



INSTALLATION & OPERATION MANUAL

1000/1050/1051 Series Lightbars

This manual contains installation and operation instructions for the following lightbars.

21TR™
RX 2700™
Defender®
Triumph™
Solex™



STOP! If you prefer to program with SmartPro, refer to manual number 920-0451-00.

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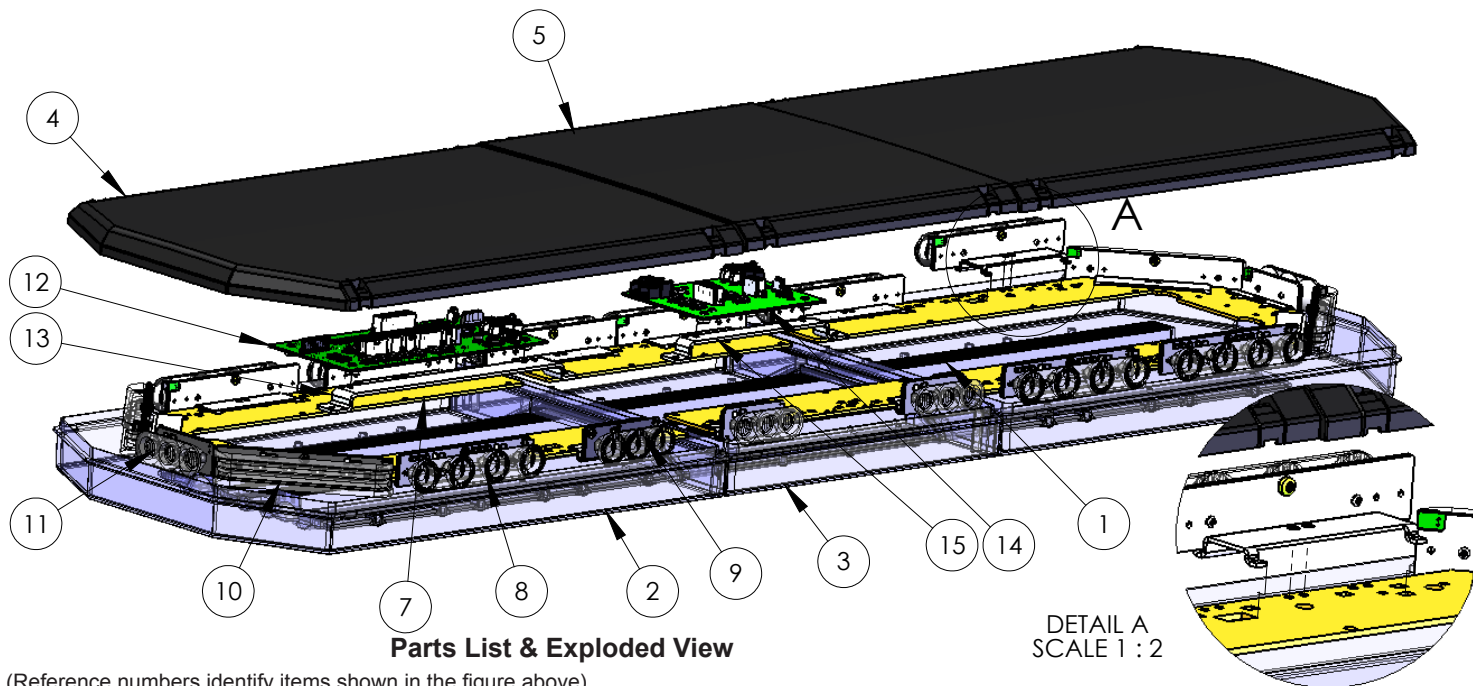
IMPORTANT!

Read all instructions before installing and using lightbar. Installer: This manual must be delivered to the end user of this equipment.



Introduction:

The 21TR™ Series Lightbar is approximately 2" high, yet delivers unobstructed 360° warning and more signal power and versatility than any other lightbar of its size through the use of newly designed Torus Technology™ optics. The low profile and aerodynamic lines reduce air drag, which results in fuel savings and stability at high speeds. This lightbar has a strong extruded internal frame, shock-resistant polycarbonate lenses, and warning signals that exceed SAE standards. The lightbar is designed on a modular basis, which means that the lightbar can be customized to meet any requirement. It has room for numerous options, and offers the ultimate flexibility in the location of warning and auxiliary lights.



Parts List & Exploded View

DETAIL A
SCALE 1 : 2

(Reference numbers identify items shown in the figure above)

Ref No.	Description	Part No.
1	Frame for 47" lightbar	T05203
2	Bottom Outboard Lens - Clear	T02361
3	Bottom Center Lens - Clear	T02371
4	Outboard Lens Cap	
	Clear	T03271
	Red	T03272
	Blue	T03273
	Amber	T03274
	Black	T03278
5	Center Lens Cap	
	Clear	T03281
	Red	T03282
	Blue	T03283
	Amber	T03284
	Black	T03288
6	Center Mounting Plate	T52108
7	Outboard Mounting Plate	T52109
8	4LED Directional Light Head	
9	3LED Directional Module	
10	6LED Corner Module	
11	3LED Takedown/Alley Module	
12	Central Controller - Main	T54117
13	Mounting Bracket Central Controller	T55041
14	Central Controller - Sister	T55491
15	Mounting Bracket Sister Central Controller	S13965
Not Shown	Lens Clip	T01777
Not Shown	Lens Clip Black	S13158

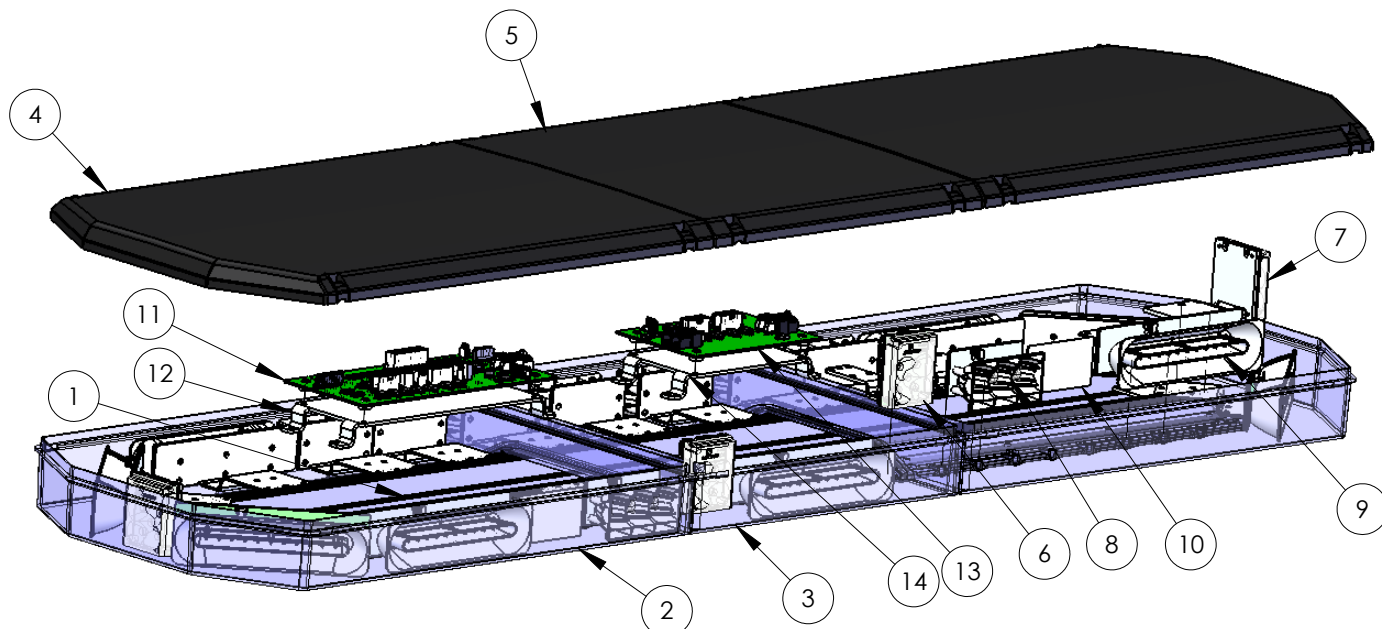
**Call Factory for light head
options and parts for other
lightbar lengths**

RX 2700



Introduction:

The RX 2700™ Lightbar is approximately 2.7" high, yet delivers 360° of unobstructed warning signal. PriZm II™ reflector technology means more signal power and versatility than any other light bar of its size. The low profile and aerodynamic lines reduce air drag, which results in fuel savings and stability at high speeds. This light bar has a strong extruded internal frame, shock-resistant polycarbonate lenses, and warning signals that exceed SAE standards. The RX 2700 is designed on a modular basis, which means that the light bar can be customized to meet any requirement.



Parts List & Exploded View

(Reference numbers identify items shown in the figure above)

Ref No.	Description	Part No.
1	Frame for 47" lightbar	T05203
2	Bottom Outboard Lens - Clear	T51041
3	Bottom Center Lens - Clear	T09959
4	Outboard Lens Cap	
	Clear	T03271
	Red	T03272
	Blue	T03273
	Amber	T03274
	Black	T03278
5	Center Lens Cap	
	Clear	T03281
	Red	T03282
	Blue	T03283
	Amber	T03284
	Black	T03288
6	Takedown Light Head	
7	Alley Light Head	
8	3LED Reflector Light Head	
9	PriZmII Reflector Light Head (Single and Multi-Color)	
10	Blank Filler (Other sizes not shown)	T51840
11	Central Controller - Main	T54117
12	Mounting Bracket Central Controller	T51842
13	Central Controller - Sister	T55491
14	Mounting Bracket Sister Central Controller	T51843
Not Shown	Lens Clip	T01777
Not Shown	Lens Clip Black	S13158

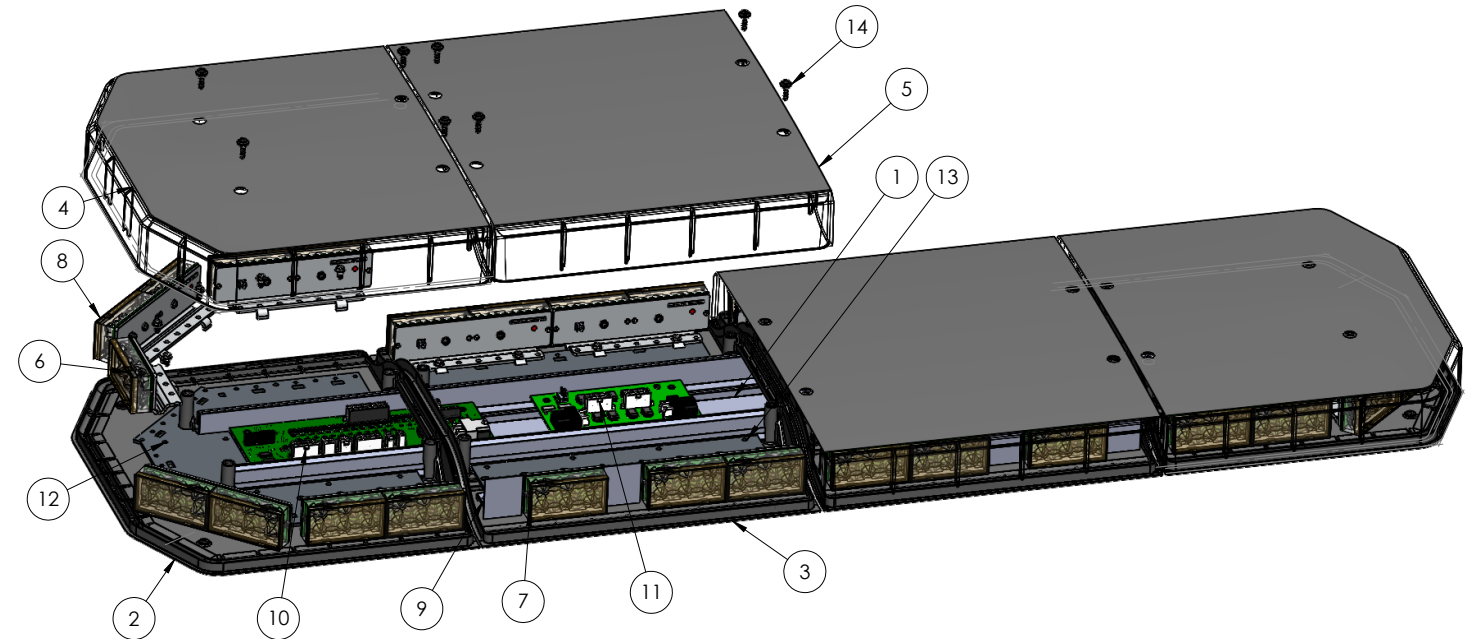
Call Factory for light head options and parts for other lightbar lengths

DEFENDER



Introduction:

The Defender® (Patent-Pending) is approximately 2.2" high, yet delivers 360° of unobstructed warning signal. The low profile and aerodynamic lines reduce air drag, which results in fuel savings and stability at high speeds. The Defender light bar also has an extruded internal frame that is 2X stronger, shock-resistant polycarbonate lenses with an intermolded solar barrier, a modular lens design that enables almost any light bar length which can be created from 3 lens lengths, and warning signals that exceed SAE standards.



Parts List & Exploded View

(Reference numbers identify items shown in the figure above)

Ref No.	Description	Part No.
1	Frame for 47" lightbar	T51122
2	Bottom Outboard Plate	T51137
3	Bottom Center Plate	T51136
4	Outboard Lens	
	Clear	T51161
	Red	T51162
	Blue	T51163
	Amber	T51164
5	Center Lens	
	Clear	T51151
	Red	T51152
	Blue	T51153
	Amber	T51154
6	3-Up QuadCore™ Alley-Takedown Light Head	
7	3-Up QuadCore™ Short Directional Light head	
8	6-Up QuadCore™ Long Directional Light Head	
9	3-Up Blank Filler (Other sizes not shown)	T51839
10	Central Controller - Main	T54117
11	Central Controller - Sister	T55491
12	Outboard Locator Plate	T51621
13	Center Locator Plate	T51623
14	Lens Fastener	T51179

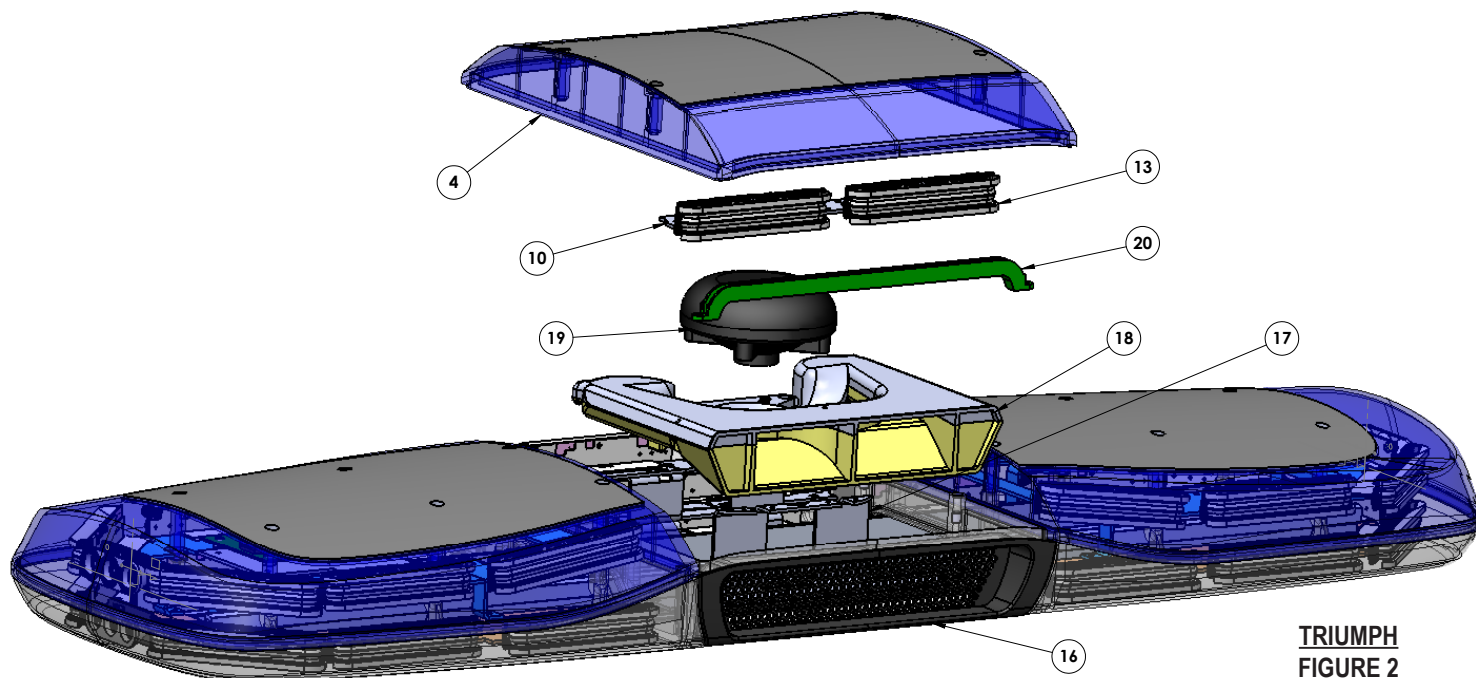
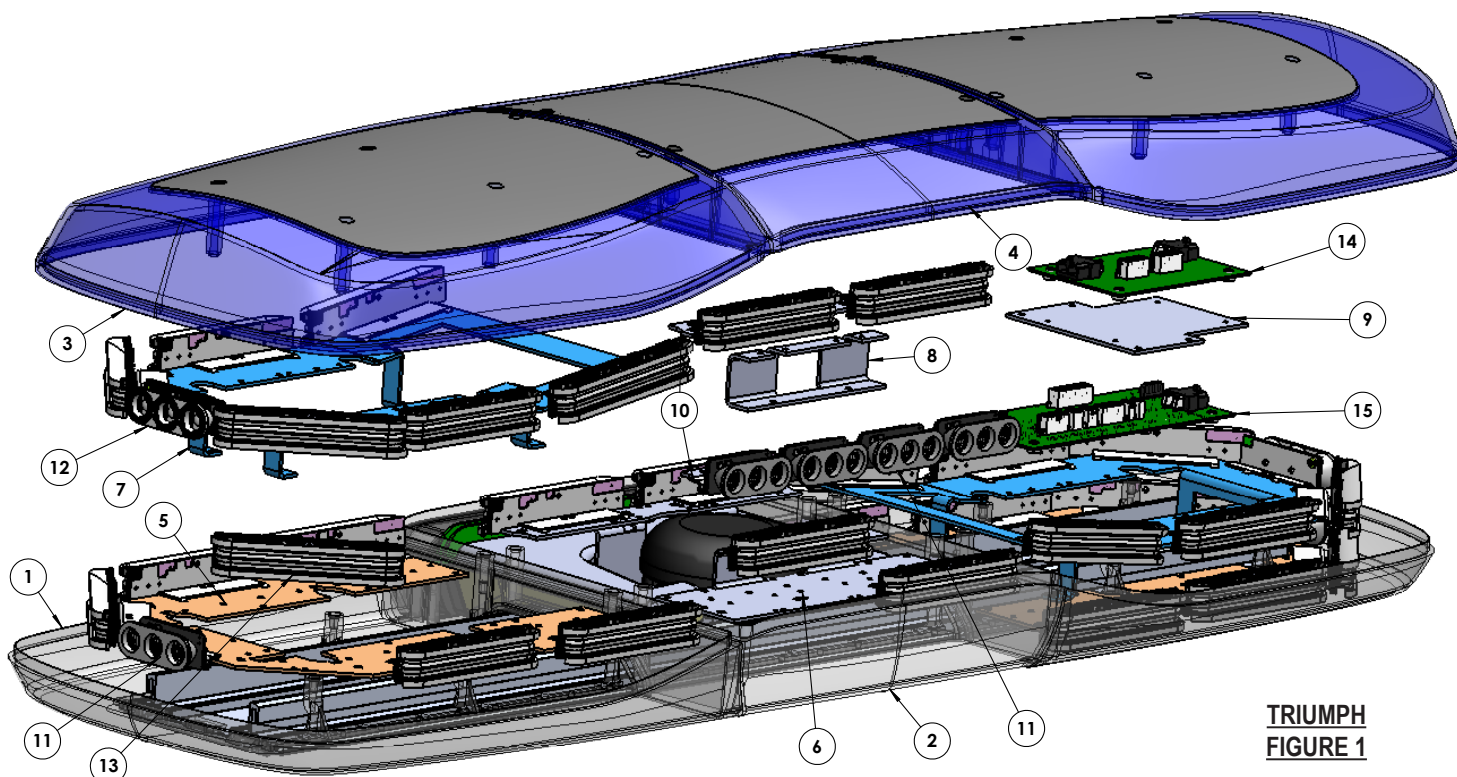
Call Factory for light head options and parts for other lightbar lengths

Triumph



Introduction:

The Triumph™ lightbar features the truly unique, Siris™ technology which constitutes a quantum leap forward in signal brightness far exceeding the intensity and quality of any system. The low profile and aerodynamic lines reduce air drag, which results in fuel savings and stability at high speeds. The Triumph lightbar also has an extruded internal frame that is 2X stronger, shock-resistant polycarbonate lenses with an intermolded solar barrier, and warning signals that exceed SAE standards.



Parts List

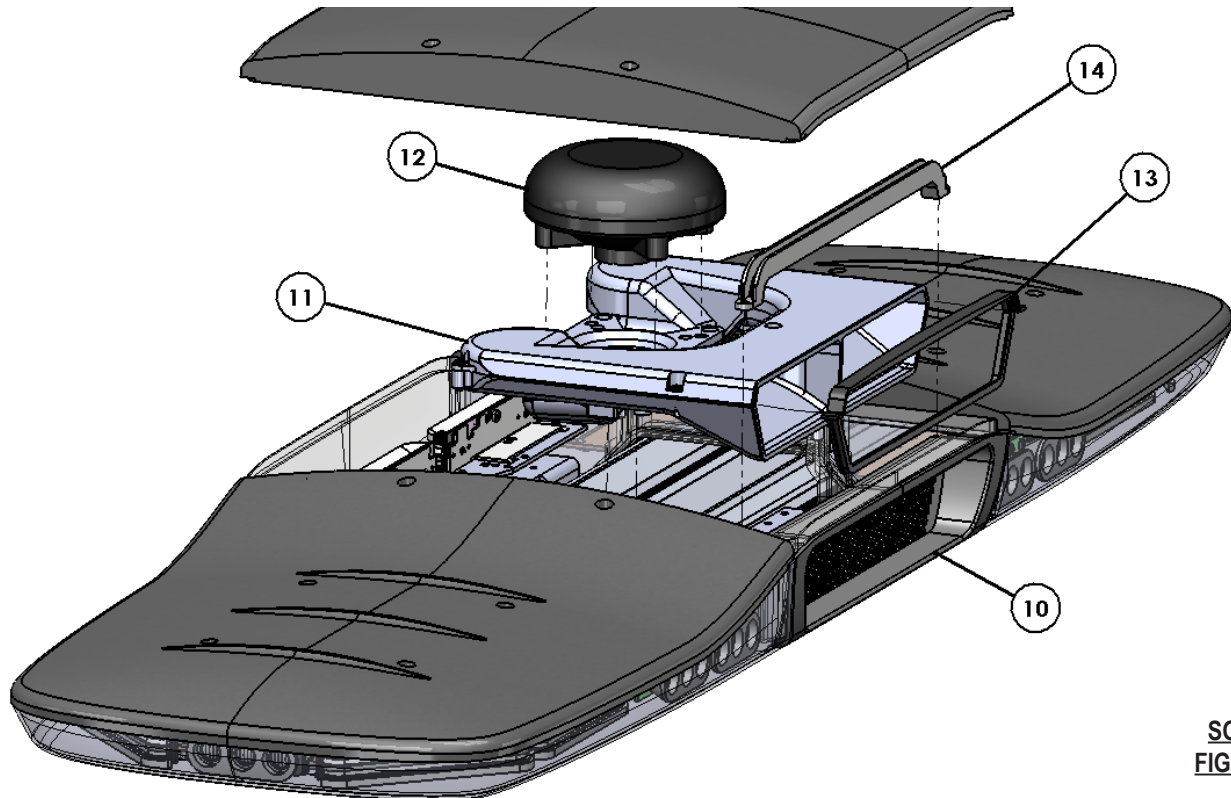
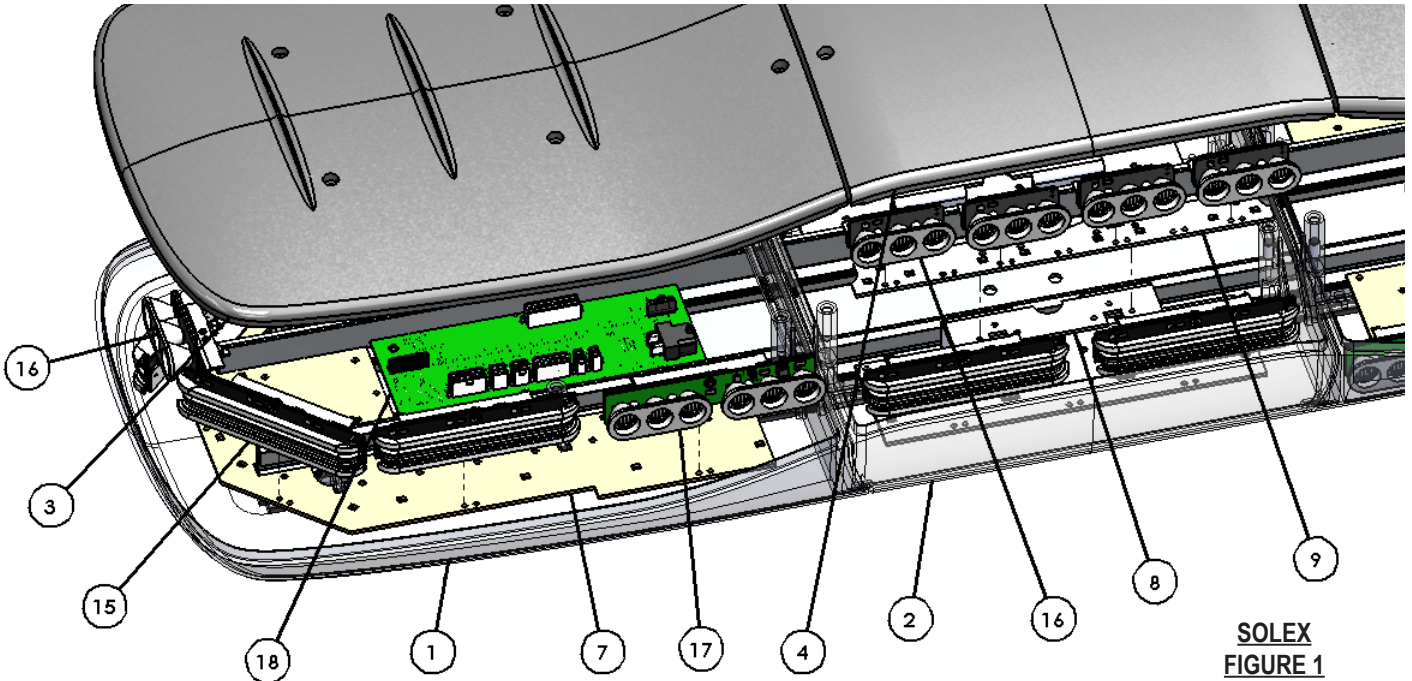
(Reference numbers identify items shown in Triumph Figures 1 & 2)

Ref No.	Description	Part No.
1	Outboard Lower Lens	Green T51445 Clear T51446 Red T51447 Blue T51448 Amber T51449
2	Center Lower Lens All-Light (No Grill)	Green T51455 Clear T51456 Red T51457 Blue T51458 Amber T51459
3	Outboard Upper Lens	Green T51465 Clear T51466 Red T51467 Blue T51468 Amber T51469
4	Center Upper Lens	Green T51475 Clear T51476 Red T51477 Blue T51478 Amber T51479
	(Not Shown) Lens Mtg Screw W Neoprene Washer - 8-32x2.500" Long	T51574
5	Outboard Lower Mtg Plate	T51550
6	Center Lower Mtg Plate with Support Flange	T51553
7	Outboard Upper Mtg Plate	T51551
8	Center Mid Support Flange	T51555
9	Sister Controller Mtg Plate	T51559
10	Center Upper Mtg Plate	T51558
11	3-UP Take Down or Alley Light Head	<div style="border: 1px solid black; padding: 10px; width: fit-content;"> <p>Call Factory for light head options and parts for other lightbar lengths</p> </div>
12	3-UP Upper End Position Light Head	
13	9-UP Light Head: Red, Blue, Amber, White, Green	
14	Central Controller - Sister	T55491
15	Central Controller - Main	T54117
Note: Parts below are not available for domestic use		
16	Center Lower Lens with Speaker Grill	T51486
17	Center Lower Speaker Mtg Plate with Tall Support Flange	T51557
18	Speaker Horn Assembly	T56030
19	Speaker Driver	Call Factory
	(Not Shown) Speaker Horn-Grill Gasket	T56038
20	Speaker Gasket Bridge	T56044



Introduction:

The Solex™ Lightbar features the truly unique, Siris™ Technology which constitutes a quantum leap forward in signal brightness far exceeding the intensity and quality of any system. The low profile and aerodynamic lines reduce air drag, which results in fuel savings and stability at high speeds. The Solex lightbar also has an extruded internal frame that is 2X stronger, shock-resistant polycarbonate lenses, and warning signals that exceed SAE standards.



Parts List

(Reference numbers identify items shown in Solex Figures 1 & 2)

Ref No.	Description	Part No.
1	Outboard Lower Lens	Green T51440 Clear T51441 Red T51442 Blue T51443 Amber T51444
2	Center Lower Lens	Green T51450 All-Light (No Grill) Clear T51451 Red T51452 Blue T51453 Amber T51454
3	Outboard Upper Cap	Clear T51501 Red T51502 Blue T51503 Amber T51504 Black T51505
4	Center Upper Cap	Clear T51511 Red T51512 Blue T51513 Amber T51514 Black T51515
5	Lens Mtg Screw W Neoprene Washer - 0.625" Long	T51179
6	Lens Mtg Screw W Neoprene Washer - 1.500" Long	T51439
7	Outboard Lower Mtg Plate	T51550
8	Center Lower Mtg Plate with Support	T51553
9	Center Upper Mtg Plate	T51558
15	9-UP Light Head Single Color: Red, Blue, Amber, White, Green	<div> Call Factory for light head options and parts for other lightbar lengths </div>
18	UP Light Head Dual Color: Red/Blue, Red/Amber, Blue/Amber, Red/White, Blue/White, Amber/White	
16	3-UP Take Down or Alley Light Head	
17	6-UP Take Down Head	
18	Central Controller - Main	T54117
	Central Controller - Sister (Not Shown)	T55491
Note: Parts below are not available for domestic use		
10	Center Lower Lens with Speaker Grill	T51481
11	Speaker Horn Assembly	T56030
12	Speaker Driver	Call Factory
13	Speaker Horn-Grill Gasket	T56038
14	Speaker Gasket Bridge	T56044

Installation, Mounting, and Maintenance

Unpacking and Pre-installation Inspection:

Carefully remove the light bar 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, broken light heads, etc. Report any damage to the carrier and keep the shipping carton.

Standard light bars 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 light bar, 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). A battery charger may be used, but please note that some electronic options (flashers, etc.) may not operate normally when powered by a battery charger. If problems occur at this point, contact the factory.

Fusing Considerations:

The lightbar should be installed with an external fuse or circuit breaker in the RED lead of the two conductor 10 AWG power cable. The recommended external fuse size for the light bar is 30A. The internal circuitry of the Central Controller is reverse polarity protected and each output on the Central Controller board is protected against over current and over heating with automatically resetting output devices. For lightbars not equipped with a Central Controller, the Red lead of the control/power cable should be installed with the external fuse or circuit breaker recommended above.

Mounting the Lightbar:

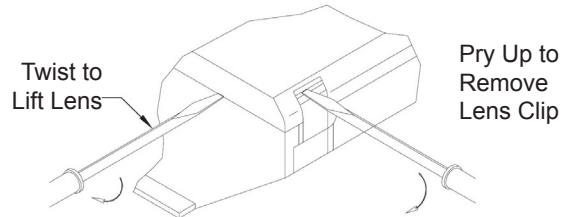
All mounting hardware is packed in a small box or bag inside the main carton. Four standard kits are available: (1) Hook-On Type, (1) Tow and Recovery and (2) Permanent Types. NOTE: Hook-on mounting for "gutterless" type vehicles will require a special hook for mounting. Several special application hooks are available. Contact the factory for details. Refer to the instructions included with the mounting kit for installation.

Lens Cleaning:

Use plain water and a soft cloth, or Code 3® lens polish and a microfiber towel. Because plastic scratches easily, cleaning is recommended only when necessary (about every six months). Do not subject the lenses to car washes that use brushes, as these will scratch the lenses.

Lens Removal for Lightbars with Lens Clips:

First, disengage the lens clips (4 per lens) as shown in the adjacent figure with a flat blade screwdriver. Next, insert the screwdriver into the small slot provided in the lens clip pocket or in any gap along the lens edge, and twist the screwdriver to lift the lens. When finished carefully replace the cap making sure the lens gasket is not misplaced, then replace the clips by hooking into the bottom lens slot and pressing the upper part into the clip pocket.



Lens Removal for Lightbars with Screws:

With a Phillips screwdriver, remove the cap attachment screws (with neoprene washers). Insert a small screwdriver blade (or coin) into the small slot at the corner of the lens cap and twist the screwdriver to lift the cap. Then gently lift the cap off. When finished carefully replace the cap making sure the lens gasket is not misplaced, then replace the cap mounting screws making sure the neoprene washers are in place.

Warning Signal Modules

There are seven possible 3-Level modes of operation (see Table 1). These modes are activated by combinations of the L1 (GRN/BLK), L2 (WHT/BLK) and L3 (RED/BLK) wires. For example a standard progressive switch will use the Level-1 (L1), Level-2 (L1 + L2) and Level-3 (L1 + L2 + L3) modes. When using individual switches, make sure to configure all possible switch combinations. Each of the 3-Level modes of operation can be configured to flash all of the light-heads in a synchronized sequence or to flash individual pairs creating a unsynchronized sequence. For example L1 could be configured to be unsynchronized while L2 is configured to be synchronized. The lightbar is shipped with all 3-Level modes of operation configured for unsynchronized sequences (see Table 2 for Progressive Switch Factory Settings).

Selecting *Unsynchronized* Flash Rates:

NOTE: The 1000/1050/1051 Series software can operate a lightbar with Multi-Color lighthead in three zones (Rear, Front or Corners). If any of the lighthead in a zone are Multi-Color, then that entire zone is considered a Multi-Color zone. If there are no Multi-Color lighthead in a zone, then that zone is considered a Single Color zone. Not all flash sequences/rates are available in Single Color zones.

- The 1000 Series is designed for use in Single Color lightbars.
 - The 1050 Series is designed for use in Multi-Color lightbars that do not have the option of Multi-Color Takedown or Alley lighthead (RX2700-MC) and Defender-MC).
 - The 1051 Series is designed for use in Multi-Color lightbars that do have the option of Multi-Color Takedown and Alley lighthead (21TR-MC and Solex-MC).
- If the lightbar contains Multi-Color Takedown or Alley lighthead, these heads can be programmed with the same flash sequences as the other Multi-Color lighthead. If the lightbar contains Single Color Takedown or Alley lighthead, these heads can be programmed with the same flash sequences as the other Single Color lighthead.

STEP 1: Power-up the light bar. Select the desired 3-Level mode to configure by applying +power to the appropriate wire in the 16 conductor cable (see Table 1 and Table 1A).

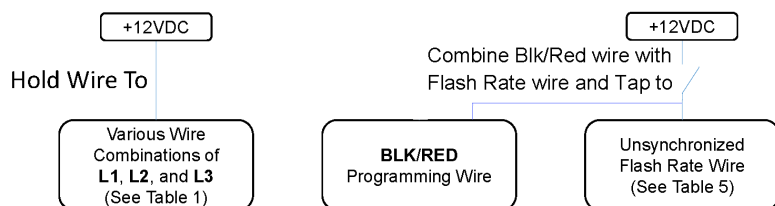
MODE NUMBER	WIRES ACTIVATED
L1	GRN/BLK (LEVEL-1)
L2	WHT/BLK
L1+L2	GRN/BLK & WHT/BLK (LEVEL-2)
L3	RED/BLK
L1 + L3	GRN/BLK & RED/BLK
L2 + L3	WHT/BLK & RED/BLK
L1 + L2 + L3	GRN/BLK, WHT/BLK, & RED/BLK (LEVEL-3)

WIRE COLOR	Unsynchronized	Synchronized	ArrowStik	Takedown and Alley
GRN/BLK	L1			
WHT/BLK	L2			
RED/BLK	L3			
BLK/RED	PATTERN SELECT			
RED	TOGGLE BETWEEN SYNC AND UNSYNC		LEFT ARROW-STIK	
ORG			RIGHT ARROW-STIK	
GRN/WHT	FRONT OUT-BOARD	FRONT SE-QUENCE		FRONT CUT
BLU/BLK	FRONT INBOARD	REAR SE-QUENCE		REAR CUT
ORG/BLK**	FRONT CENTER			TAKEDOWN
GRN	FRONT CORNER			CRUISE
BLK/WHT	REAR OUTBOARD			LEFT ALLEY
RED/WHT	REAR INBOARD			RIGHT ALLEY
BLU/WHT	REAR CENTER	REAR RATE	ARROWSTIK EMERGENCY	ALLEY FLASH
BLU	REAR CORNER			
BLK	ARROWSTIK® END FLASH	FRONT RATE	ARROWSTIK END FLASH	TAKEDOWN FLASH
ORG/BLK**	TAKEDOWN			
WHT	ALLEY		ARROWSTIK FLASH	

STEP 2: Continue applying +power to the wire(s) from Step 1. Enter Rate Selection Mode by applying +power to the BLK/RED wire in the 16 conductor cable.

NOTE: The BLK/RED and pattern wire must be connected to +power during Rate Selection Mode and must be removed from +power when rate selection is completed. Failure to remove the BLK/RED wire from +power will affect the normal operation of the light bar.

Changing Unsynchronized Flash Patterns



STEP 3: Continue applying power to the BLK/RED wire and the wire(s) from Step 1. (Refer to Table 4A and 4B for available flash rates) To increment to the next rate, momentarily hold the appropriate rate selection wire (see Table 5) to +power for less than two seconds and then release. The four corner light heads will turn on steady to indicate that the rate has been incremented. To decrement to the previous rate, momentarily hold the appropriate rate selection wire (see Table 5) to +power for two to four seconds and then release. The four corner light heads will turn on steady and then turn off to indicate that the rate has been decremented. After the rate selection wire has been released, the new rate will begin to flash and is automatically stored each time. Repeat this step for each pair of heads using the appropriate rate selection wire (see Table 5).

NOTE: To restore the Factory Default Emergency Warning Flash Rate to any pair of lighthead, hold the appropriate rate selection wire to +power for more than four seconds. The four corner light heads will turn on steady, turn off and then turn on steady again to indicate that the Factory Default Emergency Warning Flash Rate has been restored. The unsynchronized factory defaults for a progressive switch application (Level-1, Level-2 and Level-3) are identified in Table 2.

STEP 4: Repeat steps 1 through 3 for each of the seven possible 3-Level modes as desired.

TABLE 2: PROGRESSIVE SWITCH FACTORY SETTINGS FOR UNSYNCHRONIZED FLASH RATES

LAMP POSITION	LEVEL-1 DEFAULT	LEVEL-2 DEFAULT	LEVEL-3 DEFAULT
FRONT OUTBOARD	NULL FLASH (8)	QUAD 75FPM (1)	CYCLE FLASH (7)
FRONT INBOARD	NULL FLASH (8)	QUAD 75FPM (1)	CYCLE FLASH (7)
FRONT CENTER	NULL FLASH (8)	QUAD 75FPM (1)	CYCLE FLASH (7)
FRONT CORNER	NULL FLASH (8)	QUAD 75FPM (1)	CYCLE FLASH (7)
REAR OUTBOARD	QUAD 75FPM (1)	QUAD 75FPM (1)	CYCLE FLASH (7)
REAR INBOARD	QUAD 75FPM (1)	QUAD 75FPM (1)	CYCLE FLASH (7)
REAR CENTER	QUAD 75FPM (1)	QUAD 75FPM (1)	CYCLE FLASH (7)
REAR CORNER	QUAD 75FPM (1)	QUAD 75FPM (1)	CYCLE FLASH (7)
*ARROWSTIK® END FLASH	QUAD 75FPM (1)	QUAD 75FPM (1)	CYCLE FLASH (7)
**TAKEDOWN	NULL FLASH (8)	Primary Only QUAD 75FPM (14)	Primary Only CYCLE FLASH (24)

***NOTE:** The Solex™ lightbar is not available with ArrowStik End Flash. These lighthoods are positioned in the rear upper section of the lightbar. They are configured in the same way as the ArrowStik End Flash lighthoods.

****NOTE:** Takedown and Alley lighthoods are only considered part of the 3-Level modes of operation in the 1051 Series. If these lighthoods are Single Color, then they default to NULL FLASH(8) in all 3-Level modes.

TABLE 3: PRIMARY/SECONDARY LAMP COLORS

MULTI-COLOR LAMPS	PRIMARY COLOR	SECONDARY COLOR
RED/BLUE	RED	BLUE
RED/AMBER	RED	AMBER
RED/WHITE	RED	WHITE
BLUE/AMBER	BLUE	AMBER
BLUE/WHITE	BLUE	WHITE
AMBER/WHITE	AMBER	WHITE

TABLE 5: UNSYNCHRONIZED FLASH RATE SELECTION WIRES

WIRE COLOR	PAIR OF LIGHTEHEADS CONTROLLED
GRN/WHT	FRONT OUTBOARD
BLU/BLK	FRONT INBOARD
*ORG/BLK	FRONT CENTER
GRN	FRONT CORNER
BLK/WHT	REAR OUTBOARD
RED/WHT	REAR INBOARD
BLU/WHT	REAR CENTER
BLU	REAR CORNER
**BLK	ARROWSTIK® END FLASH
*ORG/BLK	TAKEDOWN
WHT	ALLEY

***NOTE:** The 21TR-MC and Solex lightbars do not have a FRONT CENTER position. The ORG/BLK wire is used for configuring the Flash Rate of the Takedown lighthoods.

****NOTE:** The Solex™ lightbar is not available with ArrowStik End Flash. These lighthoods are positioned in the rear upper section of the lightbar. They are configured in the same way as the ArrowStik End Flash lighthoods.

TABLE 4A: SINGLE COLOR ZONE UNSYNCHRONIZED FLASH RATES

FLASH RATE NUMBER	FLASH RATE DESCRIPTION (FPM = FLASH PER MINUTE)
1	QUAD 75FPM
2	SINGLE 150FPM
3	DOUBLE 75FPM
4	TRIPLE POP 75FPM
5	VARIABLE RATE SINGLE
6	NFPA QUAD 77FPM
7	CYCLE FLASH
8	NULL (LEDs OFF)

TABLE 4B: MULTI-COLOR ZONE UNSYNCHRONIZED FLASH RATES

FLASH RATE NUMBER	FLASH RATE DESCRIPTION (FPM = FLASH PER MINUTE)
Standard	
1	QUAD 75FPM Multi-Color
2	SINGLE 150FPM Multi-Color
3	DOUBLE 75FPM Multi-Color
4	TRIPLE POP 75FPM Multi-Color
5	VARIABLE RATE SINGLE Multi-Color
6	NFPA QUAD 77FPM Multi-Color
7	CYCLE FLASH Multi-Color
8	NULL (LEDs Off)
9	ALL ON QUAD 75FPM Multi-Color
10	ALL ON SINGLE 150FPM Multi-Color
11	ALL ON DOUBLE 75FPM Multi-Color
12	ALL ON TRIPLE POP 75FPM Multi-Color
13	ALL ON CYCLE FLASH Multi-Color
Primary Only	
14	QUAD 75FPM Primary only
15	QUAD 75FPM Primary with Secondary POP
16	SINGLE 150FPM Primary only
17	SINGLE 150FPM Primary with Secondary POP
18	DOUBLE 75FPM Primary only
19	DOUBLE 75FPM Primary with Secondary POP
20	TRIPLE POP 75FPM Primary only
21	TRIPLE POP 75FPM Primary with Secondary POP
22	VARIABLE RATE SINGLE Primary only
23	NFPA QUAD 77FPM Primary only
24	CYCLE FLASH Primary only
25	CYCLE FLASH Primary with Secondary POP
Secondary Only	
26	QUAD 75FPM Secondary only
27	SINGLE 150FPM Secondary only
28	DOUBLE 75FPM Secondary only
29	TRIPLE POP 75FPM Secondary only
30	VARIABLE RATE SINGLE Secondary only
31	NFPA QUAD Secondary only
32	CYCLE FLASH Secondary only

NOTE: It is possible to have Multi-Color and Single Color light-heads in the same zone. If the lightbar is configured this way, then please note that all flash rates will be available to the Single Color lighthoods. However, these lighthoods may not flash in an effective way for all flash rates. The best flash rates to use for a Single Color lighthouse in a Multi-Color zone are the 'Primary Only Rates' (14 through 25).

Selecting Synchronized Flash Rates and Sequences:

When configuring any synchronized 3-Level mode, the Flash Rate and the Flash Sequence can be selected. The Front and Rear of the lightbar can be set to different Flash Rate and Flash Sequence. In synchronized operation the 1000/1050/1051 Series can operate a lightbar with Multi-Color lighthead in two zones (Rear and Front). If any of the lighthead in a zone are Multi-Color, then that entire zone is considered a Multi-Color zone. If there are no Multi-Color lighthead in a zone, then that zone is considered a Single Color zone. Not all flash sequences are available to Single Color zones. Configuring any 3-Level mode for synchronized operation requires three configuration steps: Select Synchronized Operation, Select Flash Rate and Select Flash Sequence.

1) Select Synchronized Operation

STEP 1: Power-up the light bar. Select the desired 3-Level mode to configure by applying +power to the appropriate wire in the 16 conductor cable (see Table 1).

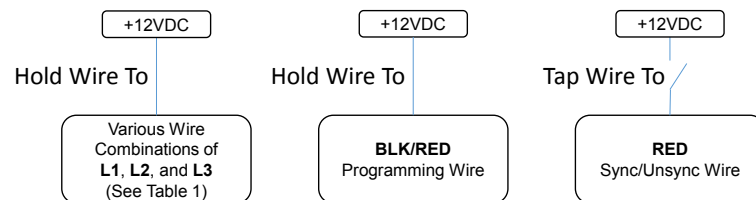
STEP 2: Continue applying +power to the wire(s) from Step 1. Enter Synchronized Selection Mode by applying +power to the BLK/RED wire in the 16 conductor cable.

NOTE: The BLK/RED wire must be connected to +power during Synchronized Selection Mode and must be removed from +power when selection is completed. Failure to remove the BLK/RED wire from +power will affect the normal operation of the light bar.

STEP 3: Continue applying power to the BLK/RED wire and the wire(s) from Step 1. Momentarily hold the RED wire in the 16 conductor cable to +power for less than two seconds and then release. Each time the RED wire is held to +power, the 3-Level mode will toggle between unsynchronized and synchronized operation. The four corner light heads will turn on steady to indicate that the synchronize operation has been changed. Before continuing to select the Flash Rate and Flash Sequence, verify the synchronize operation is configured.

STEP 4: Repeat steps 1 through 3 for each of the seven possible 3-Level modes as desired.

Changing Between Synchronized & Unsynchronized Operation



2) Select Flash Rate

STEP 1: Power-up the light bar. Select the desired 3-Level mode to configure by applying +power to the appropriate wire in the 16 conductor cable (see Table 1).

STEP 2: Continue applying +power to the wire(s) from Step 1. Enter Flash Rate Selection Mode by applying +power to the BLK/RED wire in the 16 conductor cable.

NOTE: The BLK/RED wire must be connected to +power during Flash Rate Selection Mode and must be removed from +power when flash rate selection is completed. Failure to remove the BLK/RED wire from +power will affect the normal operation of the light bar.

STEP 3: Continue applying power to the BLK/RED wire and the wire(s) from Step 1. (Refer to Table 6 for available flash rates) Use the BLK wire in the 16 conductor cable to change the Front and Front Corner Flash Rate and the BLU/WHT wire in the 16 conductor cable to change the Rear and Rear Corner Flash Rate. To change the Flash Rate, momentarily hold the appropriate rate selection wire to +power for less than two seconds and then release. The four corner light heads will turn on steady to indicate that the flash rate has been incremented. To decrement to the previous rate, momentarily hold the appropriate rate selection wire to +power for two to four seconds and then release. The four corner light heads will turn on steady and then turn off to indicate that the flash rate has been decremented. After the flash rate selection wire has been released, the new rate will begin to flash and is automatically stored each time.

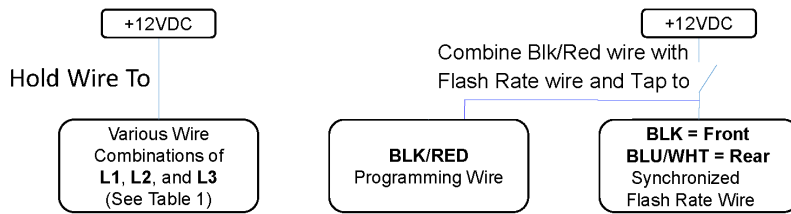
NOTE: To restore the Factory Default Emergency Warning Flash Rate, hold the appropriate rate selection wire to +power for more than four seconds. The four corner light heads will turn on steady, turn off and then turn on steady again to indicate that the Factory Default Emergency Warning Flash Rate has been restored. The synchronized factory defaults for a progressive switch application (Level-1, Level-2 and Level-3) are identified in Table 7.

TABLE 7: PROGRESSIVE SWITCH FACTORY SETTINGS FOR SYNCHRONIZED FLASH RATES			
LAMP POSITION	LEVEL-1 DEFAULT	LEVEL-2 DEFAULT	LEVEL-3 DEFAULT
FRONT LIGHTHEADS	QUAD 75FPM (3)	QUAD 75FPM (3)	CYCLE FLASH (16)
REAR LIGHTHEADS	QUAD 75FPM (3)	QUAD 75FPM (3)	CYCLE FLASH (16)

TABLE 6: SYNCHRONIZED FLASH RATES	
FLASH RATE NUMBER	FLASH RATE DESCRIPTION (FPM = FLASH PER MINUTE)
1	DOUBLE 75FPM
2	TRIPLE 75FPM
3	QUAD 75FPM
4	QUINT 75FPM
5	TRIPLE POP 75FPM
6	QUAD POP 75FPM
7	SINGLE 150FPM
8	DOUBLE 150FPM
9	TRIPLE 150FPM
10	QUAD 150FPM
11	QUINT 150FPM
12	TRIPLE POP 150FPM
13	QUAD POP 150FPM
14	SINGLE 375FPM
15	NFPA QUAD 77FPM
16	CYCLE FLASH

STEP 4: Repeat steps 1 through 3 for each of the seven possible 3-Level modes as desired.

Changing Synchronized Flash Rates



See Table 8 for synchronized selection wires

WIRE COLOR	PAIR OF LIGHTEHEADS CONTROLLED
RED	TOGGLE SYNC AND UNSYNC
GRN/WHT	FRONT SEQUENCE
BLU/BLK	REAR SEQUENCE
BLK	FRONT RATE
BLU/WHT	REAR RATE

3) Select Flash Sequence

STEP 1: Power-up the light bar. Select the desired 3-Level mode to configure by applying +power to the appropriate wire in the 16 conductor cable (see Table 1).

STEP 2: Continue applying +power to the wire(s) from Step 1. Enter Flash Sequence Selection Mode by applying +power to the BLK/RED wire in the 16 conductor cable.

NOTE: The BLK/RED wire must be connected to +power during Flash Sequence Selection Mode and must be removed from +power when flash rate selection is completed. Failure to remove the BLK/RED wire from +power will affect the normal operation of the light bar.

STEP 3: Continue applying power to the BLK/RED wire and the wire(s) from Step 1. (Refer to Table 10 for available flash sequences) Use the GRN/WHT wire in the 16 conductor cable to change the Front Flash Sequence and the BLU/BLK wire in the 16 conductor cable to change the Rear Flash Sequence. To change the Flash Sequence, momentarily hold the appropriate rate selection wire to +power for less than two seconds and then release. The four corner light heads will turn on steady to indicate that the flash sequence has been incremented. To decrement to the previous rate, momentarily hold the appropriate sequence selection wire to +power for two to four seconds and then release. The four corner light heads will turn on steady and then turn off to indicate that the flash sequence has been decremented. After the flash sequence selection wire has been released, the new sequence will begin to flash and is automatically stored each time.

NOTE: To restore the Factory Default Emergency Warning Flash Sequence, hold the appropriate sequence selection wire to +power for more than four seconds. The four corner light heads will turn on steady, turn off and then turn on steady again to indicate that the Factory Default Emergency Warning Flash Sequence has been restored. The synchronized factory defaults for a progressive switch application (Level-1, Level-2 and Level-3) are identified in Table 9.

STEP 4: Repeat steps 1 through 3 for each of the seven possible 3-Level modes as desired.

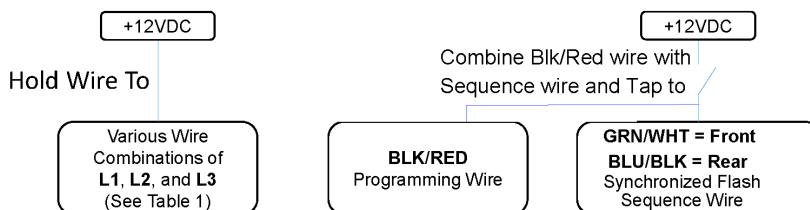
LAMP POSITION	LEVEL-1 DEFAULT	LEVEL-2 DEFAULT	LEVEL-3 DEFAULT
FRONT LIGHTEHEADS	NULL (1)	LEFT/RIGHT MULTI-COLOR (6)	LEFT/RIGHT MULTI-COLOR (6)
REAR LIGHTEHEADS	LEFT/RIGHT MULTI-COLOR (6)	LEFT/RIGHT MULTI-COLOR (6)	LEFT/RIGHT MULTI-COLOR (6)

NOTE: The Factory Settings are shown for a full Multi-Color lightbar. If the lightbar is configured for Single Color lamps, then the Flash Sequences will be set for LEFT/RIGHT PRIMARY ONLY.

1000 SERIES (SINGLE COLOR ZONES)	
SEQUENCE NUMBER	SEQUENCE DESCRIPTION
1	NULL (All Off)
2	LEFT/RIGHT
3	EVEN/ODD

1050/1051 SERIES (MULTI-COLOR ZONES)	
SEQUENCE NUMBER	SEQUENCE DESCRIPTION
1	NULL (All Off)
2	LEFT/RIGHT Primary only
3	EVEN/ODD Primary only
4	LEFT/RIGHT Secondary only
5	EVEN/ODD Secondary only
6	LEFT/RIGHT Multi-Color
7	EVEN/ODD Multi-Color
8	LEFT/RIGHT Primary with Secondary POP
9	EVEN/ODD Primary with Secondary POP
10	LEFT/RIGHT Primary with Secondary Random
11	EVEN/ODD Primary with Secondary Random
12	CYCLE Multi-Color
13	ALL ON Multi-Color
10	LEFT/RIGHT Primary with Secondary Random

Changing Synchronized Flash Sequences



See Table 8 above for synchronized selection wires

ArrowStik® Modules:

Selecting the ArrowStik Sequence:

The Central Controller is designed to offer user selectable traffic directing and traffic warning flash sequences. Each of the ArrowStik functions (LEFT, CENTER-OUT, RIGHT or FLASH) can be configured individually for unique sequences and flash rates. This allows the greatest flexibility when controlling the various light bar configurations available. The ArrowStik FLASH can also be configured to operate as a DRIVER CUT input. When configured as a DRIVER CUT input, the ArrowStik FLASH will disable DRIVER SIDE lamps (see Table 11). These lamps will be disabled when the ArrowStik FLASH is activated and will remain disabled for 5 seconds after power is removed. The light bar will come from the factory with Building Fast as the default for LEFT, CENTER-OUT and RIGHT. The default function for FLASH is the DRIVER CUT FRONT CORNER AND ALLEY. If it is desired to change the sequence for any of the functions, follow the configuration procedure below.

STEP 1: Power-up the light bar. Apply +power to the appropriate wire for the ArrowStik function that you wish to configure (LEFT - RED, CENTER-OUT - RED and ORG, RIGHT - ORG or FLASH - WHT). Programming will not work if more than one function is selected at a time.

STEP 2: Continue applying power to the wire from Step 1. (see Table 11 for available flash sequences) To increment to the next flash sequence, momentarily hold the BLK/RED wire to +power for less than two seconds and then release. The four corner light heads will turn on steady to indicate that the flash sequence has been incremented. To decrement to the previous flash sequence, momentarily hold the BLK/RED wire to +power for two to four seconds and then release. The four corner light heads will turn on steady and then turn off to indicate that the flash sequence has been decremented. After the BLK/RED wire has been released, the new flash sequence will begin to operate and is automatically stored each time. Notice that for the LEFT, CENTER-OUT and RIGHT functions there are four sequence choices (Building, Building with 3 Flash, Traveling Ball with 3 flash, and Build/Collapse) and three speeds (Fast, Medium and Slow). There are a total of twelve possible selections for each function and then you return to the top selection. For the FLASH function there are three DRIVER CUT and nine traffic warning sequences available. Flash sequences marked with an asterisk "*" can be selected in Fast, Medium or Slow flash rate.

NOTE: To restore the Factory Default ArrowStik Flash Sequence for any traffic direction mode, hold the BLK/RED wire to +power for more than four seconds. The four corner light heads will turn on steady, turn off and then turn on steady again to indicate that the Factory Default ArrowStik Flash Sequence has been restored. Only the traffic direction function that is activated will be restored.

STEP 3: Repeat steps 1 through 2 for the other ArrowStik functions as desired.

TABLE 11: TRAFFIC DIRECTING / TRAFFIC WARNING FUNCTION and FLASH SEQUENCE LIST				
MODE	LEFT	CENTER-OUT	RIGHT	FLASH
1	Building	Building	Building	Driver Cut Front Corner & Alley
2	Building, 3 Flash	Building, 3 Flash	Building, 3 Flash	Driver Cut Rear Corner & Alley
3	Traveling Ball, 3	Traveling Ball, 3	Traveling Ball, 3	Driver Cut Front Outboard, Corner & Alley
4	Build/Collapse	Build/Collapse	Build/Collapse	Standard Flash*
5				Quad Flash Standard
6				Simultaneous Flash*
7				Quad Flash Simultaneous
8				Even/Odd Flash*
9				Quad Flash Even/Odd
10				Left/Right Flash*
11				Quad Flash Left/Right
12				Traveling Ball Flash*
	All sequences have a fast, medium or slow speed.	All sequences have a fast, medium or slow speed.	All sequences have a fast, medium or slow speed.	Sequences with the * have a fast medium, or slow speed.

ArrowStik® End Flash Modules:

The lightbar can be ordered with two additional lamps positioned at the outermost ends of the ArrowStik. These two lamps may be configured for the End Flash function. When any ArrowStik function is activated, the End Flash lamps will automatically alternate. To configure the End Flash follow the programming procedure below.

NOTE: The Solex™ lightbar is not available with ArrowStik End Flash. These lighthoods are positioned in the rear upper section of the lightbar. They are configured in the same way as the ArrowStik End Flash lighthoods.

STEP 1: Power-up the light bar. Apply +power to the appropriate wire for the ArrowStik function that you wish to configure (LEFT - RED, CENTER-OUT - RED and ORG, RIGHT - ORG or FLASH - WHT). Programming will not work if more than one function is selected at a time.

STEP 2: Continue applying power to the wire from Step 1. (see Table 12 for available End Flash sequences) To increment to the next end flash sequence, momentarily hold the BLK/RED and BLK wires to +power for less than two seconds and then release. The four corner light heads will turn on steady to indicate that the end flash sequence has been incremented. To decrement to the previous end flash sequence, momentarily hold the BLK/RED and BLK wires to +power for two to four seconds and then release. The four corner light heads will turn on steady and then turn off to indicate that the end flash sequence has been decremented. After the end flash sequence selection wires have been released, the new end flash sequence will begin to flash and is automatically stored each time.

TABLE 12: ArrowStik® End Flash Sequences		
MODE	Multi-Color Lighthoods	Single Color Lighthoods
1	Off	Off
2	Alternating Multi-Color	Alternating
3	Alternating Primary Only	
4	Alternating Secondary Only	

NOTE: To restore the Factory Default ArrowStik End Flash Sequence hold the BLK/RED and BLK wires to +power for more than four seconds. The four corner light heads will turn on steady, turn off and then turn on steady again to indicate that the Factory Default ArrowStik End Flash Sequence has been restored. The Factory Default is the Off sequence.

ArrowStik® Emergency Modules:

ArrowStik® Emergency is only available in lightbars with Multi-Color rear lighthead. This function will flash the primary color lamps of the ArrowStik® modules in an alternating double flash sequence. When the LEFT, RIGHT or CENTER-OUT function is activated the ArrowStik® sequence will cycle four times, then the primary color lamps will alternate twice. Please note that this function does not work with the FLASH function.

Selecting the ArrowStik® Emergency:

STEP 1: Power-up the light bar. Apply +power to any ArrowStik function (see Table 13 for wire colors).

STEP 2: Continue applying power to the wire from Step 1. To toggle this function on or off, momentarily hold the **BLK/RED** and **BLU/WHT** wires to +power for less than two seconds and then release. The four corner light heads will turn on steady to indicate that the function has been changed. The light bar will come from the factory, with the ArrowStik Emergency function disabled.

TABLE 13: ARROW STIK SELECTION WIRES	
WIRE COLOR	PAIR OF LIGHTHEADS CONTROLLED
RED	LEFT ARROWSTIK
ORG	RIGHT ARROWSTIK
RED + ORG	CENTER OUT ARROWSTIK
WHT	ARROWSTIK FLASH
BLK	ARROWSTIK END FLASH
BLU/WHT	ARROWSTIK EMERGENCY

Takedown and Alley Light Modules:

Selecting the Takedown and Alley Module Flash Rate:

The Takedown and Alley Lights can be programmed to flash at different rates when the Takedown Flash or Alley Flash input wires are activated.

NOTE: The Takedown Flash and the Alley Flash functions will override the Takedown and Alley lighthead flashing in any 3-Level mode of operation.

STEP 1: Power-up the light bar. Select the Takedown Flash Mode (**BLK**) or the Alley Flash Mode (**BLU/WHT**) by applying +power to the appropriate wire. **Programming will not work if more than one function is selected at a time.**

STEP 2: Continue applying power to the wire from Step 1. (see Table 14 for available flash rates) To increment to the next rate, momentarily hold the BLK/RED wire to +power for less than two seconds and then release. The four corner light heads will turn on steady to indicate that the rate has been incremented. To decrement to the previous rate, momentarily hold the BLK/RED wire to +power for two to four seconds and then release. The four corner light heads will turn on steady and then turn off to indicate that the rate has been decremented. After the BLK/RED wire has been released, the new rate will begin to flash and is automatically stored each time.

NOTE: To restore the Factory Default Takedown or Alley Flash Rate, hold the BLK/RED wire to +power for more than four seconds. The four corner light heads will turn on steady, turn off and then turn on steady again to indicate that the Factory Default Takedown or Alley Flash Rate has been restored. The default flash rate for Takedown and Alley Lights is Medium Single 115FPM.

TABLE 14: TAKE DOWN AND ALLEY FLASH RATES	
RATE NUMBER	RATE DESCRIPTION (FPM = FLASH PER MINUTE)
1	MEDIUM SINGLE 115FPM
2	SLOW SINGLE 60FPM
3	FAST DOUBLE 115FPM
4	SLOW DOUBLE 60FPM
5	FAST SIX 80FPM
6	SLOW SIX 60FPM
7	VARIABLE RATE SINGLE
8	NFPA QUAD 75FPM
9	CYCLE FLASH
10	FAST QUAD 80FPM
11	SLOW QUAD 60FPM
12	FAST SINGLE 375FPM

Secondary Takedown And Alley Light Modules:

Selecting Secondary Takedown and Alley Light Functions:

If the lightbar is configured with Multi-Color lighthead in the Front or Front Corners, the Front Cut wire (**GRN/WHT**) and the Takedown wire (**ORG/BLK**) can be configured to activate these lighthead as a Secondary Takedown mode.

If the lightbar is configured with Multi-Color lighthead in the Corners, the Rear Cut wire (**BLU/BLK**) and Right Alley wire (**RED/WHT**) can be configured to activate the right corner lighthead as a Secondary Right Alley mode. The Cruise wire (**GRN**) and Left Alley wire (**BLK/WHT**) can be configured to activate the left corner lighthead as a Secondary Left Alley Light mode.

If the lightbar is configured with Multi-Color lighthead in the Front and Rear Corners, the Rear Cut wire (**BLUE/BLK**) can be configured to activate these lighthead as a Secondary Rear Work mode.

The Cruise wire (**GRN**) can be configured for multiple Cruise functions.

NOTE: If the Front Cut wire (**GRN/WHT**) is configured to activate the Multi-Color lighthead as Secondary Takedown, the standard Front Cut function will be disabled. If the Rear Cut wire (**BLU/BLK**) is configured to activate the Multi-Color lighthead as Secondary Alley or Secondary Rear Work Lights, the standard Rear Cut function will be disabled. If the Cruise wire (**GRN**) is configured to activate the Multi-Color lighthead as Secondary Alley Lights, the standard Cruise function will be disabled.

STEP 1: Power-up the light bar. Select one of the following for secondary mode: Front Cut (**GRN/WHT**), Takedown (**ORG/BLK**), Rear Cut (**BLU/BLK**), Right Alley (**RED/WHT**), Left Alley (**BLK/WHT**) or Cruise (**GRN**) by applying +power to the appropriate wire. **Programming will not work if more than one function is selected at a time.**

NOTE: If the Front Cut wire (**GRN/WHT**) is configured for the Front Cut function, no lighthead will be activated when +power is applied to the GRN/WHT wire. If the Rear Cut wire (**BLU/BLK**) is configured for the Rear Cut function, no lighthead will be activated when +power is applied to the BLU/BLK wire.

TABLE 20: TAKEDOWN AND ARROWSTICK SELECTION WIRES	
WIRE COLOR	PAIR OF LIGHTHEADS CONTROLLED
BLK	TAKEDOWN FLASH
BLU/WHT	ALLEY FLASH
GRN/WHT	FRONT CUT
ORG/BLK	TAKEDOWN
BLU/BLK	REAR CUT
RED/WHT	RIGHT ALLEY
GRN	CRUISE
BLK/WHT	LEFT ALLEY

STEP 2: Continue applying power to the wire from Step 1. Refer to Table 15 for the available Front Cut and Takedown functions, Table 16 for the available Rear Cut functions, Table 17 for Right Alley functions, Table 18 for the available Cruise Light functions or Table 19 for Left Alley functions. To increment to the next function, momentarily hold the **BLK/RED** wire to +power for less than two seconds and then release. The four corner light heads will turn on steady to indicate that the function has been incremented. To decrement to the previous function, momentarily hold the **BLK/RED** wire to +power for two to four seconds and then release. The four corner light heads will turn on steady and then turn off to indicate that the function has been decremented. After the **BLK/RED** wire has been released, the new function will begin to operate and is automatically stored each time.

TABLE 15: FRONT CUT (GRN/WHT) and TAKEDOWN (ORG/BLK) FUNCTIONS	
1050 SERIES	
FUNCTION NUMBER	FUNCTION DESCRIPTION
1	STANDARD FRONT CUT OR TAKEDOWN FUNCTION
2	WHITE FRONT OUTBOARD LIGHTHEADS
3	WHITE FRONT INBOARD LIGHTHEADS
4	WHITE FRONT CENTER LIGHTHEADS
5	WHITE FRONT OUTBOARD AND INBOARD LIGHTHEADS
6	WHITE FRONT OUTBOARD AND CENTER LIGHTHEADS
7	WHITE FRONT INBOARD AND CENTER LIGHTHEADS
8	WHITE ALL FRONT LIGHTHEADS
9	WHITE FRONT OUTBOARD AND CORNER LIGHTHEADS
10	WHITE FRONT INBOARD AND CORNER LIGHTHEADS
11	WHITE FRONT CENTER AND CORNER LIGHTHEADS
12	WHITE FRONT OUTBOARD, INBOARD AND CORNER LIGHTHEADS
13	WHITE FRONT OUTBOARD, CENTER AND CORNER LIGHTHEADS
14	WHITE FRONT INBOARD, CENTER AND CORNER LIGHTHEADS
15	WHITE ALL FRONT AND CORNER LIGHTHEADS
1051 SERIES	
FUNCTION NUMBER	FUNCTION DESCRIPTION
1	STANDARD FRONT CUT OR TAKEDOWN FUNCTION
2	WHITE FRONT OUTBOARD LIGHTHEADS
3	WHITE FRONT INBOARD LIGHTHEADS
4	WHITE FRONT OUTBOARD AND INBOARD LIGHTHEADS
5	WHITE FRONT OUTBOARD AND CORNER LIGHTHEADS
6	WHITE FRONT INBOARD AND CORNER LIGHTHEADS
7	WHITE ALL FRONT AND CORNER LIGHTHEADS

TABLE 17: RIGHT ALLEY (RED/WHT) FUNCTIONS	
FUNCTION NUMBER	FUNCTION DESCRIPTION
1	STANDARD RIGHT ALLEY FUNCTION
2	RIGHT ALLEY + RIGHT FRONT CORNER LIGHTHEAD
3	RIGHT ALLEY + RIGHT REAR CORNER LIGHTHEAD
4	RIGHT ALLEY + RIGHT FRONT AND REAR CORNER LIGHTHEADS

TABLE 18: CRUISE (GRN) FUNCTIONS	
FUNCTION NUMBER	FUNCTION DESCRIPTION
1	CORNER CRUISE Primary only
2	CORNER CRUISE Secondary only
3	FLICKER ALL CRUISE Primary only
4	FLICKER ALL CRUISE Secondary only
5	FLICKER ALL CRUISE Secondary Rear / Primary Front and Corner
6	LEFT FRONT CORNER LIGHTHEAD
7	LEFT REAR CORNER LIGHTHEAD
8	LEFT FRONT AND REAR CORNER LIGHTHEADS

NOTE: To restore the Factory Default Secondary Takedown and Alley Light Functions, hold the BLK/RED wire to +power for more than four seconds. The four corner light heads will turn on steady, turn off and then turn on steady again to indicate that the Factory Default Secondary Takedown and Alley Light Functions have been restored. The default function for the Front Cut, Rear Cut, Cruise, Takedown, Right Alley, and Left Alley wires is function number 1 as shown in the Tables. Only the function that is activated will be restored.

STEP 3: Repeat steps 1 through 2 for the Front Cut, Rear Cut, Cruise, Takedown, Right Alley and Left Alley as desired.

TABLE 16: REAR CUT (BLU/BLK) FUNCTIONS	
1050 SERIES	
FUNCTION NUMBER	FUNCTION DESCRIPTION
1	STANDARD REAR CUT FUNCTION
2	RIGHT FRONT CORNER LIGHTHEAD
3	RIGHT REAR CORNER LIGHTHEAD
4	RIGHT FRONT AND REAR CORNER LIGHTHEADS
5	REAR WORK OUTBOARD LIGHTHEADS
6	REAR WORK INBOARD LIGHTHEADS
7	REAR WORK CENTER LIGHTHEADS
8	REAR WORK OUTBOARD AND INBOARD LIGHTHEADS
9	REAR WORK INBOARD AND CENTER LIGHTHEADS
10	REAR WORK ALL REAR LIGHTHEADS
11	REAR WORK OUTBOARD AND CORNER LIGHTHEADS
12	REAR WORK INBOARD AND CORNER LIGHTHEADS
13	REAR WORK CENTER AND CORNER LIGHTHEADS
14	REAR WORK OUTBOARD, INBOARD AND CORNER LIGHTHEADS
15	REAR WORK INBOARD, CENTER AND CORNER LIGHTHEADS
16	REAR WORK ALL REAR AND CORNER LIGHTHEADS
1051 SERIES	
FUNCTION NUMBER	FUNCTION DESCRIPTION
1	STANDARD REAR CUT FUNCTION
2	RIGHT FRONT CORNER LIGHTHEAD
3	RIGHT REAR CORNER LIGHTHEAD
4	RIGHT FRONT AND REAR CORNER LIGHTHEADS
5	REAR WORK OUTBOARD LIGHTHEADS
6	REAR WORK INBOARD LIGHTHEADS
7	REAR WORK CENTER LIGHTHEADS
8	REAR WORK INBOARD AND CENTER LIGHTHEADS
9	*REAR WORK END FLASH LIGHTHEADS
10	REAR WORK ALL REAR LIGHTHEADS
11	REAR WORK OUTBOARD AND CORNER LIGHTHEADS
12	REAR WORK INBOARD AND CORNER LIGHTHEADS
13	REAR WORK CENTER AND CORNER LIGHTHEADS
14	REAR WORK INBOARD, CENTER AND CORNER LIGHTHEADS
15	*REAR WORK END FLASH AND CORNER LIGHTHEADS
16	REAR WORK ALL REAR AND CORNER LIGHTHEADS

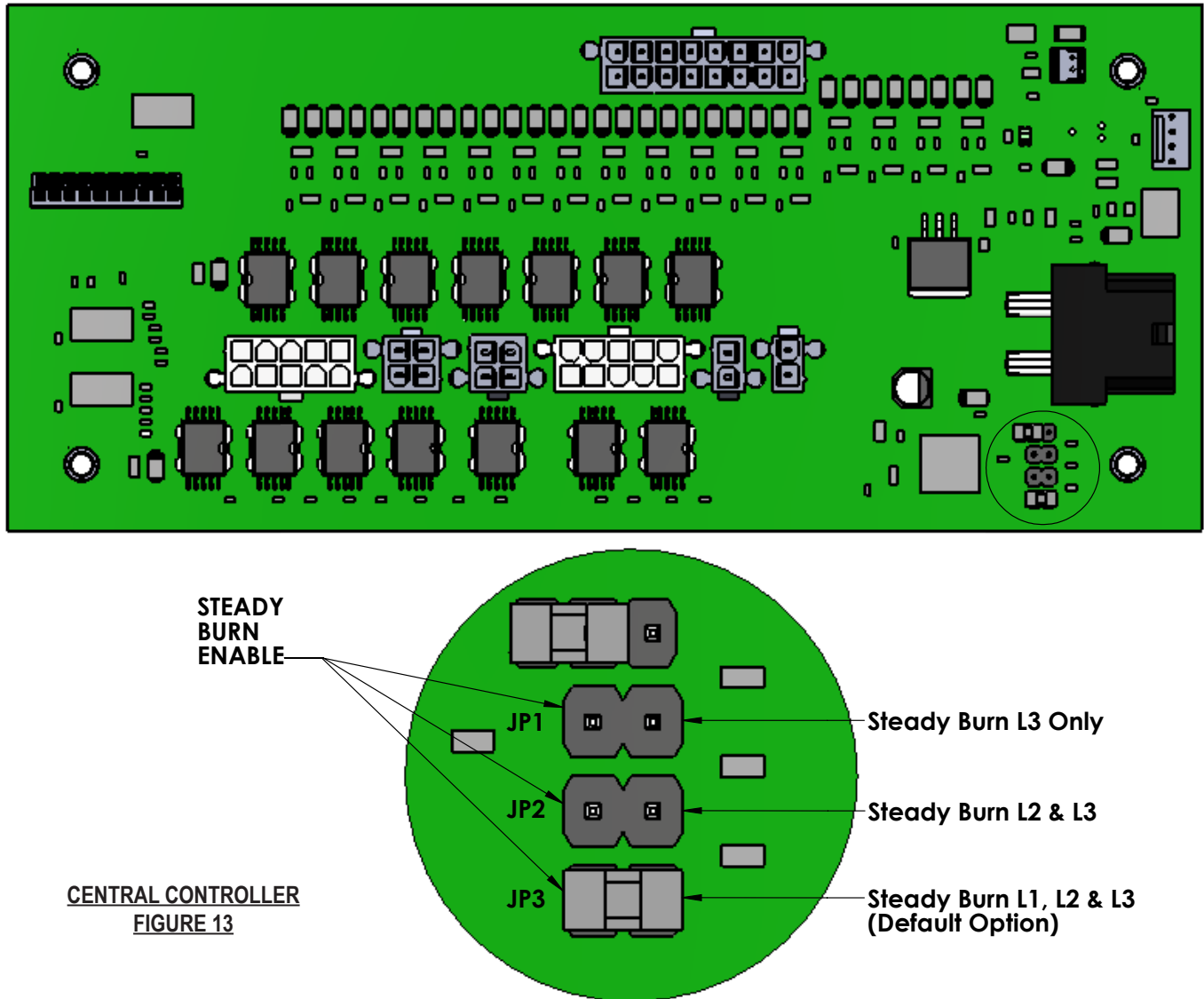
NOTE: Not all features may be available based on the combination of Multi-Color lightheads in the Front and Corner zones.

***NOTE:** The Solex™ lightbar is not available with ArrowStik End Flash. These lightheads are positioned in the rear upper section of the lightbar. They are configured in the same way as the Arrowstik End Flash lightheads.

Steady Burn Setting

The Steady Burn feature allows up to two (2) of the light bar's light heads to be designated to operate in Steady Burn mode. The Steady Burn light heads are always connected to connectors P9 & P10.

The Steady Burn outputs are enabled by the 3-Level control inputs. The lightbar may be configured so that Steady Burn light heads are on when either L1, L2 or L3 are active (JP3 position); when L2 or L3 are active (JP2 position) or just when L3 is active (JP1 position). Simply move the jumper to the appropriate location (JP1, JP2 or JP3). Refer to the detail in Figure 13.



Serial Interface Option

Introduction:

The Serial Interface Option offers a simple to install and very flexible lighting system that can be integrated into RX2700CC™ and Defender™ Lightbars. Lightbars with this option can be operated with the Code 3® Z3 series siren. They can also be operated with any traditional siren and controller system when used with the Code 3® Lightbar Control Module (included). This option enables lightbars to be easily configured and operate all features such as; Takedowns, Alley Lights, Flashing Takedowns and more.

Lightbars equipped with this option have two modes of operation: Normal Mode and Configuration Mode. Normal Mode is the regular operational mode of the lightbar and acts similar to a lightbar without the serial interface option. This mode allows the installer/user to set the 3-Level flash patterns and the ArrowStik® flash patterns. Configuration Mode allows the installer/user to configure the various features of the lightbar (ex. Takedowns, Alley Lights, etc.) that are controlled with the 3-Level switch and auxiliary buttons. When either mode of operation has started, the lightbar will remain in that mode until power is removed.

Set Up Instructions:

The Serial Interface Option enables the lightbar and siren system to be quickly customized to your needs. 3-Level/ArrowStik® flash patterns, 3-Level/Auxiliary Switch Configuration, and Lightbar Diagnostics can all be configured. In order to begin the customization process, follow the steps below.

STEP 1: Connect the lightbar to the siren system. See also the siren instruction manual for details.

A. If using a Code 3® Z3 siren system, plug the Z3 siren into the Serial Cable from the lightbar.

B. If using a Code 3® Lightbar Control Module with any traditional siren, wire the Lightbar Control Module to the appropriate control device as described in the Lightbar Control Module section in the following pages of this manual.

Plug the Serial Cable from the lightbar into the modular jack on the Lightbar Control Module. See Figure 14 below.

STEP 2: Apply +12VDC to the Lightbar Power Cable.

STEP 3: Apply +12VDC to the Z3 Siren or the Power Input wires of the Lightbar Control Module.

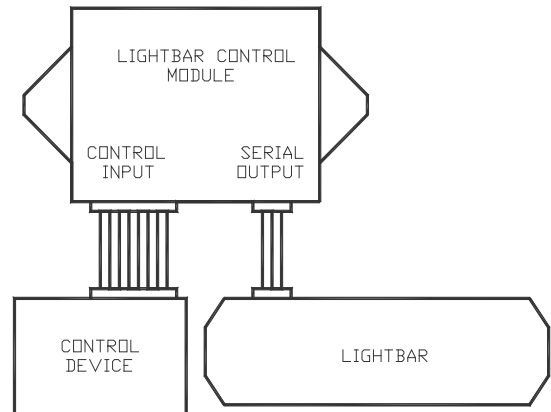


FIGURE 14

Hall-Effect Sensor:

Many of the configuration options are controlled through the use of a Hall-Effect Sensor located inside of the lightbar. This sensor detects the presence of a magnetic device, such as the one provided. During the configuration process, you will be asked to move the magnet past the Hall-Effect Sensor, or hold it under the Hall-Effect Sensor for a specified duration. Wave or hold the magnetic end of the device to the side of the rear driver side section of the lightbar where the Hall-Effect Sensor is located. See Figure 15 below.

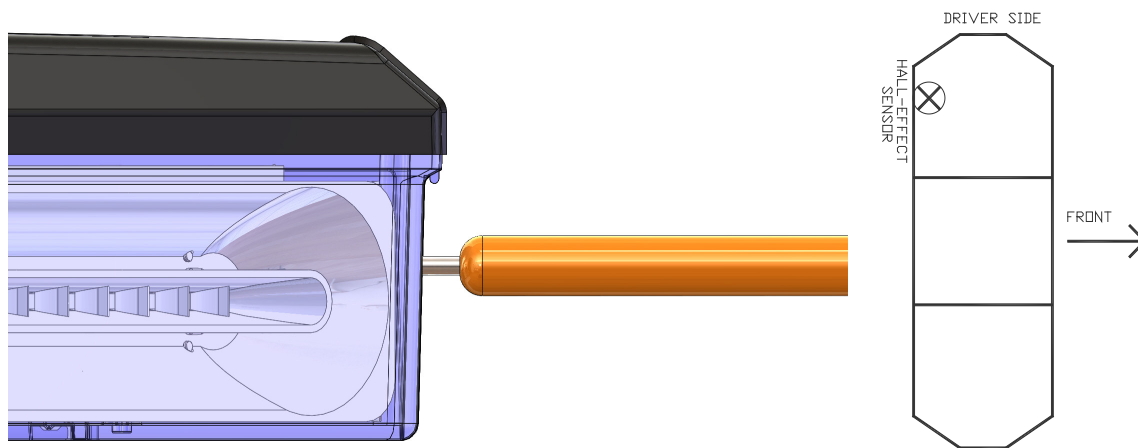


FIGURE 15

3-Level Pattern Selection:

STEP 1: Set the lightbar and siren system up as described in the Serial Interface Option: Set Up Instructions on previous pages.

STEP 2: Select the Lighting Level that you wish to change the flash pattern on. This will set the lightbar into "Normal Mode" and the lightbar will flash the currently programmed flash pattern for that level.

STEP 3: Select a new flash pattern by moving the provided magnet past the Hall-Effect Sensor. The lightbar will freeze the pattern when the magnet has been detected and will resume the new pattern when the magnet has been removed from the Hall-Effect Sensor. If the magnet is held near the Hall-Effect Sensor for longer than 4 seconds, the flash pattern will reset to the Factory Default pattern.

STEP 4: Repeat step 3 until the desired pattern has been selected.

STEP 5: Repeat steps 2 through 4 for each Lighting Level as needed.

STEP 6: Select each Lighting Level and verify desired operation of the lightbar.

STEP 7: Remove +12VDC from the Z3 Siren or the Power Input wires of the Lightbar Control Module when testing is completed.

ArrowStik® Pattern Selection:

STEP 1: Set the lightbar and siren system up as described in the Serial Interface Option: Set Up Instructions on previous pages.

STEP 2: Select the ArrowStik® Mode that you wish to change the flash pattern on. This will set the lightbar into “Normal Mode” and the lightbar will flash the currently programmed flash pattern for that mode.

STEP 3: Select a new pattern by moving the provided magnet past the Hall-Effect Sensor. The lightbar will freeze the pattern when the magnet has been detected and will resume the new pattern when the magnet has been removed from the Hall-Effect Sensor. If the magnet is held near the Hall-Effect Sensor for longer than 4 seconds, the flash pattern will reset to the Factory Default pattern.

STEP 4: Repeat step 3 until the desired pattern has been selected.

STEP 5: Repeat steps 2 through 4 for each ArrowStik® Mode as needed.

STEP 6: Select each ArrowStik® Mode and verify desired operation of the lightbar.

STEP 7: Remove +12VDC from the Z3 Siren or the Power Input wires of the Lightbar Control Module when testing is completed.

Lightbar Diagnostic Testing:

STEP 1: Set the lightbar and siren system up as described in the Serial Interface Option: Set Up Instructions on previous pages.

STEP 2: Hold the magnet near the Hall-Effect Sensor. The lightbar will exercise all outputs in sequence until the magnet is removed from the Hall-Effect Sensor.

STEP 3: Remove +12VDC from the Z3 Siren or the Power Input wires of the Lightbar Control Module to end testing.

3-Level Switch Configuration:

STEP 1: Set the lightbar and siren system up as described in the Serial Interface Option: Set Up Instructions on previous pages.

STEP 2: Enter Configuration Mode by moving the magnet past the Hall-Effect Sensor. The Lightbar will blink the Cruise lights twice to indicate that Configuration Mode has started.

STEP 3: Select the Lighting Level that you wish to configure the features on. **ALL AUXILIARY SWITCHES MUST BE OFF AT THIS POINT.** This will set the lightbar into “Configuration Mode” and the lightbar will flash the currently programmed features for that mode.

STEP 4: Select a new feature by moving the provided magnet past the Hall-Effect Sensor. The lightbar will turn off when the magnet has been detected and will resume with the new feature when the magnet has been removed from the Hall-Effect Sensor. If the magnet is held near the Hall-Effect Sensor for longer than 3 seconds, the function will reset to the Factory Default function and the lightbar will blink the Cruise lights 4 times to indicate that the function has been reset. See Table 21 for available functions and Factory Defaults for each Lighting Level.

STEP 5: Repeat step 4 until the desired function has been selected.

STEP 6: Turn the Level off or select a different Level to save the function.

STEP 7: Repeat steps 3 through 6 for each Lighting Level as needed. Auxiliary Switch Configuration can begin at this point by going to step 3 of the following Auxiliary Switch Configuration section. Alternatively, follow the steps below to end configuration.

STEP 8: Remove +12VDC from the Z3 Siren or the Power Input wires of the Lightbar Control Module to end configuration.

STEP 9: After successful configuration, connect the system and test the Lighting Levels to verify desired configuration.

Table 21	
Function Number	Function
1	None (Level 1 and Level 2 Factory Default)
2	Takedown Flashing
3	Alleys Flashing
4	Takedown & Alleys Flashing (Level 3 Factory Default)
5	ArrowStik® Flashing
6	Takedown & ArrowStik® Flashing
7	Alleys & ArrowStik® Flashing
8	Takedown, Alleys, & ArrowStik® Flashing

Auxiliary Switch Configuration:

STEP 1: Set the lightbar and siren system up as described in the Serial Interface Option: Set Up Instructions on previous pages.

STEP 2: Enter Configuration Mode by moving the magnet past the Hall-Effect Sensor. The Lightbar will blink the Cruise lights twice to indicate that Configuration Mode has started.

STEP 3: Select the Auxiliary Switch that you wish to configure the features on. **ONLY ONE AUXILIARY SWITCH MAY BE ACTIVE AT A TIME AND 3-LEVEL SWITCH MUST BE OFF.** This will set the lightbar into “Configuration Mode” and the lightbar will flash the currently programmed features for that switch.

STEP 4: Select a new feature by moving the provided magnet past the Hall-Effect Sensor. The lightbar will turn off when the magnet has been detected and will resume with the new feature when the magnet has been removed from the Hall-Effect Sensor. If the magnet is held near the Hall-Effect Sensor for longer than 3 seconds, the function will reset to the Factory Default function and the lightbar will blink the Cruise lights 4 times to indicate that the function has been reset. See Table 22 for available functions and Factory Defaults for each Auxiliary Switch.

Table 22		
Function Number	Function	Indication
1	Takedown (Switch F Factory Default)	Takedowns Steady
2	Left Alley (Switch D Factory Default)	Left Alley Steady
3	Right Alley (Switch E Factory Default)	Right Alley Steady
4	None (Switch A, B, C Factory Default)	All Off
5	Cruise Lights	Cruise Lights On
6	Takedown Flashing	Takedowns Flashing
7	Alleys Flashing	Alleys Flashing
8	Front Cut Off	Cruise Lights Blink 1 Time
9	Rear Cut Off	Cruise Lights Blink 2 Times
10	Dim	Cruise Lights Blink 3 Times

Note: When configuring the Auxiliary Switches for Functions 8, 9, and 10; the lightbar will briefly blink the Cruise Lights to indicate which function has been selected. See Table 22 for the number of blinks for each function.

STEP 5: Repeat step 4 until the desired function has been selected.

STEP 6: Turn the Auxiliary Switch off to save the function.

STEP 7: Repeat steps 3 through 6 for each Auxiliary Switch as needed. 3-Level Configuration can begin at this point by going to step 3 of the 3-Level Switch Configuration section on the previous pages. Alternatively, follow the steps below to end configuration.

STEP 8: Remove +12VDC from the Z3 Siren or the Power Input wires of the Lightbar Control Module to end configuration.

STEP 9: After successful configuration, connect the system and test the Auxiliary Switches to verify desired configuration.

Lightbar Control Module:

The Serial Lightbar Control Module is designed to allow operation of the Serial Lightbar with any traditional siren and controller system. The inputs to the Serial Lightbar Control Module are listed in Table 23 below.

STEP 1: Connect the RED input wire (pin 9 of 16 pin connector) to the vehicle ignition system.

STEP 2: Connect the BLACK input wire (pin 1 of 16 pin connector) to the vehicle ground.

STEP 3: Connect each of the Input Control Wires to the proper output of the controller. See Table 23 for description.

Table 23		
Wire Color (Primary / Secondary)	Function	Description
Green / Black	Level 1	Level 1 Emergency Mode
White / Black	Level 2	Level 2 Emergency Mode
Red / Black	Level 3	Level 3 Emergency Mode
Blue / White	Arrow Left	Left Arrow (overrides L1, L2, L3 for rear of lightbar)
Orange	Arrow Right	Right Arrow (overrides L1, L2, L3 for rear of lightbar)
White	Arrow Flash	Flashing Arrow (overrides L1, L2, L3 for rear of lightbar)
Green / White	Switch A	User Configured (Factory Default None)
Blue / Black	Switch B	User Configured (Factory Default None)
Green	Switch C	User Configured (Factory Default None)
Black / White	Switch D	User Configured (Factory Default Left Alley)
Red / White	Switch E	User Configured (Factory Default Right Alley)
Orange / Black	Switch F	User Configured (Factory Default Takedown)
Blue	Lightbar Dim	Sets LEDs to Dim Mode
Black / Red	Reserved	Reserved for Future Function



Note: All Control inputs are positive power enabled.

Output Level 1, 2, and 3 can be configured to also control additional features of the lightbar. See the 3-Level Switch Configuration section on the previous pages for details.

Outputs Switch A, B, C, D, E, and F are user configurable. See the Auxiliary Switch Configuration section on the previous pages for details.



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.



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.**

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. Any disassembly of the LED light heads will result in loss of warranty coverage on the equipment.

WARNING!



This product may contain high intensity LED devices. To prevent eye damage, **DO NOT** stare into light beam at close range. This product may contain halogen lamps that are extremely hot! Allow to cool completely before attempting to remove. Gloves and eye protection should be worn when handling halogen lamps as they are pressurized and accidental breakage can result in flying glass.



The Dim setting reduces the light output of emergency warning lights reducing the effectiveness of them especially in brightly lit areas. Failure to use adequate light for the circumstances can cause motorists to fail to see the emergency vehicle and lead to serious personal injury or death. Never use the DIM setting in a brightly lit area. Use of the DIM setting may cause emergency lights to not comply with applicable emergency warning light standards. Use caution when using the DIM setting to assure that motorists can clearly see the emergency vehicle.

Notes:

Notes:

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.



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