

AL4 Auto Flashing Tail Light module - Flashes twice per second like modern Dorman lanterns

CAUTION - REMOVE THE BATTERY BEFORE PLUGGING IN OR REMOVING AN LED

This Automatic Light controller is designed to fit inside models and detect small amounts of movement and control a lighting effect produced by a small LED light. Please read these instructions before using this product.

Contents

- AL4 Flashing Tail Light module
- 1 Lantern Style transparent red LED
- 1 Lantern Style Red colour red LED
- BAT1 CR2032 lithium button battery

Introduction

The AL4 module can be fitted inside a wagon or coach and when it detects motion starts flashing a small lantern style LED simulating a modern image tail light, automatically switching off after no motion is detected for several minutes-no switch or pickups required! Other modules have a flickering flame effect to simulate lanterns or fireboxes (which realistically flickers more when going over bumpy rails!), spark-arcs as seen on electrics, door open amber lights or constant output for lighting coaches, headlights, head codes etc. Dual function modules have both a constant output and an effect output.

How it works

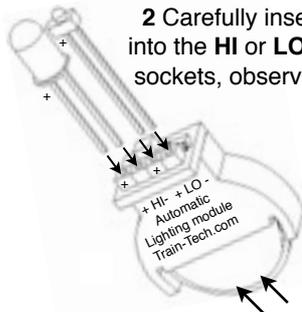
A low power microprocessor constantly monitors a tiny sensor which can detect small amounts of motion. When movement is detected it flashes LED until no motion is sensed for 4 minutes, then turns off the LED to save power and back to monitoring.

Testing the module

Before fitting we suggest you test it by plugging in the LEDs supplied to see how it operates & decide on the best location in your model. The AL+ modules have **HI** and **LO** brightness outputs & you can use either one or both at the same time in your model

1 Trim longest LED pin to same length as other pin

2 Carefully insert an LED into the **HI** or **LO** brightness sockets, observing polarity



3 Slide in Battery + to +

As soon as you fit the battery the LED should light because you are moving the module - if the LED does not light try fitting the LED the other way. Place the module on a completely still surface & just over 4 minutes after the last motion the LED should switch off.

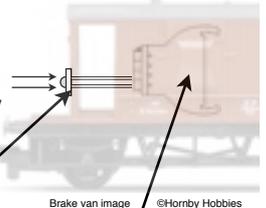
Fitting the module inside a model

The AL module is designed to be easy to fit into a model and we offer the following suggestions for fitting to a brake van - the same ideas can apply to fitting to coaches, locos or wagons.

1 Paint the base and sides of lantern shape LEDs white or black to make it look like a realistic railway lantern



2 Carefully drill two small holes approx 2.5mm apart all the way through inside



3 Glue LED onto the end of wagon

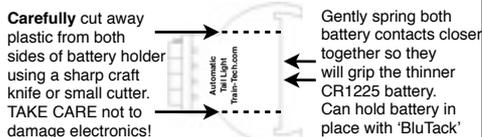
4 Fit module inside, carefully sliding sockets over LED pins, holding module in place with foam or 'BluTack' etc

Care

- Fit battery polarity correctly, + to +
- Careful not to damage parts on PCB
- Never apply more than 3 volts
- Never short circuit battery terminals
- Dispose of used battery's properly

Fitting AL module in N gauge models

If you wish to fit the module into a smaller gauge than OO/HO you will either need to use large rolling stock such as a container wagon or coach, or use a smaller battery. We suggest the following modification for fitting the module into an N gauge wagon or coach, however please read the warning below before modifying anything. The CR1225 is a lithium 3 volt battery which is much smaller than the 2032 with a 12mm diameter. The electronics module is also 12mm wide and this will just fit into many N gauge wagons or coaches, but the battery holder will need to be trimmed:



Observe polarity when fitting battery; + to +
Note that being smaller the CR1225 has a lower capacity than the CR2032 so will not last as long. Available as BAT2 from Train-Tech dealers and www.dcpexpress.com

Warning

Please note any modification of the module will invalidate the warranty and should only be attempted by a confident modeller. Modelling suggestions are offered in good faith but anything you modify is at your own risk and Train-Tech/DCP cannot be held responsible for any injury, damage or loss however caused.

Adjusting sensitivity

The AL module incorporates a small sensor containing a tiny ball bearing with gold contacts to detect any movement. If you wish you can slightly adjust sensitivity of the motion sensing by moving the module to a different angle inside your model.

Using other LEDs

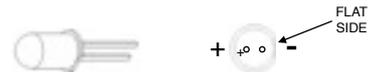
One of the reasons the small battery can last so long is because the LEDs supplied in this set have been especially selected for their efficient low voltage and power requirements. However you can experiment with other types of LED, but bear in mind they must be able to operate on very low currents and a voltage of around 2.5 volts.

General information on LEDs

LED stands for *Light Emitting Diode* and a diode is an electronic component which only works electrically in one direction, so always need to be fitted the correct way round to work correctly and last. Most standard miniature LEDs which a modeller will use must only have a maximum voltage of 2 to 3 volts applied, so current flowing through the LED needs to be reduced and this is usually done by a resistor in series (in between), typically 1000 ohms for a 12 V supply. However to make wiring easier this AL module and most Train-Tech LFX and Signal LED controllers already have resistors built in so that LEDs can connect directly to the module without resistors.

LED connections

As explained previously most LEDs have a polarity and must be connected the correct way round to light. The most popular LEDs come in 3mm and 5mm diameter cases and look similar to this:



The best indication of polarity on this type of LED is to find the flat side on the round base. This side usually indicates the negative (Cathode) connection and the other wire the positive (Anode) connection to power.

Another very small LED we supply for some Train-Tech products looks like this:



There are many LEDs on the market and it is good to experiment, but check manufacturers data for specific connection information as there are no real standards. Remember to always use a resistor in series with the LED when using it on a standard DC power supply or battery.

Train-Tech offers packs of LEDs for modellers including special high brightness low power versions for AL modules like this.

Small tools, batteries and wire are also available from Train-Tech.