

# ACCESS:bit for the BBC micro:bit

www.kitronik.co.uk/5646



**Introduction:** The ACCESS:bit is a bolt-on/clip-on board for the BBC micro:bit simulating an access barrier. The ACCESS:bit has been designed to have the ability to drive a single servo with barrier and a buzzer for sound. It includes a switch for turning the integrated 3xAAA battery supply on and off. Fitted on the PCB is a regulated 3V supply to power the BBC micro:bit, this connection is through the 5 pin BBC micro:bit connection pads

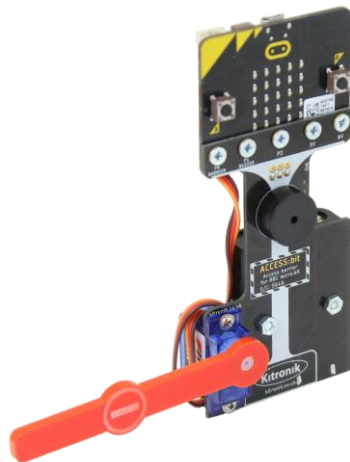
The ACCESS:bit has been designed so that the BBC micro:bit LED display can be used to recreate warning lights, display stop and go symbols or be used for light sensor activation.

**Connection:** 5 x M3 countersunk screws and M3 nuts allow the user to bolt the ACCESS:bit onto the BBC micro:bit. Crocodile clips also can be used between the pads on the ACCESS:bit and the matching pads on the BBC micro:bit. The table to the right gives the connections between the BBC micro:bit and the ACCESS:bit

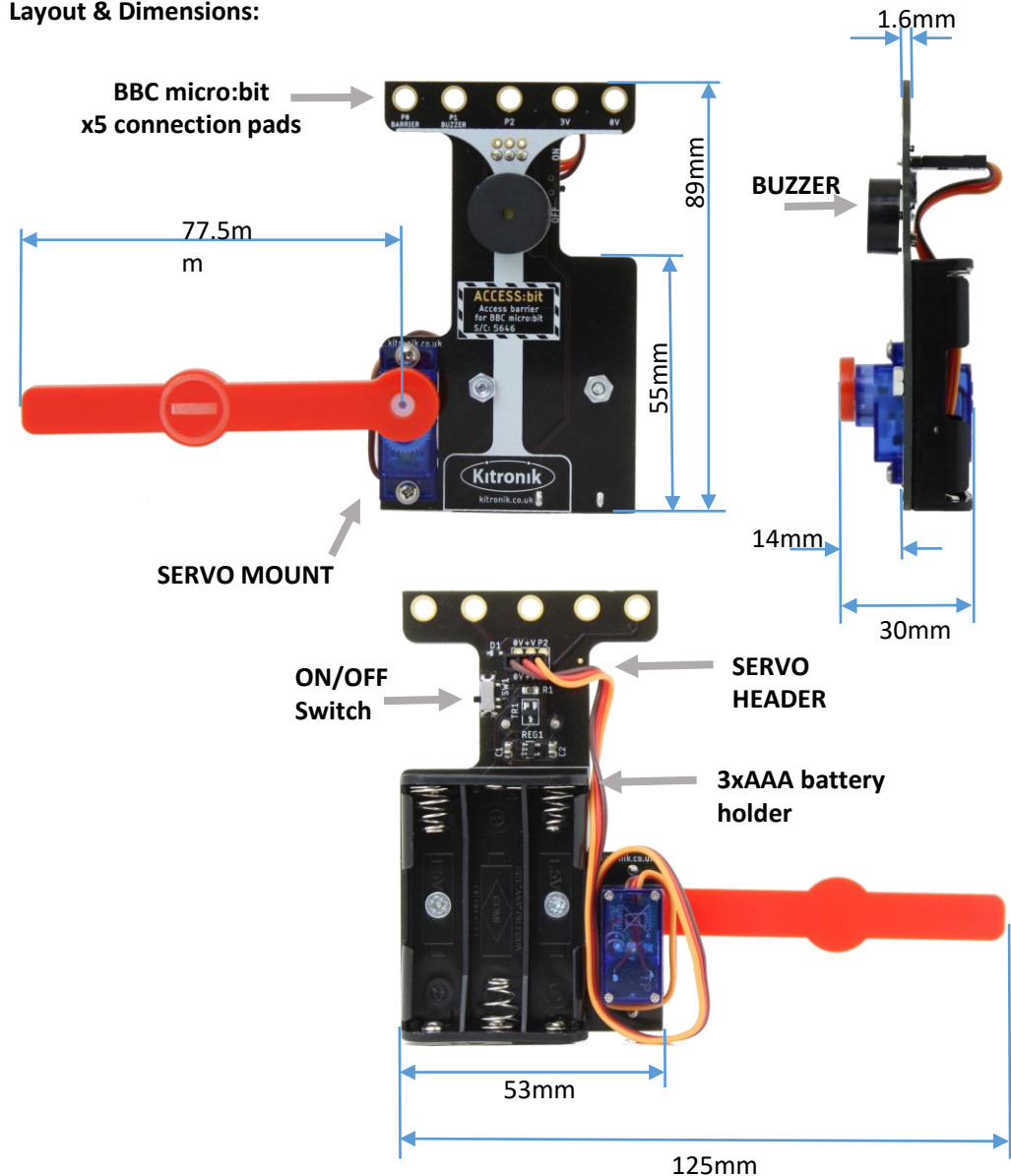
Pinout	
P0	Barrier
P1	Buzzer
P2	IO pin
3V	3V supply
0V	GND of BBC micro:bit

**Stand:** The bottom of the 3xAAA battery cage acts as support for the ACCESS:bit to stand upright.

**Servo:** The servo is mounted on the left hand side of the ACCESS:bit. The servo lead is then connected into the pin header on the board.



## Layout & Dimensions:



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## Assembly:

The following steps give instructions on how to assemble and setup the ACCESS:bit on first installation.

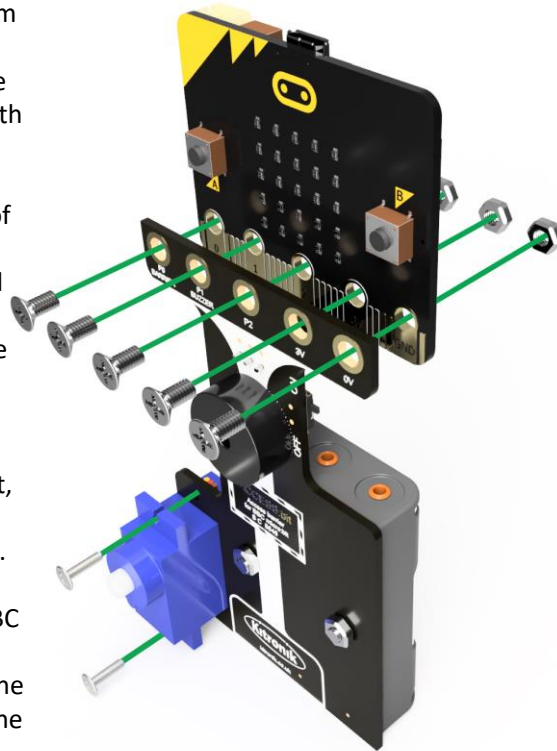
1. Place servo into the mount position from the front of the PCB, so the servo mounting points line up with the holes on the PCB.

2. Using the two large screws from the packet of fixings that came with the servo, screw through the PCB into the servo. Do this for both top and bottom holes in the PCB, then connect the servo to the required pin header on the rear of the PCB.

The servo wire should be plugged in with the 'Orange' wire connected to P0 and 'Brown' wire connected to 0V

3. For attaching the BBC micro:bit, place the BBC micro:bit on the back of the PCB (facing the front). Using the 5 x M3x8 bolts, place each one through the PCB and BBC micro:bit and attach a single M3 nut onto the thread. Make sure the nut is securely fastened against the PCB.

Alternatively, use croc-clips to connect the PCB pads to the matching pins on the BBC micro:bit



## Software:

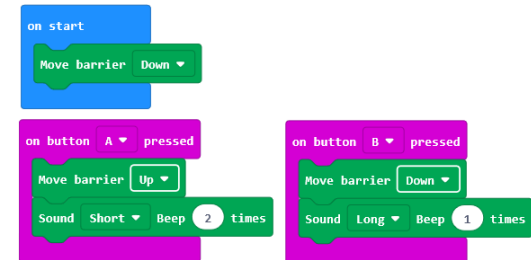
Custom MAKECODE blocks have been created for driving the servo and sounding the buzzer. To add them to the editor, click the cog icon in the top right hand corner of the editor. Select Extensions from the menu. Type Kitronik access:bit into the search box, and select the Access:bit extension. The following blocks will be added to the editor:

- Servo "Move" block: The block allows the barrier to be controlled and which position (up or down) to have the barrier.
- Buzzer "Sound" block: The block allows to drive a long or short beep and how many beeps to sound.

1. Program the BBC micro:bit with the following code.

Once the BBC micro:bit has been programmed with the test code, turn on the PCB with the slide switch.

After switch on, the servo will centre.



2. When the servo/barrier is in its down position, place the red Perspex barrier horizontally onto the servo gear. Make sure that the barrier is pointing outwards away from the PCB.

The barrier is designed to be a push fit on to the servo gear. If required, then fit a screw through the washer onto the servo gear.

