

Important Notes for Installer and Vehicle Owner



Electromagnetic Compatibility (EMC)

This Multivolt™ LED lamp is an electronic device. The electrical circuits contain components that suppress possible interference, both emission as well as susceptibility, to the technical requirements for the application of the Regulatory Compliance Mark (RCM).

To avoid false signals or interference, it is standard practice that sensitive instrumentation such as ABS and Tachometers etc. are provided with direct earths.

Protection against damage due to voltage spikes

This Multivolt™ LED lamp is protected against damage from positive voltage spikes caused by events such as load dump conditions up to severity level 3 of ISO 7637-2 and contains a Transient Voltage Suppressor (TVS) designed to withstand a pulse of up to 5000 Watts.

The lamp is protected against reverse polarity connection and negative voltage spikes of up to 1000 volts.

Electric Welding

Electric Welding may damage the LED lamps. For LED lamps, HELLA recommends the negative connection to be wired isolated from the vehicle chassis. If the lamp uses the chassis as the earth return it is recommended that this earth return is disconnected during electric welding.

FIT AND FORGET - BY DESIGN

Congratulations, the product you have selected comes from **HELLA** - a world leader in LED lighting design.



Following the launch of the first LED automotive signal lamps in 1990, **HELLA** Design and Innovation continues to set new standards. **HELLA** innovative solutions have been incorporated into millions of lamps, engineered and tested to the most stringent standards, to suit the most demanding environmental conditions.

The cornerstone to the success of our products is our no compromise **Fit and Forget - by Design** philosophy which is incorporated into every step of the product life cycle.

In a world consuming finite resources at an ever faster rate, **Fit and Forget - by Design** is the right environmental choice that also makes perfect economic sense to customers that consider the total life cycle Cost of Ownership.

For general comments about HELLA's products please contact us on E-mail at techfeedback@hella.co.nz

INSTRUCTION SHEET

for: **Part No. 2146-HCS / 2146-VCS**



ADR - APPLICATION AND MOUNTING INSTRUCTIONS

Designline LED MODULE REAR DIRECTION INDICATOR LAMP with HCS TECHNOLOGY

Multivolt 9 - 33 volts

The Multivolt LED module is designed to be retro-fitted to Designline series lamps, HELLA Part Numbers 2320, 2422, 2423 and 2424.

The LED modules are designed to operate on input voltages from 9 to 33 volts.

Lens Marking and ADR 13/00 Installation Requirements

This lamp module, identified by lens marking HNZ 9040, with amber lens was manufactured to comply with ADR 6/00 Cat 2a Rear Direction Indicator Lamps.

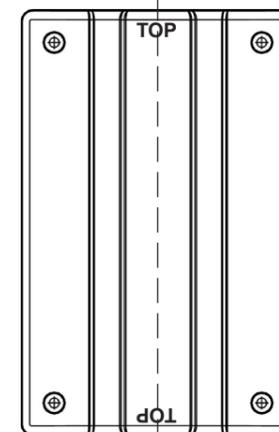
- o A tolerance of +/-3 degrees applies on all mounting details.
- o Lamp module mounting plane must be vertical to the ground
- o Lamp module reference axis must be parallel to the vehicle longitudinal axis
- o Lamp module centre line must be horizontal (P/N 2146-HCS) or vertical (P/N 2146-VCS) to the ground (Please note the "TOP" engraving on the inner surface of the lens)
- o Lamp module must be visible from 45° inboard and 80° outboard, as well as from 15° above and below the horizontal axis

Notes: Please refer to ADR 13/00 for more details.

Lamp module does not include a reflex reflector. An additional reflector would be required to be fitted to ensure vehicle compliance.

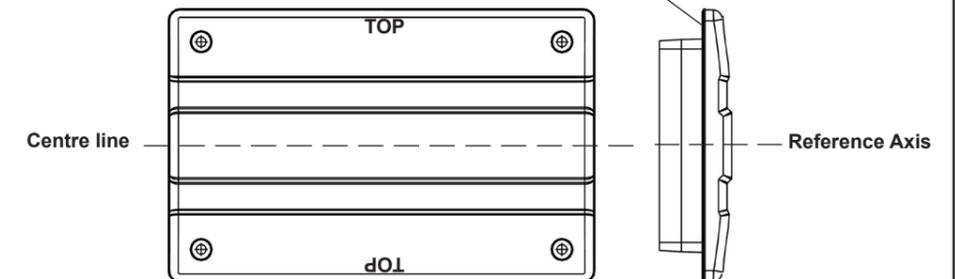
P/N 2146-VCS

Centre line



P/N 2146-HCS

Lamp module mounting plane



LENS IDENTIFICATION NUMBER: HNZ 9040

CATALOGUE NUMBER	ENGINEERING NUMBER	CRN NUMBER	COMPLIANCE NUMBER	ADR 51/00 GLOBE	ADR APPLICABLE
2146-HCS 2146-VCS	2BA 959 041-51 2BA 959 041-71	34498 40650	8-2146-H24-17 8-2146-VCS-17	N/A LED	ADR 6/00 Cat 2a
AMENDMENTS				ADR COMPLIANCE VERIFIED	ISSUE DATE:
02/2010					02/2008
					959 150-57

959 150-57 V04

HELLA-New Zealand Limited, Auckland

INSTRUCTION SHEET

for: **Part No. 2146-HCS / 2146-VCS****Lamp Module Mounting Instructions**

- Remove existing lens, bulb holder and hardware from housing.
- Connect cable inside existing lamp housing as per chart below.
- Ensure housing drain hole is clear.
- Ensure there are no sharp edges to cut or chafe the cable.
- Test all lamp functions.
- Mount module into lamp housing with new gasket and existing screws, and fit screw caps.

Please note: This lamp contains a patented hydrophobic breathing system to equalise air pressure inside the lamp. The module is sealed against moisture and dust but not designed for prolonged submersion.

Wiring Colour Coding

LED modules are polarity conscious. Reverse polarity will not damage this product but will inhibit its function.

HELLA recommends wire connections be soldered, and heat shrink tubing applied to seal the joint.

Colour	Connect to	Power Consumption
White	Earth (-)	-
Yellow	Indicator (+)	4 watts
Blue	Indicator & HCS trigger pulse (+)	4 watts

HCS Direction Indicator Lamps work in conjunction with an HCS failure detection system. If additional lamps are fitted beyond the amount supported by the HCS detection system than they must be wired separately so as not to be detected.

Important Notes for Installer and Vehicle Owner

**Introduction**

Multivolt™ LED signal and marker lamps offer many advantages over conventional bulb lamps. Significantly reduced power consumption, ultra long life and high tolerance to shock and vibration make the LED lamps the ideal choice for the commercial transport industry, where the cost of ownership versus the initial purchase price of the product is well understood.

Direction Indicator Lamp Monitoring with the Patented HCS (HELLA Compatibility Solution)

On vehicles being driven on public roads the operation of the Direction Indicator Lamps must be monitored and a fault must be instantly signalled to the driver. Direction Indicator Lamps are an important road safety feature signalling the direction change intention of the driver. Failure to signal or failure to recognise a direction indicator represents a significant cause for road accidents.

In many countries, LED direction indicator lamps offering a reliable 'Fit and Forget' solution, have become the retrofit item of choice for the cost conscious transport operator. LED lamps, with much lower power consumption and Multivolt features, are often a challenge for existing failure detection control electronics of modern trucks and buses. Transport fleets often feature a mixture of trailer units equipped with either bulb or LED based Direction Indicator Lamps. Each of these trailer units ideally must be freely interchangeable with any of the tractor units in the fleet, including those with 12 volt or 24 volt systems.

Some manufacturers recommend to fit additional resistive loads in parallel to the LED lamps to simulate the 21 watts consumed by a bulb lamp. Such pure resistive load solutions can be problematic for the following reasons:

- a) They mask the possible failure of the actual LED Indicator Lamp itself.
- b) In many cases such pure resistive solutions do not function since they only provide a linear time/current response which is significantly different to the time/current response of a bulb filament when it heats up.
- c) They consume a lot of energy and thus eliminate the desired lower power advantage of an LED lamp.

Safe conversion to LED Direction Indicator Lamps is now possible with the patented HCS HELLA Compatibility Solution

HELLA supplies electronic control and flasher units which make it possible to convert the indicator failure system for various vehicles. This is necessary if the vehicle manufacturer does not guarantee indicator bulb failure control via the vehicle wiring system. HCS has been patented by HELLA.

For further information about HCS please refer to the latest HELLA catalogue or the HELLA New Zealand web site, www.hella.co.nz