## Track Tester

DC & DCC | O & G Gauge | 00 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 | 00 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 | 00 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

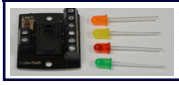
## One-Touch DCC™ Point Controllers

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 | 00 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 | 00 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 | 00 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

**SFX Sound**
- 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 favoutires
- 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 | 00 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

**PC1 - Point Controller**

5 060325 130412

## 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

1119

## Automatic Sensor Signals

WIRE FREE | DC & DCC | 00 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 | 00 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 | 00 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, swtiches, 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 OR ASK FOR FREE COLOUR BROCHURE***

+

Train-Tech
Model Technology Made Easy

## PC1 Single Point DCC Controller

- Control solenoid point motors using DCC
- Easy One Touch™ DCC - NO CV programming!
- Works with most standard point motors
- Just 2 wires to nearest track or DCC lines
- Easy screw terminals - no soldering
- Built-in CDU for efficient operation
- Can synchronise to other signals or points

## www.Train-Tech.com

See our website, your local model shop or contact us for a free colour brochure
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Telephone 01903 884321 • email train-tech@gaugemaster.co.uk

# PC1 - DCC Single Point Controller for momentary solenoid type point motors & actuators

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

This DCC Point controller can control most standard 12-16V solenoid type motors by most DCC controllers or PC systems able to control DCC accessories. *Before using we recommend you first fit and test your point motor by using a conventional switch and supply voltage.*

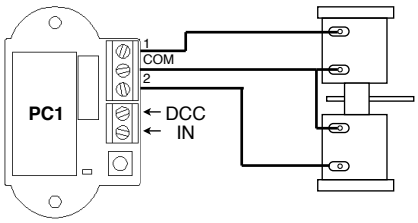
## 1 CONNECTIONS

***Switch off power before connecting!***

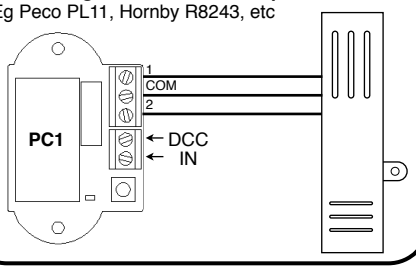
**Connecting the PC1 to DCC**
Connect the 2 DCC input terminals to nearby rails or direct to the DCC controller output.

**Connecting the PC1 to the point motor**
The PC1 has 3 connections - one common and one for each coil. For 4 terminal motors connect a terminal of each coil together to make a common. Many point motors already have wires attached - beware that wire colour functions vary between manufacturers so check the instructions supplied with your motor carefully!

**Connecting to an open frame type point motor**
Eg Peco PL10, Hornby R8014, Seep PM-1 etc




**Connecting to a surface mount point motor**
Eg Peco PL11, Hornby R8243, etc



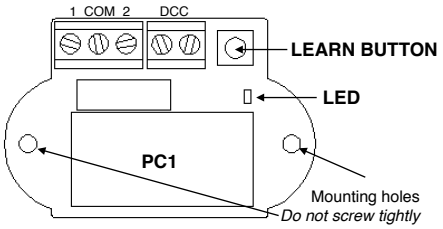

## 2 SETTING THE POINT ADDRESS

Each DCC accessory needs an 'address' assigned to it and with Train-Tech One Touch™ DCC this is very quick and easy to set up.

• Switch on the power and your DCC controller. The LED on the PC1 should light.

• Set up your controller to control DCC ***accessories*** (refer to controllers instructions), then set your controller to the DCC accessory address you choose for your point (eg 66).

• To set the address touch the 'Learn button' once - the LED on PC1 should flash. Then send either a ◀ or ▶ 'direction' command from your controller - the LED will stop flashing and your point is now programmed to the address you set (eg 66).




*Note that whichever ◀ or ▶ 'direction' command you use when you set up the PC1 will always energise the point motor coil which is connected to terminal 1, so if you want to change it press the learn button again and press the other ◀ or ▶ 'direction' command.*

## 3 CONTROLLING THE POINT

Control your point by setting your controller to the DCC *accessory* address of the point and sending a ◀ or ▶ 'direction' command from your controller to change the point (actual terms used for accessory control vary between different controllers so refer to its instructions)

*In our example*
Set your controller to Accessory address 66
Press ◀ or ▶ direction
*The LED on the PC1 will flicker to indicate it has received a command and the point should change*

Each point can be controlled independently with its own unique address or can be easily synchronised to other DCC points or signals etc by giving them the same address as each other. For example you could set a signal to automatically show Red when a point is set against a train going towards it! Or have 2 Points in a passing loop or route always change together. To do this simply set all of the accessories you want to synchronise to the same DCC accessory address as each other. Synchronising addresses is especially easy to do with Train-Tech One Touch DCC™ Point controllers and Signals because all you need to do is press the Learn buttons of all of the Signal and Point Controllers you want to sync and then send an address command - all will then be linked and respond together on that address.

**Mounting the PC1**
You can either mount PC1 under the baseboard or hide it in a suitable building or under scenery. *Note there are terminals underneath the PC1 so never mount it onto a metal surface!*

**Troubleshooting**

- Check that the PC1 LED is lit - if not and DCC locos etc run correctly check all the connections between your DCC Controller and Point Controller.

- If the PC1 LED is lit but does not flicker when you send a command double check that your DCC controller is in *accessory* addressing mode - note that these are completely different to Locomotive addresses and should be explained in your controller instructions. If not check carefully that your controller will control DCC accessories - most do but some of the low cost starter controllers such as the Bachmann E-Z command and Prodigy Express models do not.

- If the LED on the PC1 does flicker when you send a command and you can hear the point motor make a noise but not move the point, check alignment and cleanliness of the point/motor and also keep wire lengths to the motor short (see section on right).

Note that the PC1 incorporates a built-in Capacitor Discharge Unit (CDU) to improve the power available to energise the coil. If changing the same point quickly this can result in a short delay while the capacitor recharges. This is a feature which helps ensure more reliable operation and is quite normal.

If these checks fail please contact your supplier or Train-Tech for advice and Technical support.

**Other useful tips and information**

• Wire colours on point motors
Note that there is no recognised standard colour code for point motors and although Red, Black and Green are often fitted, their function varies between manufacturers, so be sure to check instructions!

- If you intend to fit lots of different DCC accessories and lights etc around your layout you may find it is better to install a 'bus-bar' system instead of using the track to carry the load for everything. A bus-bar can made simply of 2 thick wires which you distribute around the underside of your baseboard - thick solid copper wires stripped from some surplus heavy mains cable can be ideal.
- A 4 channel version of this unit is also available called the Train-Tech PC2

Document Ref D779615/3G

**DCC control**
DCC is a system which transmits both power and digital commands down 2 wires or rails to control and power locomotives and accessories. At Train-Tech we believe that DCC technology should make life easier to build, program and use model railways, so we have designed a range of DCC Signals, Controllers and accessories which all connect using 2 wires and are all programmed using just one touch.
The PC1 can connect directly to the nearest DCC track to minimise wires - it takes both its commands and power from the rails. As well as changing points can also be used to actuate semaphore signals & uncouplers (eg Hornby R8244 uncoupler).
The PC1 incorporates a CDU (Capacitor Discharge Unit) which uses a capacitor to store power from the DCC system for a few seconds and then release it quickly to activate a point motor with more energy. This means it does not take the large amount of power needed for a solenoid all at once which might overload your DCC system and just takes a few seconds to recharge before you can operate a point again.

**Using multiple PC1's and accessories on a layout**
DCC is designed to allow lots of locos and accessories to all be connected and controlled at the same time, but of course there is a practical limit of how many things can be powered which depends on your DCC controller and associated power unit. Low cost starter controllers tend to have power capabilities of 1 amp or so, whereas larger systems can offer 4 amps or more. A PC1 takes very little power when not being used, but when first switched on or after operating a point motor it takes around 0.15 amps for 2 seconds to recharge. As you are unlikely to ever want to change every point on your layout at exactly the same time this should never cause a problem, but if you have a lot of PC1's and other DCC items like locos and lights which all get switched on at once when you power up your layout, potentially this could overload your DCC controller. Ultimately may need to invest in a bigger power supply or controller, but you may be able to reduce this 'switch on surge' by ensuring that Locos with sound (which can take more than 0.5amp each!) are all shut down properly before you switch off, and if you are using lots of PC1s you can reduce this initial switch-on surge by having a simple switch to disconnect 2 or more zones of your layout for just a few seconds after switch on while the capacitors charge up.

**Point Motors**
Although called 'motors', most are actually solenoids or electromagnets which push or pull a steel bar to move point blades in one action. For good operation Point motors need to be fitted carefully to ensure they control the point reliably and because they take quite a lot of current (2 amps or more) should have short thick wires. We have designed the PC1 to be located close to point motors and get its DCC from nearby track to keep the wires short - it also makes wiring easier and neater.
The PC1 can be fitted below or above your baseboard - if above it can be disguised by some scenic materials or a lineside building etc - make sure it mounted on a non-conductive surface as there are terminals underneath!
Small surface mounting point motors (which mount on top of the baseboard) such as the Peco PL11 or Hornby R8243 can be quicker to fit, but in our experience often need more careful setting up positionally and free-moving points. Other point motors are available which are larger and have more powerful electromagnets and so can be more reliable when operating stiff points, but these tend to be fitted underneath the baseboard. Some point motors come with short wires already fitted and some you have to connect your own, so be sure to follow the instructions supplied with your point motor and if there are 2 terminals for each coil connect one from each coil to make a single COMmon connection.
The PC1 is designed to control just one point motor and although you may safely connect 2 reliable operation cannot be guaranteed. Other kinds of Point actuators using small electric motors are available (eg Tortoise) which move blades slowly, but they tend to be more expensive and are not suitable for control by the PC1.

**Advanced users - changing the 'power-on' time**
We supply the PC1 ready to go and work straight away with most standard point motors. As supplied it delivers power to the point motor coil for 0.3 seconds which should be fine for most, but this time may be adjusted from between 0.1 and 1.0 seconds if required. To change this time Press and Hold the Learn button for 2 seconds - the LED will flash a number of times which corresponds to the on-time X 0.1 seconds, so three flashes would be 0.3 seconds. To adjust this press the button and each time it will increment the time by 0.1 seconds and then repeat the cycle. When you reach the value you want press and hold the Learn button for 2 seconds again and the LED will stop flashing. The PC1 will use this new 'power-on time' until you change it.