# LINKSYS BEFCMU10 ver. 3 Cable Modem User's Manual

02/26/2003 Rev.02

#### Safety Notes

#### **For Installation**

- Use only the type of power source indicated on the marking labels.
- Use only the power adapter supplied with the product.
- Do not overload wall outlet or extension cords as this may increase the risk of electric shock or file. If the power cord is frayed, replace it with a new one.
- Proper ventilation is necessary to prevent the product overheating. Do not block or cover the slots and openings on the device, which are intended for ventilation and proper operation. It is recommended to mount the product with a stack.
- Do not place the product near any source of heat or expose it to direct sunshine.
- Do not expose the product to moisture. Never spill any liquid on the product.
- Do not attempt to connect with any computer accessory or electronic product without instructions from qualified service personnel. This may result in risk of electronic shock or file.
- Do not place this product on an unstable stand or table.

#### For Using

- Power off and unplug this product from the wall outlet when it is not in use or before cleaning. Pay attention to the temperature of the power adapter. The temperature might be high.
- After powering off the product, power on the product at least 15 seconds later.
- Do not block the ventilating openings of this product.
- When the product is expected to be not in use for a period of time, unplug the power cord of the product to prevent it from the damage of storm or sudden increases in rating.

#### **For Service**

Do not attempt to disassemble or open covers of this unit by yourself. Nor should you attempt to service the product yourself, which may void the user's authority to operate it. Contact

qualified service personnel under the following conditions:

- If the power cord or plug is damaged or frayed.
- If liquid has been spilled into the product.
- If the product has been exposed to rain or water.
- If the product does not operate normally when the operating instructions are followed.
- If the product has been dropped or the cabinet has been damaged.
- If the product exhibits a distinct change in performance.

#### Warning

- This equipment must be installed and operated in accordance with provided instructions and a minimum 20 cm spacing must be provided between computer mounted antenna and person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.
- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

#### Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

#### NOTE

- This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  - Reorient or relocate the receiving antenna.
  - Increase the separation between the equipment and receiver.
  - -Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
  - -Consult the dealer or an experienced radio/TV technician for help.

### **Chapter 1: Overview**

### **1.1 Physical Outlook**

#### 1.1-1 Front Panel

The following illustration shows the front panel of the *LINKSYS BEFCMU10 VER. 3 Cable Modem*.

0	0	•	•	0
Power	Cable	Activity	Ethernet	USB

#### LED Indicators

The LEDs on the front panel are described in the table below (from left to right):

LED	Color	Status	Description		
POWER	Green	Off	Power off.		
		On	Power on.		
Cabla	Graan	Off	Power off or the initial test is over.		
Caule	Green	Blinking	To indicate cable modem is on line.		
Activity	Green	Off	Power off or the initial test is over.		
		Blinking	To indicate transmit RF US traffic.		
Ethernet Gree		Off	Power off or the initial test is over.		
	Green	Blinking	To indicate Ethernet data traffic.		
		On	Ethernet line is in use.		
USB	Green	Off	Power off or the initial test is over.		
		Blinking	To indicate USB data traffic.		
		On	USB interface is in use.		

#### 1.1-2 Rear Panel



12 VDC:	12V Power connector
RESET :	Reset-to-Default push button
LAN:	10/100BaseTX RJ-45 connectors
USB :	USB Connector

CABLE :

F-Connector

### **Chapter 2: Installation**

### **2.1 Connecting the Cable Modem to Your Computer**

#### 2.1-1 Installation Procedure for Ethernet Interface

Follow the steps below for proper installation:

- 1. Make sure your computer meets the system requirements.
- 2. Connect a coaxial cable (supplied by the local Cable Television Company) to the CABLE connector on the modem.
- 3. Plug the power adapter into the **POWER** connector of the modem.
- 4. Plug the other end of the power adapter into a power outlet.
- 5. Check CABLE LED. If it is solid ON, the Cable Modem is on-line now. If it is not, contact your service provider.
- 5. Connect the RJ-45 Ethernet cable to one of the **ETHERNET** connector on the modem, connect the other end with the 10/100BaseT Ethernet port on your computer.
- 6. When the connection is established, the client PCs can access the Internet or remote network through the LINKSYS BEFCMU10 ver. 3.

#### Note: You can go to Chapter 3.3 "Setting TCP/IP on client PC" now

Below shows the connection status among the cable modem and your computer.



#### 2.1-2 Installation Procedure for USB Interface

Follow the steps below for proper installation:

- 1. Make sure your computer meets the system requirements.
- 2. Connect a coaxial cable (supplied by the local Cable Television Company) to the CABLE connector on the modem.
- 3. Plug the power adapter into the **POWER** connector of the modem.
- 4. Plug the other end of the power adapter into a power outlet.
  - 5. Check CABLE LED. If it is solid ON, the Cable Modem is on-line now. If it is not, contact your service provider.
  - 6. Connect the USB cable to the **USB** connector on the modem.

Note: You can go to Chapter 3.1 "USB Driver installation" now

7. When the connection is established, the client PCs can access the Internet or remote network through the LINKSYS BEFCMU10 ver. 3.

#### Note: You can go to Chapter 3.3 "Setting TCP/IP on client PC" now

Below shows the connection status among the cable modem and your computer.



### **Chapter 3: Software Installation and Configuration**

### **3.1 USB Driver Installation**

#### 3.1-1 For Windows 98/Me

1. Wait for the cable modem is running in the operational state (registration O.K.). Plug the

Add New Hardware Wiz	zard
	This wizard searches for new drivers for:
	USB Composite Device
	A device driver is a software program that makes a hardware device work.
🗞 🌫	
	< Back Next > Cancel

USB cable into your PC USB port. You will see the next page. Click the "Next" button.

2. Select "Search for the best drivers for your device" and click the "Next" button.

What do you want Windows to do?
<ul> <li>Search for the best driver for your device. (Recommended).</li> <li>Display a list of all the drivers in a specific location, so you can select the driver you want.</li> </ul>
< <u>B</u> ack Next> Cancel

3. Check "Specify a location" and browse CD-ROM:\Win9x or WinME. Click the "Next" button.

	windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.			
	Eloppy disk drives			
	CD-ROM drive			
	☐ Microsoft Windows Update			
	Specify a location:			
	D:\Driver\VGACard\W9x			
$\sim$	Browse			

4. Select "The updated driver..." and click the "Next" button.

	Windows has found an updated driver for this device, and also some other drivers that should work with this device.
Les K	What do you want to install?
<sup>જ</sup> ે_જે	USB Cable Modem Adapter
	C Qne of the other drivers.

5. Click the "Next" button.

Windows driver file search for the device:
USB Cable Modern Adapter
Windows is now ready to install the best driver for this device. Click Back to select a different driver, or click Next to continue. Location of driver:
< Back Next > Cancel

6. Installation has been completed here. Click the "Finish" button.

Add New Hardware Wi	zard
	USB Cable Modern Adapter
	Windows has finished installing the software that your new hardware device requires.
8	
	Rack Finish Canad

7. The system will ask you to restart your computer. Click "Yes" to complete the installation.

System S	ettings Change
?	To finish setting up your new hardware, you must restart your computer. Do you want to restart your computer now?
	Yes <u>N</u> o

#### 3.1-2 For Windows 2000/XP

1. Wait for the cable modem is running in the operational state (registration O.K.). Plug the USB cable into your PC USB port.

Found Ne	ew Hardware			
-	USB Device			
Installing	1			

2. You will see the next page. Click the "Next" button.

unu new naruware wizaru	
	Welcome to the Found New Hardware Wizard
	This wizard helps you install a device driver for a hardware device.
	To continue, click Next.

3. Select "Search for a suitable driver for my device" and click the "Next" button.



4. Insert the driver CD into CD-ROM. Select "CD-ROM drive" and clicks the "Next" button.

Found New Hardware Wizard
Locate Driver Files Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
USB Cable Modern Adapter
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< <u>B</u> ack <u>N</u> ext > Cancel

5. Click the "Next" button.

Found New Hardware Wizard	
Driver Files Search Results The wizard hasfinished searching for dri	iver files for your hardware device.
The wizard found a driver for the follow	ving device:
USB Cable Modern Adapter	
Windows found a driver for this device	. To install the driver Windows found, click Next.
d: \w2k\askndis.inf	
The wizard also found other drivers th these drivers or install one of these dri Next.	at are suitable for this device. To view a list of ivers, select the following check box, and then click
Specify a location	
	< <u>B</u> ack <u>N</u> ext > Cancel

6. Installation has been completed here. Click the "Finish" button.

Found New Hardware Wizard	
	Completing the Found New Hardware Wizard
	USB Cable Modern Adapter
A Hand	Windows has finished installing the software for this device.
	To close this wizard, click Finish.
	<back cancel<="" finish="" th=""></back>

### 3.2 Uninstall USB Driver

#### 3.2-1 For Windows 98/ME

- 1. Click "Start" button on your computer's taskbar, point to "Settings", and then click "Control Panel".
- 2. Select Add/Remove Programs.
- 3. On the Install/Uninstall tab, select USB Cable Modem Adapter from the list box. Click the Add/Remove button.
- 4. A confirmation dialog appears. Click Yes.
- 5. A dialog box appears to ask you unplug USB cable, please unplug the cable and click **OK**.

#### 3.2-2 For Windows 2000/XP

- 1 Click on the **Start** menu, point to **Settings** and click on **Control Panel**.
- 2 Select Add/Remove Programs.
- 3 Select USB Cable Modem Adapter from the list box.
- 4 Click the Change/Remove button.
- 5 Click **Yes** button.
- 6 A dialog box appears to ask you unplug USB cable, please unplug the cable and click **OK**.

### 3.3 Setting TCP/IP on Client PC

After you successfully complete the network interface card (Ethernet card) installation task, you need to make sure the TCP/IP communications protocol used by the Ethernet card is installed and correctly configured on your system.

#### 3.3-1 For Windows 98/Me

1. Click on the Start menu, point to Settings and click on Control Panel.



2. The Control Panel window will show up. Double-click the "Network" icon in the Control Panel window.



3. Windows will appear the Network dialog box. Click "Configuration" tab to bring it to the front, and on this tab, a list of installed network components appears.

**Option 1:** If you have **no** TCP/IP protocol, click **Add**.

**Option 2:** If you have TCP/IP protocol, go to Step 7.

Network
Configuration Identification Access Control
The full sector of a sector of the sector of
I he rollowing network components are installed:
Client for Microsoft Networks Microsoft Earning Logon
Microsoft Panily Logon     Image: Adapter     Image: Adapter
B USB Cable Modern Adapter
TCP/IP -> 3Com 10/100 Mini PCI Ethernet Adapter
Add Remove Properties
Primary Network Logon:
Microsoft Family Logon
File and Drint Charing
Description
OK Cancel

4. The Select Network Component Type dialog box will show up. Click "Protocol", and then click "Add".

ect Network Component Type	
Client	<u>A</u> dd
PAdapter Protocol	Cancel
Service	
Protocol is a 'language' a computer uses. Computers must use the same protocol to communicate.	

5. You will see the Select Network Protocol dialog box. Click "Microsoft" in the "Manufactures:" list, and then click "TCP/IP" in the "Network Protocols:" list. Click "OK".

Select Network Protoco	ol 🗙
Click the Networ installation disk t	rk Protocol that you want to install, then dick OK. If you have an for this device, dick Have Disk.
Manufacturers	Network Protocols
≆ Banyan ≇ IBM <mark>Y Microsoft</mark> ≆ Novell	ATM LAN Emulation Client(Microsoft) [5-11-1998]     Fast Infrared Protocol     IPX/SPX-compatible Protocol     Microsoft 32-bit DLC [5-11-1998]     Microsoft DLC     NetBEUI     TCP/IP     WAN support for ATM
	Have Disk
	OK Cancel

- 6. You will be directed back to the Network dialog box, and on the "Configuration" tab, the entry that includes TCP/IP -> followed by the Ethernet card installed in your computer will appear in the list of installed network components.
- Click TCP/IP -> followed by the Ethernet card installed in your computer, and then click "Properties". The TCP/IP Properties dialog box will appear.

Network
Configuration   Identification   Access Control
I he following network components are installed:
Client for Microsoft Networks
📇 Microsoft Family Logon
3Com 10/100 Mini PCI Ethernet Adapter
USB Cable Modern Adapter
TCP/IP -> 3Com 10/100 Mini PCI Ethernet Adapter
TCP/IP -> USB Cable Modem Adapter
Add R <u>e</u> move P <u>r</u> operties
Primary Network Logon:
Microsoft Family Logon
Eile and Print Sharing
- Description
TCP/IP is the protocol you use to connect to the Internet and
wide-area networks.
OK Cancel

8. In the TCP/IP Properties dialog box, please follow the directions below: Click "IP Address" tab to bring it to the front, and then click "Obtain an IP address automatically" on the tab.

TCP/IP Properties				?×		
Bindings	Adv	anced	N	etBIOS		
DNS Configuration	Gateway	WINS Confi	guration	IP Address		
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.						
	address au	omatically				
C Specify an IP	address:-					
IP Address:			• • • •			
S <u>u</u> bnet Masl	c 📃		•			
		OK		Cancel		

9. Click "Gateway" to bring it to the front. On this tab, leave the "New gateway:" blank. If there is the entry in the "Installed gateway:" list, click it and then click "Remove" to remove all installed gateways.

an inopende.	3			?
Bindings   Gateway	Advanced VVINS C	NetBIOS Configuration	DNS	Configuration IP Address
The first gate address orde are used.	way in the Instal r in the list will be	led Gatewayli e the order in v	st will be which the	the default. T se machines
New gatev	ay.			
		Ad	d	
a water				
- Installed ga	teways	_		
Installed ga	teways.	Berr	ove	
- Installed ga	teways.	Lem	аvе	
Installed ga	teways:	Bem	ove	
- Installed ga	teways:	Bem	ove	
- Installed ga	teways:	Bem	0./P	Capacity

10. Click "DNS Configuration" tabs to bring it to the front, and click "Disable DNS", then click "OK" to close the dialog box.

Gateway	VMNS	Configuration	IP Address
Bindings	Advanced	NetBIOS	DNS Configuration
Djsable [	ONS		
C Enable D	NS		
Host C		Domain	
DNS Serve	r Search Order		
			Add
		-	Semilore
Domain Su	fix Search Orde	(	<u></u>
			Add
		F	Remove

11. The Copying Files dialog box will pop up and the system will start copying files from Windows. At the first time you will be asked to insert the Windows 98 CD-ROM into the CD-ROM drive during the files copying, and follow the instructions when they show up, then click "OK". It will prompt another Copying Files dialog box. Please type the command line that Windows files located in the dialog box (For example, D:\win98). Click "OK" to continue the files copying.



12. Windows will appear the System Settings Change dialog box and ask you if you would like to restart your computer. Click "Yes".



#### 3.3-2 For Windows 2000/XP

1. Click "Start" button on your computer's taskbar, point to "Settings", and then click "Network and Dial-up Connections".



2. The Network and Dial-up Connections window will show up. Double-click "Local Area Connection" icon in the Network and Dial-up Connections window.



3. The Local Area Connection status window will show up. Click the "Properties" button.

Local Area Connection Status	<u>? ×</u>
General	
Connection	
Status	Connected
Duration:	00:01:40
Speed:	100.0 Mbps
Activity	-
Sent — Packets: 36	Received
Properties Disable	
	Close

4. Click "Internet Protocol (TCP/IP)" and then click "Properties".

ocal Area Connection	2 Properties		?>
General Sharing			
Connect using:			
USB Cable Mode	em Adapter		
		Configu	ure
Components checked	are used by this conne	ection:	
Install	<u>U</u> ninstall	Properties	
Description		·	
Transmission Control	Protocol/Internet Pro	tocol. The defaul	
across diverse interc	rotocol that provides o connected networks.	communication	lt
wide area network p across diverse interc	rotocol that provides of connected networks. ar when connected	communication	t

5. The Internet Protocol (TCP/IP) Properties dialog box appears. Click "Obtain an IP address automatically". Click "Obtain DNS server address automatically". Click "OK" to close the dialog box.

ernet Protocol (TCP/IP) Pro	perties
ieneral	
You can get IP settings assigned this capability. Otherwise, you ne the appropriate IP settings.	f automatically if your network supports ed to ask your network administrator for
Obtain an IP address autor	natically
C Use the following IP addres	\$8:
IP address:	
Subnet mask:	· · ·
Default gateway:	
C Obtain DNS server addres:	s automatically
Use the following DNS service	ver addresses:
Preferred DNS server:	· · · ·
Alternate DNS server:	
	Advanced
	OK Cancel

6. Windows will appear the System Settings Change dialog box and ask you if you would like to restart your computer. Click "Yes".

Local Net	work				×
<u>.</u>	You must shut down and Do you want to restart y	l restart your com our computer nov	nputer before the ner v?	w settings will take effect.	
		Yes	N0		

### 3.4 DHCP Server

PC connected to the cable modem can automatically get a private IP address from the DHCP server of cable modem before cable modem is on line. The following steps will show you how to get an IP address from DHCP server of cable modem before cable modem is on line.

#### 3.4-1 For Windows 98/Me

1. Click "Start", point to "Run", and click to open the "Run" windows.



2. Enter "winipcfg" in the "Open" field. Click "OK" to execute the winipcfg and show the "IP Configuration" window.



3. Select the "Ethernet adapter" to show the IP address. Press "Release" and "Renew" if the PC is not accessing the Internet. After the cable modem is on line, you need to press the "Release" and "Renew" to get a new IP address from your ISP's server.

P Confi Ethernet Ada	guration pter Informatio	in			_ 🗆 >
			Intel 82595	-Based Ethernet	•
	Adapter Address IP Address Subnet Mask		00-80	)-C8-EF-67-9F	
			192.168.100.2 255.255.255.0		
	Default Gate	way	19	2.168.100.1	
	ОК	R	elea <u>s</u> e	Renew	
R	ele <u>a</u> se All	Re	ene <u>w</u> All	More Info >>	

#### 3.4-2 For Windows NT/2000/XP

1. Click "Start", point to "Run", and click to open the "Run" windows.



2. The Run dialog box appears. Type "cmd" in the "Open" field, and then click "OK" to execute the command.

Run	Type the name of a p Windows will open it fr	rogram, folder, or doc or vou	ument, and
<u>O</u> pen:	cmd		•
	CK	Cancel	Browse

3. You will enter the dos mode, type "ipconfig", press "Enter" on your keyboard, and you will see the IP address your computer get from the cable modem.



4. If PC is not access Internet, type "ipconfig /release", and press "Enter" on your keyboard to release the IP.



5. Type "ipconfig /renew", and press "Enter" on your keyboard to renew the IP. You can repeat the steps until your computer gets the correct IP.



#### 3.4-3 For Apple Macintosh

1. Click "Apple menu", point to "Control Panels", and click "TCP/IP" to open the "TCP/IP" window.



2. If the iMac gets an invalid IP, select "Using DHCP Server" in "Configure" field. Click the "Close box" at the upper left corner to close the "TCP/IP" window.

	TCP/IP (Air	Port4)	
Connect via:	Ethernet built-in	÷	
Configure:	Using DHCP Server	•	
DHCP Client ID:	[		
IP Address:	169.254.121.33		
Subnet mask:	255.255.0.0		
Router address:	< not available >		
Name server addr.:	239.255.255.261		Serach domains:
0			

3. Click the "Save" in the prompted message box.



4. You need to wait about 2 minutes and open "TCP/IP" window to see the new TCP/IP status.

### **3.5 Renew PC IP Address**

There is a chance that your PC does not renew its IP address after cable modem is on line and the PC cannot access the Internet. Please follow the procedures below to renew PC's IP address after the cable modem is on line.

1. Click "Start", point to "Run", and click to open the "Run" windows.



2. Enter winipcfg in the "Open" field. Click "OK" to execute the winipcfg and show the "IP Configuration" window.

Run				? ×
	Type the r resource,	name of a progr and Windows v	am, folder, docume vill open it for you.	ent, or Internet
<u>O</u> pen:	winipcfg			•
		ОК	Cancel	<u>B</u> rowse

3. Select the "Ethernet adapter" to show the IP address. Press "Release" and "Renew" to get a new IP address from your ISP's server.

Maile Configuration			_ 🗆 X
Ethernet Adapter Information			
	Intel 82595-	Based Ethernet	•
Adapter Address	00-80	I-C8-EF-67-9F	
IP Address	192.168.100.2		
Subnet Mask	25	255.255.255.0	
Default Gateway	19	2.168.100.1	
OK F	Relea <u>s</u> e	Renew	
Rele <u>a</u> se All	ene <u>w</u> All	More Info >>	

4. Select the "OK" to close the IP Configuration window.

### **Chapter 4: Access Internet through Cable Modem**

For making sure that you can get into Internet successfully, please make sure the following first.

- 1. Make sure the connection (through Ethernet or USB) between the cable modem and your computer is OK.
- 2. Make sure the TCP/IP protocol is set properly.
- 3. Subscribe to Cable Television Company and.

### **Accessing Internet**

When you are sure all above is Ok, you can open the Browser (such as I.E.) to open the homepage for the browser. See the following example.



### **Chapter 5: Web Manager**

Once your host PC is properly configured, please proceed as follows:

Start your web browser and type the private IP address of the cable modem in the URL field: **192.168.100.1.** Type the IP address as the figure shown below.



After connecting to the device, you will be prompted to enter username and password. By default, the username is **empty** and the password is **empty**. See the following example for running under Windows XP.

### 5.1 Status

#### 5.1-1 Hardware

This page shows the basic information of your cable modem such as name of your modem, serial number, MAC address, hardware version, software version, receive power level, transmit power level, cable modem status and so on.



#### 5.1-2 Connection

The page shows the connection information about the Downstream and Upstream Channel

()) Linksys				Cable Modem Firmware Version 2.01
	Hardware <u>Connection</u>	Local Network		
Status	Connection			Help
	Startup Procedure			
		Statue	Comment	
	Acquire Downstream Channel	in Progress	55500000 Hz	
	Connectivity State	in Progress	notSynchronized	
	Boot State	in Progress	unknown	
	Latest Adjustment Time	N/A	N/A	
	Security	Disable	Disable	
	Downstream Channel			
	Lock Status	in Progress		
	Modulation	N/A		
	Channel ID	1		
	Symbol rate	5360537 bps		
	Downstream Power	-21.88 dBmV		
	SNR	22 dB		
	Upstream Channel			
	Lock Status	In Progress		
	Modulation	≁~Τ		
	Channel ID	N/A		
	Symbol rate	0 ksym/sec		
	Upstream Power	N/A		
	View Cable Modern Event Log			
	Current System Time: N/A			

#### 5.1-3 Local Network

This page shows the Connected Devices with their Mac and IP addresses.

() Linksys					Cable Modem Firmware Version 2.01
	<u>Hardware</u>	<u>Connection</u>	Local Network		
Status	Local Network				Help
	Connected Devic	e MAC	IP	Connection Type	
	Ethernet Port	00:50:ba:a	9:8d:ce 192.168.100	).200	
	Current System Ti	me: <b>N/A</b>			

### **Chapter 6: Troubleshooting**

If the suggested solutions in this section do not resolve your issue, contact your system administrator or Internet service provider.

#### Can I use the same cable line for TV and cable modem?

A. Yes, the TV and cable modem uses the cable line. You need a splitter to use them at the same time. Ask Cable Company to install the splitter for you to avoid signal degradation.

# My cable modem cannot get a solid green light on the Status LED when I connect the cable back.

A. The cable modem lost the signal during the disconnection period and it will keeps scanning other available signal. When you connect the cable back, it might take a while to find the correct channel. You can power cycle the modem to speedup the process since modem will remember the channel last time and it will start from that channel at startup.

#### How do I see my IP address?

A. If you are using Windows 95/98/Me, the winipcfg command will show you to IP address of the PC connected to the cable modem. Notice that even though you seem get the same address all the time, it may still be a dynamic address.

## **Appendix:** Specification

#### **Product Overview**

LINKSYS BEFCMU10 ver. 3 is a DOCSIS 2.0-base cable modem that provides high-speed connectivity to residential, commercial, and education subscribers on public and private networks via an existing cable infrastructure. BEFCMU10 ver. 3 uses the advanced PHY (A-TDMA/S-CDMA) technologies to support higher bandwidth in the upstream. BEFCMU10 ver. 3 can inter-operate with any DOCSIS compliant headend equipment. The IP traffic can transfer between BEFCMU10 ver. 3 and DOCSIS compliant headend equipment. The data security secures upstream and downstream communications.

Features	
General	• F-Connector for the cable interface
	• Standard RJ-45 connector for 10/100BaseT Ethernet with auto-negotiation function and auto-media dependent interface crossover (MDIX)
	• USB Connector for USB (12Mbps) interface
	Clear LED Display
	Plug and Play
CableLabs DOCSIS 1.0/1.1/2.0 Standard Compliant	• Up to 42.88 Mbps downstream and up to 30.72 Mbps upstream
	Frequency agility
	• Transparent bridging for IP traffic
	• Transparent bridging between CPE and RF interface
	• Transparent bridging between Ethernet and USB interface
	• Packet Filtering Up to 32 CPE MAC filters, 32 LLC filters, 32 IP filters
	• Multiple users supported (32 CPEs supported)
	• Security with X.509 Authentication / RSA protected Key Exchange / 56 bits DES Data Encryption
	• Interoperable with any DOCSIS compatible

headend equipment

Management & Maintenance	•	Support Web pages and private DHCP server for
		status monitoring

- SNMP v1/v2c/v3 Management
- Remote secured operating firmware downloading
- Reset To Default Settings by RESET Push Button
- Syslog (Remote)
- Event Log (Local)

#### Specifications

#### Cable RF:

	<u>Downstream</u>	<u>Upstream</u>
Operating Frequency Range	88-860MHz	5-42MHz
Frequency Channel	HRC, IRC, STD	
Frequency Selection	Auto Scanning	Controlled by Headend
Bandwidth	6MHz	Programmable (200*N KHz) N=1, 2, 4, 8, 16, 32
Characteristic Impedance	75 $\Omega$ Nominal	$75\Omega$ Nominal
Signal Level Range	-15 to +15dBmV/64QAM	A-TDMA:
	-15 to +15dBmV/256QAM	+8 to +58dBmV/QPSK
		+8 to +55dBmV/(8,16)QAM
		+8 to +54 dBmV/(32,64)QAM
		S-CDMA:
		+8 to +53 dBmv/All
Modulation	64QAM/256QAM	QPSK/16,32,64QAM
		128QAM for TCM Only
Modulation Rate	5.056941/5.360537	A-TDMA:
	Msym/sec	160/320/640/1280/2560/5120
		Ksym/sec

		LINKSYS BEFCMU10 ver. 3 User Manual
		S-CDMA:
		1280/2560/5120 Ksym/sec
Maximum Bit Rate	42.88Mbps/256QAM	30.72Mbps/64QAM
	30.34Mbps/64QAM	
Forward Error Correction (FEC)	RS(128,122)/Trellis	Reed Solomon
Signal to Noise Ratio (SNR)		>30
Bit Error Rate (BER)	1×10 <sup>-8</sup> @ C/N=23.5dB, 64QAM with FEC	
	$1 \times 10^{-8}$ @ C/N=30dB, 256QAM with FEC, received power = -6dBmV to +15dBmV	7
	$1 \times 10^{-8}$ @ C/N=33dB, 256QAM with FEC, received power = -15dBm <sup>2</sup> to -6dBmV	V

• $L = TBD$
• $W = TBD$
• $H = TBD$
• TBD
• Ethernet Port (RJ-45)
• USB port (Type B)
• Power LED
Green Blink - Booting / Diagnostics
Green ON - Power On / Device Ready

	Orange	ON - Er	ror
•	Cable	LED   Activ	vity LED (Green color)
	OFF	Blink	- Scanning D/S channels
	OFF	ON	- D/S channel acquired / ,
			Start ranging process
	Blink	OFF	- Ranging complete, start
			DHCP /TFTP/ToD/
			Registration
	ON	OFF	- Registered
	ON	Blink	- Traffic (Send / Receive)

• Ethernet LEDs		
OFF - No Ethernet Link		
Green ON - Ethernet Link		
Green Blink - Traffic		
Orange Blink- Collision		
• USB LED		
OFF - No USB Link or PC Off		
Orange Blink -USB cable attached / but drivers not		
loaded		
Green ON - USB Link / drivers loaded and port		
functional		
Green Blink - Traffic		
Restore Factory Default Settings		

Power Supply Adapter • 12VDC, 1A (Output)

**Reset Button** 

Power Consumption	•	Less than 9.5W	
Standards & Protocols:			
Standards	•	DOCSIS 1.0/1.1/2.0 Compliant	
	•	IEEE 802.3	
	•	IEEE 802.3u	
	•	USB v1.1	
Protocols	•	UDP/TCP/IP	
	•	DHCP	
	•	ТР	
	•	ICMP	
	•	ARP	
	•	SNMP v1/v2c/v3	
	•	Syslog	
	•	НТТР	
	•	TFTP	

#### **MIB Support:**

- MIB 2
- RFC2786
- RFC2669
- CableLabs Private MIBs

Environment:			
Operating Temperature	•	$32^{\circ}F \sim 104^{\circ}F (0^{\circ}C \text{ to } 40^{\circ}C)$	
Storage Temperature		-4°F ~ 158°F (-20°C to 70°C)	

Humidity •  $20\% \sim 90\%$  Non-condensing

Certification:			
Standards	•	DOCSIS / WHQL	
Safety	•	UL 1950	
EMC	•	FCC Part 15 Class B	
	•	CE Class B	
		VCCI Class B	