

## The USB (Universal Serial Bus) Solution

A new computer finally arrives. It has lightning speed, the latest operating system, and a RWCD. Then you notice the manufacturer has shipped the computer without the standard DB-9 serial ports. If a serial port is being used on the computer this is replacing, what can be done? There is an easy solution to this, the USB to Serial converter.

Most computers today will ship with at least two USB ports. For a lot of individuals, this will not be enough to handle all the devices that need to connect to the computer. For example a USB mouse and keyboard are common, and when a printer and Personal Data Assistant is added it can be seen that more ports are needed.

The easiest solution to this is to add a USB hub. Most hubs will support the addition of four or more peripheral devices. Hubs can be added to extend the distance a USB device can be away from the computer, along with adding ports. The maximum distance a standard USB cable should be is 5 meters. With the addition of USB hubs the distance can be extended to 30 meters using a 5-meter cable between each hub.

Windows operating systems that support USB (Windows 98 SE, ME, 2000 and XP) will automatically detect the USB peripheral device when connected to the USB port. The setup wizard steps through the installation asking for the drivers and setting up the Com Port when installing USB to serial converters. After a USB device is configured in an operating system the device can be connected and disconnected at any time.

USB also provides a solution for parallel printers that are currently connected to parallel ports and do not have USB support. These are designed to work exclusively with printers. Standard USB to parallel converters are also available.

A lot of development is underway to allow an easy transition to USB by many companies. One example would be USB devices that are now available allowing Windows NT 4.0 operating systems, which normally will not support USB, access to USB ports. The purpose of this is to facilitate the addition of several serial ports or a printer port to the computer with a single USB connection. A single USB device may contain four serial ports or two serial ports and a parallel printer port. For most users this may be easier than the traditional methods of adding ports to a computer.

Most USB to serial converters will load in the operating system and show up in the device manager as a new Com Port. Most install on the next available Com Port in the operating system. At this time the USB to serial converters include a RS-232 or RS-422/485 interface. Converters can also include optical isolation for use in harsh environments.

To incorporate USB with currently used software is a workable solution for most users. Only programs designed to communicate to an I/O address and IRQ are the exception. Most programs that have been written and use the normal Windows API call will be able to access a USB port. RS-232 converters can include full hand shaking capabilities if supported by the software being run on the computer. Hyper Terminal is an example of a program found commonly on Windows operating systems which will support any USB or serial COM Port that loads on COM 1-4. Other software programs will commonly support most USB COM Port numbers that load above COM 4.

The introduction of USB may seem a little confusing but with the correct support from manufacturers the users will find it a useful and easy transition.

For more information on USB, we recommend [USB Complete](#), [USB Hardware and Software](#), and [USB Explained](#).