



ECCO® Installation and Operation Instructions 12+ Series Vantage™ Lightbars

IMPORTANT! Read all instructions before installing and using. Installer: This manual must be delivered to the end user. This manual assumes installation by a suitably qualified Automotive Technician.



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.
8. This product may contain high intensity LEDs staring directly into these lights could result in temporary and/or permanent vision impairment.



WARNING!

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

Unpacking and Pre-Installation:

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

Specifications:

Length.....24", 30", 36", 42", 48",54",60",72"
 Height.....2.5"
 Width.....11"
 Voltage.....12-24VDC
 Current Draw.....Single Color LED Module = 0.45A Avg. @ 12.8VDC
 Dual Color LED Module = 0.90A Avg. @ 12.8VDC
 LED STT(pair) = 0.25A Avg.@ 12.8VDC
 LED AL,TD,WL (pair) = 1.80A Avg. @ 12.8VDC
 Flash Patterns.....48 (See chart)

Installation & Mounting:

Mounting

Before proceeding with installation, plan all wiring and cable routing. Select the mounting location for the lightbar on a flat, smooth surface and center the unit across the width of the vehicle. The mounting location for the lightbar should be chosen such that the lightbar is level and visibility to approaching traffic is optimized. Mounting should be such that there is no less than 1/2" clearance between the roof and the lightbar at any point.

**Caution:**

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

Safety Director Flash Pattern Chart		
Sequence	Description	SAE J595
1	Left	N/A
2	Left Build	N/A
3	Right	N/A
4	Right Build	N/A
5	Center Out	N/A
6	Center Out Build	N/A
7	Wig Wag	Class 1
8	Quad Alternate	Class 1
9	Quad Alternate Center Pulse	N/A
10	Single Alternate	Class 1
11	Single Alternate Center Pulse	N/A

NOTE: Unless otherwise configured, lightbars containing dual color modules will operate such that patterns referencing "Front" will operate color 1 and patterns referencing "Rear" will operate color 2; e.g. on an EZ1206AR dual color module, amber is color 1 and red is color 2.

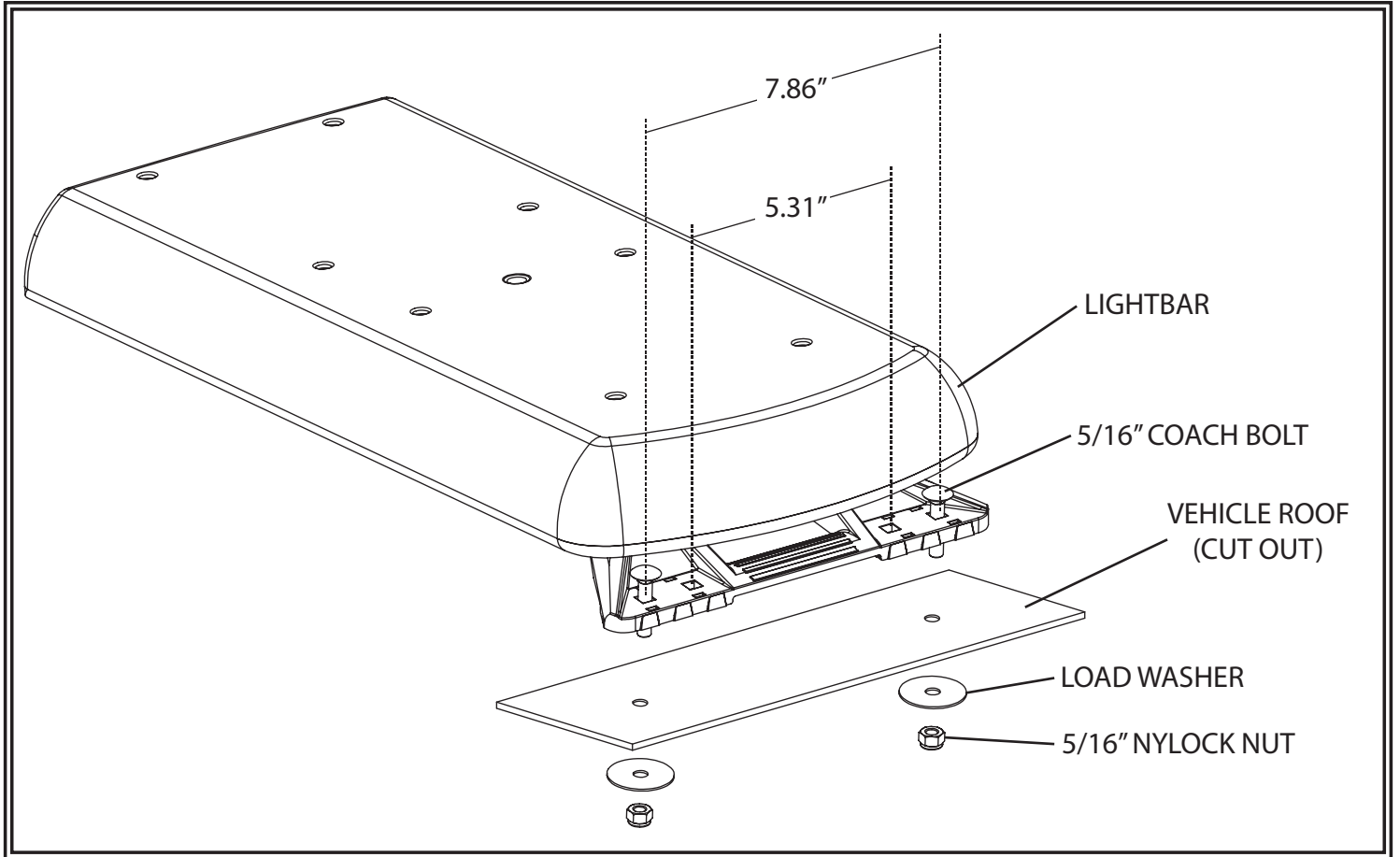
	Pattern 1 Wire Connection	SAE J845				SAE J595				CA T13			
		FPM	A	B	C	R	A	B	C	R	A	B	R
1	Single Front	125	C1A	C1A	C1A	C1A	C1	C1	C1	C1	-	-	-
2	Single Rear	125	C1A	C1A	C1A	C1A	C1	C1	C1	C1	-	-	-
3	Single Front Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
4	Single Rear Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
5	Single Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
6	Double Front	125	C1A	C1A	C1A	C1A	C1	C1	C2	C1	-	-	-
7	Double Rear	125	C1A	C1A	C1A	C1A	C1	C1	C2	C1	-	-	-
8	Double Front Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
9	Double Rear Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
10	Double Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
11	Quad Front	125	C1A	C1A	C1A	C1A	C1	C1	C2	C1	-	-	-
12	Quad Rear	125	C1A	C1A	C1A	C1A	C1	C1	C2	C1	-	-	-
13	Quad Front Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
14	Quad Rear Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
15	8 Pulse Front	125	C1S	C1S	C1S	C1S	C1	C2	C2	C1	-	-	-
16	8 Pulse Back	125	C1S	C1S	C1S	C1S	C1	C2	C2	C1	-	-	-
17	8 Pulse Front Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C2	C2	C1	-	-	-
18	8 Pulse Rear Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C2	C2	C1	-	-	-
19	8 Pulse Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C2	C2	C1	-	-	-
20	Single Alternating Left/Right Center Pulse	120	-	-	-	-	C1	C1	C1	C1	-	-	-
21	Single Front Alternating Left/Right Center Pulse	120	-	-	-	-	C1	C1	C1	C1	-	-	-
22	Single Rear Alternating Left/Right Center Pulse	120	-	-	-	-	C1	C1	C1	C1	-	-	-
23	Double Alternating Left/Right Center Pulse	120	-	-	-	-	C1	C1	C2	C1	-	-	-
24	Double Front Alternating Left/Right Center Pulse	120	-	-	-	-	C1	C1	C2	C1	-	-	-
25	Double Rear Alternating Left/Right Center Pulse	120	-	-	-	-	C1	C1	C2	C1	-	-	-
26	Quad Alternating Left/Right Center Pulse	120	-	-	-	-	C1	C1	C2	C1	-	-	-
27	Quad Rear Alternating Left/Right Center Pulse	120	-	-	-	-	C1	C1	C2	C1	-	-	-
28	Quad Front Alternating Left/Right Center Pulse	120	-	-	-	-	C1	C1	C2	C1	-	-	-
29	8 Pulse Alternating Left/Right Center Pulse	125	-	-	-	-	C1	C1	C2	C1	-	-	-
30	8 Pulse Rear Alternating Left/Right Center Pulse	125	-	-	-	-	C1	C1	C2	C1	-	-	-
31	8 Pulse Front Alternating Left/Right Center Pulse	125	-	-	-	-	C1	C1	C2	C1	-	-	-
32	Rotation	NA	-	-	-	-	-	-	-	-	-	-	-
33	Rotate Quad Burst	NA	-	-	-	-	-	-	-	-	-	-	-
34	Slow Rotation	NA	-	-	-	-	-	-	-	-	-	-	-
35	Single	60	C1A	C1A	C1A	C1A	C1	C1	C1	C1	CE	CB	CB
36	Double	60	C1A	C1A	C1A	C1A	C1	C1	C1	C1	CE	CB	CB
37	Quad	60	C1A	C1A	C1A	C1A	C1	C1	C1	C1	CE	CB	CB
38	Double	75	C1A	C1A	C1A	C1A	C1	C1	C1	C1	CE	CB	CB
39	Quad	75	C1A	C1A	C1A	C1A	C1	C1	C2	C1	-	-	-
40	Quint	75	C1A	C1A	C1A	C1A	C1	C1	C1	C1	CE	CB	CB
41	10 Pulse	75	C1A	C1A	C1A	C1A	C1	C1	C2	C1	-	-	-
42	Double Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
43	Quad Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
44	Quint Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
45	10 Pulse Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
46	Double Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
47	Quad Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
48	Quint Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
49	Double Alternating Left/Right Center Pulse	75	-	-	-	-	C1	C1	C1	C1	CE	CB	CB
50	Quad Alternating Left/Right Center Pulse	75	-	-	-	-	C1	C1	C1	C1	-	-	-
51	Quint Alternating Left/Right Center Pulse	75	-	-	-	-	C1	C1	C1	C1	-	-	-
52	10 Pulse Alternating Left/Right Center Pulse	75	-	-	-	-	C1	C1	C2	C1	-	-	-
53	Double Alternating Left/Right Center Pulse	150	-	-	-	-	C1	C1	C1	C1	-	-	-
54	Quad Alternating Left/Right Center Pulse	150	-	-	-	-	C1	C1	C1	C1	-	-	-
55	Quint Alternating Left/Right Center Pulse	150	-	-	-	-	C1	C1	C2	C1	-	-	-
56	Steady On	NA	-	-	-	-	-	-	-	-	-	-	-

57	Single	125	C1A	C1A	C1A	C1A	C1	C1	C1	C1	-	-	-
58	Double	125	C1A	C1A	C1A	C1A	C1	C1	C2	C1	-	-	-
59	Quad	125	C1A	C1A	C1A	C1A	C1	C1	C2	C1	-	-	-
60	8 Pulse	125	C1A	C1A	C1A	C1A	C2	C2	C2	C1	-	-	-
61	Single Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
62	Double Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
63	Quad Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
64	8 Pulse Alternating Left/Right	125	C1S	C1S	C1S	C1S	C2	C2	C2	C1	-	-	-
65	Single Front	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
66	Single Rear	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
67	Single Front/Rear	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
68	Double Front	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
69	Double Rear	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
70	Quad Front	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
71	Quad Rear	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
72	Double Front	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
73	Double Rear	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
74	Double Front Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
75	Double Rear Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
76	Double Front Alternating Left/Right Center Pulse	75	-	-	-	-	C1	C1	C1	C1	CE	CB	CB
77	Double Rear Alternating Left/Right Center Pulse	75	-	-	-	-	C1	C1	C1	C1	CE	CB	CB
78	Double Alternating Left/Right Front/Rear	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
79	Quad Front	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
80	Quad Rear	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
81	Quad Front Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
82	Quad Rear Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
83	Quad Front Alternating Left/Right Center Pulse	75	-	-	-	-	C1	C1	C1	C1	-	-	-
84	Quad Rear Alternating Left/Right Center Pulse	75	-	-	-	-	C1	C1	C1	C1	-	-	-
85	Quad Alternating Left/Right Front/Rear	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
86	Quint Front	150	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
87	Quint Rear	150	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
88	Quint Front Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
89	Quint Rear Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
90	Quint Front Center Pulse	150	-	-	-	-	C1	C1	C2	C1	-	-	-
91	Quint Rear Center Pulse	150	-	-	-	-	C1	C1	C2	C1	-	-	-
92	Quint Alternating Left/Right Front/Rear	150	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
93	10 Pulse Front	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
94	10 Pulse Rear	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
95	10 Pulse Front Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
96	10 Pulse Rear Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
97	10 Pulse Front Alternating Left/Right Center Pulse	75	-	-	-	-	C1	C1	C2	C1	-	-	-
98	10 Pulse Rear Alternating Left/Right Center Pulse	75	-	-	-	-	C1	C1	C2	C1	-	-	-
99	10 Pulse Alternating Left/Right Front/ Rear	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
100	Double Front Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
101	Double Rear Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
102	Double Front Alternating Left/Right Center Pulse	150	-	-	-	-	C1	C1	C1	C1	-	-	-
103	Double Rear Alternating Left/Right Center Pulse	150	-	-	-	-	C1	C1	C1	C1	-	-	-
104	Double Alternating Left/Right Front/Back	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
105	Quad Front Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
106	Quad Rear Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
107	Quad Front Alternating Left/Right Center Pulse	150	-	-	-	-	C1	C1	C1	C1	-	-	-
108	Quad Rear Alternating Left/Right Center Pulse	150	-	-	-	-	C1	C1	C1	C1	-	-	-
109	Quad Alternating Left/Right Front/Rear	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
110	Quint Front Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
111	Quint Rear Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
112	Quint Alternating Left/Right Front/Rear	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
113	Front Steady On	NA	-	-	-	-	-	-	-	-	-	-	-
114	Rear Steady On	NA	-	-	-	-	-	-	-	-	-	-	-

	Pattern 2 Wire Connection	SAE J845					SAE J595				CA T13		
		FPM	A	B	C	R	A	B	C	R	A	B	R
1	Single	125	C1A	C1A	C1A	C1A	C1	C1	C1	C1	-	-	-
2	Double	125	C1A	C1A	C1A	C1A	C1	C1	C2	C1	-	-	-
3	Quad	125	C1A	C1A	C1A	C1A	C1	C1	C2	C1	-	-	-
4	8 Burst	125	C1A	C1A	C1A	C1A	C2	C2	C2	C1	-	-	-
5	Single Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
6	Double Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
7	Quad Alternating Left/Right	125	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
8	8 Burst Alternating Left/Right	125	C1S	C1S	C1S	C1S	C2	C2	C2	C1	-	-	-
9	Single Front	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
10	Single Rear	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
11	Single Front/Rear	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
12	Double Front	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
13	Double Rear	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
14	Quad Front	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
15	Quad Rear	60	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
16	Double Front	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
17	Double Rear	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
18	Double Front Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
19	Double Rear Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
20	Double Front Alternating Left/Right - Center Pulse	75	-	-	-	-	C1	C1	C1	C1	-	-	-
21	Double Rear Alternating Left/Right - Center Pulse	75	-	-	-	-	C1	C1	C1	C1	-	-	-
22	Double Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
23	Quad Front	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
24	Quad Rear	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
25	Quad Front Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
26	Quad Rear Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
27	Quad Front Alternating Left/Right - Center Pulse	75	-	-	-	-	C1	C1	C1	C1	-	-	-
28	Quad Rear Alternating Left/Right - Center Pulse	75	-	-	-	-	C1	C1	C1	C1	-	-	-
29	Quad Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
30	Quint Front	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
31	Quint Rear	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	CE	CB	CB
32	Quint Front Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	-	CE	CB	CB
33	Quint Rear Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	-	CE	CB	CB
34	Quint Front Alternating Left/Right - Center Pulse	75	-	-	-	-	C1	C1	C1	-	CE	CB	CB
35	Quint Rear Alternating Left/Right - Center Pulse	75	-	-	-	-	C1	C1	C1	-	-	-	-
36	Quint Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
37	10 Burst Front	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
38	10 Burst Rear	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
39	10 Burst Front Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
40	10 Burst Rear Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
41	10 Burst Front Alternating Left/Right - Center Pulse	75	-	-	-	-	C1	C1	C2	C1	-	-	-
42	10 Burst Rear Alternating Left/Right - Center Pulse	75	-	-	-	-	C1	C1	C2	C1	-	-	-
43	10 Burst Alternating Left/Right	75	C1S	C1S	C1S	C1S	C1	C1	C2	C1	-	-	-
44	Double Front Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
45	Double Rear Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
46	Double Front Alternating Left/Right - Center Pulse	150	-	-	-	-	C1	C1	C1	C1	-	-	-
47	Double Rear Alternating Left/Right - Center Pulse	150	-	-	-	-	C1	C1	C1	C1	-	-	-
48	Double Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
49	Quad Front Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
50	Quad Rear Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
51	Quad Front Alternating Left/Right - Center Pulse	150	-	-	-	-	C1	C1	C1	C1	-	-	-
52	Quad Rear Alternating Left/Right - Center Pulse	150	-	-	-	-	C1	C1	C1	C1	-	-	-
53	Quad Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
54	Quint Front Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
55	Quint Rear Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	C1	-	-	-
56	Quint Alternating Left/Right	150	C1S	C1S	C1S	C1S	C1	C1	C1	-	-	-	-

Permanent Mounting

1. Determine the location of the lightbar, and the best route for the wiring.
2. Determine the position of the mounting feet and drill the 5/16"-11/32" diameter mounting holes accordingly, if needed.
The spacing of the mounting feet from left to right is adjustable. It is suggested that the positioning of the feet be symmetrical and near the curved edges of the roof where the roof is strongest. Ideally, the outermost holes on the feet should be used for installation. The inner holes on the feet match the hole locations for ECCO 15 series lightbar and can be used when one of these lightbars has been previously installed.
3. Mount the lightbar, with the bolts going through the holes drilled in step 2, routing the wire as planned in step 1 (refer to diagram). See the Wiring section of this manual for further wiring instructions. Install washers and nuts and secure the unit.

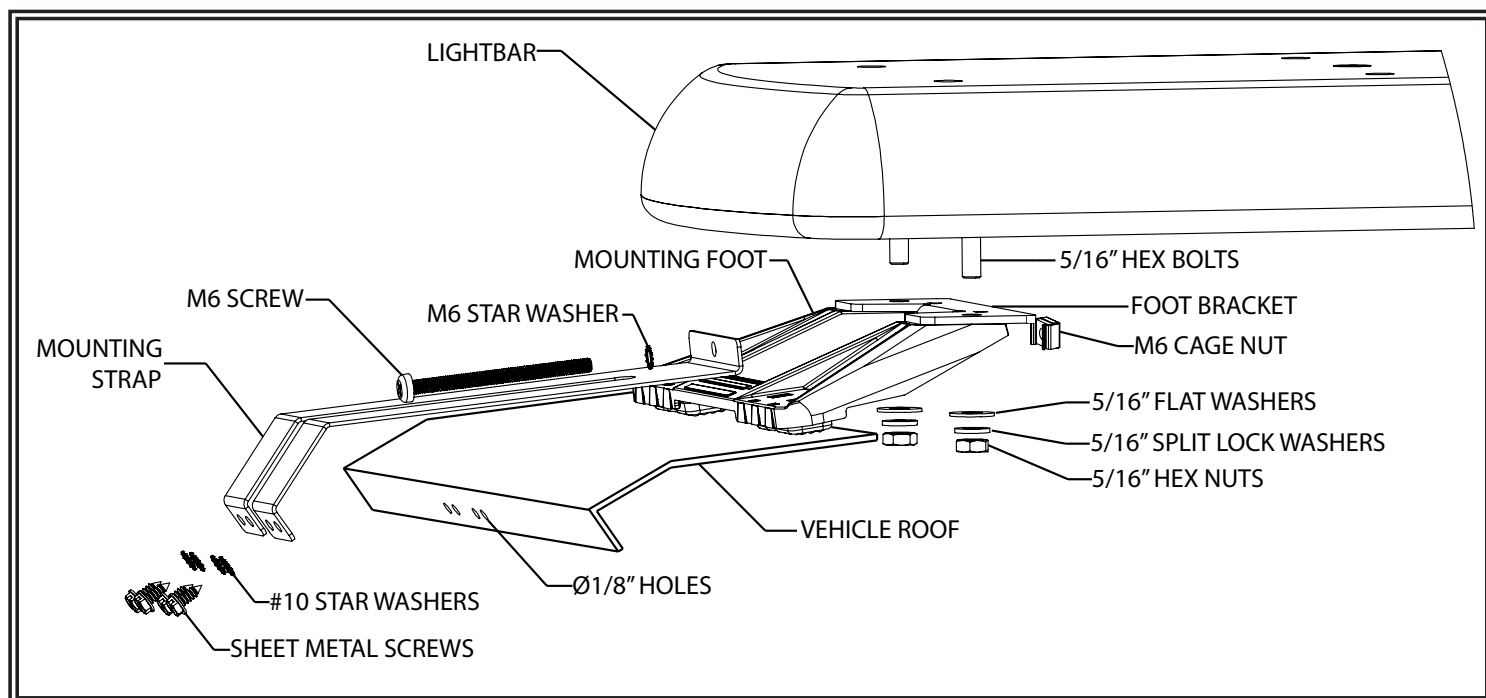


Gutter Mounting

Important!

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

1. Remove mounting foot. Position bracket onto nubs of the foot.
2. Holding the bracket and foot together, insert the cage nut as shown. It will fit snugly underneath the mounting foot. Do not install it on the outside face.
3. Install the mounting feet in reverse order of their removal. The metal bracket will be sandwiched between the bar and the composite mounting foot. Adjust the spacing of the mounting feet before securely tightening the nuts.
4. Hand thread the M6 bolt through the star washer and mounting strap into the cage nut. Be careful not to cross thread the bolt, and leave loose until later steps.
5. Once the bar is in position, use the strap as a template to drill $\text{Ø}1/8''$ holes for screws, or $\text{Ø}3/16''$ hole for rivets. It may be necessary to pull back the door sealing gasket or trim. Apply silicone or sealant around the hole, behind the strap. Secure the straps with the provided #10 stainless steel sheet metal screws with washers as shown. Screws should be tightened around 5-10 in-lb.
6. Tighten the M6 bolts evenly so that the bar is even and centered. Reinstall any removed trim and/or weather-stripping and close doors to check secure fit of the lightbar.



12+ Series Roof Mounting Kits

(Please call Customer Service for more options)

<u>Vehicle</u>	<u>P/N</u>
FORD, TRUCK, SUPERDUTY, '17	A1234RMK
FORD, TRUCK, F150, '15-'17	A1234RMK
DODGE, TRUCK, 1500, '09-'17	A1236RMK
CHEVY/GM, TRUCK, 1500, 2500, 3500, '14-'17	A1237RMK
GM, TAHOE/YUKON, '14-'17	A1237RMK
TOYOTA, TACOMA, '05-'17	A1238RMK
TOYOTA, TUNDRA, '15-'17	A1239RMK
HEADACHE RACK MOUNTING BRACKETS	A1032RMK

Wiring Instructions:

Important!

This unit is a safety device and it must be connected to its own separate, fused power point to assure its continued operation should any other electrical accessory fail. Do not wire in parallel with any other accessory.

Notes:

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



CAUTION!

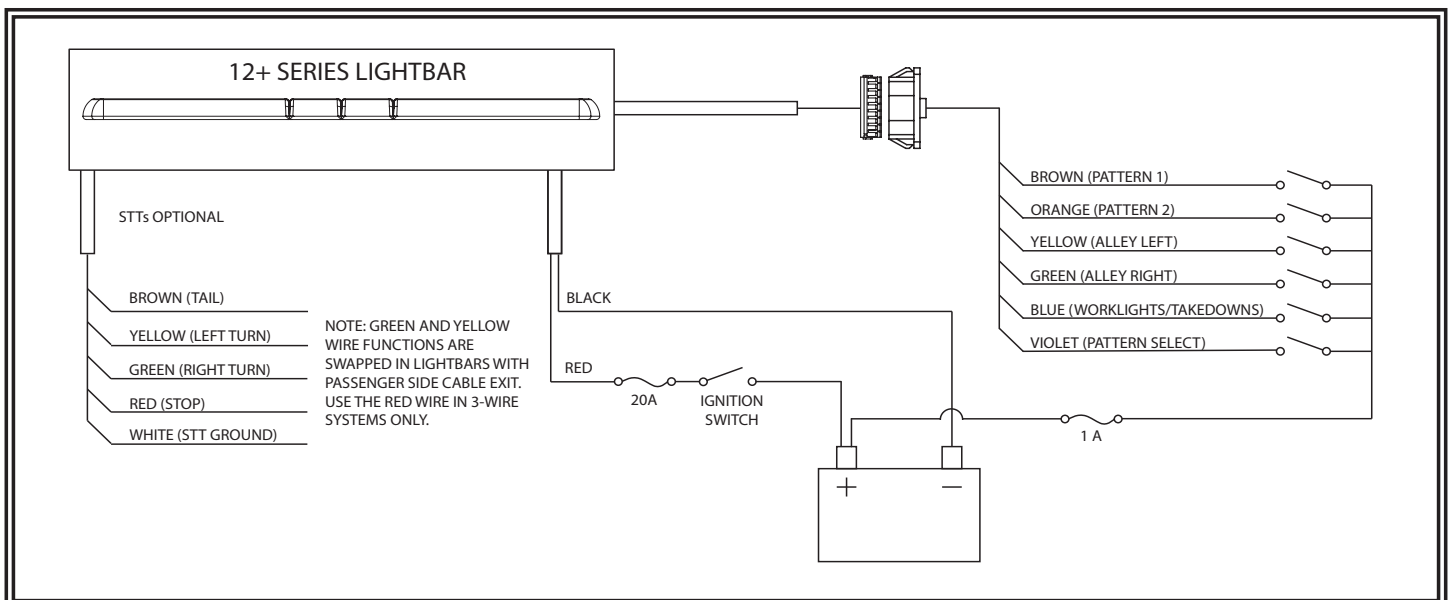
Disconnect the battery before wiring up the lightbar, to prevent accidental shorting, arcing and/or electrical shock.

General Wiring Instructions

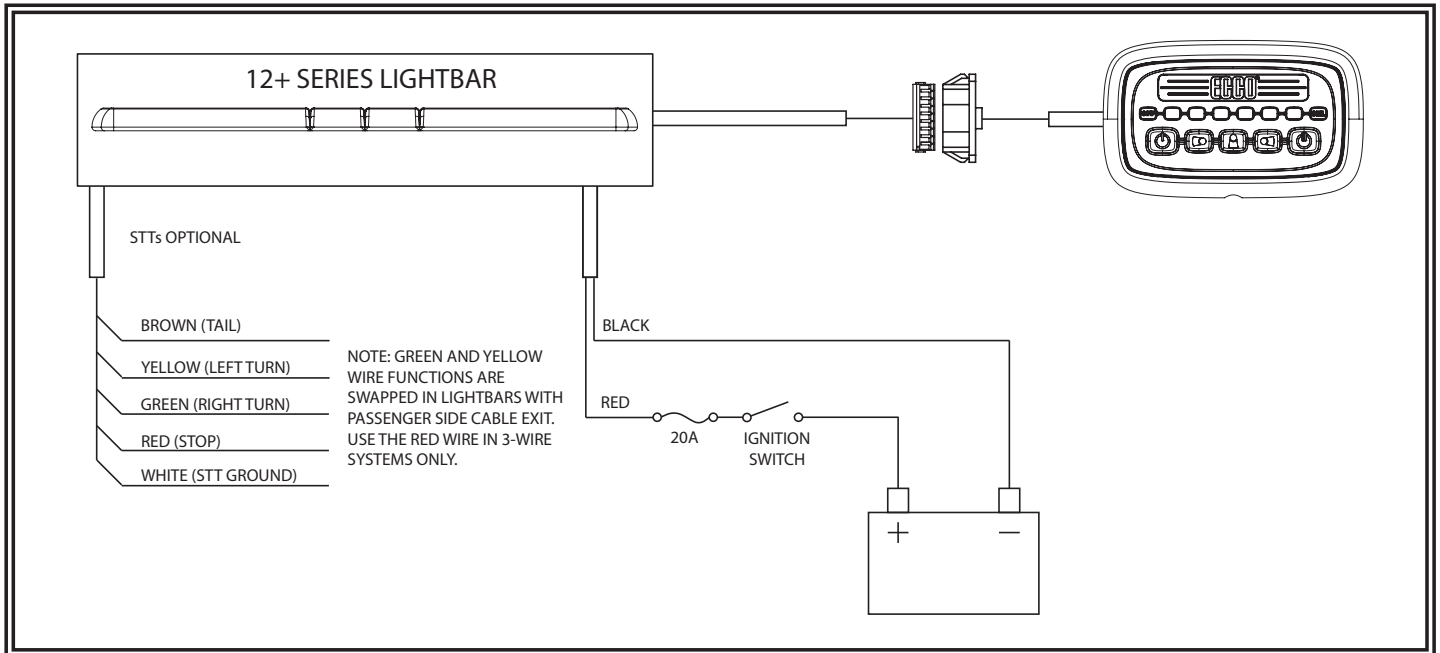
Before attempting to connect the lightbar wiring harness, refer to the wiring diagram illustrated below. The wiring diagram describes the function for each separate wire.

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

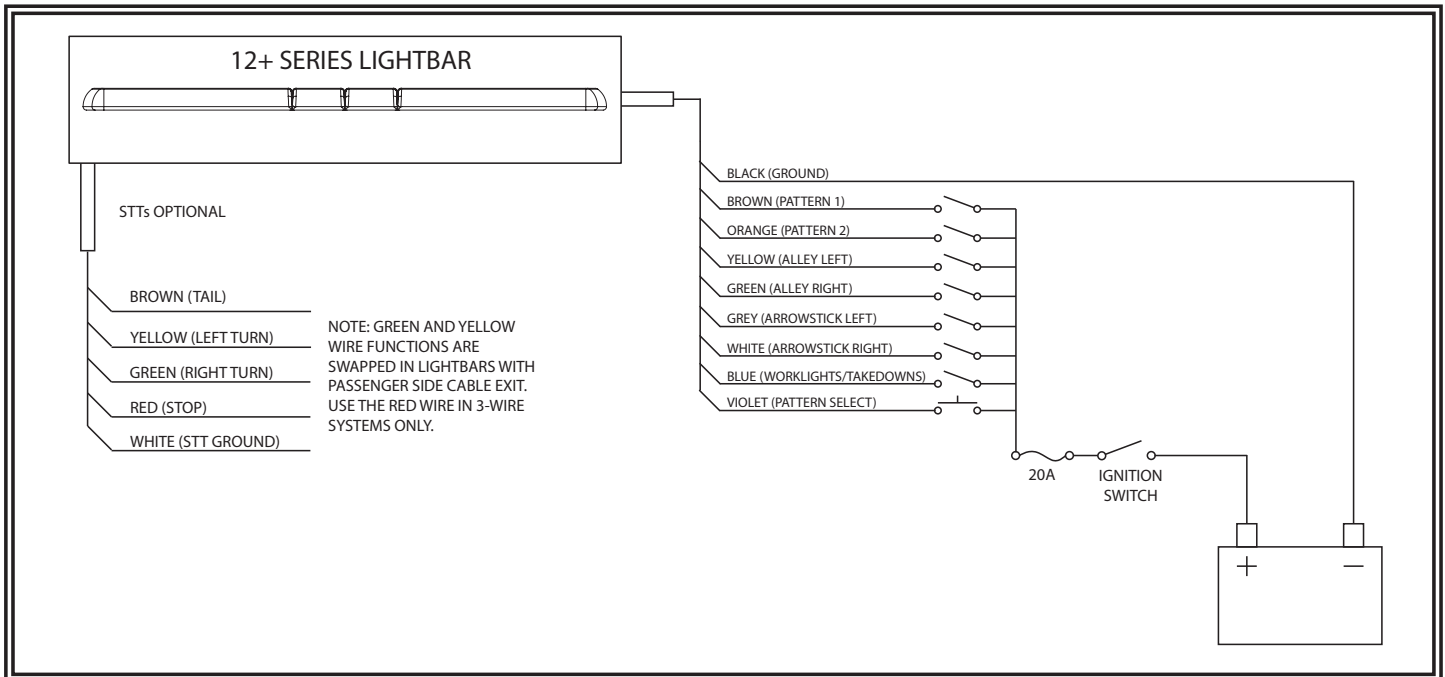
STANDARD CONFIGURATION



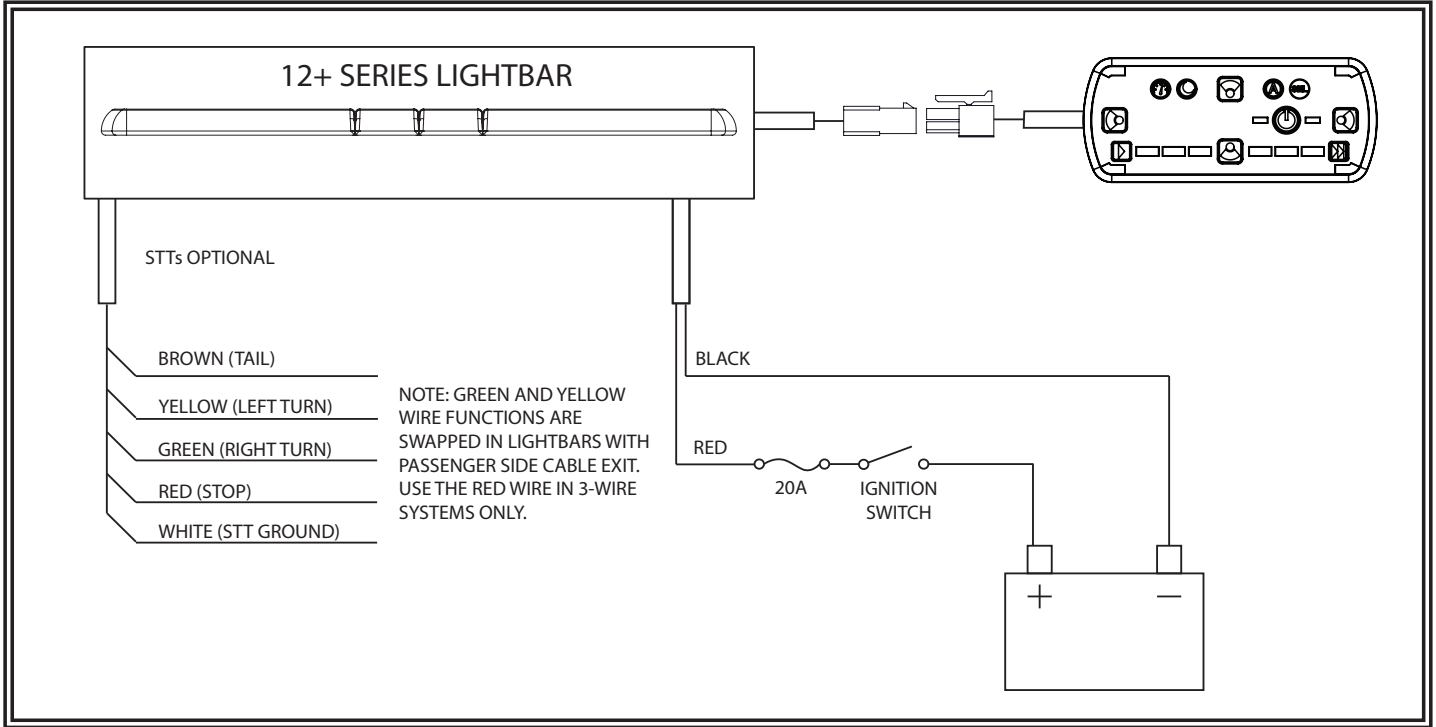
STANDARD CONFIGURATION WITH CONTROLLER



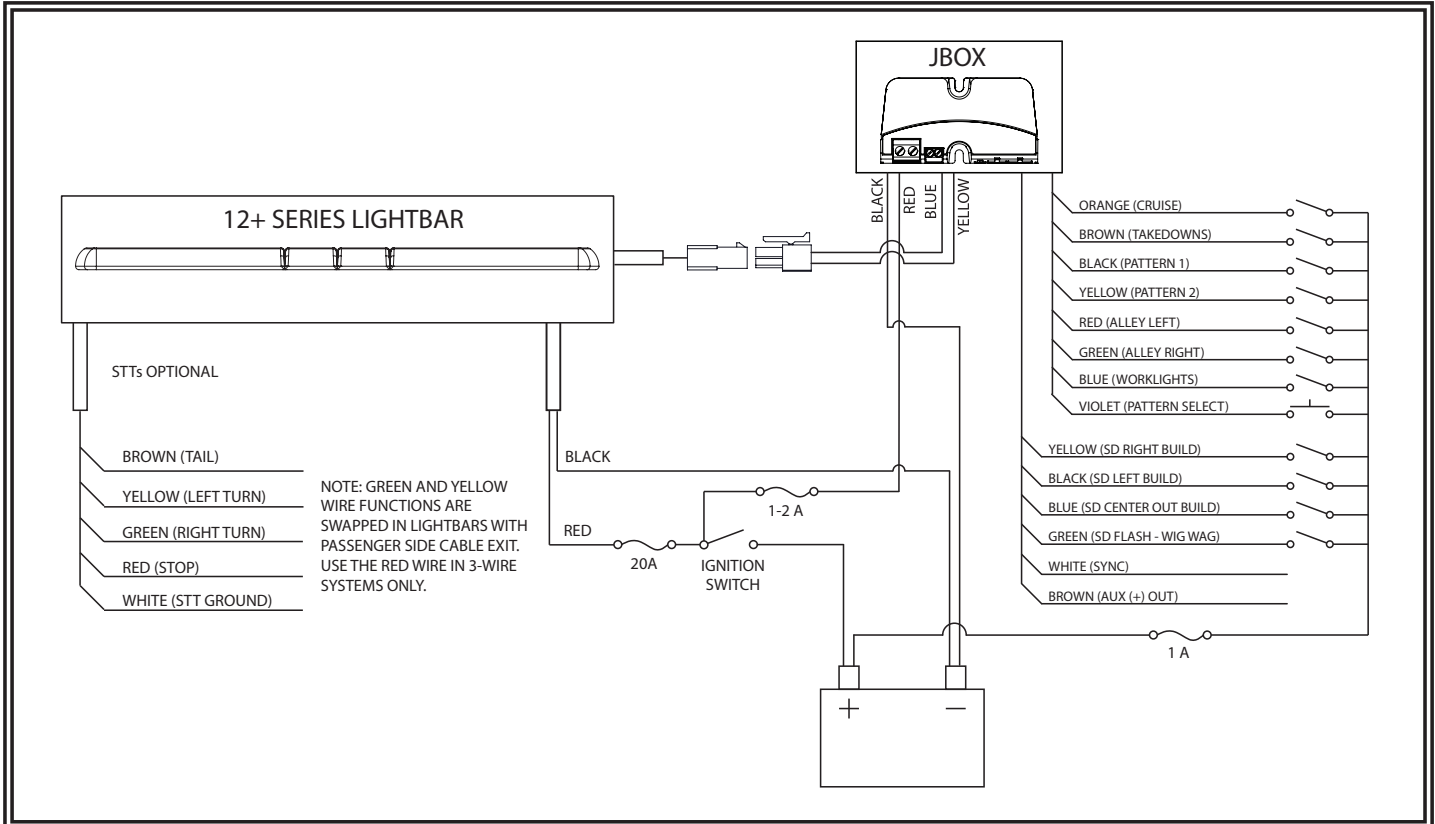
STANDARD CONFIGURATION WITH COMBINED POWER SIGNAL CABLE



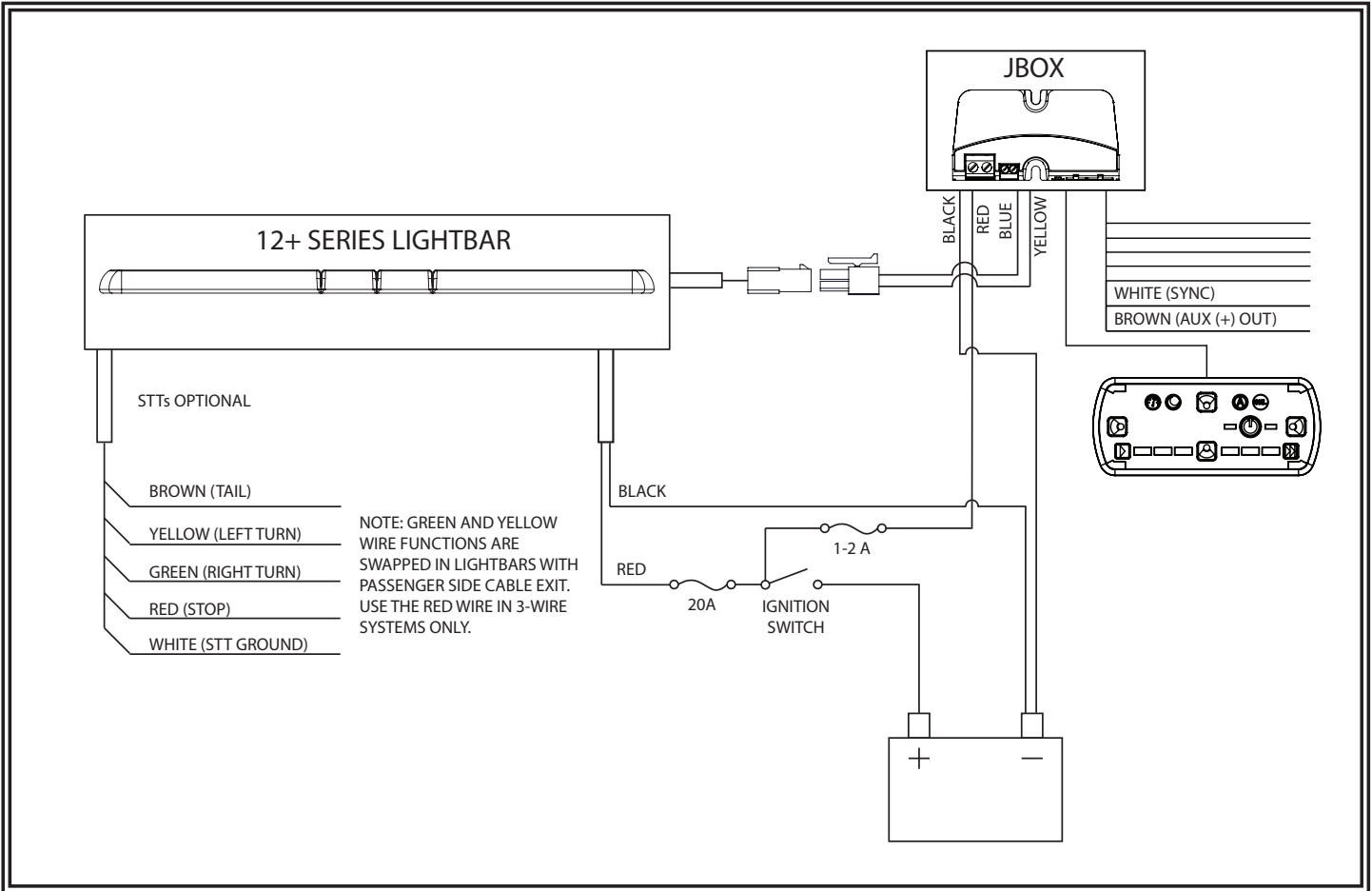
CAN BUS CONFIGURATION WITH ADVANCED CONTROLLER



CAN BUS CONFIGURATION WITH JUNCTION BOX



CAN BUS CONFIGURATION WITH JUNCTION BOX AND ADVANCED CONTROLLER

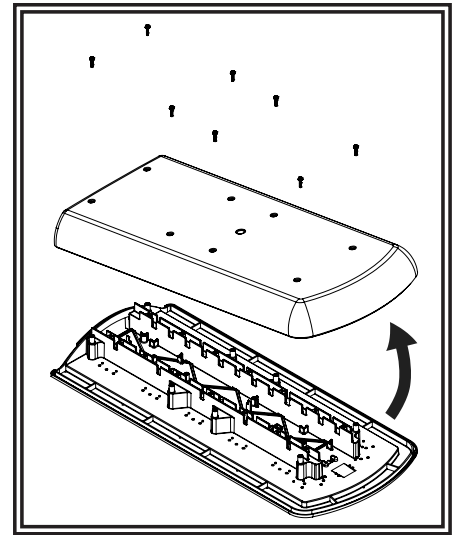


Options and Maintenance:

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

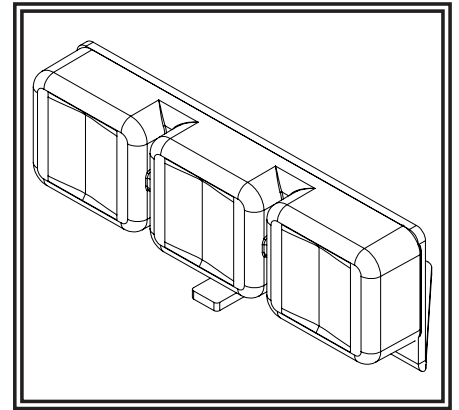
Lens Removal and Installation

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



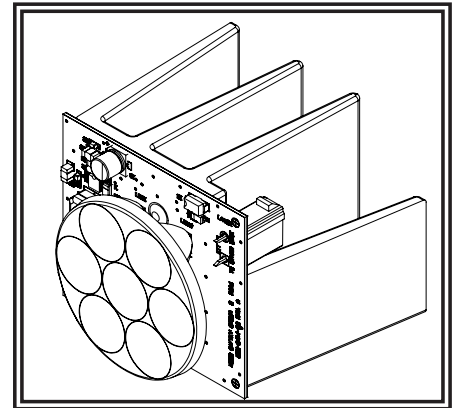
Warning LED Modules (EZ1203X, EZ1206XX)

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



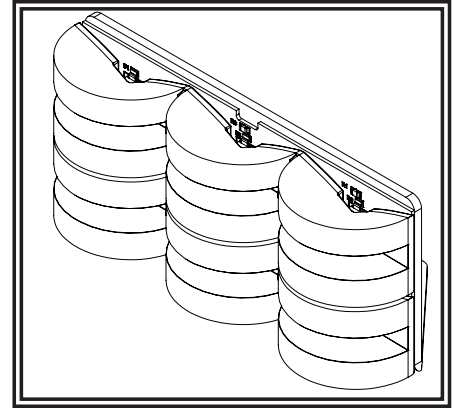
Alley / Takedown / Worklight LED Modules (EZ0003)

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



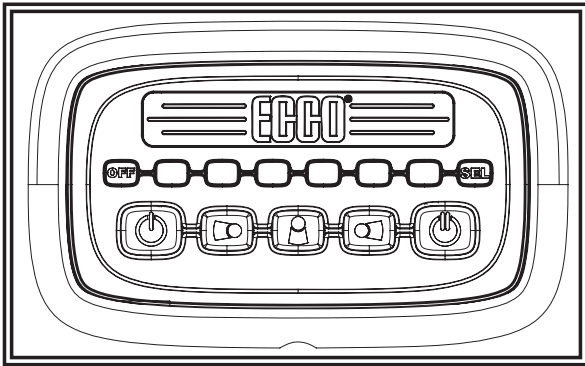
Stop / Tail / Turn LED Modules (EZ1205)

Stop Tail Turn modules operate in conjunction with the vehicle tail, brake and direction indicator lights. Kit includes a pair of modules, control circuit and cable.



Basic Control Pad (EZ0006)

The EZ0006 optional in-cab controller provides convenient control of the lightbar's built-in flash patterns and features soft touch buttons and LED function indicator lights.

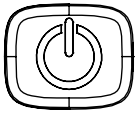


Operation

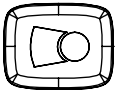
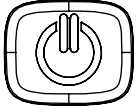
The 12+ series basic control pad consists of 7 buttons with 5 features, and 6 indicator windows. When a feature button is selected, the corresponding clear indicator(s) will illuminate. Pressing any of the 5 feature buttons will turn that corresponding feature on, pressing it again will turn it off. There are two large flash pattern preset buttons; only one can be selected at a time. If one is on while the other is selected, it will shut the previous one off. The "OFF" and "SEL" buttons do not have illuminated indicators.



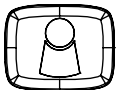
"OFF" - Turns the whole bar off. This is a quick way to shut everything down. Features can also be shut down individually by pushing the feature's button.



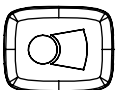
"Power 1, Power 2" - Turns on the flash pattern presets.



"AL" - Turns on left alley light, or as custom configured.



"WL" - Turns on center pair of takedown and/or worklights, or as custom configured.



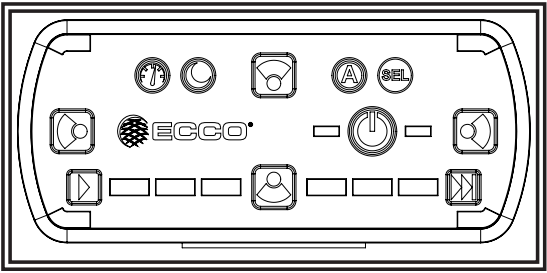
"AR" - Turns on right alley light, or as custom configured.



"SEL" - Double press to enter flash pattern select mode and cycle to the next flash pattern. Press again to cycle to the next flash pattern. Press and hold for 3 seconds to return to the prior flash pattern. The lightbar will store the last flash pattern used to the active preset.

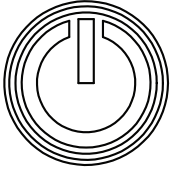
Advanced Control Pad (EZ1202)

The EZ1202 optional in-cab advanced control pad provides convenient control of the lightbar's built-in flash patterns and features soft touch buttons and LED function indicator lights.

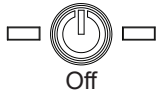


Operation

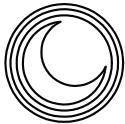
The 12+ series advanced control pad consists of 11 buttons.



“Power” - Press to cycle through three programmable flash pattern presets. Hold button down to shut down all functions. Press again to resume as before.



“Cruise” - Press to illuminate all directional modules in steady burn mode.



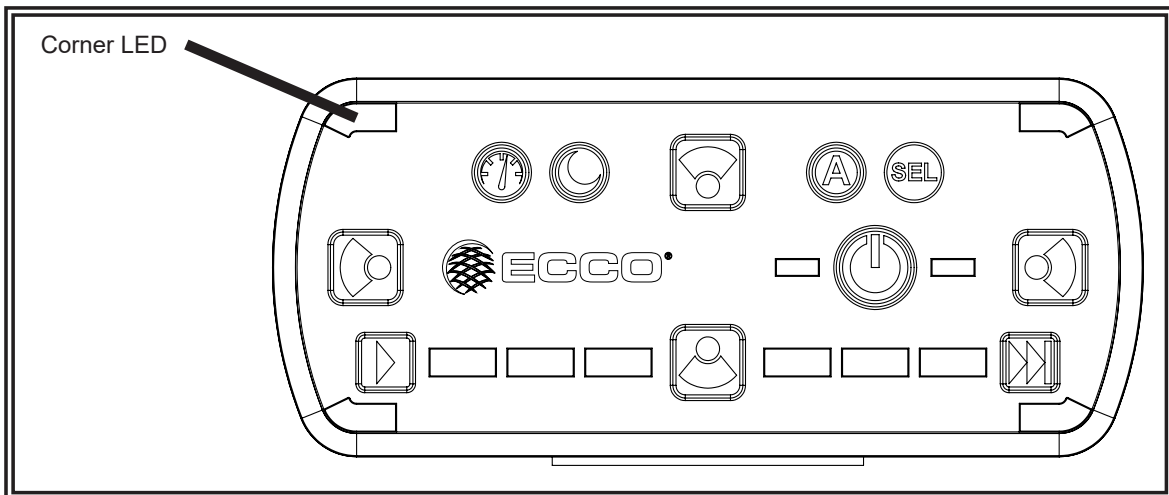
“Day/Night Mode” - Press to backlight the keypad and lower the brightness of the directional modules in the lightbar.

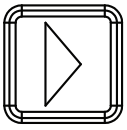


“Auxiliary Output” - For use with the auxiliary output from the junction box to a relay (customer supplied), to control any auxiliary device via the junction box controlled relay.

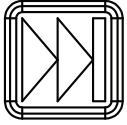


“Flash Pattern Select” - Double press to enter flash pattern select mode and cycle one flash pattern. The 4 corner LEDs on the controller will mimic the lightbar to give pattern feedback. Press again once to cycle to the next flash pattern. Press and hold for 3 seconds to return to the prior flash pattern. The lightbar will store the last flash pattern used to the active preset.

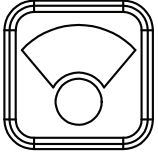




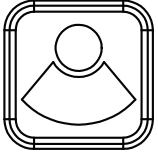
“Safety Director On/Off” - Will resume pattern selected.



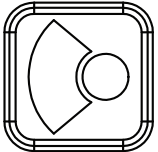
“Safety Director Pattern Select” - Press once to cycle to the next Safety Director flash pattern. There is a 5 second delay between the controller and the lightbar. Press and hold for 3 seconds to return to the prior flash pattern. The lightbar will store the last flash pattern used.



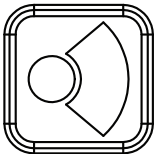
“Forward Worklamp” - Will turn on forward facing worklamps.



“Rear Worklamp” - Will turn on rear facing worklamps.



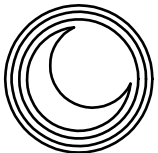
“Alley Left” - Will turn on the left alley light.



“Alley Right” - Will turn on the right alley light.

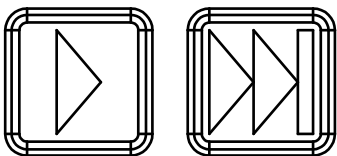
Special Features:



Touchpad Backlight

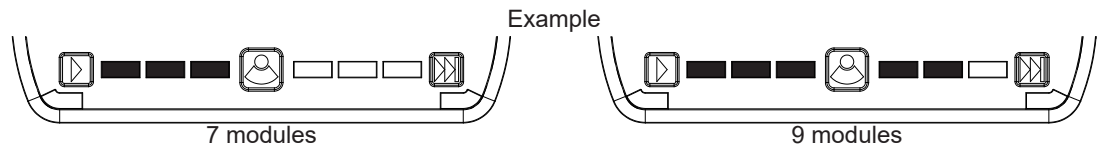


Press and hold the “Day/Night” button to turn on the touchpad backlight

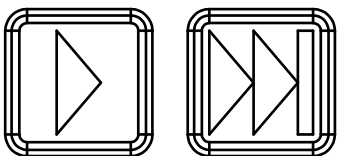
Safety Director Module Selection




To change the number of modules used in the safety director, press and hold  - tap  to select 6 to 10 modules.



Safety Director Front/Rear Selection

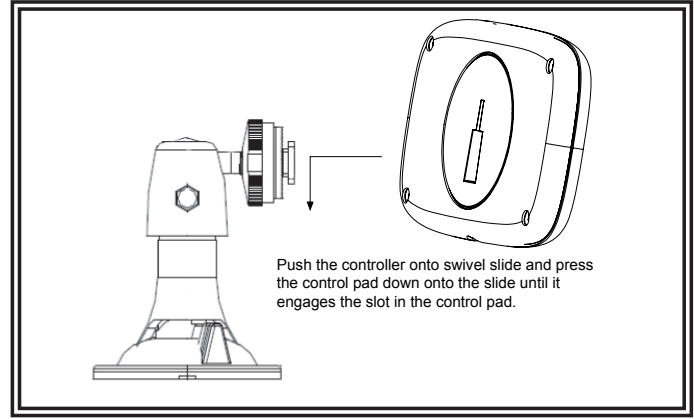


Press  to turn on the safety director.

Press and hold  , once the corner LEDs light, tap  to cycle front, rear or both.

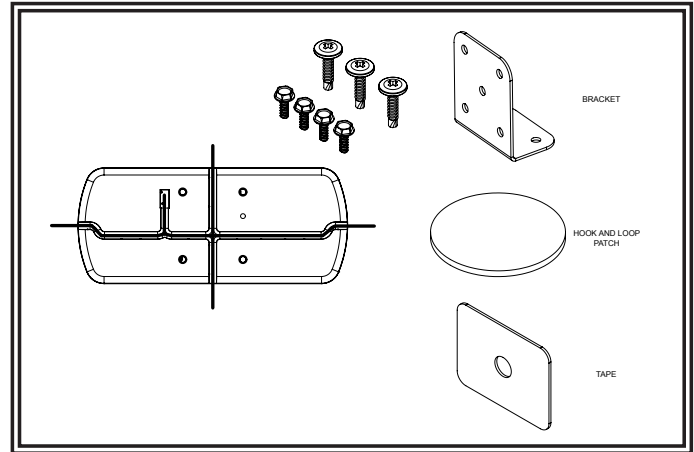
Basic Control Pad Mounting:

To mount the control pad with Velcro, separate the two circular halves, remove the backing and adhere one piece on the vehicle dashboard and adhere the other to the back of the control pad. To mount the control pad using the swivel mount, first mount the swivel unit to the dashboard with either the supplied screws (note, the suction cup will not work after drilling screws through the swivel base) or by turning the lever at the base of the swivel unit to engage the suction cup. Push the control pad onto the swivel slide and press the control pad down onto the slide until it engages the slot in the control pad. (You may need to turn the control pad clockwise once engaged with the slide to tighten it.) Turn the dial on the swivel head to tighten it against the back of the control pad. Finally, loosen the hand screw on the swivel neck to adjust the angle of the control pad. Hold the pad in the desired position while tightening the hand screw on the swivel neck.



Advanced Control Pad Mounting:

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



Replacement Parts/Accessories:

Replacement Parts and Accessories:

Description	Part No.
Lenses	
Replacement 24" End Lens - Clear	ER0003
Replacement 6" Mid Lens - Clear	ER0004
Driver PCA	
Driver PCA	EZ1200
Led Modules	
3-LED Ice Optic Module - Amber	EZ1203A
3-LED Ice Optic Module - Blue	EZ1203B
3-LED Ice Optic Module - Green	EZ1203G
3-LED Ice Optic Module - Red	EZ1203R
3-LED Ice Optic Module - White	EZ1203W
4-LED Worklight / Alley Light Module Pair - White	EZ0003
6-LED Flare Optic Stop / Turn / Tail (STT) Module Pair - Red	EZ1205
6-LED Ice Optic Dual Color Module - Amber / Blue	EZ1206AB
6-LED Ice Optic Dual Color Module - Amber / Red	EZ1206AR
6-LED Ice Optic Dual Color Module - Amber / White	EZ1206AW
6-LED Ice Optic Dual Color Module - Blue / White	EZ1206BW
6-LED Ice Optic Dual Color Module - Red / Blue	EZ1206RB
6-LED Ice Optic Dual Color Module - Red / White	EZ1206RW
Cables	
15' Extension Cable - For use with Basic Controller EZ0006 or discrete wires / switches	EZ0008
23' Extension Cable - For use with Basic Controller EZ0006 or discrete wires / switches	EZ0008-23
48' Extension Cable - For use with Basic Controller EZ0006 or discrete wires / switches	EZ0008-48
8' Extension Cable - For use with Advanced Controller EZ1202 / EZ1214 and / or J-Box EZ1207	EZ1413
14' Extension Cable - For use with Advanced Controller EZ1202 / EZ1214 and / or J-Box EZ1207	EZ1210
48' Extension Cable - For use with Advanced Controller EZ1202 / EZ1214 and / or J-Box EZ1207	EZ1413-48
15' Power Cable	ER0020
6" Discrete Wiring Harness - For use with EZ0008 Series	ER0021
Controllers	
Basic Controller	EZ0006
Advanced Controller - Includes safety director function	EZ1202
J-Box	
J-Box - For use with Advanced Controller EZ1202 / EZ1214 and / or discrete wires / switches	EZ1207
Mounting Kits	
Permanent mounting feet and hardware - Black	ER0002
Permanent mounting feet and hardware - White	ER0001
Headache rack mounting kit	A1032RMK

Strap Mounting Kits - By Make, Model & Year	
Ford Truck F150 2004-2009	A1210RMK
Chevy Colorado / GMC Canyon 2004-2014, Chevy / GMC Truck 1500, 2500, 3500 1999-2006, Tahoe / Yukon 2007-2014, Dodge Truck 1500 2002-2008, Dodge Truck 2500-3500 2003-2009	A1211RMK
Ford Truck Super Duty 1999-2009	A1212RMK
Ford Crown Victoria 1998-2012	A1213RMK
Ford Truck F150 1997-2003	A1214RMK
Ford Truck F150 2010-2014	A1225RMK
Ford Truck Super Duty 2010-2016	A1226RMK
Chevy / GM Truck 1500, 2500, 3500 2007-2013	A1227RMK
Dodge Charger 2007-2010	A1229RMK
Chevy Caprice 2012-2017, Dodge Charger 2011-2017, Ford PPV / SUV 2013-2017	A1231RMK
Ford Truck F150 2015-2017, Ford Truck Super Duty 2017	A1234RMK
Dodge Truck 1500 2009-2017, Dodge Truck 2500-3500 2010-2017	A1236RMK
Chevy / GM Truck 1500, 2500, 3500 2014-2017, GM / Tahoe / Yukon 2014-2017	A1237RMK
Ford Escape / Explorer 2012-2017, Ford PPV / SUV 2013-2017, Toyota Tacoma 2005-2017	A1238RMK
Toyota Tundra 2015-2017	A1239RMK
Accessories	
6-Rocker Switch Panel	A9000
Single Illuminated Rocker Switch	A9891
Single Switch Panel - For use with A9891 Switch	A9893
Single Illuminated Rocker Switch	A9901
End Switch Panel Section - For use with A9901 Switch	A9902
Center Switch Panel Section - For use with A9901 Switch, & End Panel Sections A9902	A9903
Switch Panel Mounting Kit - For use with A9901 Switch, & Panel Sections A9902 & A9903	A9904
On / Off Switch Panel with Pattern Select	A9905SW

Troubleshooting:

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

LIGHTBAR AND CONTROLLER


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

ALLEY / TAKEDOWN / WORKLIGHTS

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

STOP/TAIL/TURN

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

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

Electronics Controls Company "ECCO" (Manufacturer)

ECCO warrants that on the date of purchase, this product will conform to ECCO's specifications for this product (which are available from ECCO 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, UN-APPROVED MODIFICATIONS, FIRE OR OTHER HAZARD; IMPROPER INSTALLATION OR OPERATION; OR NOT BEING MAINTAINED IN ACCORDANCE WITH THE MAINTENANCE PROCEDURES SET FORTH IN ECCO'S INSTALLATION AND OPERATING INSTRUCTIONS VOIDS THIS LIMITED WARRANTY.

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