Introduction

This Multivolt LED lamp offers many advantages over conventional bulb lamps. Significantly reduced power consumption, ultra long life and high tolerance to shock and vibration make this LED lamp the ideal choice for industrial and commercial applications.

Electromagnetic Compatibility (EMC)

This LED lamp in an electronic device. The electrical circuits contain components that suppress possible interference, both emission as well as susceptibility, to the limits prescribed in UNECE Vehicle Regulation No. 10.

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 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. 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.

Hot Surface Temperatures

Be careful when handling the lamp as the aluminium heat sink can reach temperatures over 65°C depending upon the ambient temperature and the duration of operation. Please be careful not to cover this surface as this could cause the lamp to overheat.

FIT AND FORGET - BY DESIGN

FIT & 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 demanding standards, to suit the harshest environmental conditions.

The corner stone of 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 increasing 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.

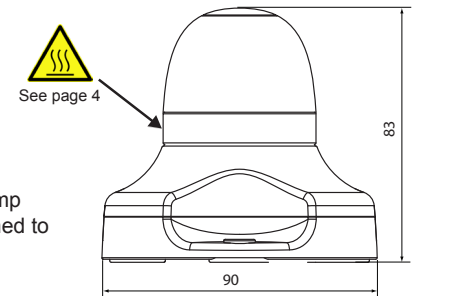*For general comments about Hella's products please contact us on E-mail at techfeedback@hella.co.nz*

LED 360° Multi-flash Signal Warning Lamp

Housing Description:	UV resistant Grilamid® lens and ASA housing
Light source:	Single LED
Operating Voltage:	Multivolt 9-33V DC
Power Consumption:	< 5W
Protective System:	IP67

General Dimensions (mm)

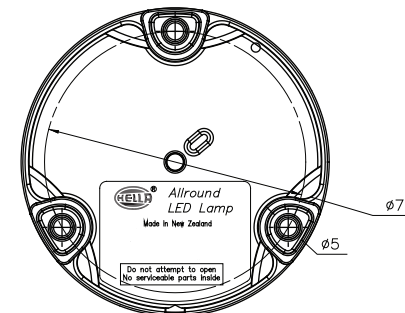See page 4

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Mounting Instructions

The lamp should be mounted on a flat surface.

Drill three 5mm Ø mounting holes using the lamp base as a template. The lamp has been designed to use M5 bolts / screws (not supplied).

If passing the cable through a hole, ensure there are no sharp edges to cut or chafe the cable. Alternatively, cable can be routed through the sides of the base. *

Connect lamp as per table below.

Try to keep the cable as long as possible, preferably join the cable inside a sealed cable junction box.

* Requires a section of the base to be drilled / broken out.

HELLA® *Allround LED Lamp* Made in New Zealand

Do not attempt to open No serviceable parts inside

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Wiring Colour Coding

The lamp is multivolt capable allowing full light output between 9 and 33 volts. 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.

Cable Colour	Connect to	Power Consumption
White	Negative (-)	-
Red	On (+)	Less than 5 watts
Blue	Flash (+)	Less than 5 watts
Brown	Sync	-

Note: Lamp must be protected by a fuse rated at 5 amperes maximum.

The *On* (red) cable is protected against large voltage spikes such as an alternator load dump. The *Flash* (blue) and *Sync* (brown) cables may be permanently shorted to ground or to a maximum operating voltage of 33 volts without damage to the circuit.

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Operating Modes

- **Steady state:** Lamp operates as a continuous on signal.
- **Flash state:** Lamp operates in the flash mode pre-selected by the user.
- **Blitz state:** Lamp operates in a burst of quad flashes (intended for emergency situations).

Cable connections

Cable Colour	Steady	Flash	Blitz
White	Negative (-)	Negative (-)	Negative (-)
Red	Positive (+)	Positive (+)	Positive (+)
Blue	*	Positive (+)	Negative (-)
Brown	*	*	*

* Cable should be isolated (Not connected to either positive (+) or negative (-).

Programming Mode (selecting a flash pattern)

The programming mode allows the user to select one of the ten available flash patterns (see Fig. 1).

Step by step instructions:
1. Connect the **On** (red) cable to positive (+) and the **Negative** (white) cable to negative (-).
2. Connect the **Flash** (blue) cable to negative (-). Blitz state (Flash pattern 4) will start flashing.
3. Connect the **Sync** (brown) cable to positive (+), after approximately 10 seconds the lamp will flash twice then stay on (steady state).
4. The **Flash** (blue) cable and the **Sync** (brown) cable should now be disconnected.
   Note: Ensure that the other cable connections are not disturbed (white and red) for the remaining steps. If power is interrupted, programming will need to be repeated from **Step 1**.
5. The previously selected flash pattern will now activate (factory supplied default is flash pattern 1).
6. Connect then disconnect the **Flash** (blue) cable to negative (-) to cycle and select the next flash pattern as shown in Fig. 1 below.
   Note: Connecting the **Flash** (blue) cable to positive (+) will change the flash pattern off-set timing - please see the next section before using this feature.
7. Disconnect power from all cables for at least 10 seconds to save the currently selected flash pattern (When operating in flash state the pattern selected will now be used).

Note: Lamp will automatically exit programming mode after approx. 65 seconds of inactivity on the **Flash** (blue) cable.
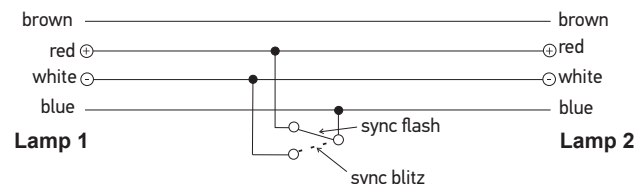
Figure 1. Flash pattern timing
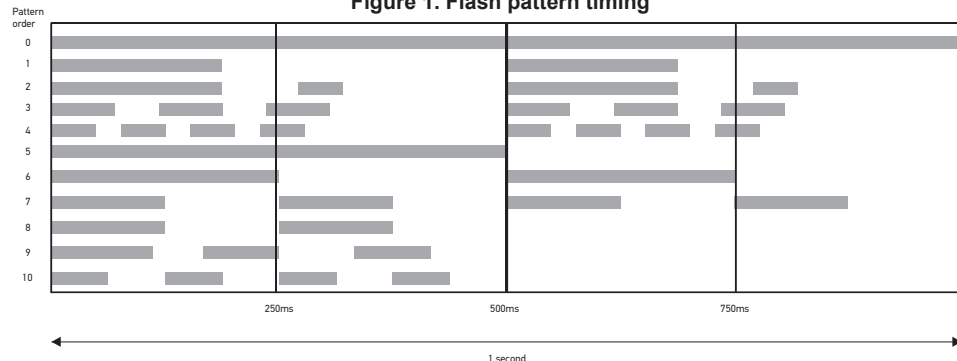
Synchronise an array of lamps (Two to four lamps)

To control the timing of an "array" (multiple lamps connected together) so that the chosen flash patterns always start at the same time.

Wiring Diagram A (Two lamps in synchronised mode)

Step by step instructions:
1. Individually program each lamp to the desired flash pattern as shown in the "Programming Mode" instructions (it is recommended that the same flash pattern be selected for all lamps to be synchronised).
2. Connect lamps as per Wiring Diagram A.

Note: It is recommended that the earth returns should be connected using low impedance wiring with no other significant ground currents in the ground wiring. It is not recommended to use the vehicle chassis for connecting the ground and ground loops must also be avoided.

Off-set Flash Patterns:
It is possible by adjusting the offset during the programming phase to ensure that all flash patterns can be synchronised together or opposed. The offset required to achieve this will be different depending on which flash pattern the user has chosen as the default. During **Step 6** of the programming instructions the flash pattern timing can be off-set by multiples of 250ms (90°) by connecting the **Flash** (blue) cable to positive (+) (See Fig 2. example).

This feature can also be used to create a "chase" function whereby four lamps can be programmed to flash one after the other in sequence.

Figure 2. Four lamps using flash pattern 5, each offset by 250ms (90°)