

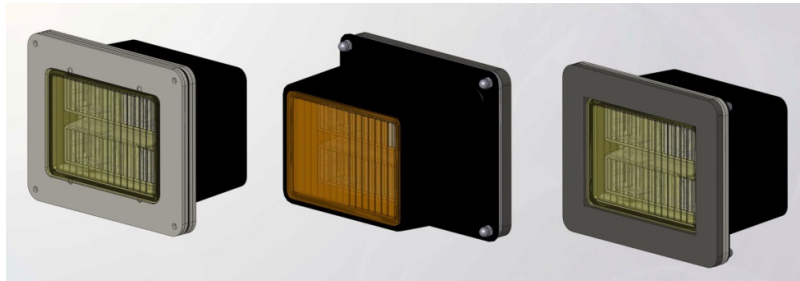


Sales Technical Information

LED Bus Lights

1 GENERAL DESCRIPTION

LED Bus Lights are available to suit relevant Australian States and Territories. The LED lights are similar in appearance to the halogen bus lights, but do not require globes to be changed throughout the unit's life.



2 SPECIFICATIONS

- 12v and 24v versions available.
- Current draw while illuminated (per unit) @ 13.8V: 1.4A
@ 27.2V: 0.7A

3 FEATURES

The LED bus lights can be fitted into existing cutouts and mounting locations as the halogen version, reducing the need for modification of the bus bodywork when upgrading from halogen to LED. All existing wiring can remain, with the LED units maintaining the same plug in connector as the halogen units. Due to the increased life expectancy and reliability of LED technology over halogen bulbs, less time is spent checking functionality and/or changing faulty modules, reducing ongoing maintenance costs.

4 INSTALLATION

The LED units can be installed in the same locations as the existing halogen units – flush into the bodywork of the bus, on the surface of the bodywork, or attached to a window. Mounting locations should be chosen based on the legislation of the State or Territory where the vehicle will be used.

5 CERTIFICATION AND COMPLIANCE

See Appendix A for Engineering Test Report.

6 PART NUMBERS

P/N	Description
830-100A	LED FLUSH MOUNT LAMP 12VDC AMBER
830-101A	LED FLUSH MOUNT LAMP 24VDC AMBER
830-102A	LED SURF MOUNT LAMP 12VDC AMBER
830-103A	LED SURF MOUNT LAMP 24VDC AMBER
830-104A	LED WIND MOUNT LAMP 12VDC AMBER
830-105A	LED WIND MOUNT LAMP 24VDC AMBER
830-113A	LED FLUSH MNT LAMP 24VDC AMB BLK LGE

APPENDIX A:**Engineering Test Report**

Project Number: HI0909

Project Name: LED Bus Lights

7 Background

The LED bus lights must meet the photometric requirements specified in the various Australian state regulations. The scope of this testing is limited to the photometric performance and the surface area of the outermost optical surface.

8 Test Procedure

Each warning light must emit a yellow light that has been tested under the procedure stated in ADR 6/00 and found to have a luminous intensity of at least the amounts given in the table below:

Luminous Intensity of Warning Light (Candela)									
Vertical Axis	Horizontal Axis								
	-30°	-20°	-10°	-5°	0°	5°	10°	20°	30°
10°				50	80	50			
5°		180	320	350	450	350	320	180	
0°	75	450	1000	1250	1500	1250	1000	450	75
-5°	40	270	450	570	600	570	450	270	40
-10°				75	75	75			

The above values are significantly higher than those specified in ADR 6/00, since the bus lamps are intended as warning lights, not indicator lights.

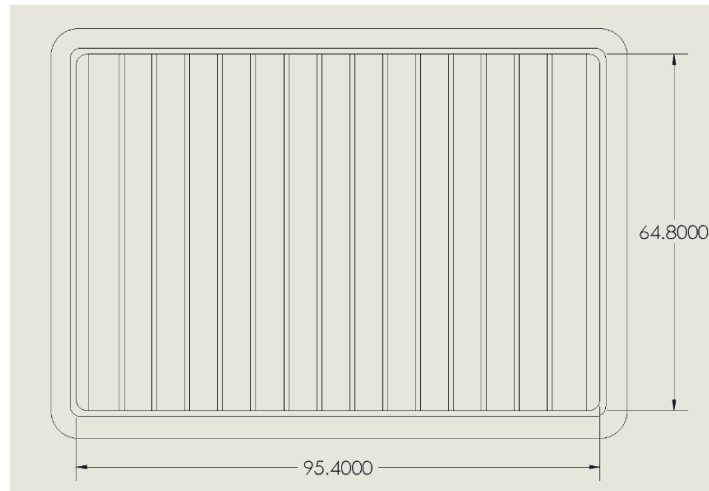
Test Date: 2010-02-11; Test Voltage; 13.5V; 30 minute warm-up time.
830-100A was used for the photometric testing.

9 Results

Luminous Intensity of Warning Light (Candela)									
Vertical Axis	Horizontal Axis								
	-30°	-20°	-10°	-5°	0°	5°	10°	20°	30°
10°				187	234	203			
5°		576	1178	912	1311	927	1015	601	
0°	291	1095	1660	1747	2210	1642	1524	993	453
-5°	184	544	1020	877	1130	849	842	472	276
-10°				238	319	230			

10 Illuminated Lens Area

The outermost optical surface of all LED bus lights is the rectangular outer optic, which contributes to the final light dispersion of the lamp. The lenticular surface of this lamp is shown below to be 95.4mm x 64.8mm, giving a surface area of 61.8 cm². This exceeds the requirement for a minimum of 60 cm² specified in the various bus standards.



11 Black Border

In states where the area of the bus immediately surrounding each wigwag light and extending outwards must be black for at least 70mm, part number 830-113A has been designed to comply with this requirement as the border forms part of the lamp itself.

12 Conclusion

LED Bus Light versions listed in this document meet and exceed the minimum luminous intensity at all specified angles required by the state regulations in addition to the requirement for minimum lens surface area of 60 cm² and for the requirement for a 70mm black border (specific to one part number).