

USR[®] Courier[®] Lite Business Modem User Guide

USR5686G-PRO



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INTRODUCTION

Thank you for purchasing the USRobotics Courier Lite 56K Business Modem!

The USR® Courier® *Lite* 56K Business Modem with V.Everything® technology offers the perfect solution for both Out-of-Band Management of networks or Point-of-Sale applications. Many modems claim reliability, but few match the real-world performance of Courier modems. Even fewer offer the multitude of advanced business features found on this modem including Carrier Loss Redial and Dialback Security. Remote access capabilities let you remotely configure or troubleshoot modems in Remote Management and other M2M (Machine-to-Machine) applications. When failure is not an option, you need the world-class capabilities that only come from the top of the USR product line.

Product Features

V. Everything Technology

The modem supports all key ITU analog communications protocols and many proprietary ones to provide you with ultimate compatibility.

Dial and Dialback Security

The modem includes a robust mechanism for providing dial and dialback security for your network. See the “[Dial Security](#)” part of the Configuration section of this guide.

Remote Manageability

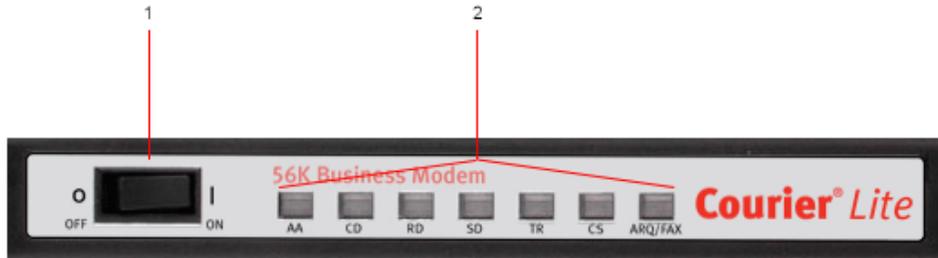
The modem can be remotely configured and monitored for the convenience of your local office. See the “[Accessing and Configuring Remotely](#)” part of the Configuration section of this guide.

INSTALLATION

Modem Installation

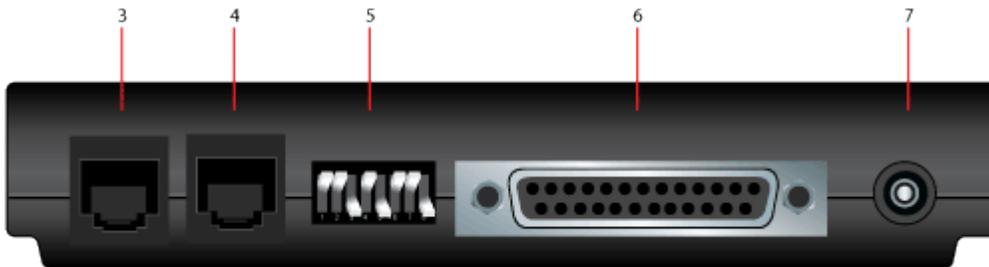
Physical Features

Top



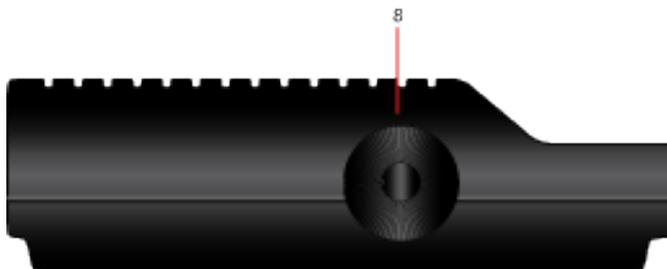
1. Power Switch
2. [LEDs](#)

Back



3. Line to wall jack
4. Line to telephone
5. DIP switches
6. Serial port
7. Power input

Side



8. Volume dial

Step One: Prepare for Installation

1. Uninstall all other modems* that are installed on your computer. For instructions, refer to the documentation for your previous modem or your computer's operating system.
2. Unplug all data, telephone, and power cords connected to your previous modem(s).
3. Shut down your computer and power it off.
4. Locate the serial port on the back of your computer. To find the serial port, look for a port labeled COM, MODEM, RS-232, , or SERIAL. **Do not use the AUX, GAME, LPT, or PARALLEL ports.**

Note: If your computer does not have a serial port, use a USB-to-serial cable that is compatible with your computer's operating system.

*If the previous modem was a USRobotics Courier 56K Business Modem, do not uninstall it. The Courier Lite 56K Business Modem uses the same driver as the Courier 56K Business Modem.

Step Two: Connect the Modem to the Computer

1. Connect one end of the serial modem cable to modem and the other end to your computer's serial port.



Step Three: Connect the Modem to an Analog Telephone Line

Caution: The Courier Lite 56K Business Modem must be plugged in to an analog phone line only. Plugging your Courier Lite 56K Business Modem in to a digital phone line may damage the modem. Most office phones are wired through digital lines. Be sure you know what type of line you have.

1. Plug one end of the telephone cord into the  jack on the modem.
2. Plug the other end into an analog telephone wall jack.



3. To connect a telephone through the modem, plug the telephone's cord into the modem's  jack.

Step Four: Power Up the Modem

1. Plug the power adapter into the power jack on the modem and the other end into an electrical outlet.



2. Turn on the modem by switching the power switch on the top of the modem to ON. The **CS** LED should light.

If the **CS** LED does not light or if other LEDs light, make sure that only DIP switches (located on the back of the modem) **3**, **5**, and **8** are in the ON (down) position.



3. Turn on your computer.

Step Five: Install the Modem Drivers

Windows operating systems should automatically install the modem driver. If the driver does not install automatically, or for other operating systems, visit <http://www.usr.com/support>.

Uninstallation

Consult your computer's operating system documentation for uninstallation procedures.

Modem Upgrade

Upgrading your Modem

This section contains information about:

- [Checking your modem's software version](#)
- [Getting new operating software](#)
- [Getting the Flash Loader application](#)
- [Use the Flash Loader application to send the new software to your modem](#)
- [If the Flash Loader doesn't find your modem](#)
- [If your modem doesn't respond after flashing](#)
- [Remote flash](#)

Checking Your Modem's Software Version

Issuing the AT17 command produces the following information to appear on your terminal screen.

AT17	
USRobotics Courier Lite Configuration Profile...	
Product type	US/Canada External
Product ID	00568607
Options	V32bis,V.80,V.34+,V.90,V.92
Fax Options	Class 1,Class 2.0
Clock Freq	92.0Mhz
Flash ROM	256k
Ram	96k
Supervisor date	May 2 2018
DSP date	May 2 2018
Supervisor rev	V1.0.0
DSP rev	0F
DAA rev	3
Serial Number	xxxxxxxxxxxx
OK	

Check the Supervisor and Digital Signal Processor (DSP) dates found in the screen display. These dates will determine which version of the software your modem is using.

Getting New Operating Software

To get the newest version of the Courier Lite 56K Business Modem's operating software, go to the customer support web site at <http://www.usr.com/support>.

Getting the Flash Loader Application

To flash new firmware into the Courier Lite 56K Business Modem, you must run the USRobotics Flash Loader application on your computer.

To get the newest version of the Flash Loader application, go to the customer support web site at <http://www.usr.com/support>.

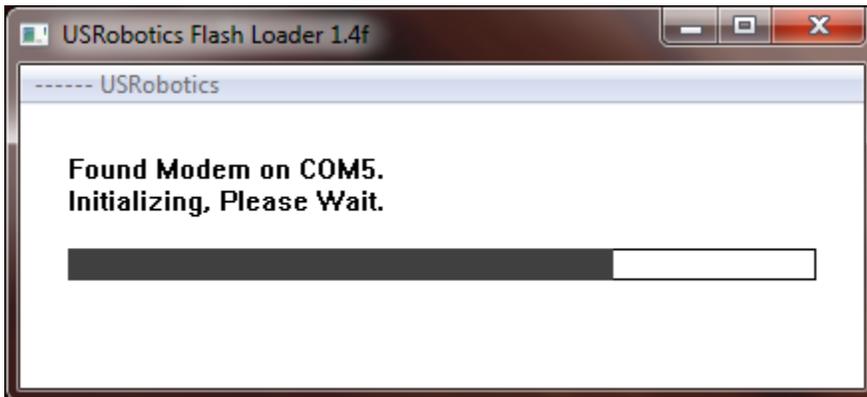
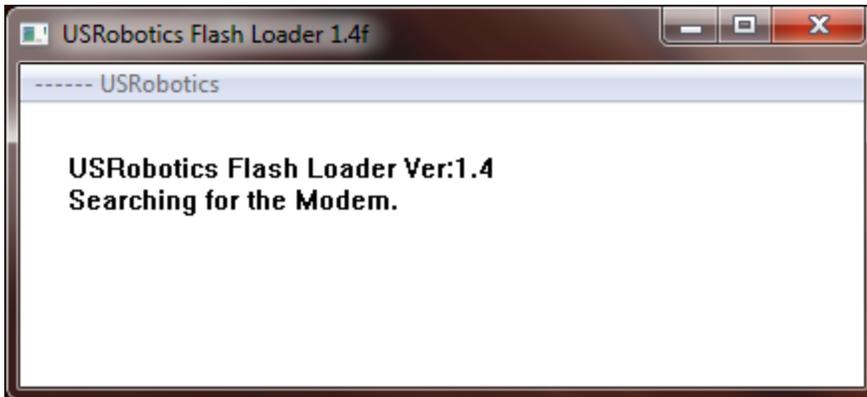
Use the Flash Loader Application to Send the New Software to Your Modem

Run the Flash Loader application.

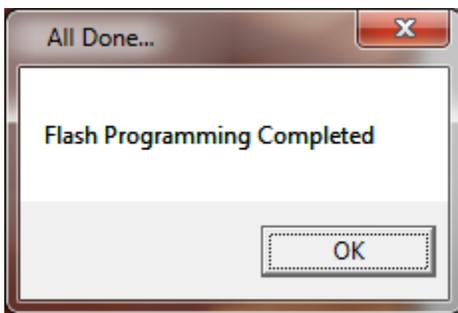
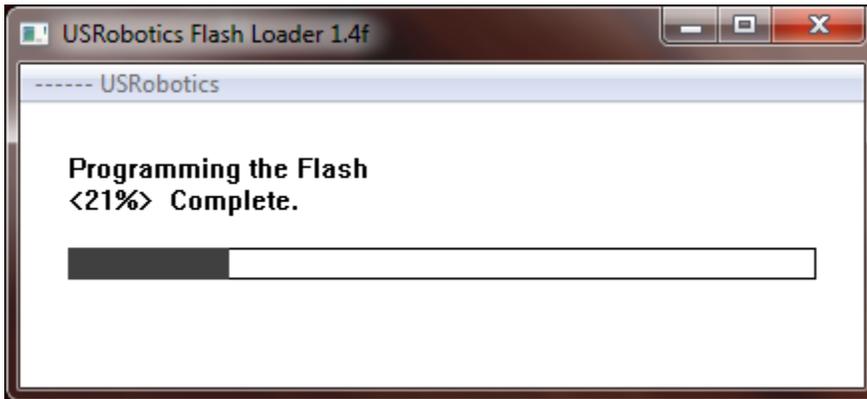
Navigate to the new software file.

After you choose the software file that you want to send, the Flash Loader will search your computer's COM ports for the Courier Lite 56K Business Modem.

Note: There must be no other active modems on any of your computer's COM ports.



Once the Flash Loader selects the COM port, it will send the file to the modem.



If the Flash Loader Doesn't Find Your Modem

If the Flash Loader doesn't find your modem during the flash process:

- Check that your computer has no other active modems on any of its COM ports. Don't forget to disable any internal modems in your computer.
- Manually verify that the Courier Lite 56K Business Modem is active by using a serial terminal application. (e.g. PuTTY, Tera Term, RealTerm, etc.) Select the COM port of the Courier Lite 56K Business Modem. Type **AT** and Enter. The modem should respond **OK**.

If the modem doesn't respond **OK**:

- A. Check that you're using the correct COM port that your computer has assigned to the Courier Lite 56K Business Modem.
 - B. Check that the Courier Lite 56K Business Modem power is ON.
 - C. Check that the serial cable connecting the computer's serial port to the Courier Lite 56K Business Modem is wired with all the RS232 control signals. (i.e. DTR, DSR, CTS, RTS)
- Contact USR Technical Support.

If Your Modem Doesn't Respond After Flashing

If your modem doesn't respond after the flash process, the new software file may be corrupt. Try downloading it again from the USR support website. Then send that file to the Courier Lite 56K Business Modem using the Flash Loader.

If your modem still doesn't respond, contact USR Technical Support.

Remote Flash

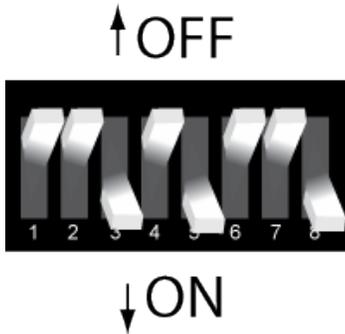
Flashing software into a remote Courier Lite 56K Business Modem is not supported.

CONFIGURATION

Configuring DIP Switches

Locating DIP Switches

On the Courier Lite 56K Business Modem, the DIP switches are on the back of the unit. The default setting is DIP switches 3, 5, and 8 are ON (in the down position).



Using DIP Switches to Configure your Courier Lite 56K Business Modem

To do this	Set DIP Switch	To this setting
Set DTR to Normal	1	OFF (Default)
Ignore DTR	1	ON
Set verbal result code display	2	OFF (Default)
Set numeric result code display	2	ON
Disable result codes	3	OFF
Enable result codes	3	ON (Default)

To do this	Set DIP Switch	To this setting
Enable the echo in offline commands	4	OFF (Default)
Disable the echo in offline commands	4	ON
Enable auto answer	5	OFF
Disable auto answer	5	ON (Default)
Normal Carrier Detect	6	OFF (Default)
Carrier Detect always on	6	ON
Load Y0-Y4 configuration that is stored in non-volatile memory (NVRAM)	7	OFF (Default)
Load the &F0 configuration from read-only memory (ROM)	7	ON
Disable AT commands	8	OFF
Enable AT commands	8	ON (Default)

Accessing and Configuring the Modem Remotely

This section contains information about:

- [Setting Up Remote Access](#)
- [Accessing The Host](#)
- [Quitting a Remote Access Session](#)

Overview

You can set up the Courier Lite 56K Business Modem so other devices can view or change its configuration remotely.

You should be familiar with these terms before you continue:

Local	The device that is directly connected to the computer you are using.
Remote	The device at the other end of a telephone connection.
Host	The Courier Lite 56K Business Modem that will be accessed and controlled by other devices.
Guest	The device that will access and control the host Courier Lite 56K Business Modem.

Setting Up Remote Access

At the Host Courier Lite 56K Business Modem

1. Prepare to send AT commands by putting your communications software in Terminal Mode.
2. Enable remote access.

Set Register S41 for a value of 1 or greater. S41 sets the number of login attempts available to the remote user. A setting of zero allows no login attempts disabling remote access.

Example: Sending **ATS41=1&W** allows for 1 login attempt by a remote user.

3. Set one or two remote-access passwords.

You can set two passwords to allow different levels of access to each Courier Lite 56K Business Modem.

To allow guest users to	Use this command to assign a remote-access password
View the Courier Lite 56K Business Modem's configuration.	AT%P0= <i>password</i>
View and change the Courier Lite 56K Business Modem's configuration.	AT%P1= <i>password</i>

Example: Sending **AT%P1= wombat** will allow a remote user to log in with the password "wombat." The user can view and change the Courier Lite 56K Business Modem's configuration.

Note: Remote-access passwords can be up to eight alphanumeric characters long, and are not case-sensitive.

Other Remote-Access Commands

The table below is a list of remote-access configuration commands.

For your modem to	Command
Display a view-only password	AT%P0?
Display a view-and-change password	AT%P1?
Erase a view-only password	AT%P0=
Erase a view-and-change password	AT%P1=
Disable remote access entirely	ATS41=0

Example: Sending **AT%P1=** will erase the view and change password.

WARNING: If you erase the **%P1** password without disabling remote access (using **ATS41=0**), anyone could access the Courier Lite 56K Business Modem and change its configuration.

Accessing The Host at the Guest Device

The guest device requires no configuration to access the host. Follow these steps:

1. Be sure that the host device has enabled remote access and is set to auto-answer (**ATS0=1**). Know the password, if you will need one.
2. Call the host device (although it doesn't matter which device originates the call).
3. After a connection is established, do this:

Pause 4 seconds.

Type 4 tildes: ~~~~

Pause 4 seconds.

Note: The administrator of the host device can change the remote-access character using S-Register 42, and the pause duration using S-Register 43. Refer to the [S-Registers](#) section for more information.

4. You should see a display similar to this:

*U.S. Robotics Courier 56K Business Remote Access Session
Serial Number 000000A000000001*

Password (Ctrl-C to cancel)?

There is a three minute time limit for entering the password. If the number of unsuccessful login attempts exceeds the set limit, the host device returns online and refuses any further login attempts during the remainder of the connection.

When the host accepts the password, the following message and prompt will appear on your screen:

*Remote Access granted
Remote->*

Note: You may not be prompted for a password. If you aren't, password security is not active. The following prompt appears on your screen after you type the four tildes:

*Remote Access granted (query only)
Remote->*

Note: During a remote-access session, the maximum number of characters between carriage returns is 40.

Viewing and Changing the Host's Configuration

Once you've gained guest access to a host, you can communicate with the host just as if you were entering commands from its attached computer.

Depending on your access privileges, you can use the regular set of Courier Lite 56K Business Modem AT commands.

If you have this access privilege	You can use
View-only	Any of the inquiry (ATI) commands
View and Configure	Any of the Courier Lite 56K Business Modem commands, except those that cannot be used while online (for example, ATD or ATA). You can also use remote configuration commands. See the next section for examples.

CAUTION: Be careful not to send **ATZ** or **ATZ!** or you will lose the connection!

Remote Configuration Commands

There are special commands that can be used only during a remote-access session.

You can change the host Courier 56K Business Modem's serial port rate by using the `AT%Bn` command.

To change the host Courier 56K Business Modem's serial port rate to	Command	To change the host Courier 56K Business Modem's serial port rate to	Command
110 bps	AT%B0	19200 bps	AT%B7
300 bps	AT%B1	38400 bps	AT%B8
600 bps	AT%B2	57600 bps	AT%B9
1200 bps	AT%B3	76800 bps	AT%B10
2400 bps	AT%B4	115200 bps	AT%B11
4800 bps	AT%B5	230400 bps	AT%B12
9600 bps	AT%B6		

Example: Sending `AT%B6` will change the Courier 56K Business Modem's serial port rate to 9600 bps.

You can use the `AT%Fn` command to control the data format.

To change the data format to	Command
No Parity (8 data bits)	AT%F0
Mark parity (7 data bits)	AT%F1
Odd Parity (7 data bits)	AT%F2
Even parity (7 data bits)	AT%F3

You can use the **AT%*Cn*** command to control whether and when to apply changes to the configuration.

For your modem to	Command
Defer configuration changes to when the call ends.	AT%C0(Default)
Restore the original configuration. Use this command to cancel any changes made during remote access and restore the original configuration.	AT%C1
Force configuration changes. Use this command to make configuration changes take effect immediately. We do not recommend forcing changes unless it is absolutely necessary because an unreliable connection, or even a loss of connection, may result.	AT%C2

Example: Sending **AT%C1** will cancel any changes made to the modem during a remote access session and restore it to the original configuration.

Note: Even though, by default (%C0), the changes you make do not take effect until the next connection, the new configuration is reflected immediately in inquiry responses (ATIn). Commands that have been written to NVRAM (using &W) and forced configuration changes (%C2) will not be restored to their previous settings when you send the host AT%C1.

After you make changes to the host’s configuration, the remote- access prompt changes from *Remote->* to *Remote+>*.

If you restore the original configuration using the AT%C1 command, the first prompt is restored, assuring you the original configuration is intact.

Quitting A Remote Access Session

If you want to quit the remote access login before you have entered the password, return online by pressing **<Ctrl>C** or typing **ATO**.

After you’ve entered the password, you can quit by sending one of these commands:

To end the remote-access session	Command
And keep the connection.	ATO
And end the connection.	ATH
End the connection, and reset the host modem.	ATZ

Note: Before you disconnect, issue the **ATi5** command to the remote modem and check its S41 setting. Make sure S41 is set for a value of 1 or greater. If S41 is set to 0, when you disconnect

you will not be able to access the remote modem again. To prevent this send **ATS41=1&W** before you disconnect.

Dial Security

This section contains information about:

- [Setting up Dial Security](#)
- [Maintaining Security Accounts](#)
- [What The Guest User Needs To Do](#)
- [Configuring Dial Security Remotely](#)
- [DTMF Security](#)

Overview

Dial Security is designed to protect networks and data centers from unauthorized access.

You should be familiar with these terms before you continue:

Local	The device that is directly connected to the computer you are using.
Remote	The device at the other end of a telephone connection.
Host	The Courier Lite 56K Business Modem that will be accessed and controlled by other devices.
Guest	The device that will access and control the host Courier Lite 56K Business Modem.

You can configure up to 5 accounts: one administrative account for you and four accounts for guest users. The account profiles are stored in the host Courier Lite 56K Business Modem's nonvolatile random access memory (NVRAM).

There are two forms of Dial Security; each will be explained later in this section :

- Autopass
- Password Prompting

Setting up Dial Security

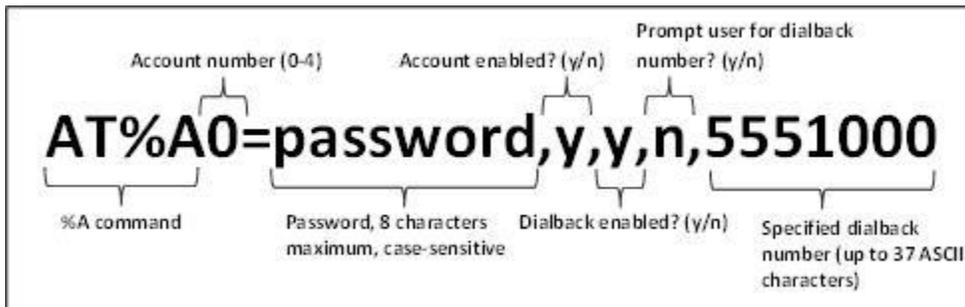
Here is a summary of the steps for setting up Dial Security:

1. Set up an account for yourself
2. Identify your account as the Administrative Account
3. Set up guest-user accounts
4. Enable local (host) security
5. Choose a Dial Security method
6. Enable Dial Security
7. Activate the Dial Security settings

1. Set up an account for yourself

Use any of the 5 available accounts (numbered 0-4) for your account. Use the **AT%An** command to set up user accounts.

Note: The **AT%An** command is automatically written to NVRAM. It does not require you to send **&W**.



WARNING: Do not insert spaces between commas or between fields and commas. Spaces will invalidate the command.

Dialback options

You can set the Courier Lite 56K Business Modem to automatically dial back a certain number after a guest modem dials in.

Note: Count your commas. There should always be at least four commas in the **%A** command. Do not insert spaces between commas or between fields and commas. Spaces will invalidate the command.

To make the host Courier Lite 56K Business Modem	Command	Example
Hang up and then dial back a guest device at a specified number. Expect a pause of approximately 1.5 minutes before the modem dials back. You cannot alter the duration of the pause.	<i>AT%A0=password,y,y,n,1area code and phone number</i>	<i>AT%A0=wombat,y,y,n,1,8475555555</i>
Prompt you to enter a number at which to dial back a device, and then have the Courier Lite 56K Business Modem dial back the device at that number	<i>AT%A0=password,y,y,y,</i>	<i>AT%A0=wombat,y,y,y,</i>
Disable dialback	<i>AT%A0=password,y,n,,</i>	<i>AT%A0=wombat,y,n,,</i>

Note: To enable Dialback, you must enable Dial Security with Prompting. See step 6.

2. Identify your account as the Administrative Account

For your modem to	Command	Example
Identify your account as the Administrative Account	AT%L	AT%L=PWO This example sets account 0 as the Administrative Account.

Once you set the administrative password, you cannot view or modify the guest account profiles unless you enter the correct administrative password.

WARNING: Be sure to remember your administrative password. If you enable Dial Security and then forget your administrative password, you will be locked out of the Courier Lite 56K Business Modem’s dial security features. You will need to restore the factory defaults by setting DIP switch 7 ON. This will erase ALL passwords and you will have to reconfigure all your accounts.

3. Set up guest-user accounts

Use the AT%A*n* command to set up guest-user accounts in the same way you set up your administrative account. You can set up four guest accounts. Refer to the figure in step 1 regarding information about formatting the AT%A*n* command.

After you have enabled the guest accounts, make sure the guest users know their passwords and the log-in procedure.

Modifying accounts

After you have set up an account, you can modify each field independently. If a field is to remain unchanged from its original setting, just insert a comma as shown:

AT%A1=,,,Y,

The command above allows the guest user to supply a dialback number that is different from the one stored in the original account record.

4. Enable Local Security.

WARNING: If you do not enable Local Security, the Dial Security settings will not be protected and other users will be able to change or erase them.

For your modem to	Command
Protect the administrative password (local security enabled)	ATS53.2=1

Note: You must use the &W command to save the settings in NVRAM. If you don’t, the next time you reset or power off the Courier Lite 56K Business Modem, Dial Security will be disabled.

5. Decide which Dial Security option to use

You can choose from the two types of Dial Security: Autopass and Password Prompting.

Autopass

Autopass is the default form of password protection. Autopass automates the process of logging in to the host modem, but it requires the guest and host devices to be U.S. Robotics Courier modems.

When a guest device attempts an Autopass connection, the guest includes the password in its V.42 error-control request. The host modem checks all the enabled passwords in its security accounts for a match.

Password Prompting

Password Prompting allows connections with any guest device, as long as the guest user knows the correct password.

When the host has Password Prompting enabled, it asks guest users for a password. The host modem checks the received password against each of its active Security accounts.

The table below is a comparison between Autopass and Password prompting.

When using Autopass Prompting	When using Password Prompting
Both the host and guest devices are made by U.S. Robotics and have Dial Security enabled.	Guest devices don't have to support U.S. Robotics Dial Security.
<p>The connection between the Courier Lite 56K Business Modem or modems is under V.42 error control.</p> <p>(Refer to the Alphabetic Command Summary section for information about using AT&M4 or AT&M5.)</p>	V.42 error-control connections aren't required.
If the guest includes an invalid password, the host sends an INVALID PASSWORD message and hangs up.	<p>If the guest sends an invalid password, the host prompts twice more before disconnecting.</p> <p>If the guest does not send a password after 60 seconds, the host disconnects.</p>
If the guest includes a valid password, the host permits a secure connection.	The host will still always respond to a correct Autopass attempt.
If the guest did not enable Dial Security, the host will not accept the call unless prompting is enabled on the host Courier Lite 56K Business Modem.	

6. Enable Dial Security

WARNING: Before you enable Dial Security, you must set up an administrative account and password. See Steps 1 & 2.

For your modem to enable	Command
Autopass Dial Security	ATS53.0=1
Dial Security with Password Prompting (this also enables Autopass)	ATS53.0=1.1=1
Dialback Security, enable Password Prompting and enable Dialback in each guest account	AT%An=password,y,y,y,phone number where n is the account number. See the figure in previous section, Setting Up Dial Security for more information.

Example: Issuing AT%A3=wombat,y,y,y,5551234 to your modem will enable Password Prompting and Dialback for account 3, which has the password "wombat."

Note: You must use the &W command to save the settings for Enabling Autopass Dial Security and Dial Security with Password Prompting. If you don't, the next time you reset or power off the Courier Lite 56K Business Modem, Dial Security will be disabled.

If you need a reference when setting these commands, you can use the AT110 command. Refer to the Alphabetic Command Summary section for more information about the AT110 command.

7. Send ATZ or ATZ! to activate the Dial Security settings.

Note: Make sure that DIP switch 7 is OFF, so the modem loads the settings stored in NVRAM. If DIP switch 7 is ON, the settings in ROM (&F0) are loaded, disabling dial security. You can retrieve the dial security settings by setting DIP switch 7 OFF and resetting the Courier Lite 56K Business Modem using ATZ or by toggling the power of the modem.

Maintaining Security Accounts

Once the administrative password is set and Dial Security is enabled, the administrator is the only one who can access account information.

You can use the AT%S= and AT%E= commands to change and modify account information.

For your modem to	Command
Access accounts by disabling local security	<i>AT%S=administrative password</i>
View account information, once access has been granted. Remote users may only use this command during remote access sessions if local-access security is disabled.	AT!10
Erase local-access password	AT%E=1
Erase Autopass password	AT%E=2
Erase passwords in accounts 0-4	AT%E=3
Erase phone numbers in accounts 0-4	AT%E=4
Disable Account, Dialback, and New Number fields in accounts 0-4.	AT%E=5
Edit or overwrite an individual account or an individual account field	AT%An= where <i>n</i> is the account number. See the image in the Setting Up Dial Security section for more information.

Example: Sending AT%E=3 erases passwords for accounts 0-4.

Note: When using the AT%S= command, the device echoes the administrative password, which is case-sensitive. Courier 56K Business Modems will accept an invalid password entry, but will lock out users from the security commands. For example, if the password is Green, but you enter GREEN, an OK is displayed. However, if you try to type a security command (for example, AT!10 to view accounts), an [ACCESS DENIED] message is displayed.

Remote Configuration

Dial Security accounts may be configured remotely. (Refer to [Configuring Dial Security Remotely](#) at the end of this section .)

What The Guest User Needs To Do

When guest users want to call in to the host (assuming you have enabled Dial Security by entering AT\$53.0=1),

- They must know the password.
- If you have enabled Dialback, they must set their device to auto-answer.

1. If the host has security enabled, get a password from the host’s administrator. The password is case-sensitive, so be sure to copy it correctly.

If the host has prompting enabled and the host operator enables Dialback for your account, skip to Step 3.

2. For guest users with Courier Lite 56K Business Modems (or I-Modems) only:

a) Create a security account using the password the host’s administrator asked you to use. (See [Setting Up Dial Security](#), earlier in this section for instructions.)

b) You need to assign the password as your Autopass password.

For your modem to	Command
Assign the password as your Autopass password.	AT%V=PW <i>n</i> where <i>n</i> is the number of the account you set up.

Example: Sending **AT%V=PW3** will assign the password as an Autopass password for account 3.

c) Check to see that you set your Autopass password correctly by using the **ATI10** command.

Your Autopass password appears beside AUTOPASS PASSWORD if you have done all the steps correctly.

d) Once the Autopass password is set, enable your Courier Lite 56K Business Modem’s Dial Security.

For your modem to	Command
Enable Dial Security	AT\$53.0=1

CAUTION: If you do not follow an S-Register setting with &W, the setting will be retained only until the next reset or power off.

- If Dialback is enabled at the host Courier Lite 56K Business Modem's site, set your modem to answer the host Courier Lite 56K Business Modem when it dials back.

For your modem to	Command
To answer the Dialback call	ATSO=1

- Call the host.
- After the call ends you can disable Auto Answer.

For your modem to	Command
Disable Auto Answer	ATSO=0

Configuring Dial Security Remotely

The host administrator can configure the host's security settings remotely.

Note: At the host device, you must have previously enabled remote access and assigned a remote-access password that allows view-and-change privileges (Refer to the [Accessing and Configuring the Modem Remotely](#) section in this guide). You may want to use your administrative password as your remote-access password.

Dialing In From the Remote Site

- From the remote site, connect to the host using Dial Security. Once a connection is made, follow the instructions for beginning a remote-access session as described in the [Accessing and Configuring the Courier Lite 56K Business Modem Remotely](#).
- When remote access has been granted, use the **AT%S=** command to access the Dial Security accounts. Refer to the [Maintaining Security Accounts](#) part in this section .

To view the security account information use **ATI10**.

- Make any configuration changes and execute them immediately by entering **AT%C2**.
- To end the remote session and reactivate Dial Security on the host, reset the host device by issuing **ATZ**.

WARNING: If you do not use the ATZ command to end a remote-access session, Dial Security will remain disabled at the host, and anyone dialing in to the host for remote access will have access to the ATI10 screen and all Dial Security accounts.

DTMF Security

DTMF (Dual Tone Multi-Frequency) Security requires a modem to go off hook when it receives a call but keep silent until it receives the valid DTMF password. After the modem receives the valid password, it will begin training. If the DTMF password is invalid, the modem will go on hook, and the DTE will never know there had been a call coming.

The DTMF security status and password are shown in the AT110 screen.

DTMF security is enabled by setting the S53 bit 3, e.g. S53=8 or S53.3=1.

Using the %D command sets the DTMF security password (AT%D=PW*n*, *n*=0--4). Make sure to disable that account so no one can use the DTMF password as the Dial Security account. For example, to set local modem DTMF security password, you may use following command: AT%A0=123456,N,,, then AT%D=PW0. You can change that security account later, if you like.

The DTMF password can be the combination of 0123456789*ABCD; the # is used as the password end sign. The maximum length of the DTMF password is eight characters.

The remote modem dial string should look like this: ATDT2625000@123456#. In this example, "123456" is the DTMF security password.

Testing the Connection

This section contains information about:

- [Testing the Courier Lite 56K Business Modem using AT&Tn](#)

Overview

Your modem can perform local analog loopback and local digital loopback tests. You can use these tests to check the operations of the modem's transmitter and receiver, or to locate a problem with a remote device or a telephone line.

Testing is done by sending the AT&T*n* command or by setting Register S16. Only one test can be performed at a given time. If you send a test command while the modem is in test mode, you will receive an ERROR message.

All loopback testing conforms to ITU-T Recommendation V.54.

Testing the Courier Lite 56K Business Modem using AT&Tn

To perform local analog loopback and local digital loopback testing, use the AT&Tn command. You can type in your own data during testing or use the modem's internal test pattern and error detector. See the following sections for more detailed information about each AT&Tn command.

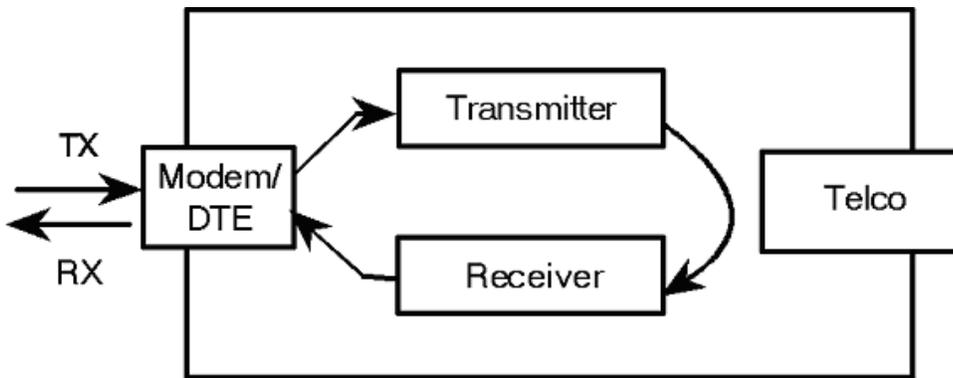
For your modem to	Command
End test	AT&T0
Local analog loopback	AT&T1
Local digital loopback	AT&T3
Local analog loopback with test pattern	AT&T8

Example: Sending AT&T3 to your Courier Lite 56K Business Modem will allow a remote user to test their connection to your modem.

Note: Disable error control (using the &M0 command, refer to the Alphabetic Command Summary) before testing. If the modem is detecting errors and retransmitting the affected data, your results will be invalid.

Analog Loopback Testing

Local loopback testing checks the operation of the Courier Lite 56K Business Modem's transmitter and receiver.



Using AT&T1

1. Send **AT&M0&N3S14.0=0** to prepare the modem for testing.

This command disables error control, fixes the connection rate at 2400 bps, and makes the modem return to command mode when you type +++.

2. Send **AT&T1** to the modem so it enters analog loopback mode. The CD status light will illuminate.
3. Type any recognizable data. It will be looped back by your modem's transmitter for verification on your screen.
4. When the test is completed, send +++ and then **AT&T0** to end the test.

Alternatively, you can end the test by sending **ATH**, or **ATZ**. Be careful, though, because **ATZ** resets the modem in addition to ending the test.

In either case, the modem responds with OK. If the modem sends an ERROR message, you have issued an invalid command.

5. Send **AT&M4**, unless you used a reset command (**ATZ**).

Note: If the Courier Lite 56K Business Modem is in online command mode, still connected to a remote modem, and you send AT&T1 or AT&T8, it drops the call, enters analog loopback mode, sends a CONNECT result, and waits for loopback characters.

Stopping a Test (AT&T0, ATS18)

To stop a test, send **AT&T0** to the modem, or set Register S18 to a specified number of seconds (for example, **ATS18=10**). When the 10 seconds are up, the modem will stop the test automatically and return to Command Mode. Send **ATH** to the modem to hang up, or send **ATZ** to hang up and reset the modem to its defaults.

Note: If you use the S18 test timer, but in the process of testing you issue an ATZ command, S18 resets to zero and the timer is disabled. You cannot store a value for S18 in NVRAM; its power-on and reset default is always zero.

Using AT&T8

This analog loopback option causes the Courier Lite 56K Business Modem to send an internal test pattern to its transmitter and loop it back to the receiver. An internal error detector counts any errors and, when the test is ended, sends the number of errors or 000 (no errors) to the screen.

Since you don't type anything during this test and the Courier Lite 56K Business Modem does not send anything to the screen, this option verifies only the Courier Lite 56K Business Modem. If there are no errors but your problem continues, it may be at the computer interface.

1. Send **AT&M0&N3S14.0=0** to the modem to prepare for testing.

This command disables error control, fixes the connection rate at 2400 bps, and makes the Courier Lite 56K Business Modem return to command mode when you type +++.

- Send **AT&T8** to begin the test.

The Courier Lite 56K Business Modem enters analog loopback (AL) mode, and sends a CONNECT message. The CD status light will illuminate. The modem then sends its internal test pattern to the transmitter, and loops the pattern back to the receiver. You will not see any data on your screen.

- Send the escape code, **+++**, and then **AT&T0** to end the test.

Alternatively, you can end the test with the S18 test timer or by sending ATH or ATZ. Be careful, because ATZ resets the modem in addition to ending the test.

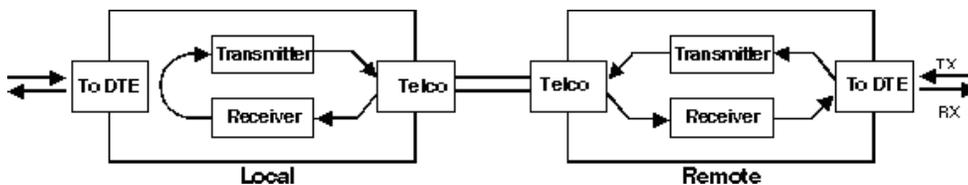
In any case, the Courier Lite 56K Business Modem hangs up and returns a three-digit code, followed by OK.

The code	Indicates
000	No errors were found
255	255 or more errors
An ERROR message indicates that you issued an invalid command.	

- Send **AT&M4**, unless you used a reset command (ATZ or ATZ!).

Digital Loopback Testing (AT&T3)

This test can help you locate a problem with a remote device or with the telephone line. The figure below shows the data flow during Digital Loopback (DL) testing.



- Send the command **AT&M0&N3S14.0=0** to the modem to prepare for testing.

This command disables error control, fixes the connection rate at 2400 bps, and makes the Courier return to command mode when you type **+++**.

- Establish a connection with the remote device.
- Send the Courier Lite 56K Business Modem the escape code, **+++**, to bring it back to Command mode.
- Send **AT&T3** to the modem to enter Digital Loopback mode.

5. Have the remote user type a short message. It will be looped back by your Courier Lite 56K Business Modem's transmitter for verification on the remote user's screen. You will not see the message or any other data.
6. When the remote user has completed the test, send the escape code, **+++**, and then **AT&T0** to end the test.

Alternatively, you can end the test with the S18 test timer or by sending ATH or ATZ. Be careful, because ATZ resets the modem in addition to ending the test.

In any case, the Courier Lite 56K Business Modem responds OK. If the modem sends an ERROR message, you have issued an invalid command.

7. Send **AT&M4**, unless you used ATZ.

REFERENCE

S-Registers

Understanding Bit-Mapped S-Registers

A bit-mapped S-Register uses one number to describe a collection of settings. Bit-mapping allows us to pack a lot of information in a small space.

Bit-mapped registers are in the form of $Sr.b=n$, where r is the bit-mapped register; $.b$ is the bit; n is 0 (off) or 1 (on).

The modem displays the value of an S-Register, as a decimal value between 0 and 255. The modem, however, understands the decimal value as a collection of binary digits (bits).

How bits are mapped to decimal values

Bits can be mapped into decimal values. Each bit can be either on (1) or off (0). Eight bits create 256 unique combinations of 1s and 0s. Each of the eight bits can be assigned a number corresponding to its position:

b b b b b b b b
7 6 5 4 3 2 1 0

Also, each bit can be assigned a value corresponding to its number (e.g., the value equals 2 to the power of the bit):

Bit	Value
7	128
6	64
5	32
4	16
3	8
2	4
1	2
0	1

Converting Bits to Decimal Values

Starting with a string of eight bits, assign each "1" bit a value based on its position. Add the values to come up with the final decimal value.

Here's an example of how bits are converted to decimal values:

01001111

0	1	0	0	1	1	1	1	
0	+ 64	+ 0	+ 0	+ 8	+ 4	+ 2	+ 1	= 79

Converting Decimal Values to Bits

Convert decimal values to bits by finding the largest decimal equivalent that is less than the decimal value. Subtract the decimal equivalent and mark the equivalent bit "1." Continue until the decimal value is zero. See the example below.

113

$$113 - 64 = 49$$

01

$$49 - 32 = 17$$

011

$$17 - 16 = 1$$

0111

$$1 - 1 = 0$$

01110001

Setting Bit-Mapped S-Registers

You can set bit-mapped S-Registers using either bits or decimal values. While it may be simpler for you to set the bits individually, your modem displays the S-Register settings in decimal form.

Using Bits

Turning individual bits on and off is the more direct way to set bit-mapped S-Registers. To do this, specify the S-Register that you want to set and then indicate which bits you want to turn on (1) or off (0).

Example: $ATS13.0=1.4=1.5=1$, turns bits 0, 4, and 5 on for S-Register 13.

Using Decimal Values

An alternative way to set bit-mapped S-Registers is by adding the decimal values of the bits and entering the total.

This example, $ATS13=49$, sets the same value as the one in Using Bits above.

A complete list of S-Registers

Register	Default	Function
S0	0	Sets the number of rings on which to answer in Auto Answer mode. S0=0 disables Auto Answer. S0=1 enables Auto Answer and the Courier Lite 56K Business Modem answers on the first ring.
S1	0	Counts and stores the number of rings from an incoming call.
S2	43	Stores the ASCII decimal code for the escape code character. Default character is "+". A value of 128-255 disables the escape code.

Register	Default	Function
S3	13	Stores the ASCII decimal code for the Carriage Return character. Valid range is 0-127.
S4	10	Stores the ASCII decimal code for the Line Feed character. Valid range is 0-127.
S5	8	Stores the ASCII decimal code for the Backspace character. A value of 128-255 disables the Backspace key's delete function.
S6	0	Set the number of seconds the Courier Lite 56K Business Modem waits for a dial tone.
S7	60	Sets the number of seconds the Courier Lite 56K Business Modem waits for a carrier. May be set for much longer duration if, for example, the Courier Lite 56K Business Modem is originating an international connection.
S8	2	Sets the duration, in seconds, for the pause (,) option in the Dial command and the pause between command reexecutions (> and A> commands).
S9	6	Sets the required duration, in tenths of a second, of the remote device's carrier signal before recognition by the Courier Lite 56K Business Modem.
S10	14	Sets the duration, in tenths of a second, that the Courier Lite 56K Business Modem waits after loss of carrier before hanging up. This guard time allows the Courier Lite 56K Business Modem to distinguish between a line hit, or other disturbance that momentarily breaks the connection, and a true disconnect (hanging up) by the remote device.
S11	70	Sets the duration and spacing, in milliseconds, of dialed tones.
S12	50	Sets the duration, in fiftieths of a second, of the guard time for the escape code (+++) sequence.

Register	Default	Function		
S13	0	Bit-mapped register. See the beginning of this section for information about setting bit-mapped registers.		
		Bit	Value	Result
		0	1	Reset when DTR drops.
		1	2	Reverse normal Auto Answer operation: On incoming RING, enter Originate Mode and look for an answer tone.
		2	4	Add 250 ms pause before NO CARRIER display.
		3	8	On DTR signal, autodial the number stored in NVRAM at position 0.
		4	16	At power-on/reset, autodial number stored in NVRAM at position 0.
		5	32	Reserved
		6	64	Disable MNP Level 3 (used for testing Level 2).
		7	128	Hardware reset (works like powering off and then on).
S14	0	Bit-mapped register (See the beginning of this section for information about setting bit-mapped registers).		
		Bit	Value	Result
		0	1	Disconnect on escape code.
		1	2	Reserved
		2	4	Reserved
		3	8	Reserved
		4	16	Reserved
		5	32	Reserved
		6	64	Reserved
		7	128	Reserved

Register	Default	Function		
S15	0	Bit-mapped register. (See the beginning of this section for information about setting bit-mapped registers).		
		Bit	Value	Result
		0	1	Reserved
		1	2	Reserved
		2	4	Reserved
		3	8	Reserved
		4	16	Disable MNP Level 4; retransmitting the larger Level 4 data blocks may be a problem if you expect a great number of errors during a call.
		5	32	Reserved
		6	64	Some earlier 2400 bps MNP modems, not made by U.S. Robotics or Microcom, were not fully compatible with the MNP protocol. If you have difficulty making a successful 2400 bps MNP connection with a remote MNP modem, it may be because of this incompatibility. Set S15 to 64 and try again to make the connection.
		7	128	Reserved
S16	0	Bit-mapped register. (See the beginning of this section for information about setting bit-mapped registers). For testing, refer to the Testing the Connection part of the Configuration section.		
		Bit	Value	Result
		0	1	Reserved
		1	2	Dial Test.
		2	4	Test pattern.
		3	8	Reserved
		4	16	Reserved
		5	32	Reserved
		6	64	Reserved
		7	128	Reserved

Register	Default	Function
S18	0	Test timer for software-initiated loopback testing (&Tn); disabled when S18 is set to 0. Used to set the duration of testing, in seconds, before the Courier Lite 56K Business Modem automatically times out and terminates the test.
S19	0	Sets the duration, in minutes, for the Inactivity Timer. The timer activates when there is no data activity on the R232 interface, and at the timeout the Courier Lite 56K Business Modem hangs up. S19=0 disables the timer.
S21	10	Sets, in 10-millisecond units, the length of breaks sent from the Courier Lite 56K Business Modem to the computer or terminal. Applies to ARQ mode only. This command overwrites the current status of the +EB command, and is also overwritten by changes made by the +EB command.
S22	17	Stores the ASCII code for the XON character.
S23	19	Stores the ASCII code for the XOFF character.
S24	150	Sets the duration, in 20-millisecond units, between pulsed DSR signals when the Courier Lite 56K Business Modem is set to &S2 or &S3. The default is 3 seconds.
S25	5	Sets DTR recognition time in 10-millisecond units.
S26	1	Reserved

Register	Default	Function		
S27	0	Bit-mapped register. (See the beginning of this section for information about setting bit-mapped registers).		
		Bit	Value	Result
		0	1	Enable ITU-T V.21 modulation at 300 bps for overseas calls. In V.21 mode, the Courier Lite 56K Business Modem answers both Bell 103 and V.21 calls, but only originates V.21 calls.
		1	2	Reserved
		2	4	Disable V.32 modulation.
		3	8	Reserved
		4	16	See error control handshaking options below.
		5	32	See error control handshaking options below.
		6	64	Reserved
		7	128	Unusual software incompatibility. Some software may not accept some result codes. This setting disables the codes and displays the 9600 code instead. The call's actual rate can be viewed on the ATI6 screen.
		Error control handshaking options: Select the total value of bits 4 and 5		
		Bit 4	Bit 5	Result
		0	0	Complete handshaking sequence: V.42 Detection, LAPM error control, MNP.
		16	0	Disable MNP.
		0	32	Disable V.42 Detection and LAPM.
		16	32	Disable Detection phase, if you know that the remote Courier Lite 56K Business Modem does LAPM, but not the Detection phase.

Register	Default	Function																											
S28	8	Sets the duration in tenths of a second of the extra 3000/600 Hz answer tones sent during V.32 hand-shaking. This gives V.32 modems additional time to connect in V.32 mode before timing out. If there is difficulty answering older, manually operated V.32 modems (for example, modems that require a button to be pushed in order to dial), try lengthening the duration of the extra tones. Setting S28 to zero eliminates the extra tones resulting in a faster connect time if, for example, the Courier Lite 56K Business Modem is set to use V.21 modulation (300 bps) or V.23 modulation (1200 bps).																											
S29	20	Sets the duration, in tenths of a second, of the V.21 answer tone.																											
S32	9	Reserved																											
S34	0	Bit-mapped register. See the beginning of this section for information about setting bit-mapped registers.																											
		<table border="1"> <thead> <tr> <th>Bit</th> <th>Value</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>Disable V.32 bis. Used for troubleshooting; Technical Support may ask you to disable V.32bis for testing purposes.</td> </tr> <tr> <td>1</td> <td>2</td> <td>Reserved</td> </tr> <tr> <td>2</td> <td>4</td> <td>Reserved</td> </tr> <tr> <td>3</td> <td>8</td> <td>Enable V.23. Required for some British connections.</td> </tr> <tr> <td>4</td> <td>16</td> <td>Reserved</td> </tr> <tr> <td>5</td> <td>32</td> <td>Reserved</td> </tr> <tr> <td>6</td> <td>64</td> <td>Reserved</td> </tr> <tr> <td>7</td> <td>128</td> <td>Disable V.32 terbo.</td> </tr> </tbody> </table>	Bit	Value	Result	0	1	Disable V.32 bis. Used for troubleshooting; Technical Support may ask you to disable V.32bis for testing purposes.	1	2	Reserved	2	4	Reserved	3	8	Enable V.23. Required for some British connections.	4	16	Reserved	5	32	Reserved	6	64	Reserved	7	128	Disable V.32 terbo.
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5	32	Reserved																											
6	64	Reserved																											
7	128	Disable V.32 terbo.																											
S39	10	Display transmit level in dBm with an implied minus sign. Read-only.																											

Register	Default	Function																											
S41	0	<p>Sets the number of allowable remote-access login attempts, thus enabling or disabling remote access.</p> <p>The default setting of zero allows no remote login attempts, disabling remote access. A value of 1 or greater enables remote access. If the number of unsuccessful login attempts exceeds the limit set by this register, the Courier Lite 56K Business Modem returns online and any further login attempts during the remainder of that connection are refused.</p>																											
S42	126	Stores the ASCII decimal code for the remote-access escape character. The default character is a tilde (~).																											
S43	200	Sets the duration, in fiftieths of a second, of the guard time for the remote-access (~~~~) sequence.																											
S44	15	Sets the duration, in seconds, of the interval between losing carrier and reestablishing a connection.																											
S51	0	Bit-mapped register. See the beginning of this section for information about setting bit-mapped registers.																											
		<table border="1"> <thead> <tr> <th>Bit</th> <th>Value</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>Reserved</td> </tr> <tr> <td>1</td> <td>2</td> <td>Reserved</td> </tr> <tr> <td>2</td> <td>4</td> <td>Reserved</td> </tr> <tr> <td>3</td> <td>8</td> <td>Reserved</td> </tr> <tr> <td>4</td> <td>16</td> <td>Reserved</td> </tr> <tr> <td>5</td> <td>32</td> <td>Reserved</td> </tr> <tr> <td>6</td> <td>64</td> <td>Disable Selective Reject</td> </tr> <tr> <td>7</td> <td>128</td> <td>Reserved</td> </tr> </tbody> </table>	Bit	Value	Result	0	1	Reserved	1	2	Reserved	2	4	Reserved	3	8	Reserved	4	16	Reserved	5	32	Reserved	6	64	Disable Selective Reject	7	128	Reserved
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4	16	Reserved																											
5	32	Reserved																											
6	64	Disable Selective Reject																											
7	128	Reserved																											

Register	Default	Function		
S53	126	Bit-mapped register. (See the beginning of this section for information about setting bit-mapped registers).		
		Bit	Value	Result
		0	1	Dial security enabled.
		1	2	Prompting enabled.
		2	4	Local-access password protection enabled.
		3	8	DTMF security enabled.
		4	16	Reserved
		5	32	Reserved
		6	64	Reserved
		7	128	Reserved
S54	64	Symbol rate bit-mapped register used primarily by Technical Support for debugging purposes.		
		Bit	Value	Result
		0	1	Disable 2400 symbol rate.
		1	2	Disable 2743 symbol rate.
		2	4	Disable 2800 symbol rate.
		3	8	Disable 3000 symbol rate.
		4	16	Disable 3200 symbol rate.
		5	32	Disable 3429 symbol rate.
		6	64	Disable Call Indicate (CI).
		7	128	Disable V.8.
S55	0	Reserved		

Register	Default	Function		
S56	0	Bit-mapped register primarily used by Technical Support for debugging purposes.		
		Bit	Value	Result
		0	1	Reserved
		1	2	Reserved
		2	4	Reserved
		3	8	Reserved
		4	16	Reserved
		5	32	Disable V.34+
		6	64	Disable V.34.
		7	128	Disable V.FC.
S58	0	Bit-mapped register. (See the beginning of this section for information about setting bit-mapped registers.)		
		Bit	Value	Result
		0	1	Reserved
		1	2	Reserved
		2	4	Reserved
		3	8	Reserved
		4	16	Reserved
		5	32	Enables/Disables V.90
		6	64	Disables V.92 functions
		7	128	Reserved
S59	0	Reserved		

Register	Default	Function		
S69	0	Bit-mapped register. (See the beginning of this section for information about setting bit-mapped registers).		
		Bit	Value	Result
		0	1	Disable external Plug and Play
		1	2	Enable Auto Redial
		2	4	Reserved
		3	8	Reserved
		4	16	Reserved
		5	32	Reserved
		6	64	Reserved
		7	128	Reserved
S70	0	Bit-mapped Register. (See the beginning of this section for information about setting bit-mapped registers.)		
		Bit	Value	Result
		0	1	Enable recognition of Ring A
		1	2	Enable recognition of Ring B
		2	4	Enable recognition of Ring C
		3	8	Enable recognition of Ring D
		4	16	Enable recognition of Ring E
		5	32	Reserved
		6	64	Reserved
		7	128	Reserved
S71	0	RCID request delay (1/200 sec)		

Register	Default	Function		
S72	0	Bit-mapped Register. (See the beginning of this section for information about setting bit-mapped registers.)		
		Bit	Value	Result
		0	1	# of requests
		1	2	# of requests
		2	4	# of requests
		3	8	Request duration * 10 mS
		4	16	Request duration * 10 mS
		5	32	Request duration * 10 mS
		6	64	Request duration * 10 mS
		7	128	Request duration * 10 mS
S73	0	Bit-mapped Register. (See the beginning of this section for information about setting bit-mapped registers.)		
		Bit	Value	Result
		0	1	Request level
		1	2	Request level
		2	4	Request level
		3	8	Request pause * 10 mS
		4	16	Request pause * 10 mS
		5	32	Request pause * 10 mS
		6	64	Request pause * 10 mS
		7	128	Request pause * 10 mS

Alphabetic Command Summary

This section contains an alphabetic listing of the AT commands to which the modem will respond. Default settings are **bold**.

- [Basic Command Set](#)
- [Ampersand \(&\) Command Set](#)
- [Percent \(%\) Command Set](#)
- [Octothorpe \(#\) Command Set](#)
- [V.80/V.250 Command Set](#)
- [Additional V.92 Commands](#)

Basic Command Set

Command	Function
\$	Display help for the Basic command set.
+++	<p>Escape code. Once your modem is online with another device, the only command it recognizes is an escape code of three typed plus signs, which forces the modem back to Command mode. Do the following when issuing the command:</p> <ol style="list-style-type: none"> 1. Wait 1 second after sending the last item of data. 2. Type +++ 3. Wait 1 second before typing any data. <p>When you type +++, the modem will either hang up or stay on line, depending on how you set S14.</p>
>	<p>Repeat command. If you include the repeat command in the Dial string, the modem will dial the number and wait 60 seconds for a carrier.</p> <p>If the line is busy, the modem will pause for 2 seconds and then redial. The modem makes a maximum of 10 attempts.</p>
A/	Reexecute the last-issued command. DO NOT type AT or press ENTER.
A>	Repeat the last-issued command until canceled by pressing any key. DO NOT type AT or press Enter.
AT	Attention prefix: informs a modem that a command is coming. AT must precede all commands except A/, A>, and +++.
A	Force a modem to answer when it is not receiving an incoming call.

Command	Function	
<i>Bn</i>	Set handshaking options.	
	B0	ITU-T V.25 answer sequence; required to answer all V.34-type and overseas calls.
	B1	Bell answer tone; use if the modem is not required to answer V.34-type calls.

Command	Function	
<i>With the exception of the Dial options, modem ignores any commands issued after D in the same command string.</i>		
Dn	Dial a phone number and issue other optional commands. The numbers 0-9 are accepted. The maximum number of characters allowed is 36, including the AT prefix, punctuation, and spaces.	
	Optional parameters:	
	P	Dial using pulses.
	T	Dial using tones.
	,	(Comma) Pause for 2 seconds (or the time in S-Register 8).
	;	(Semicolon) Remain in Command mode after dialing.
	"	Dial the letters that follow. Example, ATDT1800"DIAL USR" same as ATDT18003425877.
	W	Wait for a second dial tone before continuing to dial (with X3 or higher).
	@	Wait for an answer (with X3, X4, or X7).
	/	Pause for 125 milliseconds.
	R	Reverse frequencies. Use this command when calling an originate-only modem. It forces the modem to dial out at the answer frequency.
	!	Flash the switchhook (off hook 0.5 seconds, on hook 0.5 seconds, then off hook). Use ! when other modems share the line.
	L?	Display the last-dialed number.
	L	Dial the last-dialed number.
	Sn	Dial the number stored in memory at position n, where n = 0-4. Store the number in memory using the &Z command.
\$	Display help for the dial commands. ATD\$	
En	Command mode echo. Enables or disables the display of your typed commands.	
	E0	Command mode echo OFF. Your typing will not appear on the screen.
	E1	Command mode echo ON. Your typing will appear on the screen.

Command	Function	
<i>If double characters appear on the screen, both the modem's local echo and your software's local echo are on.</i>		
Fn	Online local echo. If ON, a modem displays on your screen the data that it is transmitting to another modem.	
	F0	Online echo ON. (Sometimes called half duplex.)
	F1	Online echo OFF. (Sometimes called full duplex.)
Hn	Go on or off hook.	
	H0	Go on hook (hang up).
	H1	Go off hook (pick up).

Command	Function	
<i>In</i>	Query the modem.	
	I0	Displays the product code.
	I1	Displays checksum.
	I2	Displays RAM TEST.
	I3	Displays the banner (product name).
	I4	Display current modem settings.
	I5	Display settings stored in NVRAM.
	I6	Display statistics for the last call.
	I7	Display product configuration.
	I8	Lists phone numbers with redial restrictions.
	I9	Displays modem's Plug and Play ID.
	I10	Display dial security account status information.
	I11	Display link diagnostics report.
	I15	Display caller ID information.
	I16	Display channel probe report.
<i>Mn</i>	Control when the speaker sounds	
	M0	The speaker is always off.
	M1	The speaker is on until the call is negotiated.
	M2	The speaker is always on.
	M3	The speaker turns on after the last digit is dialed and stays on until the call is negotiated.
<i>On</i>	Return online. Use with the escape code (+++) to toggle between command and online modes.	
	O0	Return online (normal).
	O1	Return online and retrain. Use O1 if there were errors in a non-ARQ data transfer.

Command	Function	
<i>Qn</i>	Enable or disable the display of result codes.	
	Q0	Display result codes.
	Q1	Suppress result codes (quiet).
	Q2	Suppress result codes when answering.
<i>S\$</i>	Display help screens for the S-Registers.	
<i>Sr=n</i>	Set S-Register value: r is any S-Register; n must be a decimal number between 0 and 255.	
<i>Sr.b=n</i>	Set a bit-mapped register: r is the S-register, b is the bit, and n is 0 (off) or 1 (on).	
<i>Sr?</i>	Query contents of S-register r.	
<i>Refer to the S-Registers section for a listing of all the S-Registers.</i>		
<i>Vn</i>	Display result codes in words or numbers.	
	V0	Display result codes in numeric form.
	V1	Display result codes in verbal form.
<i>Xn</i>	<p>Control the amount of information displayed in the result codes. The default is X7 (all codes except 12/VOICE). The modem doesn't try to detect signals if it isn't set to report them.</p> <p>For more detailed information, refer to the Result Code Meanings and Sets section of the appendix.</p>	
	X3	Ignore Dial Tone
	X4	Microsoft default
	X7	Courier Lite 56K Business Modem default
<i>Yn</i>	Control which user profile or factory profile is recalled when the modem is reset.	
	Y0	At reset use stored profile 0
	Y1	At reset use stored profile 1
	Y2	At reset use factory profile 0 (&F0)
	Y3	At reset use factory profile 1 (&F1)
	Y4	At reset use factory profile 2 (&F2)

Command	Function	
Zn	Software reset.	
	Z0	If DIP Switch 7 is ON (factory settings), recall the &F0 configuration template (no flow control). If DIP switch 7 is OFF, recall the profile selected by the Y command.
	Z1	Reset using stored profile 0
	Z2	Reset using stored profile 1
	Z3	Reset using factory profile 0
	Z4	Reset using factory profile 1
	Z5	Reset using factory profile 2
Z!	Complete hardware reset	

Ampersand (&) Command Set

Command	Function	
&\$	Display help for the ampersand (&) command set.	
&An	Enable or disable the display of additional result code subsets. (Also, see the Xn command.)	
	&A0	Do not display ARQ result codes.
	&A1	Display ARQ result codes.
	&A2	In addition to ARQ result codes, display V.32, V.FC, V.34, V.90, or V.92 modulation indicator.
	&A3	In addition to ARQ and modulation indicators, display an error control indicator (LAPM, MNP, SYNC, or NONE) and a data compression type (V42 bis or MNP5).
&Bn	Set the serial port rate to variable or fixed.	
	&B0	Variable: The serial port rate adapts to match the speed of the connection.
	&B1	Fixed: The modem always communicates with your computer at the rate at which you have set, regardless of the connection rate.
	&B2	When answering calls, use the fixed rate for ARQ calls and variable rates for non-ARQ calls.
<i>The serial port rate should be equal to or higher than the &Nn rate.</i>		

Command	Function	
&Cn	Controls how the modem sends a Carrier Detect (CD) signal to your computer.	
	&C0	CD always ON, even if the modem is not on line.
	&C1	Normal operations. The modem sends a CD signal when it connects with another modem and drops the CD when it disconnects.
&Dn	Control how the modem responds to Data Terminal Ready (DTR) signals.	
	&D0	DTR is always ON (ignored).
	&D1	If issued before connecting with another device, the Courier Lite 56K Business Modem can enter online Command mode during a call by dropping DTR. &D1 functions similarly to the escape code (+++). Return online with the On command, or hang up with the Hn command.
	&D2	Normal DTR operations. The modem will not accept commands unless your computer sends a DTR signal. Dropping DTR ends a call.
	&D3	Modem resets with DTR toggle.
&Fn	Load one of the three configuration templates that are stored permanently in read-only memory. Refer to the Flow Control Template section for the settings for each template. To load a template into current memory, enter AT&Fn. To write a template to NVRAM, enter AT&Fn&W0 or AT&Fn&W1. If DIP switch 7 is ON, &F0 is always loaded into memory at power-on or reset.	
	&F0	Load No Flow Control template settings.
	&F1	Load Hardware Flow Control template settings.
	&F2	Load Software Flow Control template settings.
&Gn	Set guard tones for international calls.	
	&G0	No guard tone. Use this in the United States and Canada.
	&G1	This sets a 550 Hz guard tone, and is used in some European countries.
	&G2	This sets an 1800 Hz guard tone, and is used in the U.K. and some Commonwealth countries. &G2 requires the B0 setting.

Command	Function	
&Hn	Transmit data flow control. Prevents the modem's buffer for data transmitted to the modem by its attached computer from overflowing.	
	&H0	Disable transmit data flow control.
	&H1	Use hardware flow control. Requires that your computer and software support Clear to Send (CTS) at the EIA-232 interface.
	&H2	Use software flow control. Requires that your software support XON/XOFF signaling
	&H3	Use both hardware and software flow control. If you are unsure about what your equipment supports, select this option.
&In	Received data software flow (XON/OFF) control.	
	&I1	The modem acts on your typed XON/XOFF commands, Ctrl-S or Ctrl-Q, and passes them to the remote device.
	&I2	The modem acts on your XON/XOFF commands, but removes them from the data stream instead of passing them to the remote device. This is the recommended setting for ARQ mode.
&Kn	Enable or disable data compression. This command overwrites the current status of the +DCS and +DS commands, and is also overwritten by changes made by the +DCS and +DS commands.	
	&K0	Disable data compression.
	&K1	Use auto-enable/disable. The modem enables compression if the serial port rate is fixed (&B1) and disables compression if the serial port rate follows the connection rate (&B0) because compression offers no throughput advantage when the serial port and connection rates are equal; in fact, compression may degrade throughput.
	&K2	Always enable data compression.
	&K3	Selective data compression. The modem negotiates only for V.42 bis compression, and disables MNP Level 5 (MNP5) compression. Use this setting to transfer compressed files.

Command	Function	
&Mn	Enable ARQ (error control) protocols. Both your modem and the remote device must use the same protocol.	
	&M0	Normal mode, no error control. Due to the nature of phone line channels, this is never recommended for calls above 2400 bps.
	&M4	Normal/ARQ mode. If an ARQ connection isn't made, the modem operates in Normal mode as though it were set to &M0.
	&M5	ARQ asynchronous mode. The modem hangs up if an ARQ connection cannot be made.

Command	Function	
&N <i>n</i>	Sets highest fixed link speed.	
&U <i>n</i>	Sets lowest fixed link speed.	
	n=0	Variable rate. The modem negotiates with the remote device for the highest possible connection rate, depending on the capabilities of the remote device.
	n=1-38	Fixed rate. The modem connects only if the remote device is operating at the same rate or higher. The connection rate should be lower than or equal to the serial port rate.
	n=1	300 bps
	n=2	1200 bps
	n=3	2400 bps
	n=4	4800 bps
	n=5	7200 bps
	n=6	9600 bps
	n=7	12000 bps
	n=8	14400 bps
	n=9	16800 bps
	n=10	19200 bps
	n=11	21600 bps
	n=12	24000 bps
	n=13	26400 bps
	n=14	28800 bps
	n=15	31200 bps
	n=16	33600 bps
	n=17	28000 bps
	n=18	29333 bps

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Command	Function	
	n=19	30666 bps
	n=20	32000 bps
	n=21	33333 bps
	n=22	34666 bps
	n=23	36000 bps
	n=24	37333 bps
	n=25	38666 bps
	n=26	40000 bps
	n=27	41333 bps
	n=28	42666 bps
	n=29	44000 bps
	n=30	45333 bps
	n=31	46666 bps
	n=32	48000 bps
	n=33	49333 bps
	n=34	50666 bps
	n=35	52000 bps
	n=36	53333 bps
n=37	54666 bps	
n=38	56000 bps	

Command	Function	
&Pn	Enable pulse dial.	
	n=0	Pulse dial disabled
	n=1	Austria, Czechoslovakia, Denmark, Finland, Germany, Italy, Netherlands, South Africa (Second option for Asia, France, Korea, Norway, South Africa)
	n=2	Australia, Asia, Belgium, France, Ireland, Korea, Portugal, South Africa, Spain
	n=3	Norway
	n=5	Japan
	n=6	Sweden
	n=7	(Second option for Australia)
&Rn	Received data (RTS) hardware flow control.	
	&R1	Ignore RTS. This setting is required if your computer or terminal or software does not support RTS.
	&R2	Enable hardware flow control of received data. The modem sends data to the computer only upon receipt of the RTS signal.
&Sn	Send the computer a Data Set Ready (DSR) signal via the EIA-232 interface.	
	&S0	DSR is always ON (override).
	&S1	In Originate mode: Send DSR after dialing, on detection of the remote device's answer tone. In Answer mode: Send DSR after sending an answer tone.
	&S2	When Carrier is lost, send a pulsed DSR signal with Clear to Send (CTS) following Carrier Detect (CD). This option is for specialized equipment such as automatic callback units.
	&S3	Same as &S2, but without the CTS signal.
	&S4	Send the computer DSR at the same time as CD.
	&S5	Send DSR normally, and follow CTS with CD.

Command	Function	
&Tn	Test the modem.	
	&T0	End testing.
	&T1	Local analog loopback
	&T3	Local digital loopback
	&T8	Local analog loopback with test pattern
&Wn	Write the current settings to NVRAM.	
	&W0	Store current configuration to profile 0.
	&W1	Store current configuration to profile 1.
&Yn	Break handling. This command lets you send a break to stop data transfer without disconnecting. This command overwrites the current status of the +EB command, and is also overwritten by changes made by the +EB command.	
	&Y0	Enter on-line command mode. Returning to data mode sends break.
	&Y1	Destructive, expedited.
	&Y2	Nondestructive, expedited.
	&Y3	Nondestructive, unexpedited; the modem sends a break-in-sequence with data received from your computer or terminal.
<p><i>If the call is under data compression, destructive breaks cause both modems to reset their data compression tables. When transmission resumes, the modems build new tables, and the result is temporary lower-than-normal throughput.</i></p>		
&Zn=s	<p>Store up to 5 numbers in NVRAM, where <i>n</i> is the position 0-4 in NVRAM, and <i>s</i> is the phone number string. The number string may be up to 36 characters long, including any Dial command options.</p> <p>Example: AT&Z2=555-6789</p> <p>In the following example, &M0 (no error control) is inserted before the Dial command. Example: AT&M0 DS2</p>	
<p><i>This command functions differently when Dial Security is enabled.</i></p> <p><i>Also, do not include modem settings in the &Zn string. If the call requires a special setting, insert it in the command string before the DS<i>n</i> command.</i></p>		

Command	Function
&Zn=L	Stores the last-dialed number in position n.
&Zn?	Display the phone number stored in NVRAM at position n (where n = 0-4).

Percent (%) Command Set

Command	Function
%\$	Display help for the percent (%) command set.
%An	Create and configure security accounts. Refer to the Dial Security section.
%Bn	Remotely configure a modem's serial port rate.
	%B0 110 bps
	%B1 300 bps
	%B2 600 bps
	%B3 1200 bps
	%B4 2400 bps
	%B5 4800 bps
	%B6 9600 bps
	%B7 19200 bps
	%B8 38400 bps
	%B9 57600 bps
	%B10 76800 bps
	%B11 115200 bps
	%B12 230400 bps
%Cn	Remote configuration control.
	%C0 Defer configuration changes until the call is ended. Changes take effect for ensuing connections.
	%C1 Cancel configuration changes and restore the original configuration.
<i>Using %C1 will not reverse any changes that you wrote to NVRAM (with &W) or forced (with %C2).</i>	
	%C2 Force configuration changes to take effect immediately.
<i>We recommend against forcing configuration changes unless it is absolutely necessary. An unreliable connection, or loss of connection, may result.</i>	
%D=	Set a DTMF password. Refer to the Dial Security section.

Command	Function
%E= <i>n</i>	Erase security settings.
	%E=1 Erase local-access password.
	%E=2 Erase Autopass password.
	%E=3 Erase passwords in accounts 0-4.
	%E=4 Erase phone numbers in accounts 0-4.
	%E=5 Disable Account, Dialback, and New Number fields in accounts 0-4.
%F <i>n</i>	Remotely configure another device's data format.
	%F0 No parity, 8 data bits.
	%F1 Mark parity, 7 data bits.
	%F2 Odd parity, 7 data bits.
	%F3 Even parity, 7 data bits.
%L=	Set a local-access password. Refer to the Dial Security section.
%P <i>n</i> =	Disable password security (<i>n</i> =0 or <i>n</i> =1) when no character follows the equal sign.
%P <i>n</i> = <i>s</i>	Set the following password (s) for viewing privileges only (<i>n</i> = 0), or view and configuration privileges (<i>n</i> = 1).
%P <i>n</i> ?	Display password <i>n</i> .
%S= <i>n</i>	Access the security accounts. Does not disable security.
%T	<p>Enable the recognition of tone frequencies of analog dialing devices. %T is meant primarily for use with network applications, but may also be integrated into certain software programs. For example, %T could be used in a security program to identify incoming tone security codes.</p> <p>To return the modem to Command mode, press any key or drop the computer's or terminal's DTR signal. The modem responds OK.</p>
%V=PW <i>n</i>	Assign the password in account <i>n</i> in your modem's security account as your Autopass password

Octothorpe (#) Command Set

Command	Function
# $\$$	Display the help panels for the octothorpe (#) command set.

Command	Function	
#CID= <i>n</i>	Controls the caller ID settings.	
	#CID=0	Disable caller ID detection and reporting.
	#CID=1	Enable caller ID with formatted output.
	#CID=2	Enable caller ID with unformatted output.
	#CID=3	Enable caller ID with formatted output and name suppressed.
	#CID=4	Enable caller ID but do not transmit the information to your computer-retain it in the modem's memory.
#CID?	Display the current caller ID settings.	
#CID=?	Display the caller ID actions that are available.	

V.80/V.250 Command Set

Command	Function	
+DCS= <i>n,m</i>	Use this command to configure the available compression algorithms. The <i>n</i> parameter enables or disables V.42bis, and the <i>m</i> parameter enables or disables V.44. This command works in conjunction with the &K command, and the result of either the &K command or the +DCS command replaces the current data compression configuration.	
	<i>n</i> =0	Disable V.42bis.
	n=1	Enable V.42bis.
	<i>m</i> =0	Disable V.44.
	m=1	Enable V.44.
	<i>m</i> =2	Enable V.44 for V.92 servers only.
+DCS?	Display current +DCS setting.	
+DCS=?	Display list of valid +DCS settings.	
+DR= <i>n</i>	Use this command to enable or disable the compression report. If the compression report is enabled, the +DR:<type> intermediate result code reports the current data compression type. It is issued after the error control report (+ER) and before the final result code (e.g., CONNECT).	
	n=0	Disable the compression report.
	<i>n</i> =1	Enable the compression report.
+DR?	Display current +DR setting.	
+DR=?	Display list of valid +DR settings.	

Command	Function	
+DS=n,m,l,k	Set V.42 compression method. This command overwrites the current status of the &K command, and is also overwritten by changes made by the &K command.	
	n=0	Do not negotiate V.42bis compression.
	n=3	Modem accepts V.42bis compression in both direction.
	m=0	Don't disconnect if V.42 negotiations fail. This parameter is always set to 0.
	l=2048	Dictionary size, always set to 2048.
	k=32	String length, always set to 32.
+DS?	Display current +DS setting.	
+DS=?	Display list of valid +DS settings.	
+EB=n,m,l	Set break handling method. This command overwrites the current status of the &Y command and S21, and is also overwritten by changes made by the &Y command and S21.	
	n=0	Enter on-line command mode. Returning to data mode sends break.
	n=1	Nonexpedited, nondestructive.
	n=2	Expedited, nondestructive.
	n=3	Expedited, destructive.
	m=0	Break length is timed. This parameter is always set to 0.
	l=10-90	Set break length in 10 millisecond units, in steps of 10.
+EB?	Display current +EB setting. Break length is displayed in milliseconds.	
+EB=?	Display list of valid +EB settings.	
+ER=n	Set error control reporting. The +ER:<type> intermediate result code reports the current error control type, issued after the modulation report and before the data compression report.	
	n=0	Disables the error control report.
	n=1	Enables the error control report.
+ER?	Display current +ER setting.	
+ER=?	Display list of valid +ER settings.	

Command	Function	
+ETBM=n,m,l	Set call termination buffer management. 0,0,0 is the only valid combination, which means the modem discards all buffered data when the call is terminated.	
	n=0	This parameter is always set to 0.
	m=0	This parameter is always set to 0.
	l=0	This parameter is always set to 0.
+ETBM?	Display current +ETBM setting.	
+ETBM=?	Display list of valid +ETBM settings.	
+ILRR=n	Set local rate reporting. Use this command to display or hide the local rate report result code. The rate report is an intermediate result code, transmitted after any modulation, error control, or data compression reports, and before the final result code (e.g., CONNECT).	
	n=0	Disables the local rate report.
	n=1	Enables the local rate report.
+ILRR?	Display current +ILRR setting.	
+ILRR=?	Display list of valid +ILRR settings.	
+MR=n	Set modulation reporting mode. Use this command to hide or display the modulation report. The modulation report is an intermediate result code, transmitted after the modulation and the rate have been determined, and before any error control or data compression reports or the final result code (e.g., CONNECT).	
	n=0	Turns off the modulation report.
	n=1	Turns on the modulation report.
+MR?	Display current +MR setting.	
+MR=?	Display list of valid +MR settings.	

Command	Function	
+MS=n,m,l,k,j,i	Set modulation selection. Use this command to set the modem's modulation, the maximum transmission and reception rates, and the status of automatic modulation negotiation.	
	n=V92	V.92
	n=V90	V.90
	n=V34	V.34
	n=V32B	V.32bis
	n=V32	V.32
	n=V22B	V.22bis
	n=V.22	V.22
	n=Bell212A	Bell 212A
	n=V23C	V.23, constant carrier, asymmetric FDM
	n=V21	V21
	m=0	Disable automatic modulation negotiation.
	m=1	Enable automatic modulation negotiation. If a value is specified for k, automatic rate selection is disabled and the modem attempts to connect at the specified rate.
	l=0	Minimum transmission rate, always set to 0.
	k=0	Use automatic transmission rate selection.
	k=300-33600	Maximum transmission rate. Default=31200
		V34: 2400-33600 in steps of 2400
		V32bis: 4800-19200 in steps of 2400
		V32: 4800-14400 in steps of 2400
		V22bis: 2400
		V22: 2200
		V23C, Bell212A: 1200
	V.21, Bell103: 300	
j=0	Minimum reception rate, always set to 0.	
i=0	Use automatic reception rate selection.	
i=300-56000	Maximum reception rate. Default=31200	
+MS?	Display current +MS setting.	
+MS=?	Display list of valid +MS settings.	

+p Command Set (V.92 Commands)

Command	Function	
+p\$	Display help for the +p command set.	
+pCW= <i>n</i>	Controls call waiting.	
	+pCW=0	Process call waiting
	+pCW=1	Disconnect on call waiting
	+pCW=2	Ignore call waiting
+pIG= <i>n</i>	Controls PCM upstream.	
	+pIG=0	Enable PCM upstream
	+pIG=1	Disable PCM upstream
+pMH= <i>n</i>	Controls Modem on Hold.	
	+pMH=0	Enable Modem on Hold
	+pMH=1	Disable Modem on Hold
+pMHD	Send DTMF during MOH	
+pMHR	Request Modem on Hold.	
+pMHT?	Display Modem on Hold timeout.	
+pQC= <i>n</i>	Controls phases of QC.	
	+pQC=0	Enable phase 1 and phase 2 of QC
	+pQC=1	Disable phase 1 and enable phase 2 of QC
	+pQC=3	Disable phase 1 and phase 2 of QC
+pSS= <i>n</i>	Controls short sequences.	
	+pSS=0	Modem decides on short sequences

Flow Control Template

- [Hardware Flow Control](#)
- [Software Flow Control](#)
- [No Flow Control](#)

Hardware Flow Control

The table below lists the Hardware flow control template. To load this template send **AT&F1** to your modem.

NVRAM Options	Setting	Description
Handshake option	B0	ITU-T answer sequence
Command mode echo	E1	Enabled
Online local echo	F1	Disabled
Speaker control	M1	ON during dial through connect
Result codes	Q0	Enabled
Verbal or numeric result codes	V1	Verbal result codes
Result code subset	X7	Extended. Includes all codes except VOICE
Profile used at reset	Y0	At reset use stored profile 0
Protocol response codes	&A3	Full protocol codes
Serial port rate select	&B1	Serial port rate fixed higher than connect rate
Guard tone	&G0	U.S./Canada
Transmit data hardware flow control	&H1	Hardware flow control
Received data software flow control	&I2	No pass-thru
Analog data compression	&K1	Enabled
Error control/sync	&M4	Normal/error control
Highest Link rate select	&N0	Variable
Pulse dialing type	&P1	U.S., Canada, and other countries
Received data hardware flow control	&R2	Enabled
Data Set Ready	&S0	Always on
Remote Digital Loopback (RDL)	&T5	Deny RDL
Lowest Link rate select	&U0	Variable
Break handling	&Y1	Clear buffer, send immediately
Caller ID	#CID=0	Caller ID disabled
Set Compression Method	+DCS=1,0	Enable V.42bis, Disable V.44
Set Compression Report Mode	+DR=0	Disable the report
Set V.42 Compression Method	+DS=3,0,2048,32	Accept V.42bis, don't disconnect if fail, 2048 dictionary, 32 string

NVRAM Options	Setting	Description
Set Break Handling Method	+EB=3,0,10	Expedited, destructive, 100mS
Set Error Control Reporting	+ER=0	Disable the report
Set Call Termination Buffer Management	+ETBM=0,0,0	Flush all buffers on call termination
Set Local Rate Reporting	+ILRR=0	Disable the report
Set Modulation Reporting Mode	+MR=0	Disable the report
Set Modulation Selection	+MS=V92,1,0,31200,0,56000	V.92, auto, auto, 31.2k max tx,56k max rx
Word length*	8	
Parity*	0	None
DTE rate* (Kbps)	19.2	–

* Detected by each modem from the AT prefix of the &W command that writes your defaults to NVRAM. Set your software to the desired word length, parity, and serial port rate defaults before sending the modem the AT... &W string.

Software Flow control

The table below lists the Software flow control template. To load this template send **AT&F2** to the modem. Items in bold denote the changes to (or differences from) the &F1 template.

NVRAM Options	Setting	Description
Handshake option	B0	ITU-T answer sequence
Command mode echo	E1	Enabled
Online local echo	F1	Disabled
Speaker control	M1	ON during dial through connect
Result codes	Q0	Enabled
Verbal or numeric result codes	V1	Verbal result codes
Result code subset	X7	Extended. Includes all codes except VOICE
Profile used at reset	Y0	At reset use stored profile 0
Protocol response codes	&A3	Full protocol codes
Serial port rate select	&B1	Serial port rate fixed higher than connect rate
Guard tone	&G0	U.S./Canada
Transmit data hardware flow control	&H2	Software flow control
Received data software flow control	&I2	No pass-thru
Analog data compression	&K1	Enabled

NVRAM Options	Setting	Description
Error control/sync	&M4	Normal/error control
Highest Link rate select	&N0	Variable
Pulse dialing type	&P1	U.S., Canada, and other countries
Received data hardware flow control	&R1	Enabled
Data Set Ready	&S0	Always on
Remote Digital Loopback (RDL)	&T5	Deny RDL
Lowest Link rate select	&U0	Variable
Break handling	&Y1	Clear buffer, send immediately
Caller ID	#CID=0	Caller ID disabled
Set Compression Method	+DCS=1,0	Enable V.42bis, Disable V.44
Set Compression Report Mode	+DR=0	Disable the report
Set V.42 Compression Method	+DS=3,0,2048,32	Accept V.42bis, don't disconnect if fail, 2048 dictionary, 32 string
Set Break Handling Method	+EB=3,0,10	Expedited, destructive, 100mS
Set Error Control Reporting	+ER=0	Disable the report
Set Call Termination Buffer Management	+ETBM=0,0,0	Flush all buffers on call termination
Set Local Rate Reporting	+ILRR=0	Disable the report
Set Modulation Reporting Mode	+MR=0	Disable the report
Set Modulation Selection	+MS=V92,1,0,31200,0,56000	V.92, auto, auto, 31.2k max tx,56k max rx
Word length*	8	
Parity*	0	None
DTE rate* (Kbps)	19.2	-

* Detected by each modem from the AT prefix of the &W command that writes your defaults to NVRAM. Set your software to the desired word length, parity, and serial port rate defaults before sending the modem the AT... &W string.

No Flow Control

The table below lists the No Flow Control template. To load this template send **AT&F0** to the modem. Items in bold denote the changes to (or differences from) the &F1 template.

NVRAM Options	Setting	Description
Handshake option	B0	ITU-T answer sequence
Command mode echo	E1	Enabled
Online local echo	F1	Disabled
Speaker control	M1	ON during dial through connect

NVRAM Options	Setting	Description
Result codes	Q0	Enabled
Verbal or numeric result codes	V1	Verbal result codes
Result code subset	X1	Basic
Profile used at reset	Y0	At reset use stored profile 0
Protocol response codes	&A1	ARQ protocol codes
Serial port rate select	&B0	Variable serial port rate
Guard tone	&G0	U.S./Canada
Transmit data hardware flow control	&H0	Disabled
Received data software flow control	&I2	No pass-thru
Analog data compression	&K1	Enabled
Error control/sync	&M4	Normal/error control
Highest Link rate select	&N0	Variable
Pulse dialing type	&P1	U.S., Canada, and other countries
Received data hardware flow control	&R1	Disabled
Data Set Ready	&S0	Always on
Remote Digital Loopback (RDL)	&T5	Deny RDL
Lowest Link rate select	&U0	Variable
Break handling	&Y1	Clear buffer, send immediately
Set Compression Method	+DCS=1,0	Enable V.42bis, Disable V.44
Set Compression Report Mode	+DR=0	Disable the report
Set V.42 Compression Method	+DS=3,0,2048,32	Accept V.42bis, don't disconnect if fail, 2048 dictionary, 32 string
Set Break Handling Method	+EB=3,0,10	Expedited, destructive, 100mS
Set Error Control Reporting	+ER=0	Disable the report
Set Call Termination Buffer Management	+ETBM=0,0,0	Flush all buffers on call termination
Set Local Rate Reporting	+ILRR=0	Disable the report
Set Modulation Reporting Mode	+MR=0	Disable the report
Set Modulation Selection	+MS=V92,1,0,31200,0,56000	V.92, auto, auto, 31.2k max tx,56k max rx
Set Compression Method	+DCS=1,0	Enable V.42bis, Disable V.44
Word length*	7	
Parity*	1	Even

NVRAM Options	Setting	Description
DTE rate* (Kbps)	9600	–

* Detected by each modem from the AT prefix of the &W command that writes your defaults to NVRAM. Set your software to the desired word length, parity, and serial port rate defaults before sending the modem the AT... &W string.

Result Code Meanings and Sets

Result Code Meanings and Sets

- [Result Code Meanings](#)
- [Result Codes Sets for Xn Values](#)
- [New Connect Messages](#)

Result Code Meanings

Result Code	Meaning
0/OK	Command has been executed.
1/CONNECT	Connection with another device.
2/RING	Incoming ring detected.
3/NO CARRIER	Carrier Detect has failed, or carrier has been dropped due to disconnect.
4/ERROR	Command is invalid.
5/CONNECT 1200	Connection at reported rate. Same meaning for results of 2400 (10), 4800 (18), 7200 (20), 9600 (13), 12000 (21), 14400 (25), 16800 (43), 19200 (85), 21600 (91), 24000 (99), 26400 (103), 28800 (107), 31200 (151), 33600 (155), or 56000 (162) bps.
6/NO DIAL TONE	Dial tone not detected during the default 2 seconds, set in Register S6.
7/BUSY	Busy signal detect; modem hangs up.
8/NO ANSWER	After waiting 5 seconds for an answer, modem hangs up; returned instead of NO CARRIER when the @ option is used.
11/RINGING	The modem has dialed; remote phone line is ringing.
12/VOICE	Voice answer at remote site; modem hangs up.
170/RING A	Incoming distinctive ring detected.
171/RING B	Incoming distinctive ring detected.
172/RING C	Incoming distinctive ring detected.
173/RING D	Incoming distinctive ring detected.
174/RING E	Incoming distinctive ring detected.
Wait for another Dial Tone (W)	Courier Lite 56K Business Modem continues dialing as soon as it detects another dial tone. Requires X3 or higher.
Wait for an answer (@)	Courier Lite 56K Business Modem continues dialing when it detects 5 seconds of silence on the line. Requires X3 or higher.

Result Codes Sets for Xn Values

Result Codes	X0	X1	X2	X3	X4	X5	X6	X7
0/OK	X	X	X	X	X	X	X	X
1/CONNECT	X	X	X	X	X	X	X	X
2/RING	X	X	X	X	X	X	X	X
3/NO CARRIER	X	X	X	X	X	X	X	X
4/ERROR	X	X	X	X	X	X	X	X
5/CONNECT 1200		X	X	X	X	X	X	X
6/NO DIAL TONE			X		X		X	X
7/BUSY				X	X	X	X	X
8/NO ANSWER				X	X	X	X	X
10/CONNECT 2400		X	X	X	X	X	X	X
11/RINGING						X	X	X
12/VOICE						X	X	
13/CONNECT 9600		X	X	X	X	X	X	X
18/CONNECT 4800		X	X	X	X	X	X	X
20/CONNECT 7200		X	X	X	X	X	X	X
21/CONNECT 12000		X	X	X	X	X	X	X
25/CONNECT 14400		X	X	X	X	X	X	X
43/CONNECT 16800		X	X	X	X	X	X	X
85/CONNECT 19200		X	X	X	X	X	X	X
91/CONNECT 21600		X	X	X	X	X	X	X
99/CONNECT 24000		X	X	X	X	X	X	X
103/CONNECT 26400		X	X	X	X	X	X	X
107/CONNECT 28800		X	X	X	X	X	X	X
151/CONNECT 31200		X	X	X	X	X	X	X
155/CONNECT 33600		X	X	X	X	X	X	X
170/RING A		X	X	X	X	X	X	X
171/RING B		X	X	X	X	X	X	X
172/RING C		X	X	X	X	X	X	X
173/RING D		X	X	X	X	X	X	X
174/RING E		X	X	X	X	X	X	X

Functions	X0	X1	X2	X3	X4	X5	X6	X7
Wait for 2nd Dial Tone (W)				x	x	x	x	x
Wait for Answer (@)				x	x	x	x	x

New Connect Messages

The table below includes all new connect messages.

Message	#
28000	256
28000/ARQ	257
28000/V90	258
28000/ARQ/V90	259
29333	260
29333/ARQ	261
29333/V90	262
29333/ARQ/V90	263
30666	264
30666/ARQ	265
30666/V90	266
30666/ARQ/V90	267
32000	268
32000/ARQ	269
32000/V90	270
32000/ARQ/V90	271
34666	272
34666/ARQ	273
34666/V90	274
34666/ARQ/V90	275
36000	276
36000/ARQ	277
36000/V90	278
36000/ARQ/V90	279
38666	280
38666/ARQ	281
38666/V90	282
38666/ARQ/V90	283
40000	284
40000/ARQ	285
40000/V90	286
40000/ARQ/V90	287
33333/V90	288
33333/ARQ/V90	289

Message	#
37333/V90	290
37333/ARQ/V90	291
41333/V90	292
41333/ARQ/V90	293
42666/V90	294
42666/ARQ/V90	295
44000/V90	296
44000/ARQ/V90	297
45333/V90	298
45333/ARQ/V90	299
46666/V90	300
46666/ARQ/V90	301
48000/V90	302
48000/ARQ/V90	303
49333/V90	304
49333/ARQ/V90	305
50666/V90	306
50666/ARQ/V90	307
52000/V90	308
52000/ARQ/V90	309
53333/V90	310
53333/ARQ/V90	311
54666/V90	312
54666/ARQ/V90	313
28000/V92	348
28000/ARQ/V92	349
29333/V92	350
29333/ARQ/V92	351
30666/V92	352
30666/ARQ/V92	353
32000/V92	354
32000/ARQ/V92	355
33333/V92	356
33333/ARQ/V92	357

Message	#
34666/V92	358
34666/ARQ/V92	359
36000/V92	360
36000/ARQ/V92	361
37333/V92	362
37333/ARQ/V92	363
38666/V92	364
38666/ARQ/V92	365
40000/V92	366
40000/ARQ/V92	367
41333/V92	368
41333/ARQ/V92	369
42666/V92	370
42666/ARQ/V92	371
44000/V92	372
44000/ARQ/V92	373
45333/V92	374
45333/ARQ/V92	375
46666/V92	376
46666/ARQ/V92	377
48000/V92	378
48000/ARQ/V92	379
49333/V92	380
49333/ARQ/V92	381
50666/V92	382
50666/ARQ/V92	383
52000/V92	384
52000/ARQ/V92	385
53333/V92	386
53333/ARQ/V92	387
54666/V92	388
54666/ARQ/V92	389

Technical Information

Your modem uses multiple standard data communications protocols and is also compatible with many nonstandard schemes. The following schemes are supported:

- [Modulation](#)
- [Error Control, Data Compression, and Testing](#)
- [Fax](#)
- [Specifications](#)
- [Serial Ports](#)
- [The EIA-232 Interface](#)
- [Wiring a DB-25 to DB-9 Cable](#)
- [Minimum Requirements](#)
- [Flow Control Requirements](#)

Modulation

This modulation	Supports
V.90 and V.92	ITU 56K standard, server capabilities. 56 through 28 kbps; Pulse Coded Modulation (PCM).
ITU-T V.34	33.6/31.2/28.8/26.4/24/21.6/19.2/16.8/14.4/12 kbps; 9600/7200/4800 bps asynchronous Trellis Coded Modulation (TCM)
V.FC	28.8/26.4/24/21.6/19.2/16.8/14.4 kbps asynchronous TCM
V.32 terbo	21.6/19.2/16.8/14.4/12 kbps; 9600/7200 bps asynchronous TCM; 4800 bps asynchronous Quadrature Amplitude Modulation (QAM)
ITU-T V.32 bis	14.4/12 kbps; 9600/7200 bps asynchronous TCM; 4800 bps asynchronous QAM
ITU-T V.32	9600 bps asynchronous, TCM; 4800 bps asynchronous, QAM
ITU-T V.22 bis	2400 bps asynchronous, QAM
Bell 212A	1200 bps (also V.22) asynchronous, Differential Phase Shift Keying (DPSK)
ITU-T V.23	1200 bps asymmetrical with 75 bps back channel with Frequency Shift Keying (FSK), used by some U.K. and European phone systems.
Bell 103	300 bps (ITU-T V.21 optional) asynchronous, Frequency Shift Keying (FSK)

Error Control, Data Compression, and Testing

This modulation	Supports
ITU-T V.42	LAPM error control, 1200 bps and higher
MNP	Levels 2, 3 and 4 error control, level 5 data compression, 1200 bps and higher
ITU-T V.42 bis	Data compression, 1200 bps and higher
ITU-T V.54	Digital loopback testing

Fax

Your Courier Lite 56K Business Modem provides Group III -compatibility when controlled by Class 1 or Class 2.0 fax software. In addition, your Courier Lite 56K Business Modem adheres to the following standards:

This modulation	Supports
TIA/EIA-578	Service Class 1 Asynchronous Facsimile DCE Control Standard
TIA/EIA-592	Service Class 2.0 Asynchronous Facsimile DCE Control Standard
ITU-T V.17	14.4/12 kbps, 9600/7200 bps
ITU-T V.29	9600/7200 bps
ITU-T V.27	ter 4800/2400 bps
ITU-T V.21	300 bps

Specifications

This feature	Supports
Supported serial port rates	230400, 115200, 57600, 38400, 19200, 9600, 4800, 2400, 1200, and 300 bps
Serial port connector	DB-25
Communications channel	Full- or half- duplex on 2-wire phone lines; symmetrical speeds in V.32 bis.

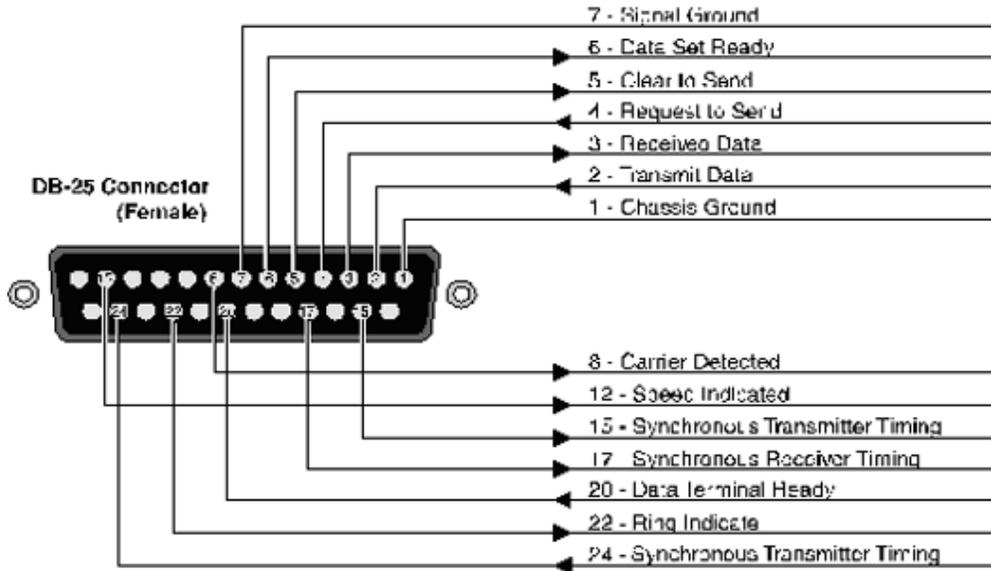
This feature	Supports		
Data format	Binary, serial; defaults to 8-bit word length, no parity, and 1 stop bit.		
	Word Length	Parity (1 Bit)	Stop Bits
	7	Even, odd, mark, space	1
	7	None	2
	8	None	1
Flow Control Buffers	Variable sizes		
Command Buffer	60 characters, excluding the AT prefix, Carriage Return, and spaces		
Test Options	Analog loopback, digital loopback, test pattern, and dial test		
Failed Call Timeout	60 second default, programmable 2-255 sec.		
Answer Tone Timeout	60 seconds		
Answer Tone Detector	2080-2120 Hz		
Loss of Carrier (Disconnect Timer)	0.7 second default, programmable 0.2-25.5 sec.		
Equalization	Adaptive		
Receive Sensitivity	- 43 dBm + 2 dBm		
Transmit Level	- 9 dBm maximum		
Transmitter Frequency Tolerance	.01%		
Certification	FCC approved (Part 15 Class B/Part 68) IC approved UL listed CUL listed CE approved (Class B)		
Ringer equivalence	0.2B		

Serial Ports

Most computers provide a DB-25 or DB-9 port that conforms to the EIA-232 standard.

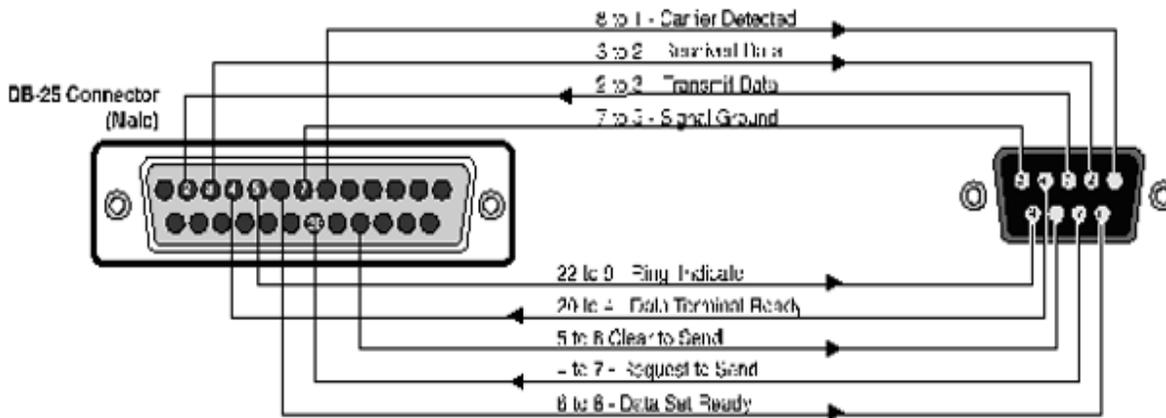
The EIA-232 Interface

Your modem's serial port is factory set to signal according to the EIA-232 standard.



Wiring a DB-25 to DB-9 Cable

DB-9 connectors for PCs should be wired at the computer end of the cable as shown below.



Minimum Requirements

Some computer/terminal equipment supports only a few of your modem's EIA-232 signals. The minimum required for your modem to operate asynchronously follows:

DB-25	DB-9	Supports this signal
Pin	Pin	Function
2	3	Transmitted Data
3	2	Received Data
7	5	Signal Ground
20	4	Data Terminal Ready

Flow Control Requirements

If your computer and software support Clear to Send and you wish to use Transmit Data hardware flow control (&H1), Pin 5 (DB-25) or Pin 8 (DB-9) is required.

If your computer and software support Request to Send and you wish to use Received Data hardware flow control (&R2), Pin 4 (DB-25) or Pin 7 (DB-9) is required.

ASCII Chart

Dec	Hex	Char
00	00	NUL
01	01	SOH
02	02	STX
03	03	ETX
04	04	EOT
05	05	ENQ
06	06	ACK
07	07	BEL
08	08	BS
09	09	HT
10	0A	LF
11	0B	VT
12	0C	FF
13	0D	CR
14	0E	SO
15	0F	SI
16	10	DLE
17	11	XON
18	12	DC2
19	13	XOFF
20	14	DC4
21	15	NAK
22	16	SYN
23	17	ETB
24	18	CAN
25	19	EM

Dec	Hex	Char
32	20	SP
33	21	!
34	22	"
35	23	#
36	24	\$
37	25	%
38	26	&
39	27	ë
40	28	(
41	29)
42	2A	*
43	2B	+
44	2C	'
45	2D	-
46	2E	.
47	2F	/
48	30	0
49	31	1
50	32	2
51	33	3
52	34	4
53	35	5
54	36	6
55	37	7
56	38	8
57	39	9

Dec	Hex	Char
64	40	@
65	41	A
66	42	B
67	43	C
68	44	D
69	45	E
70	46	F
71	47	G
72	48	H
73	49	I
74	4A	J
75	4B	K
76	4C	L
77	4D	M
78	4E	N
79	4F	O
80	50	P
81	51	Q
82	52	R
83	53	S
84	54	T
85	55	U
86	56	V
87	57	W
88	58	X
89	59	Y

Dec	Hex	Char
96	60	`
97	61	a
98	62	b
99	63	c
100	64	d
101	65	e
102	66	f
103	67	g
104	68	h
105	69	i
106	6A	j
107	6B	k
108	6C	l
109	6D	m
110	6E	n
111	6F	o
112	70	p
113	71	q
114	72	r
115	73	s
116	74	t
117	75	u
118	76	v
119	77	w
120	78	x
121	79	y

Dec	Hex	Char
26	1A	SUB
27	1B	ESC
28	1C	FS
29	1D	GS
30	1E	RS
31	1F	US

Dec	Hex	Char
58	3A	:
59	3B	;
60	3C	<
61	3D	=
62	3E	>
63	3F	?

Dec	Hex	Char
90	5A	Z
91	5B	[
92	5C	\
93	5D]
94	5E	à
95	5F	_

Dec	Hex	Char
122	7A	z
123	7B	{
124	7C	
125	7D	}
126	7E	~
127	7F	DEL

Fax Information for Programmers

- [Fax Service Class 1 Commands](#)
- [Fax Service Class 2.0 Commands](#)
- [Fax Mode Flow Control Setting](#)
- [FCC Notice](#)
- [Notes](#)

Fax Service Class 1 Commands

+FCLASS?	What mode is in use Data or Fax?
+FCLASS= <i>n</i> (0,1,2,2.0,2.1)	Class identification and control.
+FCLASS=?	What Fax class is in use?
+FTS= <i>n</i> (0,255)	Stop transmission and pause, 10 ms.
+FRS= <i>n</i> (0,255)	Wait for silence, 10 ms.
+FTM= <i>n</i> (3,24,48,72,73,74,96,121,122,145,146)	Transmit data with carrier.
+FRM= <i>n</i> (3,24,48,72,73,74,96,121,122,145,146)	Receive data with carrier.
+FTH= <i>n</i> (3,24,48,72,73,74,96,121,122,145,146)	Transmit HDLC data with carrier.
+FRH= <i>n</i> (3,24,48,72,73,74,96,121,122,145,146)	Receive HDLC data with carrier.

Fax Service Class 2.0 Commands

In addition to the standard Class 2.0 fax commands, U.S. Robotics implements the following optional Class 2.0 fax commands:

+FNS=0,1	Pass-through, non-standard negotiation byte string
+FCR=0,1	Capability to receive.
+FAA=0,1	Adaptive Answer mode.
+FCT=0-255 sec.	Phase C Timeout
+FHS=0-255	Hangup Status Code, read only.
+FMS=0-3	Minimum Phase C Speed.
+FBS?=500,100	Buffer size, read only.

Fax Mode Flow Control Setting

Many facsimile software products use software flow control when the modem is in Fax mode. Throughout our documentation, we recommend that you use hardware flow control for Data mode (factory setting). However, to allow compatibility with software products that use software flow control by default, U.S. Robotics fax modems automatically change to software flow control when entering Fax mode.

FCC Notice

FCC part 68, rules regarding fax operation, has been amended as follows:

Telephone facsimile machines identification of the sender of the message: It shall be unlawful for any person within the United States to use a computer or other electronic device to send any message via a telephone facsimile machine unless such a message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business, other entity, or individual sending the message and the telephone number of the sending machine or of such business, other entity, or individual. Telephone facsimile machines manufactured on and after December 20, 1992 must clearly mark such identifying information on each transmitted page.

Notes

If you want to know more about the supported Class 1 fax commands, refer to the standard for the Service Class 1 fax protocol:

TIA/EIA-578-1990 (EIA-578)

Asynchronous Facsimile DCE Control Standard - Service Class 1

November 1990 Revision: B

For more information on Class 2.0, refer to the standard for the Service Class 2.0 fax protocol:

TIA/EIA-592-1998 (EIA-592)

Asynchronous Facsimile DCE Control Standard - Service Class 2

April 1998 Revision: A

You can obtain copies of these standards by contacting Global Engineering Documents at (800) 854-7179.

Viewing LEDs

This section explains how to view the seven LEDs on the top of your Courier Lite 56K Business Modem.



This LED	Status	Means your Courier Lite 56K Business Modem
AA	On	Is ready to accept calls
	Blinking	Has detected an incoming call
	Off	Is not ready to accept calls
CD	On	Has detected a carrier from a remote device or carrier detect has been forced on (using DIP switch 6 or the &C0 command)
	Off	Has not detected a carrier
RD	Flashing	Is sending data to your computer
	Off	Is idle
SD	Flashing	Is receiving data from your computer
	Off	Is idle
TR	On	Has received a Data Terminal Ready (DTR) signal from your computer, or DTR is forced on (using DIP switch 1 or the &D0 command)
	Off	Has not detected DTR
CS	On	Is sending your computer the Clear to Send (CTS) signal
	Off	Is not sending your computer the CTS signal
ARQ/FAX	On	Is using V.42 bis error correction
	Flashing	Is retransmitting data to the remote modem
	Blinking	Is in fax mode
	Off	Is not using error control, not retransmitting data, and not faxing

WARRANTY

U.S. Robotics Corporation Two (2) Year Limited Warranty

1.0 GENERAL TERMS:

1.1 This Limited Warranty is extended only to the original end-user purchaser (CUSTOMER) and is not transferable.

1.2 No agent, reseller, or business partner of U.S. Robotics Corporation (U.S. ROBOTICS) is authorized to modify the terms of this Limited Warranty on behalf of U.S. ROBOTICS.

1.3 This Limited Warranty expressly excludes any product that has not been purchased as new from U.S. ROBOTICS or its authorized reseller.

1.4 This Limited Warranty is only applicable in the country or territory where the product is intended for use (As indicated by the Product Model Number and any local telecommunication approval stickers affixed to the product).

1.5 U.S. ROBOTICS warrants to the CUSTOMER that this product will be free from defects in workmanship and materials, under normal use and service, for TWO (2) YEARS from the date of purchase from U.S. ROBOTICS or its authorized reseller.

1.6 U.S. ROBOTICS sole obligation under this warranty shall be, at U.S. ROBOTICS sole discretion, to repair the defective product or part with new or reconditioned parts; or to exchange the defective product or part with a new or reconditioned product or part that is the same or similar; or if neither of the two foregoing options is reasonably available, U.S. ROBOTICS may, at its sole discretion, provide a refund to the CUSTOMER not to exceed the latest published U.S. ROBOTICS recommended retail purchase price of the product, less any applicable service fees. All products or parts that are exchanged for replacement will become the property of U.S. ROBOTICS.

1.7 U.S. ROBOTICS warrants any replacement product or part for NINETY (90) DAYS from the date the product or part is shipped to Customer.

1.8 U.S. ROBOTICS makes no warranty or representation that this product will meet CUSTOMER requirements or work in combination with any hardware or software products provided by third parties.

1.9 U.S. ROBOTICS makes no warranty or representation that the operation of the software products provided with this product will be uninterrupted or error free, or that all defects in software products will be corrected.

1.10 U.S. ROBOTICS shall not be responsible for any software or other CUSTOMER data or information contained in or stored on this product.

2.0 CUSTOMER OBLIGATIONS:

2.1 CUSTOMER assumes full responsibility that this product meets CUSTOMER specifications and requirements.

2.2 CUSTOMER is specifically advised to make a backup copy of all software provided with this product.

2.3 CUSTOMER assumes full responsibility to properly install and configure this product and to ensure proper installation, configuration, operation and compatibility with the operating environment in which this product is to function.

2.4 CUSTOMER must furnish U.S. ROBOTICS a dated Proof of Purchase (copy of original purchase receipt from U.S. ROBOTICS or its authorized reseller) for any warranty claims to be authorized.

3.0 OBTAINING WARRANTY SERVICE:

3.1 CUSTOMER must contact U.S. ROBOTICS Technical Support or an authorized U.S. ROBOTICS Service Center within the applicable warranty period to obtain warranty service authorization.

3.2 Customer must provide Product Model Number, Product Serial Number and dated Proof of Purchase (copy of original purchase receipt from U.S. ROBOTICS or its authorized reseller) to obtain warranty service authorization.

3.3 For information on how to contact U.S. ROBOTICS Technical Support or an authorized U.S. ROBOTICS Service Center, please see the U.S. ROBOTICS corporate Web site at: www.usr.com

3.4 CUSTOMER should have the following information / items readily available when contacting U.S. ROBOTICS Technical Support:

- Product Model Number
- Product Serial Number
- Dated Proof of Purchase
- CUSTOMER contact name & telephone number
- CUSTOMER Computer Operating System version
- U.S. ROBOTICS Installation CD-ROM
- U.S. ROBOTICS Installation Guide

4.0 WARRANTY REPLACEMENT:

4.1 In the event U.S. ROBOTICS Technical Support or its authorized U.S. ROBOTICS Service Center determines the product or part has a malfunction or failure attributable directly to faulty workmanship and/or materials; and the product is within the TWO (2) YEAR warranty term; and the CUSTOMER will include a copy of the dated Proof of Purchase (original purchase receipt from U.S. ROBOTICS or its authorized reseller) with the product or part with the returned product or part, then

U.S. ROBOTICS will issue CUSTOMER a Return Material Authorization (RMA) and instructions for the return of the product to the authorized U.S. ROBOTICS Drop Zone.

4.2 Any product or part returned to U.S. ROBOTICS without an RMA issued by U.S. ROBOTICS or its authorized U.S. ROBOTICS Service Center will be returned.

4.3 CUSTOMER agrees to pay shipping charges to return the product or part to the authorized U.S. ROBOTICS Return Center; to insure the product or assume the risk of loss or damage which may occur in transit; and to use a shipping container equivalent to the original packaging.

4.4 Responsibility for loss or damage does not transfer to U.S. ROBOTICS until the returned product or part is received as an authorized return at an authorized U.S. ROBOTICS Return Center.

4.5 Authorized CUSTOMER returns will be unpacked, visually inspected, and matched to the Product Model Number and Product Serial Number for which the RMA was authorized. The enclosed Proof of Purchase will be inspected for date of purchase and place of purchase. U.S. ROBOTICS may deny warranty service if visual inspection of the returned product or part does not match the CUSTOMER supplied information for which the RMA was issued.

4.6 Once a CUSTOMER return has been unpacked, visually inspected, and tested U.S. ROBOTICS will, at its sole discretion, repair or replace, using new or reconditioned product or parts, to whatever extent it deems necessary to restore the product or part to operating condition.

4.7 U.S. ROBOTICS will make reasonable effort to ship repaired or replaced product or part to CUSTOMER, at U.S. ROBOTICS expense, not later than TWENTY ONE (21) DAYS after U.S. ROBOTICS receives the authorized CUSTOMER return at an authorized U.S. ROBOTICS Return Center.

4.8 U.S. ROBOTICS shall not be liable for any damages caused by delay in delivering or furnishing repaired or replaced product or part.

5.0 LIMITATIONS:

5.1 **THIRD-PARTY SOFTWARE:** This U.S. ROBOTICS product may include or be bundled with third-party software, the use of which is governed by separate end-user license agreements provided by third-party software vendors. This U.S. ROBOTICS Limited Warranty does not apply to such third-party software. For the applicable warranty refer to the end-user license agreement governing the use of such software.

5.2 **DAMAGE DUE TO MISUSE, NEGLIGENCE, NON-COMPLIANCE, IMPROPER INSTALLATION, AND/OR ENVIRONMENTAL FACTORS:** To the extent permitted by applicable law, this U.S. ROBOTICS Limited Warranty does not apply to normal wear and tear; damage or loss of data due to interoperability with current and/or future versions of operating system or other current and/or future software and hardware; alterations (by persons other than U.S. ROBOTICS or authorized U.S. ROBOTICS Service Centers); damage caused by operator error or non-compliance with instructions as set out in the user documentation or other accompanying documentation; damage caused by acts of nature such as

lightning, storms, floods, fires, and earthquakes, etc. Products evidencing the product serial number has been tampered with or removed; misuse, neglect, and improper handling; damage caused by undue physical, temperature, or electrical stress; counterfeit products; damage or loss of data caused by a computer virus, worm, Trojan horse, or memory content corruption; failures of the product which result from accident, abuse, misuse (including but not limited to improper installation, connection to incorrect voltages, and power points); failures caused by products not supplied by U.S. ROBOTICS; damage caused by moisture, corrosive environments, high voltage surges, shipping, abnormal working conditions; or the use of the product outside the borders of the country or territory intended for use (As indicated by the Product Model Number and any local telecommunication approval stickers affixed to the product).

5.3 TO THE FULL EXTENT ALLOWED BY LAW, THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, TERMS, OR CONDITIONS, EXPRESS OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES, TERMS, OR CONDITIONS OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, CORRESPONDENCE WITH DESCRIPTION, AND NON-INFRINGEMENT, ALL OF WHICH ARE EXPRESSLY DISCLAIMED. U.S. ROBOTICS NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, WARRANTY, OR USE OF ITS PRODUCTS.

5.4 LIMITATION OF LIABILITY. TO THE FULL EXTENT ALLOWED BY LAW, U.S. ROBOTICS ALSO EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF ITS PRODUCTS, EVEN IF U.S. ROBOTICS OR ITS AUTHORIZED RESELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT U.S. ROBOTICS OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

6.0 DISCLAIMER:

Some countries, states, territories or provinces do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to consumers, or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to CUSTOMER. When the implied warranties are not allowed by law to be excluded in their entirety, they will be limited to the TWO (2) YEAR duration of this written warranty. This warranty gives CUSTOMER specific legal rights, which may vary depending on local law.

7.0 GOVERNING LAW:

This Limited Warranty shall be governed by the laws of the State of Illinois, U.S.A. excluding its conflicts of laws principles and excluding the United Nations Convention on Contracts for the International Sale of Goods.

U.S. Robotics Corporation
1300 E. Woodfield Road
Suite 506
Schaumburg, Illinois
60173
U.S.A.

REGULATORY



Declaration of Conformity

U.S. Robotics Corporation
1300 E. Woodfield Rd. Suite 506
Schaumburg, IL 60173
U.S.A.

declares that this product conforms to the FCC's specifications:

Part 15, Class B

Operation is subject to the following conditions:

- 1) this device may not cause harmful electromagnetic interference, and
- 2) this device must accept any interference received including interference that may cause undesired operations.

This equipment complies with Part 15 for Home and Office use.

Caution to the User: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Radio and Television Interference:

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. If this equipment is not installed and used in accordance with the manufacturer's instructions, it 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 to 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.

FCC Part 68 Registration

Customer Information

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the bottom of this equipment is a label that contains, among other information, a product identifier in the format US: AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

This equipment uses the following Universal Service Order Code (USOC) jacks: RJ11C.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See this document for details.

The 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).

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 is not

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.

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.

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.

There are no serviceable parts in this equipment.

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.

UL Listing/CUL Listing:

If you use your own telephone cable, you must use a minimum No. 26 AWG and FCC compliant telephone cable.

This product is intended to have power supplied by a Listed Direct Plug-in Power Adapter marked Class 2 and rated 9V DC or 15V DC, 1000 mA.

This information technology equipment is UL Listed and C-UL Listed for both the US and Canadian markets respectively for the uses described in the User Guide. Use this product only with UL Listed Information Technology Equipment (ITE).

Fax Branding:

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains in the margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent, an identification of the business or other entity, or other individual sending the message, and the telephone number of the sending machine or of such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other number for which charges exceed local or long-distance transmission charges.) In order to program this information into your modem, refer to the documentation of your third-party fax software.

For Canadian Modem Users

Industry Canada (IC)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled Digital Apparatus, ICES-003 of Industry Canada.

Customer Information

Notice: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

Notice: The Ringer Equivalence Number (REN) for this terminal equipment is 0.2B. The REN assigned to each terminal equipment 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 five.



CE Compliance

Declaration of Conformity

We, U.S. Robotics Corporation of 1300 E. Woodfield Rd. Suite 506, Schaumburg, Illinois, 60173-5446 USA, declare under our sole responsibility that the product, USRobotics Courier Lite 56K Business Modem, Model 5686G-PRO, to which this declaration relates, is in conformity with the following standards and/or other normative documents.

EN60950-1

EN55022

EN55024

EN61000-3-2

EN61000-3-3

We hereby declare that the above named product is in conformity with the essential requirements and other relevant provisions of Directive 1999/5/EC.

The conformity assessment procedure referred to in Article 10(3) and detailed in Annex II of Directive 1999/5/EC has been followed.

An electronic copy of the original CE Declaration of Conformity is available at the U.S. Robotics website: www.usr.com

Network Compatibility Declaration

This equipment is designed to work satisfactorily on all European Union PSTN (Public Switching Telephone Network) networks.

This equipment is supplied with a suitable PSTN connector for the country in which it was supplied. If it is required to use this equipment on a different network to the one for which it was supplied, the user is advised to contact the vendor for guidance regarding connection.

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1300 E. Woodfield Rd., Suite 506
Schaumburg, Illinois
60173-5446
USA

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