

ICELEDTM

ELECTRO STYLING

GEM

**INSTALLATION AND
OPERATION GUIDE**

WARNING

THIS PRODUCT HAS BEEN DELIBERATELY DESIGNED TO CREATE A HIGHLY NOTICEABLE LIGHTING EFFECT THAT WILL TURN HEADS AT CAR SHOWS AND EXHIBITIONS. BECAUSE OF THIS IT IS EXTREMELY IMPORTANT THAT IT IS NOT USED ON THE PUBLIC HIGHWAY TO PREVENT THE DISTRACTION OF THE DRIVER OR OTHER ROAD USERS.

HAVING ISSUED THIS WARNING ICELED WILL NOT ACCEPT ANY RESPONSIBILITY FOR ISSUES ARISING FROM ANY FAILURE TO COMPLY WITH THIS CLEAR INSTRUCTION.

ICELED WILL NOT ACCEPT RESPONSIBILITY FOR ANY OTHER ISSUES ARISING FROM IMPROPER USE OR FITTING OF THIS PRODUCT AS THESE MATTERS ARE BEYOND OUR CONTROL.

THIS PRODUCT USES CLASS 2 LED DEVICES (WITH RESPECT TO IEC825-1 & GENELEC EN 60825-1) WHILE NOT CONSIDERED TO BE HAZARDOUS, DIRECT VIEWING OF THE LED'S AT CLOSE RANGE SHOULD BE AVOIDED.

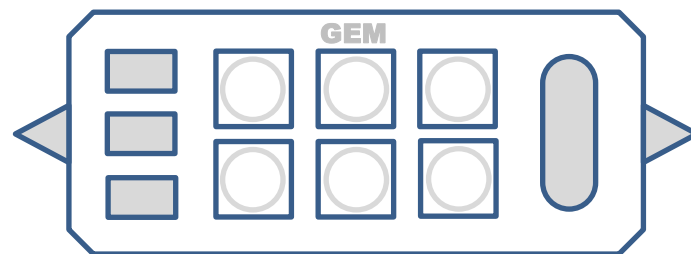
THIS PRODUCT IS CAPABLE OF PRODUCING STROBOSCOPIC LIGHTING EFFECTS WHEN CONNECTED TO EXTERNAL CONTROLLERS.

Features

ICELED GEM is a miniature digital light source capable of emitting wide beam of light in any of over two-million different colours. Full colour mixing is obtained using second-generation, ultra-bright, integrated RGB LEDs which eliminate colour shadowing and make the source suitable for direct viewing – at a comfortable distance.

GEM has been designed to integrate with other devices in the ICELED range of digitally-networked lighting products and can be connected directly to controllers such as UFO, ZEN and ZAP. GEM can also be used without a connection to an external controller, requiring only a power supply and switch to activate its built-in stand-alone colour-change programme.

GEM has been dimensioned to fit within the common 1.5" (38mm) long filament-lamp holder frequently found in automotive light fittings. It is also supplied with a detachable cable assembly that allows it to be used for bulb replacement in other types of light fitting, or in novel lighting applications.



GEM can be used as a direct replacement for the 1.5" (38mm) long filament-lamp commonly found in automotive light fittings



Feature summary

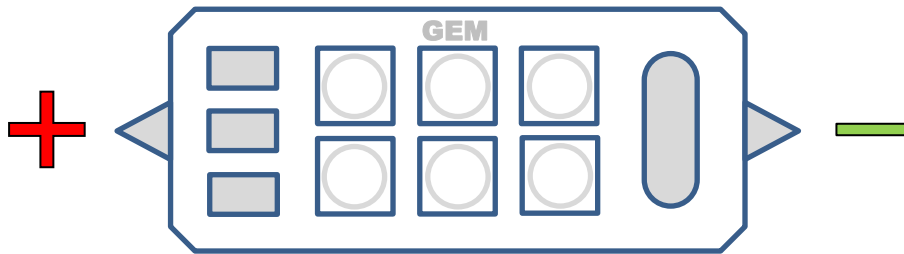
- Extra wide beam
- Two million colours
- No colour shadowing
- Directly viewable
- Compatible with all ICELED controllers
- Stand-alone operation without an external controller
- Direct bulb replacement in common light fittings
- Reverse Polarity and over-voltage protection

Installation

Before attempting to install GEM in an existing light fitting please ensure that the light fitting is switched off.

Please note that the module will only operate when inserted the correct way round – however, no harm will be done if GEM is incorrectly polarised.

If GEM fails to light after it has been installed and the power applied – simply switch off the power and remove the module before replacing it between the contacts, the other way around.



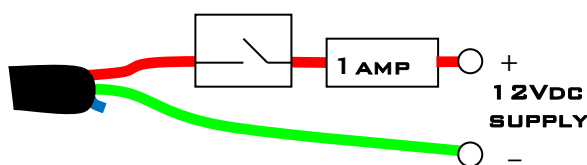
The contacts in the light fitting may require bending inwards slightly to hold the module firmly in place. When installing the module make sure that no parts other than the exposed end contacts touch any metalwork inside the fitting.

Due to its small size and weight, if the fitting takes a different style of lamp but still has room for the module with the original lamp removed, it may be possible to find other ways of installing GEM – for example by attaching it to the inside face of the plastic lens using clear double-sided adhesive tape.

Wiring for stand-alone use

If GEM is unable to get its power-feed directly from the light fitting via the triangular contacts at either end of the module then the supplied cable may be used to make connections to a suitable power source either nearby (inside the fitting – in which case the cable may need shortening) or remotely from a switched and fused 12 VDC supply.

In this case, it is **very important** that the exposed triangular contacts on either end of GEM do not come into contact with any other circuit (e.g. a bulb-holder in an existing light fitting). These contacts will be “live” when GEM is powered and must be insulated from any other conductors to prevent short-circuits.



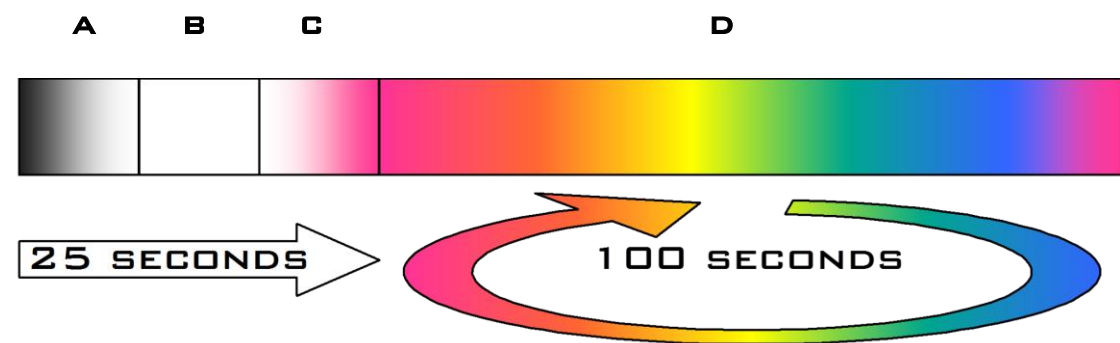
The red wire requires a connection **via a switch to a fused power supply** as shown to the left. The green wire should connect to the negative (or chassis) return for the battery.

In stand-alone mode the unused blue (data) wire must be left unconnected. It is advisable to tape over the end of the wire or cut it back flush with the outer cable sheath to ensure that the unused wire does not come into electrical contact with any other conductor.

Stand-alone operation

If no ICELED data is present when the power is applied, GEM will start running an internal programme designed to provide as much functionality as possible with only the interruption of the supply voltage as a control system.

The built-in stand-alone programme runs through the four phases labelled A to D in the following diagram:



Phase	Description
A	Rapid fade-up to peak intensity white after connection to the power source
B	Hold on peak white
C	Gentle transition from peak white to the colour change phase
D	Colour phasing - cycles seamlessly through the visible spectrum until power disconnected

Freezing the colour: The stand-alone programme may be halted at any time by briefly switching the power supply **off** and then back **on** again (within less than a second). This simple action allows the light source to be frozen on any particular colour (or white) just by toggling the switch controlling power to the device.

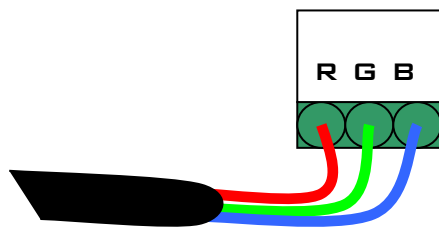
A single flash from the LED's provides acknowledgment that the freeze command has been accepted.

Un-freezing: The light source will remain frozen on the chosen colour until the next time it is switched off. Once again, if the supply is interrupted for less than a second, the programme will resume from where it left off (acknowledged by two flashes) If switched off for any longer, the programme will resume from the start the next time GEM is powered up.

Wiring to ICELED controllers

If GEM is to be connected to an ICELED controller such as ZAP, ZEN or UFO, then three-core cable supplied can be used to connect the device directly to power and data supplied by the controller.

In this case, it is **very important** that the exposed triangular contacts on either end of GEM do not come into contact with any other circuit (e.g. a bulb-holder in an existing light fitting). These contacts will be "live" when GEM is powered must be insulated from any other conductors to prevent short-circuits.



The colour coded wires simply connect to the corresponding terminals labelled R, G and B on the chosen controller output channel.

Specifications

Nominal supply voltage:	12 Volts DC ⁽¹⁾
Maximum current drain:	0.1 Amps
Typical current drain:	0.05 Amps
Max. power consumption:	1.8 Watts
Beam angle:	120 degrees
Data accepted:	Global ICELED or UFO tube pixel ⁽²⁾
Environment:	IP50
Dimensions:	W 38mm, H 15mm, D 10mm

⁽¹⁾ On-board current regulation guarantees that the light source operates consistently at peak intensity over a wide supply range of between 8 and 18 Volts. Brief voltages surges above this range can also be tolerated. Reverse polarity protection is built-in.

⁽²⁾ When used with the UFO controller the GEM data wire can be connected either to the UFO controller I terminal to show the Global ICELED colour complementing the tube patterns or to any tube channel directly. In this case, the pixel shown by GEM will be the one appearing at the end of the tube nearest the cable. GEM can also be programmed to display any other tube pixel. For details see the ICELED website.

Additional resources

To see the full ICELED product range visit <http://www.iceled.co.uk> - the official ICELED website.

For interactive help and advice visit <http://iceled.co.uk/area51/> - the official ICELED user forums.

ICELED GEM Conforms to:
EMC Directive (2004/108/EEC)
