

Compact 16 Servo Driver Board for the BBC micro:bit

www.kitronik.co.uk/5694



This compact 16 servo driver board for the BBC micro:bit allows up to 16 Remote Control (RC) servos to be driven simultaneously. It is based on the PCA9865 driver IC.

The board includes an integrated Edge Connector for the BBC micro:bit. Expansion Pads allow the connection of this board with other compatible micro:bit accessory boards using the "Link" pluggable pin header (www.kitronik.co.uk/4162)

The board produces a **regulated supply** that is fed into the edge connector **to power the inserted BBC micro:bit**, removing the need to power the BBC micro:bit directly. Power (maximum 12V) can be supplied to the board via either the dedicated screw connections, or the 0.1" pitch Power connector, for instance from a standard receiver battery pack.

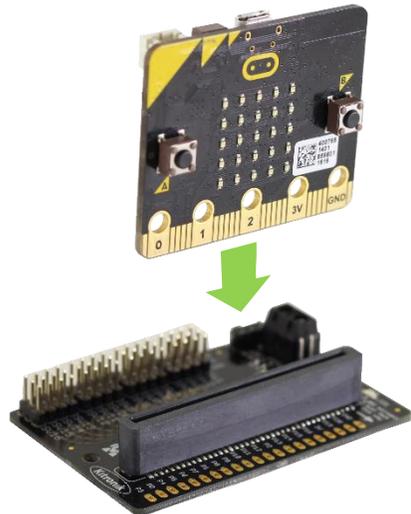
The supply is then controlled by an on/off power switch, with a green LED to indicate when the board is turned on.

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

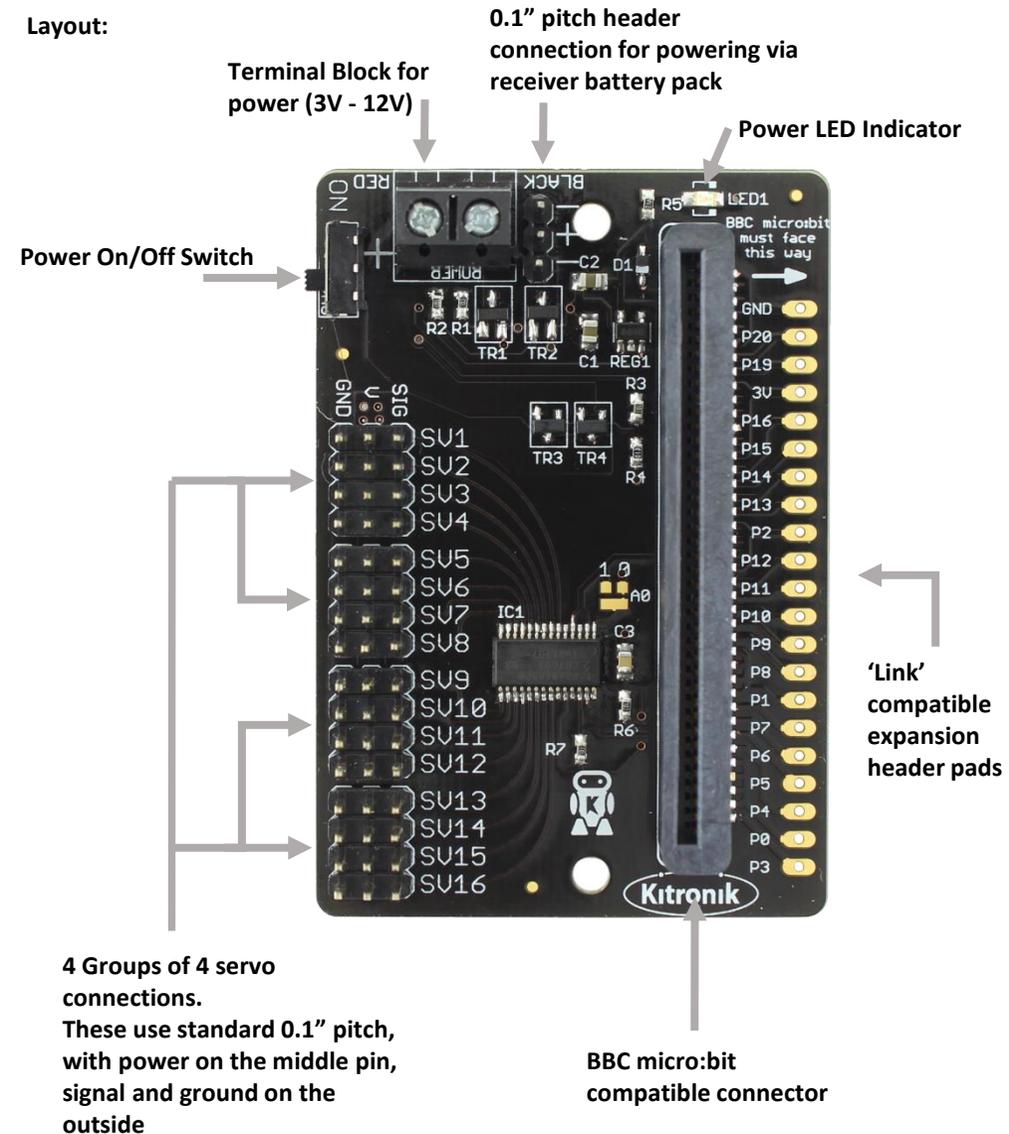
The board will only work with the BBC micro:bit in the correct orientation. This is indicated on the board as well. From this the "Link" will be functional with the BBC micro:bit in this orientation.

Examples of board in use:

This board can be used to control multiple servos, such as for a robot arm.



Layout:



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Electrical Information

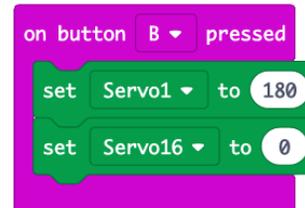
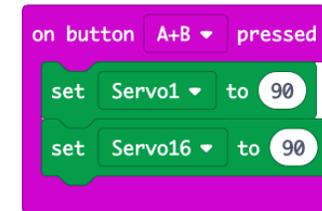
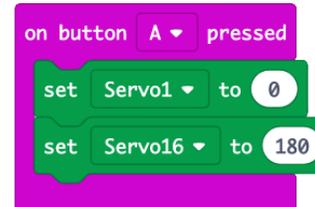
Operating Voltage (Vcc)	3V to 12V
Number of Servo channels	16
Servo Voltage	Same as input Voltage
Max continuous current (all servos)	12A

MakeCode Blocks Editor Code

Kitronik have developed custom blocks in Makecode and JavaScript to support the use of the 16 Servo Driver board in the micro:bit Makecode. These blocks can be added via the add package function in the editor from:

<https://github.com/KitronikLtd/pxt-kitronik-I2C-16-servo>

The example blocks (right) cause Servo 1 to move from 0 to 180 degrees and Servo 16 to do the opposite as buttons A, A+B and B are pressed.



Changing default I2C address:

The default I2C address for the 16 Servo Driver is set to 0x6A, but by using the adjustment pad A0, it is possible to change it to 0x6B. The picture to the right shows pad A0. It is made up of a long pad connected to one of the driver IC address pins, a small pad connected to 3.3V (marked '1'), and a small pad connected to GND (marked '0'). The address is determined by whether the long pad is connected to 3.3V or GND (binary '1' or binary '0'). As standard, the long pad is disconnected to GND, setting the last bit of the address to '0'. By cutting the small link track (marked in red), and soldering a connection from the long pad to the '1' pad, the address is changed.

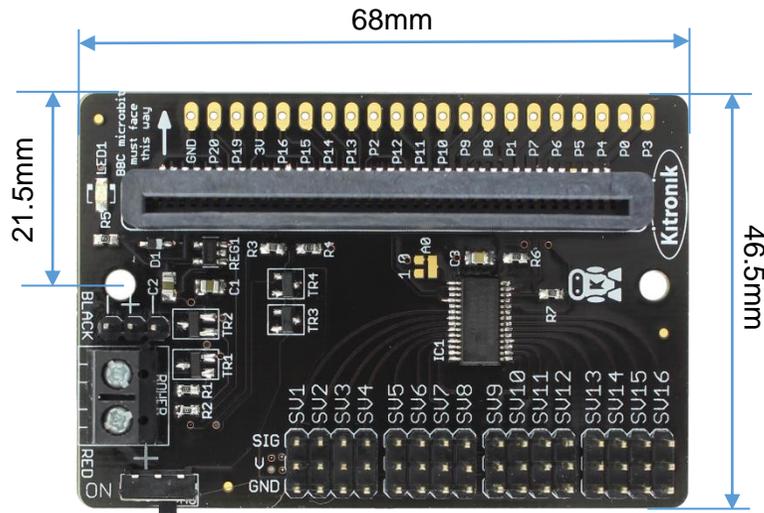


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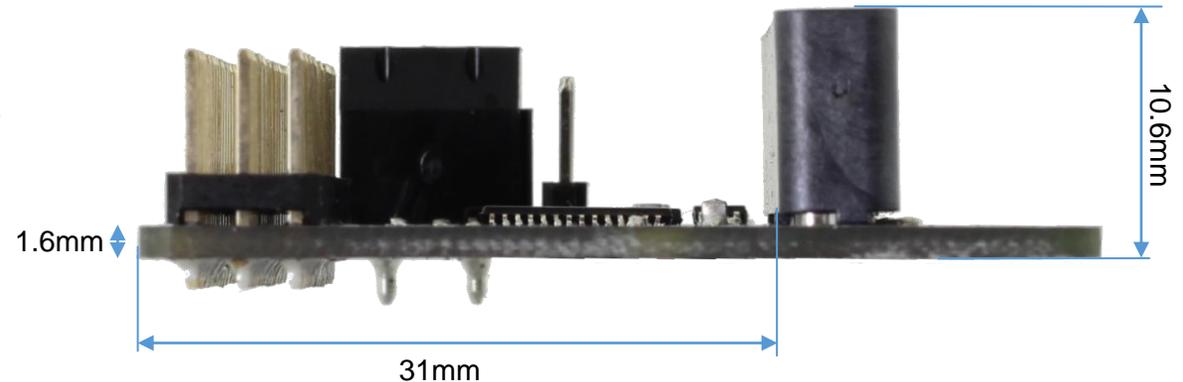
Dimensions



This board conforms to the “Link” standard for accessory boards for the BBC micro:bit.

This allows stacking, and control, of multiple accessory boards from a single BBC micro:bit.

See <https://www.kitronik.co.uk/LinkStandard> for more information about this open standard.



(Dimensions +/- 0.8mm)

Mounting holes are 3mm Diameter