

# LFX1 - Level Crossing Barrier LED controller for DC and DCC model railways

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

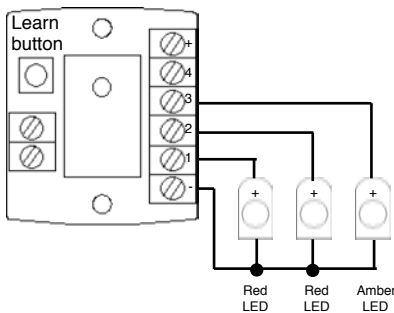
This lighting effect incorporates a DCC decoder to enable it to be wired directly into the track and be operated by any controller which is able to control DCC accessories. It can also be controlled by 9-15V DC supply. Please read these instructions before fitting your controller.

### 1 WIRING THE LED's

The LFX1 simulates the lights seen at modern level crossing barriers, first switching on an amber LED then flashing two red LEDs alternately. The effect sequence can be started and stopped using either DCC accessory commands or a regular DC switch. We recommend you try the LFX using the sample LEDs supplied before fitting into a model. **Switch off your power supply before connecting anything!**

- Connect the supplied Amber and Red LEDs into the terminal block as below, carefully observing the correct polarity which, on this style of LED, is rounded at the + end.

*LED's are small low power lights which **must** be connected the correct way round to light, so refer to drawing below when connecting - note you do not need resistors when connecting LEDs to Train-Tech LFX or Signal Controllers.*



**Do not connect more than 12 LED's to an LFX controller!**

### Fitting the Level Crossing Barrier LFX and LEDs

Once you have tried your LFX module and LEDs you need to decide how and where best to fit them.

You can use almost any amber or red LEDs but the small sample LEDs supplied are ideal for fitting into many of the commercial level crossing barrier sets on the market or into kits such as the Peco NB51(N) and LK51 (OO) which are supplied as a simple kit of parts and relatively easy to drill holes for these small LEDs. Before fitting the LEDs solder on your wires - we suggest you fit thin gauge wire such as 'Kynar' wire or enameled copper wire (which can be bought on reels or salvaged from an old motor etc) as these can easily be hidden behind the models light post.

The lens diameter of the sample LEDs supplied is 1.8mm, so a clearance hole of 1.8 - 2mm needs to be drilled where the LEDs will be fitted. Unlike traditional filament lamps, LEDs do not get hot and so can quite safely be glued or taped onto card or plastic models. You can fit up to 4 sets of 3 LEDs to one LFX though note the more LEDs you fit, the slightly dimmer each LED will be as they will be sharing the same power.

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 LFX1 are available from your Train-Tech Dealer or [www.dcpexpress.com](http://www.dcpexpress.com)*

### LED1: Level Crossing Barrier LED set (3 sets of 3)

Set of 6 more subminiature red and 3 subminiature amber LEDs as per samples supplied with the LFX1

### LEDCLIP1: Solderless LED clips

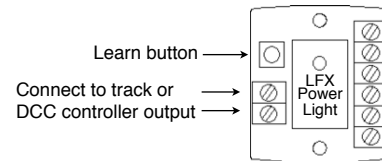
Pack of clips with 200mm of wire which enable LEDs to be connected away from the LFX without soldering

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

### 2 CONNECTING TO POWER

#### Connecting to a DCC digital layout

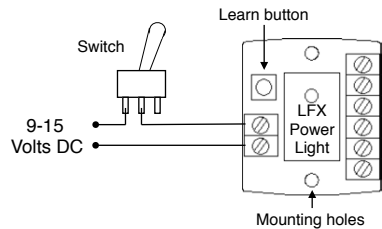
Connect the LFX to the nearest DCC track or controller output using wires from the screw terminals shown below - it does not matter which way round the wires are connected.



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*



### 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.*

### 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 (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 effect.

### General information on using LEDs with models

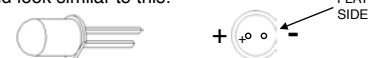
LEDs are really useful lights which, unlike their conventional filament bulb predecessors, are robust, low power and if used correctly can effectively last forever. But there are important considerations to using them. Firstly LED stands for *Light Emitting Diode* and a diode is an electronic component 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 OO HO



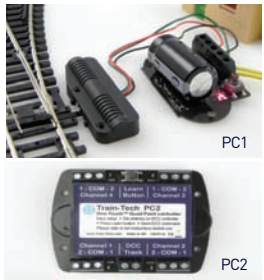
- Signal with DCC decoder built into base
- Can just plug direct into track – no wires!
- Easy to fit and use – no CV programming!
- Can sync to other signals & points

**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 OO 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 OO 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 OO/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



- 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

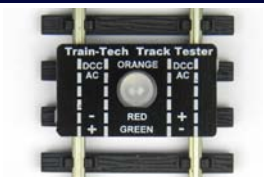
**LFX6 Quad LED Lighting Controller**  
 Controls 4 sets of LEDs on and off using separate DCC addresses. Directly powers 4 LEDs per output (DCC only)

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

## Track Tester

DC DCC N OO HO

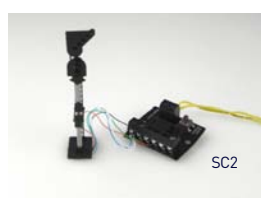


- Quickly tests track for power faults
- Low cost and easy to use
- Works on N, TT, OO or HO Track
- Indicates the DC polarity, or DCC, or a fault
- Small enough to check point frogs

**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



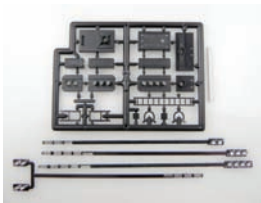
**SC2 3 or 4 aspect or 2 aspect+route signal control**  
 Controls one 3 aspect or one 4 aspect or one 2 aspect + route signal. Compatible with Train-Tech SK4, SK5, SK6 and most other manufacturer's LED signals

**SC3 Dual Dapol OO/N Semaphore signal controller**  
 Controls one or two standard OO 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 OO 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

## LFX1 Level Crossing Barrier Lighting Effect Controller

- Add realistic light sequence to a level crossing
- Lights an amber then flashes two red LEDs
- LEDs can fit into existing level crossing model
- Works on both DC and DCC systems:
- On DC the effect runs when switched on
- On DCC effect runs on accessory command
- Can be synced to other DCC signals, points etc

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

See our website, your local model shop or contact us for a free colour brochure  
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 Telephone 01953 457800 • email [sales@dcpmicro.com](mailto:sales@dcpmicro.com) • [www.dcpexpress.com](http://www.dcpexpress.com)