LEGION
LIGHTBAR

User Manual
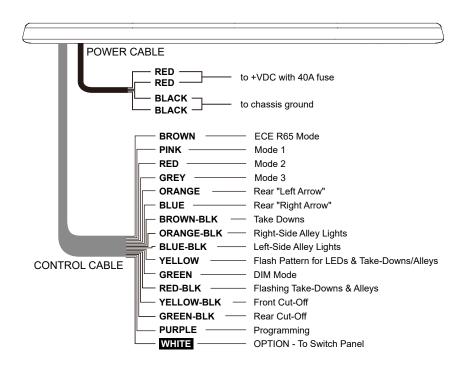**2015**

E1
Firmware
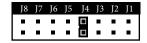

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WIRING & FUNCTIONS (E1)

LIGHTBAR WIRING

Different applications require different functions. It is highly recommended to determine and configure the required functions prior to Installation; (refer to 'CONTROL CABLE' section).

POWER CABLE

RED
RED — to +VDC with 40A fuse
BLACK
BLACK — to chassis ground

BROWN	ECE R65 Mode
PINK	Mode 1
RED	Mode 2
GREY	Mode 3
ORANGE	Rear "Left Arrow"
BLUE	Rear "Right Arrow"
BROWN-BLK	Take Downs
ORANGE-BLK	Right-Side Alley Lights
BLUE-BLK	Left-Side Alley Lights
YELLOW	Flash Pattern for LEDs & Take-Downs/Alleys
GREEN	DIM Mode
RED-BLK	Flashing Take-Downs & Alleys
YELLOW-BLK	Front Cut-Off
GREEN-BLK	Rear Cut-Off
PURPLE	Programming
WHITE	OPTION - To Switch Panel

CONTROL CABLE

Functions are activated by applying **+VDC** to a control wire. Jumper must always be on **position J4**

J8 J7 J6 J5 J4 J3 J2 J1

NOTE: Middle Section lights are independently switched and are not part of R65 Approval.

E1 SOFTWARE (16+4 WIRES)

No	Wire Colour	Factory Wire Functions	Custom Program
1	Brown	ECE-R65 Warning Mode	
2	Pink	MODE 1 Warning (3rd Priority)	
3	Red	MODE 2 Warning (2nd Priority)	
4	Grey	MODE 3 Warning (1st Priority)	
5	Orange	Rear LEFT Arrow Traffic Director	
6	Blue	Rear RIGHT Arrow Traffic Director	
7	Brown/Black	Take-Down Lights	
8	Orange/Black	RIGHT Side Alley Light	
9	Blue/Black	LEFT Side Alley Light	
10	Yellow	Flash Pattern for LEDs, Take-Downs & Alleys	
11	Green	Hi/Low Power (50%)	
12	Red/Black	Flashing Take-Downs & Alleys	
13	Yellow/Black	Front Cut-Off	
14	Green/Black	Rear Cut-Off	
15	Purple	Program Mode	
16	White	LED Indicator for Switch Panel	

Notes

POWER CABLE

1. Route Power Cable to the vehicle firewall towards the battery.
2. Follow factory wiring harness through the firewall. It may be necessary to drill a hole in the firewall. Ensure that there are no components that could be damaged from the drilling.
3. Route the cable to the battery.
4. Splice the 2 **RED** wires to form a single wire.
5. Install a 40Amp fuse (user-supplied) on the end of **RED** wire, then connect to battery.
6. Splice the 2 **BLACK** wires to form a single wire.
7. Connect **BLACK** wire to the factory chassis ground adjacent to the battery.

NOTE: make sure that all wires of power cable are securely connected to power source.

CONTROL CABLE

1. Route Control Cable towards the dash area to a switch panel (user-supplied).
2. Connect the required wires to the switch panel.

ECE R65 WARNING MODE
Activate R65 Mode by applying **+VDC** to **BROWN** wire. This activates the lightbar outer sections only. There is a list of built-in flash patterns to choose from. While in R65 Mode, tap **+VDC** to **YELLOW** wire:

- Once for next pattern.
- Quickly 3 times for FP#0.

FP#	ECE-R5 Mode
0	Double All
1	Quad All
2	Single All
3	Double Split
4	Quad Split
5	Single Split

NOTE: R65 Mode has priority over all other Modes, and will override other functions when active.

MODE 1, MODE 2, MODE 3
Activate desired Mode by applying **+VDC** to **PINK** wire (Mode 1), **RED** wire (Mode 2), or **GRAY** wire (Mode 3). This activates the lightbar according to the Flash Patterns chart. While active, tap **+VDC** to **YELLOW** wire to change pattern.

FP#	FLASH PATTERNS		
	Mode 1	**Mode 2**	**Mode 3**
0	Single Split (rear only)	Single Split	Random
1	Double Split (rear only)	Double Split	Double Split
2	Quad Split (rear only)	Quad Split	Quad Split
3	Single-Quad Split (rear only)	Single-Quad Split	Single-Quad Split
4	Side-by-Side Single (rear only)	Side-by-Side Single	Side-by-Side Single
5	Side-by-Side Quad (rear only)	Side-by-Side Quad	Side-by-Side Quad
6	Side Split (front only)	Outside-In Single	Outside-In Single
7	Double Split (front only)	Outside-In Quad	Outside-In Quad
8	Quad Split (front only)	Single All	Single All
9	Single-Quad (front only)	Double All	Double All
10	Side-by-Side Single (front only)	Quad All	Quad All
11	Side-by-Side Quad (front only)	Single-Quad All	Single-Quad All

NOTE: Flash Pattern #0 can be user customized by entering PROGRAM Mode, (refer to PROGRAMMING section). All other patterns are still available after customization is done. There is a reset function which restores original factory setting; refer to RESET section.

PROGRAMMING

FP#0 of each Mode can be user customized.

To configure flash pattern:

1. Activate the desired Mode by applying **+VDC** to: **BROWN** wire (Mode 1), **PINK** wire (Mode 2), or **RED** wire (Mode 3).
2. Enter PROGRAMMING mode by quickly tapping **+VDC** to **PURPLE** wire 3 times within 1 second.
3. Once in PROGRAMMING mode, all lightheads will faintly blink once every second. The inner forward-facing pair of lightheads will be activated.

NOTE: If the inner foward-facing heads are Take Downs, then tap **+VDC** to **PURPLE** wire once to scroll to the next pair of lightheads.

4. Tap **+VDC** to **YELLOW** wire:
   Once for next pattern (see Lighthead Patterns).
   Quickly 3 times within 1 second for FP#0.
5. Scroll to the next pair of lightheads by tapping **+VDC** to **PURPLE** wire.
6. Repeat steps 4 and 5 until all lightheads are properly configured.
7. Exit PROGRAM mode by quickly tapping **+VDC** to **PURPLE** wire 3 times within 1 second.

FP#	Lighthead Pattern
0	Steady
1	Single Slow (Split)
2	Single 2Hz (Split)
3	Single Fast (Split)
4	Double 2Hz (Split)
5	Double (Split)
6	Squad (Split)
7	Ultra (Split)
8	Single-Quad (Split)
9	Single H/L(Split)
10	Random
11	Off
12	Single Slow (All)
13	Single 2Hz (All)
14	Single Fast (All)
15	Double 2Hz (All)
16	Double (All)
17	Quad (All)
18	Ultra (All)
19	Single-Quad (All)
20	Single H/L (All)

RESETTING

To restore factory setting:

1. With no wires activated, enter RESET mode by tapping **+VDC** to **PURPLE** wire for more than 1 second.
2. Once in RESETTING mode, the lightbar will display:
   Single flash = Mode 1 or Double flash = Mode 2 or Triple flash = Mode 3
3. Select Mode to reset by tapping **+VDC** to **PURPLE** wire once to change Modes.
4. Apply **+VDC** to **PURPLE** wire for 2~4 seconds to restore factory setting.
5. Exit RESETTING mode by tapping **+VDC** to PURPLE wire for 5 seconds or more.

FLASHING TAKE-DOWNS & ALLEYS

Activate Flashing Take-Downs & Alleys by applying **+VDC** to **RED-BLK** wire. To scroll to a different configuration, tap **+VDC** to YELLOW wire:

- Take-Downs and Alleys flashing.
- Alleys only flashing.
- Take-Downs only flashing.

NOTE: Flashing Take-Downs & Alleys have priority over the steady burn functions.

TRAFFIC DIRECTORS / ARROWS

During Mode 1, Mode 2, or Mode 3, activate Traffic Arrow functions by applying **+VDC** to:

- **ORANGE** wire for Left Arrow.
- **BLUE** wire for Right Arrow.
- **ORANGE & BLUE** wires for Centre Out.

To configure the Traffic Arrow flash patterns, tap **+VDC** to **YELLOW** wire:

- Once for next pattern (refer to Traffic Arrow Patterns chart).
- Quickly 3 times within 1 second for reset to FP#0.

NOTE: If the bar is equipped with the Dual Colour Traffic Arrow option, the rear lightheads will automatically switch to Amber when the Traffic Arrow function is activated; and will automatically switch back when the Traffic Arrow function is deactivated.

FP#	Traffic Director Patterns
0	Sweep Single
1	Sweep Double
2	Sweep Triple
3	Sweep Single End-Double
4	Solid
5	Solid End-Double
6	Solid Chaser
7	Solid Fade
8	Blink Double
9	Blink Triple
10	Blink Solid

OTHER WIRES

To activate other functions, apply **+VDC** to:

- **BROWN-BLK** wire for Take Down Lights.
- **ORANGE-BLK** wire for Right-Side Alley Light.
- **BLUE-BLK** wire for Left-Side Alley Light.
- **YELLOW-BLK** wire for Front cut-off.
- **GREEN-BLK** wire for Rear cut-off.
- **GREEN** wire for Low Power.

OPTION WHITE WIRE

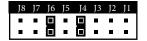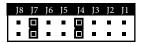WHITE wire can be connected to SW610-T1 Switch Panel (sold separately).

JUMPER SETTINGS

Jumper settings determine the functions of each lightbar and therefore how it can be configured during the setting up procedure.

1. There must always be a Jumper on **Position 4.**
2. Apply Jumper to **Position 6** for 109cm (43") and 125cm (49") lightbars.
   For 109cm (43") lightbars using Split Modules using the 4th wire, Jumper **Position 7** will be required.
3. Apply Jumper to **Position 7** for 139cm (54") and 154cm (60") lightbars.
   Note: Jumper is not to limit the amount of traffic arrow modules, but just the size of lightbar.

J8 J7 J6 J5 J4 J3 J2 J1

J8 J7 J6 J5 J4 J3 J2 J1

J8 J7 J6 J5 J4 J3 J2 J1

J6 limits R65 pattern to FL3, FR3, RL3 and RR3.

J7 limits R65 pattern to FL4, RR4, RL4 and RR4.

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