Connecting a power supply to the micro:bit

Modified on: Fri, 3 Dec, 2021 at 9:43 AM

Overview

You can power your BBC micro:bit using a **USB** cable or **battery** pack. This article describes the types of connectors and batteries you require and how to connect them to the micro:bit.

USB power

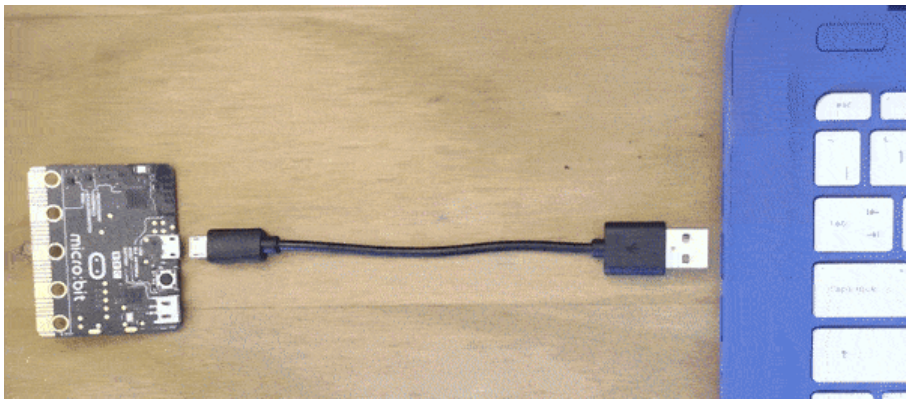
You can power your micro:bit from a computer or mobile device using a USB cable. The micro:bit has a **USB type-B micro connector** (https://en.wikipedia.org/wiki/USB#Host_and_device_interface_receptacles) and the USB lead that you require will depend on what device you are plugging the micro:bit in to:

- Usually, you will need a **USB type-Aplug** at one end, and a **USB micro-B plug** for the other end, to be plugged into the micro:bit. This is the type of cable supplied in the **micro:bit GO pack** (https://microbit.org/buy/).

- Some computers and mobile devices have **USB type-C** (a small round connector that you can plug in any way around). Apple refer to these as "Thunderbolt" connectors. For these, you will need **USB type-Cplug** at one end, and a **USB micro-B plug** for the other end. You can purchase this type of cable, or use a **USB A to USB C adaptor** or hub.

- For connecting to an Android phone, you may need to use a **USB On-the-Go cable** (https://en.wikipedia.org/wiki/USB_On-The-Go) that is compatible with your device.

When your BBC micro:bit is connected to your computer with the micro **USB**, it doesn't need another power source.

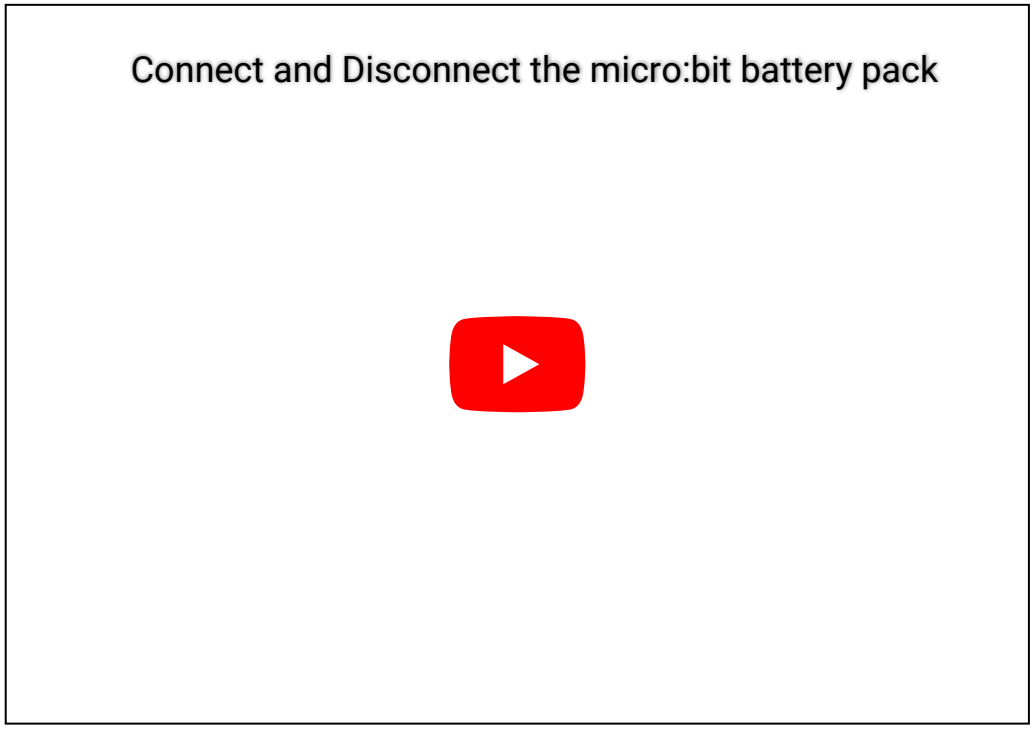


Battery Power

In addition to USB powering, the BBC micro:bit can also be powered using a battery pack containing **2 x zinc or alkaline AAA batteries.** This is the type of battery pack supplied in the **micro:bit GO pack** (https://microbit.org/buy/).

To insert the battery connector, grip the base of the connector between your thumb and forefinger and push the connector into the JST socket on the board. To remove the battery connector you may need to wiggle the connector to release.

Note that the **latest micro:bit** (https://microbit.org/new-microbit/) (**V2**) also has a **power saving mode** (https://support.microbit.org/en/support/solutions/articles/19000120358-how-do-i-power-off-or-put-the-micro-bit-to-sleep-) that helps you conserve battery power, meaning that you may not have to disconnect the battery pack between uses. Hold down the power/reset button to enter/exit this mode.



Battery Warnings

- Do not try to charge normal (non-rechargeable) batteries
- Please do not mix different types of batteries or mix new and used batteries
- Please use batteries of the same or equivalent type as those reccomended
- Please insert the batteries the correct way round (with the correct polarity)
- Please remove spent batteries form the battery holder
- Do not short-circuit the battery supply terminals, for example by placing a metal object across the terminals
- Only use Zinc or Alkaline batteries with your BBC micro:bit
- Please do not use rechargeable batteries unless you have confirmed the voltage output, as some rechargeable batteries can output a voltage that exceeds the (https://tech.microbit.org/hardware/powersupply/#key-voltages)**operating range of the micro:bit.** (https://tech.microbit.org/hardware/powersupply/#key-voltages)
- If you find it difficult to remove the battery pack, please do not force it. It may that you are using a third party battery case like **https://www.sparkfun.com/products/14299** (https://www.sparkfun.com/products/14299) with a connector that isn't designed to be removed. If this is the case, please leave this connected if possible and use alternative battery packs with removable connectors in future.

Troubleshooting

If you find that the **micro:bit does not power on when you connect the battery pack** (https://support.microbit.org/a/solutions/articles/19000013655), you should check that you are using fresh batteries and that the connector and wires are correct.

Further Information

The micro:bit will automatically switch to USB power when it detects a connection and to battery power if the USB connection is removed. It does this by using a low-Vf diode to switch between sources. The diode prevents back-powering of any source from any other source, so you may have the two power sources connected at the same time.

If you are using your micro:bit with a tablet or mobile, you connect to it with Bluetooth and will also need batteries to power it.

You can **read about the power supply** (http://tech.microbit.org/hardware/powersupply/)on the tech site

keywords: remove battery pack, disconnect, battery