ECCO®

Installation and Operation Instructions
LED SURFACE MOUNT LIGHT HEADS
Multi Color

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

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

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

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

Contents:

Package Contains:

1	Light Head
2	Screws
1	Installation Guide
1	Mounting Gasket
1	Bezel

Operation Environment:

Ambient Temperature: -40 to 65ºC(-40 to 149ºF)

Specifications:

| Light Head Model	ED3744	ED3755
Input Voltage	12-24VDC	12-24VDC
Work Current	0.6A Max @ 12 VDC Nominal	0.8A Max @ 12 VDC Nominal
Physical H x W x L	0.62 in x 1.39 in x 4.72 in 1.58 cm x 3.53 cm x 11.98 cm	0.62 in x 1.39 in x 6.21 in 1.58 cm x 3.53 cm x 15.78 cm
Weight	0.13lb (0.06kg)	0.18lb (0.08kg)
Available Dual Colors	Amb/Wht, Blue/Amb, Blue/Wht, Red/Amb, Red/Blue, Red/Wht	Blue/Amb, Blue/Wht, Red/Amb, Red/Blue, Red/Wht

Installation and Mounting:

To mount the light head, use the bezel as a template to mark the mounting holes. The supplied self-tapping #6 x 0.75" screws typically use 0.125" diameter holes but this may vary depending on the type of material and the thickness being tapped. Provide a minimum 0.50" diameter hole for the wires. Grommet the hole if possible and seal with RTV sealant.

It is important to note:
The light head has a small round hole covered with vent membrane that must face downward when mounting the light head.

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

MTG GASKET
LIGHT HEAD
BEZEL
FASTENERS
Max 10 in-lbs.(1.1Nm)
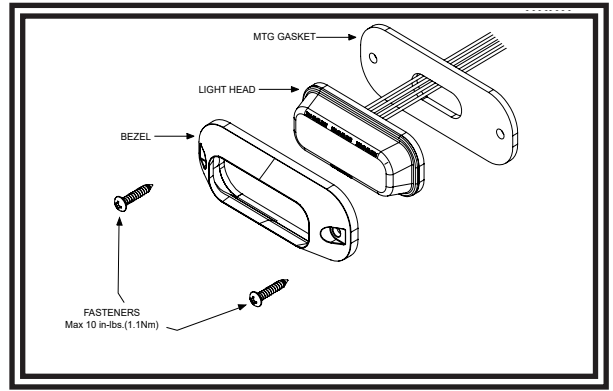
Important! This unit is a safety device, and it must be connected to its own separate, fused power point to assure its continued operation should any other electrical accessory fail.

Wiring Instructions:

RED: Positive, (5A fuse required)
WHITE: Positive, (5A fuse required)
BLACK: Negative
BLUE: Pattern select to negative -- Dim control to positive
YELLOW: Synchronized Function (Up to 32 units can be Synchronized)

Notes on Choosing Flash Patterns:

A variety of flash patterns may be chosen for the light head. The Multi Color light heads are split vertically as separate lighted areas that may be chosen to operate alternately. The areas are denoted by: Primary color 1&3 (color1 on the left side and color3 on the right, typically the same color) and Secondary color 2&4 (color2 on the left side and color4 on the right, typically the same color). This allows for patterns that flash right-left using various multiple color combinations.

A separate flash pattern may be assigned for the power wires red, white, or both connected together and the pattern operated depending which wire or wires are energized. Power the red or the white wires (or both together) then use the pattern select blue wire (touch to ground) to select the chosen flash pattern from the list below. See the legend at the top of the pattern list for compliance with various standards.

Pattern Select Operation:

The light head flash pattern may be changed by touching the Blue wire to ground for the following intervals (while the light head is flashing):
NOTE: The blue wire must be disconnected from any voltage when not activating DIM nor changing flash patterns.
- When the light head signal becomes steady, disconnect the Blue wire and the flash pattern will increment by one pattern.
- When the light head signal becomes steady, then goes off, disconnect the Blue wire and the flash pattern will decrement by one pattern.
- When the light head signal becomes steady, then goes off, then becomes steady again, disconnect the Blue wire and the flash pattern will reset to the factory default pattern.
- When the light head signal becomes steady, then goes off, then becomes steady again, then goes off again, disconnect the Blue wire and the flash pattern will become set to the steady burn mode.

Notes on Dim Control:

The light head intensity may be reduced if necessary. The Blue wire when connected to positive will reduce the intensity to 25% for SAE patterns. Light intensity for ECE patterns will reduce to 55%.
NOTE: The blue wire must be disconnected from any voltage when not activating DIM nor changing flash patterns.

Notes on Synchronizing and Phase (Sync Ph):

(Up to 32 light heads can be Synchronized by connecting their yellow wires).
When the yellow wires of the light heads are connected together, the group with Ph1 flash patterns will flash simultaneously. If the light heads in the second group are set to Ph2 flash patterns, they will flash alternately with the first group. To simplify the set-up of a synchronized installation, the following process is recommended:
1. Before connecting the yellow wires together, choose the desired flash pattern for each light head. **The patterns chosen must have the same flash rate for all light heads intended to be synchronized. (By definition a 75fpm light head will not sync with at 120fpm light head)** To avoid confusion set each light head individually to the chosen flash pattern using the blue pattern select wire. Ph1 light heads will alternate with Ph2 light heads and simultaneously with all other light heads set to Ph1. Ph2 light heads flash simultaneously with all other light heads set to Ph2. It is also strongly recommended that the same style of flash pattern be used on all heads to produce the most effective warning pattern.
2. Connect the yellow synchronization wires together and check that the light heads are flashing in a synchronized manner as expected. If a pattern for one light head appears to be wrong, keep the yellow wire connected and use the blue pattern select wire to cycle forward or backward for that individual light head until the correct pattern is selected. Once that is completed verify the light head is synchoronized correctly.

Flash Patterns ED3744 and ED3755 - Multi Color:
(continued on next page)

For patterns that meet SAE J595 Class1 requirements for Red, Blue, Amber, and White, see **S** in chart!
For patterns that meet California Title 13 Class B requirements for Red, Blue, and Amber, see **C** in chart!
For patterns that meet ECE65 Class1 Cat X (night only)requirements for Red, Blue, Amber, see **E1** in chart!
For patterns that meet ECE65 Class2 Cat X (day & night) requirements for Red, Blue, Amber, see **E2** in chart!

PATTERN GROUP	RED WIRE LED Color 1&3	WHITE WIRE LED Color 2&4	RED & WHITE WIRE LED Color 1&3, Color 2&4	FLASH PATTERN	SYNC	Complies with
0	1-Default			Cycle Flash Color 1&3	no	
		1-Default		Cycle Flash Color 2&4	no	
			1-Default	Cycle Flash Color 1&3 and Color 2&4	no	
1	2		2	Single 75FPM Ph1 Color 1 Sync Color 3	yes	SC
	3		3	Single 75FPM Ph2 Color 1 Sync Color 3	yes	SC
			4	Single 75FPM Ph1 Color 1 Alt Color 4	yes	
			5	Single 75FPM Ph2 Color 1 Alt Color 4	yes	
		2	6	Single 75FPM Ph1 Color 2 Sync Color 4	yes	SC
		3	7	Single 75FPM Ph2 Color 2 Sync Color 4	yes	SC
	4	4	8	Single 75FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 1)	yes	SC
	5	5	9	Single 75FPM (Color 1 Sync Color 3) Alt Color 2 Sync Color 4) (Phase 2)	yes	SC
	6	6	10	Single 75FPM Color 1 Alt Color 2 Alt Color 3 Alt Color 4	yes	
2	7		11	Single 375FPM Ph1 Color 1 Sync Color 3	yes	
	8		12	Single 375FPM Ph2 Color 1 Sync Color 3	yes	
			13	Single 375FPM Ph1 Color 1 Alt Color 4	yes	
			14	Single 375FPM Ph2 Color 1 Alt Color 4	yes	
		7	15	Single 375FPM Ph1 Color 2 Sync Color 4	yes	
		8	16	Single 375FPM Ph2 Color 2 Sync Color 4	yes	
	9	9	17	Single 375FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 1)	yes	
	10	10	18	Single 375FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 2)	yes	
	11	11	19	Single 375FPM Color 1 Alt Color 2 Alt Color 3 Alt Color 4	yes	

Flash Patterns ED3744 and ED3755 - Multi Color (Continued):

For patterns that meet SAE J595 Class1 requirements for Red, Blue, Amber, and White, see **S** in chart!

For patterns that meet California Title 13 Class B requirements for Red, Blue, and Amber, see **C** in chart!

For patterns that meet ECE65 Class1 Cat X (night only)requirements for Red, Blue, Amber, see **E1** in chart!

For patterns that meet ECE65 Class2 Cat X (day & night) requirements for Red, Blue, Amber, see **E2** in chart!

PATTERN GROUP	RED WIRE LED Color 1&3	WHITE WIRE LED Color 2&4	RED & WHITE WIRE LED Color 1&3, Color 2&4	FLASH PATTERN	SYNC	Complies with
3	12		20	Double 75FPM Ph1 Color 1 Sync Color 3	yes	SC
	13		21	Double 75FPM Ph2 Color 1 Sync Color 3	yes	SC
			22	Double 75FPM Ph1 Color 1 Alt Color 4	yes	
			23	Double 75FPM Ph2 Color 1 Alt Color 4	yes	
		12	24	Double 75FPM Ph1 Color 2 Sync Color 4	yes	SC
		13	25	Double75FPM Ph2 Color 2 Sync Color 4	yes	SC
	14	14	26	Double 75FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 1)	yes	SC
	15	15	27	Double 75FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 2)	yes	SC
	16	16	28	Double 75FPM Color 1 Alt Color 2 Alt Color 3 Alt Color 4	yes	
4	17		29	**ED3744 BLUE ONLY** - Dbl 120FPM Ph1 Color 1 Sync Color 3	yes	SE1
				ED3744 RED, AMB ONLY - Dbl 120FPM Ph1 Color 1 Sync Color 3		SE2
				ED3755 RED, BLUE, AMB - Dbl 120FPM Ph1 Color 1 Sync Color 3		SE2
	18		30	**ED3744 BLUE ONLY** - Dbl 120FPM Ph2 Color 1 Sync Color 3	yes	SE1
				ED3744 RED, AMB ONLY - Dbl 120FPM Ph2 Color 1 Sync Color 3		SE2
				ED3755 RED, BLUE, AMB - Dbl 120FPM Ph2 Color 1 Sync Color 3		SE2
			31	Double 120FPM Ph1 Color 1 Alt Color 4	yes	
			32	Double 120FPM Ph2 Color 1 Alt Color 4	yes	
		17	33	**ED3744 BLUE ONLY** - Dbl 120FPM Ph1 Color 2 Sync Color 4	yes	SE1
				ED3744 RED, AMB ONLY - Dbl 120FPM Ph1 Color 2 Sync Color 4		SE2
				ED3755 RED, BLUE, AMB - Dbl 120FPM Ph1 Color 2 Sync Color 4		SE2
		18	34	**ED3744 BLUE ONLY** - Dbl 120FPM Ph2 Color 2 Sync Color 4	yes	SE1
				ED3744 RED, AMB ONLY - Dbl 120FPM Ph2 Color 2 Sync Color 4		SE2
				ED3755 RED, BLUE, AMB - Dbl 120FPM Ph2 Color 2 Sync Color 4		SE2
	19	19	35	Double 120FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 1)	yes	S
	20	20	36	Double 120FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 2)	yes	S
	21	21	37	Double 120FPM Color 1 Alt Color 2 Alt Color 3 Alt Color 4	yes	
5	22		38	Triple 75FPM Ph1 Color 1 Sync Color 3	yes	S
	23		39	Triple 75FPM Ph2 Color 1 Sync Color 3	yes	S
			40	Triple 75FPM Ph1 Color 1 Alt Color 4	yes	
			41	Triple 75FPM Ph2 Color 1 Alt Color 4	yes	
		22	42	Triple 75FPM Ph1 Color 2 Sync Color 4	yes	S
		23	43	Triple 75FPM Ph2 Color 2 Sync Color 4	yes	S
	24	24	44	Triple 75FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 1)	yes	S
	25	25	45	Triple 75FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 2)	yes	S
	26	26	46	Triple 75FPM Color 1 Alt Color 2 Alt Color 3 Alt Color 4	yes	
6	27		47	Quad 75FPM Ph1 Color 1 Sync Color 3	yes	SC
	28		48	Quad 75FPM Ph2 Color 1 Sync Color 3	yes	SC
			49	Quad 75FPM Ph1 Color 1 Alt Color 4	yes	
			50	Quad 75FPM Ph2 Color 1 Alt Color 4	yes	
		27	51	Quad 75FPM Ph1 Color 2 Sync Color 4	yes	SC
		28	52	Quad 75FPM Ph2 Color 2 Sync Color 4	yes	SC
	29	29	53	Quad 75FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 1)	yes	SC
	30	30	54	Quad 75FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 2)	yes	SC
	31	31	55	Quad 75FPM Color 1 Alt Color 2 Alt Color 3 Alt Color 4	yes	
7	32		56	Quad 150FPM Ph1 Color 1 Sync Color 3	yes	S
	33		57	Quad 150FPM Ph2 Color 1 Sync Color 3	yes	S
			58	Quad 150FPM Ph1 Color 1 Alt Color 4	yes	
			59	Quad 150FPM Ph2 Color 1 Alt Color 4	yes	
		32	60	Quad 150FPM Ph1 Color 2 Sync Color 4	yes	S
		33	61	Quad 150FPM Ph2 Color 2 Sync Color 4	yes	S
	34	34	62	Quad 150FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 1)	yes	S
	35	35	63	Quad 150FPM (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4) (Phase 2)	yes	S
	36	36	64	Quad 150FPM Color 1 Alt Color 2 Alt Color 3 Alt Color 4	yes	
8			65	Modulation (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4)	no	
9			66	2 Double,2 Quad (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4)	no	
10			67	4 Single,2 Triple (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4)	no	
11			68	1Doube 1Triple 1Quad (Color 1 Sync Color 3) Alt (Color 2 Sync Color 4)	no	
12	37		69	Steady Burn-Color 1 & 3	no	
		37	70	Steady Burn-Color 2 & 4	no	

Troubleshooting:

The LED Surface Mount series light head has been thoroughly factory tested. If any of the the device functions fail, please check the following:

1. Be sure the power source is activated, then check all connections both positive and ground at the light head (to assure no open or shorted circuits).
2. Permanently connecting the Blue programming wire to ground will disable the light head, no matter what the programmed flash pattern.
3. If the Dim function does not operate, verify the Blue wire is connect to positive.
4. If the sync function is not being used and the light head is functioning erratically, verify the Yellow wire is not connected to positive.