

# USB Connector Types Guide

*In today's world, USB connector types are everywhere—powering, charging, and transferring data across the devices we rely on every day. But with so many different types of USB cables like USB-A, USB-C, and USB-B, choosing the right one can be confusing. Here at [KE Kable](#), we specialize in designing and manufacturing high-performance USB cables and have crafted this detailed guide to help you navigate the complex world of USB cable types. Our goal is to make it easier for you to understand the distinctions and select the right cable for your application*

## What does USB stand for?

USB stands for Universal Serial Bus. It is a standard for connecting peripherals to computers or smart phones, allowing for data transfer video display and power delivery.

There are several types of USB connectors, including USB-A, USB-B, USB-C, Micro-USB, and Mini-USB. Each type has its unique design and use cases, with USB-C being the latest and most versatile.

## Difference between USB Male & USB Female?

When it comes to USB connections, understanding the difference between male and female connectors is essential. This section will explain how each type functions, helping you choose the right connectors for your devices and ensuring seamless data transfer and power delivery.

### USB Male Connectors:

- Found on the ends of USB cables and dongles.
- Plugs into USB ports on devices.

### USB Female Ports:

- Located on devices like computers, peripherals, and USB extension cables.
- Designed to accept male USB connectors.

In essence, male connectors fit into female USB ports, enabling connections and data transfer between devices.

## Identify USB Versions

The USB standard has evolved significantly since its introduction, offering faster data transfer speeds, greater power delivery, and broader compatibility across devices. This section breaks down the major USB versions, from USB 1.0 to USB4, helping you identify which USB type matches your performance needs and connector compatibility.

USB Version	Max Data Transfer Rate	Connector Types	Introduction Year
USB 1.0/1.1	12 Mbps	USB-A, USB-B	1996/1998
USB 2.0	480 Mbps	USB-A, USB-B, Mini-USB B, Micro-USB B	2000
USB 3.0	5 Gbps	USB-A, USB-B, Micro-USB B	2008
USB 3.1	10 Gbps	USB-A, USB-B, USB-C	2013
USB 3.2	20 Gbps	USB-C	2017
USB4 v1	40 Gbps	USB-C	2019
USB4 v2	80 Gbps	USB-C	2022

# USB-C

USB-C, or USB Type-C, is the latest advancement in USB technology. Its reversible connector design offers convenience and works seamlessly with both host PCs and peripherals. USB-C supports standards from USB 2.0 to USB 4.0, delivering data transfer speeds up to 80 Gbps and power delivery up to 240W. These features make it ideal for fast data transfer, charging, and video outputs like USB-C to HDMI.




## USB Type-C

USB Type-C Connector Variations		
		
USB 2.0 Type-C	USB 3.x Type-C	USB4 Type-C
USB Specifications		
USB Generation	USB 2.0, USB 3.x, USB4	
Data Transfer Rate	480 Mbps (USB 2.0) 5Gbps (USB 3.2 Gen 1 / USB 3.1 Gen 1 / USB 3.0) 10 Gbps (USB 3.2 Gen 2 / USB 3.1 Gen 2) 20 Gbps (USB 3.2 Gen 2x2) 40 Gbps (USB4) 80Gbps (USB4 v2)	
Power Delivery	USB PD 3.1 up to 240W (EPR) with various PD profile support	
Typical Devices	Smartphones, laptops, external SSD, high-speed peripherals	




# USB-A

USB Type A is the cornerstone of USB connectors, widely recognized for its flat, rectangular shape. This connector is predominantly used on host devices like computers, gaming consoles, and TVs, as well as on USB hubs. It's designed for a unidirectional flow, usually from the host to the peripheral device, which means it provides power along with data transfer. The USB-A connector is versatile, supporting various USB standards, including USB 2.0, USB 3.0, and USB 3.2, with increasing speeds and efficiency.

USB Type-A 2.0

USB-A 2.0 Connector Variations		
		
USB 2.0 Type-A Male	USB 2.0 Type-A Female	USB 2.0 Type-A Panel Mount
USB Specifications		
USB Generation	USB 2.0	
Data Transfer Rate	up to 480 Mbps	
Power Delivery	5V @ 0.5 A (Standard), 1.5 A (BC 1.2), 3 A (Quick Charging)	
Typical Devices	Mouse, keyboard, audio interface, control unit	

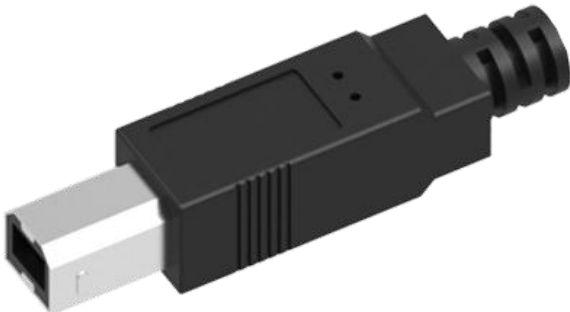


USB Type-A 3.0 & 3.1

USB3 USB-A Connector Variations		
		
USB 3.0 Type-A Male	USB 3.0 Type-A Female	USB 3.0 Type-A Panel Mount
USB Specifications		
USB Generation	USB 3.0, 3.1	
Data Transfer Rate	5 Gbps (USB 3.0) and 10 Gbps (USB 3.1)	
Power Delivery	5V @ 0.9 A (Standard), 3A (Quick Charge)	
Typical Devices	4K webcam, Machine Vision Camera, 3D Sensor	




# USB-B

USB Type B connectors, essential for peripherals like printers and PTZ cameras, are designed with a unique shape to prevent incorrect connections. This design safeguards your devices by making it impossible to connect two host devices together, a scenario that could lead to hardware damage. While the tech world is gradually moving towards newer, smaller connectors, USB Type B's distinct shape and its role in ensuring the right device connections keep it relevant in many setups.

## USB Type-B 2.0

USB 2.0 USB-B Connector Variations		
		
USB 2.0 Type-B Male	USB 2.0 Type-B Female	USB 2.0 Type-B Panel Mount
USB Specifications		
USB Generation	USB 2.0	
Data Transfer Rate	up to 480 Mbps	
Power Delivery	5V @ 0.5 A	
Typical Devices	USB printers	

## USB Type-B 3.0

USB 3.0 USB-B Connector Variations		
		
USB 3.0 Type-B Male	USB 3.0 Type-B Panel Mount	USB 3.0 Type-B Locking
USB Specifications		
USB Generation	USB 3.0	
Data Transfer Rate	5 Gbps max.	
Power Delivery	5V @ 0.9A	



USB 3.0 USB-B Connector Variations	
Typical Devices	PTZ Cameras, high-end printers

## USB Mini

Mini USB connectors, smaller than the standard USB B, are designed for peripherals needing a compact connection. With 5 pins, including an ID pin, they support USB On-The-Go (OTG), allowing devices like mobile phones to act as USB hosts. Originally popular in early mobile phone, USB Mini B has shifted towards use in digital cameras as devices have trended towards even smaller connectors like micro USB. Today, Mini B serves as a legacy connector, mainly found in specific devices and no longer common for new products.

USB Mini A connectors, though less common than Mini B, also provided a compact solution for mobile devices and peripherals. Mini A connectors were used in some early mobile devices and portable gadgets. However, like Mini B, the trend towards smaller and more efficient connectors like micro USB and USB-C has made Mini A connectors less prevalent in modern devices.



### USB Mini 2.0

USB 2.0 Mini Connector Variations		
		
USB 2.0 Mini-A Male	USB 2.0 Mini-B Male	USB 2.0 Mini-B Female
USB Specifications		
USB Generation	USB 2.0	
Data Transfer Rate	480 Mbps max	
Power Delivery	5V @ 0.5 A	
Typical Devices	Digital cameras and portable devices for charging and data transfer	

## USB Micro

The Micro USB B connector, evolved from Mini USB, has played a pivotal role in enabling slimmer designs for mobile devices while ensuring robust connectivity to computers and hubs across various USB standards. It supports USB On-The-Go (OTG), which allows devices to interface with external peripherals such as drives and cameras, requiring specific cable wiring for OTG functionality. Known for its versatility in charging and data transfer, the Micro USB B connector is widely adopted as a critical interface in numerous portable electronics, seamlessly supporting a range of USB specifications for broad compatibility.

### Micro USB 2.0

USB 2.0 Micro-B Connector Variations	
	
USB 2.0 Micro-A	USB 2.0 Micro-B
USB Specifications	
USB Generation	USB 2.0
Data Transfer Rate	480 Mbps max
Power Delivery	5V @ 0.5A
Typical Devices	Charging and data transfer in smartphones, tablets, and other portable devices

Micro USB 3.0

USB 3.0 Micro-B Connector Variations		
		
USB 3.0 Micro-B Male	USB 3.0 Micro-B Female	USB 3.0 Micro-B Male Locking
USB Specifications		
USB Generation	USB 3.0	
Data Transfer Rate	5 Gbps max	
Power Delivery	5V @ 0.9 A	
Typical Devices	External SSD, USB3 Vision Camera	