

TCW770 - Wireless Gateway

User manual



CAUTION Disconnect power before servicing.

CAUTION

To ensure reliable operation and to prevent overheating, provide adequate ventilation for this modem and keep it away from heat sources. Do not locate near heat registers or other heat-producing equipment. Provide for free air flow around the Wireless Gateway and its power supply.





This symbol means that your inoperative electronic appliance must be collected separately and not mixed with the household waste. The European Union has implemented a specific collection and recycling system for which producers are responsible.

This appliance has been designed and manufactured with high quality materials and components that can be recycled and reused. Electrical and electronic appliances are liable to contain parts that are necessary in order for the system to work properly but which can become a health and environmental hazard if they are not handled or disposed of in the proper way. Consequently, please do not throw out your inoperative appliance with the household waste.

If you are the owner of the appliance, you must deposit it at the appropriate local collection point or leave it with the vendor when buying a new appliance.

- If you are a professional user, please follow your supplier's instructions.
- If the appliance is rented to you or left in your care, please contact your service provider.

Help us protect the environment in which we live !

NORTH AMERICAN CABLE INSTALLER:

This reminder is provided to call your attention to Article 820.93 of the National Electrical Code (Section 54 of the Canadian Electrical Code, Part 1) which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building as close to the point of cable entry as practical.

Illustrations contained in this document are for representation only.

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Important Information

EURO-DOCSIS compliant

This product was designed according to Data over Cable Service Interface Specifications.

Operating Information

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

If you purchased this product at a retail outlet, please read the following:

Product Information

Keep your sales receipt to obtain warranty parts and service and for proof of purchase. Attach it here and record the serial and model numbers in case you need them. The numbers are located on the back of the product.

Model No.	Serial No	
Purchase Date:	Dealer/Address/Phone:	



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 $\ensuremath{\nu}$ Illustrations contained in this document are for representation only.



Introduction

Wireless Gateway Features

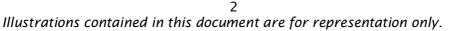
- CableLabs DOCSIS /EuroDOCSIS 1.0/1.1/2.0/3.0 Standard Compliant
- 4 x Standard RJ-45 connector for 10/100/1000 BaseT Ethernet with auto-negotiation and MDIX functions; Support maximum Ethernet cable length up to 100m (Category 5)
- 1 x Master USB connector socket comply to USB2.0
- WIFI interface 802.11n; 2,4GHz or 5 GHz with at least 2x2 antennas.
- Transparent bridging for IP traffic
- Transparent bridging between CPE and RF interface
- Transparent bridging between Ethernet and USB interface when USB is populated on the board
- RSA and 56 bit DES data encryption security
- SNMP network management support
- Remote operating firmware downloading
- Support Web pages and private DHCP server for status monitoring
- MPEG over IP encapsulation
- Power management
- Network Protocol: IP/TCP/UDP/ARP/ICMP/DHCP/FTP/TFTP/SNMP/HTTP
- Syslog (remote)
- Event Log (local)
- Clear LED display
- Reset switch in order to restore factory parameters
- Two detachable SMA antennas connectors (optional)

What's on the CD-ROM

Insert the Wireless Gateway CD-ROM into your CD-ROM drive to view troubleshooting tips, the internal diagnostics, and other valuable information.

CD-ROM Contents:

- Electronic copy of this user's guide in additional languages (PDF format)
- Adobe Acrobat Reader application you can load to read PDF format, if you don't have it loaded already
- Links to Thomson web site



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EURO-DOCSIS is trademarks of Cable Television Laboratories, Inc.Computer Requirements For the best possible performance from your Wireless Gateway, your personal computer must meet the

following minimum system requirements (note that the minimum requirements may vary by cable companies):

	IBM PC COMPATIBLE	MACINTOSH**
СРИ	Pentium preferred	PowerPC or higher
System RAM	16MB (32MB preferred)	24MB (32MB preferred)
Operating System	Windows* NT/2000/Me/XP/Vista/7, Linux	Mac OS** 7.6.1 or higher
Video	VGA or better (SVGA preferred)	VGA or better (SVGA built-in preferred)
Ethernet	10 /100 /1000 Base-T	10 /100 /1000 Base-T
	from the internet. You must have an	for your computer to pass data to and n Ethernet card and software drivers Il also need a standard Ethernet cable to Vireless Gateway.
Software	-	or each machine .0 or later or Netscape Navigator 4.0 or pectively, are strongly recommended.)

* Windows is a trademark of Microsoft Corporation.

** Macintosh and the Mac OS are trademarks of Apple Computer, Inc.

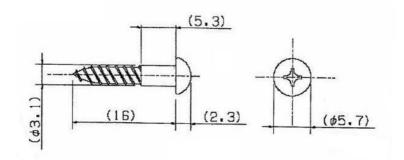


Wall Mounting

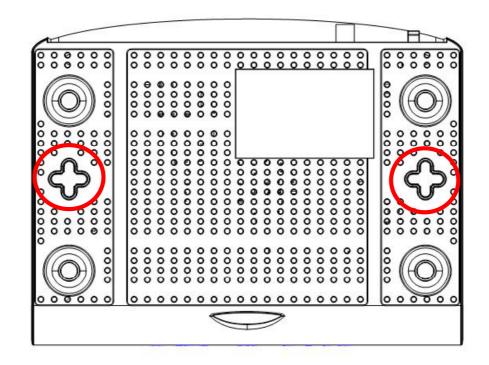
This article will show the user through the process of wall-mounting the Wireless Gateway

The Adapter has two wall-mount slots on its back panel.

Two screws are needed to mount the Adapter.

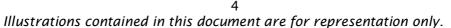






To do this:

- 1. Ensure that the wall you use is smooth, flat, dry and sturdy and use the 2 screw holes which are 101.6 mm apart from each other.
- 2. Fix the screws into wall, leaving their heads 3 mm (0.12 inch) clear of the wall surface.
- 3. Remove any connections to the unit and locate it over the screw heads. When in line, gently push the unit on to the wall and move it downwards to secure.

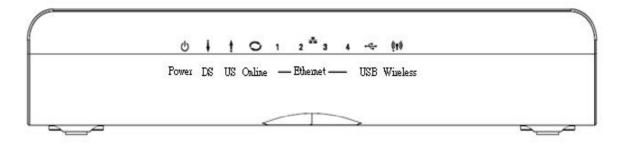




Wireless Gateway TCW770 Overview

Front Panel

The following illustration shows the front panel of the TCW770 gateway:



Reset Button behavior

- a) Push and hold the button between 0 and 5 seconds \rightarrow Reboot the device
- b) Between 6 and 10 seconds → Display the channel bonding status for DS and US Note: This is the same as the above Channel Bonding display after the registration
- c) After 11 seconds \rightarrow Perform the factory reset.

WPS LED is a backlight in WPS button

- d) When WiFi is on, the LED is blinking
- e) When WPS association is on, the LED is turned on

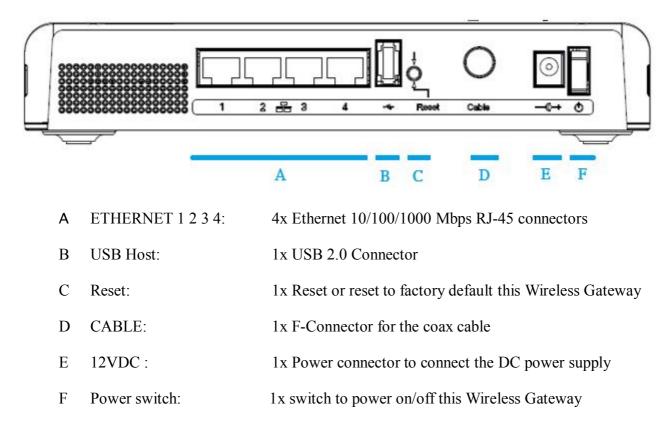


TCW770	Power	1	Internet	t		Ethe	rnet		USB	Wireless	Description
	i o ii ci	DS	US	Online	1	2	3	4	000		
Boot-up	ON	ON	ON	ON	ON	ON	ON	ON	х	х	Power on 0.25 sec
Operation	x	FLASH	FLASH	FLASH	x	х	х	x	х	х	From power ON to system initialization complete
	ON	FLASH	OFF	OFF	х	Х	х	х	х	х	During DS scanning and acquiring SYNC
DOCSIS Start-up	ON	ON	FLASH	OFF	x	х	х	x	х	х	From SYNC completed, receiving UCD to ranging completed
Operation	ON	ON	ON	FLASH	х	х	х	х	Х	х	During DHCP, configuration file download,
	ON	ON	ON	ON	х	х	Х	х	Х	х	Operational (NACO=ON)
	ON	FLASH	FLASH	OFF	х	х	х	х	х	х	Operational (NACO=OFF)
	FLASH	FLASH	FLASH	FLASH	x	x	x	x	х	x	Wait registration with all DS and all US – Lights Flash sequentially from the right to left Minimum duration 3 seconds
Channel Bonding	x	х	x	х	x	x	x	x	х	х	From 1 to 4 DS, from 1 to 4 LEDs are ON. From 5 to 8 DS, From 1 to 4 LEDs are flashing Duration 3 seconds
Operation	OFF	x	x	OFF	x	x	x	x	x	x	From 1 to 2 US, from 1 to 2 LEDs are ON. From 3 to 4 US, From 1 to 2 LEDs are flashing Duration 3 seconds.
	FLASH	FLASH	FLASH	FLASH	x	x	x	x	х	x	Wait registration with all DS and all US – Lights Flash sequentially from the left to right Minimum duration 3 seconds
CPE Operation	ON	x	x	x	OFF ON FLASH	OFF ON FLASH	OFF ON FLASH	OFF ON FLASH	x	x	No Ethernet Link Ethernet Link TX/RX Ethernet Traffic
										OFF	Wireless is disable
	ON	Х	х	х	X	х	х	х	х	ON FLASH	Wireless initiate success or enable TX/RX Wireless Traffic
USB Operation	ON	x	x	х	x	x	x	x	OFF ON FLASH	x	No USB Link USB Link TX/RX USB Traffic
SW Download Operation	ON	FLASH	FLASH	ON	x	х	х	x	х	x	A software download and while updating the FLASH memory

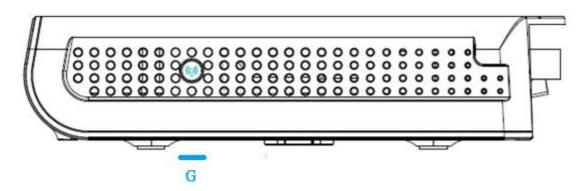
The LEDs on the front panel are described in the table below (from left to right):



Rear Panel



Side Panel



G WPS & WiFi on/off button: 1x button with two features: to activate/disable the WiFi, to execute a WPS association





Relationship among the Devices

What the Modem Does

The Wireless Gateway provides high-speed Internet access as well as cost-effective fax/modem services over residential, commercial, and education subscribers on public and private networks via an existing CATV infrastructure. The IP traffic can transfer between the Wireless Gateway and EURO-DOCSIS compliant head-end equipment. The data security secures upstream and downstream communications.

What the Modem Needs to Do Its Job

□ **The Right Cable Company:** Make sure your local cable company provides data services that use cable TV industry-standard EURO-DOCSIS compliant technology.

Contact Your Local Cable Company

You will need to contact your cable company to establish an Internet account before you can use your gateway. You should have the following information ready (which you will find on the sticker on the gateway):

- The serial number
- The model number
- The Cable Modem (CM) Media Access Control (MAC) address
- SSID, WEP/WPA-PSK information



Please verify the following with the cable company

■ The cable service to your home supports EURO-DOCSIS compliant two-way modem access.

■ You have a cable outlet near your PC and it is ready for Cable Modem service.

Note: It is important to supply power to the modem at all times. Keeping your modem plugged in will keep it connected to the Internet. This means that it will always be ready whenever you need.

Important Information

Your cable company should always be consulted before installing a new cable outlet. Do not attempt any rewiring without contacting your cable company first.

Please verify the following on the Wireless Gateway

The on/off button on the rear panel must be in the ON mode = on "1"



Connecting the Wireless Gateway to a Single Computer

This section of the manual explains how to connect your Wireless Gateway to the Ethernet port on your computer and install the necessary software. Please refer to Figure 1 to help you connect your Digital Cable Modem for the best possible connection.

Attaching the Cable TV Wire to the Wireless Gateway

- 1. Locate the Cable TV wire. You may find it one of three ways:
 - a. Connected directly to a TV, a Cable TV converter box, or VCR. The line will be connected to the jack which should be labeled either IN, CABLE IN, CATV, CATV IN, etc.
 - b. Connected to a wall-mounted cable outlet.
 - c. Coming out from under a baseboard heater or other location. See Figure 1 for the wiring example.

Notes: For optimum performance, be sure to connect your Wireless Gateway to the first point the cable enters your home. The splitter must be rated for at least 1GHz.

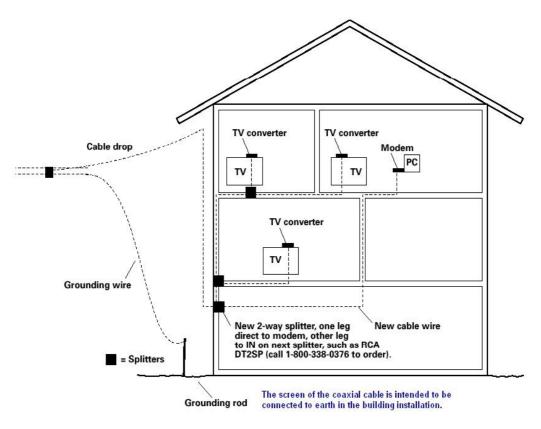


Fig. 1: Basic Home Wiring

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Important Connection Information

The Wireless Gateway supports 4 Ethernet connections simultaneously.

Below are important points to remember before you connect the Wireless Gateway.

Ethernet Connection to a Computer

Make the connection to the modem in the following sequence:

- 1. Connect one end of the coaxial cable to the cable connection on the wall, and the other end to the CABLE jack on the Wireless Gateway.
- 2. Connect the plug from the DC power supply into the POWER DC ADAPTER jack on the Cable Wireless Gateway, and plug the power supply into a DC outlet.

Note: Use only the power supply that accompanied this unit. Using other adapters may damage the unit.

3. Connect one end of the Ethernet cable (straight-wired, see below) to the Ethernet port on the back of your computer, and the other end to the ETHERNET port on the Wireless Gateway.

Make sure that the Ethernet cable is straight-wired (not "null" or crossover-wired). However, you will need a crossover-type cable if you are connecting the modem to a hub, or a hub within a port switch that provides the same function.

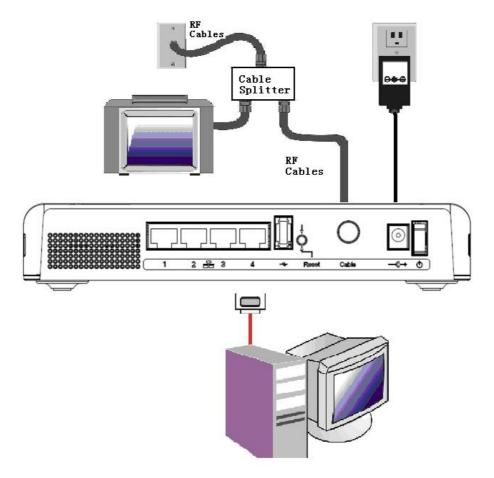


Fig.2: Ethernet Connection



Connecting More Than One Computer to the Wireless Gateway

If you need to connect more than one computer to TCW770, simply connect the computers to the Ethernet ports on the rear panel.

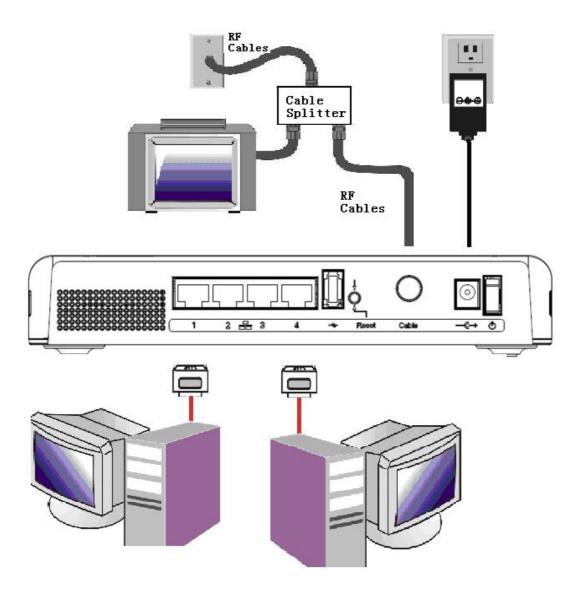


Fig.3: Multiple-PC Connection

Note: You may need to check with your service provider in order to connect multiple computers.



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Turning on the Wireless Gateway

After installing the Wireless Gateway and turn it on for the first time (and each time the modem is reconnected to the power), it goes through several steps before it can be used. Each of these steps is represented by a different pattern of flashing lights on the front of the modem.

Note: All indicators flash once before the initialization sequence.

If all of the lights are flashing sequentially, it means the Wireless Gateway is automatically updating its system software. Please wait for the lights to stop flashing. You cannot use your modem during this time. Do not remove the power supply or reset the Wireless Gateway during this process.



To make sure that you can access the Internet successfully, please check the following first.

- 1. Make sure the Ethernet connection between the Wireless Gateway and your computer is OK.
- 2. Make sure the TCP/IP protocol is set properly.
- 3. Subscribe to a Cable Company.

Accessing the Web Configuration

The **Wireless Gateway** offers local management capability through a built in HTTP server and a number of diagnostic and configuration web pages. You can configure the settings on the web page and apply them to the device.

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

- 1. Start your web browser and type the private IP address of the Wireless Gateway on the URL field: **192.168.0.1.**
- 2. After connecting to the device, you will be prompted to enter username and password. By default, the username is "" and the password is "admin".
- 3. We strongly recommend to change the default password "admin" on the first connection :

Please define a username and password for administration .

This message will be display until, it will be not change

Connect to 192.	168. 0.1	<u>? ×</u>
7		IS S
Thomson		
User name:	12	<u> </u>
Password:	••••••	
	Remember my	password Cancel

Fig. 4

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If you login successfully, the main page will appear.

Outline of Web Manager

The main screen will be shown as below.

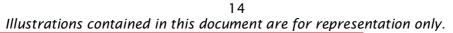
THOMSON		e password must be cl ck <u>here</u> to change the	hanged to enforce security. settings	Administration
images & beyond	Status - Netw Status	vork - Advanced - Firew	all - Parental Control - Wirel	ess O
			of administration access privilege	s and the ability to restore factory
Software	User Name			
Connection	Password	••••		
Password	Re-Enter Passw	rord ••••		
Diagnostics	Restore Factory	Defaults ⊖Yes ⊙No		
Event Log		Apply		
Initial Scan				
Backup/Restore				
© Thomeon 2007				

Fig. 5

- Main Menu: the hyperlinks on the top of the page.
- **Title**: the sidebar on the left side of the page indicates the title of this management interface, e.g., Software in this example
- **Main Window**: the current workspace of the web management, containing configuration or status information

For easy navigation, the pages are organized in groups, with group names main menu, individual page names within each group are provided in the sidebar. To navigate to a page, click the group hyperlink at the top, then the page title on the sidebar.

Your cable company may not support the reporting of some items of information listed on your gateway's internal web pages. In such cases, the information field appears blank. This is normal.





Status

1. Software

The information section shows the hardware and software information about your gateway.

The status section of this page shows how long your gateway has operated since last time being powered up, and some key information the Cable Modem received during the initialization process with your cable company. If Network Access shows "Allowed," then your cable company has configured your gateway to have Internet connectivity. If not, you may not have Internet access, and should contact your cable company to resolve this.

/	Status - Network - Advanced -	- Firewall - Parental Control - Wireless	
D.	Status Software : This page displays inform	mation on the current system software.	
Software	Information Standard Specification Compliant	DOCSIS 3.0	
Connection	Hardware Version	1.0	
connection	Software Version	STB6.01.04	
Password	Cable Modern MAC Address	08:a1:e7:b0:30:2d	
Discretion	Cable Modern Serial Number		
Diagnostics	CM certificate	Not Installed	
Event Log			
Initial Scan	Status		
	System Up Time	0 days 01h:09m:26s	
Backup/Restore	Network Access	Denied	
	CableModem IP Address		

Fig. 6



2. Connection

This page reports current connection status containing startup procedures, downstream and upstream status, CM online information, and so on. The information can be useful to your cable company's support technician if you're having problems.

THOMSON images & beyond		- Network	- Advanced	d - Firewal	ll - Pa	rental Co	ontrol -	Wireless			
te -	Status										
ALA L	Connect	ion:This p	age displays	information	on the	status of	the cable	e modem's H	FC and IF	^o network con	nectivity.
	Startun	Procedure									
Software	Procedu			Status	C	omment					
Connection		Downstream	Channel		In Progress		_				
connection	Connectivity State			In Progre							
Password		Boot State			107.3	20					
Diagnostics	Configuration File			In Progre	SS						
Diagnostics	Security			Disabled	C	Disabled					
Event Log	_										
Initial Scan		eam Chann	7	Ohana UD	0	Control For		D			
IIIIIdi Stali		Lock Status Not Locked		Channel ID		i rate Fre	equency	-49.6 dBmV	SNR		
Backup/Restore		Not Locked	120013/02/02	0	0.0710	nown		0.0 dBmV	2020/02/02/02/02/02/02		
		Not Locked	100000000000000000000000000000000000000	0	873104	nown		0.0 dBmV	C.2.62-50.07.28852		
	-	Not Locked	1	0		nown		0.0 dBmV			
	5	Not Locked	Unknown	0	Unk	nown		0.0 dBmV	0.0 dB		
	6	Not Locked	Unknown	0	Unk	nown		0.0 dBmV	0.0 dB		
© - Thomson - 2007	7	Not Locked	Unknown	0	Unk	nown		0.0 dBmV	0.0 dB		
	8	Not Locked	Unknown	0	Unk	nown		0.0 dBmV	0.0 dB		
	Upstrea	m Channels									
		Lock Status		Channel ID	Symbo	I Rate Fr	requency	/ Power			
		Not Locked			0 Ksy		4	0.0 dBmV			
	2	Not Locked	Unknown		0 Ksy	1100000000		0.0 dBmV			
	3	Not Locked	Unknown	0	0 Ksy	m/sec		0.0 dBmV			
	4	Not Locked	Unknown	0	0 Ksy	m/sec		0.0 dBmV			
	CM IP A	ddress	Duration		Exp	ires					
	, , ,		D: H: M	: S:		;;-					

Fig. 7



3. Password

This page is used to change the password that enables you to access the gateway web pages next time. The default User ID is " "*(EMPTY)*, and the password is "*admin*". The password can be a maximum of 8 characters and is case sensitive. In addition, this page can be used to restore the gateway to its original factory settings. Use this with caution, as all the settings you have made will be lost. To perform this reset, set **Restore Factory Defaults** to **Yes** and click **Apply**. This has the same effect as a factory reset using the rear panel reset switch, where you hold on the switch for 15 seconds, then release it.

	Status - Network - Advanced - Firewall - Parental Control - Wireless Status	
A	Password : This page allows configuration of administration access privileges and the ability to restore fact defaults to the system.	ory
oftware	User Name	
onnection	Password	
ssword	Re-Enter Password	
agnostics	Restore Factory Defaults OYes INO	
ent Log	Apply	
vitch Mode		
ickup/Restore		

Fig. 8



4. Diagnostics

This page offers basic diagnostic tools for you to utilize when connectivity problems occur. When you ping an Internet device, you send a packet to its TCP/IP stack, and it sends one back to yours. To use the ping Test, enter the information needed and press **Start Test**; the Result will be displayed in the lower part of the window. Press **Abort Test** to stop, and **Clear Results** to clear the result contents.

Note: Firewalls may cause pings to fail but still provide you TCP/IP access to selected devices behind them. Keep this in mind when pinging a device that may be behind a firewall. Ping is most useful to verify connectivity with PCs have no firewall, such as the PCs on your LAN side.

	Status				I - Parental Control - Wireless	
	Diagnostics : Th	is page pr	ovides fo	or ping dia	gnostics to the LAN to help with IP connectivity problems	4
Software	P	ing Test F	Paramete	ers		
	Ping Target 0	. 0	. 0	. 0		
onnection	Ping Size			64	bytes	
assword	No. of Pings		-	3		
Diagnostics	Ping Interval		1	000	ms	
Diagnostics	Start Test Ab	ort Test	Clear	Results		
Event Log		Res				
Switch Mode	Waiting for input	Res	uits			
Backup/Restore						

Fig. 9



5. Event Log

This page displays the contents of the SNMP event log. Press "Clear Log" button to clear the logs.



Fig. 10



6. Initial Scan

To speed up the modem's first time startup, enter known downstream frequency and/or upstream channel ID information here. Then click "**Apply and Reboot**" button to start scanning the cable network beginning with the values supplied here.

THOMSON images & beyond	Administration		
	Status - Network - Advanced - Firewall - Parental Control - Wireless Status	0	
	Initial Scan : To speed up the modem's first time startup, enter known downstream frequency and/or upstream channel ID information here. Then click the 'Apply and Reboot' button. The modem will start scanning the cable network beginning with the values supplied here.		
Software			
Connection			
Password	Initial DS Frequency: 245750000 Upstream Channel ID: 0		
Diagnostics	Apply and Reboot		
Event Log			
Initial Scan			
Backup/Restore			
© - Thomson - 2007		~	

Fig. 11



7. Backup/Restore

This page allows you to save your current settings locally on your PC, or restore settings previously saved.

THOMSON	Administratio	n
images & beyond	Status - Network - Advanced - Firewall - Parental Control - Wireless	5
fr.	Status	
	Backup/Restore Settings : This page allows you to save your current settings locally on your PC, or restored settings previously saved.	
Software	Backup	
Connection	Backup	
Password	Restore Settings	
Diagnostics	瀏覽 Restore	
Event Log		
Initial Scan		
Backup/Restore		
© - Thomson - 2007		

Fig. 12

