Simple LEDs

Simplified Electronic Control for Model Railways

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The **4 LED driver** is used for controlling four LEDs in a variety of configurations to simulate the lighting effect for:

Camp Fire flicker

Oil lamp flicker

Arc welder with red after glow
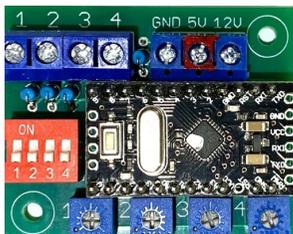
Emergency vehicle and strobe lights
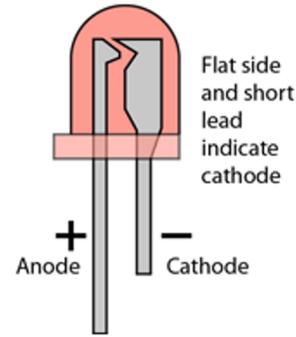
Light House

Camera flash

The setup is simple no programming, no computers.

Switches 1 to 4 are used to select the light pattern.

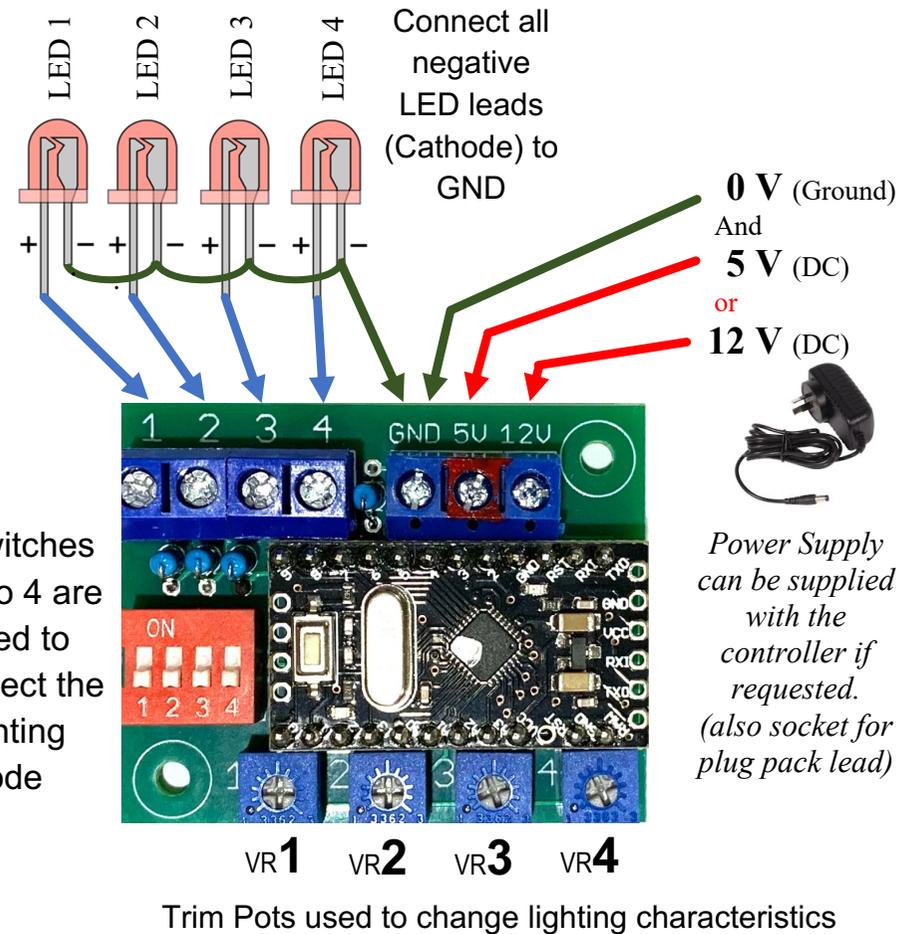The 4 trim pots are used to adjust the lighting variables to just how you want it.

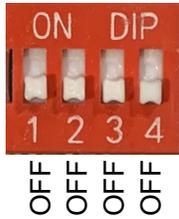The Power Supply can be either 5V or 12V DC

Setup Diagram
(Figure 1)

Flat side and short lead indicate cathode

+ Anode   − Cathode

Resisters for the LED are built into the board

LED 1   LED 2   LED 3   LED 4

Connect all negative LED leads (Cathode) to GND

+ − + − + − + −

0 V (Ground)

And

5 V (DC)

or

12 V (DC)

1 2 3 4   GND 5U 12U

Switches 1 to 4 are used to select the lighting mode

ON
1 2 3 4

Power Supply can be supplied with the controller if requested. (also socket for plug pack lead)

VR**1**   VR**2**   VR**3**   VR**4**

Trim Pots used to change lighting characteristics

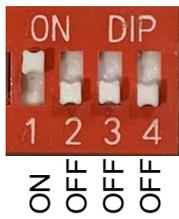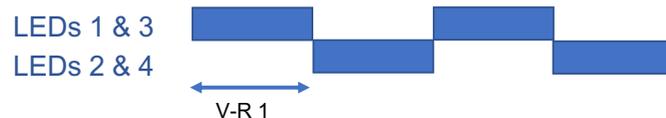## 1 – Flash On / Off (LED colours of your choice)

To select this function all of the mode select switches are in the OFF position

Switches: 1 OFF, 2 OFF, 3 OFF, 4 OFF

Simple On/Off flash with the duration of the flash controlled by turning VR1 ↰ Anti clockwise for a shorter flash time

↱ Clockwise for a longer flash time

Adjust VR 1 On / Off time (0.2 to 2 seconds)

LEDs 1 & 3
LEDs 2 & 4

V-R 1

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2 – Fire Place (Red Green Blue LED)

To select this function with the mode select switches 1 is ON and 2 to 4 are OFF.

Switches: 1 ON, 2 OFF, 3 OFF, 4 OFF

VR 1 Adjusts **LED 1** Red minimum flicker (0 to 40%)
VR 2 Adjusts **LED 1** Red maximum flicker (VR1 to 100%)

With VR1 set to 0% ↰ and VR2 set to 100% ↱
LED1 will flicker from 0 to 100%
With VR1 set to 40% ↱ and VR2 set to 40% ↰
LED1 will not flicker but just show 40% brightness
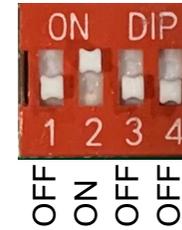Adjust to your preference, I suggest start with VR2 set to 100% ↱

The addition of LED 2 and or LED 3 adds extra interest to your fire.

Optional LED **VR 3** Adjusts **LED 2** *Blue* flicker intensity (0 to 20%)
Optional LED **VR 4** Adjusts **LED 3** *Green* flicker intensity (0 to 20%)

LED 1 Red
LED 2 Blue
LED 3 Green
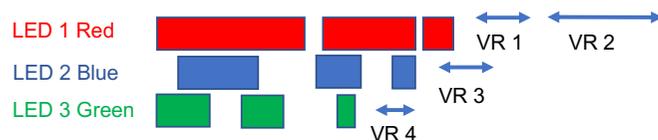
VR 1 VR 2 VR 3 VR 4

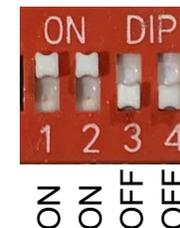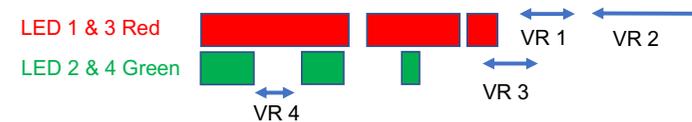## 3 – 2 Oil Lamps (Red Green LED, 3 pin)

To select this function with the mode select switches 2 is ON and 1, 3 & 4 are OFF.

Switches: 1 OFF, 2 ON, 3 OFF, 4 OFF

VR 1 Red **LED 1 & 3** minimum on flicker
(0 to 30%)
VR 2 Red **LED 1 & 3** maximum on flicker
(Vr1 value to 100%)
VR 3 Green **LED 2 & 4** maximum flicker intensity
(0 to 100%)
**VR 4** Flicker timing (0.005 to 0.20 seconds)

LED 1 & 3 Red
LED 2 & 4 Green

VR 1 VR 2 VR 3 VR 4

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4 – 4 Oil Lamps (Red or Orange LED 2 pin)

To select this function with the mode select switches 1 & 2 are ON and 3 & 4 are OFF.

Switches: 1 ON, 2 ON, 3 OFF, 4 OFF

VR 1 Red   LED maximum on flicker intensity
(30 to 100%)
VR 2 Green   **LED** maximum on flicker intensity
(min to 100%)
VR 3 not used
VR 4 Flicker timing (0.005 to 0.20 seconds)

LED 1,2,3 & 4 Red

VR 1 VR 2 VR 4
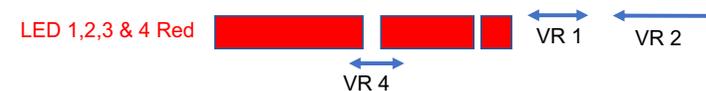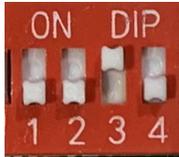
5 – Ark Welder   (White, Blue & Red LEDs)

To select this function with the mode select switches 3 is ON and 1, 2 & 4 are OFF.

Switch: 1 OFF 2 OFF 3 ON 4 OFF

VR 1 Welding time.   (2 to 25 seconds)
VR 2 Time for the red glow of the metal after welding
VR 3 Min wait time between welding cycles.   (0.5 to 30 seconds)
**VR 4** Max wait time between welding cycles. (Min to 60 seconds)

LED 1 White
LED 2 Blue
LED 3 Red

VR 1   VR 2   VR 3   VR 4
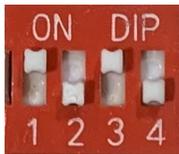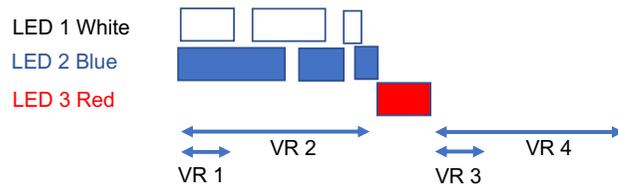
6 - Police Strobe   (LEDs colour of your choice)

To select this function with the mode select switches 1 & 3 are ON and 2 & 4 are OFF.

Switch: 1 ON 2 OFF 3 ON 4 OFF

VR 1 Strobe on time VR 1   (0.05 to 0.2 seconds)
VR 2 Time between Strobes   (0.05 to 0.2 seconds)
VR 3 Time between Strobes Sides (0.2 to 2 seconds)
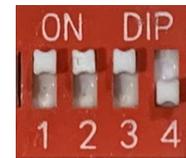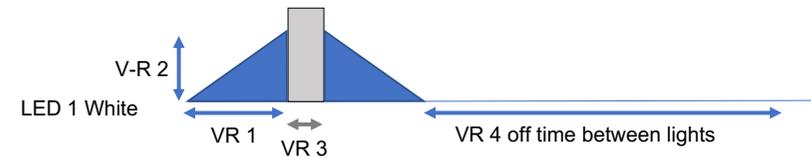**VR 4** Number of Strobes per side   (1 to 8)

LEDs 1 & 3
LEDs 2 & 4
VR 1   VR 2   VR 3
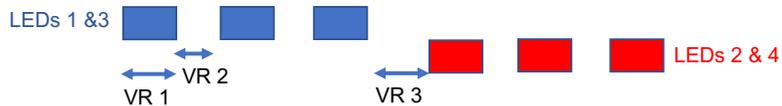
7 - Light House   (LED 1 White)

Switch: 1 ON 2 OFF 3 ON 4 OFF

VR 1 Time of ramp on/off brightness
                    (0.2 to 2 seconds)
VR 2 Max ramp brightness   (20 to 80%)
VR 3 Time for 100% pulse (0.1 to 0.5 seconds)
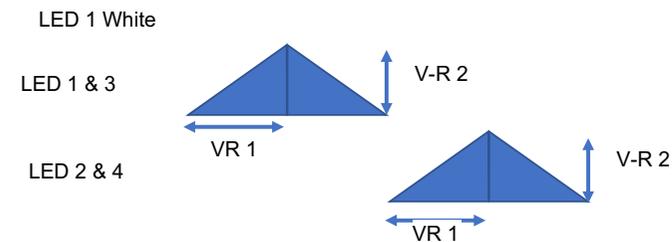**VR 4** Off time between lights (0 to 8 seconds)

V-R 2
LED 1 White
VR 1   VR 3   VR 4 off time between lights

8 – Strobing Construction Warning Lights
(Yellow or Orange LED 2 pin)

Switch: 1 ON 2 ON 3 ON 4 OFF

VR 1 Time of ramp on/off brightness
                    (0.2 to 2 seconds)
VR 2 Max ramp brightness   (20 to 80%)

LED 1 White
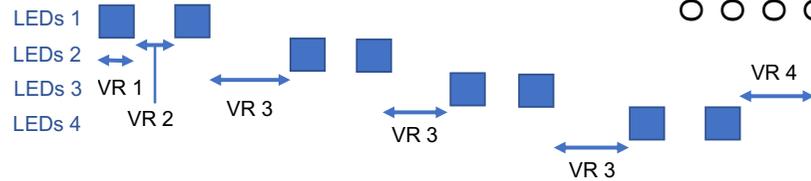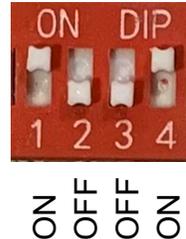LED 1 & 3
V-R 2
VR 1
LED 2 & 4
V-R 2
VR 1

9 – Strobe 1   (up to 4 LEDs of your choice colour)

VR 1   Strobe on time VR 1   (0.01 to 0.2 seconds)
VR 2   Time to next Strobe   (0.2 to 2 seconds)
VR 3   Time to next Strobe   (0.2 to 2 seconds)
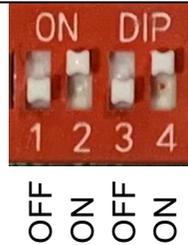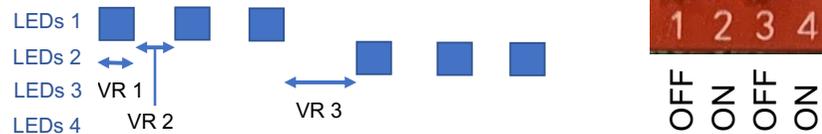VR 4   Time between LED 4 Strobe and LED 1 Strobe

OFF OFF OFF ON

LEDs 1
LEDs 2
LEDs 3   VR 2   VR 3   VR 4
LEDs 4   VR 1   VR 3
               VR 2
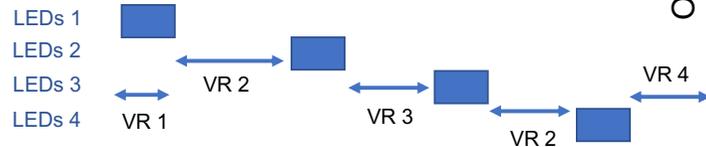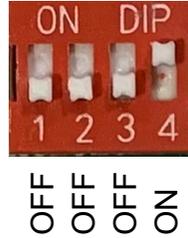
10 – Strobe 2

VR 1   Strobe on time VR 1   (0.01 to 0.2 seconds)
VR 2   Time between flashes (0.01 to 0.2 seconds)
VR 3   Time between LED Strobes   (0.2 to 2 seconds)
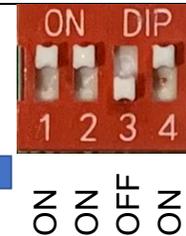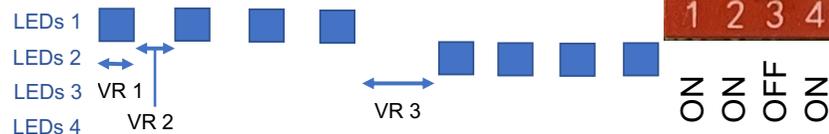VR 4   Time between LED 4 Strobe and LED 1 Strobe

ON OFF OFF ON

LEDs 1
LEDs 2
LEDs 3   VR 1   VR 3   VR 4
LEDs 4   VR 2   VR 3
                           VR 3
                     VR 3

11 – Strobe 3

VR 1 to VR4 same as Strobe 2 but with 3 flashes

LEDs 1
LEDs 2
LEDs 3   VR 1   VR 3
LEDs 4   VR 2

OFF ON OFF ON

12 – Strobe 4

VR 1 to VR4 same as Strobe 2 but with 4 strobe flashes

LEDs 1
LEDs 2
LEDs 3   VR 1   VR 3
LEDs 4   VR 2

ON ON OFF ON

13 – Camera Flash

VR 1 Camera Flash on time   (0.05 to 0.2 seconds)
VR 2 Min time until next Flash   (1 to 120 seconds)
VR 3 Max time until next Flash   (1 to 120 seconds)

ON ON OFF ON

                    VR 3
        VR 2
   VR 1

16 – Dimmer

ON ON ON ON
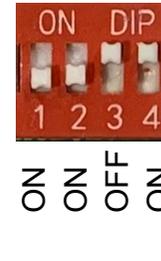
VR 1 Intensity of LED 1 (0 to 100%)
VR 2 Intensity of LED 2 (0 to 100%)
VR 3 Intensity of LED 3 (0 to 100%)
VR 4 Intensity of LED 4 (0 to 100%)

LEDs 1 to 4   VR 1 to 4