

*USB
Ethernet Adapter*
User Manual
F5U011



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Note 1: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note 2: Shielded interface cables must be used in order to comply with the emissions limits.

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USB Ethernet Adapter

1. INTRODUCTION

Thank you for purchasing Belkin Components' USB Ethernet Adapter. Now, you can easily connect any USB-equipped notebook, portable, or desktop computer to an Ethernet local area network. The product consists of a small plastic enclosure incorporating both USB and 10Base-T (RJ45 TP) Ethernet ports, plus the associated software.

Windows® applications that communicate via an Ethernet card will also work with the Belkin USB Ethernet Adapter. It offers a Plug-and-Play solution for network connectivity, eliminating the need to insert cards or shut down the system at connection time.

Our adapter conforms to both USB and Ethernet specifications, and functions as a full-speed USB device. In addition, the hardware includes an Ethernet controller, appropriate memory buffers, and on-board non-volatile memory for network configuration. The unit requires no external power supply; it is powered directly by the Universal Serial Bus.

The provided software supports the Windows® 98 operating system environments. The CATC software drivers provide a bridge between the existing network layer protocols and the USB protocol stack, hiding the details of the USB interface from the application programs. This manual explains how to connect and use the Belkin USB Ethernet Adapter hardware and software with your PC and network environment.

2. BELKIN USB ETHERNET ADAPTER

2.1 Supplied Components

The following components are included:

- Belkin USB Ethernet Adapter device (Specifications are outlined in Section 7.)
- Belkin USB cable, 6'
- Software installation diskette
- Belkin USB Ethernet Adapter User Manual (this manual)

2.2 System Setup

Our adapter works with any computer that has a standard USB port. The USB line powers the adapter directly; an additional power supply is not required. The USB cable is provided; you provide the network cable.

Caution: If you choose to use a USB hub, the hub must be externally powered. You cannot use a bus-powered hub.

In order to use the adapter, you must install drivers in the USB host PC, as described in the following sections. In addition, you need to configure the network parameters.

2.3 In addition...

You will need a network (Ethernet) cable, and your original Windows® 98 CD.

You should be familiar with using Microsoft Windows® folders, dialogs, and forms. If you need to review this information, consult your Microsoft Windows® documentation.

You should be familiar with your required network configuration procedures and how to specify valid IP addresses and Subnet Masks.

2.4 Supplied Software

The software installation diskette contains all of the installation and utility files required for the USB Ethernet Adapter.

2.5 Cable Connections

Figure 2-1 illustrates the provided USB cable connection from the PC (rectangular Series A connector) to the adapter (square Series B connector), and a standard 10Base-T Ethernet cable connection from the RJ45 connector on the adapter to an Ethernet port. Make connections as illustrated below, when requested in the installation procedure.

Figure 2-1. Basic PC-to-Ethernet Port Connections

This document makes several references to an Ethernet port, used to connect the adapter to an Ethernet environment. Such a port might be an Ethernet hub, network wall socket, peripheral device, etc.

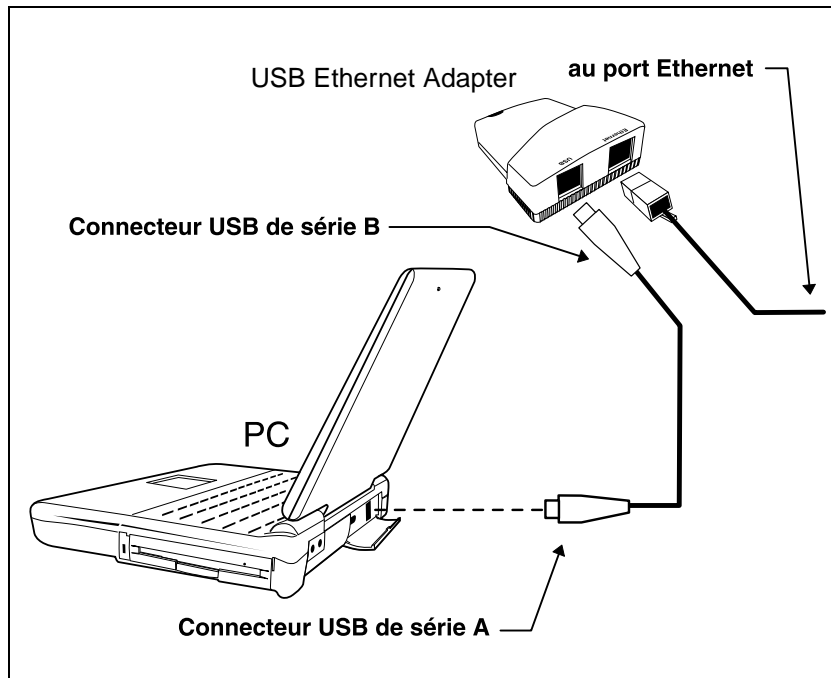


Figure 2-1 : Connexions de base PC-port Ethernet

Figures 2-2, 2-3, and 2-4 illustrate sample applications for the Belkin USB Ethernet Adapter.

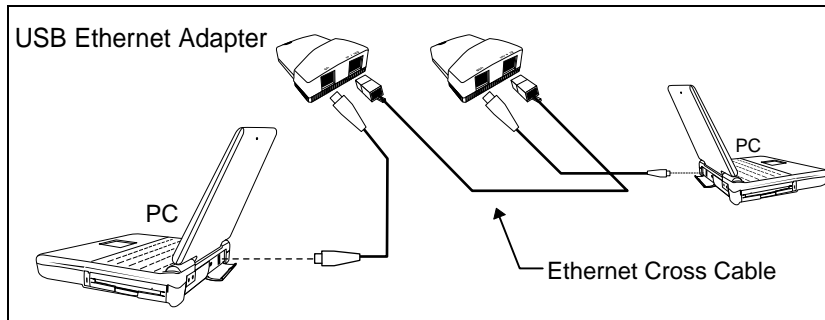


Figure 2-2. PC-to-PC Direct Connections

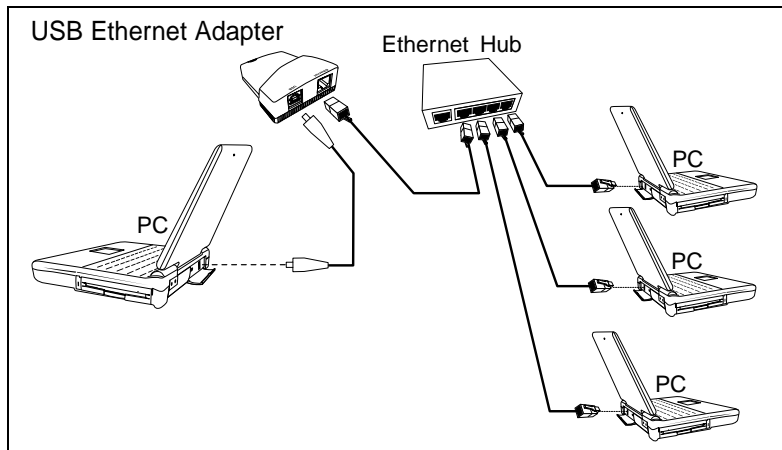


Figure 2-3. PC-to-Ethernet Network Connections

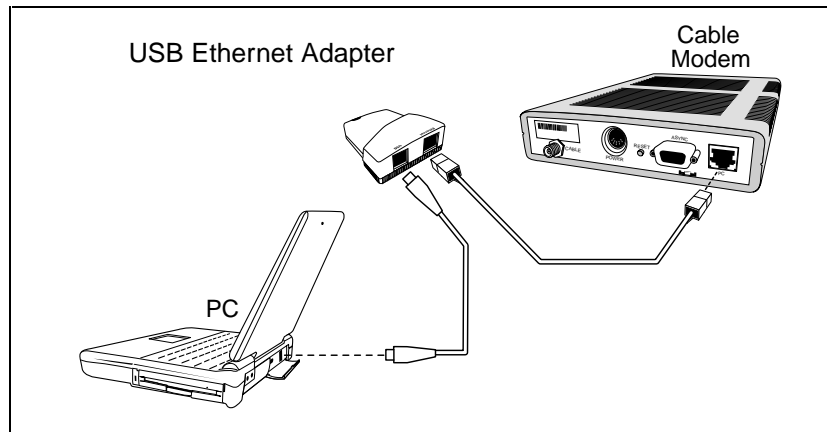


Figure 2-4. PC-to-Cable Modem Connections

3. INSTALLATION (SETUP.EXE)

This section outlines the quick and easy, automatic installation procedure for the USB Ethernet Adapter drivers.

Note: The installation program automatically detects if your computer is properly configured and initialized for USB installation. If the installation program aborts, see the Troubleshooting section. You may need to upgrade your computer. Make connections when requested in the installation procedure, illustrated in Figure 2-1.

Your particular environment may require drive letters or folder names different than those mentioned here. You may be asked to specify file locations on the Windows® CD, or on the software installation diskette. For example:

- Windows® might look on the A:\ drive for a file that is on the Windows® 98 CD. In this case, you would specify a search such as D:\WIN98\SETUP.

3.1 Automatic Installation For Windows® 98 System

The installation procedure assumes that this is a new driver installation on a Windows® system. The installation program automatically recognizes if your operating system is Windows® 98.

1. Close any Windows® applications that may be running on your computer.
2. Insert the software installation diskette in the appropriate drive.
3. Connect the USB cable to your computer. Do not connect the USB cable to the adapter.
4. Connect the network cable to the network port and to the Ethernet Adapter.
5. From the Windows® Taskbar, select Start / Run.
6. In the Run dialog, type A:\SETUP.
7. Click OK.

The system displays Setup and Welcome screens.

8. Click Next.
9. Read the on-screen messages. Make the connection as requested.
10. A New Hardware Found form appears with the message: USB Ethernet Adapter. The system builds the driver information database and completes the installation. During this process, you may be asked to load the Microsoft Windows® 98 CD, and to reload the software installation diskette, as necessary. When complying with these instructions, you can safely close any auto-display window that appears following a CD insertion.
11. Click Finish.
12. Read, then close, the Notepad message confirming the installation. It describes the requirements for configuring the appropriate Ethernet connections and specifying the TCP/IP (or other) protocol parameters. Turn to Section 4 in this manual for additional information.

4. SPECIFYING THE TCP/IP PARAMETERS

This configuration procedure is identical to that of other network interfaces, for example, an Ethernet card. The following sections describe two basic setups using the TCP/IP protocol.

A. When the Belkin USB Ethernet Adapter is the only installed network interface.

Select My Computer / Control Panel / Network.

The Network Configuration form appears. In this form, the USB Ethernet Adapter icon should be visible.

Additionally, a new protocol icon with the title TCP/IP should be visible. To specify the TCP/IP parameters, use the procedures described in section C below.

B. When another network interface is already installed in the system.

Select My Computer / Control Panel / Network.

The Network Configuration form appears. In this form, the USB Ethernet Adapter icon should be visible.

If the TCP/IP protocol was previously installed, a network connection icon with the title TCP/IP -> USB Ethernet Adapter should also be visible. To specify the TCP/IP parameters, use the procedures described in sections C below.

C. To specify the TCP/IP parameters for New Networks:

1. Select TCP/IP, (or TCP/IP -> USB Ethernet Adapter, if more than one network interface is installed).
2. Click Properties.
3. Select *Specify an IP Address*.

Note: If you are connecting to an existing network, please see your system administrator for this information. If you are setting up a new network, we recommend the following:

Suggested IP Address = 194 . 168 . 0 . "X"

(where "X" is greater than 0 and less than 255).

Suggested Subnet Mask = 255 . 255 . 255 . 0

4. Enter a valid *IP Address* and *Subnet Mask*.
5. Click OK.
6. Select the *Identification* tab and verify / modify the computer name and workgroup.
7. Click OK.

You will see the option to restart your computer if you made changes.

8. Remove any diskette that might be in the floppy drive.
9. Click **Yes** to restart the computer.

5. UNINSTALLING PROCEDURES

If you wish to remove the Belkin USB Ethernet Adapter component from your computer, do the following:

1. Disconnect the USB cable from the adapter.
2. Select My Computer / Control Panel / Add/Remove Programs.
3. In the Install/Uninstall tab, select USB Ethernet Adapter.
4. Click Add/Remove.
5. Click Yes.

The software program will be automatically removed by Windows®.

6. TROUBLESHOOTING

If you encounter difficulties when installing or using the Belkin USB Ethernet Adapter, use the following table to troubleshoot the problem.

PROBLEM	SUGGESTED SOLUTION / COMMENTS
You cannot find the other computer (on the Ethernet side of the network connection).	<i>Use the Windows® Find Computer option.</i>
When reconnecting the USB device, the system seems to take a long time.	<i>Be patient when reconnecting a USB device. Wait at least 20 seconds between disconnecting and connecting devices.</i>
The system installation appears to be slow.	<i>Be patient when Windows® is installing the Adapter (or any other USB device). Plug and Play operations in Windows® can sometimes take up to 30 seconds or so between apparent activities.</i>
The Ethernet Adapter does not work when connected through a bus-powered USB hub.	<i>The Belkin USB Ethernet Adapter is a (USB) bus-powered product. Current versions are considered high power devices (that is, they consume more than 100 mA when in operating mode). Thus, they cannot be used downstream of bus-powered hubs, which deliver only 100 mA per port. The adapter will enumerate correctly, but the operating system will not allow it to come up to full power.</i>

You replaced the Ethernet Adapter with a new Ethernet Adapter and it does not work.

Each Belkin USB Ethernet Adapter has a unique encoded Ethernet identifier. Unplugging the adapter from the Windows® machine, and plugging a different adapter into the same port, will cause a problem in the protocol software. The original device should first be completely uninstalled.

The installation procedure produces the message: Hardware and software support for USB was not found.

The program detected that your computer is not configured for proper USB support. There are four main conditions to check:

- 1. You do not have a USB connection on the motherboard. The solution is to upgrade your motherboard or add a USB controller card.*
- 2. It is possible that you do have the proper OS, but there is no connection between the motherboard and the USB connectors on the bracket.*
- 3. It is possible that you do have the proper OS, but the controller on the motherboard is malfunctioning.*

The LED is off.

There are two main possibilities:

- 1. The host computer might be in standby mode, and not supplying full power to its devices.*
- 2. The Ethernet Adapter did not properly enumerate. Enumerate is a USB term meaning the system has identified and configured the device and given it a unique address.*

The LED is blinking.

The Ethernet port connection might be inoperable. Check the Ethernet connection. Replace the Ethernet cable.

You require additional information about adding or removing network drivers.

Consult the appropriate Windows® 98 documentation, or contact your System Administrator.

The system does not respond when connecting the Adapter (for example, the hourglass cursor remains on the screen).

Remove and reinstall the USB support component of the operating system.

7. SPECIFICATIONS

Package

Dimensions: 9.2 (6.7 (2.7 cm (3.6 (2.6 (1.1 in.)

Connector (Ethernet): RJ45

Connector (USB): Series B

Weight: 70 g (2.5 oz)

Power Requirements

5 V, 200 mA (powered via the USB connection)

Data Transfer Rate

Can exceed 6 Mbits/s (depending on the computer, operating system, and communication protocol)

Environmental Conditions

Operating Range: 0 to 55 °C (32 to 131 °F)

Storage Range: -20 to 80 °C (-4 to 176 °F)

Humidity: 10 to 90%, non-condensing

LED

Flashes when the USB connection is operational.

Remains steady on when both the USB and Ethernet connections are active.

Memory Size

32K (8-bit SRAM for IN and OUT data buffers

1024-bit non-volatile configuration storage

Certification

FCC, Class B

CE Mark

Software Compatibility

The Belkin Ethernet Adapter works with any standard Ethernet protocol. The supplied drivers for Microsoft Windows® 98 and Windows® 95 (OSR2.1) support the following protocols: TCP, IPX, and NetBEUI.



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