

# UTA120

## User's Guide



**Alpha Telecom, Inc. USA**



# UTA120

## User's Guide

Revision 2.1  
August 2008

**Copyright © 1997**  
All rights reserved.

All brand names and product names are trademarks or registered trademarks of their respective holders.

Microsoft does not make any representation or warranty regarding specifications in this document or any product or item developed based on these specifications. Microsoft disclaims all express and implied warranties, including but not limited to the implied warranties of merchantability, fitness for a particular purpose and freedom from infringement. Without limiting the generality of the foregoing, Microsoft does not make any warranty of any kind that any item developed based on these specifications, or any portion of a specification, will not infringe any copyright, patent, trade secret or other intellectual property right of any person or entity in any country. It is your responsibility to seek licenses for such intellectual property rights where appropriate. Microsoft shall not be liable for any damages arising out of or in connection with the use of these specifications, including liability for lost profit, business interruption, or any other damages whatsoever. Some states do not allow the exclusion or limitation of liability or consequential or incidental damages; the above limitation may not apply to you.

Microsoft, MS-DOS, Windows 3.x, Windows 95, Windows 98, and Windows NT are registered trademarks of Microsoft Corporation.

# FCC Statement

**FCC ID: LLMUTA120**

*This device is a Class B Computing Device Peripheral and complies with part 15 of the FCC Rules. It also complies with the new rules under Docket 87-389 and is not affected by Section 15.37, transition rule. This equipment is registered under Part 68.*

*Operation is subject to the following two conditions:*

- 1) This device may not cause harmful interference.*
- 2) This device must accept any interference received including interference that may cause undesired operation.*

**FCC REG. NO. 6ABTAI-24553-DE-N**

## **SAFETY INSTRUCTIONS**

When using telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons and the equipment itself, including the following:

- The power cord must be connected to a properly wired and grounded outlet.
- Never plug an analog telephone line into the “U” interface of the UTA120.
- Read and understand all instructions.
- Follow all warnings and instructions provided with the product.
- Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- Do not use this product near water, for example; near a bath tub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
- Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- Slots and openings in the case are provided for ventilation, to protect it from over heating. These openings must not be blocked or covered. This product should never be placed on or over a radiator or heat register. This product should not be placed in a built-in installation, unless proper ventilation is provided.
- Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short-out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.
- To reduce the risk of shock, do not disassemble this product. Instead, take it to a qualified service center or return it to Alpha Telecom Inc.U.S.A. for repair.
- Avoid using the UTA120 device during an electrical storm. There may be a remote risk of shock from lightning.
- Unplug the UTA120 and refer servicing to qualified service personnel under the following conditions:
  1. When the power supply cord is damaged or frayed.
  2. If liquid has been spilled into the product.
  3. If the product has been exposed to rain or water.
  4. If the product has been dropped or the cabinet has been damaged.
  5. If the product exhibits a distinct change in performance.

# Contents

<b>1. Introduction</b> .....	<b>1</b>
Package Contents.....	1
System Requirements .....	1
Preinstallation.....	2
Installing the Hardware .....	2
<b>2. Software Installation and Configuration</b> .....	<b>5</b>
Software Installation for Windows 95.....	5
Configuration.....	6
Installation and Configuration for Windows 3.X, DOS, or UNIX .....	7
<b>3. Advanced Configuration</b> .....	<b>9</b>
The Stored DNs Button.....	9
The Call Button .....	10
The Profiles Button .....	10
The About Button .....	11
The Help Button .....	11
<b>4. Network Connections and Data Calls</b> .....	<b>13</b>
Installing The UTA120 as a Modem .....	13
Creating Your Network Connection .....	14
Making a Data Call with Windows 95.....	14
Making a Data Call Using the AT Command Set: .....	15
<b>5. Supplementary Services</b> .....	<b>17</b>
Introduction to Call Management Features .....	17
Flash.....	17
Retrieving a Call on Hold/Call Waiting .....	17
Transferring Calls.....	18
Conferencing Calls.....	18
Drop Last Call .....	18
Signaling.....	18

<b>6. The AT Command Set.....</b>	<b>19</b>
Introduction to the AT Command Set.....	19
Functional States .....	19
Guidelines for Using AT Commands.....	20
Profile Descriptions for the UTA120.....	21
Problems in Command Execution:.....	22
Description of AT Commands .....	22
S Registers.....	34
Result Codes.....	35
<b>7. Troubleshooting Tips .....</b>	<b>37</b>
<b>Appendix A: ISDN Ordering .....</b>	<b>39</b>
Basics of Ordering ISDN .....	39
Suggested Ordering Codes .....	40
Alternative IOCs.....	41
<b>Appendix B: Specifications .....</b>	<b>43</b>
U-Interface.....	43
S/T-Interface.....	43
Data Interface.....	44
Analog Interface .....	44
Power .....	45
Switch Capability.....	45
Physical Dimensions.....	45
Operating System .....	45
Advanced Features.....	45
Environment .....	45

## CHAPTER 1: INTRODUCTION

### PACKAGE CONTENTS

Immediately after unpacking the unit, please inspect the contents. The following items should be enclosed:

- One UTA120 Terminal Adapter
- One Six Foot RJ-45 (8 pin connector) to RJ-45 Cable
- One DB25 female to DB9 male converter
- One RJ-11 (4 pin connector) to RJ-11 (4 pin connector) Cable
- One DTE Cable (DB9 male to female)
- Two 3.5" Installation Floppy Disk
- One UTA120 User's Guide
- One Quick Installation Guide
- One Power Supply

---

***If any items are missing or damaged during shipment, please contact the distributor or reseller where you purchased the product. We recommend that the customer retain the packaging container and material.***

---

### SYSTEM REQUIREMENTS

The UTA120 will perform best if your PC is equipped with the following:

- 8M of RAM (minimum)
- 3M of Hard Drive Space (for Windows 95\*\* users only)
- 386 CPU or better
- Mouse
- Operating System: UNIX, DOS, Windows 3.1, 3.11 or Windows 95.
- ☞ ***Any Reference to Windows 95 through this manual may also be applied to Windows 98 and Windows NT 4.0***

## PREINSTALLATION

To ensure a successful installation, we recommend that the installer prepare the following items before proceeding.

1. Subscribe to ISDN from your telephone service provider. Refer to **Appendix A** for a detailed explanation of ordering ISDN.
2. Select adequate communication software (HyperTerminal, Terminal, ProComm Plus, etc.)

☞ *Note: For the operation and installation of the communication software, please refer to the communication software manual.*

- If you want to use the AT Command Set with Windows 95/98/NT 4.0, then HyperTerminal is the communications software supplied by Microsoft. (We suggest using the Human to Machine Interface, or HMI, software instead of the AT Command Set.)
  - For Windows 3.X, DOS, or UNIX, we recommend using a terminal program and the AT Command Set to configure the UTA120.
3. Have your personal computer (PC) or workstation ready if you plan to use the UTA120 for data communication.
  4. Check the packing list. If something is missing, call your UTA120 vendor.
  5. Be sure to register your UTA120 to validate your warranty.

## INSTALLING THE HARDWARE

☞ *Warning: Always turn the UTA120 power off before connecting or disconnecting cables.*

1. Plug the DB9 cable into the UTA120's DATA port. Insert the other end of the cable into a communication port on the PC/workstation or other Data Terminal Equipment (DTE).
2. Plug the RJ-11 cable into the UTA120's U-Interface which is the protocol reference point between ISDN network termination (NT1) equipment and the central office. Insert the other end of the cable into the ISDN wall jack.
3. Plug the RJ-45 cable into the UTA120's S/T-Interface. Insert the other end of the cable into the ISDN S/T terminal equipment.
4. Plug another RJ-11 cable into the UTA120's TEL1 and/or TEL2 port. Insert the other end of the cable into any analog device (traditional telephone, modem, fax machine or answering machine).
5. Plug the AC/DC power adapter into the POWER connector.
6. Secure the power adapter cord on the rear panel by using the attached hook on the right side of the POWER connector.

7. Insert the other end of the AC/DC power adapter into the wall socket.
8. Check the Termination resistance setting. You may need to adjust the termination resistor if your UTA120 is connected to any other ISDN terminal equipment, especially ISDN phones. Position DIP switches 7 and 8 on the rear panel to set the termination resistance. Refer to Table 1.1 for the appropriate DIP Switch settings. In most cases, the default setting is 100Ω.
9. Please check the LED (Light Emitting Diode) indicators when you turn the power switch ON. All the LEDs should flash in a preset sequence for a few seconds. If nothing is plugged into the UTA120 then the LED indicators will stop flashing and only the green Power LED and the red Line LED will be lit. If everything is connected, the Line LED will turn green. For a complete description of the States of the LED indicators, see Table 1.2.

Bit 1	Remote Configuration	ON: enable	OFF: disable
Bit 2	Local Loopback	ON: enable	OFF: disable
Bit 3	Reserved		
Bit 4	Reserved		
Bit 5	Reserved		
Bit 6	Forced Software Download	ON: enable	OFF: disable
Bit 7 Bit 8	S/T Termination Resistor Selector	Bit 7&8 ON: 100 Ω	Bit 7&8 OFF: None

*Table 1.1: Dip Switch Settings*

	GREEN	RED	YELLOW	FLASHING	SOLID
<b>Power</b>	ON				
<b>Line</b>	U-Interface activated	U-Interface deactivated			
<b>TEL1</b>	Active			In Progress	Connected
<b>TEL2</b>	Active			In Progress	Connected
<b>Data</b>	1 B channel Connection	2 B channel Connection		DTE connecting	DTE connected
<b>TD</b>	Transmitting data				
<b>RD</b>	Receiving data				
<b>DTR</b>	Data terminal ready				
<b>TEST</b>			ON		


*Table 1.2: States of the LED Indicators*



CHAPTER 2:

# SOFTWARE INSTALLATION AND CONFIGURATION

## SOFTWARE INSTALLATION FOR WINDOWS 95®

 *Note: The Human to Machine Interface (HMI) can only be used with Windows 95, Windows 98, and Windows NT 4.0. The HMI may or may not work on your Windows 3.1 system. The HMI will not work on any other systems.*

1. Insert the diskette labeled "UTA120 Installation Disk 1 of 2" into your PC's 3.5" (A:) disk drive.
2. Double click the "My Computer" icon.
3. The **My Computer** window appears. Double-click the "3 1/2 Floppy (A:)" icon.
4. The **3 1/2 Floppy (A:)** window appears. Double-click the "Setup.exe" icon.
5. The **Setup** window appears.
6. The **Welcome** window appears. Click the **Next** button.
7. The Choose Destination Location window appears.
8. If you click the **Browse** button, the **Choose Directory** window appears. You may leave the default directory **C:\UTA120** or choose your own.
9. Once you have chosen the directory, click the Next button. The Setup Needs The Next Disk window appears.
10. Insert the diskette labeled, "UTA120 Installation Disk 2 of 2" into your PC's 3.5" (A:) disk drive. Click the **OK** button.
11. The **Setup** window appears. Wait until the program is through loading.
12. When the program is through installing, the **Information** window appears.
13. Click the OK button. It will place you in the Windows Desktop Screen. There you will find the **UTA120** window.

## CONFIGURATION

1. If you have just installed the UTA120 software, you will see the **UTA120** window. Click on the "**UTA120 Configuration**" icon. The **Configuration** window appears.  
☞ *If you have installed the setup software, but closed the UTA120 window, do the following to open the Configuration window:*
  - Click the Start button.
  - Highlight/select Programs.
  - Highlight/select UTA120.
  - Highlight/select and click on UTA120 Configuration.
2. Click the **COM Port** down arrow button to choose the port connected to the UTA120.
3. In the section labeled **Service Profile Identifiers - SPID**, click inside the **Tel Port #1** window and enter a SPID. A SPID is the number that identifies each terminal equipment to the Telephone Company. Notice that the SPID is automatically copied to **Data Port #1**.  
☞ *Note: Your local phone company assigns SPIDs. Only the Data Port and the Tel Ports can share SPIDs. The Tel Port or Data Port cannot share the same SPID with any S/T devices.*
4. In the section labeled **Directory Numbers**, click inside the **Tel Port #1** window and enter the phone/directory number that corresponds to the **Tel Port #1** SPID window. Notice that the DN is automatically copied to **Data Port #1**.
5. Repeat steps 2 and 3 for **Tel Port #2**.  
☞ *Note: You must enter a different SPID and Directory number than the SPID and Directory number entered in Tel Port #1.*
6. **Speech/Fax/Modem** (Tel Port #1 or Tel Port #2):  
☞ *If you choose Speech for either Tel Port, you can choose the Supplementary Services function. If you choose Fax/Modem for either Tel Port, you cannot choose the Supplementary Services function.*
7. **Data Call Protocol** click the down arrow button to choose one of the following:
  - HDLC Transparent (High-level Data Link Control) allows remote access for the UTA120.
  - Asyn-to-Sync PPP (Asynchronous to Synchronous Point to Point Protocol) allows 64Kbps or 128Kbps Internet access.

- V.120 (Hardware Rate Adaption) is a North American setting that allows the UTA120 to talk with older ISDN hardware.
8. **PPP Option** (Point-to-Point Protocol) is available only if you choose the Asyn-to-sync PPP call type. You are given a choice for either 64Kbps or 128Kbps speed.
- PPP 64Kbps is an ISDN Internet connection using one B-Channel for a 64Kbps data rate.
  - MLP 128Kbps (Multilink Protocol) is an ISDN Internet connection combining both B-Channels for a 128Kbps data rate. Sometimes described as PPP/MP (Point to Point/Multilink Protocol).
  - Release a Channel for Voice Call allows bandwidth on demand. This is only an option if you choose MLP 128Kbps.
- ☞ *Example: You are accessing the Internet with both B-Channels (128Kbps). While you are still on-line, you receive a voice call or decide to make a voice call. In this mode, one of the B-Channels will drop allowing the call to go through, reconnecting when the call is finished.*
9. After you input the proper settings, click the **Configure TA** button. This sends the new configuration to the UTA120 hardware.
- ☞ *Note: This is now your active profile (i.e., the one you are using). It will not be stored as a user profile unless you do so. SPIDs and DNs are kept separately from profiles*
10. Click the **Save Data** button to store this configuration on your hard drive.

## INSTALLATION AND CONFIGURATION FOR WINDOWS 3.X, DOS, OR UNIX

Follow the installation instructions provided with the communication software (Terminal, ProComm Plus...) you choose. Use the AT Command Set detailed in **Chapter 6** of this manual.

1. Configure the switch type with the AT!C0=x command.
  - AT!C0=0 for Switch Auto Detection
  - AT!C0=1 for AT&T (Lucent) Custom switch
  - AT!C0=2 for AT&T (Lucent) NI-1 or Siemens switch
  - AT!C0=3 for NORTEL Custom switch
  - AT!C0=4 for NORTEL NI-1 switch
  - NI-1 is also called National ISDN or Standard in some areas.

2. Configure SPIDs with the AT!Cn=x command.
  - AT!C6=DATA Port 1 SPID
  - AT!C7=DATA Port 2 SPID
  - AT!C8=Analog Port 1 SPID
  - AT!C9=Analog Port 2 SPID
3. Configure DNs with the AT!Nn=x command.
  - AT!N0=DATA Port 1 DN
  - AT!N1=Analog Port 1 DN
  - AT!N2=Analog Port 2 DN
  - AT!N3=DATA Port 2 DN
4. Set Analog Port Bearer Capability with AT!Bn=x
  - n=Analog Port (n=1 for Analog Port 1)
  - AT!Bn=0 is SPEECH setting (default)
  - AT!Bn=1 is FAX/MODEM setting which stops supplementary services
5. Reboot the unit for the new ISDN line configuration by typing ATR.
6. Set the Data Call Type using the AT&Fn command
  - AT!F0=HDLC
  - AT!F1=PPP (64K Internet)
  - AT!F2=MLP (128K Internet)
  - AT!F3=AIMUX (128K)
  - AT!F5=V.120 (64K Internet in some places)
7. Set the "Drop for Voice Call" feature using the AT@M5=n command.
  - AT@M5=0 to disable
  - AT@M5=1 to enable


Be sure to see **Chapter 6** for more details on the AT Command Set and User Profiles.

CHAPTER 3:

# ADVANCED CONFIGURATION

## THE STORED DNS BUTTON

1. Click the **Stored DNs** button.
2. The **Advanced Configuration** window appears.
3. In the section labeled **Call Screen Mode**, you may choose to accept, or reject all calls. You may also choose to accept only certain designated calls.
  - If you choose to accept all incoming calls, click the circle next to **Accept All Calls**.
  - If you choose to reject all incoming calls, click the circle next to **Reject All Calls**.
  - If you choose to screen your incoming calls, click the circle next to **Accept Calls Listed in the Stored Directory**.
4. In the section labeled **Stored Telephone Numbers**, you may program up to five (5) phone numbers.


 **Note:** *Only calls from these 5 numbers will be accepted when you are on the Internet using both B-Channels (128Kbps) and when you have selected the "Accept Calls listed in the Stored Directory" option in the Call Screen Mode section of the Advanced Configuration Window.*
5. In the section labeled **Answer Mode** you may set the UTA120 to answer automatically. Simply click the circle next to **Auto**.
6. If you choose **auto answer**, you can manually adjust the Ring Count (i.e., how many rings before the PC automatically answers).
7. If you want to answer the incoming call, click the circle next to **Manual**.
8. To configure the UTA120 with the present settings, click the **Configure TA** button.
9. To save the present settings, click the **Save Data** button.

## THE CALL BUTTON

1. Click the **Call** button to make a call.
2. The **Call Access** window appears.
3. To make a call, click the **Dial** button.
4. The **Dial** window appears. Enter the number you are calling and click the **OK** button.
5. The UTA120 calls the entered number.
6. To redial the last number you called, click the **Redial** button.
7. To end the call, click the **Hangup** button.
8. To manually answer an incoming call, click the **Answer** button.
9. To call one of the last 10 numbers dialed, click the **Memory Dial** button. A window will open revealing the last 10 numbers called. To dial one of these numbers, highlight/select and click.
10. To reveal the past history of the Tel ports or the Data port, click the **Previous Call Info** button. To choose the port you want to view, click the circle next to the desired port. The history information will show in the **Status** box.

## THE PROFILES BUTTON

1. Click the **Profiles** button.
2. The **Profiles** window will open.  
☞ **Note:** *Profile is the setup configuration of the UTA120.*
3. To change the start up profile, click the **Change start up user profile selection** button.
4. Click the circle next to the profile you want as the start up profile.
5. To load and use a profile stored in memory as the active profile click the **Load a user profile as the active profile** button.  
☞ **Note:** *The user can have 3 profiles. One may be active. The other two are stored in memory. The one that is active and not stored in memory will be lost when the power is disconnected.*
6. Click the circle beside the user profile you want to replace with the new profile.
7. To load a factory profile as an active profile, click the **Load a factory profile as an active profile** button.

8. If you want to save your current active profile, click the Save the active profile as the user profile button. Then choose the profile you wish to save it as.  
 *Note: If you have saved user profiles already, you will copy over one of the profiles stored.*
9. To view the settings of each profile, click the **View the active or user profile** button. Then click the circle next to the profile wanted.
10. To actually change the individual profile settings, see **Chapter 6**, the AT Command Set.

## THE ABOUT BUTTON

Click the **About** button to get the UTA120 Version information.

## THE HELP BUTTON

1. Click the **Help** button.
2. The **Help** window opens.
3. Click on your choice for help.



## CHAPTER 4:

# NETWORK CONNECTIONS AND DATA CALLS

### INSTALLING THE UTA120 AS A MODEM

You must first create a network connection before you make a data call. To make a network connection, follow the steps below:

1. Click the **Start** button on your taskbar.
2. Highlight **Settings**.
3. Click on **Control Panel**.
4. The **Control Panel** window appears. Double click the **Modems** icon.
5. The **Modems Properties** window appears. Click the **Add** button.
6. The **Install New Modem** window appears. Click the **"Don't detect my modem; I will select it from a list"** box. Click the **Next** button.
7. Another **Install New Modem** window appears. Click the **Have Disk** button.
8. The **Install From Disk** window appears. Type in **A:\** and click the **OK** button. Make sure the **"UTA120 Installation Disk 1 of 2"** is in Drive A of your PC.
9. The **Open** window appears. Highlight and double click **Win95**.
10. The **Win95** folder opens, and the **uta120.inf** file is placed in the file name box. Click the **OK** button.
11. The **Install From Disk** window appears. Click **OK** to continue.
12. Another **Install New Modem** window appears. Highlight the mode you want to use, and click the **Next** button.  
*Note: MP128K is the default startup profile.*
13. Another **Install New Modem** window appears. Highlight Communications Port (the port connected to the UTA120), and click the **Next** button.
14. The **Install New Modem** window appears again. Click the **Finish** button.
15. The **Modems Properties** window appears.

## CREATING YOUR NETWORK CONNECTION

1. On the main menu of Window 95, double-click **My Computer**.
2. Double click the **Dial-Up Networking** icon.
3. The **Dial-Up Networking** window appears. Double-click the **Make New Connection** icon.
4. The **Make New Connection** window appears. Choose the UTA120 setting that you installed earlier and click **Next**.
5. Enter the number to dial for your connection and click **Next**.
6. Click **Finish** to confirm your connection.
7. Right-click on your new connection and choose **Properties**. Then uncheck the **Use country code and area code** box if you do not need it for your application.  
*☞ If you are using Windows 98, then select the Multilink tab and add the UTA120 as a second device.*
8. Click the **Server Types** tab and check and/or uncheck the **Advanced options** and **Allowed network protocols** as needed by your application. If you are connecting to the internet, you need to contact your Internet Service Provider for this information.
9. If you are using TCP/IP, click the **TCP/IP settings** button.
10. Set the IP Address and Domain Name Server Addresses as needed by your application. If you are connecting to the internet, contact your Internet Service Provider for this information.
11. Click **OK**, then **OK** again.

## MAKING A DATA CALL WITH WINDOWS 95

The **UTA120** supports various data call types (HDLC transparent, Asyn-to-Sync PPP, Multilink PPP, and V.120).

1. On the main menu of Window 95, double-click **My Computer**.
2. Double-click the **Dial-Up Networking** icon.
3. The **Dial-Up Networking** window appears. Double-click the connection icon (**My Connection**) that you defined for the Internet access by using the UTA120.
4. The **Connect To** window appears. Input **User name**, **Password**, and **Phone number**.

5. Click the **Connect** button to connect with the Internet server. The **Connecting to My Connection** window appears. This means the physical connection between the UTA120 and the Internet server has been established. The hand shaking is now in progress. When this is done, you can use your Internet application program (Browser, News, or File transfer). The physical connection can be released by clicking **Disconnect**.

### MAKING A DATA CALL USING THE AT COMMAND SET:

This section illustrates the procedure to make a data call on the terminal type communication program, e.g., PCPLUS.

1. Enter the dialing command `ATD <phone number> <ENTER>` where the <phone number> is the phone number of the DTE that you wish to connect with and press the Enter key.  
*Example: ATD4125678 <ENTER>.*
  - `CONNECT <baud rate/call type>`  
If the above message is displayed, the remote site has answered. The UTA120 is now in the On-Line state. Data transfer with the remote site is now possible.  
*Example: CONNECT 38400/V.120*
  - `NO CARRIER`  
If the above message is displayed, the call has failed.
2. You can now use your application.
3. Enter `+++` (three plus signs), the command to terminate the data call, and escape from the On-Line state.
  - The UTA120 will respond with "OK". You enter the command:
  - `ATH <ENTER>`
  - The UTA120 will respond with "OK" again, after it is disconnected.



## CHAPTER 5:


# SUPPLEMENTARY SERVICES

### INTRODUCTION TO CALL MANAGEMENT FEATURES

The UTA120 provides call waiting, hold, transfer, conference, and drop. Supplementary Services requires provisioning from the Telephone Company. Call waiting with call hold can be provisioned without supplementary services.

#### FLASH

The word “flash” is used though out this chapter to describe a telephone term called “flash-hooking”. To utilize the *flash* function, press down the telephone receiver button and release it. The time you hold the receiver button down should be approximately one half second. The *flash* should never exceed one second or it will become a disconnect. If you *flash* too quickly, the UTA120 may not recognize the *flash*.

 **Note:** *It's a good idea to practice using flash, before you start placing or receiving calls. Your analog phone may also have a “flash” button that could perform this function for you.*

#### DISCONNECTING A CALL

To disconnect an active call, press down the telephone receiver button and hold it down at least one second. If you have any calls on hold, after a few seconds the phone will ring with a “reminder ring”. Pick up the receiver to reconnect to the call on hold.

#### RETRIEVING A CALL ON HOLD/CALL WAITING

If you are switching between two calls, simply *flash* to retrieve the inactive call. If you are finished with the active call, then simply hang up the receiver. After a few seconds the UTA120 will signal you with a reminder ring indicating that there is still a call on hold. Pick the receiver up to connect the call.

## TRANSFERRING CALLS

- To transfer an active call, use *flash* to get to a second dial tone.
  - ☞ *If you hear a busy signal, there is no available call appearance to place the call.*
- Dial the number of the location where you wish to transfer the call. It is possible to announce to the second party that you are transferring a call to them. You can also complete the transfer before the second party picks up.
- To complete the transfer, simply flash a second time and then hang up.
- If the second party does not want to take the transfer call, you can cancel the transfer by hanging up and waiting for the reminder ring.

## CONFERENCING CALLS

- To start a conference call, *flash* to get a second dial tone.
  - ☞ *If you hear a busy signal, there is no available call appearance to place the call.*
- Dial the number you wish to conference.
- To connect the first and second parties together use *flash* again. Before you *flash*, it is recommended that you announce to the second call that you are about to put them into a conference call with the first party. If the second party does not want to enter into a conference call, you can cancel the conference hanging up and waiting for the reminder ring.
  - ☞ *You cannot conference a call that arrives on your call waiting.*

## DROP LAST CALL

In a conference call, you can drop the last party added by using another *flash*. If you drop the last call, you can initiate another transfer or conference.

- ☞ *We recommend using the Drop function instead of allowing other callers to disconnect during a conference. If one of the parties disconnects and you flash afterwards, the drop will be sent causing you to lose the remaining caller.*

## SIGNALING

- Ringing on analog phones
  - ⇒ **Reminder Ring:** A single ring of half second duration followed by a half second of silence signals a call is waiting on hold.
  - ⇒ **Normal Ring:** A single ring of 2-second duration followed by 4 seconds of silence signals an incoming call.
- Ringing from inside the UTA120
  - ⇒ **Alarm Ringing:** A single continuous ring that does not stop. This signals that one of the analog lines has been left off-hook. To turn it off, just hang up.

## CHAPTER 6: AT COMMAND SET

### INTRODUCTION TO THE AT COMMAND SET

The AT Command Set is widely used in almost all modem controls. You must use a terminal or the terminal emulation capability of your communication software package. In general, AT commands are responsible for instructing the UTA120 to do a task. You send these commands to your UTA120 from your PC using communication software. When the UTA120 receives a command, it will respond with an AT result code on your terminal. This chapter explains the AT Commands and its result codes.

### FUNCTIONAL STATES

When operating via the AT Command interface, the UTA120 is always in one of the following four functional states:

1. Command Mode
2. Call-in-Progress state
3. On-Line state
4. Escape Command Mode.

#### The Command Mode

The Command Mode is the default mode when the UTA120 is powered on or after a disconnect. While in this mode, the UTA120 accepts commands from the Data Terminal Equipment (DTE).

#### The On-Line State

After dialing the number and completing the linkup hand shaking, the UTA120 will make a connection with the remote terminal adapter and enter the **On-Line state**. In this state the system sends and receives data. However, it does not accept commands, except for the escape sequence "+++". When the link is lost or intentionally dropped the UTA120 will clear the call and re-enter the Command Mode.

### The Call-in-Progress State

The Call-in-Progress state is the transition state between the Command Mode and the On-Line state. After a call is placed, a connection must be established within a preset period of time (S7 Register). If a connection does not occur during the Call-in-Progress state, or if a key on the DTE keyboard is pressed (a dial interrupt occurs), the UTA120 will abandon the call and re-enter the Command Mode.

### The Escape Command Mode

Once the UTA120 has entered the On-Line state, you may escape from this state by entering the escape sequence “+++”. The escape sequence will cause the UTA120 to enter the **Escape Command Mode** and respond with the “OK” message. In the Escape Command Mode, most of the commands can be invoked just as in the Command Mode. In the Escape Command Mode the UTA120 does not terminate the connection with the remote side. To return to the On-Line state from the Escape Command Mode, enter the command “ATO”.

## GUIDELINES FOR USING AT COMMANDS

All AT Commands (except the A/ command) begin with the **AT** prefix and end with pressing the ENTER key. A typical AT Command line is shown below.

AT	Command String	<Enter>
----	----------------	---------

### AT

- The AT prefix is known as the “**Attention Characters.**” It can be uppercase or lowercase but the UTA120 will not recognize a combination of the cases (**At** or **aT**).
- It also informs your terminal (UTA120) of your computer's speed, parity and character length. The data character formats (how your data is structured) for the **AT Command** set.
- It can be set using your communication software. It must be one of the following:
  - ⇒ 8 data bits + no parity + 1 stop bit.
  - ⇒ 7 data bits + 1 parity bit + 1 stop bit (Parity can be odd, even, mark, or space.)

## Command String

- Commands can be entered one at a time or in strings (several commands at once).
- Strings can have up to 239 characters after the prefix. The prefix code must be in all uppercase or lowercase.
- The letters that follow can be any mixture of uppercase and lowercase.
  - ⇒ The backspace key can be used to edit the command string you have typed.
  - ⇒ The backspace key erases the character to the left of the cursor but will not erase the "AT" characters once they are typed.
  - ⇒ To re-execute the previous command, use the "A/" command.

## PROFILE DESCRIPTIONS OF THE UTA120

To meet different application requirements, the UTA120 provides a series of parameters (or registers) through which it can be configured. When the UTA120 is in the Command Mode or Escape Command Mode, you can use commands to modify these parameters (or registers) and control the operations of the UTA120.

Whenever you modify the values of the parameters (registers) the system automatically keeps the new values in the volatile memory. If you do not save them in a user profile, the changes are temporary and last only until the UTA120 is reset.

The UTA120 supports three types of profiles they contain all the parameters (registers). Values for these parameters can be saved as user profiles for later use.

1. **Active profile** - is the current operating configuration of the UTA120.
  - It can be configured using AT Commands.
  - The active profile is lost when the UTA120 is powered off.
2. **User profile** - is the user's custom-made stored configuration.
  - The UTA120 will automatically load a user profile to the active profile whenever the system is powered down.
  - Two user profiles are supported by the UTA120. Use the "AT&Wn" command to save the active profile as user profile n=1 or n=2 and use the "ATZn" to load user profile n=1 or n=2 as the active profile.
  - Users must specify which user profile is used for power-up profile by issuing the command "AT&Yn" where n=1 or n=2

3. **Factory profile** - a series of settings which store four sets of operating parameters commonly used for data communication.
- These profiles are stored in Flash ROM.
  - They can be loaded to replace the current active profile via the command "AT&Fn" where n=0,1,2, or 5.

## PROBLEMS IN COMMAND EXECUTION

If your UTA120 did not execute a command line, make sure the following is correct:

- You are in the Command Mode and your command line follows the format described in the section entitled, "**Guidelines for Using AT Commands**".
- Verify your COM port speed matches any one of the following speeds: 230400, 115200, 57600, 38400, 19200, 9600, 4800, 2400, 1200, or 600bps.
- Type "AT" and press the ENTER key. This will lead to a response of "OK". If not, type "AT&F0" and press ENTER key. If your UTA120 still does not respond, its connection with your computer may have a problem or your software's COM port and/or IRQ was incorrectly set.
- To ensure you have properly installed your UTA120 and the application software, please review the installation instructions in **Chapter 2**.

## DESCRIPTION OF AT COMMANDS

### A/ = Command Repeat

Format	A/
--------	----

- "A/" is used to repeat the previous command line.
  - ☛ *You can use the "A/" command to re-dial a telephone number.*
- This is the only command that does not require the AT prefix and the ENTER key.
- The previous command remains in the command buffer until either the next command is entered or the UTA120 is powered off.
- If the previous command line does not exist, an "OK" message will be displayed.

## A = Manual Answer

<b>Format</b>	<b>ATA &lt;ENTER&gt;</b>
---------------	--------------------------

- "A" is used to answer an incoming data call indicated by the message: RING<phone number>.
- Incoming calls can be answered using the "ATA" command or by enabling the auto answer mode via the S0 Register.

## D = Dial

<b>Format</b>	<b>ATDnumber &lt;ENTER&gt;</b>
---------------	--------------------------------

- "D" instructs the UTA120 to dial a telephone number.
- Some special characters, like "T", "P", "W", space, and parentheses, will be ignored in a dialing command line.
- When the "D" command is invoked in the Command Mode, the UTA120 will enter the Call-in-Progress state and wait for an answer. The call can be aborted by pressing any key.

## DL = Last Data Call Redial

<b>Format</b>	<b>ATDL &lt;ENTER&gt;</b>
---------------	---------------------------

- "DL" is used to redial the previous data call if the phone number still remains in the phone number buffer. The phone number will remain there until either the next data call is dialed or the UTA120 is powered off.

## DS = Memory Dial

<b>Format</b>	<b>ATDS=n&lt;ENTER&gt;</b>
---------------	----------------------------

- "DS" dials the memory number with corresponding to index number "n". "n" may be an integer from 0 to 9.
- The internal phone directory is stored using AT&Zn=<phone number>.

## E = Command Echoing

<b>Format</b>	<b>ATEn &lt;ENTER&gt;</b>
n=0	Disable Command Echoing
n=1	Enable Command Echoing (default)

- "En" enables or disables echo of commands in the Command Mode or the Escape Command Mode. Data echo is always disabled in the On-Line state.

## H = Hang up

Format	ATH <ENTER>
--------	-------------

- "H" allows you to clear a data call or to reject an incoming data call manually.
- When this command is invoked, the UTA120 enters the Command Mode.

## I = Identification

Format	ATIn <ENTER>
n=0	Display maximum network rate(128000)
n=1	Display the checksum of TA's ROM(28000)
n=2	Reserved
n=3	Version x.x

- "In" instructs the UTA120 to display its internal information, such as maximum network rate, ROM checksum, and firmware version.

## O = Go on Line

Format	ATO <ENTER>
--------	-------------

- "O" command is only effective in the Escape Command Mode.
- When the UTA120 is in the Escape Command Mode, the "O" will force the UTA120 to return to the On-Line state.

## Q = Quiet Mode Control

Format	ATQn <ENTER>
n=0	Result codes are displayed (default)
n=1	Result codes are suppressed

- "Qn" is used to instruct the UTA120 to display or suppress the result code after a command execution.
- For example: A printer is connected to your UTA120; however, you do not want the result code from the UTA120 printed after each print action.

## S? = Query S Register

Format	ATS? <ENTER>
--------	--------------

- "S?" is used to query the content of all the S Registers.

## Sn? = Query Designated S Register

Format	ATSn? <ENTER>
--------	---------------

- The number "n" is the index of the specified S Register. Only the value of the S Register you specified is displayed.
- For further information on the S Registers, refer to the section entitled **S Registers**.

## S = Program S Register

Format	ATSn=x <ENTER>
--------	----------------

- The number "n" is the index of the specified S Register and the number "x" is the programmed value.
- "Sn=" command allows you to program or change the content of a specific S Register. To make sure of your change, you may also view the new value by issuing the "S?" or "Sn?" commands. All detailed information about the S Registers is described in the section entitled **S Registers**.

## V = Result Code Format

Format	ATVn <ENTER>
n=0	Result codes are displayed as numbers
n=1	Result codes are displayed as text (default)

- "Vn" determines the way result codes are sent to the DTE.
- The relationship between these two forms is shown in the **"Result Codes"** section.

## X = Connect Result Code Format

Format	ATXn <ENTER>
n=0	Connect result codes are displayed in short form.
n=1	Connect result codes are displayed in complete form. (default)
n=2	Enable voice result codes and all result codes are displayed in complete form.

- "Xn" determines the format of the connect result codes.
- If short form is selected, no detailed message is displayed.
- If complete form is used, DTE baud rate and call type messages are appended after the word "CONNECT".
- If voice result codes are enabled, the data port will report analog port activity as well as data call activity.

### Z = Recall Stored User Profile

Format	ATZn <ENTER>
n=1	Load user profile 1 as active profile
n=2	Load user profile 2 as active profile

- "Zn" loads a user profile as the active profile.
- When this command is invoked, your UTA120 will abort all existing calls and reconfigure itself to the setting stored in the selected user profile.

### +++ = Escape Sequence

Format	+++
--------	-----

- The escape sequence causes the UTA120 to switch from the On-Line state to the Escape Command Mode.
- The sequence consists of an escape character string followed by one interval of escape prompt delay then a valid AT Command is mandatory after the UTA120 responds, "OK".

### &C = Carrier Detect (CD) Control

Format	AT&Cn <ENTER>
n=0	CD is always on
n=1	CD goes on only when a call is established (default)

- The CD can be set to indicate a call establishment.

### &D = Data Terminal Ready Action

Format	AT&Dn <ENTER>
n=0	UTA120 ignores DTR signal.
n=1	UTA120 enters the Escape Command Mode when the DTR signal goes ON-to-OFF while UTA120 is during the On-Line state.
n=2 (default)	UTA120 clears a data call when it detects an ON-to-OFF transition on DTR. UTA120 does nothing when it detects an OFF-to-ON transition (108/2 mode for DTR).
n=3	UTA120 clears data call when it detects an ON-to-OFF transition on DTR. UTA120 dials the 0th stored phone number when it detects an OFF-to-ON transition (108/1 mode for DTR).

- "&D" determines how the UTA120 handles the data terminal ready signal.

### &F = Load Factory Profile

Format	AT&Fn <ENTER>
n=0	Load factory profile 0 as the active profile (for HDLC transparent calls and asynchronous DTE).
n=1	Load factory profile 1 as the active profile (for PPP calls and asynchronous DTE).
n=2	Load factory profile 2 as the active profile (for Multilink PPP calls and asynchronous DTE).
n=3	Load factory profile 3 as the active profile (for AIMUX calls and asynchronous DTE).
n=5	Load factory profile 5 as the active profile (for V.120 calls and asynchronous DTE).

- "&Fn" loads a factory profile as the active profile.
- Once the desired profile is loaded the system is automatically reinitialized.

### &K = Flow Control Setting

Format	AT&Kn <ENTER>
n=0	Disable flow control
n=3	Bi-directional RS/CS flow control default
n=4	Bi-directional Xon/Xoff flow control

- "&Kn" specifies the local flow control between the UTA120 and the DTE. It takes effect only when the system is in the On-Line state for a data call.

### &L=Display Last Call Information

Format	AT&Ln <ENTER>
n=0	Display the information of the last data call placed on the data port.
n=1	Display the information of the last call placed on analog port 1.
n=2	Display the information of the last call placed on analog port 2.

### &S = Data Set Ready (DSR) Control

Format	AT&Sn <ENTER>
n=0	DSR always on (default)
n=1	DSR on during communication

- "&Sn" determines how the UTA120 handles the data set ready signal.

### &V = View Configuration Profile

Format	AT&Vn <ENTER>
n=0	Display the active profile.
n=1	Display the user profile 1.
n=2	Display the user profile 2.
n=3	Display system parameters and analog port setting

- "&Vn" allows you to view the active and stored user profiles.

### &W = Store Active Profile as User Profile

Format	AT&Wn <ENTER>
n=1	Store active profile as user profile 1
n=2	Store active profile as user profile 2

### &Y = Select Profile on Power-Up

Format	AT&Yn <ENTER>
n=1	Select user profile 1 as the default profile
n=2	Select user profile 2 as the default profile

### &Z = Store Phone Directory

Format	AT&Zn= phone number<ENTER>
--------	----------------------------

- "&Zn" stores the phone number in index "n" (ranging from 0 to 9) of the phone directory.

### &Z? = List Phone Directory

Format	AT&Z? <ENTER>
--------	---------------

### !B = Set Analog Port Attribute

Format	AT!Bn=x <ENTER>
n=1,x=0	Set the attribute of analog port Tel 1 to SPEECH type.
n=1,x=1	Set the attribute of analog port Tel 1 to AUDIO type.
n=2,x=0	Set the attribute of analog port Tel 2 to SPEECH type.
n=2,x=1	Set the attribute of analog port Tel 2 to AUDIO type.

- Users may disable the call waiting tone by selecting AUDIO (Fax/Modem) type.

### !Bn? = Query Analog Port Attribute

Format	AT!Bn? <ENTER>
n=1	Query the attribute of the analog port Tel 1
n=2	Query the attribute of the analog port Tel 2

### !Cn = Set Switch Type and SPIDs

Format	AT!Cn= Switch/SPID <ENTER>
n=0	Sets the switch type
n=6	Sets the SPID of data port 1
n=7	Sets the SPID of data port 2
n=8	Sets the SPID of the analog port Tel 1
n=9	Sets the SPID of the analog port Tel 2

➤ "IC0=" sets the switch type by the following codes:

- "1" is AT&T 5ESS Custom switch
- "2" is AT&T or Siemens NI-1 switch
- "3" is NORTEL DMS-100 Custom switch
- "4" is NORTEL NI-1 switch

### !Cn? = Query Switch and SPID Settings

Format	AT!Cn? <ENTER>
n= <i>blank</i>	Query all !C settings
n=0	Query the switch type setting
n=6	Query the SPID of data port 1
n=7	Query the SPID of data port 2
n=8	Query the SPID of the analog port Tel 1
n=9	Query the SPID of the analog port Tel 2

### !F0 = Program "Feature Keys"

Format	AT!F0= n1/n2/n3 <ENTER>
n1=0~255	Conference Feature Key, default value is 60
n2=0~255	Transfer Feature Key, default value is 61
n3=0~255	Drop Feature Key, default value is 62

➤ No two can equal the same value.

### !F0? = Query "Feature Keys"

Format	AT!F0? <ENTER>
--------	----------------

### !N = Store Self Directory Number

Format	AT!Nn= phone number <ENTER>
n=0	Store the self directory number of data port #1
n=1	Store the self directory number of the analog port Tel 1
n=2	Store the self directory number of the analog port Tel 2
n=3	Store the self directory number of data port #2

- "!Nn" is used to store the local directory numbers (your phone numbers).

### !N? = Query Self Directory Number

Format	AT!N? <ENTER>
--------	---------------

### !R = Screen Incoming Calls

Format	AT!Rn=x <ENTER>
n=0	Data port
n=1	Analog port Tel 1
n=2	Analog port Tel 2
x=0	Accept all incoming calls (default)
x=1	Reject all incoming calls
x=2	Accept calls listed in the stored phone directory

- The "!Rn" instructs the UTA120 to screen an incoming call for an individual port.
- x=0 or 1 forces the UTA120 to answer or reject a call unconditionally.
- X=2 sets the UTA120 to screen incoming calls, so when a call comes in, it will be answered only if the calling phone number matches a number in the stored directory (stored by "&Zn").

### %A0 = Select Numbering Plan

Format	AT%A0 =n <ENTER>
n=0	Unknown (default)
n=1	ISDN numbering plan

### %A2 = Select Data Call Type

Format	AT%A2 =n <ENTER>
n=0	HDLC transparent rate adaptation (64K)
n=1	Asynchronous-to-synchronous PPP protocol (64K)
n=2	Multilink PPP (128K)
n=3	Asynchronous Inverse Mux (128K)
n=5	V.120 rate adaptation (64K)

- "%A2" allows you to select the protocol for your data call.

### %A2? = Query Data Call Type

Format	AT%A2? <ENTER>
--------	----------------

### %A3=n = Select B-Channel for Leased Line

Format	AT%A3 =n <ENTER>
N=1	B1 channel
N=2	B2 channel

- "%A3" determines which B-Channel will be used for leased line connection.
- To make a leased line connection, set the bit 3 of the DIP Switch at the rear panel to the **ON** position.
- The call types AIMUX and Multilink PPP are not supported in leased line application.

### %L3 = Select Data Forwarding Character

Format	AT%L3=n <ENTER>
n=0	None
n=2	Carriage Return (default)

- "%L3" is used to define specified characters as data forwarding characters.
- When the character is received from the DTE, the current packet is forwarded. This includes this character.
- When call type is PPP hexadecimal number 7E is used as the default forwarding character.

### %L4 = Set the Idle Timer Delay

Format	AT%L4=n <ENTER>
n=0	No data forwarding on time-out (default)
n=1 to 255	Data forwarding on time out of value multiplied by 50ms

- "%L4" is used to define the duration of an interval between successive characters received from the DTE.
- When exceeded will cause the PAD (Packet Assembler / Disassembler) to terminate the assembly of a packet and to forward the packet just as if a forwarding character had been recognized.

### @M3 = CHAP Encryption Control

Format	AT@M3=n <ENTER>
n=0	Disable CHAP password encryption protocol (default)
n=1	Enable CHAP password encryption protocol

- CHAP is a password encryption protocol that is used to guarantee the security during password authentication with ISP.
- If CHAP encryption is enabled, turn off the CHAP option in your application program.
- ☞ *For example: "Require encrypted password" option of the server type menu under Dial-Up Networking.*

### @M3? =Query CHAP Encryption Status

Format	AT@M3? <ENTER>
--------	----------------

### @M5 = Bandwidth Release Control on a Voice Call Request

Format	AT@M5=n <ENTER>
n=0	Disable bandwidth release when there is a voice call request.
n=1	Enable bandwidth release when there is a voice call request. (default)

### @M6 = Define Throughput Threshold to Add a Second Channel

Format	AT@M6=n <ENTER>
--------	-----------------

- Where n ranges from 0 to 64 and the unit is in kilobits per second.

**@M6? =Query Level of Data Loading to Add a Channel**

<b>Format</b>	<b>AT@M6? &lt;ENTER&gt;</b>
---------------	-----------------------------

**@M8 = Define Throughput Threshold to Release a Second Channel**

<b>Format</b>	<b>AT@M8=n &lt;ENTER&gt;</b>
---------------	------------------------------

- "n" ranges from 0 to 64 and the unit is in kilobits per second.
- When "@M8" is set to 0, it indicates the UTA120 won't release a second channel even though the throughput is very low.

**@M8? =Query Level of Data Loading to Drop a Channel**

<b>Format</b>	<b>AT@M8? &lt;ENTER&gt;</b>
---------------	-----------------------------

**@M9 = Define the Persist Time to Add or Drop a Second Channel**

<b>Format</b>	<b>AT@M9=n &lt;ENTER&gt;</b>
---------------	------------------------------

- "n" ranges from 0 to 255 and the unit is in 5 seconds.
- When "@M9" is set to 0, the UTA120 connects at 128K at all times possible.

**@M9? = Query Persist Time to Add or Drop a Channel**

<b>Format</b>	<b>AT@M9? &lt;ENTER&gt;</b>
---------------	-----------------------------

**@M10=n Program "Max retry count" for 2<sup>nd</sup> Call of MP**

<b>Format</b>	<b>AT@M10=n &lt;ENTER&gt;</b>
---------------	-------------------------------

n=0-255	(default=3)
n=0	Means "retry forever"

**@M10? = Query "Max retry count" for 2<sup>nd</sup> Call of MP**

<b>Format</b>	<b>AT@M10? &lt;ENTER&gt;</b>
---------------	------------------------------


## S REGISTERS

The S Registers are variables used to control various local operating characteristics of the DTE (enabling the auto-answer mode). A detailed description of the S Registers is given in the following table.

Register	Value	Unit	Description
S0	0-255	Count	Establishes the number of RING result codes after which the UTA120 answers the call. A value of 0 disables auto-answer mode. (default=0)
S1	0-255	Count	<b>Read-only.</b> S1 is incremented each time the UTA120 sends a RING result code to the DTE. It is cleared when the call is answered or cleared. (default=0)
S2	0-127	ASCII code	Used to define the escape character. Escape process is disabled if the value in S2 is greater than 127. (default=43)
S3	0-127	ASCII code	Used to define the character. Recognized as a carriage return CR by UTA120. (default=13)
S4	0-127	ASCII code	Used to define the character. Recognized as line feed LF by UTA120. (default=10)
S5	0-127	ASCII code	Used to define the character. Recognized as backspace (BS) by UTA120. (default=8)
S7	1-50	Seconds	Specifies the maximum waiting time between end of dialing process and completion of connection. Value of 0 means UTA120 waits indefinitely. (default = 50)
S12	0-255	1/10 seconds	Determines prompt delay after UTA120 receive an escape string (default = 10)
S25	0-255	1/20 seconds	Determines minimum time that a change in DTR must persist in order to be recognized by UTA120. (default = 2)

## RESULT CODE

Result codes are informational messages sent from the UTA120 and displayed on your monitor. These messages are the UTA120's response to the commands you issue to the UTA120. A result code can be either a word or a numeric representation.

 **Note:** *By default, your UTA120 returns a word response after a command is issued. For example, if your UTA120 successfully executes a command line, it will send you the response "OK". However, if your UTA120 is operating under a programming language that either cannot handle character strings or handles them inefficiently, you may choose to use the "V0" command to have your UTA120 return numerical responses.*

Num	Word	Description
0	OK	Command has been successfully executed
1	CONNECT	UTA120 has made a connection
2	RING {Caller ID} {call type}	UTA120 has detected an incoming ring
2	VOICE1RING {Caller ID }	A voice call comes in at the analog port Tel 1.
2	VOICE2RING {Caller ID }	A voice call comes in at the analog port Tel 2.
3	NO CARRIER	Line has been disconnected
4	ERROR	UTA120 has found an error in your command line
5	CONNECT 1.2K/{call type}	UTA120 has made a 1200bps connection
6	NO DIAL TONE	Network out of order or channel unavailable or channel unacceptable or resources unavailable
7	BUSY	UTA120 has detected a busy signal while dialing a call
10	CONNECT 2.4K/{call type}	UTA120 has made a 2400bps connection
11	CONNECT 4.8K/{call type}	UTA120 has made a 4800bps connection

12	CONNECT 9.6K/{call type}	UTA120 has made a 9600bps connection
16	CONNECT 19.2K/{call type}	UTA120 has made a 19200bps connection
17	CONNECT 38.4K/{call type}	UTA120 has made a 38400bps connection
18	CONNECT 57.6K/{call type}	UTA120 has made a 57600bps connection
21	CONNECT 115.2K/{call type}	UTA120 has made a 115200bps connection
22	CONNECT 230.4K/{call type}	UTA120 has made a 230400bps connection



**Note:**

1. *{Caller ID}* indicates the phone number of the calling terminal adapter.
2. *{DTE speed}* indicates the COM port speed of your communication software.
3. *{call type}* indicates the call type of the current data call. If you dialed the call, the call type should be same as the "%A2" setting.

CHAPTER 7:

# Troubleshooting Tips

1. If your Supplementary Services is not operating correctly, verify the following information:
  - Both Speech and Supplementary Service are selected for the analog ports using supplementary services.
  - AT!F0=xx/xx/xx This is usually set for 60/61/62 and corresponds to Conference, Transfer, and Drop.
2. If you are having trouble connecting to the UTA120, and your mouse is locking up, verify which COM port each is using. If you have a serial mouse using COM port 1 or 3, then install the UTA120 on COM port 2 or 4. If you have a PS/2 mouse, or your mouse is using COM port 2 or 4, install your UTA120 on COM port 1 or 3.
3. If the data port calls at 128K will not drop to 64K to allow incoming calls, please verify the following information:
  - In the HMI, you have set the **Data Call Protocol** to "Asyn-to-Sync PPP", with the **PPP Option** set to "MLP", and the **Release a Channel for Voice Call** is checked.
  - The SPIDs and DNs for each Data port and corresponding Tel Port are the same (i.e. Data #1 and Tel #1 are the same).
  - Your line is provisioned with CACH/EKTS or ACO. Without CACH/EKTS or ACO, the UTA120 will only drop a channel for outgoing calls, not incoming calls.
4. If you are using an ISDN telephone or another device that requires PS2 power (power from the NT1), then you must purchase a separate power supply.
5. If you are using any ISDN device on the S/T port and it is not initializing correctly, turn on DIP Switches 7 & 8.
6. If the TEST LED (yellow), DIP Switch 1 (remote configuration) is set to ON (enabled) in the local side. Set DIP Switch 1 to OFF to continue normal usage. If DIP Switch 1 is already off, there may be an error in the UTA120. Please contact technical support.

## **Alpha Telecom Inc. U.S.A.**

2674 North 1st Street Suite 101

San Jose, CA 95134

**(408) 895-1800**

**www.alpha-tele.com**

**support@alpha-tele.com**



## APPENDIX A:

# ISDN ORDERING

Ordering a new ISDN line is one of the most challenging steps in creating a digital environment Black Box would like to help make this a smooth transition. Be sure your line has what you want for the best price.

### **BASICS OF ORDERING ISDN**

Many Telephone Companies use ISDN Ordering Codes (IOC) to simplify the ordering process. These codes are somewhat standardized, with few variations among the Telephone Companies. Unfortunately, these codes are not fully standardized, nor fully up to date; therefore, we have included information to help you maximize the efficiency of your line. To do this, you must understand some basic ISDN rules:

1. Each device requires a SPID, and some require more. The UTA120 requires 2 SPIDs, one to share between each Data and Tel Port. If you use additional devices, like ISDN phones or Video Conferencing equipment, you will need more SPIDs. If you need a 128Kbps connection, usually you will need 2 SPIDs in the device.
2. Some areas do not allow more than 2 SPIDs. This problem will soon be solved, but it isn't yet. This limits you in which devices can be active at a time, but good time management can help solve this problem. Each device on-line requires a SPID (or two), but if you take devices off-line while they are not used, the other devices can use those SPIDs.
3. There are 2 B-Channels on a BRI. Each device when calling (or being called) uses a full 64Kbps B-Channel to connect, so only two devices can work at once. Note that 128Kbps connections use both B-Channels, so no other devices may work at that time. Note that SPIDs do not necessarily equal B-Channels, or vice-versa.
4. Many CO switches have National ISDN (NI-1) or Custom settings. If possible, order the NI-1 settings.

## SUGGESTED ORDERING CODES

UTA120 (alone) – The UTA120 uses both Voice and Data, and can access a variety of the voice capabilities that make ISDN valuable. To use this value, you must decide how to provision your line to get the best value from the telephone company.

These are the voice options you should consider:

1. Basic Voice (Caller ID only) -- Code "S", and see the ACO note just below.
2. Supplementary Services (Call Waiting, Hold, Conference, Transfer, and Drop).  
You may opt for ordering "S" plus any or all of these services. – "P", "Q", "U"

Here is where things get complicated. On some switches, there is a feature called CACH/EKTS. Using CACH/EKTS is better and easier, but is sometimes more expensive. It is also sometimes unnecessary; you only need CACH/EKTS if you want more than basic voice services. Bottom Line – if it doesn't cost anything more, get CACH/EKTS; and if it does, decide if it's worth it for you. In general, it is recommended that you get CACH/EKTS if possible.

**NOTE:** *If you cannot or do not get CACH/EKTS, it is important that you order Additional Call Offering (ACO) feature. This allows the UTA120 to allow a 128Kbps call to drop to 64Kbps for incoming voice calls. Of course, if you do not want this feature, do not order it.*

**For the UTA120 alone**, the recommended package for full usage is "V"; however, "V" is usually the most expensive. It may or may not be cheaper to order "S" and add the specific features you want.

AO/DI or PADs – Some equipment makes use of the D-Channel for low bandwidth data transfers. If are going to use these devices, or you are going to use a device that supports Always On/Dynamic ISDN (AO/DI), you may want to provision the line with D-Channel X.25 Packet capabilities. – "P", "Q", "W", "X"

"P" and "Q" also include supplementary services with most Telephone Companies, so these features may not have to be provisioned separately. The difference between "P" and "Q" is that "Q" has CACH/EKTS provisioning. Again, you must decide if you want CACH/EKTS, but it is recommended. Some Telephone companies are now implementing codes "W" and "X", which are the same as "U" and "V" but with D-Channel X.25 Packet, designed for AO/DI devices.

ISDN Phones – Some of the most complex and beneficial equipment in the ISDN world, ISDN Phones require special provisioning as well. Fortunately, most phone vendors supply you with the necessary provisioning information for their equipment. The UTA120 analog ports act as ISDN Phones as well, so much of the same provisioning options apply. Usually phones will suggest the codes “U” or “V” which include supplementary services, voice mail, message waiting, call forwarding, call forwarding variables, and ACO (for U) or CACH/EKTS (for V).

ISDN Routers – Routers are devices that reside on networks that forward information broadcast from its network to a remote network like the Internet or a remote LAN. Many routers have built in server capabilities and many other features for use on LANs. ISDN routers will not need any more provisioning than the UTA120 unless specifically stated in your routers documentation. If the routers use D-Channel Packets or AO/DI, see AO/DI earlier this section.

Video Conferencing – Desktop Video Conferencing equipment is an excellent application of ISDN, and with the UTA120, some units can bring the Internet or other data applications into the picture. Provisioning notes for your video equipment should be included with that equipment in its documentation.

Remember that these devices should add provisioning not replace it. If you want code “V” for your UTA120, but your video says code “R” (a data only code), use code “V”, and add any notes from equipment documentation.

#### ALTERNATIVE IOCS

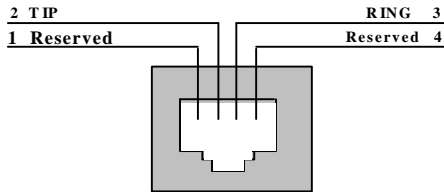
There are alternatives to IOCs called EZ-ISDN packages. If the EZ codes are used, the codes “EZ-2” and “EZ-2A” are almost identical to “U” and “V” respectively. Try to use these codes if possible, although “EZ-1” and “EZ-1A” may only be available. “EZ-1” and “EZ-1A” are like “U” and “V”, but with fewer features. Check with your Telephone Company for specific code information.



## APPENDIX B: UTA120 SPECIFICATIONS

### U-INTERFACE

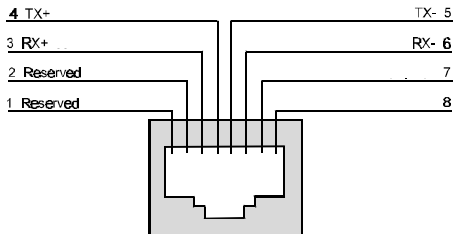
- U-Interface conforms to ANSI T1.601, 1992
- Connector: RJ-11
- Line: Two-wire, full duplex
- Data Rate: 144 Kbps available to subscriber
- Line Code: 2B1Q per T1.601, 1992
- Amplitude: 2.5V, zero to peak



*U-Interface Pin Assignment*

### S/T-INTERFACE

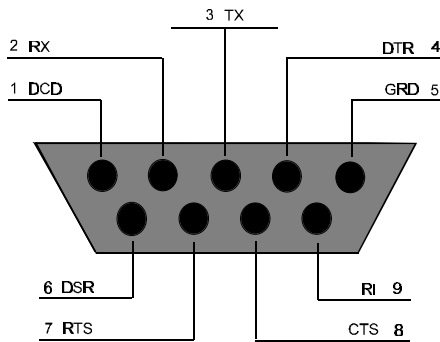
- S/T-Interface conforms to ANSI T1.605, 1991
- Connector: RJ-45
- Line: Four wire, full duplex
- Data Rate: 144 Kbps
- Line Code: AMI, 100% duty cycle per T1.605, 1992; ITU/CCITT I.430
- Amplitude: 0.75V, zero to peak



*S/T-Interface Pin Assignment*

## DATA INTERFACE

- Data Interface conforms to ANSI
- Connector: DB9 female
- Asynchronous data rate: 230.4Kbps
- Dial-up Interface: AT command (Asyn), DTR assertion
- Loopback for self-test & for DTE diagnosis (local, network, remote)
- B-channel protocol: V.120; AIMUX; HDLC transparent; PPP Multilink Protocol (MP-PPP)
- Dynamic bandwidth allocation when using MP-PPP; BACP



RI - Ring Indicator  
CTS - Clear to Send  
RTS - Ready to Send  
DSR - Data Set Ready

DTR - Data Terminal Ready  
TX - Transmit  
RX - Receive  
DCD - Data Carrier Detect

## ANALOG INTERFACE

- Analog Interface conforms to ANSI
- Connector: RJ-11
- REN: 2
- Power Feeding: -48V, 25mA minimum
- Ringing Signal: 87 Vrms, 20Hz
- Dialing: DTMF & Pulse (10 pps & 20 pps)
- Tone Generation: Busy Tone
- Caller ID Interface: FSK signal between the first & second ring
- Programmable Bearer Capability: Speech or 3.1 KHz Audio (fax/modem)
- Supplementary Service: Call Waiting, Hold, Transfer, Three-party Conference

### Power

- AC/DC power adapter: 110V  $\pm$  10V, 60Hz
- Output: 12 VDC, 1 A
- Consumption:  $\leq$ 8 Watts

### Switch Capability

- North American NI-1 (AT&T, NORTEL, SIEMENS)
- North American Custom: AT&T, NORTEL

### Physical Dimensions

- 153mm(w) x 191mm(d) x 64mm(h)
- 6"(w) x 7.5"(d) x 2.5"(h)

### Operating System

- Windows 3.1 & 3.11
- Windows 95
- Windows 98
- Windows NT4.0
- MS DOS
- UNIX

### Advanced Features

- Remote on-line configuration
- Software upgradeable by downloading to the DB9 port
- Local loopback for DTE initiating loop test
- Network loopback

### Environment

- Operating Temperature: 32°F to 122°F (0°C to 50°C)
- Storage Temperature: -13°F to 140°F (-25°C to 60°C)
- Relative Humidity: 0 to 95% non-condensing



