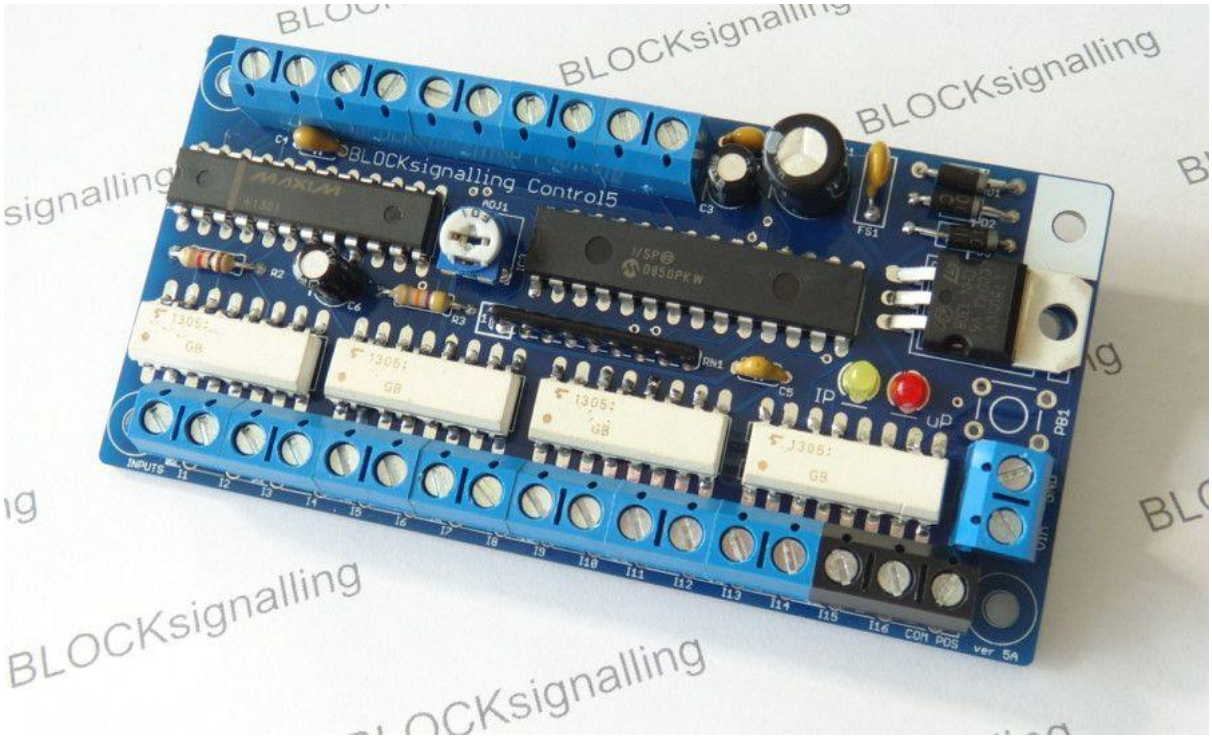
BLOCKsignalling

www.blocksignalling.co.uk

# Points Position Indicator (PPI5-DCC) for Points Motors with Common Positive




## Advanced PPI for DCC with Adjustable Brightness & Simplified Wiring

- Monitors the brief operating voltage across points motors when they are switched
- Lights a corresponding led on a control panel to show the last operation of each set of points
- Led brightness is adjustable
- No resistors required for the leds
- Saves all settings automatically to memory when the power is switched off
- Monitors up to 8 sets of points

The Points Position Indicator (PPI) monitors the brief switching voltage to either of the two coils of a points motor, and displays the last operation using coloured leds which can be mounted on a route mimic.

This module is designed for connection to DCC accessory decoders which switch their outputs to ground to operate points motors. When points are driven from DCC Accessory Decoders, the decoders most often provide a +12V supply to the common of the points coil, and then switch the other connections of the coils to ground to switch the points.

The microprocessor controls the led brightness (adjustable) and so no resistors are required, simplifying wiring up.

## Power Supply

The controller is designed for use with a DC power supply of between 10V and 25V, or an AC power supply of between 10V and 16V.

Where there is a choice, the recommended power supply is 12V DC.

## Operation

The PPI has 8 channels, each channel with two inputs able to drive two leds on the output.

The inputs cause the associated output to switch when an input is grounded. Also, at this moment the other associated output is switched off.

In this way, only one of the output leds is lit at any one time that being the one with the most recently grounded input. This means that only one of the route leds for each channel will be lit at any one time.

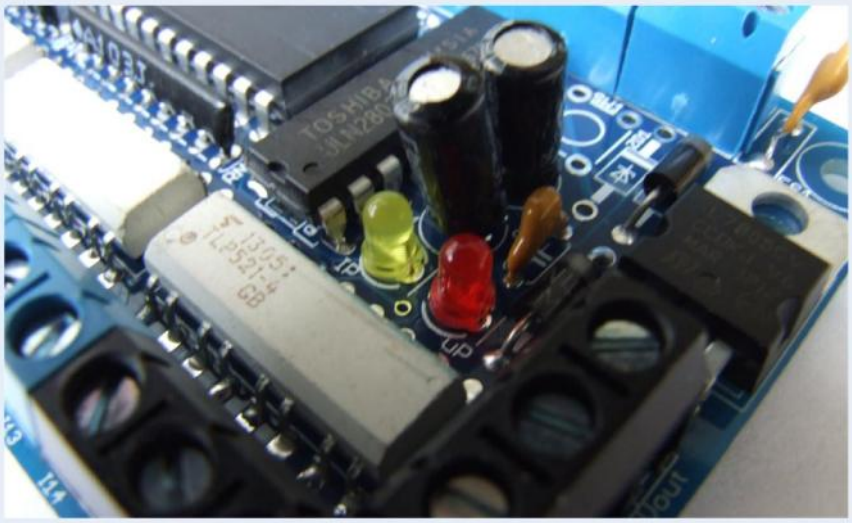
Each time an input change occurs, it is stored in memory, so that when the power is switched off and on again, the led outputs are set automatically to their last recorded condition.

## Connecting the Unit

Simply connect one of the PPI input terminals to one end of one of the points motor coils, the other input to the end of the other coil, and the common of the coils to the COM POS input to the PPI.

Only one connection from a coil common to the COM POS input of the PPI is required. This allows the coil voltages to be recognised by the PPI correctly.

Each time the points are operated the yellow led on the pcb will briefly light.




YELLOW LED (IP)– flashes when points change appears on any input terminal

RED LED (uP) – flashes when microprocessor records change in any points position from that held in memory

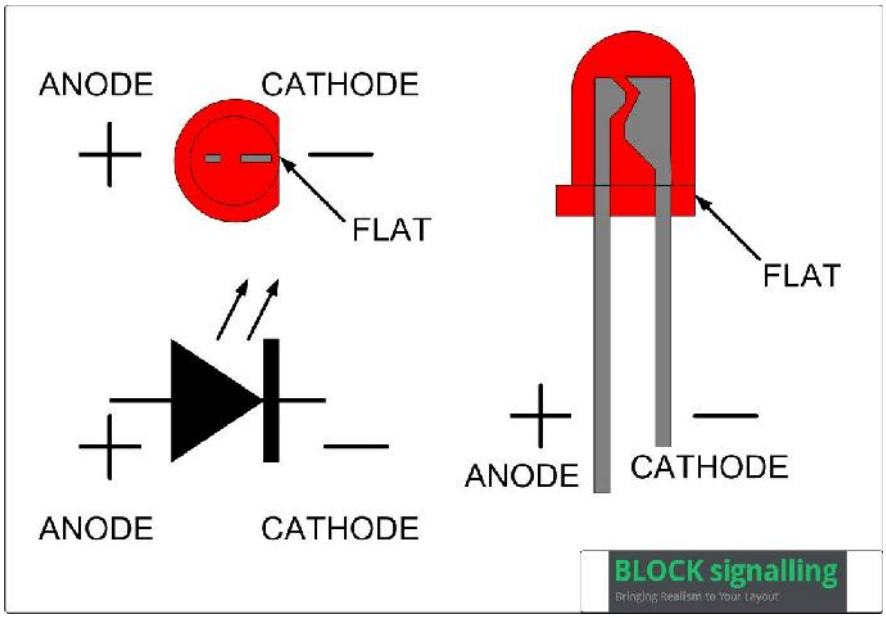
The PPI also requires a power supply to operate the leds. The supply can be AC or DC, and must be in the range of 10V and 25V, or an AC power supply of between 10V and 16V for correct operation. If using a DC supply, take care to connect the positive and negative leads correctly. No harm will be caused to the PPI if they are connected in reverse, but the PPI will not function.

When powering up, the uP (red) led on the pcb will flash when the microprocessor is starts. Each time a point is operated, the IP (yellow) led flashes to confirm the input signal. If the points position has changed, the (red) uP led on the flashes to indicate that the updated status has been stored in memory.

## Led Connection

When using leds it is important to connect them the right way around.

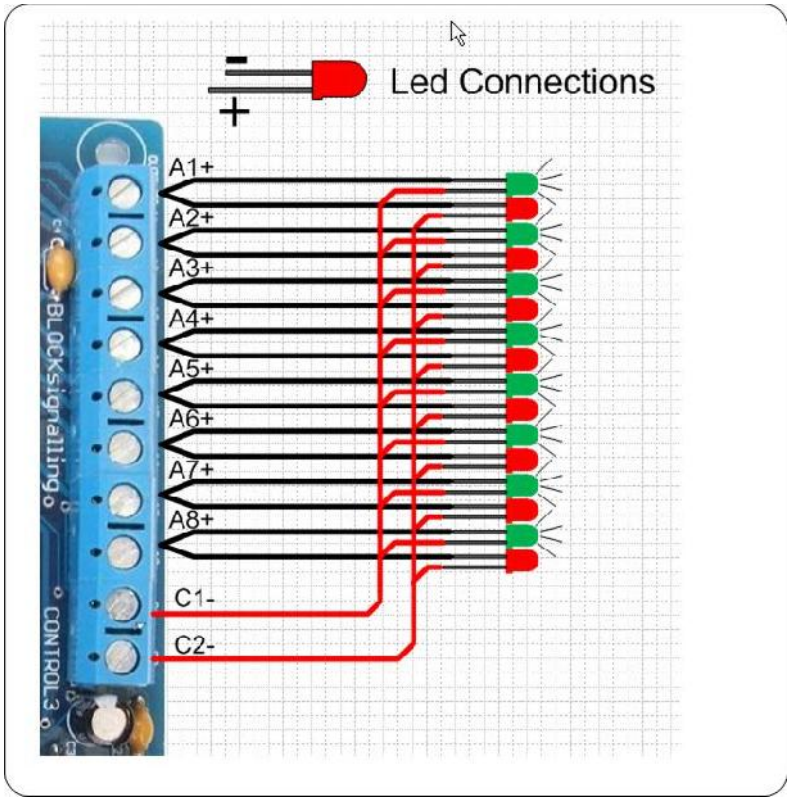
The negative lead (cathode) is identified by a flat on the side of the led body, and by having a shorter lead.




The red and green leds share the same output, so for instance, the first set of points are represented by a green and red led pair, with their anodes connected to terminal A1+.

All the green led cathode connections are wired to the C1- terminal.

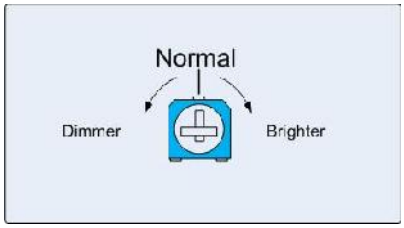
All the red led cathode connections are wired to the C2- terminal.




Following factory testing, sometimes more than one led will be lit. This will clear as soon as each set of points is first operated.

## Led Brightness

In normal use, the led brightness pot can be left in the middle of its range, and conventional 3mm and 5mm leds should be at a suitable brightness level. If desired, the brighness level can be adjusted with a small screwdriver to suit.




Operating the leds at the minimum acceptable brightness level will prolong the life of the leds.

## System Wiring

The diagram below shows the connections to one set of points. In practice, connections to the PPI will normally be made at the accessory decoder, as shown, so that the wiring length can be kept to a minimum.