

## AL2+ Automatic Flickering Light module

### 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

- AL2+ Flashing Tail Light module
- 1 Lantern Style Red colour red LED
- 1 Orange bright LED for Firebox etc
- BAT1 CR2032 lithium button battery

#### Introduction

The AL2 is fitted inside a wagon or coach and when it detects motion switches on a flickering flame effect on a small LED simulating a traditional paraffin tail light or steam loco firebox, switching off after no motion is detected for 4 minutes - no switch required! LED also realistically flickers more when going over bumpy rails! Other modules have a flashing tail light (as on modern trains), 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.

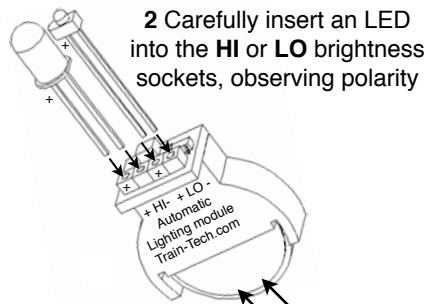
#### How it works

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.

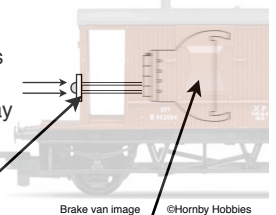
#### Fitting the module inside a model

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

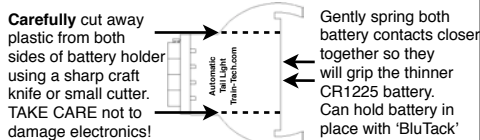
- 4 Fit module inside, carefully sliding sockets over LED pins, holding module in place with foam or 'BluTack' etc

#### 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](http://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

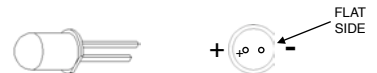
One of the reasons the small battery can last so long is because the LEDs supplied in this set have been especially selected for their efficient low voltage and power requirements. However you can experiment with other types of LED, but bear in mind they must be able to operate on very low currents and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

## One-Touch DCC™ Digital Signals

DCC WIRE FREE 00 HO



- Signal with DCC decoder built into base
  - Can just plug direct into track – no wires!
  - Easy to fit and use – no CV programming!
  - Can sync to other signals & points
- DS1 Home:** Red (R) and Green (G)  
**DS2 Distant:** Yellow (Y) and Green (G)  
**DS3 Home Distant:** (R) (Y) (G)  
**DS4 Distant:** (Y) (G) (Y)  
**DS5 Outer Distant:** (R) (Y) (G) (Y)  
**DS5HS Outer Dist:** (R) (Y) (G) (Y) (High Speed mainline)  
**DS6 Dual Head Home:** (R) (G)  
**DS7 Dual Head Distant:** (Y) (G)  
**DS8 Stop-Caution:** Red (R) and Yellow (Y)

Track not included

## One-Touch DCC™ Point Controllers

DCC 00 HO N Z



- Control points and uncouplers using DCC
- Easy to use – No CV programming!
- Work with most solenoid point motors
- Just connect 2 wires to nearby DCC rails
- Easy screw terminals – no soldering
- Built in CDU for efficient operation
- Can sync to other points and signals

### One-Touch DCC™ Point controllers

**PC1 DCC Single Point Controller**  
**PC2 DCC Quad Points Controller**

Point motor and track not included

## Buffer Lights

DC DCC WIRE FREE N 00 HO



- Add realistic stop light to any siding
- Simply clips onto track – No wires!
- Fits next to most buffer stops & kits
- Or at platform end or free standing
- Low cost, easy to fit and use
- On DCC both lights are on constantly
- On DC one light is on & varies with speed
- Helps bring your layout to life!

**BL1 00/HO gauge Buffer Light**  
**BL2 N gauge Buffer Light**

Track and buffer stop not included

## Automatic Tail, Firebox, Loco & Coach Lights

Auto WIRE FREE ANY GAUGE



- No switch – senses motion & turns on!
- Turns off automatically 4 minutes after stop
- No pickup, wires or soldering – LED plugs in
- Fit in brake vans, coaches, loco, wagons etc
- Runs for ages on small button battery

**Single output modules:** **Dual output modules:**  
**AL1 Flashing Tail light** **AL21 Flashing + constant**  
**AL2 Flame Tail / Firebox** **AL22 Flame + constant**  
**AL3 Constant lighting** **AL23 Sparkarc + constant**  
**LEDs & battery included** **AL24 Doors open + constant**

## LFX Lighting Effect Controllers

DC DCC ANY GAUGE



LFX1 shown with supplied LEDs fitted to a Peco barrier kit - not included

**LFX1 Level Crossing Barrier**  
 Controls Amber and Red LED's as seen at level crossings. Can power up to 4 sets of steady amber and flashing red LEDs

- Add lighting effects to your layout
- LEDs screw in – no resistors or soldering
- Powered by either 12-16V DC or DCC:
- On DC the effect is on when powered
- On DCC the effect can be controlled

### LFX2 Home & Shop Lighting

Randomly controls lights in houses, shops, stations, pubs

### LFX3 Traffic Lights

Controls one pair of timed traffic lights [Tip: You can adapt one of our Signal kits to make traffic lights]

### LFX4 Log or Camp Fires

Controls amber, yellow, red LEDs for a realistic fire effect

### LFX5 Welding effects

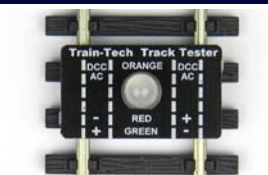
Realistic electric arc welding effects with bright LEDs

### LFX6 Quad LED Lighting Controller

Controls 4 sets of LEDs on and off using separate DCC addresses. Directly powers 4 LEDs per output (DCC only)

## Track Tester

DC DCC N 00 HO



- Quickly tests track for power faults
- Low cost and easy to use
- Works on N, TT, 00 or HO Track
- Indicates the DC polarity, or DCC, or a fault
- Small enough to check point frogs

**TT1 Track Tester**

## One-Touch DCC™ Signal Controllers

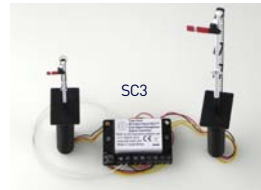
DCC ANY GAUGE



- Control LED & Semaphore signals by DCC
- Easy to set up & use – No CV programming!
- Easy screw terminals – no soldering
- Can sync to other points & signals

### SC1 Dual 2 aspect colour light signals controller

Controls one or two 2 aspect colour light signals. Compatible with Train-Tech SK2, SK3, SK7, SK8 and most other manufacturer's LED signals



### SC2 3 or 4 aspect or 2 aspect+route signal control

Controls one 3 aspect or one 4 aspect or one 2 aspect + route signal. Compatible with Train-Tech SK4, SK5, SK6 and most other manufacturer's LED signals

### SC3 Dual Dapol 00/N Semaphore signal controller

Controls one or two standard 00 or N Dapol motorised semaphore signals by DCC. Signals connect direct to the SC3 – no modifications or power supply needed.

Dapol Signals for photo - not included

## Self Assembly Colour Light Signal Kits

DC DCC 00 HO



- Every kit includes the head, post and base plus detailing kit inc ladder, handrails, etc
- Aluminium 'post' included with each kit
- Low cost – adapt to your own design
- Control by switches or a signal controller

### General purpose signal kit:

**SK1 Basic kit 2/3/4 aspect & dual heads - no LEDs**

### Signal kits with LEDs and resistors

**SK2 Home 2 aspect kit with Red (R) Green (G) LEDs**

**SK3 Distant 2 aspect kit with (Y) (G) LEDs**

**SK4 Home Distant 3 aspect kit with (R) (Y) (G) LEDs**

**SK5 Distant 3 aspect kit with (Y) (G) (Y) LEDs**

**SK6 Outer Distant 4 aspect with (R) (Y) (G) (Y) LEDs**

**SK7 Dual head Home 2 aspect with (R) (G) LEDs**

**SK8 Dual head Distant 2 aspect with (Y) (G) LEDs**

The LEDs are pre-fitted onto a long narrow PCB stick to pass through your baseboard. Just attach your signal control wires to PCB

SEE WWW.TRAIN-TECH.COM OR CONTACT DCP FOR FREE COLOUR BROCHURE



# Train-Tech

Model Technology Made Easy

## AL2+ Auto Tail & Firebox Lighting kit Flickering flame effect LED

- Detects movement and turns on automatically!
- Ideal for brake vans, coaches or loco fireboxes
- No pickups, wires or soldering – LED plugs in
- Runs for ages – smaller N size battery available
- Fully assembled – drill holes for LED & fit inside
- Red lantern LED, orange LED & battery included



[www.Train-Tech.com](http://www.Train-Tech.com)

See our website, your local model shop or contact us for a free colour brochure  
 DCP Microdevelopments, Bryon Court, Bow Street, Great Ellingham, NR17 1JB, UK  
 Telephone 01953 457800 • email [sales@dcpmicro.com](mailto:sales@dcpmicro.com) • [www.dcpexpress.com](http://www.dcpexpress.com)