

Line Following Board for the BBC micro:bit

www.kitronik.co.uk/5629

The Line following board for the BBC micro:bit allows a robot/buggy to detect and follow a line.

Four connections are all that is required for full operation. There is a common 0V connection. The connections can be seen in the Specification Section of the datasheet.

The left and right detector outputs from the board will activate high when a darker colour is detected. At the same time the indicator LED will illuminate.



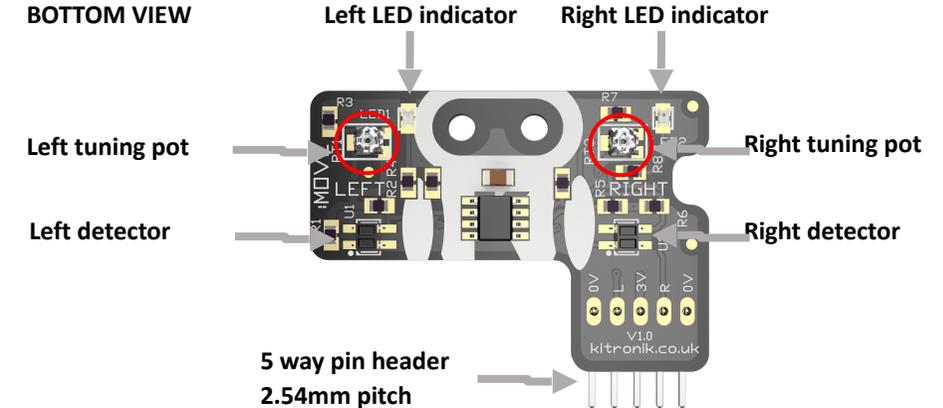
Examples of board in use: This breakout board can be used with our :MOVE mini robot. For more details see: www.kitronik.co.uk/movemini

Ideal setup:

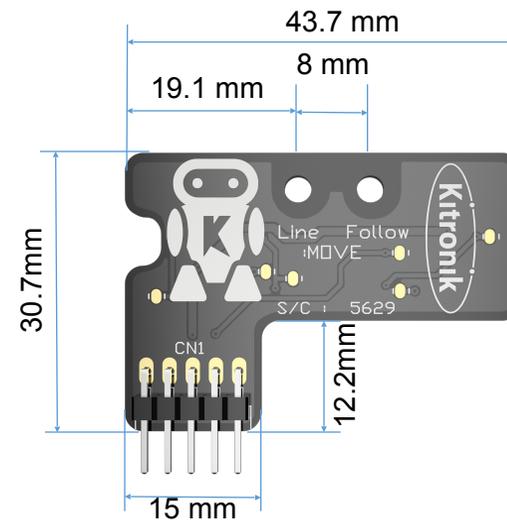
The board to be mounted with a clearance of 5mm or less between the detector and the line to be tracked.

Layout and Dimensions:

BOTTOM VIEW



TOP VIEW



The Line follower board is 5.7mm front to back

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Specification

Operating Voltage (Vcc)	3V
Number of output channels	2
Pinout of connector	0V / Left Detector / 3V / Right Detector / 0V
Max Current	38mA at 3V
Max detection distance	5mm with Black tape on White paper

Tuning Guide

To improve the line following or to tune to the required surface/line:

Slowly move the detector across the line. When the detector gets close to the line it will switch to the opposite state.

If it does not change, then the pots will require tuning.

To make the detector less sensitive: turn the pot clockwise.

To make the detector more sensitive: turn the pot anti-clockwise

Software Tip:

Note whether the indicator LED's on the board are normally on (light surface & dark line) or normally off (dark surface & light line).

These indicator LED's are by the pots.

Write the software according to the normal state of the input.

See example code opposite.

Example Code

The code below is a working code for the :MOVE mini using Kitronik blocks for a dark line on a light surface (e.g. Black line on white paper)

```
on start
  set pull pin P15 to up
  set pull pin P16 to up

forever
  set Right_Detector to digital read pin P15
  set Left_Detector to digital read pin P16
  if Left_Detector == 0 and Right_Detector == 0 then
    stop
  else if Left_Detector == 1 and Right_Detector == 0 then
    turn right
  else if Left_Detector == 0 and Right_Detector == 1 then
    turn left
  else if Left_Detector == 1 and Right_Detector == 1 then
    drive forward
```