Modes de clignotement de  
Safety Director™ /Safety Director™ -Leuchtmuster/Sequenze di segnalazione del Safety Director™

Number	Name
1	Left Cut
2	Right Cut
3	Left and Right Cut
4	Front Cut
5	Front and Left Cut
6	Front and Right Cut
7	Front and Left and Right Cut
8	Rear Cut
9	Rear and Left Cut
10	Rear and Right Cut
11	Rear and Left and Right Cut
12	Front and Rear Cut

**NOTE:**

- All SAE 1845 compliant patterns have at least 180° of coverage with the minimum configuration of two corner modules, one forward facing and one rear facing module.

NOTA:

1. Todos los patrones que cumplen con SAE J845 tienen al menos 180 ° de cobertura con la configuración mínima de dos módulos de esquina, uno orientado hacia adelante y un módulo orientado hacia atrás.

REMARQUE:

1. Tous les modèles conformes SAE J845 ont une couverture d'au moins 180° avec la configuration minimale de deux modules d'angle, un module orienté vers l'avant et un module orienté vers l'arrière.

HINWEIS:

1. Alle SAE J845-konformen Muster haben eine Abdeckung von mindestens 180° mit der Mindestkonfiguration von zwei Eckmodulen, einem nach vorne und einem nach hinten gerichteten Modul.

NOTA:

1. Tutti i modelli conformi a SAE J845 hanno almeno  $180^\circ$  di copertura minima di due moduli angolari, uno rivolto in avanti e uno rivolto all'indietro.

## Replacement Parts/Accessories

Description	Part No.
<b>Lenses</b>	
Replacement 24" End Lens - Clear	ER0003
Replacement 6" Mid Lens - Clear	ER0004
<b>Driver PCA</b>	
12 Channel Driver Board	
20 Channel Driver Board	
<b>Led Modules</b>	
3-LED Ice Optic Module - Amber	EZ1203A
3-LED Ice Optic Module - Blue	EZ1203B
3-LED Ice Optic Module - Green	EZ1203G
3-LED Ice Optic Module - Red	EZ1203R
3- LED Ice Optic Module - White	EZ1203W
4-LED Worklight / Alley Light Module Pair - White	EZ0003
6-LED Flare Optic Stop / Turn / Tail (STT) Module Pair - Red	EZ1205
6-LED Ice Optic Dual Color Module - Amber / Blue	EZ1206AB
6-LED Ice Optic Dual Color Module - Amber / Red	EZ1206AR
6-LED Ice Optic Dual Color Module - Amber / White	EZ1206AW
6-LED Ice Optic Dual Color Module - Blue / White	EZ1206BW
6-LED Ice Optic Dual Color Module - Red / Blue	EZ1206RB
6-LED Ice Optic Dual Color Module - Red / White	EZ1206RW
<b>Cables</b>	
15' Extension Cable - For use with Standard Wiring	EZ0008
23' Extension Cable - For use with Standard Wiring	EZ0008-23
48' Extension Cable - For use with Standard Wiring	EZ0008-48
15' Extension Cable - For use with Advanced Controller EZ1202	EZ1210
48' Extension Cable - For use with Advanced Controller EZ1202	EZ1413-48
15' Power Cable	ER0020
6" Discrete Wiring Harness (Pigtail) - For use with Standard Wiring	ER0021
<b>Control Options</b>	
Advanced Controller	EZ1202
Serial Interface Box (SIB)	EZMATSIB
Remote Rocker Max Pak™, 6 button controller	450R-L6
6-Rocker Switch Panel	A9000
Single Illuminated Rocker Switch	A9891
Single Switch Panel - For use with A9891 Switch	A9893
Single Illuminate Rocker Switch	A9901
End Switch Panel Section - For use with A9901 Switch	A9902
Center Switch Panel Section - For use with A9901 Switch & End Panel Sections A9902	A9903
Switch Panel Mounting Kit - For use with A9901 Switch & Panel Sections A9902 & A9903	A9904
On / Off Switch Panel with Pattern Select	A9905SW
<b>Mounting Kits</b>	
Permanent mounting feet and hardware - Black	ER0002
Permanent mounting feet and hardware - White	ER0001
Headache rack mounting kit	A1032RMK

NOTE: For list of vehicle specific brackets, please contact a Code 3 representative or our latest catalog.

## Troubleshooting

All lightbars are thoroughly tested prior to shipment. However, should you encounter a problem during installation or during the life of the product, follow the guide below for troubleshooting and repair information. If the problem cannot be rectified using the solutions given below, additional information may be obtained from the manufacturer – contact details are at the end of this document.



**NOTE: Operating the vehicle without the outer lens installed on the product may result in damage that will NOT be covered under warranty.**

### LIGHTBAR AND CONTROLLER

PROBLEM	POSSIBLE CAUSE	SOLUTION
Does not function	Poor power or ground connection	If controller functions normally, or if a 12/24V control voltage is present on either the Pattern 1 (brown) or Pattern 2 (orange) wires, then replace the driver board in the lightbar. If controller does not function, then check fuse, cables, and connections to the lightbar and to the controller.
	Blown fuse	Check wiring, replace fuse
One or two LED head do not flash, but Pattern 1 or Pattern 2 indicator LED on control module is on.	Open circuit wiring from control module to LED head	Connect a known-good LED head to the problem output to ensure the control module is working correctly. Repair or replace.
	Failed LED head	Replace LED head
LED head flashes dimly	Defective head or driver board	Check correct LED head
Incorrect flash patterns	Wrong flash configuration	Re-program the lightbar flash pattern for either Program 1 or Program 2, or both.
Secondary pattern does not function	Normal operation	Primary function overrides secondary function – turn off primary function

### ALLEY / TAKEDOWN / WORKLIGHTS

PROBLEM	POSSIBLE CAUSE	SOLUTION
Light does not function	Defective light	Replace light
	Defective controller	If indicator LED on controller is lit, then it is either the light, or the cable to the light, or the driver board. Otherwise the controller is defective.

### STOP/TAIL/TURN

PROBLEM	POSSIBLE CAUSE	SOLUTION
Both/all lights do not function	Blown fuse	Check wiring, replace fuse
	No power	Check to see if vehicle S/T/T lights function properly
	Failed S/T/T LED head	Make sure that the S/T/T head is plugged into the S/T/T control board and not the driver board. Replace S/T/T LED head and/or its cable.

## Manufacturer Limited Warranty Policy:

Manufacturer warrants that on the date of purchase this product will conform to Manufacturer's specifications for this product (which are available from the Manufacturer upon request). This Limited Warranty extends for Sixty (60) months from the date of purchase.

**DAMAGE TO PARTS OR PRODUCTS RESULTING FROM TAMPERING, ACCIDENT, ABUSE, MISUSE, NEGLIGENCE, UNAPPROVED MODIFICATIONS, FIRE OR OTHER HAZARD; IMPROPER INSTALLATION OR OPERATION; OR NOT BEING MAINTAINED IN ACCORDANCE WITH THE MAINTENANCE PROCEDURES SET FORTH IN MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS VOIDS THIS LIMITED WARRANTY.**

## Exclusion of Other Warranties:

MANUFACTURER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE IMPLIED WARRANTIES FOR MERCHANTABILITY, QUALITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE ARE HEREBY EXCLUDED AND SHALL NOT APPLY TO THE PRODUCT AND ARE HEREBY DISCLAIMED, EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW. ORAL STATEMENTS OR REPRESENTATIONS ABOUT THE PRODUCT DO NOT CONSTITUTE WARRANTIES.

## Remedies and Limitation of Liability:

MANUFACTURER'S SOLE LIABILITY AND BUYER'S EXCLUSIVE REMEDY IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR UNDER ANY OTHER THEORY AGAINST MANUFACTURER REGARDING THE PRODUCT AND ITS USE SHALL BE, AT MANUFACTURER'S DISCRETION, THE REPLACEMENT OR REPAIR OF THE PRODUCT, OR THE REFUND OF THE PURCHASE PRICE PAID BY BUYER FOR NON-CONFORMING PRODUCT. IN NO EVENT SHALL MANUFACTURER'S LIABILITY ARISING OUT OF THIS LIMITED WARRANTY OR ANY OTHER CLAIM RELATED TO THE MANUFACTURER'S PRODUCTS EXCEED THE AMOUNT PAID FOR THE PRODUCT BY BUYER AT THE TIME OF THE ORIGINAL PURCHASE. IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR LOST PROFITS, THE COST OF SUBSTITUTE EQUIPMENT OR LABOR, PROPERTY DAMAGE, OR OTHER SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES BASED UPON ANY CLAIM FOR BREACH OF CONTRACT, IMPROPER INSTALLATION, NEGLIGENCE, OR OTHER CLAIM, EVEN IF MANUFACTURER OR A MANUFACTURER'S REPRESENTATIVE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. MANUFACTURER SHALL HAVE NO FURTHER OBLIGATION OR LIABILITY WITH RESPECT TO THE PRODUCT OR ITS SALE, OPERATION AND USE, AND MANUFACTURER NEITHER ASSUMES NOR AUTHORIZES THE ASSUMPTION OF ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH PRODUCT.

This Limited Warranty defines specific legal rights. You may have other legal rights which vary from jurisdiction to jurisdiction. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages.

## Product Returns:

If a product must be returned for repair or replacement\*, please contact our factory to obtain a Return Goods Authorization Number (RGA number) before you ship the product to Code 3®, Inc. Write the RGA number clearly on the package near the mailing label. Be sure you use sufficient packing materials to avoid damage to the product being returned while in transit.

\*Code 3®, Inc. reserves the right to repair or replace at its discretion. Code 3®, Inc. assumes no responsibility or liability for expenses incurred for the removal and /or reinstallation of products requiring service and/or repair.; nor for the packaging, handling, and shipping; nor for the handling of products returned to sender after the service has been rendered.



10986 North Warson Road  
St. Louis, MO 63114 USA  
(314) 996-2800  
c3\_tech\_support@code3esg.com  
**CODE3ESG.com**

439 Boundary Road  
Truganina Victoria, Australia  
+61 (0)3 8336 0680  
esgapsales@eccogroup.com  
**CODE3ESG.com/au/en**

Unit 1, Green Park, Coal Road  
Seacroft, Leeds, England LS14 1FB  
+44 (0)113 2375340  
esguk-code3@eccogroup.com  
**CODE3ESG.co.uk**

An ECCO SAFETY GROUP™ Brand  
**ECCOSAFETYGROUP.com**