ICELED

Electro Styling

GEM installation guide operating 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 other road users.

Having issued this warning ICELED Ltd. Will not accept any responsibility for issues arising from any failure to comply with this clear instruction.

ICELED Ltd. Will not accept responsibility for any other issues arising from improper use or fitting of this product as these matters are beyond our control.

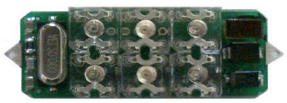
This product uses CLASS 2 LED devices (with respect to IEC825-1 & CENELEC EN 60825-1) While not considered to be hazardous, direct viewing of the LED's at close range should be avoided.

This product is capable of producing stroboscopic lighting effects when connected to external controllers.

Features

ICELED GEM is a digital light source capable of emitting a wide angle beam in any of over two million different colours. It has been designed to complement and integrate with other devices in the ICELED range of networked lighting products. It will also function in a useful stand-alone mode allowing it to be used with nothing more than a 12 Volt supply. GEM is available in two formats – "plug'n'play" or "rough".

Plug'n'play GEM is an unpackaged electronic module designed to replace the common 1.5" long filament lamp frequently found in automotive interior light fittings. It also has an optional cable harness that allows it to be adapted for other uses.



Rough GEM is the same module encapsulated in a robust waterproof housing making it suitable for use in harsh outdoor environments.

Plug'n'play GEM installation

Before installing in an existing light fitting please ensure that the light is switched off. This will probably require shutting all car doors if an override switch is not present. **Note that the module will only operate when inserted the correct way round.** However, no harm will be done if it is incorrectly polarised. If the module fails to light after it has been installed and the power applied, simply switch off and remove the module before replacing it the other way around.

The contacts in the light fitting may need bending slightly to hold the module in place firmly enough to make good electrical contact and to prevent it from rotating. When installing the module ensure that no parts other than the end contacts touch any metalwork inside the fitting.

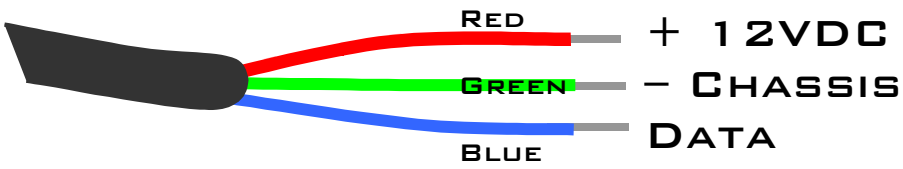
Due to it's small size and weight, if the fitting uses a different style of lamp but still has room for the module with the original lamp removed, it may be possible to find other ways of installing it – for example by attaching it to the inside face of the plastic lens using layers of double-sided adhesive foam slabs at either end.

If the module is unable to get its power feed directly from the light fitting the supplied cable may be used to make connections to the power supply either nearby (inside the fitting – in which case the cable may need shortening) or remotely from a switched and fused 12 VDC supply.

The cable harness will also be required if GEM is to be connected to an ICELED controller. **Note that neither of the power wires should be connected at the far-end if the GEM is powered directly by the fitting**. They will be carrying 12Volts so make sure they are adequately insulated from each other and their surroundings. Connection details are the same as for rough GEM as follows:

Rough GEM Installation

A small three-core cable connects the Module to the power supply and optional data source.



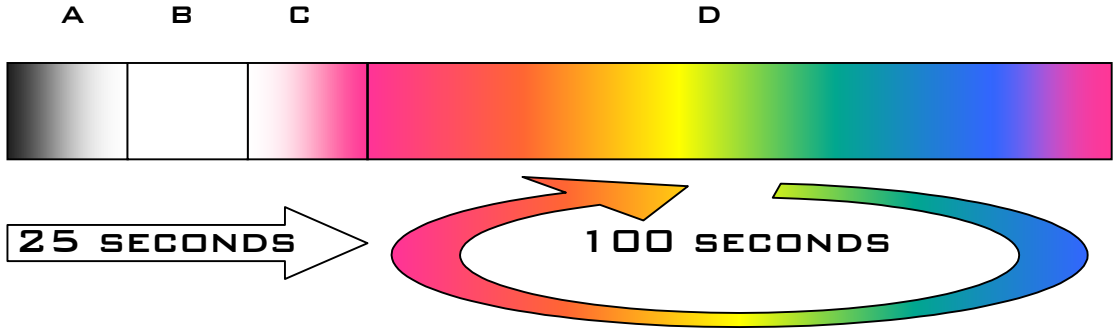
If the module is to be connected to an ICELED controller supplying both power and data, the colour coded wires simply connect to corresponding terminals labelled R, G and B. If the module is to be used stand-alone then the red wire will need connecting via a 1Amp fuse to a nominal 12 VDC supply (via a switch) and green to chassis.

Using an independent power source it is still possible to connect *just* the data wire to an ICELED controller (if for instance, it was required to power the module from another circuit like an interior lamp, but to have colours synchronise with other controlled light sources). In this case just the blue wire would be run to the corresponding controller terminal. If no controller is used, then the unused blue wire should be connected along with the green wire to chassis.

Operation

If ICELED data is present when GEM is powered it will produce the colours commanded by the controller. If no 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 programme runs through the four phases labelled A to D in the following diagrams:



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 At any time, the programme may be halted by briefly switching the power supply off then back on (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 this 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 it is powered up.

Specifications

Unless stated, all figures apply to both types of GEM.

Nominal supply voltage:	12 Volts DC ([1])	
Maximum current drain:	0.2 Amps	
Typical current drain:	0.1 Amps	
Beam angle:	90 degrees	
Data accepted:	Global ICELED or UFO tube segment 0, pixel 0 ([2])	
Dimension:	plug'n'play GEM	W 1.5" H 0.6" D 0.4" ([3])
	rough GEM	W 2" H 1.2" D 0.9" ([4])

([1]) On-board current regulation guarantees that GEMs operate consistently at peak intensity over a wide supply Voltage range of between 10 and 16 Volts. Reverse polarity and over-voltage protection are also built in.

([2]) UFO controllers produce Global ICELED data that complements the tube data

([3]) Excluding contact 'pips'

([4]) Excluding mounting flanges