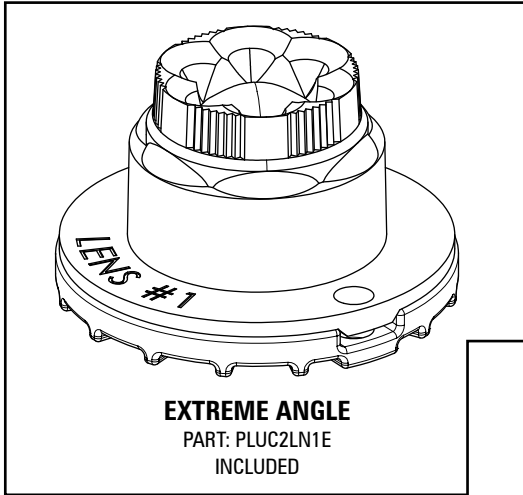


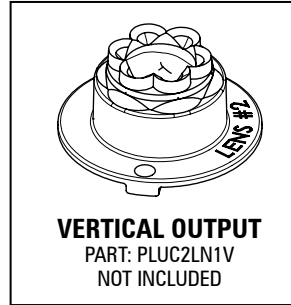
# UNIVERSAL UNDERCOVER LED INSERT

ELUC3H010(x) - 9-32 Vdc, 10' CABLE

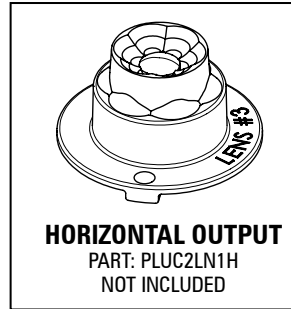
ELUC3H025(x) - 9-32 Vdc, 25' CABLE



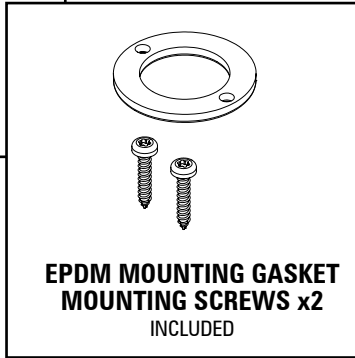
**EXTREME ANGLE**  
PART: PLUC2LN1E  
INCLUDED



**VERTICAL OUTPUT**  
PART: PLUC2LN1V  
NOT INCLUDED



**HORIZONTAL OUTPUT**  
PART: PLUC2LN1H  
NOT INCLUDED



**EPDM MOUNTING GASKET**  
**MOUNTING SCREWS x2**  
INCLUDED

## ⚠ NOTICE

If IR lighthouse was purchased, the IR light is invisible and may cause eye damage through prolonged exposure.

## ⚠ WARNING

- HIGH CURRENT interconnects must be properly terminated. Poor crimp quality can cause heat build-up and fire. Follow crimp connector manufacturer instructions.
- DO NOT install this product or route any wires in the Air Bag Deployment Zone. Refer to vehicle Owner's Manual for deployment zones.
- Do NOT use system to disconnect headlights, brake lights or other safety equipment.
- Unit may become hot to touch during normal operation.
- Failure to properly install connectors, fuses or wiring may cause vehicle failure or fire.
- Installation must only be performed by trained technician. Installer must determine vehicle wiring configuration and proper integration of system.
- Use proper wire gauge. All power wires connecting to positive (+) or negative (-) battery terminal or local chassis ground (-) must be sized to supply at least 125% of max. current and properly fused at power source.
- Install protective grommets when routing wire through firewall or metal.

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### KIT INCLUDES:

- 1 - ASSEMBLED LIGHT HEAD WITH EXTREME ANGLE LENS #1
- 1 - IN-LINE FLASHER & DESIRED CABLE LENGTH
- 1 - EPDM MOUNTING GASKET
- 2 - MOUNTING SCREWS

### PARTS & ACCESSORIES:

- PLUC2LN1E - LENS #1, EXTREME ANGLE
- PLUC2LN1V - LENS #2, VERTICAL OUTPUT
- PLUC2LN1H - LENS #3, HORIZONTAL OUTPUT

### TECHNICAL SPECIFICATIONS

Dimensions:		1.5" x 0.9"	
Input Voltage:		9-32Vdc	
<b>CURRENT CONSUMPTION (Amps)</b>			
12.8Vdc		25.6Vdc	
<b>Peak</b>	<b>Average</b>	<b>Peak</b>	<b>Average</b>
0.65	0.33	0.33	0.17
<b>AFTER POWER IS ON</b> , touching the WHITE wire to ground will allow you to change various settings on the module.			

## ⚠ WARNING

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

## ⚠ WARNING-HOT!

This product must be mounted with sufficient clearance from any plastic parts. Failure to do so may result in permanent damage to the housing.

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ELUC2(w)010(x)\_5 WIRE 0819

# UNIVERSAL UNDERCOVER LED INSERT

ELUC3HØ1Ø(x) - 9-32 Vdc, 10' CABLE

ELUC3HØ25(x) - 9-32 Vdc, 25' CABLE

## OVER-VOLTAGE PROTECTION

When an over-voltage condition is detected, the module will flash an over-voltage warning pattern of 50mS ON/950mS OFF to alert of the over-voltage condition and protect the electronics from damage due to heat/voltage.

## THERMAL COMPENSATION PROTECTION

The LED module flasher is designed to provide maximum power output while providing protection to the electronic components by reducing the output power at extreme temperatures.

## SYNC 2

Synchronizing the flashing of multiple light modules is accomplished by connecting the Green wires of different light modules together. Up to 24 light modules can be connected for synchronized flashing. All light module flash patterns must be set to the same flash pattern # to ensure proper operation. Refer to the Sequence Type section in Set-Up Table (page 4) to setup light modules to flash in alternate or simultaneous flash pattern.

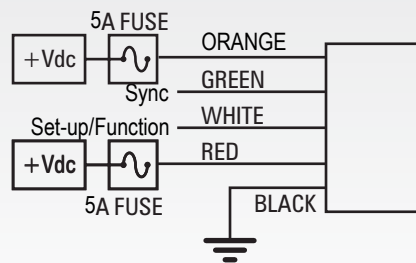
FLASH PATTERNS		
PATTERN #	SINGLE COLOR	DUAL COLOR
1	QUINT	
2	WARP	
3	INTER-CYCLE	
4	DOUBLE	
5	QUAD	
6	POWER PULSE	
7	ROAD RUNNER	
8	Q-SWITCH	
9	STEADY-BURN / ROADRUNNER (SEQUENCE TYPE 1: STEADY BURN, SEQUENCE TYPE 2: ROADRUNNER)	
10	STEADY-BURN DRIVER TITLE 13 QUAD (SEQUENCE TYPE 1: STEADY BURN, SEQUENCE TYPE 2: TITLE 13 QUAD)	
11	QUAD 2	
12	DOUBLE 2	
13		RANDOM 1
14		RANDOM 2

WIRE HOOK-UP TABLE	
WIRE COLOR:	FUNCTION:
RED	Power (Primary)
BLACK	Ground
GREEN**	Sync2 *
WHITE to GROUND	Setup Wire (See pg. 4*)
WHITE to POWER	Function Wire
ORANGE	Power (Secondary)

\*\* To sync multiple Undercover Lights, connect the Green wire from each light together.

\* Will NOT work w/ other sync products such as Ghost®, LED3, & 4 wire Intersector w/external flasher.

\* Will Work with Sync 2 products nFORCE® Secondary Lights, nFORCE® FIT, mpower® and 5 wire Intersector Lights.



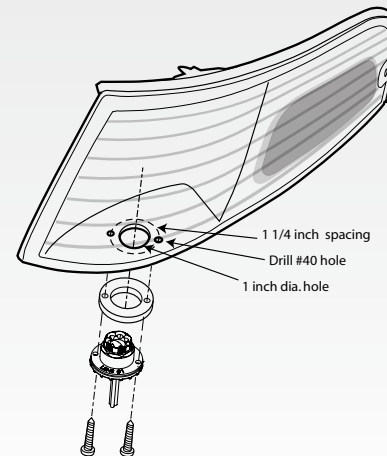
## MOUNTING INSTRUCTIONS

Up to 4 LED inserts can be synchronized for alternating or simultaneous flash patterns using the white (SYNC) wire. See back for SYNC Configuration instructions.

1. Remove the reflector assembly according to the vehicle manufacturer's instructions.
2. Establish a location for each UNDERCOVER light head with the following parameters:
  - a. Light head must have 1" clearance from plastic/lens surfaces.
  - b. Light head does not interfere with normal operation of lamp.
  - c. Choose a surface that is flat as possible for good sealing when light head is installed.
  - d. For greatest reflector fill and efficiency, place the light as close to the focal point of the reflector as possible.
3. When removing optic lenses, use small flat head screw driver to carefully pry lens off assembly. When replacing lens, do not touch LEDs or circuit board.
4. Using a 1" hole saw, drill a hole in reflector housing in the location selected in step 2.
5. Place UNDERCOVER insert into hole drilled in step 5. Using the light as a template, mark the two mounting hole locations.
6. Drill holes marked in step 6 with a #40 (0.098") drill bit.
7. Install UNDERCOVER LED Insert assembly using the gasket and #6 screws provided.
8. Complete wire connections and test light prior to remounting vehicle reflector assembly.
9. Re-install reflector assembly according to vehicle manufacturer's instructions.

## RECOMMENDED INSTALLATION BEST PRACTICES:

- Provide a 3-4" wire loop by the light for strain relief.
- Zip tie the wire to the vehicle to avoid strain and excessive movement on the light head and flasher module.
- When installing in a headlamp housing make sure to leave a minimum 0.75" clearance from a halogen type bulb due to the excessive heat.



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# UNIVERSAL UNDERCOVER LED INSERT

ELUC3H010(x) - 9-32 Vdc, 10' CABLE

ELUC3H025(x) - 9-32 Vdc, 25' CABLE

## FUNCTION TABLES

Changing the function table is only enabled when the LED module is in a flashing mode (disabled in cruise or steady ON functions). The functional operation of the LED module can be changed while applying the +V to the Red wire with the black wire connected to ground. When the light is flashing, momentarily connect the White wire to ground for >4S and <5S (light will go steady high, steady low, off, steady high, steady low) then release. The function table will now advance to the next table (table 1 to table 2, table 2 to table 3, or table 3 to table 1). Repeat above process until required function table is active. Lighthouse will report the table it changes to by flashing once for table 1, twice for table 2 and 3 times for table 3.

FUNCTION TABLE 1				
WIRE			LIGHT	
RED	ORANGE	WHT	SINGLE	DUAL
+9-32V			FLASH	FLASH DUAL
	+9-32V		CRUISE	STEADY CLR 2
+9-32V	+9-32V		FLASH	STEADY CLR 2
		+9-32V	NO OP	NO OP
+9-32V		+9-32V	LOW PWR FLASH	FLASH CLR 1
	+9-32V	+9-32V	CRUISE	FLASH CLR 2
+9-32V	+9-32V	+9-32V	LOW PWR FLASH	FLASH DUAL

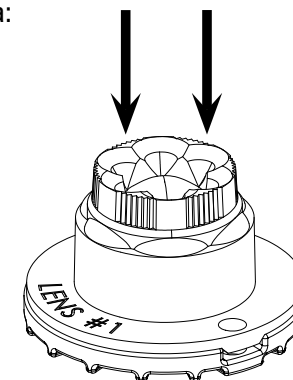
FUNCTION TABLE 3				
WIRE			LIGHT	
RED	ORANGE	WHT	SINGLE	DUAL
+9-32V			FLASH	FLASH DUAL
	+9-32V		FLASH LOW PWR	FLASH DUAL LOW PWR
+9-32V	+9-32V		FLASH LOW PWR	FLASH DUAL LOW PWR
		+9-32V	NO OP	NO OP
+9-32V		+9-32V	FLASH LOW PWR	FLASH DUAL LOW PWR
	+9-32V	+9-32V	FLASH LOW PWR	FLASH DUAL LOW PWR
+9-32V	+9-32V	+9-32V	FLASH LOW PWR	FLASH DUAL LOW PWR

FUNCTION TABLE 2				
WIRE			LIGHT	
RED	ORANGE	WHT	SINGLE	DUAL
+9-32V			FLASH	FLASH CLR 1
+9-32V		+9-32V	CRUISE	FLASH DUAL
	+9-32V		STEADY CLR 1	STEADY CLR 2
	+9-32V	+9-32V	STEADY CLR 1	STEADY CLR 2
+9-32V	+9-32V	+9-32V	STEADY CLR 1	STEADY CLR 2
		+9-32V	NO OP	NO OP
+9-32V	+9-32V		STEADY CLR 1	STEADY CLR 2

**If IR lighthouse was purchased**, functionality of the product can be verified through the use of a smart phone camera:

Point the camera lens so your screen is looking straight down at the LEDs.\*

The LEDs will appear purple when they are being activated.



\*The darker the environment, the better your camera will detect the flashing LEDs.

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ELUC2(w)010(x)\_5 WIRE 0819

# UNIVERSAL UNDERCOVER LED INSERT

ELUC3H010(x) - 9-32 Vdc, 10' CABLE

ELUC3H025(x) - 9-32 Vdc, 25' CABLE

## COLOR SWAP

This function is only valid for dual and tri-color light modules and can only be changed when the light module is in a flashing mode (disabled for single color modules and when light module is operating in cruise or steady ON functions). When the light is flashing, momentarily connect the white wire to ground for >2S and <3S (light will go steady high, steady low, off) then release. The light module will switch between Color Swap OFF and Color Swap ON. When Color Swap is OFF, the 1st color will flash 1st on a dual/tri color pattern. When Color Swap is ON, the 2nd color will flash 1st on a dual/tri color pattern.

## SIMULTANEOUS/ALTERNATE

This function can only be changed when the LED module is in a flashing mode (disabled in cruise or steady ON functions) and only has an effect when at least 2 LED modules have the green sync wire connected together. When the light is flashing, momentarily connect the white wire to ground for >3S and <4S (light will go steady high, steady low, off, steady high) then release. The light module will switch between Simultaneous and Alternate each time this sequence is done. To have light modules flash simultaneously, both light modules need to be set to the same sequence type (Set-Up Table). To have light modules flash alternately, the light modules need to be set to different sequence types (Set-Up Table).

## ADVANCE PATTERN

Flash pattern can only be changed when the LED module is in a flashing mode (disabled in cruise or steady ON functions). When the light is flashing, momentarily connect the white wire to ground for >250mS and <1S (light will go steady high) then release. The flash pattern will advance to the next pattern. If the light module was at the last pattern, the pattern will reset to the 1st pattern.

## BACKUP PATTERN

This function is only valid when the LED module is in a flashing mode (disabled in cruise or steady ON functions). When the light is flashing, momentarily connect the white wire to ground for >1S and < 2S (light will go steady high, steady low) then release. The flash pattern will backup to the previous pattern. If the light module was at the first pattern, the pattern will change to the last pattern on the list.

## PATTERN RESET

This function is only valid when the LED module is in a flashing mode (disabled in cruise or steady ON functions). When the light is flashing, momentarily connect the white wire to ground for >5S and <6S (light will go steady high, steady low, off, steady high, steady low, off) then release. The flash pattern will reset to the 1st pattern in the list.

## FACTORY RESET & COLOR TYPE

This function is only valid when the LED module is in a flashing mode (disabled in cruise or steady ON functions). When the light is flashing, momentarily connect the white wire to ground for >7S and <8S (light will go steady high, steady low, off, steady high, steady low, off, steady high) then release. The LED module flashes Single color or Dual color. Set to the correct LED insert type.

SETUP TABLE			
SECONDS		USER INTERFACE	
FROM	TO	VISUAL FEEDBACK	ACTION TAKEN
0	1	STEADY-HIGH (60%)	FORWARD ONE PATTERN
1	2	STEADY-LOW (30%)	BACKWARD ONE PATTERN
2	3	OFF	COLOR SWAP (OFF OR ON)
3	4	STEADY - HIGH (60%)	SEQUENCE TYPE: SIMULTANEOUS OR ALTERNATE
4	5	STEADY - LOW (30%)	SEE FUNCTION TABLE
5	6	OFF	RESET TO PATTERN 1
6	7	STEADY-HIGH (60%)	FACTORY RESET (PATTERN 1, COLOR SWAP: OFF, SIMULTANEOUS) SEPARATE COLOR CONTROL: OFF

**If held longer than 8 seconds, the light will go back to flashing the current pattern and no action will be taken.**

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# UNIVERSAL UNDERCOVER LED INSERT

ELUC3H010(x) - 9-32 Vdc, 10' CABLE

ELUC3H025(x) - 9-32 Vdc, 25' CABLE

## REMOTE MODE: FOR USE WITH bluePRINT® SYSTEM ONLY

Connecting the Green wire to ground before applying power to the Red or Red/White wires will place the LED module into remote mode and the light output color will be directly controlled by the input wires as shown below.

For Cruise mode or Low Power control of the LED module, the signal to the control wires must be 100 +/- 2Hz using the duty cycle inputs listed below to produce the light output.

Universal Undercover LED Light Remote Mode Functionality					
Red Wire	Orange Wire	Single Color		Dual Color	
		Color Swap=OFF	Color Swap=ON	Color Swap=OFF	Color Swap=ON
Cruise	-	Cruise Color 1		Cruise Color 1	Cruise Color 2
-	Cruise			Cruise Color 2	Cruise Color 1
Cruise	Cruise			Cruise Color 2	Cruise Color 1
Flash	-	Flash Color 1		Flash Color 1	Flash Color 2
-	Flash			Flash Color 2	Flash Color 1
Flash	Flash			Flash Color 2	Flash Color 1
Steady ON	-	Steady ON Color 1		Steady ON Color 1	Steady ON Color 2
-	Steady ON			Steady ON Color 2	Steady ON Color 1
Steady ON	Steady ON			Steady ON Color 2	Steady ON Color 1
Cruise	Flash			Flash Color 2/Cruise Color 1 during OFF cycle of Flash	Flash Color 1/Cruise Color 2 during OFF cycle of Flash
Cruise	Steady ON			Steady ON Color 2	Steady ON Color 1
Flash	Steady ON			Steady ON Color 2	Steady ON Color 1

Cruise Mode Duty Cycle (@ 100Hz)	
Input	Light Output
40%	OFF
50%	5%
60%	10%

Low Power Flash D.C. (@ 100Hz)	
Input	Light Output
70%	30%
80%	40%
90%	50%

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