



## Getting started

To get started with the micro:bit, you'll want to upload some code either with the provided micro USB cord, or using a mobile app.

The easiest way to program the micro:bit is using MakeCode. Here's some sample code you can download to get you started:

[https://makecode.microbit.org/#pub:\\_dkrYv67Ui9jW](https://makecode.microbit.org/#pub:_dkrYv67Ui9jW)

To transfer the program to your micro:bit, use the following instructions (choose in the instructions what type of computer and browser you're using for more specific directions):

<https://microbit.org/get-started/first-steps/set-up/>

or

<https://makecode.microbit.org/device/usb>

To learn more about the micro:bit and its features, check out the <https://microbit.org/> website and the <https://makecode.microbit.org/> website!

# SERVOS

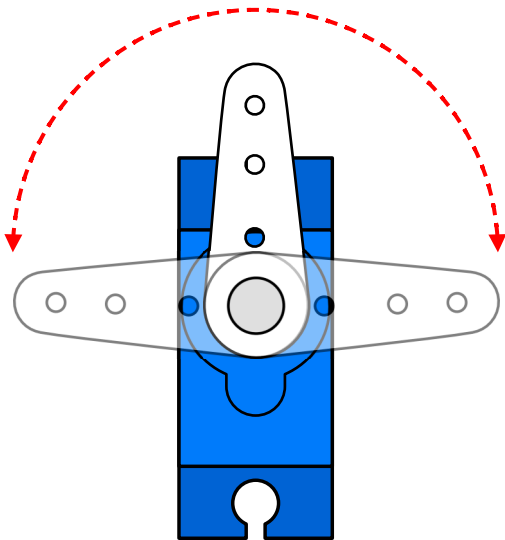
## Servos included in the kit

Your kit includes two servos:

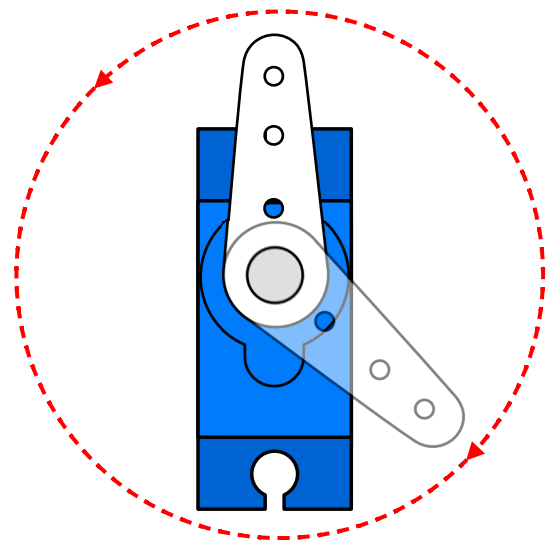
- Standard Micro Servo (EF92A, micro:servo 180°)
- Continuous Rotation Micro Servo (EF90D, micro:servo 360°)

The kit also includes servo horns. These are the white plastic pieces that attach to the servo axle.

## What's the difference?



The **Standard Micro Servo** (also called a Positional Micro Servo) can only rotate 180° — half a circle. You can control the exact position it goes to by programming the angle. You can't control the speed.

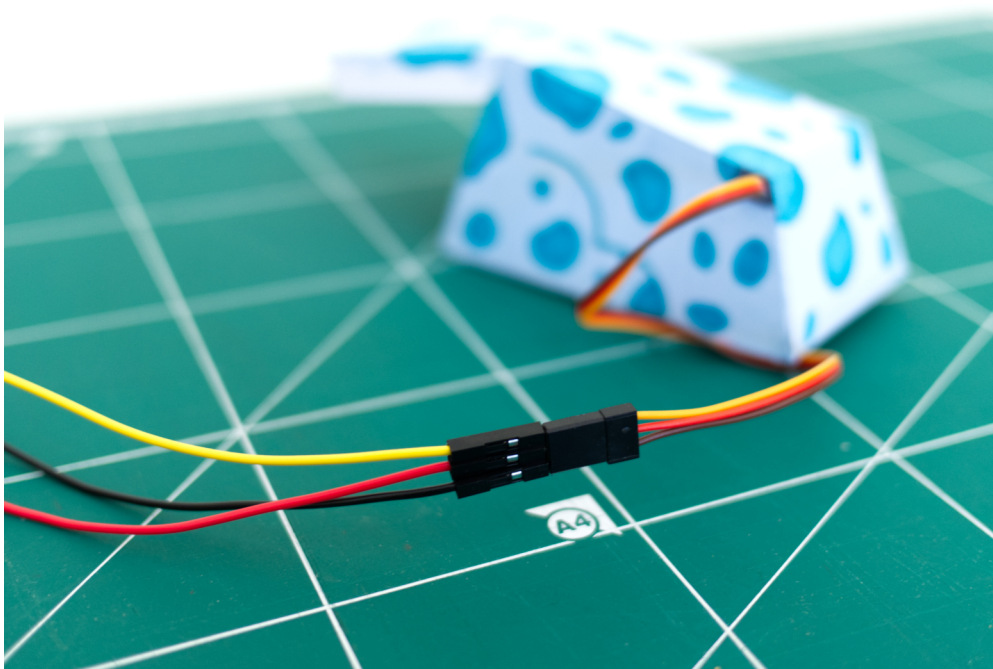
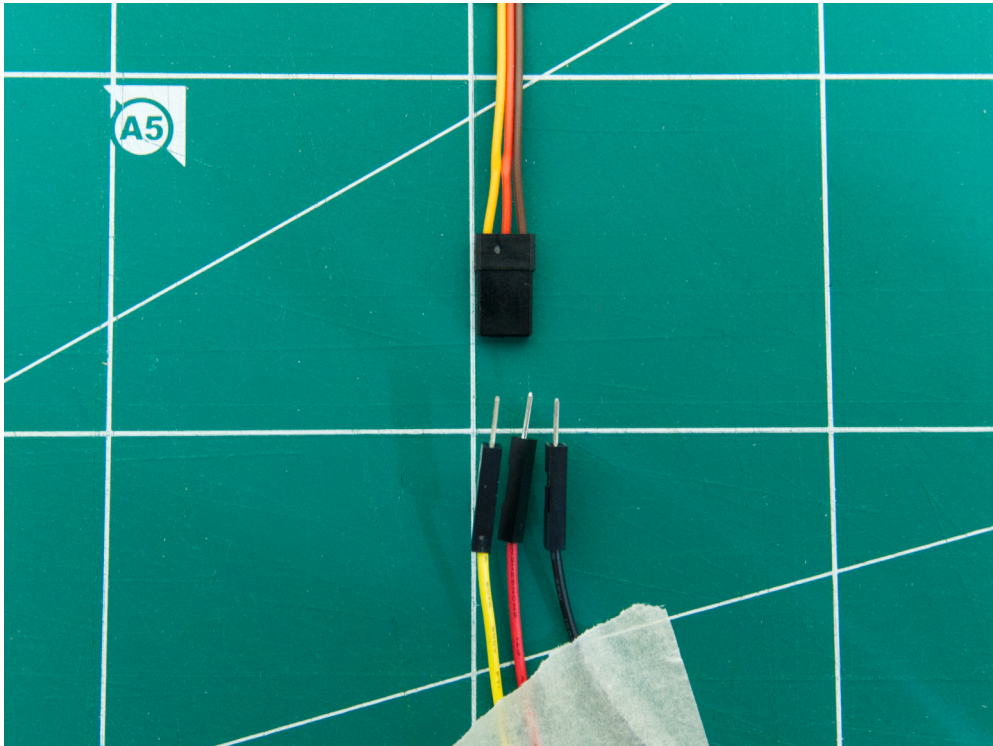


The **Continuous Rotation Micro Servo** can rotate 360° — a full circle. It can go around continuously in either direction. But the trade off is that you can't control the exact position it goes to — all you can do is program the speed and the direction it spins in.

## Wiring

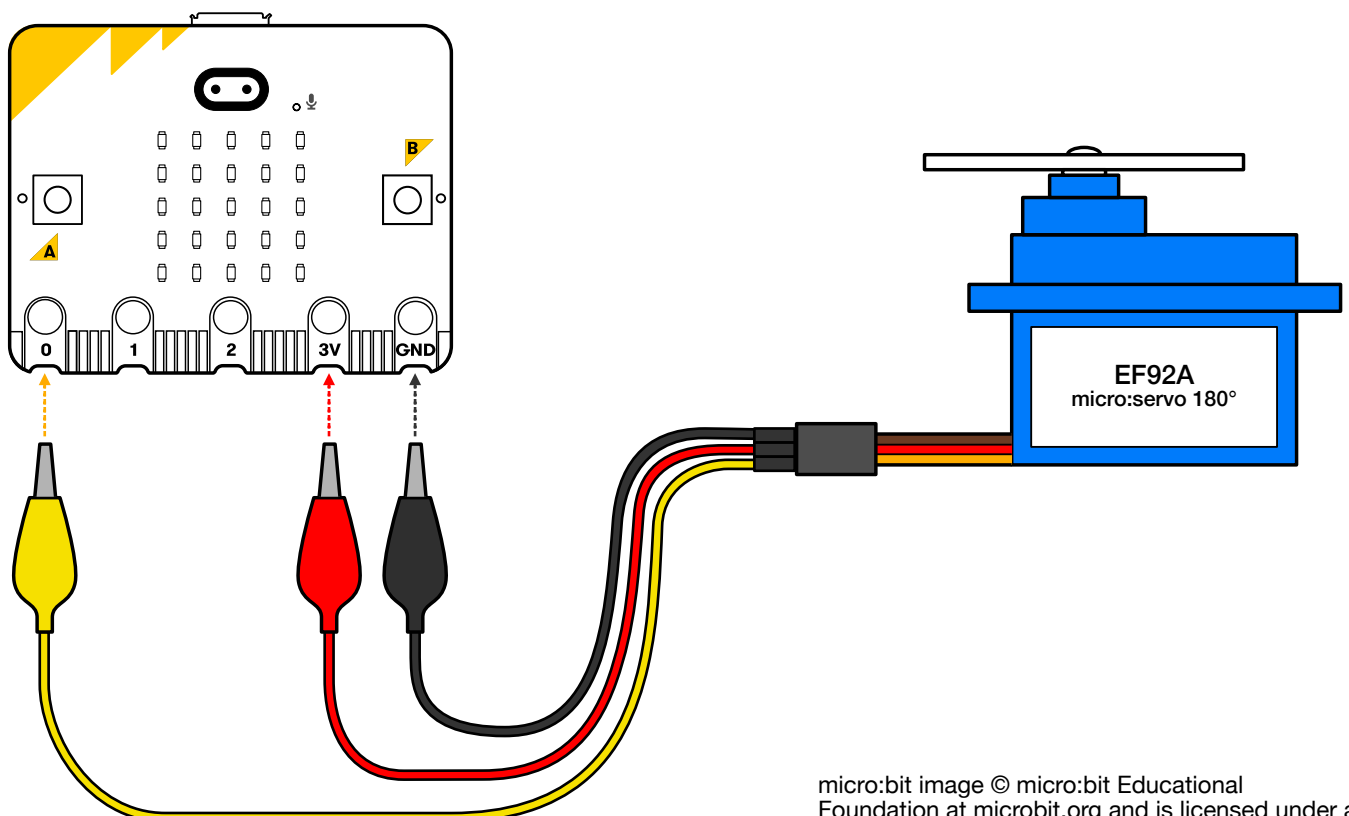
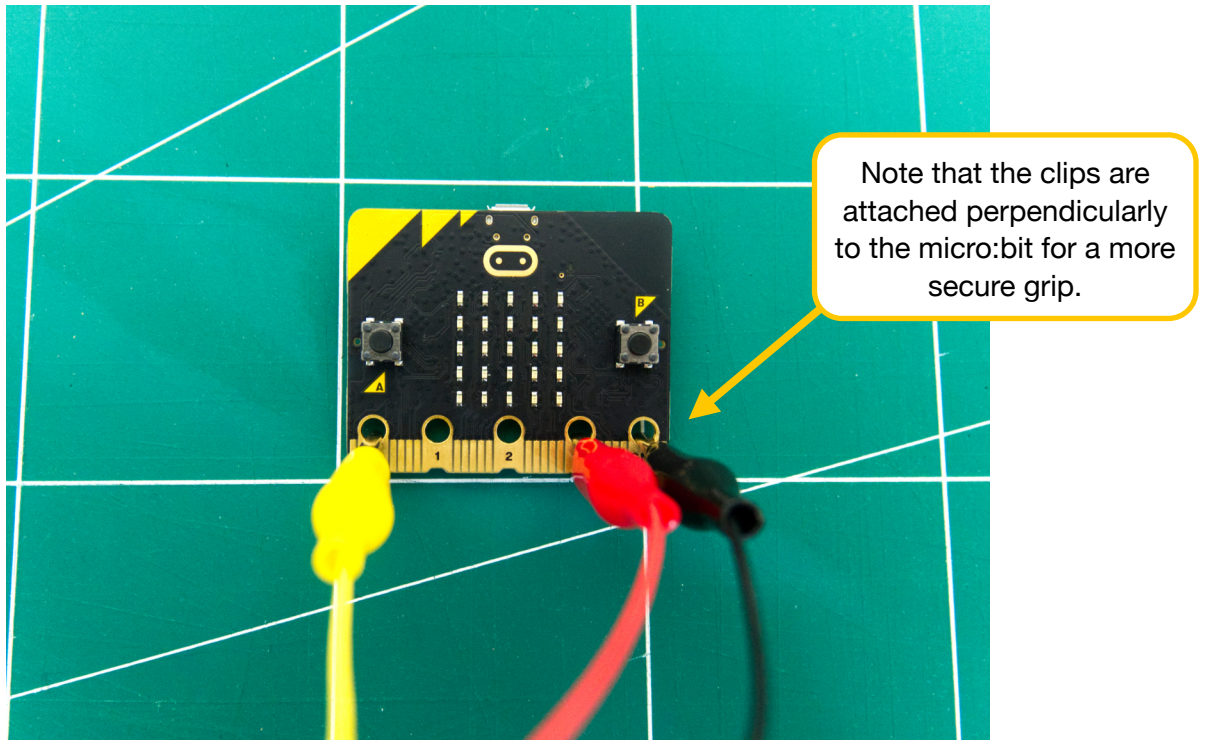
To use the servo, you'll need to program and connect it to the micro:bit.

Connect 3 of the the crocodile to male jumper pin cables to the servo header. You can use any color of crocodile cables, but if you match the color of the servo wires to the crocodile cables, it will make it much easier to keep track of the connections.



Connect the crocodile clips to the micro:bit. Make sure that they are connected as follows:

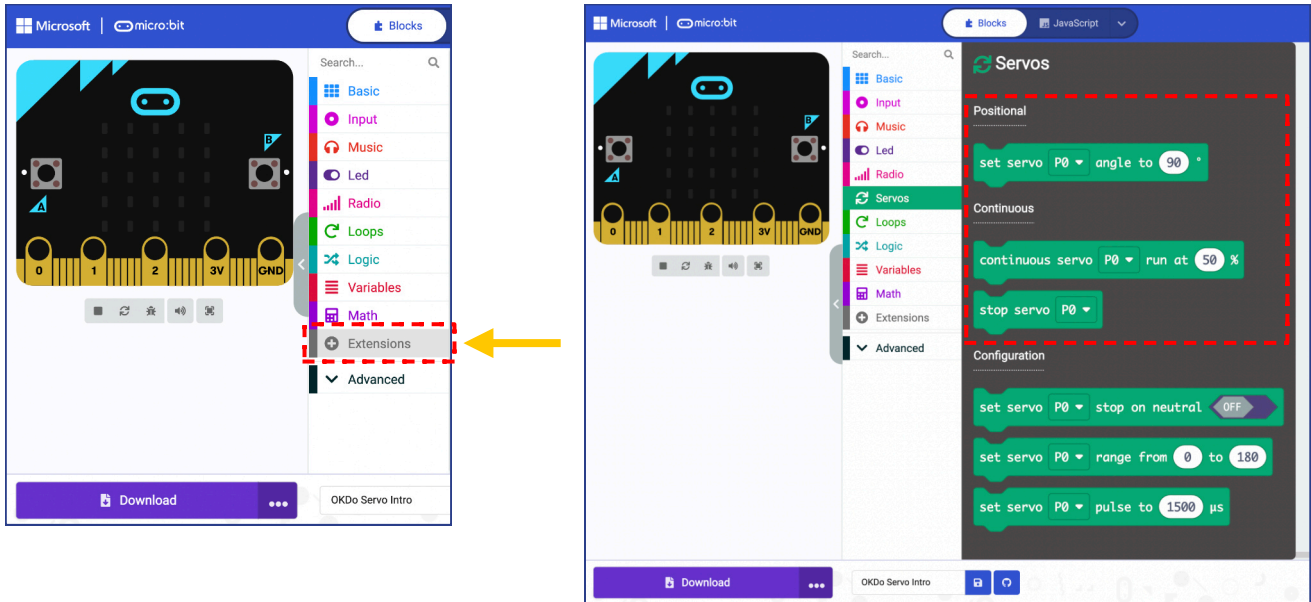
- Crocodile clip connected to the YELLOW servo wire → micro:bit Pin 0
- Crocodile clip connected to the RED servo wire → micro:bit 3V
- Crocodile clip connected to the BROWN servo wire → micro:bit GND





## Programming the servo

To program the servo in MakeCode, you'll need to add the Servo Extension first. Click on "Extensions", then "Servos". The extension lets you program both Positional (Standard) servos and Continuous servos.



You can test your servos by trying these two simple programs. Experiment with changing the angles and speeds to see what happens!

Positional Servo: [https://makecode.microbit.org/#pub:\\_7iD1hr87x9VT](https://makecode.microbit.org/#pub:_7iD1hr87x9VT)

Continuous Servo: [https://makecode.microbit.org/#pub:\\_5E7bak9C0fjX](https://makecode.microbit.org/#pub:_5E7bak9C0fjX)

## Powering the servo

Your kit includes a 2x AAA battery pack. This can provide the micro:bit with 3 volts of electricity. However, servos require more than 3 volts. For that reason, we recommend using the included micro USB cord to power the micro:bit and servo instead, and save the battery pack for other micro:bit projects that don't use any servos.

If you want to use more than one servo at once, we recommend purchasing an extension board to go with your micro:bit. To learn more about extension boards, see the section on "Other Resources".

# OTHER RESOURCES

## More Free Robot Templates

<https://www.jasmineflorentine.com/steam-activities>

## More micro:bit Projects

<https://microbit.org/projects/>

<https://makecode.microbit.org/>

<https://www.instructables.com/howto/microbit/>

[https://learn.browndoggadgets.com/c/MicroBit\\_Projects](https://learn.browndoggadgets.com/c/MicroBit_Projects)

<https://learn.birdbraintechnologies.com/hummingbirdbit/projects/>

<https://www.hackster.io/microbit/projects>

## micro:bit Extensions

Breakout Boards: <https://microbit.org/buy/accessories/?category=Electronics>

Other fun add-ons: <https://makecode.microbit.org/extensions>