AL22 Dual Function Flickering Flame and Constant Automatic Lighting module

Contents
• AL22 Flickering + Constant Lighting
• 1 Lantern Style Red colour red LED
• 1 Warm White LED for interior light
• BAT1 CR2032 lithium button battery

Introduction
The AL22 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 is required. LED also realistically flickers more when going over bumpy rails! This module also has a constant light output for lighting a coach, cab, etc. 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.

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.

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:

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 have been specially selected for their low voltage and power. You can experiment with other types of LED, but bear in mind they must be able to operate on very low currents & voltages - if connecting multiple LEDs always use the same types together.

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 DCP cannot be held responsible for any injury, damage or loss however caused.

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 locations etc in your model. This dual function module has an FX output for the effect and an ON output for constantly on LED(s).

1 Trim longest LED pin to same length as other pin
2 Carefully insert LEDs into the FX and ON sockets
3 Slide in Battery + to +

As soon as you fit the battery the LEDs should light because you are moving the module - if they do 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 (see below for N gauge) & we offer these suggestions:

Interior Lights
The constant ON output can be used to light just one LED in a brake van or loco cab, headcode or destination board etc or can also be used to light part or all of a coach or multiple unit. The ON output is brighter & 3 or 4 same type of LEDs can be connected in parallel to light larger areas. Train-Tech offers packs of low power warm and cold white LEDs for AL modules.

Flicker LED
Carefully drill 2 small holes and glue LED in place - it looks best painted white or black

Hide module at the end or in base of coach, carefully sliding sockets over LED wires, holding it in place with foam, ‘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

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 and efficient low power versions for AL modules like this. Small tools, batteries and wire are also available from Train-Tech.

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One-Touch DCC™ Digital Signals

- 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 N Green
DS2 Distant: Yellow N Green
DS3 Home Distant: Yellow N Orange
DS4 Distant: Orange N
DS5 Distant: Orange N
DS5HS Outer Dist: Orange N (High Speed mainline)
DS6 Dual Head Home: Orange N
DS7 Dual Head Distant: Orange N
DS8 Stop-Colour: Red and Yellow

One-Touch DCC™ Point Controllers

- 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

- 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 00/0 gauge Buffer Light
BL2 N gauge Buffer Light
Track and buffer stop not included

Automatic Tail, Firebox, Loco & Coach Lights

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

LFX Lighting Effect Controllers

- 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

LFX1 shown with supplied LEDs fitted to a Pea 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
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

- Quickly tests track for power faults
- Low cost and easy to use
- Works on N, TT, OO or HO Track
- Indicators the DC polarity, or DCC, or a fault
- Small enough to check point frogs
TT1 Track Tester

Self Assembly Colour Light Signal Kits

- 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
SK2 Home 2 aspect kit with Red N Green N LEDs
SK3 Distant 2 aspect kit with Red N Green N LEDs
SK4 Home Distant 3 aspect kit with Red N Yellow N Green N LEDs
SK5 Distant 3 aspect kit with Red N Yellow N Green N LEDs
SK6 Outer Distant 4 aspect with Red N Yellow N Green N LEDs
SK7 Dual head Home 2 aspect with Red N Green N LEDs
SK8 Dual head Distant 2 aspect with Red N Green N LEDs

Train-Tech
Model Technology Made Easy

AL22 Automatic Dual Lighting set
Flicker flame & Constant Lighting

- Detects movement and turns on automatically!
- Fits inside brake vans, locos, coaches & wagons
- No pickups, wires or soldering - LEDs plug in
- Runs for ages on standard button battery
- Fully assembled - drill holes for LED & fit inside
- Lantern LED, Warm White LED & battery included

www.Train-Tech.com
See our website, your local model shop or contact us for a free colour brochure
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