ICELED®

ELECTRO STYLING

UFO USER GUIDE
INSTALLATION 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 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 & CENELEC EN 60825-1) While not considered to be hazardous, direct viewing of the LED's should be avoided.

This product is capable of producing stroboscopic lighting effects.

Features

ICELED UFO employs advanced digital imaging techniques to create stunning ground lighting effects – with over 2 million different colours available from anywhere around the LED pixel tubes. This versatility results in the projection of an endless display of multicoloured patterns with an organic appearance that can be adjusted to look as subtle or as eye-catching as desired.
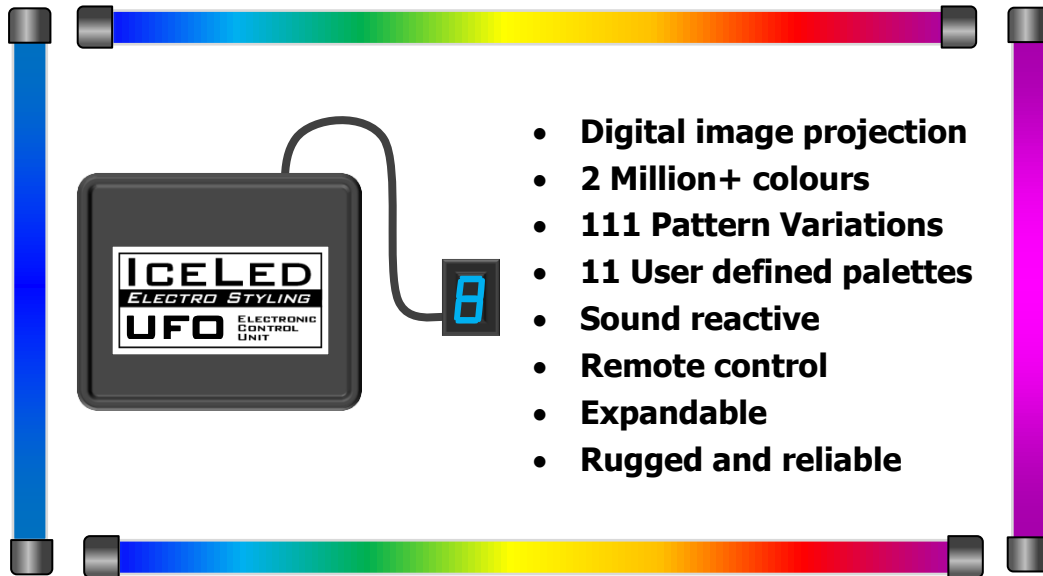
- **Digital image projection**
- **2 Million+ colours**
- **111 Pattern Variations**
- **11 User defined palettes**
- **Sound reactive**
- **Remote control**
- **Expandable**
- **Rugged and reliable**
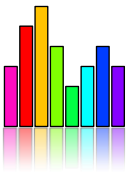
UFO Patterns can be made to react to music via a built-in microphone or line-level input or can be left to run without any audio input at all. The colours used in each pattern can be restricted to those held in user-defined palettes to create specific colour-coordinated displays or may be chosen from other ranges – including an Audio Frequency Spectrum Analyser that provides colours reflecting the frequency content of any audio source.

All interaction with the electronic control unit (ECU) takes place by infrared remote control so the ECU and wiring can be fully hidden away. This also allows all the patterns to be controlled and enjoyed from outside the vehicle – if the remote display is located at or near to window level. The discrete remote display shows the status of the ECU at all times and conveniently doubles as the infrared receiver.
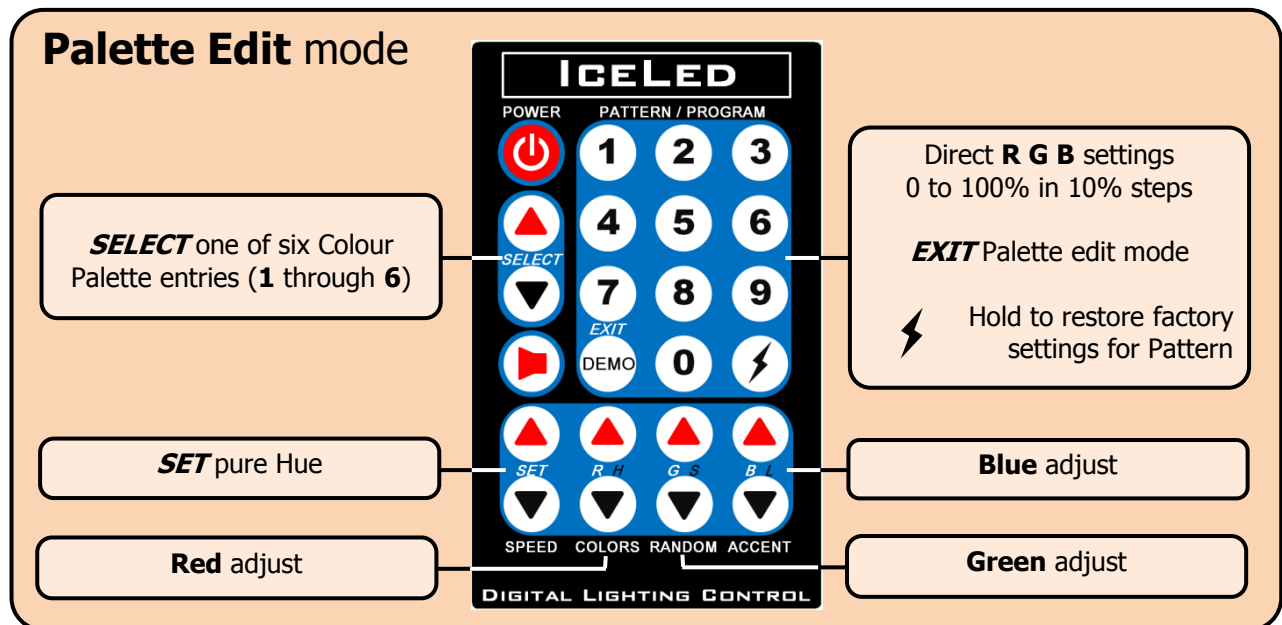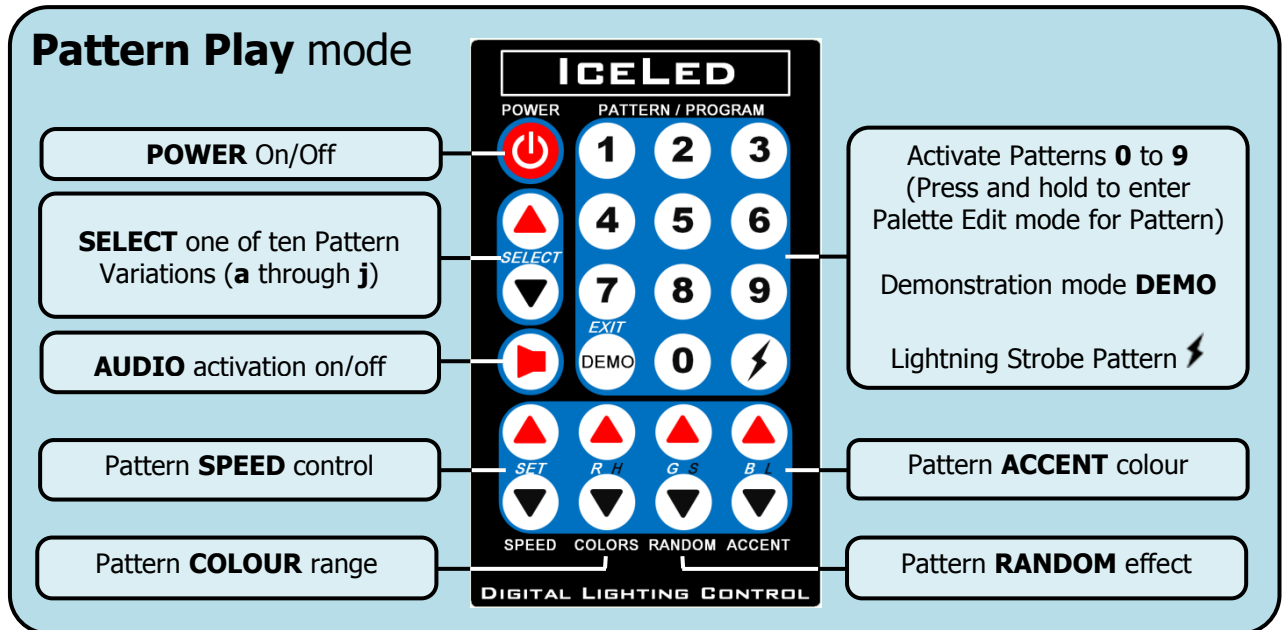
Using the ICELED standard 3-wire interconnection system UFO has been designed to complement and integrate with other devices in the ICELED range of digitally-networked lighting products. As well as controlling four or more external LED pixel tubes, the ECU can easily be linked to interior ICELED so that colours may be synchronised inside and out. A connection is also provided so that the ground light automatically switches on whenever a door is opened.

Tough polycarbonate tubes provide complete protection for the outboard electronics and are fully sealed against water penetration. The use of solid-state LED light sources results in highly reliable and energy-efficient operation that has already proved to be capable of withstanding more than a decade of rough use. Among numerous other electronic protection systems the ECU monitors battery voltage and automatically interrupts the supply to the tubes under fault conditions.

Remote Control quick-reference

UFO is controlled by a standardised ICELED remote control handset. The function of each button depends on which mode UFO is being operated in:

Pattern Play mode

POWER On/Off

SELECT one of ten Pattern Variations (**a** through **j**)

AUDIO activation on/off

Pattern **SPEED** control

Pattern **COLOUR** range

Activate Patterns **0** to **9**
(Press and hold to enter Palette Edit mode for Pattern)

Demonstration mode **DEMO**

Lightning Strobe Pattern ⚡

Pattern **ACCENT** colour

Pattern **RANDOM** effect

Palette Edit mode

SELECT one of six Colour Palette entries (**1** through **6**)

SET pure Hue

Red adjust

Direct **R G B** settings
0 to 100% in 10% steps

EXIT Palette edit mode

⚡ Hold to restore factory settings for Pattern

Blue adjust

Green adjust

Remote Display

The signal from the Remote Control handset is received by the discrete remote display module plugged into the UFO controller. When buttons are pressed on the handset, the remote display module responds with information relevant to the context of the operation.

Basic operation

A small glowing dot in the corner of the remote display indicates that the UFO controller is powered-on but waiting in **Standby** mode, ready to be switched-on fully by the remote control.

- *In standby mode power is removed from all ICELED tubes so that current consumption is reduced to the absolute minimum.*

A single press of the **POWER** button takes UFO in and out of Standby mode. Switching-on with the POWER button causes the default UFO (Streetwise) display to be activated which shows on the remote display as `P U`

- *Unlike all other patterns this default display of white/amber/red is designed to be minimally distracting and cannot be adjusted in any way.*
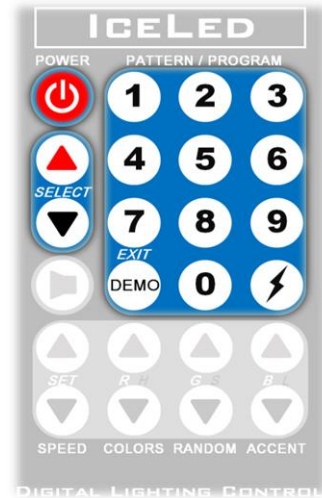
Pattern activation

As an alternative to using the POWER button, pressing any *numbered* button switches UFO into **Pattern Play** mode activating one of the 10 corresponding patterns directly.

The Lightning Strobe pattern also has a dedicated button which should be used with extra caution due to its potential for affecting people with photosensitive conditions.

Remote display information

The remote display normally shows the current pattern number – prefixed by the letter **P** e.g. `P 8` whenever a new pattern is selected.

Pattern Summary

Remote display	Name	Pattern description
P L	*Lightning*	Strobing colour blocks of random size and position
P 9	*Pulsar*	Contrasting pulses firing across a phasing background
P 8	*Quasar*	Pulses of light appearing at random diffusing into darkness
P 7	*Inferno*	Random segments flowing at different rates in random directions
P 6	*Ripple*	Random injections of light rippling into each other
P 5	*Warp*	Expanding and contracting colours in both directions
P 4	*Flux*	Random segments circulating front to back
P 3	*Scanner*	Circulating highlight on a phasing background
P 2	*Phaser*	Gradual colour changes starting from random origins
P 1	*Moire*	Colour gradients stretched from end to end
P 0	*Spectrum*	Audio-Frequency Spectrum Analyser display

Pattern Variations
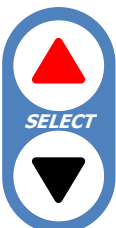
The ▲▼ **SELECT** buttons recall ten Variations of each pattern multiplying the number of different patterns available from 11 to 110 (including the Strobe).

The pattern prefix changes to a lower-case letter in the range **a** to **j** e.g. `J 8` when selecting different variations of a pattern.

Demonstration feature

UFO can be set to make a continuous sequence of random pattern selections on its own. Pressing the **DEMO** button initiates the sequence which continues until cancelled. If an audio trigger is present each new random Pattern will be selected in time with the music.

- Press **DEMO** again to include random pattern variations in the demonstration.

- Press any **Pattern** button soon after pressing **DEMO** to restrict the demonstration to variations on that particular Pattern.

- After a short delay, any other button-press immediately cancels Demonstration mode and restores manual Pattern selection.

Sound activation

Pattern dynamics can also be influenced by an audio input. Sound activation is toggled on and off with each alternate press of the loudspeaker button. The small dot on the remote display lights brightly when sound activation is enabled and blinks out in time with each beat detected.

- Sound activation is combined with the pattern speed setting to create dynamic effects.
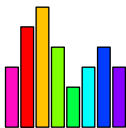
In addition to the audio beat detector, an Audio Frequency Spectrum Analyser constantly monitors the audio input and assigns different colours to different audio frequencies for use in particular colour selection ranges.

- Pattern 0 visualises the Audio-Frequency Spectrum directly on the UFO tubes while other patterns may incorporate frequency-dependent colours within the pattern.

Automatic 'Door open' operation

If the UFO controller has a connection to an interior light activated by a door-switch then the tubes can be made to switch-on and off when the doors are opened and closed - transforming the UFO kit into a useful puddle-light. Alternatively this circuit can be used to trigger UFO manually using a simple switch.

'Door open' Pattern

The default is for the Streetwise Pattern to be selected when the Door-switch circuit is activated but it is also possible to nominate any other pattern for this role by selecting a different Pattern/Variation when a door is open. The same selection is recalled whenever the door is subsequently reopened.

- When the door circuit is deactivated by closing the door, UFO slowly fades out the pattern. During this eight-second period, the pattern number blinks on the remote display to indicate that UFO is about to turn off automatically.

- The polarity of the switch can be altered from 'active low' to 'active high' using the Custom Installation menu described on page 9.

To temporarily disable the 'Door Open' feature: Switch-off using the power-button on the remote-control handset <u>when a door is open</u>. To re-enable the feature: Switch-on <u>when a door is open</u>.

Customising the Patterns

The appearance of each generic Pattern may be varied extensively by choosing different settings for four key properties of each Pattern Variation:

Speed, **Colours**, **Random** and **Accent**

The effects of using the four pairs of up/down arrow buttons ▲▼ to change these settings are instantly applied and recalled whenever the same Pattern Variation is selected in the future – even after Power has been removed from the UFO controller.

- In all cases the remote display and LED tubes will flash rapidly to warn whenever high or low adjustment limits have been reached.

- Settings may be returned to their factory defaults at any time using procedures detailed in later sections.

Adjusting Pattern Speed
Pattern speed can be adjusted over a wide range. While the buttons are held down the remote display blinks **5** to confirm that speed is changing.

Selecting a Colour range
The UFO pattern generator picks its main pattern colours from one of seven possible ranges that include:

▸ 2, 3, 4 or 6 different user-defined colours from a palette belonging to each pattern.

▸ Unlimited range of pure hues sequenced from the colour spectrum (rainbow hues).

▸ Randomly sequenced Colours.

▸ Colours representing the Audio Frequency Spectrum of any audio signal present.

Remote display	Colour range	Example
C F	**Frequency** colours	
C r	**Random** colours	
C U	**Unlimited** colours	
C 6	Palette entries 1 to 6	
C 4	Palette entries 1 to 4	
C 3	Palette entries 1 to 3	
C 2	Palette entries 1 & 2	

The buttons labelled COLORS step up and down through the ranges shown here.

The remote display shows the colour range prefixed by the letter **C** e.g. **C 6** - whenever a new range is selected

Colour preview
Newly selected colour ranges are previewed on the side tubes – in a similar fashion to the examples show above. After a few seconds without any button presses normal Pattern Play mode resumes using the new colour range.

EXIT

DEMO

To cancel the preview before the automatic time-out press the **EXIT** DEMO button in the bottom left corner of the numeric button area.

Adjusting the Random range

The UFO Pattern Generator randomizes the colours it uses in different ways depending on which Colour range is selected:

‣ For the **random** Colour range `C r` the RANDOM setting determines the rate at which new colours appear in the pattern. The effects can be seen clearly in the Colour preview (i.e. after selecting the **random** Colour range with the adjacent button pair and before the preview times-out).

‣ For the **unlimited** Colour range `C U` the RANDOM setting determines the spacing between successive colours picked from the spectrum. Lower Random settings result in more evenly spaced colours being picked in turn from the rainbow, while higher settings create less predictable steps.

‣ For the **user-defined** palette Colour ranges `C 2` to `C 6` the Random setting only applies to the order in which the palette entries are picked by the pattern generator and is not demonstrated in the colour range preview.

Selecting an Accent colour

Remote display	Accent Colour
`A F`	Frequency
`A L`	Latest main colour
`A I`	Inverse main colour
`A u`	White
`A c`	Cyan
`A n`	Magenta
`A b`	Blue
`A y`	Yellow
`A 9`	Green
`A r`	Red
`A d`	Dark

The pattern generator also makes use of an Accent Colour – *for example the colour of the scanning 'dot' that appears in pattern three.*

Setting the accent to the Inverse of the main colour range `A I` guarantees that the Accent will stand out regardless of the latest colours picked by the pattern generator.

Conversely, setting the Accent to the Latest main colour `A L` prevents the Accent from being seen altogether.

Editing the palette colours

Every pattern (including the Lightning Strobe) has its own private palette of six user-defined colours stored in RGB format. To change the palette colours *for a particular pattern*, press and hold down the corresponding pattern button until `E 1` appears on the remote display. This signals the fact that the UFO controller has switched into **Palette Edit mode**

• Throughout the editing process, all four ICELED the tubes show one palette entry at a time to provide instant feedback on the colour as it is adjusted.
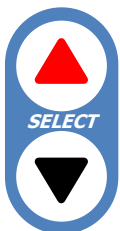
Step though each palette entry to be edited in turn using the ▲▼ **SELECT** buttons. The remote display briefly flashes `E` followed by a number from 1 to 6 indicating which palette entry has been selected for editing.

Palette Colour editing

Each palette entry can be edited to produce a new colour either by setting a pure Hue or by adjusting individual RGB components to create a wider range of shades. During editing the remote display confirms which colour component is being adjusted by flashing `H` for Hue or `r` `9` `b` for red, green and blue respectively while the values are changing.

SELECT
one of the six palette entries to be edited
e.g:

SET a pure Hue for the selected palette entry

Enter exact values for the RGB component currently being <u>edited</u> from 0 to 100% in steps of 10% using keypad buttons 0 to 9

Toggle between values of 0 and 100% with the 0

<u>Edit</u> the intensity of each primary RGB component to obtain a wider range of colour shades

- Values entered in 10% steps with the numeric keypad affect the most recent component edited by the RGB button group.

Obtaining a wider range of Colour shades

Unsaturated colours (e.g. pinks) are obtained by having non-zero intensities for all three RGB components. In the extreme case, by raising all three RGB components to their maximum intensities, white light will be produced. Conversely, darker shades (including total blackout) may be created by reducing all three intensity levels to a lesser or greater degree.

- in order to maintain maximum brightness at least one primary RGB component must be set to its maximum level. This is automatically taken care of when adjusting Hue by shifting through the colour spectrum with the **SET** buttons.

Exiting from Palette Edit mode

EXIT

To return to **Pattern Play mode** press the **Exit** button. The current pattern will be resumed and make immediate use of its new palette colours (if the Colour Range is set to two or more user-defined colours).

- In common with all other UFO settings, all palettes are stored in non-volatile memory so retain their colour programming even when power is removed from the UFO controller.

'Factory reset' Pattern

The original Factory settings for the six palette colours and the ten variations of each individual pattern can be restored by exiting from **Palette Edit** mode using a long press of the Lightning strike button. Press the button and hold it down until the pattern number reappears.

- All patterns can be restored to their Factory settings in a single operation detailed in the following section.

Custom Installation Functions

As supplied, the Factory Default settings are suited to the standard UFO kit and may require no further adjustments, in which case the Custom sections of this guide may be skipped entirely. However, as UFO may be used in a wide variety of applications, a menu of options can be accessed to allow the controller to be customised for different types of installation. A sub-menu of ICELED tube layout options is also provided for non-standard tube lengths.

In order to select one or more of the required functions listed in the table below, the controller must first be switched-on **with a four-second long press** of the power button on the remote control handset.

After the initial unit switch-on, the power button must be kept pressed **until** the remote display flashes $E\ F$ indicating that the controller is ready for a function number to be entered on the numeric keypad. Once **>** F **<** is flashing on the display, the power button can be released and the controller waits for any of the following number button presses to select the desired function:

Option	Button	Function	Default	Typical application
Factory defaults	**0**	Restore (!)		Re-installation
UFO state after Power-up[†]	**1**	Standby mode	✓	Vehicle installation
	2	Last mode in use		Domestic installation
Door activation circuit D	**3**	Active low	✓	Switched to ground
	4	Active high		Switched to +12V
Automatic Power-saving	**5**	Disabled	✓	Vehicle installation
	6	Enabled		Domestic installation
Strobe Program in Demo mode	**7**	Exclude	✓	Public use
	8	Include		Private use
Tube Layout	⚡	**Enter Layout sub-menu**		Non-standard tubes

[†]**Power-up** refers to the connection of a nominal 12V supply to the controller. In a domestic installation, where the controller is powered from a 12VDC transformer, switched by a lighting circuit, it may be desirable to have the controller automatically resume the last Pattern selected rather than wait for remote control.

On pressing any of the numbered function buttons listed in the table above, the controller briefly displays the number entered e.g. $E\ 2$ before returning to the flashing **>** F **<** symbol in readiness for any further Functions to be entered.

- The ⚡button switches to the Layout sub-menu described in the next section.

To finally execute and store any selection made from the option menu(s), the power key must be pressed to confirm the operation. The controller will then reset and return to standby mode.

EXIT

DEMO

To abandon the selection without making any changes at all, press the **EXIT** button. In this case the controller ignores the selection and restarts in exactly the same state as it was before.

(!) Restoring the **Factory Defaults** overwrites **all** Pattern colours and settings with the factory defaults shipped with the controller - so please use with extreme caution.

Custom Lighting Layouts

The standard UFO kit is configured to drive four ICELED tubes arranged in a rectangle with the pattern mirrored about the centre of the two shorter tubes. This suits ground-lighting applications for all types of vehicle. Longer or shorter tubes may also be added to change the pattern length for different kinds of vehicles or to suit entirely different applications – for example where long, continuous patterns are required for interior or for Architectural lighting.

The Layout menu is accessed from the Function menu (with the flashing > F < symbol described above) by pressing the button marked with a Lightning strike. The display then changes to a flashing > L < symbol and the tubes are lit with a special identification pattern to assist with selecting the correct layout.

Layout examples

Pattern ends ▭
Front ▬
Centre ▬
Rear ▬

Rear ... Front
Basic Mirrored Layout
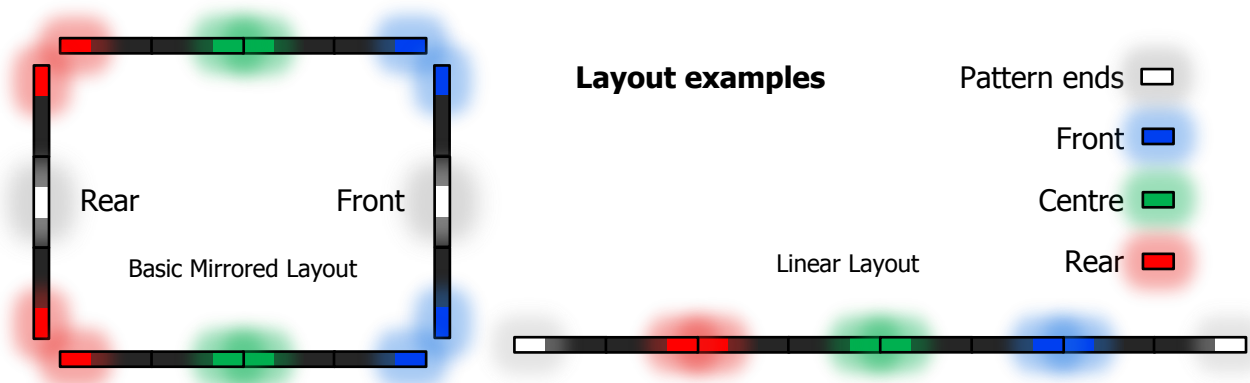
Linear Layout

Option	Button	Layout	Default	Lighting application
Basic Layout (No EXP[†])	0	Mirrored	✓	Vehicle
	1	Linear 4 x 4'		Architecture
	2	2' Side		Motorcycle
Front/Rear tube lengths	3	3'	✓	Normal vehicle
	4	4'		Wider vehicle
EXP[†] Side tube Expansion	5	5' (4' + 1')		Larger vehicle Truck, Van etc.
	6	6' (4' + 2')		
	7	7' (4' + 3')		
	8	8' (4' + 4')		
Pattern Wrap	9	Rectangular 2 x 4'		
	⚡	**Return to Function menu**		

[†]**EXP** refers to the integrated side-tube expansion facility introduced in UFO V7. Selecting any of the four EXP layout options causes the pattern to be split across the two side channels. The Side channel adjacent to the Rear channel always drives a full 4' tube located at the rear-most position, while the other Side channel drives a second tube with the remainder of the pattern for the total length selected.

' Denotes the standard three-pixel (34cm long) ICELED tube segment.

On pressing any of the numbered layout options listed in the table above, the controller briefly displays the layout number entered e.g. E 4 before returning to the flashing> L < symbol in readiness for any further Layout options to be entered.

- The ⚡ button switches back to the Function menu described in the previous section.

Installation

The complete UFO kit consists of:

2 x Long tubes	10 x Tie-wrap bases
2 x Short tubes	10 x Large tie-wraps for above
1 x ECU	10 x Self-tapping screws for above
1 x Remote display	20 x Small tie-wraps for securing cables
1 x Remote control handset	4 x Grommets for cables
1 x Fused supply wire	3 x Self-tapping screws for mounting ECU
1 x Chassis return wire	1 x Self-tapping screw for chassis return wire

The following instructions assume that UFO is being installed as a ground-lighting kit beneath a vehicle. The instructions are equally valid for other types of installation if vehicle specific terms are simply ignored.

> **Note –** *Installation should be carried out in the sequence that follows* **after** *first reading through every step (this will assist in locating everything in the optimum position).*

Step 1: Install the ECU

The ECU must not be exposed to moisture or excessive heat so should therefore be located inside the car or luggage bay – not outside or within the engine bay. The ideal location may be somewhere under the dashboard, with a short route to the car battery. The box should be secured to a flat surface using the three short self-tapping screws provided. Ensure that the drilling of these holes does not damage wiring or other equipment on the other side. Care should also be taken not to over-tighten these fixings.

A fourth hole will be required nearby to attach the chassis return wire. It is not sufficient to use any of the case screws for this connection, as it needs to be fully tightened in order to make a good connection to the metalwork. Do not connect either of the power wires yet.

Step 2: Locate the remote display

The remote-display unit plugs into a socket on the rear of the ECU.

The remote-display should be located where it can be seen from the driver's seat. Also, because it receives infrared commands from the remote-control handset, it is a good idea to locate it at window level to allow the controller to be operated from outside the vehicle. An ideal place for the remote display might therefore be in the corner of the dashboard where it meets the windscreen.

Step 3: Fit the tubes

> **Note –** Great care must be taken to observe the points emphasised in the following instructions to ensure a successful installation. Unlike most other types of lighting, UFO produces spatial effects that require the correct orientation of the ICELED tubes.

The four tubes should be mounted in unexposed positions to prevent damage from contact with any objects on the road. **They should be no lower than the lowest part of any other bodywork or suspension component**.

IMPORTANT:
It is absolutely crucial that all side tubes are mounted with their cables exiting towards the rear of the vehicle. This is so that effects can run around in a continuous fashion from end to end.
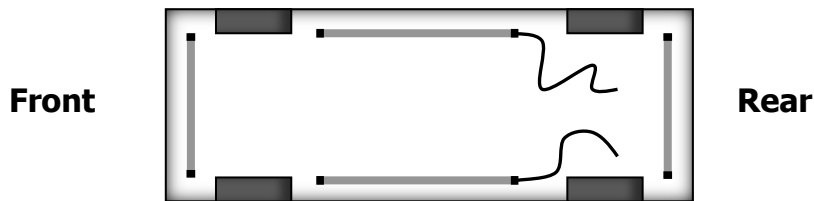
Front   **Rear**

The shorter front and rear tubes can be mounted with their cables exiting at <u>either</u> end as patterns are mirrored about the tube centres. For non-standard layouts the correct tube orientation should be determined before mounting the tubes. Tubes of the same length are functionally identical so may be used at either side or either end of the vehicle.

For the best effect, while finding suitable locations for the tubes, bear in mind that once fitted **none of the LED's should be directly visible**. Once suitable locations have been identified for each tube, the tie-wrap bases should be attached to coincide with the middle of the rubber end-caps for maximum grip as shown below, on the left.
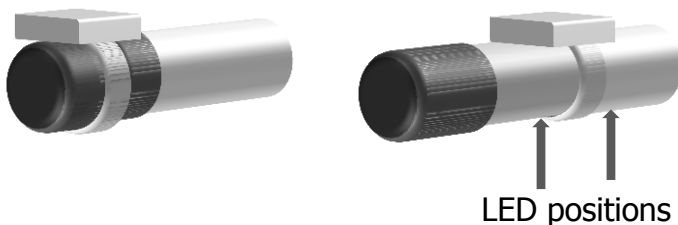
If the tie-wraps have to be used in the area occupied by the LED's care must be taken not to obscure any of the LED's.

LED positions

The longer side tubes may require one additional fixing in the middle to prevent excessive flexing. Once again, be careful to position this fixing so as not to cover any of the LED's when the tie-wrap is attached.
Once the tie-wrap bases are in place, the tubes should be loosely attached using the tie-wraps provided, **but not pulled tight yet**. This will allow the optimum angle for the tubes to be obtained by rotating them once they are wired to the UFO controller and switched-on.
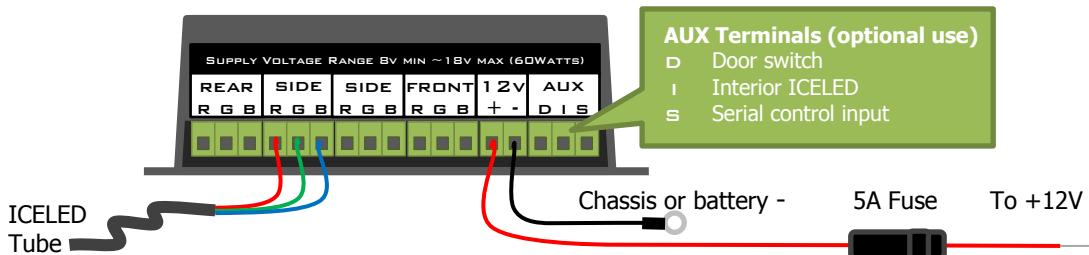
All cabling must be secured with the smaller tie-wraps supplied to prevent snagging with any objects on the ground. For this reason, it is particularly important that no cable loops should hang down.

Cables should enter the passenger compartment through holes drilled large enough to accept the grommets supplied. Ensure that the drilling of these holes will not inflict damage to wiring or other equipment. The green connector blocks can be removed from the cables to assist with threading the wiring towards the ECU.

> **Note –** In the unlikely event of a tube cable being too short to reach the ECU, it may be extended with a similar, stranded, three-core cable. Most common three-way electrical terminal blocks will be adequate for joining the wires.

Step 4: Connect ICELED tubes and power to the ECU

The 3-way connectors terminating the red green and blue wires from each of the four tubes can be reassembled and plugged in at this stage. If they are inserted in the wrong positions they can easily be swapped around later on.

AUX Terminals (optional use)
D   Door switch
I   Interior ICELED
S   Serial control input

SUPPLY VOLTAGE RANGE 8V MIN ~18V MAX (60WATTS)

REAR	SIDE	SIDE	FRONT	12V	AUX
R G B	R G B	R G B	R G B	+ -	D I S

ICELED Tube

Chassis or battery -   5A Fuse   To +12V

For safety, connections to the 12V supply should be made with the fuse temporarily removed from its holder in the red lead.

The red + wire from the fuse should be run directly to the vehicle battery if possible in order to maintain a permanent supply for standby mode. Other power 'pick-up' points may be suitable so long as they provide an uninterrupted supply. In either case the fuse holder must be located nearest to the supply end so that the fuse can be effective in protecting the wire all the way back to the ECU. To maintain protection, if this wire is to be shortened at all, it must be cut off at the end furthest from the fuse.

The ring terminal on the end of the short black wire needs to be firmly attached to the vehicles metalwork using the self-tapping screw and serrated washer supplied. **A good contact is essential here**.

If door switch activation is to be used a suitable connection must be made to the Aux. terminal labelled **D**. A switch connecting this circuit either to chassis or supply when the door is open is the only requirement. Any small-gauge wire will be adequate for this connection as virtually no current flows into this high-impedance sense input.

Step 5: Power-up and initial test

Once the fuse and 12V plug are inserted the remote display will briefly show the UFO firmware version **U 8** before entering remote-control Standby.

At this point the Standby dot should be lit on the remote display showing that the controller is ready for remote control operation. Press the power button on the remote handset to switch on the tubes.

Pattern U should now show. This will be useful for checking that the four tubes are connected to the correct outputs. The rear tube should light red, the front white and the two sides amber. The four plugs may now be swapped around to correct any mistakes. It is important to perform this check and correct any errors now - as the generated patterns rely on the correct assignment of each tube.

Front   **Rear**
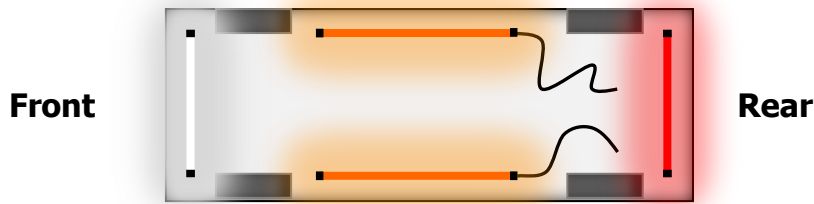
Correct appearance for Pattern 0

A further check should be performed to ensure that the side tubes have been correctly oriented front-to-back. To do this, select pattern 1. The front and rear tubes should now light in the same colours as the adjacent ends of the side tubes.

Front   **Rear**
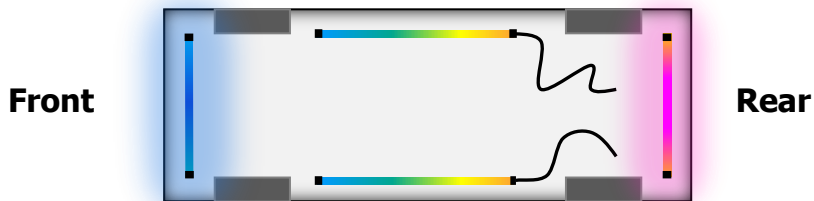
Correct appearance for Pattern 1
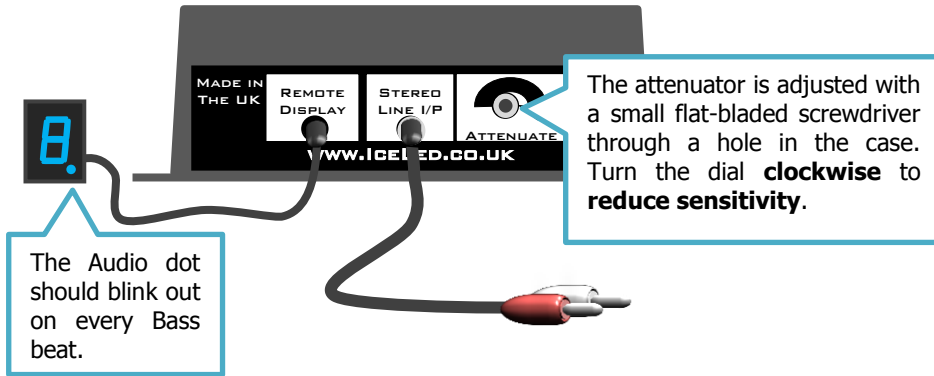
Step 6: Final adjustments
Once all tubes are lit they can be rotated on their mounting points to spread the light as near or far as is required. Once the optimum position is found, the tie-wraps should be pulled tight and the excess cut off.

When adjusting the tubes it should be remembered that the best effect will always be achieved when the source of the light is well hidden. Stand at a distance from the vehicle and check to see if the LED's can be seen directly. If so, try rotating the tubes to a position where they can't be seen. It may be better on some vehicles to rotate the tubes so they face towards the opposite side if they are impossible to hide. This method might also be used to produce more complete illumination of the ground in some installations.

Adjusting the audio level
The ECU will automatically adapt to different sound levels over a wide range so no adjustment should be necessary. However a variable **Attenuator** is provided at the rear of the unit if the sound levels are unusually high. This might require adjustment if the patterns do not respond well to the music.

The Audio dot should blink out on every Bass beat.

The attenuator is adjusted with a small flat-bladed screwdriver through a hole in the case. Turn the dial **clockwise** to **reduce sensitivity**.

A direct line-level connection can be made to In Car Entertainment systems using a standard 3.5mm Stereo jack audio lead. This automatically disables the internal microphone so ensuring that music alone activates the light. The attenuator is still effective when a direct connection is used.

Specifications

Nominal supply voltage:	12 Volts DC ([1])
Standby current drain:	0.02 Amps
Maximum load current:	5 Amps
Audio sensitivity:	54dB to 102dB
Data input:	Any ICELED controller output

([1]) Voltage range of between 8 and 18 Volts. Reverse polarity and over-voltage protection are built in.

Resources

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

For more suggestions and advice visit http://iceled.co.uk/area51/ the official ICELED user forums.

ICELED UFO Conforms to:

EMC Directive (2004/108/EEC)

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