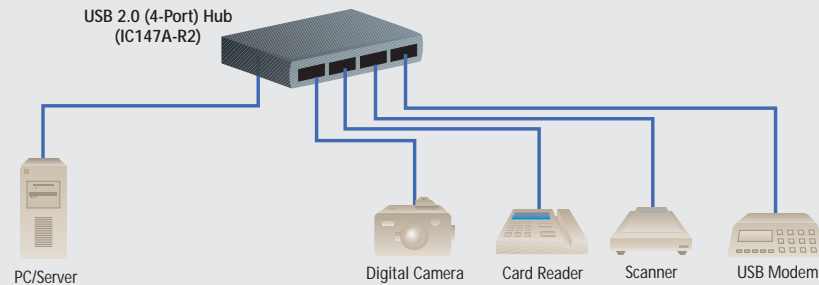## USB 2.0 Hubs

The easy way to connect four to seven peripherals to your PC.

FEATURES

- Simple USB Type A and mini Type B connectors provide a universal interface for peripherals.
- Cascade hubs for a total of as many as 127 USB ports.
- Transfer data via USB Version 2.0 at speeds up to 480 Mbps.
- Backward compatible with USB 1.1.
- Send data via USB Version 1.1 at speeds up to 1.5 or 12 Mbps.

The USB 2.0 (4-Port) Hub gives your PC one USB input and four USB outputs, so you can connect up to four USB devices to your PC.

USB 2.0 (4-Port) Hub
(IC147A-R2)

PC/Server   Digital Camera   Card Reader   Scanner   USB Modem

OVERVIEW

Attaching peripherals to your PCs has never been easier! A single USB 2.0 (4-Port) Hub (IC147A-R2 or IC147AE-R2) allows you to connect up to four Universal Serial Bus (USB) printers, scanners, and other devices to a single PC. The hub has one USB mini Type B upstream and four USB Type A downstream ports. A USB 2.0 Hub, 7-Port (IC148A) lets you attach up to seven USB devices to a PC. This hub has one USB mini Type B female connector and seven USB Type A female connectors.

Connect just 4 or up to 127 peripherals!

Although the most common application gives your PC access to just four or seven peripherals using one hub, you can also cascade hubs to connect more peripherals. A typical cascaded application could provide a single PC with access to any number of peripherals from one to 127.

The first hub in the cascade links to your PC via its upstream USB mini Type B port and the included USB cable. One of the downstream Type A ports on this hub attaches to the upstream mini Type B port on the second hub via the included USB cable. The remaining three Type A ports on the second hub connect to peripherals or additional hubs via USB cable (ordered separately—see the Ordering Information on the next page).

Cascading hubs continues in this way up to a maximum of five tiers that provide a total of 127 attached peripherals.

Whether or not you are cascading hubs, you don't even have to open the PC case to install the hub. It's plug-and-play.

The hub complies with the USB 2.0 speeds.

Data-transfer speeds vary, depending on which version of USB your equipment is using. USB Version 2.0 equipment specifies a high-speed (480 Mbps) interface. But, to achieve this high speed, the controller card in your PC must be USB 2.0 compliant. In other words, you must have a USB 2.0 compliant PC.

The hub works with your older USB equipment.

The hub is also backward-compatible with USB 1.1 devices. (If you're using USB 1.1 devices, the maximum speed you can achieve is 1.5 or 12 Mbps.)

Technically Speaking

USB 1.1, introduced in 1995, is the original USB standard. It has two data rates: 12 Mbps for devices such as disk drives that need high-speed throughput, and 1.5 Mbps for devices such as joysticks that need much lower bandwidth.

In 2002, a newer specification, USB 2.0, High-Speed USB 2.0, gained wide acceptance in the industry. This latest version is both forward- and backward-compatible with USB 1.1. It increases the speed of the peripheral to PC connection from 12 Mbps to 480 Mbps—that's 40 times faster than USB 1.1!

This increase in bandwidth lets you use external peripherals that require high throughput, such as CD/DVD burners, scanners, digital cameras, video equipment, and more. USB 2.0 supports demanding applications where multiple high-speed devices run simultaneously, such as Web publishing. USB 2.0 also supports Windows XP through a Windows update.

An even newer USB standard, USB On-The-Go, is also now being deployed. USB OTG enables devices other than a PC to act as a host. It enables portable equipment—such as PDAs, cell phones, digital cameras, and digital music players—to connect to each other without the need for a PC host.

USB 2.0 specifies three types of connectors: the A connector, the B connector, and the mini B connector. A fourth type of connector, the mini A (used for smaller peripherals such as mobile phones), was developed as part of the USB OTG specification.

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IC147A-R2

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• It's 9 p. m. and you need help, but your vendor's tech support line is closed.

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TECH SPECS

Compliance — FCC Class B, Part 15; CE
Distance (Maximum) — 16.7 ft. (5.1 m)
System Requirements — Compatible operating systems:
  Windows® 98/Me/XP/2000; Macintosh® OS 8.6 or higher;
  USB 2.0 Host Controller must be installed on the computer
Output Voltage (per port) — +5 VDC
Output Current (per port) — 500 mA
Connectors — IC147A-R2, IC147AE-R2: (4) USB Type A female,
    (1) USB mini Type B female;
  IC148A: (7) USB Type A female, (1) USB mini Type B female
Indicators — IC147A-R2, IC147AE-R2: (5) LEDs: (1) Power, (4) Ports;
  IC148A: (8) LEDs: (7) green for self-power for each port,
    (1) red for power supply
Temperature Tolerance — Operating: 41 to 104°F (5 to 40°C);
  Storage: -4 to +140°F (-20 to +60°C)
Humidity Tolerance — Up to 80%, noncondensing
Enclosure — Plastic
Power — External power supply; IC147A-R2, IC148A:
    Input: 100 –120 VAC, 0.4 amps, 47–63 Hz;
    Output: 5 VDC, 2.6 amps;
  IC147AE-R2: Input: 100–240 VAC, 1 amp, 47–63 Hz;
    Output: 5 VDC
Size — IC147A-R2, IC147AE-R2: 0.5"H x1.4"W x 3.3"D (1.3 x 3.6 x 8.4 cm);
  IC148A: 0.6"H x 4.5"W x 2.4"D (1.5 x11.4 x 6.1 cm)
Weight — 0.2 lb. (0.1 kg)

WHAT'S INCLUDED

✦ (1) USB 2.0 (4-Port) Hub or (1) USB 2.0 Hub, 7-Port
✦ (1) 3-ft. (0.9-m) USB mini Type B male to
  USB Type A male cable
✦ (1) Power adapter
✦ User's manual

Item	Code
USB 2.0 (4-Port) Hub	
100–120-VAC	**IC147A-R2**
100–240-VAC	**IC147AE-R2**
USB 2.0 Hub, 7-Port	**IC148A**

To link the hub to peripherals, you'll also need additional cables…

USB Version 2.0 Cable, Mini Type B male–Type A male, 6-ft. (1.8-m)	**USB05-0006**

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