



**Higham and Rushden**

*Registered Charity Number 1164952*

# **USB connectors and data transfer**

Before USB technology first appeared in 1996 a PC typically would have one or two serial ports, a parallel port, mouse and keyboard ports, and, in some cases, a joystick port. A USB port represented a standardized way to connect a wide range of devices while offering significant advantages in speed over other connection types.

Serial port



Parallel port



PS2 mouse port



Desktop PCs would also have a purple PS2 keyboard port.

In the beginning was USB 1.0 (Universal Serial Bus), but this was quickly replaced by USB 2.0. Type A connectors plugged into your computer, and type B normally connected to printers and external devices.



As external devices got smaller, the type B connector became less and less practical and many devices switched to the Mini-B and later the Micro-B.

Mini-B



Micro-B



A few years ago the much faster USB 3.0 specification was introduced. The standard connectors are shown below.



Note that the Micro-B plug is a completely different shape from any of the USB 2.0 type B connectors so is not backwards-compatible. The type A connector is the same shape and size as its predecessor, so is completely compatible with the older socket.

To differentiate between the 2 specifications, USB 3.0 type A plugs originally had a blue insert instead of the black or white inserts used in USB 2.0.

The latest USB specification is 3.1, which introduced a slight speed increase. It also introduced a completely new type of connector, type C. The most important difference is that this plug can be inserted either way round, unlike all previous USB connectors.



It really goes without saying that this type of plug is not backwards-compatible and will not fit into any USB type A (2.0 or 3.0) or B socket.

Apple have used symmetrical connectors for a long time: iPhones and iPads use the Lightning connector which can be inserted either way round, and some Macs are equipped with sockets for Thunderbolt connectors.



Thunderbolt 2 and 3 connectors are shown below and it is clear that Thunderbolt 3 is not backwards-compatible.



Thunderbolt 3 looks remarkably similar to USB type C, does it not? Although the technology is different, the 2 types of connector are designed to be interchangeable, in a rare (if not unique!) display of co-operation between Apple and the outside world.

So what do you need to connect different types of plugs and sockets? Basically you need a cable or connector with appropriate connectors on each end.

A bewildering array is available. The web page of [www.leadsdirect.co.uk](http://www.leadsdirect.co.uk), for example, looks like this:

All you need to remember, after identifying the types of plug or socket you have, is that plugs are referred to as male and sockets as female. Both types are available on the end of cables.



And now let's have a quick look  
at things you can plug into a  
USB port:  
from the practical to the wacky!





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## USB LED Fan, HuiHeng Mini LED Clock Fan with Flexible Gooseneck, Personal Silent Laptop Fan USB Powered for Home Office

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Colour	Model a
Electric fan design	Wearable Fan
Power Source	Usb Powered
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Colour	Usb Cup Warmer - Blue
Material	PC, PU, Metal
Brand	FORNORM
Voltage	5 Volts



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2

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3

£29.95

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Colour Name: **Multi**



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Remote control

USB interface

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2 VIDEOS



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Brand: PQI



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- Designed for Window 7, 8 & 10 Hello, fingerprint password secures your personal data without the need to remember complex password. (For the driver download and user guide, please browse the PQI website or scan the QR code on the package.)
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- Every family member can enjoy fingerprint recognition and encryption, My Lockey enables setup up to 10 fingerprint IDs.

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**Compact paper shredder/letter opener**



**WiebeTech Programmable Mouse Jiggler**





**Tougs USB Type-C endoscopic camera**



**Mini USB Washing Machine**



**USB thermoelectric cooler and warmer**

**THE END**