

### Track Tester

DC & DCC O & G Gauge OO HO N Gauge



- Quickly checks track for power faults
- Small & Larger Versions - for N gauge to G gauge!
- Multicolour LED Indicates the DC polarity, or DCC, or a fault

### Buffer Lights

WIRE FREE DC & DCC O Gauge OO HO N Gauge



- Realistic stop light for any siding - fits most buffer stops
- Simply clips onto track - No wires!
- On DCC both lights are on constantly
- On DC one light is on & varies with speed

### DCC Fitted Digital Signals

DCC WIRE FREE OO HO



- Signal with DCC decoder built in - No CV programming
- Easy to fit and use - can just plug direct into track - no wires!
- Wide range available - also available with Feathers and Theatres

### One-Touch DCC™ Point Controllers

DCC ANY GAUGE



- Control points and uncouplers using DCC
- Work with most solenoid point motors - Built in CDU
- Just connect 2 wires to DCC rails - No CV Programming!
- Easy screw terminals - no soldering

### LFX Lighting Effect Controllers

DC & DCC ANY GAUGE



- Easy way to add lighting effects to your layout
- Wires screw in - no resistors or soldering - LEDs included
- Powered by 9v battery, 8-16V DC or DCC
- On DC the effect is on when powered - On DCC it can be controlled

### Level Crossing - Ready Assembled

DC & DCC OO HO N Gauge



- Power from 9-16v DC, DCC or a 9v battery - available in single & pairs
- Light and sound - all connections easy push fit
- Includes 2 x Peco static level crossing barriers
- Can be turned on automatically using a Track Sensor

### Traffic Lights - Ready Assembled

DC & DCC OO HO



- Power from 9-16v DC, DCC or 9v battery - 2 Wire connection
- Realistic standard UK sequence and timing varies randomly
- Fully assembled - drill hole in baseboard & connect to power

### Track Sensor

DC & DCC OO HO N Gauge



- Trigger level crossings and change semaphore signals
- Power from 12-16v smooth DC or DCC
- Can be used to trigger Sound Track, Smart Screen, Relays
- Four outputs for direct connection to LEDs for occupancy, FX

### Mimic Switches & Lights

DC & DCC ANY GAUGE

- Make a mimic panel to control Layout Link items - Single wire to control
- Link to Track Sensors or Sensor Signals and LEDs show occupancy & signal status
- Link to Sensor Signals to manually override and switch route indicators on/off

### Smart Lights - Easy to fit Lighting Effects

DC & DCC ANY GAUGE



- Small - Just 1cm x 1cm x 0.3cm with 2 wires
- Power by 9-16v DC, 9v battery, or direct to DCC which can control some effects
- Just connect and go - no setting up required
- Disco / Emergency / Real Fire / TV / Welding / Random / Programmable

### Automatic Tail, Firebox & Loco Lights

DC & DCC AUTO WIRE FREE ANY GAUGE



- No switch - senses motion & turns on!
- Turns off automatically 4 minutes after stopping
- No pickups, wires or soldering - LED just plugs in
- Fit in brake vans, coaches, loco, wagons etc
- Runs for ages on 2032 button battery - LEDs & battery included

### Sound for your layout

DC & DCC AUTO WIRE FREE ANY GAUGE



- Sound capsule with no wires - runs from a battery - built in speaker
- No connections to track so work with both DC & DCC
- Motion activated - switches on when train moves! Real Sounds!
- Tiny - 25mm x 20mm x 12mm - N gauge fitting guide available

### Sound Track

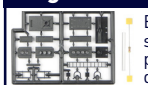
- Record your own sounds and play them back on your layout!
- Record 4 tracks upto 35 seconds each - Lock to protect favourites
- Portable - use with 9v battery to take out & record sounds
- Power from DC or DCC - Use Track Sensors or DCC to trigger sounds

### Scenic Sounds

- Background sounds for your layout - built in speaker & volume
- Power from DC or DCC - on DCC sounds can be triggered
- Lineside • Station Steam • Station Modern • Urban • Rural

### Signal Kits

DC & DCC OO HO



- Every kit includes the signal head, aluminium post & base plus detailing kit

- Low cost - adapt to your own design
- Control by switches or signal controller
- LEDs are prefitted to a narrow PCB
- Ground signals - modern & original
- Feather & Theatre kits available
- Signal Head only for gantries etc

### AL22 - Auto Tail Light



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### Signal Controllers

DC & DCC AUTO ANY GAUGE

- **DCC Signal Controllers** - Wire in any LED signals to control from DCC accessory address
- **Automatic Signal Controllers** - Make any LED signal kit into an Automatic Signal!
- **Dapol Semaphore Controllers** - Control Dapol Semaphores by DCC or automatically

### Automatic Sensor Signals

WIRE FREE DC & DCC OO HO



- Detects train and changes signal automatically to red
- Used own & signal changes back to green after train short time
- Or link to other Sensor Signals for fully automatic block signalling
- Can be used on both DC & DCC - Feather & Theatre versions

### Automatic Coach Lighting

DC & DCC AUTO WIRE FREE OO HO N Gauge



- Easy to fit - no wiring or switch - senses motion & turns on!
- Turns off automatically - fits most coaches - may be cut down
- No pickups or wires so works on regular DC & DCC
- Traditional warm white or modern cool white
- Also with tail light, sparking, door beeps and door light effects

### Servo Controller

DC & DCC ANY GAUGE

- Controls standard radio control servo from DCC, Track Sensor or Mimic switch
- Ideal for animating Level Crossing barriers / gates, Slow points or signals, Coal hopper
- Easy to wire and set up - connects directly to DCC or 8-16 volts smooth DC supply

### Relay Controller

DC & DCC ANY GAUGE

- Two channel Relay unit which can be controlled by Track Sensor, Sensor Signal or DCC
- Enables remote control of motors, solenoids, lamps etc
- Incorporates two heavy duty relays with changeover contacts rated at 8-24 volts at 3 A

### Automatic Train Control

DC & DCC ANY GAUGE

- Link Sensor Signals to Relay Controller for automatic trains which stop at red lights!
- Can be used on DC or DCC Layouts
- Easy wiring: Sensor Signal link with one wire and Isolated braking section two wires.
- Also supports ABC fitted DCC Loco's for gradual slow down and speed up with sound

### Tools, LEDs & Accessories

ANY GAUGE

- We offer a range of LED packs, battery holders, wire, switches & terminals
- Also handy modelling tools including precision cutters, drill bits & spare batteries

### Smart Screen

DC & DCC OO HO



- Real working animated screen - customise with your messages
- Use DCC to program - then can be run on DC or DCC
- Trigger messages with DCC, switches, track sensors or just cycle
- Message can change with direction of train on both DC & DCC
- Display upto 10 different messages - can also show real time clock
- Range of enclosure available - Programming service available
- Small - w 31mm x h 9.5mm x d 4.5mm
- Stationary top line - bottom line automatically scrolls

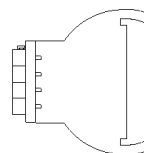
SEE [WWW.TRAIN-TECH.COM](http://WWW.TRAIN-TECH.COM) OR ASK FOR FREE COLOUR BROCHURE



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

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# AL22 Dual Function Flickering Flame and Constant Automatic Lighting 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 2 lighting effects produced by small LED lights. Please read these instructions before using this product.

### 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.

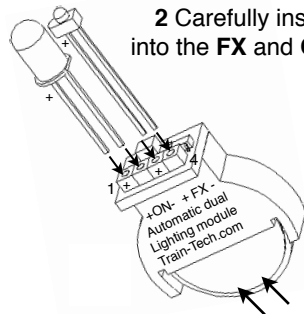
### Testing the module

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 LED 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

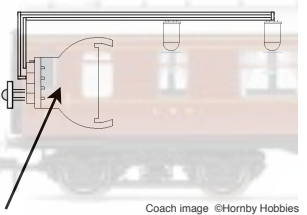
The AL module is designed to be easy to fit into a model (see below for N gauge) & we offer these suggestions:

#### 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



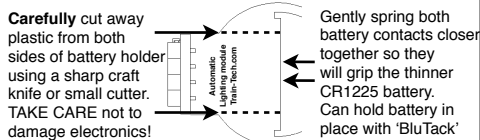
**Hide module** at the end or in base of coach, carefully sliding sockets over LED wires, holding it in place with foam, 'BluTack' etc

#### 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

### 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 + Being smaller the CR1225 has a lower capacity than the CR2032 so will not last as long. The CR1225 is available as BAT2 from [www.gaugemaster.com/train-tech](http://www.gaugemaster.com/train-tech)

### 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 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

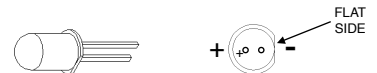
One of the reasons the small battery can last so long is because the LEDs supplied have been specially selected for their low voltage and power. You can experiment with other types of LED, but bear in mind they must be able to operate on very low currents & voltages - if connecting multiple LEDs always 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 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 and efficient low power versions for AL modules like this. Small tools, batteries and wire are also available from Train-Tech.