

Compact Motor Driver Board for the BBC micro:bit



www.kitronik.co.uk/5698

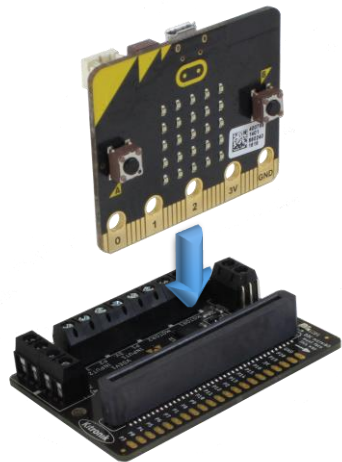
Introduction: This compact motor driver board for the BBC micro:bit allows two motors to be driven simultaneously with forward, reverse & stop control, making it ideal for designs such as buggies. It is based on the DRV8833 motor driver IC, which has built in short circuit, over current and thermal protection.

The board includes an integrated Edge Connector for your BBC micro:bit to easily slot into. It also features external connections to the button A and button B inputs. This allows additional switches / inputs to be connected to the motor driver board and the state of these can then be read by the BBC micro:bit.

There are 2 additional inputs / outputs. These can be used for connecting a range of parts and can be used in either digital or analogue modes.

Power is provided via either a terminal block or servo-style connector, the supply is then controlled by an on/off power switch to the board. There is a green LED to indicate when the board is turned on.

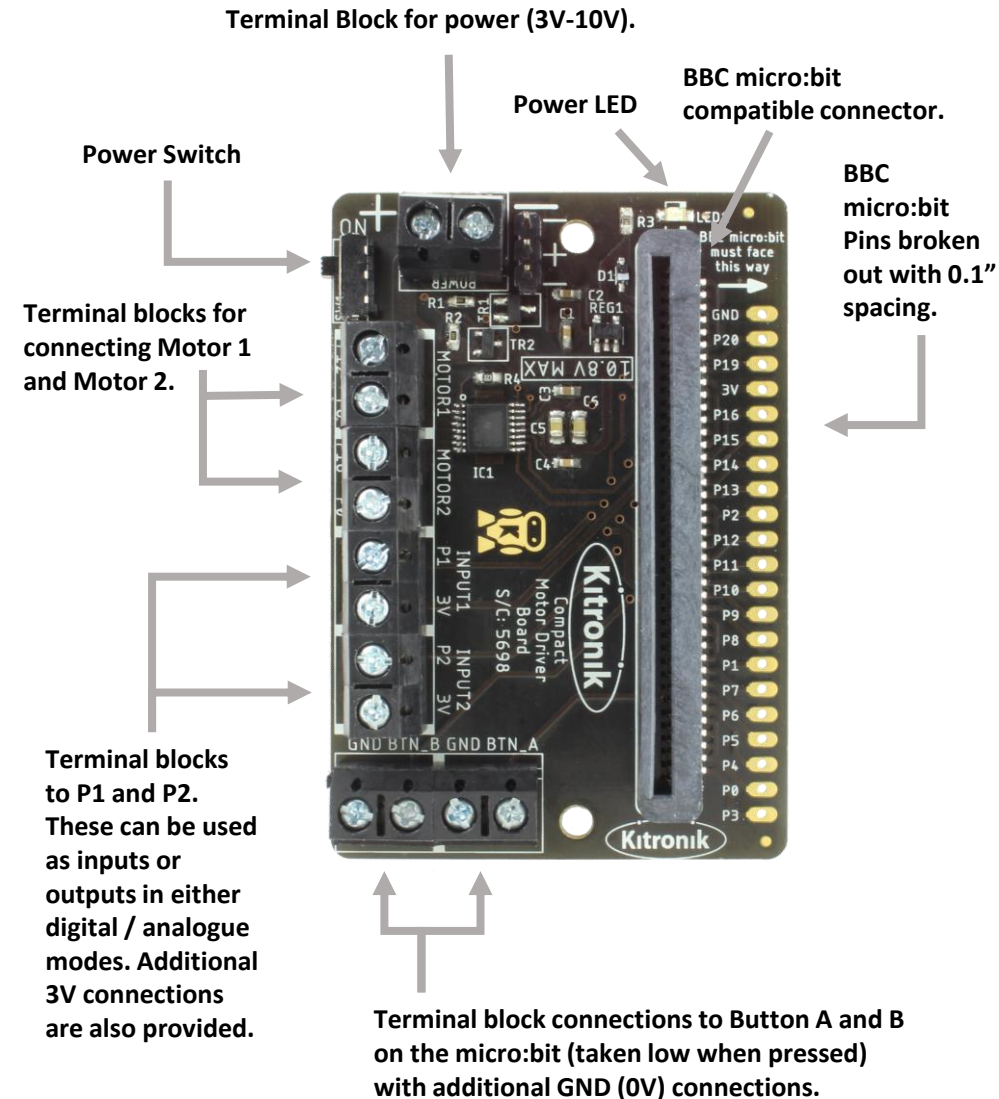
The board also produces a **regulated 3V supply** that is fed into the 40 way connector to **power the inserted BBC micro:bit**, removing the need to power the BBC micro:bit directly.



Inserting a BBC micro:bit: To use the motor driver board the BBC micro:bit should be inserted firmly into the connector as shown left.

The board has been designed so that the BBC micro:bit pins are all broken out for access as well.

Layout:



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Electrical Information

Operating Voltage (Vcc)	3V to 10V
Number of motor channels	2 (2 motors with forward + reverse control, controlled by P0, P8, P12 & P16)
Typical motor output Voltage (Vm) @ 1.5A output per channel	$V_m = V_{cc}$
Max Current per motor channel	1.5A
Digital only inputs	2 (button A / B)
Digital or Analog input / output pins (P1 & P2)	2 (P1 & P2)
Digital output drive current	5mA

Motor Control Pins (forward and reverse directions can vary depending on how the motors are connected)

P8	P12	Motor 1 Function
0	0	Coast
1	0	Forward
0	1	Reverse
1	1	Brake

P0	P16	Motor 2 Function
0	0	Coast
1	0	Forward
0	1	Reverse
1	1	Brake

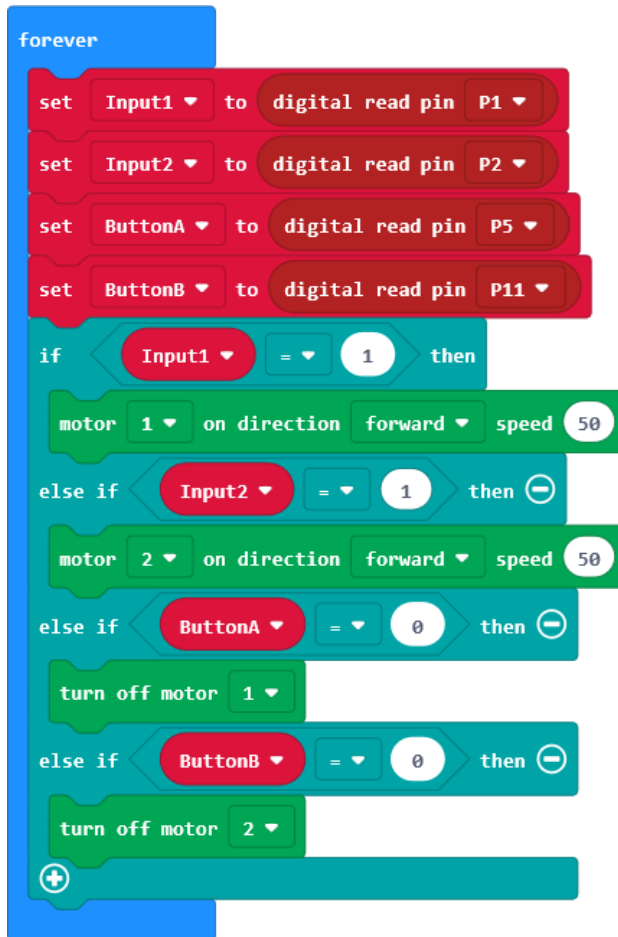
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Makecode Blocks Editor Code

Kitronik have developed custom blocks and JavaScript to support the use of the Motor Driver board in the micro:bit MakeCode Block editor. These blocks can be added via the add Extensions function in the editor by searching "Kitronik" or from: <https://github.com/KitronikLtd/pxt-kitronik-motor-driver>



```
forever
  set Input1 to digital read pin P1
  set Input2 to digital read pin P2
  set ButtonA to digital read pin P5
  set ButtonB to digital read pin P11

  if Input1 = 1 then
    motor 1 on direction forward speed 50
  else if Input2 = 1 then
    motor 2 on direction forward speed 50
  else if ButtonA = 0 then
    turn off motor 1
  else if ButtonB = 0 then
    turn off motor 2
```

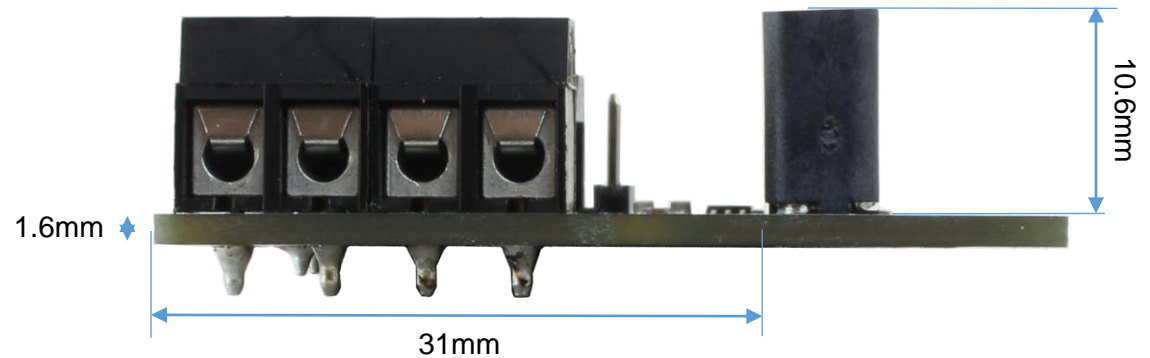
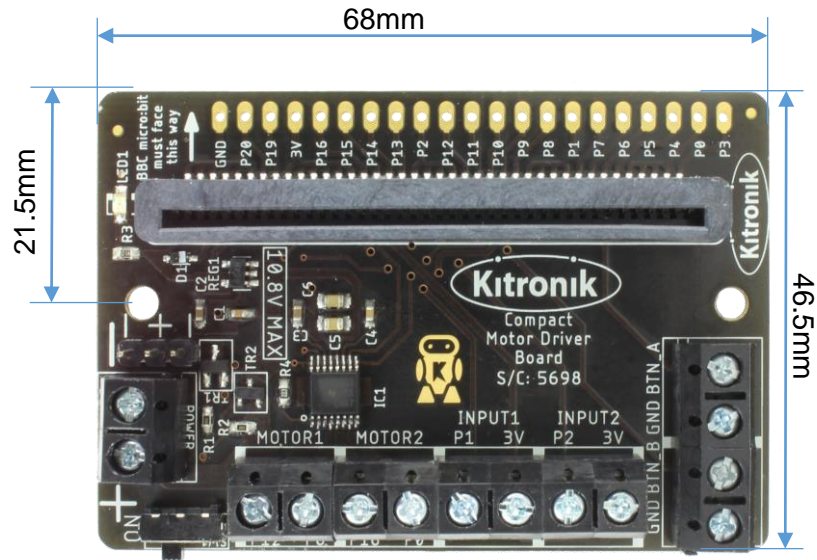
The example blocks (left) cause both motors to move forward with pins 1 and 2, and uses the button inputs at pins 5 and 11 to stop each motor separately.

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Dimensions



(Dimensions +/- 0.8mm)

Mounting holes are 3mm Diameter