

LFX3 - Traffic Light 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.

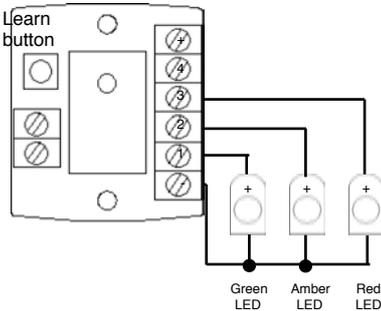
1 WIRING THE LED's

The LFX3 controls model traffic lights in the standard UK sequence of red, red and amber, green, then pause, then amber and back to red. The effect sequence is automatically timed by the LFX and will repeat as long as there is DC or DCC power applied, though you can use two LFX3 for dual junction Traffic Lights (see 3). We recommend you try the LFX using sample LEDs supplied before fitting into a model.

Switch off your power supply before connecting anything!

- Fit the Red, Amber and Green 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 a resistor when connecting LEDs to Train-Tech LFX or Signal Controllers.*



Using the Traffic Lights LFX and LEDs

Once you have tried your LFX module you need to decide which LEDs to use and where to fit them. You can use almost any standard red, amber or green LEDs, but the small sample LEDs supplied (extras are available) are ideal for fitting into most traffic lights. For the traffic light model itself you could use a commercial model or scratch-built traffic light, but we can also recommend the Train-Tech Signal kit SK1. This was designed as a railway signal, but by painting a thin white line around the 3 way light head and fitting to the standard post supplied you can make a very convincing traffic light! The small sample LEDs supplied with this LFX3 will also fit inside this signal head held with a little glue and wires can be passed down the tubular post. Before fitting the LEDs into a traffic light solder on your wires - we suggest using thin gauge wire such as 'Kynar' wire wrapping wire or enameled copper wire (which can be bought on reels or salvaged from an old motor etc) as these can most easily be hidden in the tubular post included in the kit. 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 if using two LFX3 to control two sets of lights it may be easier to set them up (see 3) before mounting them in a hard to get place.

The following accessories for your LFX3 are available from your Train-Tech Dealer or www.dcpexpress.com

LED3: Traffic Light LED set (3 sets of 3)

Set of 3 extra subminiature red, 3 amber and 3 green LEDs as per samples supplied with the LFX3

LEDCLIP1: Solderless LED clips

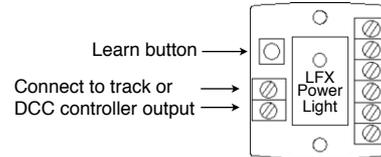
Pack of clips with 200mm of wire which enable LEDs to be connected away from the LFX without soldering

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.



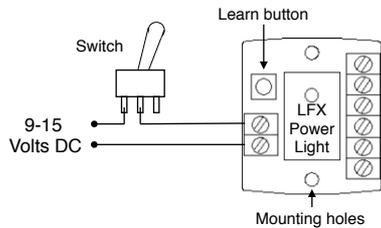
Once all connections have been made, switch on your DCC controller. The red Power light on the top of the LFX should illuminate.

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 RUNNING TWO SETS OF LIGHTS

As mentioned before the LFX3 Traffic Lights can be used on DC or DCC power and will continually repeat the same single traffic light sequence as long as any power is connected. You can also make a dual traffic light system for a junction or crossroads by using two LFX3 modules on DCC which together control 2 sets of lights, automatically setting one set at Stop while the other is Go and vice versa! This dual traffic light system only works on DCC systems because we use DCC to set up and continually synchronise the two modules together.

To set up Dual Traffic Lights using DCC

Here we show how to use DCC to set up two opposing traffic light sequences on two LFX3 connected to the same DCC controller:

- Set up your controller to control DCC *accessories* (refer to your controllers instructions) and set your controller to any unused accessory address, eg 85
- Touch the 'Learn' button on ONE of the LFX3's - its connected LED's will flash. Then send a left 'direction' ◀ command from your DCC controller. The LED's will stop flashing.
- Touch the 'Learn' button on the OTHER LFX3 - its connected LED's will flash. Then send a right 'direction' ▶ command from your DCC controller. The LED's will stop flashing.
- Switch off DCC power to the LFX modules or press emergency stop on your controller.

When you switch DCC back on the traffic lights should work in opposing directions automatically - they use the data on the DCC bus to keep in sync with each other! *Please note the DCC address is only used to set them up and cannot control the sequence*

General information on using LEDs with models

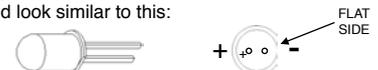
LEDs are really useful lights which, unlike their conventional filament bulb predecessors, are robust, low power and if used correctly can effectively last forever. But there are important considerations to using them. Firstly LED stands for *Light Emitting Diode* and a diode is an electronic component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

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 OO HO

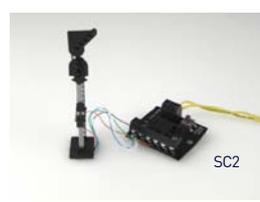


- Quickly tests track for power faults
- Low cost and easy to use
- Works on N, TT, OO or HO Track
- Indicates the DC polarity, or DCC, or a fault
- Small enough to check point frogs

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

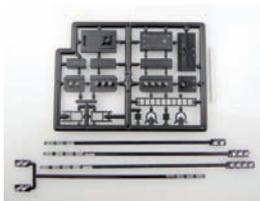
SC3 Dual Dapol OO/N Semaphore signal controller

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

LFX3 Traffic Lights Lighting Effect Controller

- Realistic timed Traffic lights sequence
- Connect up to 4 sets of Traffic Lights to 1 LFX
- Use SK1 kit for realistic OO model Traffic Light
- Works on both DC and DCC systems
- Use second LFX3 for synced 2 way traffic lights
- Easy to use - LEDs fit directly with no resistors

www.Train-Tech.com

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