MultiMobile™USB

V.92 Portable USB Modem

MT9234MU-CDC-XR

User Guide

MultiTech® Systems

MultiMobile USB User Guide
V.92 Portable USB Modem
MT9234MU-CDC-XR
S000525C Rev. C

Revision	Date	Description
A	02/01/12	Initial release.
B	04/26/12	Updated power values.
C	01/03/13	Updated Brazil cable, RoHS, and other regulatory information.

Patents
This device is covered by one or more of the following patents: 6,031,867; 6,012,113; 6,009,082; 5,905,794; 5,864,560; 5,815,567; 5,815,503; 5,812,534; 5,809,068; 5,790,532; 5,764,628; 5,764,627; 5,754,589; 5,724,356; 5,673,268; 5,673,257; 5,644,594; 5,628,030; 5,619,508; 5,617,423; 5,600,649; 5,592,586; 5,577,041; 5,574,725; 5,559,793; 5,546,448; 5,546,395; 5,535,204; 5,500,859; 5,471,470; 5,463,616; 5,453,986; 5,452,289; 5,450,425; D353,598; 5,355,365; 5,309,562; 5,301,274. Other patents pending.

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World Headquarters
Multi-Tech Systems, Inc.
2205 Woodale Drive
Mounds View, Minnesota 55112
Phone: 763-785-3500 or 800-328-9717
Fax: 763-785-9874
Internet Address: http://www.multitech.com

Contacting Multi-Tech Support
To better serve our customers, manage support requests and shorten resolution times, we have created the online web portal that lets you submit questions regarding Multi-Tech products directly to our technical support team. Get answers to your most complex questions, ranging from implementation, troubleshooting, product configuration, firmware upgrades and much more.
To create an account and submit a Support Case on the Portal, visit support.multitech.com
Online Web Portal https://support.multitech.com/
The Knowledge Base provides immediate answers to your questions and gives you access to support resolutions for all Multi-Tech products. Visit our support area on the website for other support services.
Knowledge Base and Support Services www.multitech.com/en_US/SUPPORT

Technical Support
Business Hours: M-F, 9am to 5pm CST

Country	By Email	By Phone
Europe, Middle East, Africa:	support@multitech.co.uk	+(44) 118 959 7774
U.S., Canada, all others:	support@multitech.com	(800) 972-2439 or (763) 717-5863

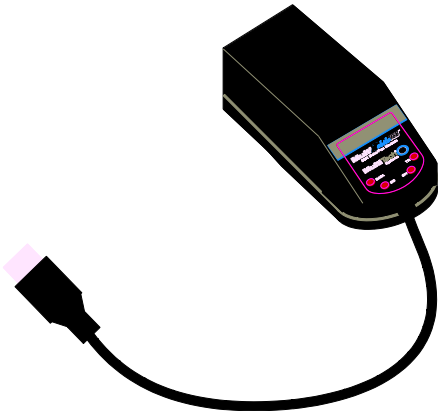
Warranty
To read the warranty statement for your product, please visit: http://www.multitech.com/en_US/COMPANY/Policies/warranty/

Contents

Chapter 1 – Product Overview

The MultiMobile USB V.92 Portable USB modem MT9234MU-CDC-XR provides V.92/56K data rates, fax and file transfer capabilities and a hot-swappable USB interface. This modem, weighing only 2 ounces, is ideal for mobile users who want email and Internet access on the road. The MT9234MU-CDC-XR modem can also serve as the mobile user's home office desktop modem.

This user's guide explains how to install, configure, test and use your modem.



Features

Command Buffer	40 characters
Diagnostics	Power-on self test, local analog and local digital loop, remote digital loop.
LED Indicators	LEDs for Data, Carrier Detect, Off Hook, Terminal Ready
Intelligent Features	Fully AT command compatible; autodial, redial, repeat dial; pulse or tone dial; dial pauses; auto answer; caller ID; EIA extended automode; adaptive line probing; automatic symbol and carrier frequency during start-up, retrain, and rate renegotiation; call status display, auto-parity and data rate selections; keyboard-controlled modem options; non-volatile memory; on-screen displays for modem option parameters; command lines of up to 40 characters each; help menus; remote configuration.

Telecom Safety Warnings

- Never install telephone wiring during a lightning storm.
- Never install a telephone jack in wet locations unless the jack is specifically designed for wet locations.
- Use this product with UL and cUL listed computers.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning.
- Do not use a telephone in the vicinity of a gas leak.
- To reduce the risk of fire, use only 26 AWG or larger telecommunication line cord.
- This product must be disconnected from the telephone network interface when servicing.

Shipping Package Contents

- MT9234MU-CDC-XR modem
- One RJ-11 cable

Inspect the contents for signs of any shipping damage. If damage is observed, do not power up the unit. Contact Multi-Tech's Technical Support for advice.

Technical Specifications

Trade Name	MultiMobile™ USB
Model	MT9234MU-CDC-XR
Data Rates	56K download speeds from digital V.92/V.90 servers; 33.6K upload and download speeds from non-V.92/V.90 servers and other client modems
Fax Rates	33.6K and below
Standards: **Data** **Error Correction** **Data Compression** **Fax** **Video**	 V.92, V.90 enhanced, V.34 and below V.42 V.44, V.42bis, MNP Class 5 V.34, Class 2.1 & 1.0, V.17, Group 3; Class 1 & 2, Error Correction Mode V.80
Cables	1 USB series A 1 RJ-11
Operation	USB Port: 12M bps Line Type: Dial-up
Physical Description	1.3" w x 1.0" h x 3.1" d; 2 oz 3.0 cm w x 2.5 cm h x 8.0 cm d; 62 g
Operating Environment	Operating Temperature: -31° to +167° F (-35° to 75° C) UL listed at 60° C Humidity Range: 25–85% non-condensing
Approvals	**CE Mark** **EMC:** FCC Part 15 Class B, EN55024, EN55022 Class B, ICES-003 Class B **Safety:** UL/cUL 60950-1, IEC 60950-1 **Telecom:** 47CFR Part 68, CS03, TBR21, other countries also included
Power*	Sleep Mode / Typical / Maximum Measured Volts 5.01 / 5.01 / 5.01 Current (AMPS) 0.099 / 0.133 / 0.178 Watts 0.494 / 0.665 / 0.890
Limited Warranty	2 years

* Multi-Tech Systems, Inc. recommends that you incorporate a 10% buffer into their power source when determining product load.

AT Commands

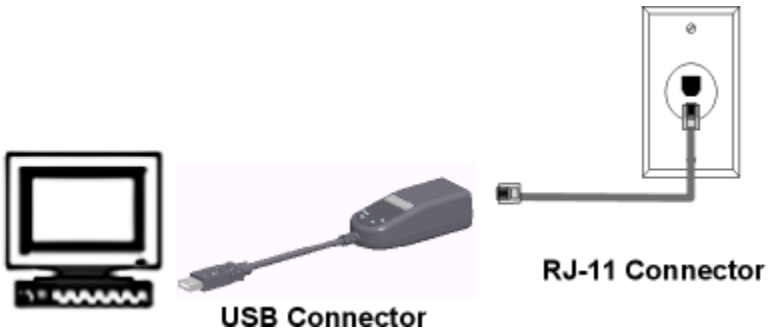
AT Commands for this product are published in a separate document. You can download this document from the Multi-Tech website.

Chapter 2 – Installing the Modem

This chapter explains how to install your modem. Before you begin, go to the Multi-Tech website and download the driver for your modem.

Connecting the Modem to Your System

Connect the MT9234MU to your computer's USB port and connect the telephone line to your MT9234MU and a telephone wall jack.



Connecting the USB Cable

Plug the USB cable connector on the modem into a USB port connector on your computer.

Connecting the Phone Line

Plug one end of the phone cable into the modem's jack, and the other end into a phone line wall jack.

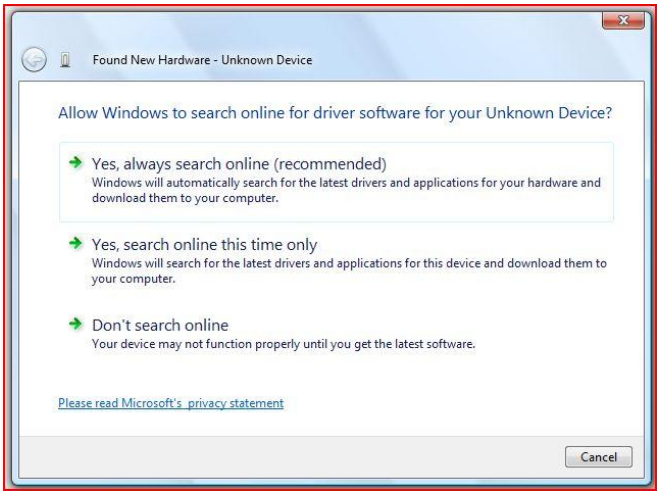
Note: The Federal Communications Commission (FCC), and Industry Canada impose certain restrictions on equipment connected to public telephone systems. See Appendix A for more information.

Installing the Modem Driver

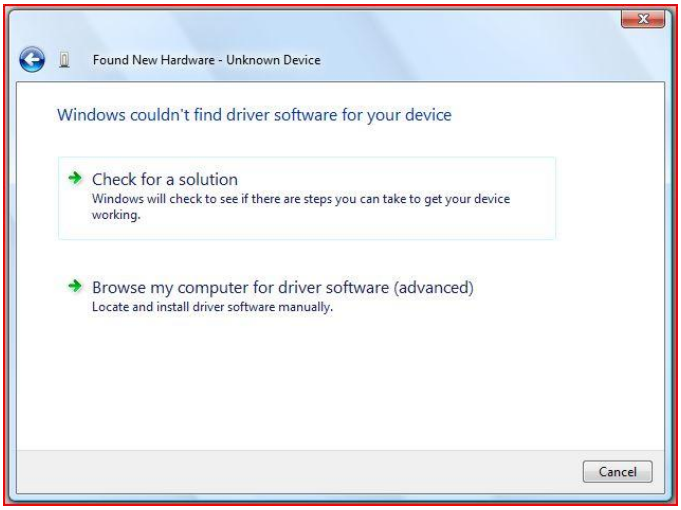
Installing the MT9234MU-CDC-XR in Windows Vista

1. Power up your computer.
2. If you have not already done so, connect the modem's USB cable to a USB port on the computer and connect the phone line between the modem and a telephone wall jack.
3. Windows detects that the new modem is present. The Found New Hardware window opens. Click **Locate and install driver software**.

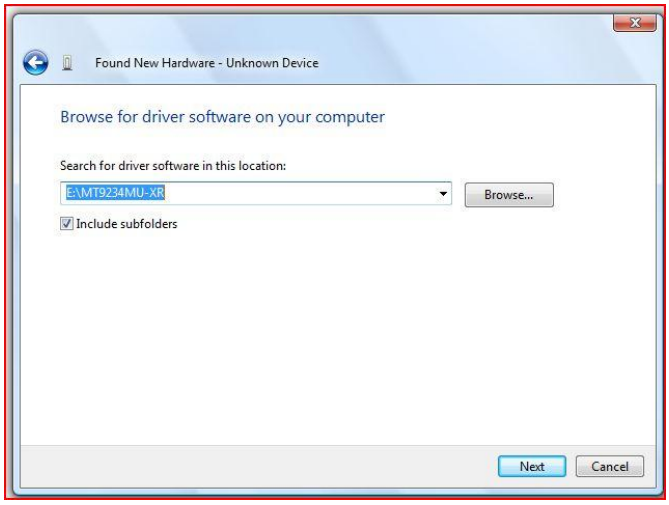
4. The window, User Account Control Windows needs your permission to continue, opens. Click **Continue**.
5. The window, Allow Windows to search online for driver software for your unknown device, opens. Click **Don't Search Online**.



6. The window, Windows couldn't find driver software for your device, window opens. Click **Browse my computer for driver software (advanced).**



7. The Browse for driver software on your computer window opens. Click **Browse**.

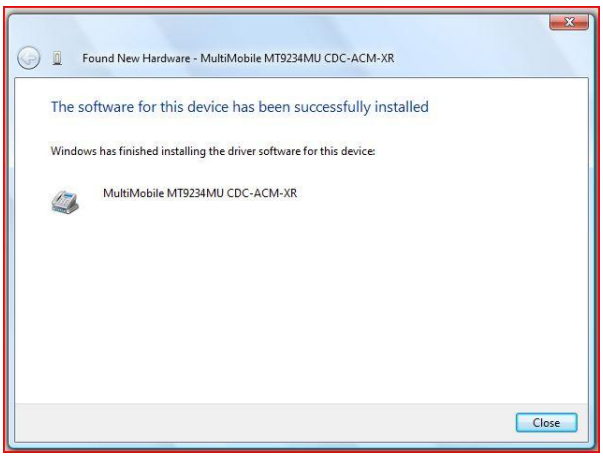


In the window that opens, navigate to location where you stored the driver that you downloaded from the Multi-Tech website. Click **OK**.

8. You return to the window, Windows couldn't find driver software for your device. Click **Next**.
9. When the window, Windows can't verify the publisher of this driver software, opens click **Install this driver anyway.**

10. A progress window appears while the driver is being installed.

11. After the driver is installed the window, The software for this device has been successfully installed, opens. Click **Close**.



After you install the driver, test the operation of the modem. To do so, register the modem by going to the following website:

http://www.multitech.com/register

Installing the MT9234MU-CDC-XR in Windows Server 2008, XP, 2003

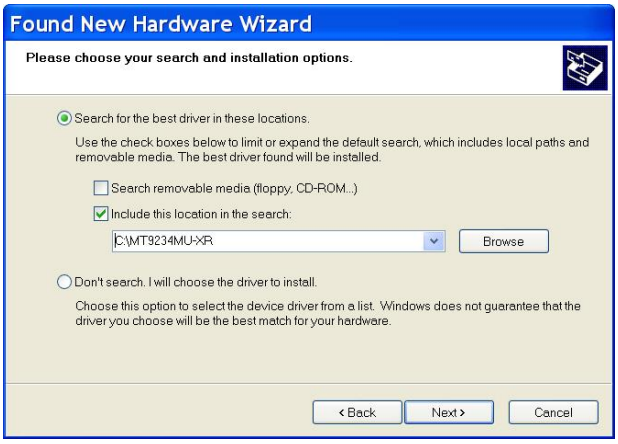
These instructions describe how to install the modem to operate with the following operating systems: Windows Server 2008, XP, or 2003.

The procedure in this section uses Windows XP as the operating system; the other operating systems have similar windows.

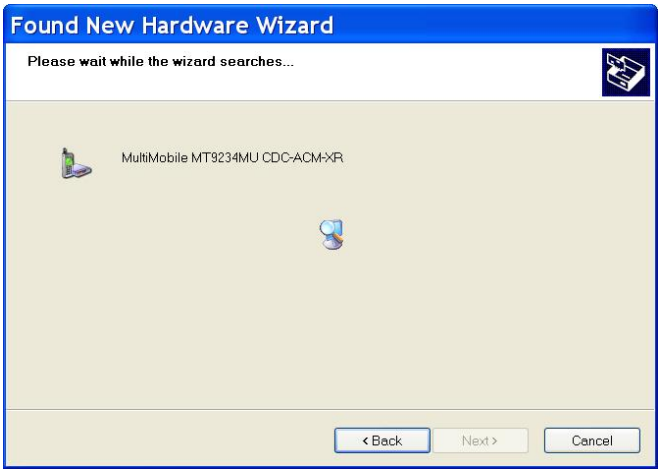
1. Connect the USB cable of the modem into a USB port on the PC.
2. In some situations the operating system might display a wizard pane with the message: Can Windows connect to Windows Update to search for software? Select **No, not this time**. Click **Next**.

3. The Welcome to Found New Hardware Wizard pane opens. Click **Install from a list or specific location (Advanced)**, and then click **Next.**

4. The pane Please choose your search and installation options opens. Select the **Search for the best driver in these locations** radio button. Then check the **Include this location in the search** checkbox.



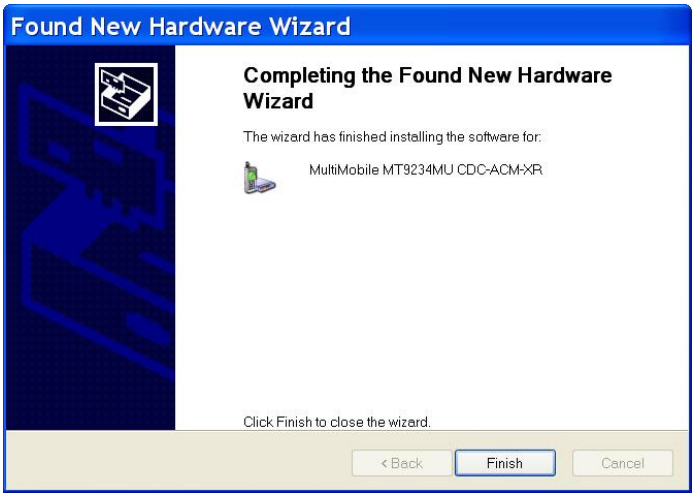
5. Select **Include this location in the search.** Then click **Browse** and navigate to the area where you stored the driver that you downloaded from the Multi-Tech website.
6. When the proper location appears in the field on this pane, click **Next**.
7. The pane Please wait while the wizard searches… appears.



8. If a warning appears for Windows logo testing, click **Continue Anyway**.

9. The message Please wait while the wizard installs the software appears.

10. At the Completing the Found New Hardware Wizard pane, click **Finish**.



After the installation is complete, test the operation of the MT9234MU by registering it. Open an Internet browser, go to the following location, and follow the on-line instructions:

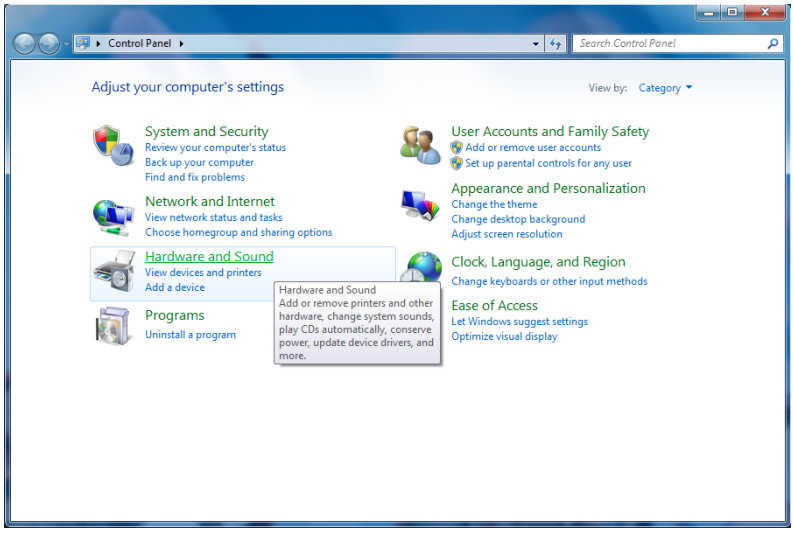
http://www.multitech.com/register

Installing the MT9234MU-CDC-XR in Windows 7

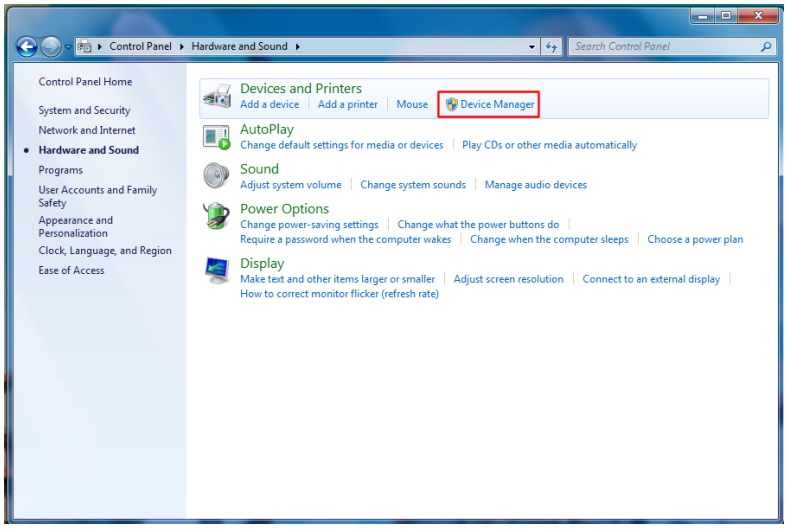
1. Connect the modem's cable to an available USB port. Windows 7 reports that the driver software was not successfully installed.

2. To point Windows 7 to the drivers, from the Windows Start button select **Control Panel**.

   Left-click the **Hardware and Sound** link.

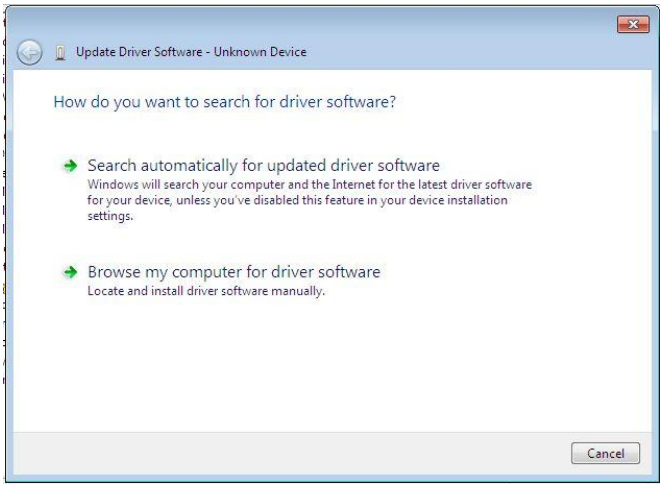


3. In the Devices and Printers group, click **Device Manger**.



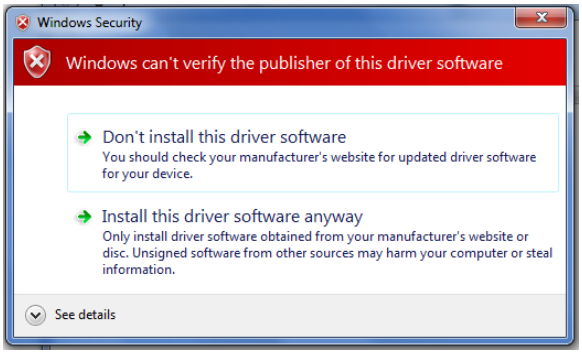
4. A list of devices appears. Look for other devices Unknown Device. Right click on unknown device and select Update Driver Software.

5. In the window that appears, click **Browse my computer for driver software**.

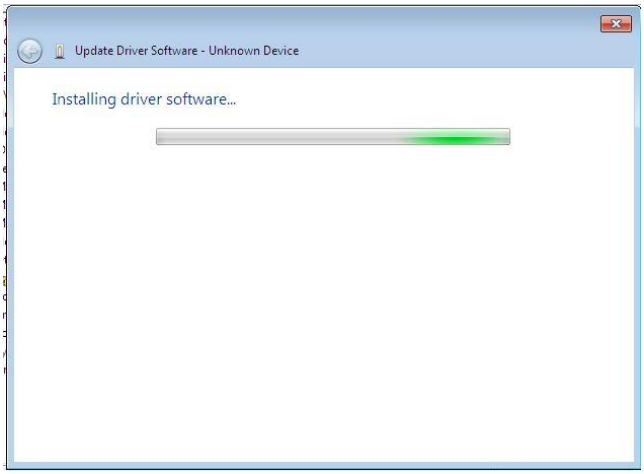


6. In the next window, click **Browse**, then navigate to the location where you stored the driver that you downloaded from the Multi-Tech website. Select the driver, and click **Next**.

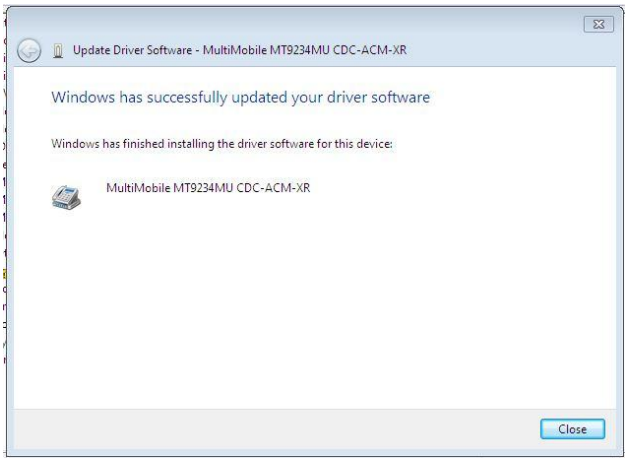
7. At this point you may see a Windows Security window stating that the publisher cannot be verified – click **Install this driver software anyway**.



A progress window appears, to show that the driver is being installed.



8. Click **Close** on the last pane.



Your modem is installed and ready to use.

After the installation is completed, test the operation of the MT9234MU by registering it. Open a browser, go to the following address and follow the on-line instructions: http://www.multitech.com/register

Configuring the Modem for Your Country

Different countries have different requirements for how modems must function. Therefore, before you use the modem, you must configure it to match the defaults of the country in which you are using it. You can configure the modem manually using AT commands or with the Global Wizard. Both methods are described in the sections that follow.

Installing and Using the Global Wizard to Configure Country Code

This section describes how to install the Global Wizard program, and then how to use the Global Wizard program. The Global Wizard program helps you configure your modem's homologation parameters for the country in which you want to operate the modem.

If your computer is running the Windows 2000 operating system or newer, it is recommended that you use the Global Wizard program.

To install the Global Wizard program:

1. If you have not already done so, download the file **Global Wizard** from the Multi-Tech website.
2. From the location where you stored the download file, double click the global wizard icon.
3. In the dialog box that appears, click **Run**.
4. The Welcome pane of the Global Wizard Setup wizard appears. Click **Next**.
5. A License Agreement wizard pane opens. If you accept the agreement, click **Yes**.
6. In the next pane of the wizard, select the location where you want to install Global Wizard. If desired, navigate to the location where you want to install. Otherwise, maintain the default location. Click **Next**.
7. The installation proceeds, and then completes.
   - Select the **Yes, I want to restart my computer now** radio button.
   - At the InstallShield Wizard Complete pane, click **Finish**.
8. After the computer reboots, you can use the Global Wizard to configure your modem's homologation parameters.

To use the Global Wizard program:

1. From the Windows **Start** button, select **All Programs**, the **Global Wizard** folder and **GlobalWizard**.
2. The first pane of the Global Wizard opens. Click **Next**.
3. In the next wizard pane, select port associated with the modem that you want to configure. Click **Next**.

4. A notification dialog box opens. Read this information, then click **OK**.
5. In the next wizard pane, from the Country/Region drop-down list, select the country/region in which the modem will be used. Click **Next**.
6. In the next wizard pane, review your country/region choice. If it is correct, click **Next**.
7. When Global Wizard announces that the parameters have been set, click **Finish** to exit.

Using AT Commands to Configure Country Code

If you are comfortable using AT commands, you can configure your modem using AT commands. You must enter these commands in your communication program's terminal window.

To configure the modem for a specific country, execute the following AT commands:

1. Type **AT%T19,0,nn** (where nn represents the country code). Press **Enter**.
2. The modem responds "OK."
3. Type **AT&F&W** (this saves changes). Press **Enter**.
4. The modem responds "OK."
5. Type **ATI9** (this verifies that country code has been chosen). Press **Enter**.
6. The modem displays the country code in decimal format followed by "OK."
7. Check to be sure the code for your country is displayed. If not, repeat procedure to correct.

An example of country, command, and result codes follows:

Country/Region	AT Command (Hexadecimal)	Country Code (Decimal)
Euro/NAM	AT%T19,0,34 (default)	52

You can find the complete list of country/region codes on the Multi-Tech Web site at

http://www.multitech.com/en_US/PRODUCTS/Categories/Device_Networking/global_modems/configuration.asp

The Global Modem Country Approvals page displays. On this page you can view approvals, configuration strings and responses by country and product.

Chapter 3 – Operating the Modem

Front Panel

The modem has 4 LEDs on the front panel indicating status, configuration, and activity:

- **Data.** The Data LED flashes when the modem is transmitting/receiving data to/from another modem.
- **Carrier Detect.** The CD LED lights when the modem detects a valid carrier signal from another modem. It is on when the modem is communicating with the other modem and off when the link is broken.
- **Off-Hook.** The OH LED lights when the modem is off-hook, which occurs when the modem is dialing, online, or answering a call. The LED flashes when the modem pulse-dials.
- **Terminal Ready.** The TR LED lights when Windows detects and initializes the modem.

Connecting to the Internet

To use the modem to access the Internet, establish a dial-up account with an Internet service provider (ISP). To locate an ISP near you, look in a local directory or computer publication. To help you establish an account, your ISP provides you with the following information:

- User name (also called user ID)
- Password
- Access number (the number you call to connect to the server)
- Host name and/or domain name
- Domain Name Server (DNS) server address

If you use the Internet for e-mail and newsgroups, your ISP can also provide you with the following information:

- E-mail or POP mail address
- POP server address
- Mail or SMTP address
- News or NNT server address

Before you can connect to the Internet, you must set up a remote-node client program on your computer. Windows uses HyperTerminal to establish your connection to the ISP's server, which is the shared computer that manages calls from clients (your computer) to the Internet. Most, if not all, Windows browsers can automatically open this connection. For instructions on how to set up this connection, consult your ISP or your operating system's online help or printed documentation. Many ISPs provide a program that installs and configures this connection automatically for you.

Chapter 4 – Remotely Configuring Modems

Remote configuration is a network management tool that allows you to configure modems anywhere in your network from one location. With password protected remote configuration, you can issue AT commands to a remote MT9324MU modem for maintenance or troubleshooting as if you were on site.

The following steps are valid regardless of whether the connection is established by the local or the remote Multi-Tech modem.

To configure modems:

1. Establish a data connection with a remote MT9324MU modem.
2. Send three remote configuration escape characters followed by **AT** and the setup password, and press ENTER. Example: **%%%ATMTSMODEM**. You have four tries to enter the correct password before being disconnected. If the password is correct, the remote modem responds with **OK**.
3. You can now send AT commands to configure the remote modem.
4. When you have finished configuring the remote modem, save the new configuration by typing **AT&W0**, and pressing **Enter**.
5. Type **ATO** and press **Enter** to exit remote configuration. You can then break the connection in the normal way.

Caution: If you hang up while you are in remote configuration mode, it may lock up the remote modem.

Changing the Setup Password

Multi-Tech modems are shipped with a default setup password (MTSMODEM). Because anyone who has an owner's manual knows the default setup password, for security you should change the password and possibly also the remote configuration escape character.

1. Open a data communications program such as HyperTerminal.
2. To change the password, type **AT#S=xxxxxxxx**, where xxxxxxxx stands for the password, and press Enter. The password can include any keyboard character, and must be one to eight characters long. The modem responds with **OK**.
3. The new password is saved automatically. You can now either enter more AT commands or exit the data communications program. The next time you remotely configure the modem you must use the new setup password.

Note: You can only change the setup password locally; you cannot do it remotely. Also, passwords are case sensitive. The next time you enter the password, it must be in the same case as you set it up.

Changing the Remote Escape Character

To increase security, you can change a remote modem's remote configuration escape character. The remote configuration escape character is stored in register ***S9***. The factory default is 37, which is the ASCII code for the percent character (%). For ASCII code characters, refer to Appendix E. Setting ***S9*** to 0 (zero) disables remote configuration entirely—but if you do this remotely, you won't be able to change it back remotely!

1. Establish a remote configuration link with the remote modem as described in "Basic Procedure."
2. Type **ATS9=*n***, where *n* is the ASCII code for the new remote configuration escape character, then press **Enter**.
3. To save the new value, type **AT&W** and press **Enter**.
4. Type **ATO<CR>** to exit remote configuration.

Appendix A – Regulatory Information

FCC Part 15 Class B Statements

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.

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

Industry Canada

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Reglement Canadien sur le matériel brouilleur.

This device complies with Industry Canada RSS Appliance radio exempt from licensing. The operation is permitted for the following two conditions:

1. the device may not cause harmful interference, and
2. the user of the device must accept any interference suffered, even if the interference is likely to jeopardize the operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC Part 68 Telecom

1. This equipment complies with Part 68 of the 47 CFR rules and the requirements adopted by the ACTA. Located on this equipment is a label that contains, among other information, the registration number and Ringer Equivalence Number (REN) for this equipment or a product identifier in the format:

   For current products: US:AAAEQ##Txxxx.

   For legacy products: AU7USA-xxxxx-xx-x.

   If requested, this number must be provided to the telephone company.

2. A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable 47 CFR Part 68 rules and requirements adopted by the ACTA. It's designed to be connected to a compatible modular jack that is also compliant.

3. The Ringer Equivalence Number (REN) is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most but not all areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may

be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##Txxxx. The digits represented by ## are the REN without a decimal point (e.g., 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

4. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

5. The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

6. If trouble is experienced with this equipment, please contact Multi-Tech Systems, Inc. at the address shown below for details of how to have the repairs made. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

7. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

8. No repairs are to be made by you. Repairs are to be made only by Multi-Tech Systems or its licensees. Unauthorized repairs void registration and warranty.

9. If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment.
   If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

10. Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

11. This equipment is hearing aid compatible.

12. Manufacturing Information on telecommunications device (modem):

Manufacturer:	Multi-Tech Systems, Inc.
Trade Name	MultiMobile USB
Model Number:	MT9234MU
Registration Number:	AU7MM04B9234MU
Service Center in USA:	Multi-Tech Systems, Inc. 2205 Woodale Drive Mounds View, MN 55112 U.S.A. (763) 785-3500 (763) 785-9874 Fax

Canadian Limitations Notice

Notice: The ringer equivalence number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the ringer equivalence numbers of all the devices does not exceed 5.

Notice: The Industry Canada label identifies certificated equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Industry Canada label does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment or equipment malfunctions may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

EMC, Safety, and R&TTE Directive Compliance

CE

The CE mark is affixed to this product to confirm compliance with the following European Community Directives:

Council Directive 2004/108/EC of 15 December 2004 on the approximation of the laws of Member States relating to electromagnetic compatibility;

and

Council Directive 2006/95/EC of 12 December 2006 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits;

and

Council Directive 1999/5/EC of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.

International Modem Restrictions

Some dialing and answering defaults and restrictions may vary for international modems. Changing settings may cause a modem to become non-compliant with national regulatory requirements in specific countries. Also note that some software packages may have features or lack restrictions that may cause the modem to become non-compliant.

New Zealand Telecom Warning Notice

1. The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

This equipment is not capable under all operating conditions of correct operation at the higher speed which it is designated. 33.6 kbps and 56 kbps connections are likely to be restricted to lower bit rates when connected to some PSTN implementations. Telecom will accept no responsibility should difficulties arise in such circumstances.

2. Immediately disconnect this equipment should it become physically damaged, and arrange for its disposal or repair.
3. This modem shall not be used in any manner which could constitute a nuisance to other Telecom customers.
4. This device is equipped with pulse dialing, while the Telecom standard is DTMF tone dialing. There is no guarantee that Telecom lines will always continue to support pulse dialing.

   Use of pulse dialing, when this equipment is connected to the same line as other equipment, may give rise to 'bell tinkle' or noise and may also cause a false answer condition. Should such problems occur, the user should not contact the Telecom Faults Service.

   The preferred method of dialing is to use DTMF tones, as this is faster than pulse (decadic) dialing and is readily available on almost all New Zealand telephone exchanges.
5. Warning Notice: No '111' or other calls can be made from this device during a mains power failure.
6. This equipment may not provide for the effective hand-over of a call to another device connected to the same line.
7. Some parameters required for compliance with Telecom's Telepermit requirements are dependent on the equipment (PC) associated with this device. The associated equipment shall be set to operate within the following limits for compliance with Telecom's Specifications:

   For repeat calls to the same number:

   - There shall be no more than 10 call attempts to the same number within any 30-minute period for any single manual call initiation, and
   - The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next attempt.

   For automatic calls to different numbers:

   - The equipment shall be set to ensure that automatic calls to different numbers are spaced such that there is no less than 5 seconds between the end of one call attempt and the beginning of another.

     For automatically answered incoming calls:

   - The equipment shall be set to ensure that calls are answered between 3 and 30 seconds of receipt of ringing.
8. For correct operation, total of the RNs of all devices connected to a single line at any time should not exceed 5.

South African Notice

This modem must be used in conjunction with an approved surge protection device.

Thailand Approval

Translation in Thai

"This telecom device and equipment is conform to technical standard no…."

or

"This telecom device and equipment is conform to requirement to NTC"

"เครื่องโทรคมนาคมและอุปกรณ์นี้ มีความสอดคล้องตามมาตรฐานทางเทคนิค เลขที่....."

or

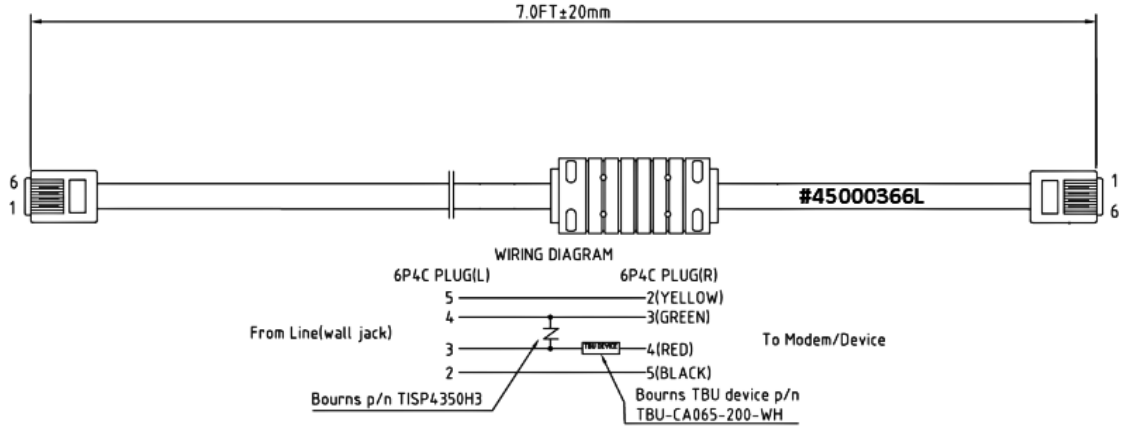
"เครื่องโทรคมนาคมและอุปกรณ์นี้ มีความสอดคล้องตามข้อกำหนดของ กทช."

Brazil Regulatory Special Cable Requirement

Model: MT9234MU – special cable needed.

Attention:
A special phone cable is required for regulatory compliance.

Um cabo especial para telefone é requerido para a conformidade regulatória.



Waste Electrical and Electronic Equipment Statement

WEEE Directive

The WEEE Directive places an obligation on EU-based manufacturers, distributors, retailers, and importers to take-back electronics products at the end of their useful life. A sister directive, ROHS (Restriction of Hazardous Substances) complements the WEEE Directive by banning the presence of specific hazardous substances in the products at the design phase. The WEEE Directive covers all Multi-Tech products imported into the EU as of August 13, 2005. EU-based manufacturers, distributors, retailers and importers are obliged to finance the costs of recovery from municipal collection points, reuse, and recycling of specified percentages per the WEEE requirements.

Instructions for Disposal of WEEE by Users in the European Union

The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

July, 2005

Restriction of the Use of Hazardous Substances (RoHS)

Multi-Tech Systems, Inc.
Certificate of Compliance
2011/65/EU

Multi-Tech Systems confirms that its embedded products comply with the chemical concentration limitations set forth in the directive 2011/65/EU of the European Parliament (Restriction of the use of certain Hazardous Substances in electrical and electronic equipment - RoHS)

These Multi-Tech products do not contain the following banned chemicals[1]:

- Lead, [Pb] < 1000 PPM
- Mercury, [Hg] < 1000 PPM
- Hexavalent Chromium, [Cr+6] < 1000 PPM
- Cadmium, [Cd] < 100 PPM
- Polybrominated Biphenyl, [PBB] < 1000 PPM
- Polybrominated Diphenyl Ether, [PBDE] < 1000 PPM

Environmental considerations:

- Moisture Sensitivity Level (MSL) =1
- Maximum Soldering temperature = 260C (in SMT reflow oven)

[1]Lead usage in some components is exempted by the following RoHS annex, therefore higher lead concentration would be found in some modules (>1000 PPM);

–Resistors containing lead in a glass or ceramic matrix compound.

Information on HS/TS Substances According to Chinese Standards

In accordance with China's Administrative Measures on the Control of Pollution Caused by Electronic Information Products (EIP) # 39, also known as China RoHS, the following information is provided regarding the names and concentration levels of Toxic Substances (TS) or Hazardous Substances (HS) which may be contained in Multi-Tech Systems Inc. products relative to the EIP standards set by China's Ministry of Information Industry (MII).

Name of the Component	Hazardous/Toxic Substance/Elements					
	Lead (PB)	Mercury (Hg)	Cadmium (CD)	Hexavalent Chromium (CR6+)	Polybrominated Biphenyl (PBB)	Polybrominated Diphenyl Ether (PBDE)
Printed Circuit Boards	O	O	O	O	O	O
Resistors	X	O	O	O	O	O
Capacitors	X	O	O	O	O	O
Ferrite Beads	O	O	O	O	O	O
Relays/Opticals	O	O	O	O	O	O
ICs	O	O	O	O	O	O
Diodes/ Transistors	O	O	O	O	O	O
Oscillators and Crystals	X	O	O	O	O	O
Regulator	O	O	O	O	O	O
Voltage Sensor	O	O	O	O	O	O
Transformer	O	O	O	O	O	O
Speaker	O	O	O	O	O	O
Connectors	O	O	O	O	O	O
LEDs	O	O	O	O	O	O
Screws, Nuts, and other Hardware	X	O	O	O	O	O
AC-DC Power Supplies	O	O	O	O	O	O
Software / Documentation CDs	O	O	O	O	O	O
Booklets and Paperwork	O	O	O	O	O	O
Chassis	O	O	O	O	O	O

X Represents that the concentration of such hazardous/toxic substance in all the units of homogeneous material of such component is higher than the SJ/Txxx-2006 Requirements for Concentration Limits.

O Represents that no such substances are used or that the concentration is within the aforementioned limits.

Information on HS/TS Substances According to Chinese Standards (in Chinese)

依照中国标准的有毒有害物质信息

根据中华人民共和国信息产业部 (MII) 制定的电子信息产品 (EIP)
标准－中华人民共和国《电子信息产品污染控制管理办法》（第 39 号），也称作中国 RoHS，下表列出了 Multi-Tech Systems, Inc. 产品中可能含有的有毒物质 (TS) 或有害物质 (HS) 的名称及含量水平方面的信息。

成分名称	有害/有毒物质/元素					
	铅 (PB)	汞 (Hg)	镉 (CD)	六价铬 (CR6+)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板	O	O	O	O	O	O
电阻器	X	O	O	O	O	O
电容器	X	O	O	O	O	O
铁氧体磁环	O	O	O	O	O	O
继电器/光学部件	O	O	O	O	O	O
IC	O	O	O	O	O	O
二极管/晶体管	O	O	O	O	O	O
振荡器和晶振	X	O	O	O	O	O
调节器	O	O	O	O	O	O
电压传感器	O	O	O	O	O	O
变压器	O	O	O	O	O	O
扬声器	O	O	O	O	O	O
连接器	O	O	O	O	O	O
LED	O	O	O	O	O	O
螺丝、螺母以及其它五金件	X	O	O	O	O	O
交流-直流电源	O	O	O	O	O	O
软件/文档 CD	O	O	O	O	O	O
手册和纸页	O	O	O	O	O	O
底盘	O	O	O	O	O	O

X 表示所有使用类似材料的设备中有害/有毒物质的含量水平高于 SJ/Txxx-2006 限量要求。

O 表示不含该物质或者该物质的含量水平在上述限量要求之内。

Appendix B – ASCII Conversion

ASCII Conversion Chart

CTRL	CODE	HEX	DEC	CODE	HEX	DEC	CODE	HEX	DEC	CODE	HEX	DEC
@	NUL	00	0	SP	20	32	@	40	64	`	60	96
A	SOH	01	1	!	21	33	A	41	65	a	61	97
B	STX	02	2	"	22	34	B	42	66	b	62	98
C	ETX	03	3	#	23	35	C	43	67	c	63	99
D	EOT	04	4	$	24	36	D	44	68	d	64	100
E	ENQ	05	5	%	25	37	E	45	69	e	65	101
F	ACK	06	6	&	26	38	F	46	70	f	66	102
G	BEL	07	7	'	27	39	G	47	71	g	67	103
H	BS	08	8	(	28	40	H	48	72	h	68	104
I	HT	09	9	)	29	41	I	49	73	i	69	105
J	LF	0A	10	*	2A	42	J	4A	74	j	6A	106
K	VT	0B	11	+	2B	43	K	4B	75	k	6B	107
L	FF	0C	12	,	2C	44	L	4C	76	l	6C	108
M	CR	0D	13	-	2D	45	M	4D	77	m	6D	109
N	SO	0E	14	.	2E	46	N	4E	78	n	6E	110
O	SI	0F	15	/	2F	47	O	4F	79	o	6F	111
P	DLE	10	16	0	30	48	P	50	80	p	70	112
Q	DC1	11	17	1	31	49	Q	51	81	q	71	113
R	DC2	12	18	2	32	50	R	52	82	r	72	114
S	DC3	13	19	3	33	51	S	53	83	s	73	115
T	DC4	14	20	4	34	52	T	54	84	t	74	116
U	NAK	15	21	5	35	53	U	55	85	u	75	117
V	SYN	16	22	6	36	54	V	56	86	v	76	118
W	ETB	17	23	7	37	55	W	57	87	w	77	119
X	CAN	18	24	8	38	56	X	58	88	x	78	120
Y	EM	19	25	9	39	57	Y	59	89	y	79	121
Z	SUB	1A	26	:	3A	58	Z	5A	90	z	7A	122
[	ESC	1B	27	;	3B	59	[	5B	91	{	7B	123
\	FS	1C	28	<	3C	60	\	5C	92	|	7C	124
]	GS	1D	29	=	3D	61	]	5D	93	}	7D	125
^	RS	1E	30	>	3E	62	^	5E	94	~	7E	126
_	US	1F	31	?	3F	63	_	5F	95	DEL	7F	127

NUL	Null, or all zeros	VT	Vertical Tab	SYN	Sync.
SOH	Start of Header	FF	Form Feed	ETB	End Transmission Block
STX	Start of Text	CR	Carriage Return	CAN	Cancel
ETX	End of Text	SO	Shift Out	EM	End of Medium
EOT	End of Transmission	SI	Shift In	SUB	Substitute
ENQ	Enquiry	DLE	Data Link Escape	ESC	Escape
ACK	Acknowledge	DC1	Device Control 1	FS	File Separator
BEL	Bell or Alarm	DC2	Device Control 2	GS	Group Separator
BS	Backspace	DC3	Device Control 3	RS	Record Separator
HT	Horizontal Tab	DC4	Device Control 4	US	Unit Separator
LF	Line Feed	NAK	Negative Acknowledge	DEL	Delete

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