LFX2 - Home & Shop Lighting LED controller for DC and DCC model railways

CAUTION - ALWAYS SWITCH OFF POWER TO YOUR LAYOUT BEFORE CONNECTING THIS CONTROLLER

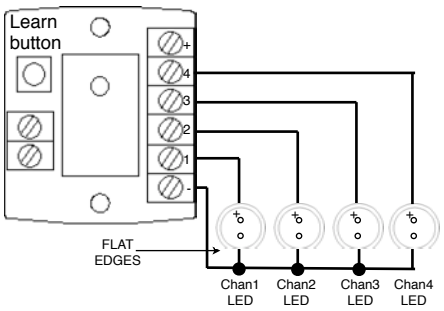
This lighting effect incorporates a DCC decoder to enable it to be wired directly into the track and be operated by any controller which is able to control DCC accessories. It can also be controlled by 9-15V DC supply. Please read these instructions before fitting your controller.

1 WIRING THE LED's

The LFX2 is a Lighting controller which controls up to 4 separate sets of LEDs to simulate lights randomly switching on and off in model buildings, signs, street lights etc with the effect under DCC or conventional DC switch control. We recommend you try the LFX using sample LEDs supplied before fitting into a model.
Switch off your power supply before connecting anything!

The LFX2 has 4 output channels to directly control standard LEDs. Most standard round LEDs have a flat edge to indicate polarity - see 'connecting LEDs' below.

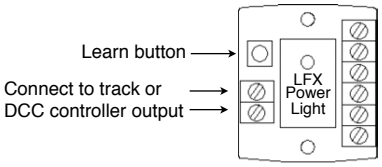
We have supplied 4 sample LEDs with this LFX so that you can see each channel working, but you can connect up to 4 LEDs on each channel, though note the more you fit the slightly dimmer each will be as they share power - see below.
You do not need a resistor when connecting LEDs to Train-Tech LFX or Signal Controllers.



! Do not connect more than 16 LED's to an LFX controller!

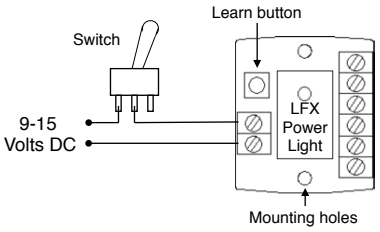
2 CONNECTING TO POWER

Connecting to a DCC digital layout
Connect the LFX to the nearest DCC track or controller output using wires from the screw terminals shown below - it does not matter which way round the wires are connected.



Once all connections have been made, switch on your DCC controller. The red Power light on the top of the LFX should illuminate.
If it does not light see Troubleshooting below

Connecting to a DC analogue layout
To use the LFX module with DC layouts, you need to supply it with 9-15 Volts DC. Most DC controllers have a DC accessory supply or you could even use a 9 volt battery. Connect the LFX to the supply using the two screw terminals as shown in the diagram below (polarity not important) and include a switch to control the effect easily - LFX power LED should light.
If it does not light see Troubleshooting below



3 CONTROLLING THE EFFECT

You can switch on and off this effect using DCC digital or a conventional switch on a DC layout:
Programming & controlling using DCC
• Choose a DCC address for your LFX (eg 70).

• Set up your controller to control DCC *accessories* (refer to your controllers instructions) and set your controller to the address you chose, eg 70.

• To program the LFX, touch the 'Learn' button - the connected LED's will flash. Then send a 'direction' command from your DCC controller. The LED's will stop flashing and your LFX is now programmed to this address.

• Switch the LFX lighting effect on or off by setting your DCC controller to the *DCC accessory* address you chose, then send a 'direction' command from your controller to start and stop the LFX lighting effect - note the lights will turn on or off gradually. (actual terms used for accessory control vary between DCC controllers, so please refer to the instructions)

Address (eg 70) ◀ or ▶ = Switch LFX on or off

Your LFX will retain the address unless you change it. It can have its own unique address or can be synchronised to other DCC accessories by giving them the same address as each other. For example you could set LFX level crossing warning lights to come on automatically when a nearby DCC signal is changed to green.
It can also be used on a computer controlled DCC layout - just program and use the LFX in the same way, but use the computer to send addresses & commands instead of a controller.

Controlling using DC
If you have fitted a switch, simply switch it on or off to switch on or off the LFX lighting.

Fitting the Home and Shop Lighting LFX and LEDs
Once you have tried your LFX module you need to decide how and where best to fit lights on your layout.

Most regular LEDs will work with the LFX2 and there are literally hundreds of different types on the market in many sizes, shapes and colours. You may decide white LEDs are best for houses and signs, amber good to simulate sodium lights in engine sheds and street lights, and how about a violet one fitted inside a local shop window simulating an insect repeller.....

You can fit up to 4 LEDs on each channel of the LFX2 giving you random lighting in various rooms - connect the same type and colour of LEDs to the same channels for more consistent light. The best way to decide what to fit where is to connect various LEDs and experiment.....

Unlike traditional filament lamps, LEDs do not get hot and so can quite safely be fixed to the inside of card or plastic buildings or into model street lights or signs using adhesive tape or glue.
We have made the LFX module as small and light as possible so that it can be easily hidden inside a building or scenery, though it can be mounted under the baseboard and held using a double sided sticky pad or small screws, but be careful not to overtighten. If using the LFX on DCC you can connect it directly to the nearest DCC rails - note it may be easier to set the address before mounting it in a building or hard to get place - see step 3 above.

The following accessories for your LFX2 are available from your Train-Tech Dealer or www.dcpexpress.com

LED2: Pack of 10 assorted 5mm LEDs
Pack of various colour LEDs, 5mm diameter

LED10: Pack of 10 assorted subminiature LEDs
Pack of red, green, yellow and amber small LEDs

LEDCLIP1: Solderless LED clips
Pack of clips with 200mm of wire which enable LEDs to be connected away from the LFX without soldering

PADS1: Double sided sticky pads for mounting LFX modules, LEDs, signals etc.

Troubleshooting when using a DCC system

• Check that the power light on the LFX is on - if not and locos run correctly on the track check the connection wires between the LFX, DCC controller and track.

• If you have connected the LFX to track rails test it connected directly to the DCC controller output instead.

• If the LFX power light is on but the LED's connected to your LFX do not switch on or off, check that your DCC controller is in *accessory* address control mode - note that this is completely different to Locomotive address control and will be explained in your controller instructions.

• If some or all of the LED's connected to the LFX fail to light correctly, double check the wiring and if necessary reverse the connections of some LED's.

Troubleshooting when using a DC system

• If the red power light on the LFX does not come on, check that it is receiving power from a suitable 12 Volt DC supply - the polarity of connection is not important as this is corrected inside the LFX. You can also easily test the LFX by connecting it to a 9 volt PP3 battery - the LFX power light should light and connected LEDs should work normally, although as it is running on only 9 volts they will not be as bright.

• If some or all of the LED's connected to the LFX fail to light correctly, double check the wiring and if necessary reverse the connections of the LED's.

If these steps fail please contact your supplier or DCP for advice and Technical support.

Notes
The LFX module may get slightly warm when used for long periods which is quite normal.
The original design of this LFX module had only 4 output terminals and LEDs were connected quite differently - if using one of these versions please refer to the instructions which were supplied with it.

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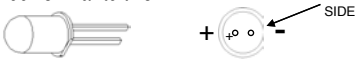
General information on using LEDs with models
LEDs are really useful lights which, unlike their conventional filament bulb predecessors, are robust, low power and if used correctly can effectively last forever. But there are important considerations to using them. Firstly LED stands for *Light Emitting 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. Whilst LED's will work on AC (alternating current) for a while, continuous use on AC or reverse connection will reduce the life.

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 for modellers all Train-Tech LFX or Signal LED controllers already have resistors built in so that LEDs can connect directly to the module without the need for any resistors.

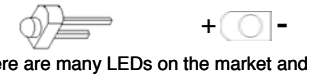
Train-Tech also offer packs of various LEDs for modellers and these always come with instructions and also suitable resistors for using them on a standard Model Railway 12V DC supply.

Connecting LEDs
As explained previously 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 really 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.

One-Touch DCC™ Digital Signals

DCC · WIRE FREE · 00 · HO

Track not included

- 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 Ⓡ and Green Ⓖ
DS2 Distant: Yellow Ⓨ and Green Ⓖ
DS3 Home Distant: Ⓡ Ⓨ Ⓖ
DS4 Distant: Ⓨ Ⓖ Ⓨ
DS5 Outer Distant: Ⓡ Ⓨ Ⓖ Ⓨ
DS5HS Outer Dist: Ⓡ Ⓨ Ⓖ Ⓨ (High Speed mainline)
DS6 Dual Head Home: Ⓡ Ⓖ
DS7 Dual Head Distant: Ⓨ Ⓖ
DS8 Stop-Caution: Red Ⓡ and Yellow Ⓨ

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

Track and buffer stop not included

- 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

Automatic Tail, Firebox, Loco & Coach Lights

Auto · WIRE FREE · ANY GAUGE

Rolling stock not included

- 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

0313

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

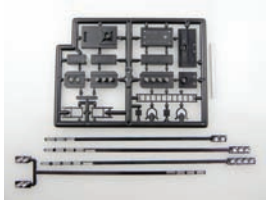
SC2 3 or 4 aspect or 2 aspect+route signal control
Controls one 3 aspect or one 4 aspect or one 2 aspect + route signal. Compatible with Train-Tech SK4, SK5, SK6 and most other manufacturer's LED signals

SC3 Dual Dapol 00/N Sempahore 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



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

- 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 Ⓡ Green Ⓖ LEDs
SK3 Distant 2 aspect kit with Ⓨ Ⓖ LEDs
SK4 Home Distant 3 aspect kit with Ⓡ Ⓨ Ⓖ LEDs
SK5 Distant 3 aspect kit with Ⓨ Ⓖ Ⓨ LEDs
SK6 Outer Distant 4 aspect with Ⓡ Ⓨ Ⓖ Ⓨ LEDs
SK7 Dual head Home 2 aspect with Ⓡ Ⓖ LEDs
SK8 Dual head Distant 2 aspect with Ⓨ Ⓖ LEDs

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

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Train-Tech

Model Technology Made Easy

LFX2 Home & Shop Lighting
Lighting Effect Controller

- Random lights in houses, shops, signs etc
- Sample LEDs supplied - use up to 4 x 4 LEDs
- On DC, the effect starts when switched on
- On DCC, the effect starts & stops by command
- Can also sync to other effects, signals, etc

www.Train-Tech.com

See our website, your local model shop or contact us for a free colour brochure
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