



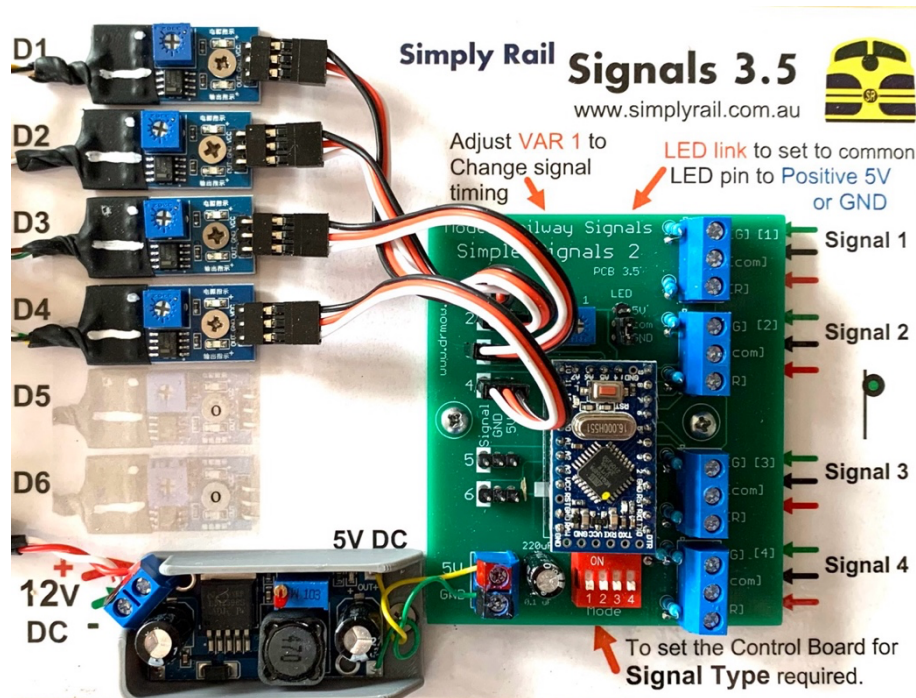
# Simple Signals 3.5

[www.simplyrail.com.au](http://www.simplyrail.com.au)

## Automatic Signal for Model Railways

You can now have Signals automatically change in response to train movements to add extra realism and animation to your model railway. Two position Searchlight signals or Semaphore Signals (*with the addition of a servo controller*) can be automatically controlled.

Train movement is detected with **Optical detectors** placed below the track (*indicated with the blue arrow in the diagrams*).

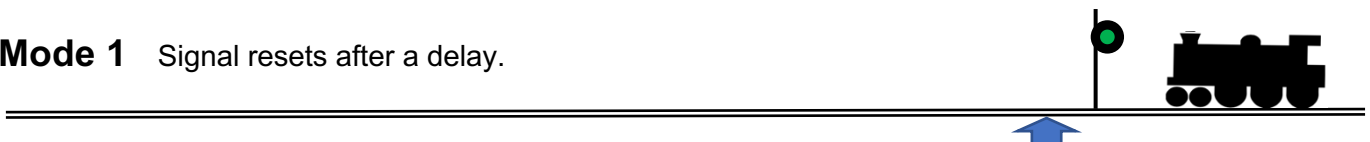


Simplyrail Signals 3.5 can be user configured as any of The 4 Mode as shown below.

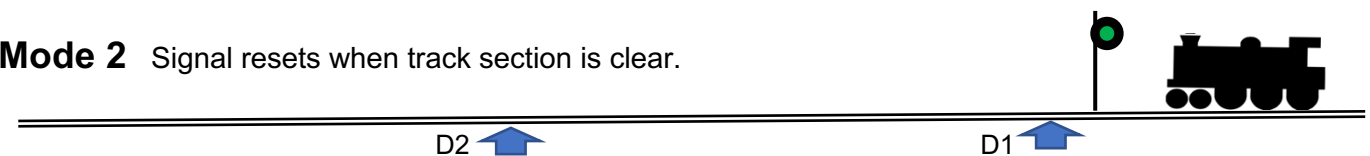
Signal timing is also user selected.

No user programming required.

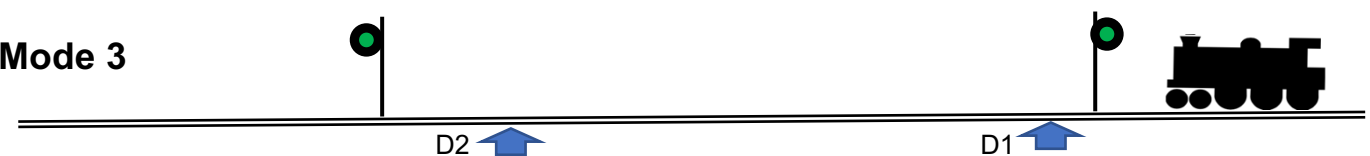
**Mode 1** Signal resets after a delay.



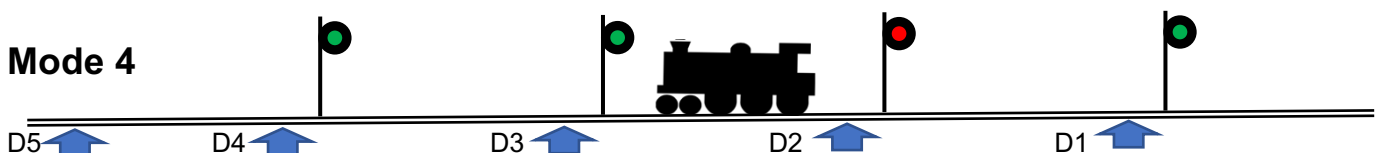
**Mode 2** Signal resets when track section is clear.



**Mode 3**



**Mode 4**

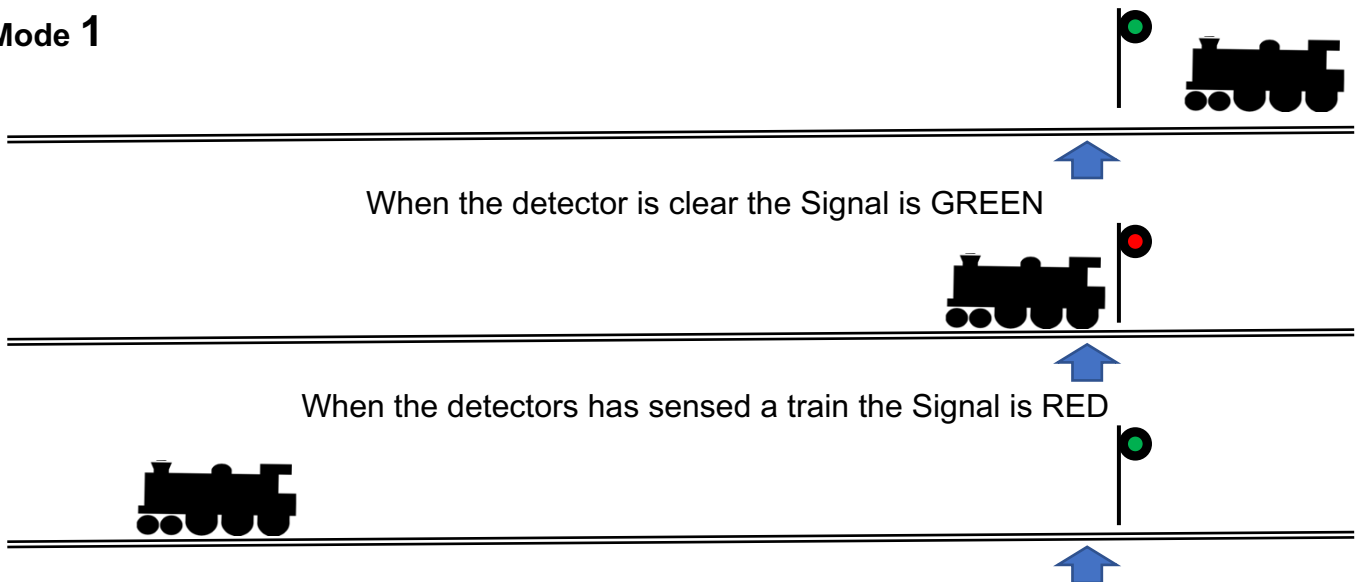


# Mode 1

**Mode 1** is a simple way to start signalling your model railway.  
It is good for track where trains travel in only one direction.

1 RED / GREEN Signal to protect a section of track - Operated with 1 detector.  
Install the detector in between the track after the signal as shown in the diagram below.  
(The Detector is indicated with the blue arrow in the diagrams).

## Mode 1



When the detector is clear the Signal is GREEN

When the detectors has sensed a train the Signal is RED

When the detector is clear and after a delay (10 to 60 Seconds) the Signal resets to GREEN

With **mode 1** a train approaching from the opposite end (LHS) will also trigger a RED signal at the detector, there will then be the delay before the Signal resets to GREEN.

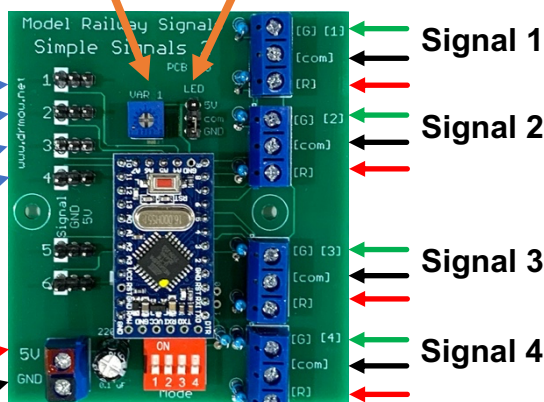
Adjust **VAR 1** to change the red signal timing to between 10 to 60 seconds

LED link set to **COM & GND**

If you are using common positive LEDs in the signal change the link to **5V & GND**

Detector D1 for Signal 1  
Detector D2 for Signal 2  
Detector D3 for Signal 3  
Detector D4 for Signal 4

5 V (DC)  
0 V (Ground)



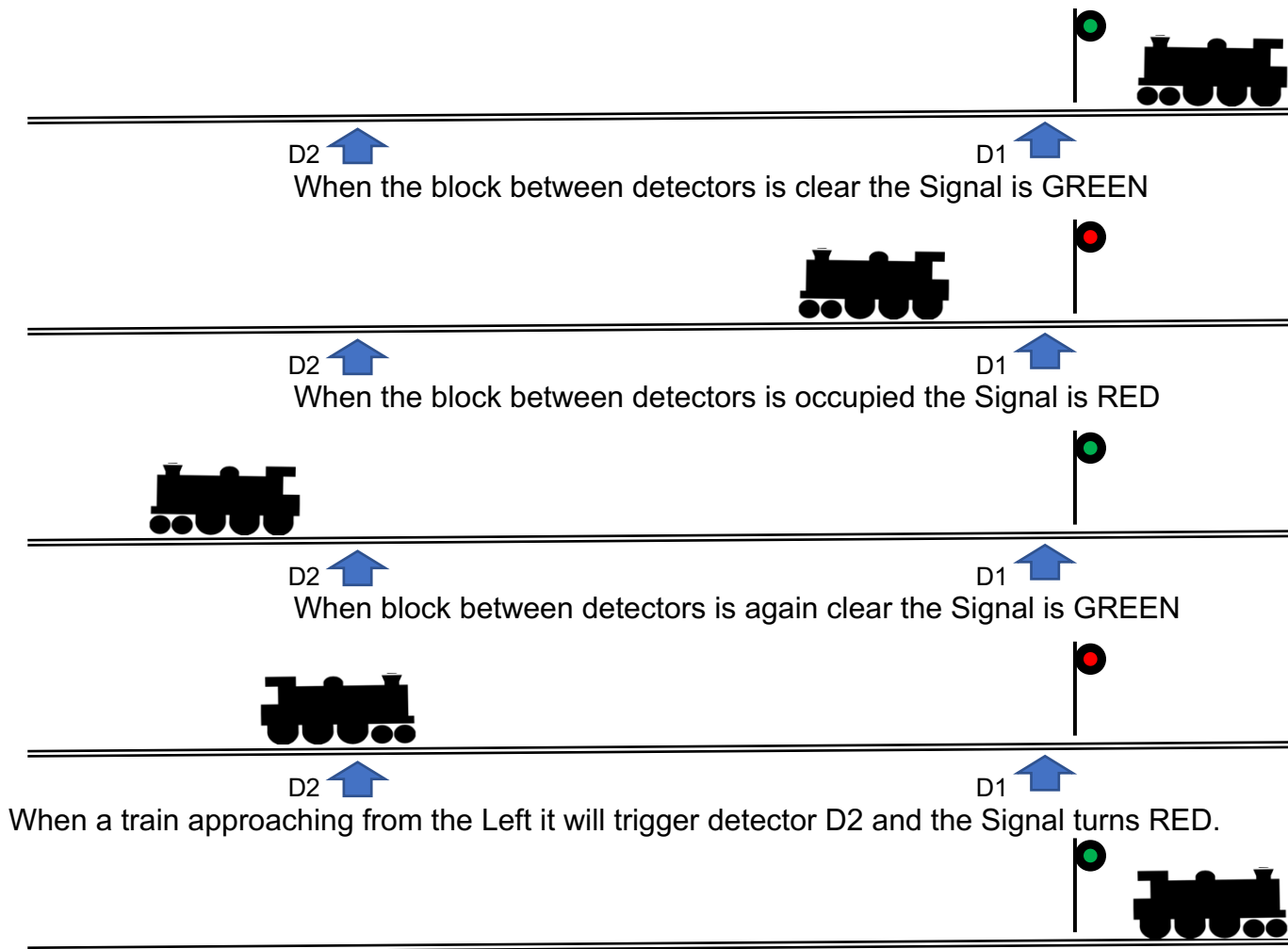
To set the Control Board for **Mode 1**  
Mode Switches **1,2,3 & 4** all off.

Up to 4 **Mode 1** - Signals can be controlled by each **Signal 3.5** Control Board

# Mode 2

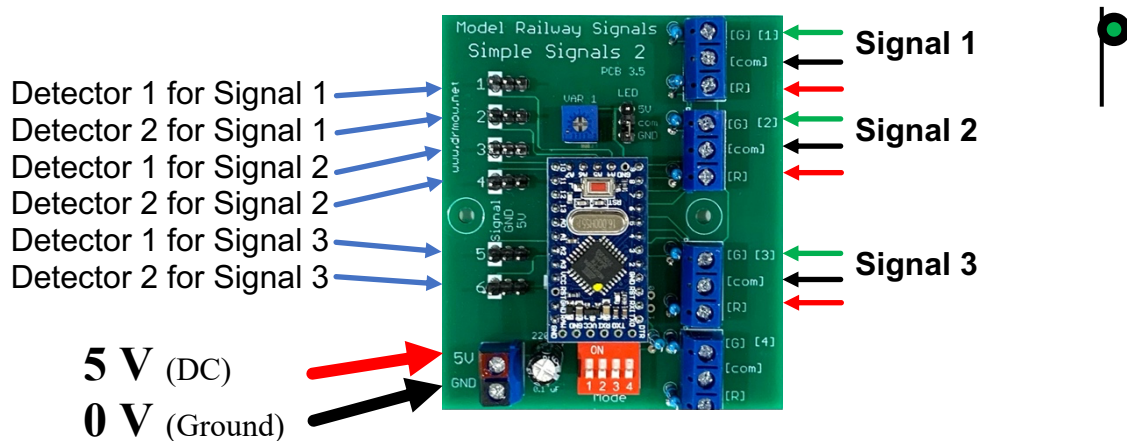
**Mode2** is a simple way to start signalling your model railway.  
It is good for track where trains travel in both directions.

1 RED / GREEN Signal to protect a section of track - Operated with 2 detectors ( **D1** & **D2** )



The signal remains RED until the after the Train has triggered and travelled past detector D1.  
There is also a reset timer so the signal turns back to Green if only one detector was triggered.

**Mode 2** effectively protects a block of track with trains traveling in either direction.  
This configuration may be useful for when detector D2 is in a staging area or out of view.



To set the Control Board for **Mode 2**  
Mode Switches 1 ON, 2,3 & 4 all off.

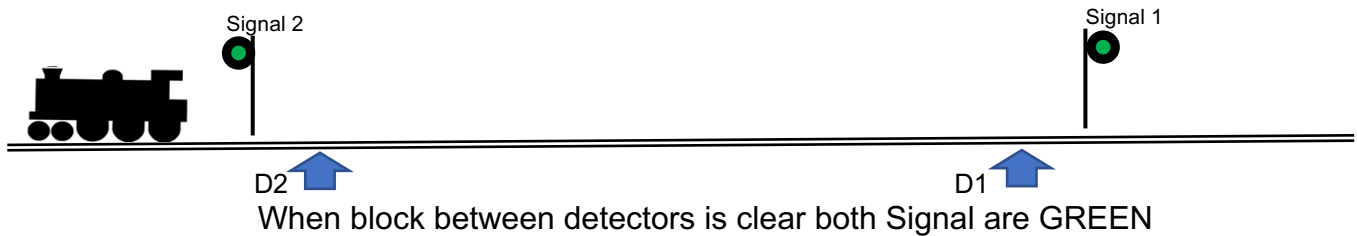
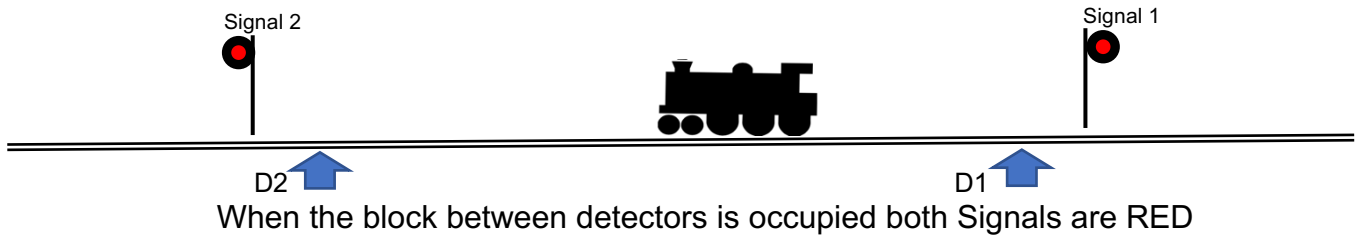
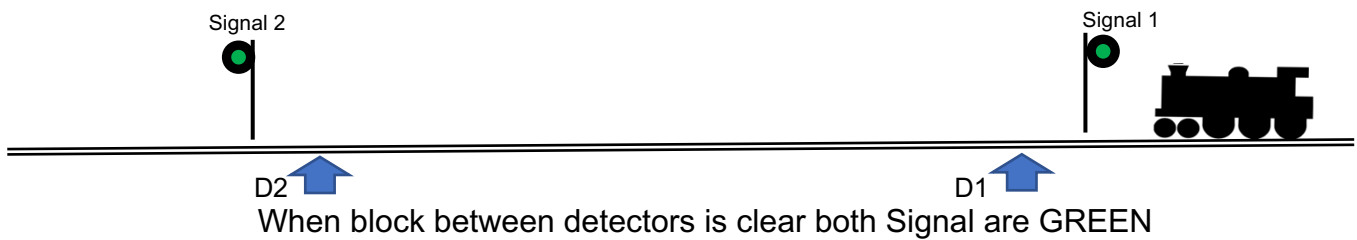
*If you plan to use all three signals please order 2 more train detectors when you order.*

Up to 3 **Mode 2** - Signals can be controlled by each **Signal 3.5** Control Board

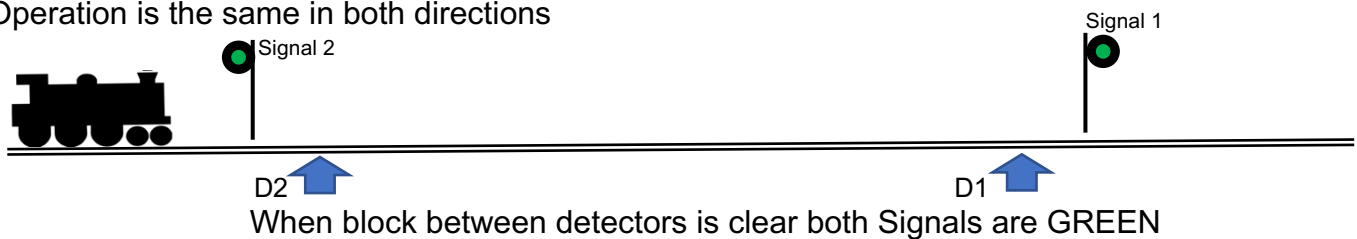
# Mode 3

**Mode 3** is a simple way to start signalling your model railway.  
It is good for track where trains travel in both directions.

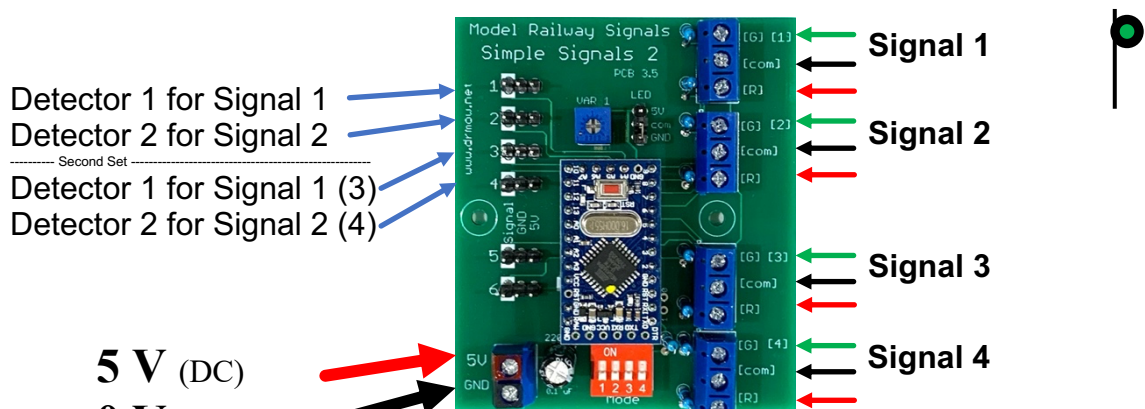
2 RED / GREEN Signal to protect a section of track - Operated with 2 detectors ( **D1** & **D2** )



Operation is the same in both directions



**Mode 3** effectively protects a block of track with trains traveling in either direction.  
This is an upgrade from **Mode 2** with signalling for both directions in visible areas.



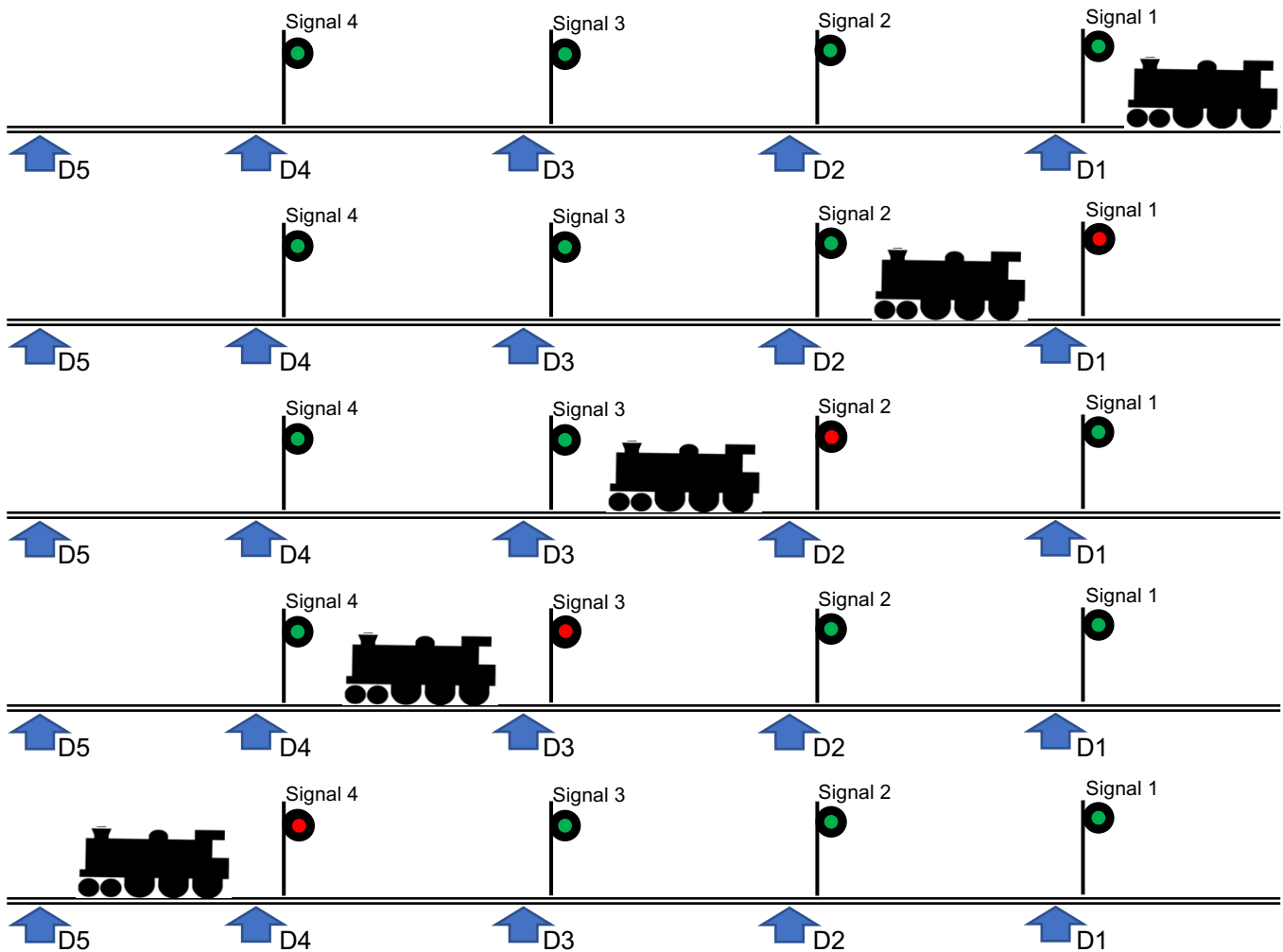
To set the Control Board for **Mode 3**  
Mode Switches 1 off, 2 ON, 3 & 4 off.

Up to 2 **Mode 3** - Signals can be controlled by each **Signal 3.5** Control Board

# Mode 4

**Mode 4** is a simple way to start signalling a line of your model railway.

4 RED / GREEN Signal to protect a section of track - Operated with 5 detectors.

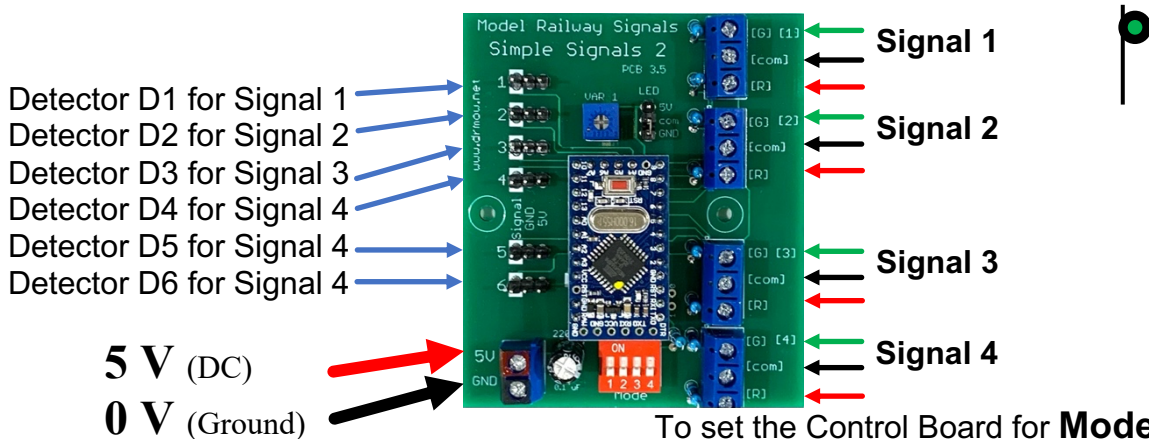


Signal 4 clears to green when the train has passed Detector 5

This signalling arrangement could be made for either Searchlight Signals, Semaphore Signals or a mix of both if that was what you wanted.

This requires 5 Optical Detectors (the blue arrows) placed between the rails just after the signals so the signal changes once the train has just passed the signal.

This can be linked to other Signal Control Boards for more signals in a row.



To set the Control Board for **Mode 4**  
Mode Switches 1, 2 & 3 ON, 4 off.

*If you plan to use all four signals, please order 1 more train detector when you order.*

One **Mode 4** with 4 signals can be controlled by each **Signal 3.5** Control Board

# Simply Rail Signals 3.5

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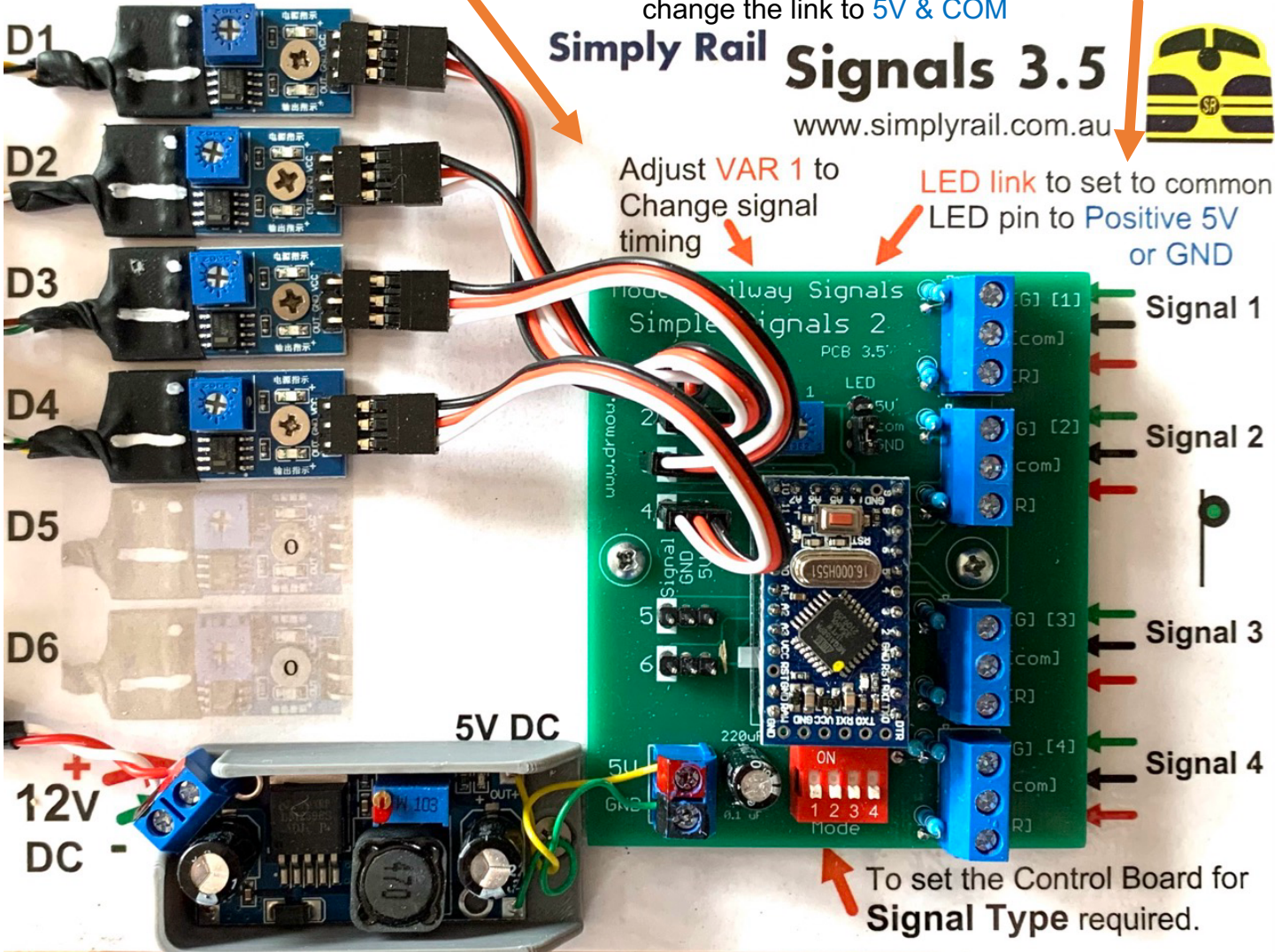
## Wiring Diagram

Adjust **VAR 1** to change the red signal timing or the re-set timing.

**LED link** is used to set to COM (center pin, Black Arrow) to either Ground or Positive 5v, this means it can be used with either Common Cathode or Common Anode two color LED signals. If you are using common positive LEDs in the signal change the link to **5V & COM**

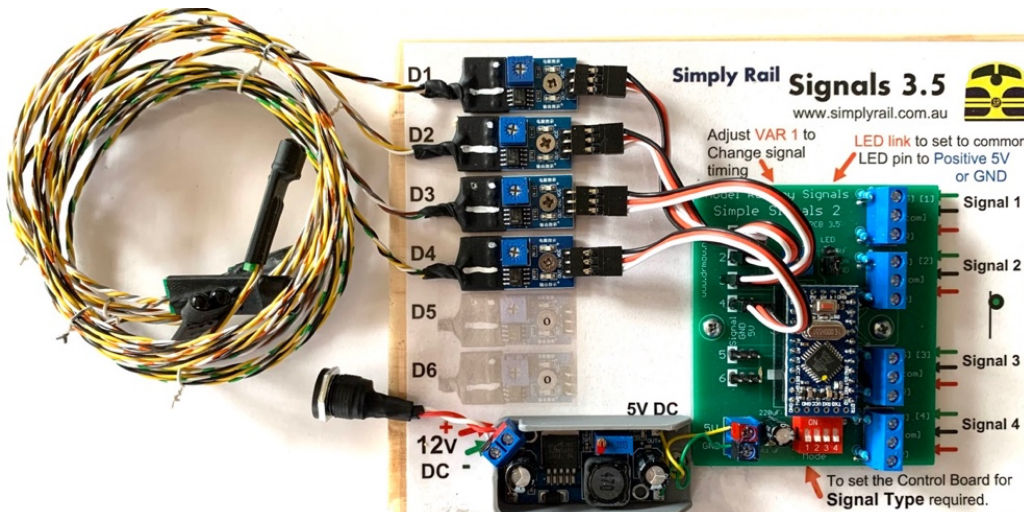
### Simply Rail Signals 3.5

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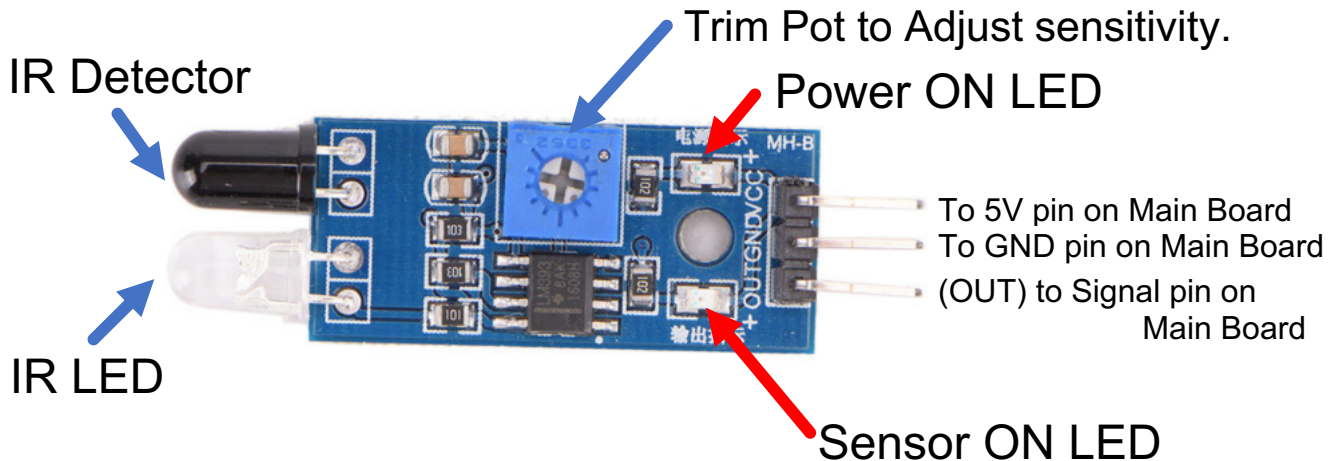


Power input  
**Red** 7-24 V (DC)  
**Black** 0 V (Ground)

Green Signal  
 Common Pin  
 Red Signal



# Train Detectors



To set the Train Detector connect it to the main board.

The small red Power ON LED will be on.

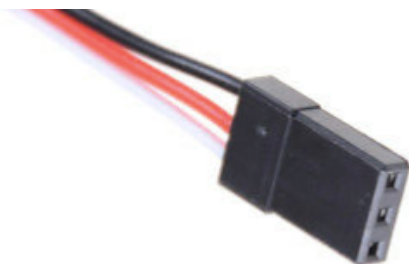
Adjust the trim pot so the Sensor ON LED is only on when a train (or your hand) is directly above the sensor.

The Sensor ON LED is off when there is no train above the sensor.

*(If the Power ON LED does not come on, check you have the three pin connector cable Pins correct)*

Train Detectors are connected to main Board is with 3 pin cables,

(these can be extended with servo extension cables if required)

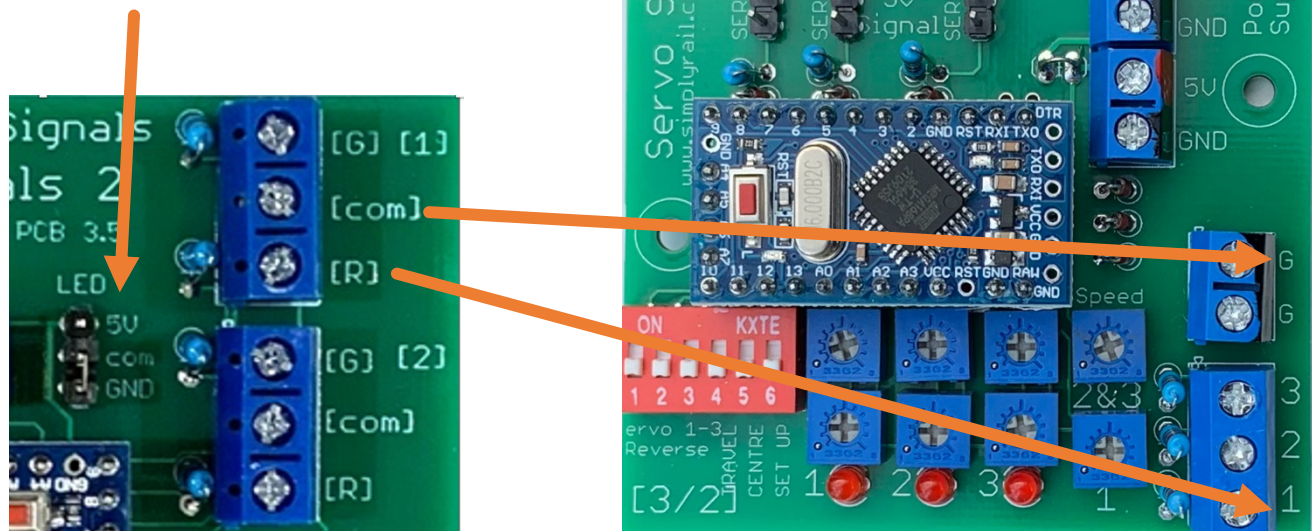


Take care to match the **OUT** pin of the Detector with the **Signal** pin on the main Board.

Please use the **WHITE** wire on the connector cable for the **OUT** to **SIGNAL** pins.

# Semaphore Signals

To use Simply Rail Signals with Semaphore Signals, set the LED (Common pin to GND), Link on pins conn & GND



Connect the [com] ground pin to a ground input on the Simply Rail Servo controller.

Connect the [R] signal pin to a servo control input on the Simply Rail Servo controller.

Adjust the servo controller following its instructions.

Simply Rail Servo 7, Servo 8 or servo 9 can be used.