

## 12 USB communication

USB is an acronym for Universal Serial Bus. Technically speaking it is not a bus, because it only allows one on one communication between a host and a device. If you want to connect multiple devices to the same port you need auxiliary equipment such as a hub.

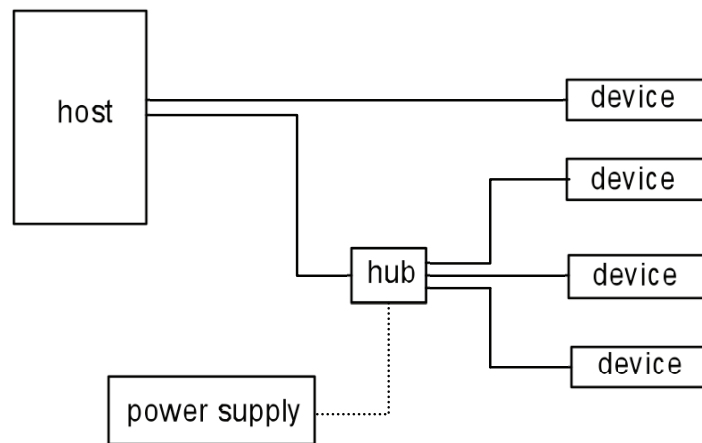


Figure 407. USB connections.

The host will see the hub as a device itself. To the devices the hub looks like a host. If USB was a bus in the more traditional sense of the word then USB wires could go from host to device, and from there to the next device etc, a technique also called daisy chaining.<sup>102</sup> Since devices can be powered over the USB connection connecting a hub will increase the electrical load on the USB connection of the host. For that reason hubs are often powered with their own power supply so devices can pull power from that supply and not overload the host.



Figure 408. USB hub (powered).

USB was designed to allow a wide range of devices to be connected to a host using a single standardized interface, with hot swapping capabilities. That means that you can connect and disconnect USB devices with

---

<sup>102</sup> A daisy chain literally is a chain of flowers (daisies). Children will link these together by making a small hole in the stem of one, and then inserting the next flower through that hole, effectively connecting the two flowers. If you repeat this process you can end up with a chain or string of flowers of any length you want.