

## An automatic point changer for multiple trains

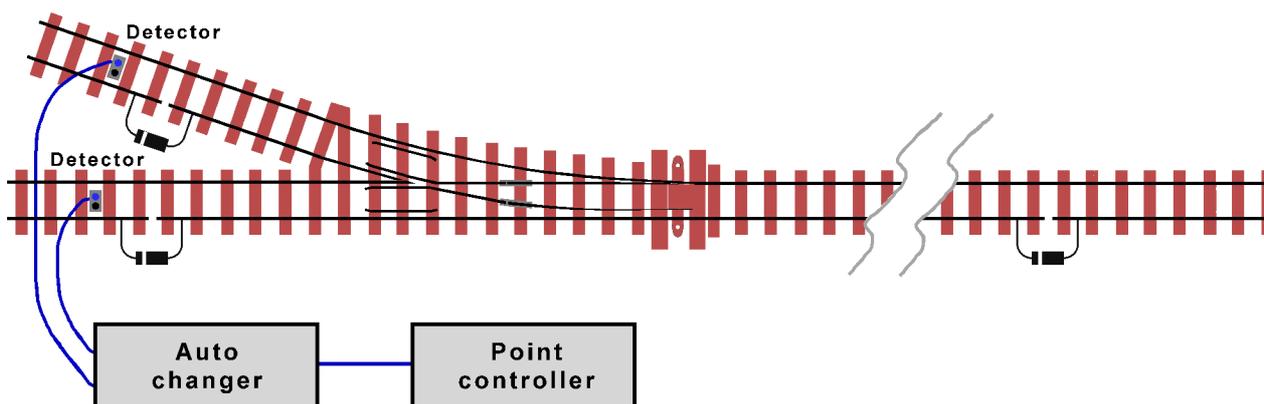
Most of you will have seen the PMP4 Shuttle kit. It provides a basic back-and-forth shuttle of a train from one end of a length of track to the other. Adding a point at one end allows two trains to share the track. This add-on kit provides automatic switching of the point.

### How it works

The module uses infrared detectors on each siding, so the module knows when both sidings are occupied – and switches the point accordingly.

For example, the module may change the point to the upper siding allowing the train to run to the other end of the track. On its return, it is stopped in the upper siding and the point is changed to the lower siding – and so on.

It looks like this:



The kit is powered from your 12V DC supply. It uses a pre-programmed PIC chip and it has two inputs, from each of the two infrared detectors.

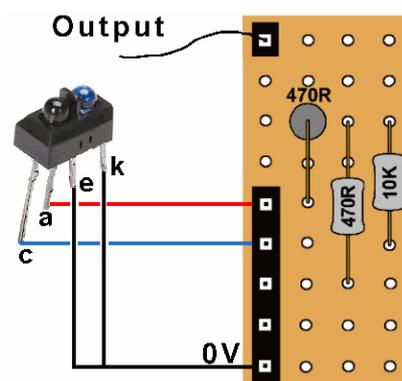
The module's output pin 2 connects to the input pin of an EzyPoints module or a Servo 4 input (see later).

You add a point and an extra diode.

### Wiring the detectors

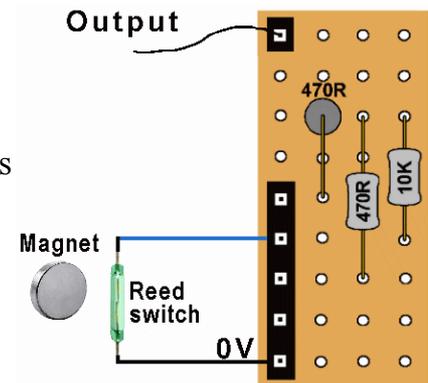
The TCTR5000 infrared detectors should be fitted at the point where the train stops in the sidings. They could be placed between the sleepers pointing upwards, or could be placed at the side of the track. It is best to ensure that reflected distance between the loco and the sensor does not exceed 8mm or 10mm.

They detect light reflections that are bounced back from the loco, so work best with a reflective surface on the side of the train. If your loco is a dark colour, it would be beneficial to add a piece of white tape or white label to the side of the loco.



## Alternative inputs

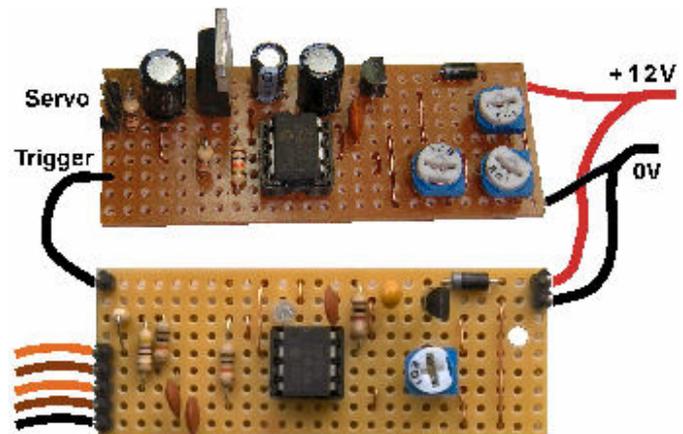
This kit uses infrared detectors as its inputs. There are alternative inputs if you prefer. This could be as simple as small but powerful Neodymium magnets attached to the locos and reed switches replacing the infrared detectors. Other options include the Laser TOTI (PMP 22) and the Hector.



## Fitting

The auto changer and the point controller should share the same 12V supply. A single wire can then connect the output of the auto changer to the input of the point controller.

The example shows connecting to an EzyPoints controller.



## Modifications

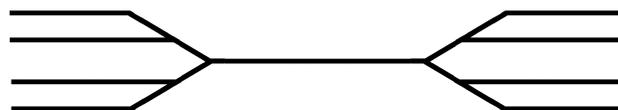
Why not fit a point at the other end of the shuttle line? That way, you can have three trains going back and forth.



Ideal for a tramway addition to a layout, with the left hand sidings inside the tram shed and the right hand siding hidden behind a building.

The three way system above is implemented using another set of auto changers and servo controllers at the other end of the track.

However, extending it even further could be achieved by fitting yet more points and modules at each end and have multiple trains traversing the shuttle line.



The kit is available at all West of Scotland activities (for £1.15) or can be purchased from the national MERG website as PMP 804a.