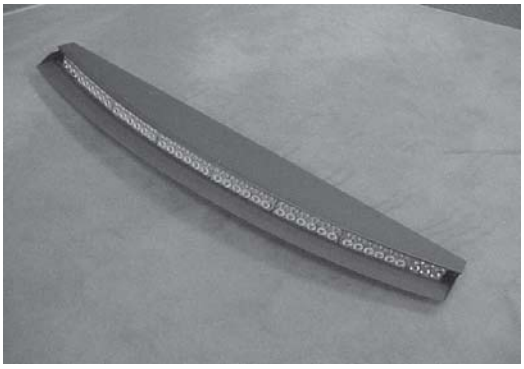
INSTALLATION & OPERATION MANUAL

WingMan™

Standard Long Version



Double Stack FLP Optic Version

Short Version

CODE 3® INC.
A PUBLIC SAFETY EQUIPMENT COMPANY

WingMan™

'06 CHEVROLET IMPALA REAR DECK LIGHTBAR

CONTENTS:

For future reference record your product's serial no. here _____

IMPORTANT: *Read all instructions and warnings before installing and using.*
INSTALLER: *This manual must be delivered to the end user of this equipment.*

Introduction

The WingMan™ is an interior LED lighting system that fits in the rear deck area behind the rear seat. It delivers a slim, powerful warning signal to the rear of the vehicle without obstructing the driver's rear vison.

The WingMan is designed on a modular basis, which means that the lightbar can be customized to meet most any requirement. The WingMan has room for up to eight LED lightheads, sixteen for the double stack version, allowing both emergency warning and traffic directing NarrowStik functions.

WARNING!

The use of this or any warning device does not ensure that all drivers can or will observe or react to an emergency warning signal. Never take the right-of-way for granted. It is your responsibility to be sure you can proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes.

The effectiveness of this warning device is highly dependent upon correct mounting and wiring. Read and follow the manufacturer's instructions before installing or using this device. The vehicle operator should insure daily that all features of the device operate correctly. In use, the vehicle operator should insure the projection of the warning signal is not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions.

This equipment is intended for use by authorized personnel only. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should check all applicable city, state and federal laws and regulations.

Code 3, Inc., assumes no liability for any loss resulting from the use of this warning device.

Proper installation is vital to the performance of this warning device and the safe operation of the emergency vehicle. It is important to recognize that the operator of the emergency vehicle is under psychological and physiological stress caused by the emergency situation. The warning device should be installed in such a manner as to: A) Not reduce the output performance of the system, B) Place the controls within convenient reach of the operator so that he can operate the system without losing eye contact with the roadway.

Emergency warning devices often 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 severe vehicle damage, including fire.

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.

Unpacking & Pre-installation

Carefully remove the WingMan™ and place it on a flat surface, taking care not to scratch the lenses or damage the cable coming out of the bottom. Examine the unit for transit damage, etc. Report any damage to the carrier and keep the shipping carton.

Standard lightbars are built to operate on 12 volt D.C. negative ground (earth) vehicles. If you have an electrical system other than 12 volt D.C. negative ground (earth), and have not ordered a specially wired lightbar, contact the factory for instructions.

Test the unit before installation. To test, touch the black wire to the ground (earth) and the other wires to +12 volts D.C., in accordance with the instructions attached to the cable (an automotive battery is preferable for this test). Some units may be factory wired for control by a LED flasher or a NarrowStik Controller in which case the cable's wire tag should be consulted. A battery charger may be used, but please note that some electronic options (flashers, stingrays, etc.) may not operate normally when powered by a battery charger. If problems occur at this point, contact the factory.

Installation & Mounting

WARNING!

Utilizing non-factory supplied screws and/or mounting brackets and/or the improper number of screws may result in loss of warranty coverage on the equipment.

Mounting Hardware - All mounting hardware is packed in a small box inside the main carton. There are two brackets, two spacer bushings, and two mounting plates used to mount the WingMan™ to the vehicle. These are discussed in detail later.

Installation Instructions-06 Impala

Step 1 From inside the trunk of the Impala, locate the two existing holes in the Impala's rear deck (see Figure 1).

Step 2 Center a 3/8" drill in the existing holes as shown in Figure 2 and drill the two mounting holes through the fabric of the rear deck.

Step 3 Locate the two Mounting Bracket Spacer Bushings from the parts bag (the Mounting Bracket Spacer Bushings are shown in Figure 3). Push up on the rear deck fabric and starting in the corner of the open area in the center of the rear deck (as shown in Figure 4), push the spacer into position with the locating shoulder toward the sheet metal and centered in the existing holes in the Impala's rear deck. When the Spacer Bushings are installed correctly they will look as shown in Figure 5.

Step 4 Drill a hole for the cable in the desired location through the rear deck with a 3/8" drill. Inside the oblong hole shown in Figure 6 is a good location for the cable hole or hole(s). Make sure you don't drill the cable hole too far toward the front of the vehicle. Note: If you are installing a Double Stack Version of the WingMan with the NarrowStick option you can use a 3/4" diameter drill to create a hole for both cables or you can drill two 3/8" diameter holes about an inch apart.

Step 5 For Mounting Bracket orientation see Figure 7 showing the WingMan Mounting Brackets. The Passenger Side Mounting Bracket is shown on the left side of Figure 7 and the Driver's Side Mounting Bracket is shown on the right side of Figure 7 .

Step 6 Insert the 1/4"-20 X 2 1/2" Hex Head Bolts into the square holes in the Mounting Brackets as shown in Figure 8.

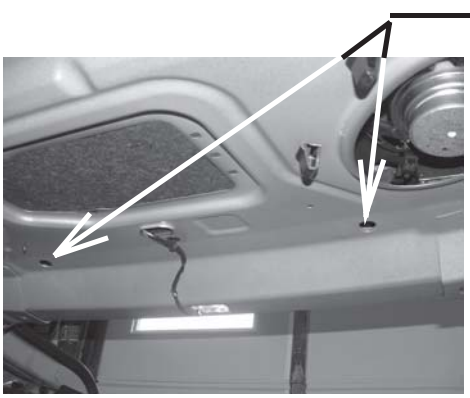


FIGURE 1

FIGURE 2

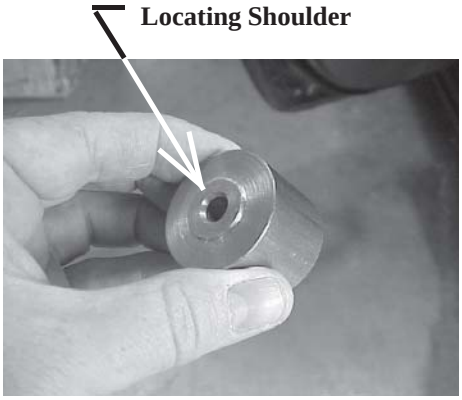


FIGURE 3

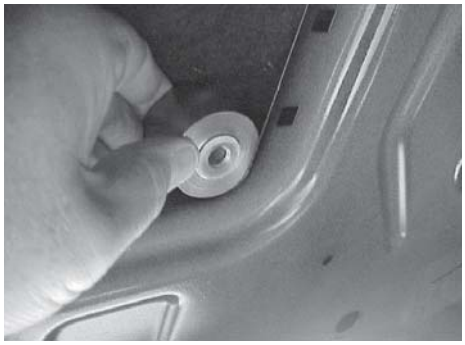


FIGURE 4

FIGURE 5

FIGURE 6

FIGURE 7

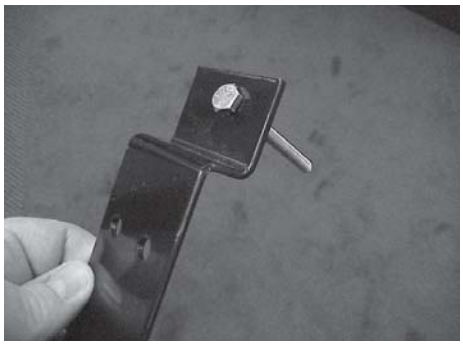


FIGURE 8

Installation Instructions-06 Impala-(Cont.)

Step 7 Position the Mounting Brackets with the 1/4"-20 X 2 1/2" Hex Head Bolts over the mounting holes in the rear deck and push the bolts through the holes and through the Mounting Bracket Spacer Bushings as shown in Figure 9. Make sure the Mounting Brackets are fairly parallel to each other after they are both in place. Thread a fender washer and a 1/4"-20 locking nut onto each of the bolts from inside the Impala's trunk. Have an assistant using a wrench from the interior of the Impala keep the bolts from turning and tighten the Hex Nuts as shown in Figure 10.

Step 8 Feed the WingMan's cable(s) through the cable hole and into the trunk (see Figure 11).

Step 9 Install the WingMan by positioning it over the mounting brackets. You will have to continue feeding the cable through the hole simultaneously while positioning the bar.

Step 10 As soon as the outer panel mounting plate holes can be lined up with the holes in the mounting brackets and the mounting holes in the WingMan Bar, insert the (4) supplied 1/4"-20 x 1/2" bolts and internal tooth lock washers (see Figure 12). Leave the (4) bolts finger tight at this time.

Step 11 Center the lightbar in the rear window of the Impala by using a tape measure and adjust the brackets and mounting plates so that they line up with each other.

Step 12 Tighten the 1/4"-20 X 1/2" bolts with a phillips screwdriver (see Figure 13).

FIGURE 9

FIGURE 10

FIGURE 11

FIGURE 12

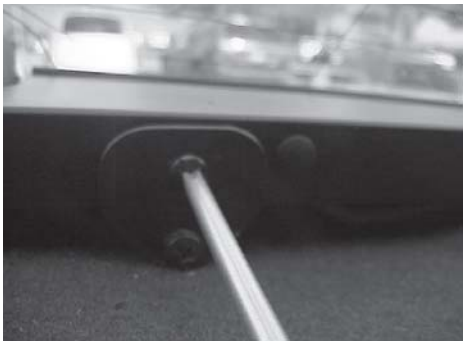


FIGURE 13

The bracket fasteners shown in Figures 12 and 13 make excellent hard mounting points for radar guns, video cameras, etc.

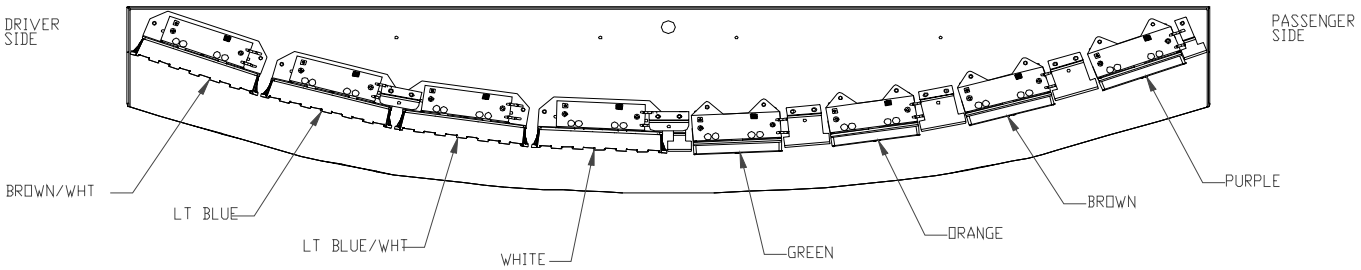
Caution: Drilling into the housing of the lightbar could damage wiring or other internal components.

Wiring Diagram

LONG VERSION

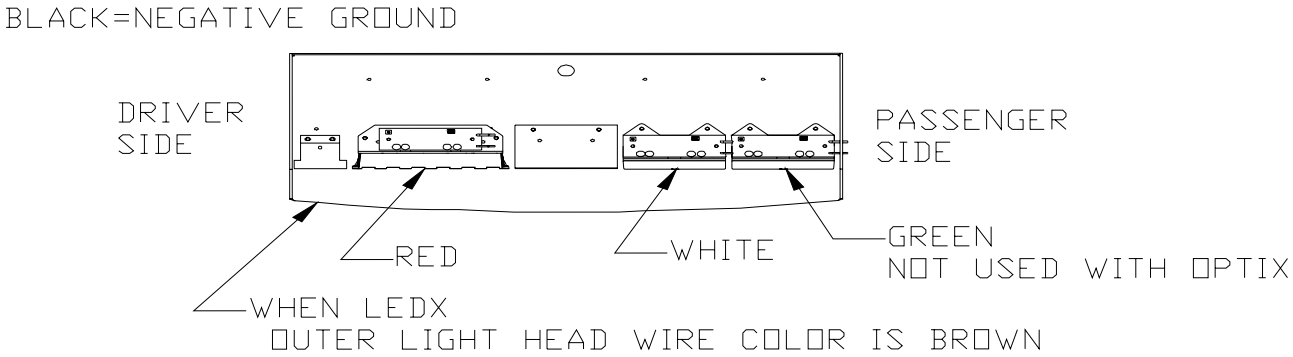
BLACK = NEGATIVE GROUND
YELLOW = NOT USED
GREEN/WHT = NOT USED
PINK = NOT USED
RED = NOT USED
RED/WHT = NOT USED

FUSE SIZE CALCULATION
USE 1.5 AMP FOR EACH LED HEAD



Wiring Diagram

SHORT VERSION



Wiring Instructions

It is advisable to leave an extra loop of cable when installing the lightbar to allow for future changes or reinstallations. Connect the black lead to a solid frame ground (earth), preferably, the (-) or ground (earth) side of the battery, and the remaining power wires to the +12V terminal of the battery, power switches, siren or RLS controller.

WARNING!

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). Route wiring using grommets and sealant when passing through compartment walls. Minimize the number of splices to reduce voltage drop. High ambient temperatures (e.g. underhood) will significantly reduce the current carrying capacity of wires, fuses, and circuit breakers. Use "SXL" type wire in engine compartment. 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. 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. 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. Ground terminations should only be made to substantial chassis components, preferably directly to the vehicle battery. The user should install a fuse sized to approximately 125% of the maximum Amp capacity in the supply line to protect against short circuits. For example, a 30 Amp fuse should carry a maximum of 24 Amps. DO NOT USE 1/4" DIAMETER GLASS FUSES AS THEY ARE NOT SUITABLE FOR CONTINUOUS DUTY IN SIZES ABOVE 15 AMPS. Circuit breakers are very sensitive to high temperatures and will "false trip" when mounted in hot environments or operated close to their capacity.

LED MODULES

Operating Specifications for directional module:

Operating Voltage: 10-16 VDC, Reverse Polarity Protection

Current Draw : Flashing Module

Red/Amber - .25A avg @ 12.8 Volts
Blue/White - .4A avg @ 12.8 Volts

Steady Burn Module
Red/Amber - .5A avg @ 12.8 Volts
Blue/White - .8A avg @ 12.8 Volts

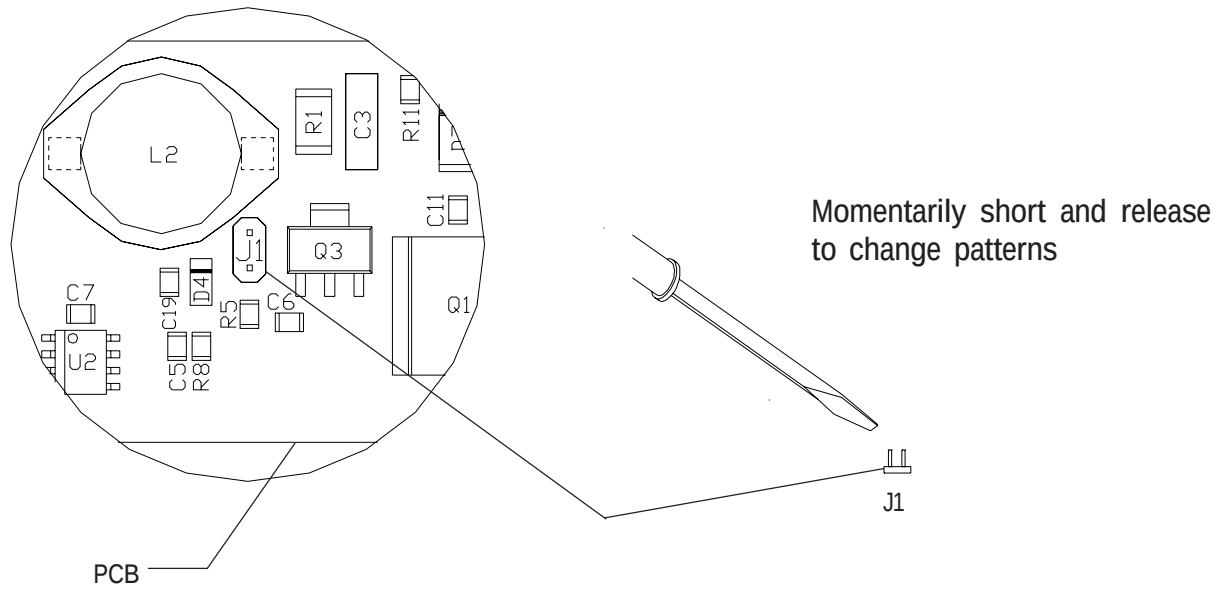
Available Colors - Red , Blue, Amber and White

LED Lighthead Flash Pattern

Place the unit on a clean work surface and remove the outer cover. With the chassis facing up, locate each lighthead module circuit board. To change the flash patterns of the LED Lightheads, touch both posts of the J1 header simultaneously with an electrically conductive tool such as a screw driver blade (see Figure 14 below). Repeating this proceedure allows the operator to cycle through the numerous flash patterns offered until the desired pattern is achieved.

Directional module Flash Pattern - Table 1

CycleFlash (DEFAULT)	Quad Pop Flash75
NFPA QuadFlash75	Triple Pop Flash75
Steadyburn	SingleFlash375
ModelFlash	SingleFlash250
ActiveFlash	SingleFlash150
FiveFlash70	FiveFlash150
QuadFlash70	QuadFlash150
TripleFlash70	DoubleFlash150
DoubleFlash70	TripleFlash150
SingleFlash75	



Flash Pattern Header for OPTIX/LEDX

LED Fusing Considerations

Although the average current draw per module is very low, due to the type of circuit used to power each module, the instantaneous peak current to a module can be significantly higher during low voltage conditions. To avoid prematurely blowing ATO style fuses or tripping breakers it is recommended the following rule-of-thumb be used to size fuses or breakers. This is especially important in lightbars with many LED modules running off a single fused source,

Minimum fuse size calculation:
For LED 12 volt electrical current
1.5 x (number of modules being fused)
Example: 2 intersection modules and 6 directional modules.
Minimum fuse requirement for single fuse - 1.5 (8) = 12 A

Product Features

LED lighthead options: Red, Blue, Amber; Directional or Spreading; Flashing or Steady Burn Control
LED lighthead types: LED-X, Optix, LCLED
Size: 49.875" long x 2.00" tall x 7.25" deep
Weight: 7.5 lbs

NarrowStik Version

The WingMan can be factory configured as a traffic director and operated using a NarrowStik Control Head. Please refer to the Narrowstik Control Head Manual for installation, wiring connections and operation of the Control Head.

Wiring

Refer to the NarrowStik wiring on page 8 for wire designations. For models with independently flashing red/blue heads located on each end, the Blue and Brown wires will be used to control these heads. The Blue wire is connected to+12V and the Brown to Ground. Refer to the Control Head manual for operation with the Control Head.

WARNING!  This Product contains high intensity LED devices. To prevent eye damage, DO NOT stare into light beam at close range.

Troubleshooting

All WingMan Rear Bars 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 information on repair and troubleshooting. Additional information may be obtained from the factory technical help line at 314-996-2800.

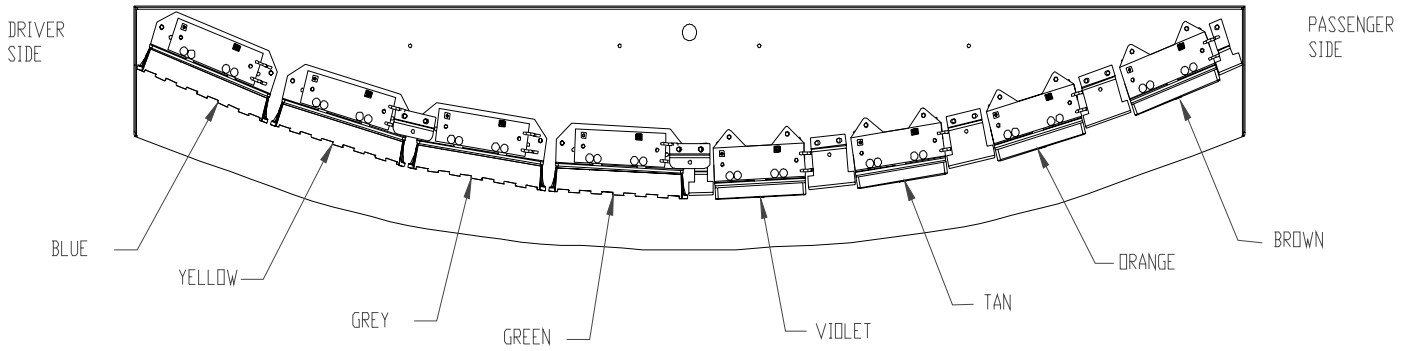
TROUBLESHOOTING GUIDE

Note: LED modules must be replaced as a module. There are no user serviceable parts.

PROBLEM	QUESTIONS	POSSIBLE CAUSE	SOLUTION
LED module not operating when powered.	N/A	a. Bad power/ground connection. b. Defective module.	a. Fix connection. b. Replace module.

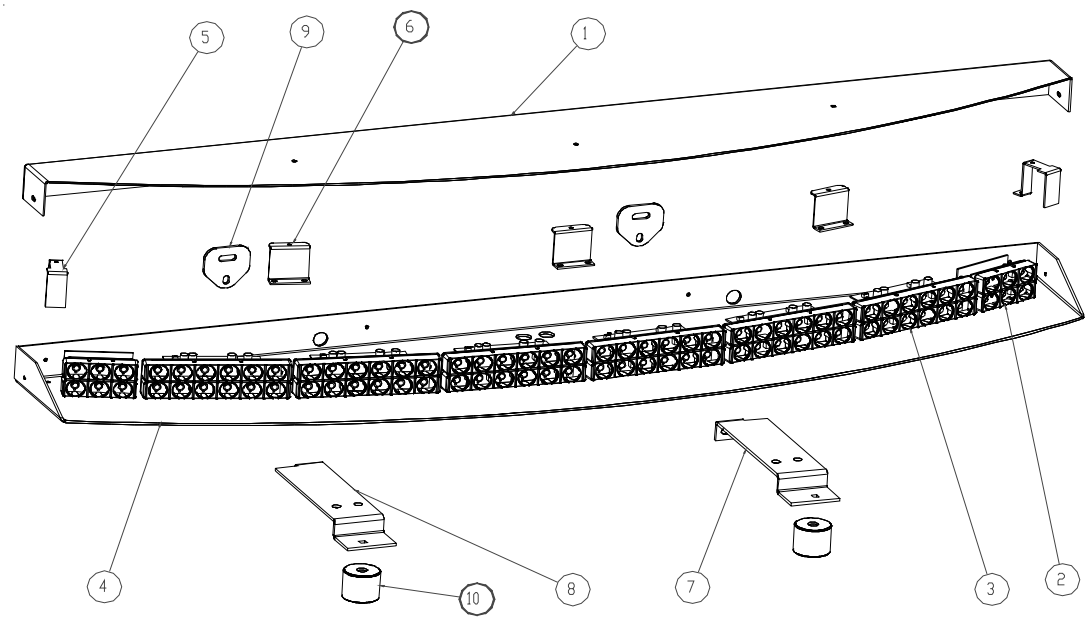
RED = POWER, +12VDC
RED/WHT = POWER, +12VDC
WHITE WIRE= DIM MODE

LEDX or PIX Narrowstik Versions



Narrowstik Wiring Designations

Parts List



Reference Number	Part Description	Part Number
1	Outer Panel Standard-Long Version-'06 Impala	T14512
1	Outer Panel Double Stack FLP-Long Version -'06 Impala	T14693
1	Outer Panel-Short Version	T06590
2	*3 Up Double Stack FLP Module	*Contact Code 3, Inc for P/N
2	*3Up OPTIX Module	*Contact Code 3, Inc for P/N
3	*6Up Double Stack FLP Module	*Contact Code 3, Inc for P/N
3	*6Up OPTIX Module-Standard Version	*Contact Code 3, Inc for P/N
4	Chassis Long Standard Version-'06 Impala	T14513
4	Chassis Double Stack FLP Long Version -'06 Impala	T14692
4	Chassis Short Version	T06589
5	End Blank Filler Brkt Double Stack FLP-'06 Impala	T14691
5	End Blank Panel-Standard Long Version	T14522
6	Outer Panel Support Brkt LEDX	T09643
6	Outer Panel Support Brkt OPTIX	T09645
6	Outer Panel Support Brkt Double Stack FLP-'06 Impala	T14696
7	Mounting Brkt. Drvr Side-'06 Impala	S24108
8	Mounting Brkt. Pass Side-'06 Impala	S24109
9	Mounting Plate Impala	T09652
9	Outer Panel Filler Brkt Small LEDX	T09644
10	Mounting Bracket Spacer Bushing-'06 Impala	T14697

Notes

Notes

WARRANTY

Code 3®, Inc.'s emergency devices are tested and found to be operational at the time of manufacture. Provided they are installed and operated in accordance with manufacturer's recommendations, Code 3®, Inc. guarantees all parts and components except the lamps to a period of 1 year, LED Lighthead modules to a period of 5 years (unless otherwise expressed) from the date of purchase or delivery, whichever is later. Units demonstrated to be defective within the warranty period will be repaired or replaced at the factory service center at no cost.

Use of lamp or other electrical load of a wattage higher than installed or recommended by the factory, or use of inappropriate or inadequate wiring or circuit protection causes this warranty to become void. Failure or destruction of the product resulting from abuse or unusual use and/or accidents is not covered by this warranty. Code 3®, Inc. shall in no way be liable for other damages including consequential, indirect or special damages whether loss is due to negligence or breach of warranty.

CODE 3®, INC. MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY INCLUDING, WITHOUT LIMITATION, WARRANTIES OF FITNESS OR MERCHANTABILITY, WITH RESPECT TO THIS PRODUCT.

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.

NEED HELP? Call our Technical Support HOTLINE - (314) 996-280**0**

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