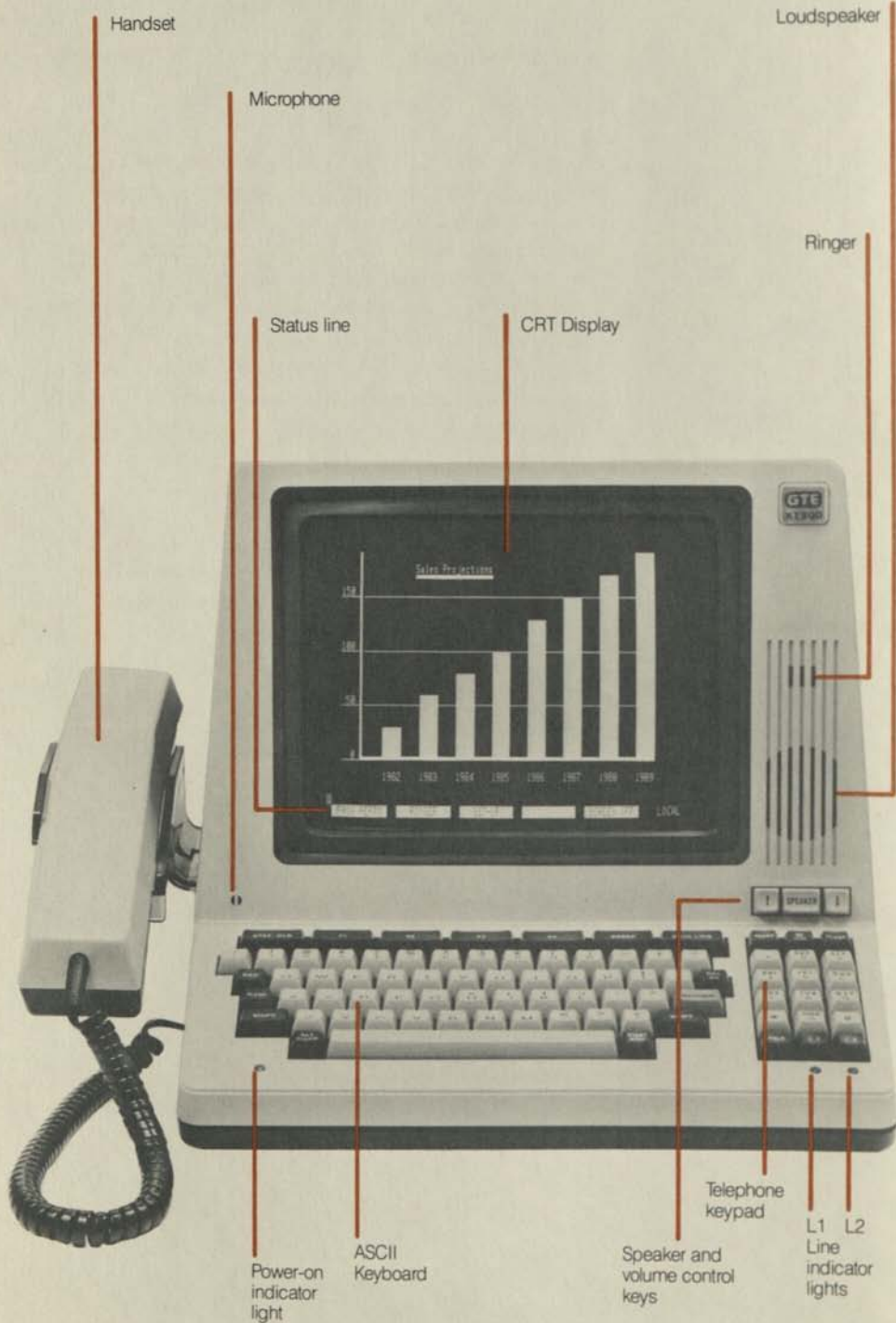

GTE's leadership in telecommunications

For over 90 years, GTE has been a leader in developing and implementing advanced technologies and products to improve business communications. Today GTE is an international company with manufacturing facilities and laboratories throughout the world, annual revenues of over \$11 billion, and 200,000 employees. Besides the GTE Telephone Operating Group, which services over 18.5 million customers, GTE's major business units are GTE Communications Products Corporation, GTE Telenet Communications, GTE Electrical Products Group, and GTE Laboratories.

Already a pioneer in all-digital central office and PABX switching, fiber optics transmission, private and public packet data communications networks, and satellite communications networks, GTE continues to commit the resources and make the investments that will ensure its future leadership in the field of telecommunications.



Introduction

Welcome to GTE's XT300 ActionStation, one of the most advanced communications terminals available today. Designed specifically for executives, professionals, and managers, the XT300 combines all vital voice and data functions in a single compact unit that fits in the space normally allotted to a business telephone.

Fully integrated in the XT300 are the functions of six communications products: a one or two line telephone, speakerphone, CRT display terminal, full duplex modem, extensive repertory for speed dialing of frequently placed calls, and automatic sign-on capability to remote computers.

The XT300 can stand alone as a voice/data terminal or be easily expanded through its two RS-232-C ports. By connecting it to such products as a printer, communicating word processor, personal or in-house computer, and/or higher speed modem, you can customize it to answer your specific needs.

The natural language instructions, ergonomic design, user programmable function keys, and various user preference options are important advantages of the XT300. They make it convenient, comfortable, readily adaptable to your own work habits, and exceptionally easy to learn, program, and use. Whether or not you have had prior computer experience, you will find that you are quickly able to take advantage of the XT300's advanced capabilities.

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1. Installation

The XT300's compact design allows it to be placed within easy reach for convenient and comfortable use. In most cases, it can easily be installed and set up by the end user. A standard three-prong wall socket for AC power and one or two telephone lines terminated in modular jacks are all that are required to make it operational.

Unpacking the XT300

Remove the XT300 from its shipping carton and place it on a table with the front and back of the unit accessible.

Remove all other items from the foam packing. Save the carton and packing material in case you wish to transport your XT300, or in the unlikely event you need to return it for service.

You will now have unpacked the following items:

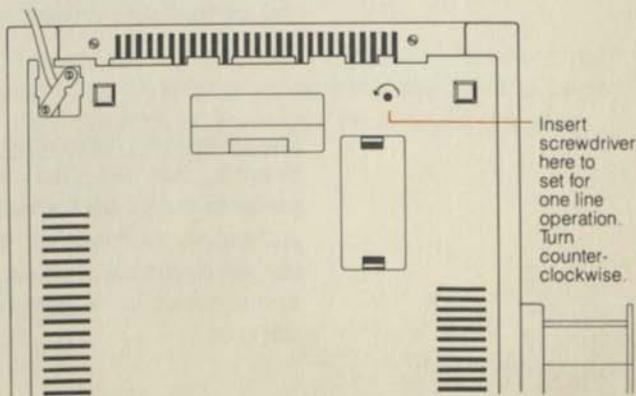
- The XT300 with a six foot AC power cord attached
- The handset with an attached cord and modular plug
- Two seven foot telephone line cords with modular plugs
- The User's Manual
- Quick Reference Guide

Be sure the XT300 is at room temperature before preparing it for installation.

Preparing the XT300 for installation

Before connecting the telephone lines, refer to page 109 for FCC requirements concerning the use of the XT300 with your telephone system.

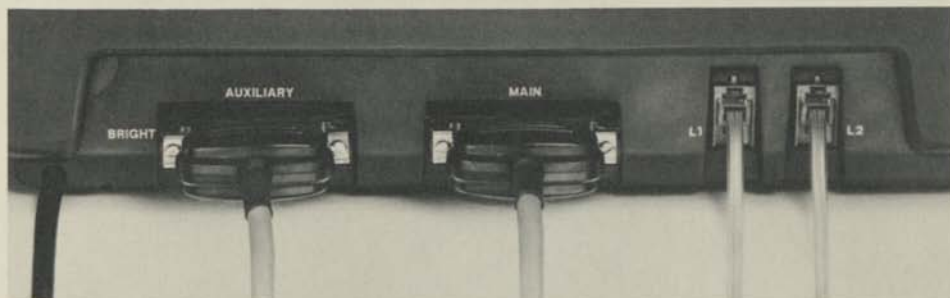
Your XT300 comes to you set up for two-line operation. If you intend to use it with only one telephone line, turn the unit on its side, insert a small screwdriver into the access hole pictured below, and turn it counterclockwise. With only one line, the L2 key is inoperative and simultaneous voice and data calls are not possible. Otherwise the XT300 functions in a similar manner.



Plug the modular plug of the handset cord into the jack located in front of the cradle. Be sure the plug is well seated, as indicated by a slight click.

Return the XT300 to its upright position, place the handset on its cradle, and go to the back of the cabinet.

Uncoil one or both telephone line cords. For one-line operation, plug one line cord into the L1 jack. For two-line operation, plug one line cord into each jack as shown below. The modular connectors, which are USOC-RJ-11C, 12C, or 13C compatible, are keyed so that the plugs can be inserted in only one way. Here again note the click when inserting the plugs to ensure proper connection.



If you plan to expand the capabilities of your XT300 through its MAIN and AUXILIARY RS-232-C interface ports (see Section 6), it is advisable to connect the RS-232-C cables at this time.

Observe the brightness control and AC power switch on the back, so that you will be able to locate them for future use.

You are now ready to place your XT300 in the desired work area.

Placement and installation

Select a convenient position for your XT300 on a desk or credenza that places the keyboard at a comfortable height and permits you to position yourself directly in front of it. To take full advantage of the excellent readability of the display screen, select an area with the least amount of bright light falling on it.

Connect the telephone line cords to the modular jacks that terminate your telephone lines. If you do not already have modular jacks, you can order them from the telephone company.

If your telephone is a keyset and/or is connected to the telephone system via a multi-line cable, you can decide whether you want to connect the XT300 along with or instead of the keyset. The former choice is recommended if you need more than two lines or an intercom. When you have made your choice, you can purchase an appropriate line tap or adapter(s) from your local electronics store. Connect the XT300 to the line tap or adapter(s) using the telephone line cords provided.

If you need telephone line cords longer than those provided, be sure to get four-conductor line cords for proper operation behind most key systems.

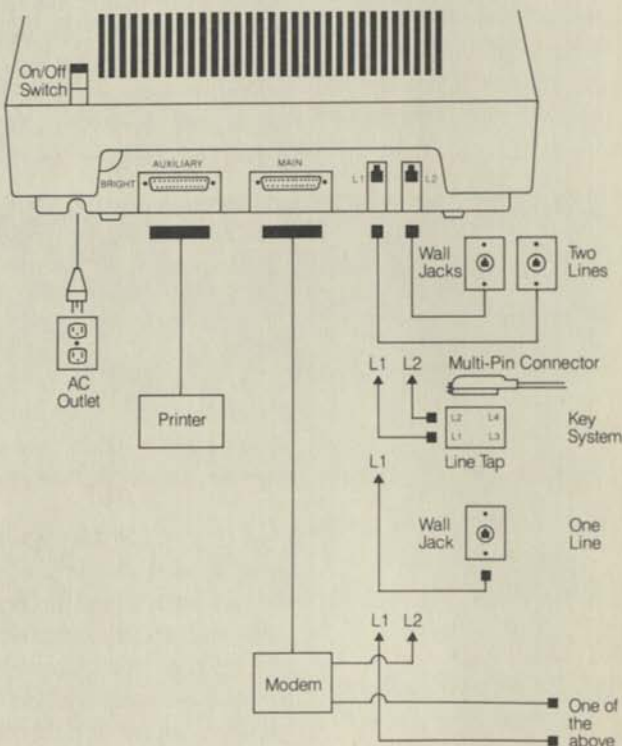
When the XT300 is connected to two telephone lines, line one is used for voice calls only, while line two is used to connect to remote host computers and also for outgoing voice calls. It is recommended that you reserve line one for incoming calls and place your outgoing calls on line two.

Every effort should be made to prevent telephone calls from being received on line two, the data line. Special telephone features, such as call waiting, place tone bursts on an active line, which interfere with data reception. For this reason, the ringer will not operate for incoming calls on line two, and it is recommended that you have line two set up for "data line secure" and do not list your line two telephone number.

The next steps are to connect any RS-232-C cables from the XT300 ports to the appropriate equipment, if any, and then to plug the AC power cord into a three prong wall outlet.

If a three prong wall outlet is not available, use an adaptor, making sure that the grounding wire is properly attached to the cover plate mounting screw, to prevent potential interference from a strong local broadcast station.

The exhibit below shows where the RS-232-C cables are connected and the alternative ways the XT300 can be connected to the telephone network.



Powering up and self-test

Your XT300 is now ready for operation. Turn on the power switch at the back, and the red light on the left goes on. (It stays on as long as AC power is supplied to the terminal.) The XT300 is now running its own diagnostic test.

After a two or three second warm-up of the CRT, the cursor appears in the upper left corner of the display, and the status line (the 25th line) appears at the bottom of the screen. When the unit is functioning normally, six ones (111111) appear on the right side of the status line. If a zero appears

in place of any of the ones, there is a problem with a section of the terminal. (See Section 7, "Maintenance and Problem Resolution.")

Status line after self-test



The results of the test are displayed for about ten seconds and then the word LOCAL replaces the six ones. The terminal is now in the LOCAL mode, and what you are seeing is the initial set of soft key labels which are used for Programming and SET-UP. They will be discussed in Section 4.

The soft key labels define the functions of the double-sized keys on top of the keyboard that are located directly below the soft key labels.

If the letters on the labels of the status line appear to bleed, the brightness has been turned up too much. For optimum setting, adjust the brightness control on the back to the point just below where the letters start to become fuzzy.

Automatic CRT monitor power control

Your XT300 has an automatic power on/off feature for the CRT monitor section. After ten minutes of inaction on the main keyboard, the XT300 turns the screen off to save energy and extend the life of the CRT.

The screen can be turned back on by depressing any key on the main keyboard or the REPTY key at the top left of the keypad. However, depressing REPTY will cause the information on the screen to be lost as the repertory is displayed. It is recommended that you depress one of the SHIFT keys to turn the screen on when you do not need to call up the repertory. By using the SHIFT key rather than the other keys, you will avoid entering a character on the screen.

2. Using the telephone

Many of the basic procedures for using the XT300's telephone will be familiar to you because they are like those for a conventional multi-line telephone. However, the XT300 goes well beyond that to offer many time saving, easy-to-learn conveniences and an exceptionally high degree of flexibility.

Description of the telephone

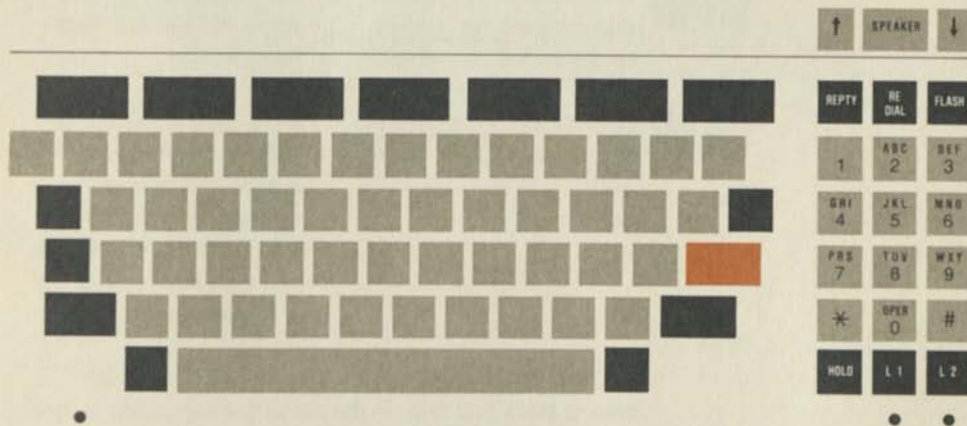
The XT300 has a standard handset and cradle and can be used with one or two telephone lines, as described on pages 13–15. Its speakerphone, separate keypad, repertory, and the information displayed on the status line of the CRT screen extend its usefulness and add to the convenience of using it.

The speakerphone

The XT300's built-in speakerphone is located on the front of the terminal, with the speaker on the right and the microphone for remote pick-up on the left. Directly below the speaker and above the keypad are three controls, which are shown on the illustration below. The center key turns the speaker on or off, while the keys on either side are used to turn the speakerphone volume up and down.

The speaker volume can be adjusted a step at a time by single depressions of the up or down key or automatically by holding down the key.









The keypad



On the telephone keypad, located to the right of the main keyboard, the light colored keys are used as they are on a standard telephone for manual dialing. The functions of the six dark keys, which control the lines and offer enhanced telephone features, are described on pages 22–25.

L1, L2

These keys perform line key functions similar to those of a multi-line key telephone as follows:

	Your action	XT300 response
 	Depress <u>L1</u> or <u>L2</u> to go on-line for a handsfree voice call.	The status light below the active line key turns on solid to indicate the ON-LINE status. If the CRT is on, the status line changes to the ON-LINE mode and displays appropriate status information about the call.
 	Depress the <u>active line key</u> to disconnect from the line.	The status light turns off, the status line on the CRT changes to the LOCAL mode, and one beep sounds from the speaker to confirm disconnect.
 	With one line key active, depress the <u>other line key</u> for a new call connection.	The XT300 disconnects the active line and connects the other line.
 	Depress the <u>active line key</u> <u>twice</u> at any speed convenient to you for a new call connection.	The XT300 disconnects from the line for the required three seconds, reconnects to the same line, waits for the dial tone, and dials out your manual or automatic dial selection.

The line keys have priority over the hookswitch, which means that if you depress the active line key during a hand-set call, the XT300 disconnects from the line.

HOLD

This key performs hold functions similar to those of a multi-line key telephone.

Your action

HOLD

Depress HOLD to place an active call on hold on one line in order to answer or place a call on the other line.

XT300 response

The active line is placed on hold as a local function of the XT300, whether you are connected to a central office line, PABX, or key system. The status light blinks for the line on hold and is on solid for the line with an active call.

L1

L2

To release a line from hold, depress the line key for that line.

The line returns to the active ON-LINE mode, the status light turns on solid, the other line disconnects, its status light turns off, and one beep sounds from the speaker.

With one line on hold and an active call on the second line, you can also place the second line on hold by depressing HOLD. To release hold from either line, depress the line key for that line.

REPTY

The repertory key is used to call up PAGE 1 and PAGE 2 of the user programmable repertory in order to look up two digit ID numbers for automatically placed calls and to switch the main keyboard into the automatic dialing mode.

Your action

XT300 response

REPTY

Depress REPTY once to call up PAGE 1 of the repertory.

PAGE 1 of the repertory displays on the screen, the status line changes to the ON-LINE mode, and the main keyboard switches to the speed dialing mode. If the screen is off, depressing REPTY turns the screen on and displays PAGE 1 after a two to three second warm-up.

REPTY

Depress REPTY twice to call up PAGE 2 of the repertory.

PAGE 2 of the repertory displays on the screen and all other conditions are the same as for one depression of REPTY.

REPTY

Depress REPTY a third time to return to the LOCAL mode.

The screen clears, the status line changes to the LOCAL mode, and the main keyboard switches back to the typing mode.

RE DIAL

RE
DIAL

The RE DIAL key is used to repeat automatically the most recent dialing selection made, whether it was manual or automatic, for a voice call or data connection. The last dialing selection remains in the RE DIAL memory until a new selection is made.

FLASH

FLASH

Depressing this key performs the function that is similar to a momentary depression of a hookswitch, except that the timing is automatic. Regardless of the length of time this key is held down, the XT300 will generate the standard hook-switch flash signal.

The repertory

REPTY

Depress REPTY on the keypad to access PAGE 1 of the repertory. It serves as a personal telephone directory where the names and numbers of up to 40 frequently placed calls can be programmed into memory locations by simply filling out a form that has two digit ID numbers already listed. Once the programming has been done, the two digit ID number is used in place of the telephone number for speed dialing.

REPERTORY PAGE 1

ID	NAME	TELEPHONE NUMBER	ID	NAME	TELEPHONE NUMBER
10	13 Characters	22 Digits	30	13 Characters	22 Digits
11			31		
12			32		
13			33		
14			34		
15			35		
16			36		
17			37		
18			38		
19			39		
20			40		
21			41		
22			42		
23			43		
24			44		
25			45		
26			46		
27			47		
28			48		
29			49		

CAPS	STOP	DATA	L2 000:00	NAME OR TELEPHONE NUMBER	VOICE	L1 000:00
------	------	------	-----------	--------------------------	-------	-----------

REPTY

Depress REPTY a second time to call up PAGE 2 of the repertory.

REPERTORY PAGE 2

ID	SERVICE	TELEPHONE NO. . . .	SIGN-ON SEQUENCE
50	10 Characters	14 Digits	50 Characters
51			
52			
53			
54			
55			
56			
57			

ID	SPECIAL SERV. . . .	TELEPHONE NUMBER	ID	NAME	TEL. NUMBER . . .
58	13 Characters	30 Digits	63	13 Characters	14 Digits
59			64		
60			65		
61			66		
62			67		

FUNCTION KEYS	D = DIRECT	S = SHIFT KEY	C = CTRL KEY	ENTRY
D1	36 Characters		D2	36 Characters
D3			D4	
S1			S2	
S3			S4	
C1			C2	
C3			C4	

CAPS	STOP	DATA	L2 000:00	NAME OR TELEPHONE NUMBER	VOICE	L1 000:00
------	------	------	-----------	--------------------------	-------	-----------

PAGE 2 has the following memory locations:

- Eight for automatic data base access (ID's 50-57)
- Five for names and extra long telephone numbers with up to 30 digits, where the access codes for special long distance telephone services and frequently called long distance numbers can be programmed together for one step dialing (ID's 58-62)
- Five for names and telephone numbers with up to 14 digits (ID's 63-67)
- Twelve that are used to program the four function keys (F1 to F4) on the top row of the main keyboard with frequently used commands, phrases, or character strings (ID's D1-C4)

REPTY

Depress REPTY a third time to return the terminal to the LOCAL mode.

For instructions on programming the repertory, see Section 4, "Programming and SET-UP."

The status line during voice calls

The status line changes from the LOCAL mode to the ON-LINE mode when a voice call is initiated.

PROG REPTY	RINGER	SET-UP		SCREEN OFF	LOCAL
------------	--------	--------	--	------------	-------

changes to

CAPS	STOP	VOICE	L2 000:00	NAME OR TELEPHONE NUMBER	VOICE	L1 000:00
------	------	-------	-----------	--------------------------	-------	-----------

VOICE appears either with L1 or L2, depending on which line is being used, and the elapsed time indicator is activated. The name or phone number of the last call placed is shown, but is replaced as you make your new dialing selection. The phone number is shown for manually dialed calls; the name is shown for calls placed from the repertory when using the ID number. When the name field was left blank, the status line displays the telephone number.

ERROR flashes and a beep sounds if you make a selection that does not exist in the repertory.

CAPS appears on the left if the ALL CAPS key has been activated.

When you configure your XT300 for one line and 40 column operation, only CAPS, STOP, and the elapsed timer for line one appear on the status line.

Modes of operation

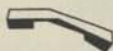
In the XT300, the handset and speakerphone are functionally integrated, allowing great flexibility in making and receiving voice calls. You can use the XT300 to make standard handset, group listening, or handsfree speakerphone calls and can switch back and forth between them during the course of a call as your needs dictate.

Standard handset calls



You can accept or place phone calls in the standard way by simply picking up the handset. The XT300 automatically selects line one. It is recommended that you place your outgoing calls on line two by depressing L2. This allows you to keep line one open for incoming calls.

To hang up, return the handset to the cradle or depress the active line key.



SPEAKER

Group listening calls

In the group listening mode, use the handset as you would for a standard handset call, but turn the speaker on at the same time by depressing the SPEAKER key. The other party hears only your voice through the handset, but both sides of the conversation can be heard by anyone in your office. To go back to a private handset call, turn off the speaker by depressing the SPEAKER key again.

SPEAKER



To hang up from a group listening call, depress the active line key before or after returning the handset to the cradle. If you return the handset without depressing the line key, you will not be disconnected, but will be in the handsfree speakerphone mode. Disconnect from the line is confirmed when one beep sounds from the speaker and the line key status indicator light turns off.

Handsfree speakerphone calls

In this mode, the handset is not used. Go on-line by depressing the line key of your choice. With the handset in its cradle, the speakerphone is automatically on, allowing the other party's voice to be heard by anyone in your office. At the same time, the remote pick-up microphone picks up and transmits any voice in your office for convenient personal use or audio conferencing.



Handsfree calls are terminated by depressing the active line key.



SPEAKER

To change from the handsfree speakerphone to the standard handset mode, simply pick up the handset. To go from there to group listening, depress the SPEAKER key.

Dialing

The variety of dialing methods offered by the XT300 demonstrates its user friendly operation and time-saving convenience. You can dial manually or automatically, on-line or off-line. You can also dial in two steps and mix automatic and manual dialing. You can redial automatically and make a new call connection without having to be concerned about timing or waiting for the dial tone.

Calls placed by manual dialing



For manually dialed calls, simply go on-line by lifting the handset or depressing one of the line keys, and dial the telephone number on the keypad, as you would with any standard telephone.

The XT300 changes the status line to the ON-LINE mode, displays the dialed digits as entered, waits for the dial tone, and dials out the telephone number.

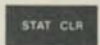


To correct an error in manual on-line dialing, depress the active line key twice and enter the correct phone number. The XT300 automatically provides the required timing for disconnect, reconnect, and wait for the dial tone.

The XT300 also permits you to predial the phone number and confirm its accuracy on the status line before going on line. In this case, start your call by dialing the telephone number on the keypad. After you are satisfied that the number, which is blinking on the status line, is correct, go on-line by lifting the handset or depressing one of the line keys.



The XT300 changes the status line to the ON-LINE mode when the first digit is entered on the keypad. The phone number is displayed on the status line, blinking as entered, to remind you to go on-line after dialing. When you go on-line, the XT300 waits for the dial tone and dials out the telephone number.




To correct an error in manual predialing, depress the STAT CLR key on the main keyboard or, depress one of the line keys twice, and enter the correct phone number.

For manually dialed calls, the telephone number is always dialed on the keypad. The phone number of the called party is displayed on the status line, solid when you dial after going on-line and blinking when predialing to remind you to go on-line.

Calls placed by automatic dialing

Frequently placed voice and data calls that you have programmed into the XT300's repertory are dialed automatically by using one of the following two procedures:

-  **1. Display the repertory and enter the ID before going on-line.**

Depress REPTY once to call up PAGE 1 of the repertory, twice for PAGE 2. This automatically switches the main keyboard to the dialing mode for predialing and changes the status line to the ON-LINE mode.

Select the ID number for the desired call from the repertory and type it on the main keyboard. For automatically dialed calls, the ID number is always typed on the main keyboard. Using it tells the XT300 to dial out the associated telephone number from the repertory, instead of dialing out the two digits.



Confirm that you have made the correct selection by observing the name of the called party blinking on the status line. If no name was entered while programming the repertory, the status line displays the telephone number programmed. Go on line by lifting the handset or depressing one of the line keys.

To correct an error in automatic predialing, simply type the correct two digit ID number.

- 2. Go on-line and enter the ID number.**



If you remember the ID number of the party, you can go on-line directly by lifting the handset or depressing one of the line keys. This automatically switches the keyboard to the dialing mode and changes the status line to the ON-LINE mode. You can also call up the repertory after going on-line.

Type the ID number for the desired call on the main keyboard. The XT300 displays the name of the called party solid on the status line and dials out the telephone number from the repertory after it senses the dial tone.

L 1 L 2

To correct an error in automatic ON-LINE dialing, depress the active line key twice and type the correct ID number. The XT300 automatically provides the required timing for disconnect, reconnect, and wait for the dial tone.

Redialing

RE
DIAL

The last telephone number dialed manually or the connection of the last ID number selected for automatic dialing or sign-on can be redialed automatically by simply depressing RE DIAL. This is useful if you encounter a busy signal, have a bad connection, or the call is interrupted. The XT300 automatically disconnects for the required three seconds, reconnects to the same line for the same type of call, waits until it senses the dial tone, and repeats the same connection.

The information about the last dialing selection is displayed on the status line and retained in memory for use until you make another selection.

Two step dialing

Two step dialing allows you to dial consecutively two sets of numbers, including a prefix and a telephone number, or a specialized carrier's access number and a long distance number.

Two step dialing is useful if you want to be able to choose between placing your long distance calls through a specialized carrier or dialing directly.

To keep your alternatives open, you can program the required access numbers, including a prefix if needed, in one location in the repertory. You can then program the long distance number without the prefix in a separate location. (For specific programming instructions, see Section 4.)

L1

L2

To use the special carrier, depress L1 or L2 and type the two ID numbers consecutively on the main keyboard. It is not possible to redial two ID numbers because the second one will correct the first, but you can type the special service ID first, go on-line, and then type the second ID for the phone number, both on the main keyboard.

RE
DIAL

If it is necessary to redial, the entire number sequence for the special carrier and the distant party is stored in the redial memory, regardless of the dialing method used. Simply depressing RE DIAL accomplishes the complete redial, provided a second dial tone is not required.

To dial the same party directly, dial the prefix manually on the keypad, go on-line, and then type the ID on the main keyboard.

You also have the option of going on-line, dialing the prefix on the keypad, waiting for the dial tone if one is required, and typing the ID on the main keyboard.

New call connections

L1

L2

When you have completed a call and want to place a new one immediately, depress the active line key twice and enter the new manual or automatic call selection at any speed that is convenient to you. Here again, the XT300 takes over the task of timing for disconnect, reconnect, and dial tone sensing before dialing out the telephone number you have selected.

Using the flash signal

The XT300 provides an automatically timed hookswitch flash signal that is used to signal the operator or to invoke common telephone switch (PABX) features such as call forward. For manual operation, depress FLASH and then dial the required code from the keypad. The entire sequence, including the name of the feature, can also be programmed into any of the telephone fields in the repertory for automatic dialing, using a two digit ID. (See page 49.)

FLASH

Power down operation of the telephone

When power fails, you can still accept and place standard telephone calls on line one by dialing manually from the keypad. The handset and the light colored keys and FLASH key on the keypad continue to operate. Incoming calls are signaled by a separate ringer. A speakerphone call in progress on line one and any voice or data call in progress on line two are disconnected. The CRT and all indicator lights are off. A lithium battery retains the information in the repertory memory.

Making a voice call during a data session

When connected to two telephone lines, the XT300 supports an active voice call and data session simultaneously. A voice call can be accepted or placed anytime after the data connection has been established. This is indicated when you hear a short burst of high pitched tone (carrier detect), the screen clears, and the cursor returns to its home position. (To establish a data connection during a voice call, see Section 5, "Data Communications.")

3. Understanding the main keyboard

The main keyboard of the XT300 provides the keys to generate the full set of ASCII characters and mosaic graphics in contiguous or separated form. In addition, the keys found on the top row of the keyboard provide a number of timesaving conveniences. A brief introduction to the keyboard is provided in this section.

The main keyboard has been ergonomically designed for maximum convenience and comfort. Keys have a non-glare finish and the tops of the F and J keys have homing beads for positioning your right and left index fingers. All keys provide tactile feedback when depressed and automatic repeat when held down. The keyboard is locked under the following conditions:

- When the self-test is in progress
- During automatic dialing or sign-on
- While redialing the last number dialed
- After depressing the START/STOP key (X-OFF)
- When the terminal is in the SET-UP mode



A total of forty-eight keys, plus the same keys used in the shifted mode, make up the standard ASCII GO character set. The keys have been color coded as a quick form of reference. The light keys in the center of the keyboard generate the 96 displayable characters, while the dark keys around the outside and the orange key perform various functions as described in this section. The dark keys and the orange key will be discussed in counterclockwise order beginning with the key marked "ESC" on the left; the cursor control keys will be explained after the STAT CLR key.

ESC

The escape key, when typed in combination with various other keys, provides additional codes or escape sequences that control various special functions and features.

CTRL CTRL

Holding the control key down while depressing another key generates control codes that cause various functions to be performed.

SHIFT SHIFT

There is a shift key on both sides of the keyboard. Holding either one of these keys down while depressing another key produces the shifted character for that key, which is the upper case for the alphabet and the upper symbol for the other keys.

ALL CAPS ALL CAPS

When depressed, this key performs somewhat like a shift lock key on a typewriter to give you all capital letters, but does not affect any of the other keys. If you want to shift those keys, use SHIFT. CAPS is indicated on the left side of the status line when this key is activated. To release the all caps function, depress the key again.

SPACE BAR SPACE BAR

The long bar at the bottom of the keyboard, the space bar, is considered a displayable character. When depressed, it places a blank character space on the screen and causes the cursor to move one space to the right. If the space bar is depressed while the cursor is over an existing character, it replaces that character with a blank space.

START STOP START/STOP

This key is used to hold up or re-establish the transmission of data from a host computer. Depress to start; depress again to stop. The key generates X/ON or X/OFF. If you want to stop the data flow temporarily, intending to restart it at the same position at a later time, depress the START/STOP key. When you are ready for the data flow to resume, depress it again.

The START/STOP key is also used to resume data reception after an X-OFF has been transmitted by one of the automatic stop features of your XT300.

RETURN**RETURN**

This orange key generates either the carriage return (CR) code or a carriage return (CR) and line feed (LF) code. This is a selectable feature on the SET-UP display on PAGE 3. Depress RETURN to enter your responses to requests from the host or after each line you have typed. In the LOCAL mode, RETURN automatically generates a CR/LF code, which returns the cursor to the beginning of the next line.

**DEL
BS****DEL/BS**

In the unshifted mode, this key is used for backspacing. It will backspace one character for each depression or auto repeat when held down.

In the shifted mode, this key transmits the delete character (DEL) code. Depending on what the host computer supports, the deleted character may or may not be erased from the screen.

Holding the CTRL key down and depressing the H performs the same function as the unshifted DEL/BS.

DATA LINE**DATA LINE**

This key is used to go on-line and off-line for a data connection on line two only. It is inoperative during an active voice call connection on line two.

BREAK**BREAK**

In the ON-LINE mode, this key generates a standard teletype break function and is normally used to stop the reception of incoming information. In the LOCAL mode, it becomes the fifth soft key, supplementing the four described on the following page.



FUNCTION KEYS

These four keys are used for two distinct purposes, depending on whether the XT300 is in the LOCAL or ON-LINE mode.

In the LOCAL mode, the soft key labels that appear on the status line at the bottom of the screen line up with the function keys. When the appropriate function key is depressed, the terminal performs the function indicated by the soft key label.

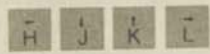
In the ON-LINE mode, these four keys can be programmed on PAGE 2 of the repertory for twelve different function key character strings. Four (D1 to D4) are generated by direct depressions of the appropriate function key, four (S1 to S4) by holding down SHIFT at the same time, and four (C1 to C4) by holding down CTRL at the same time.



STAT CLR

When used in the unshifted mode, this key causes the status line and the operation of the function keys to change from the ON-LINE mode to the LOCAL mode, or vice versa.

In the shifted mode, it performs the standard "clear screen" function, which is shift key protected to prevent accidental erasure of the screen.



CURSOR CONTROL KEYS

The H, J, K, and L keys have cursor control functions. Depressing one of these keys with a single keystroke while holding down CTRL will move the cursor one space at a time in the direction of the arrow shown on the key. To move the cursor automatically, hold down both the cursor control key and CTRL.

When these cursor control functions are used, standard ASCII control codes, as described on pages 80 and 81, are transmitted to the host computer.

4. Programming and set-up

The ease with which programming and set-up procedures can be handled directly from the keyboard provide a dramatic example of the user friendly nature of the XT300. The mystique of computer codes has been replaced by natural language instructions that appear on the screen and prompt the user to fill in a simple form or make straightforward either/or choices.

The information that you want to store in the XT300's user programmable memory is easily typed on the main keyboard. Following the directions given in this section, you can program the RINGER, PAGES 1 and 2 of the repository, and the SET-UP options on PAGE 3.

The initial set of soft key labels

For programming to begin, the status line must be in the LOCAL mode. To return it to the LOCAL mode from the ON-LINE mode, go off-line, or, if you do not want to interrupt your call, depress STAT CLR.



In the LOCAL mode, the status line displays the initial set of soft key labels shown above, which is the starting point for all Programming and SET-UP procedures. The dynamically variable soft key labels change to provide the required functions as you enter the various Programming and SET-UP modes. Each soft key label lines up with a key on the main keyboard directly below it that is depressed to perform the soft key function.

PROG REPTY

F1

When you depress PROG REPTY (F1), the soft key labels change to the functions required for programming the repertory.

RINGER

F2

Depressing RINGER (F2) takes you to the RINGER set-up mode.

SET-UP

F3

Depressing SET-UP (F3) takes you to the terminal SET-UP mode and the associated soft key labels.

SCREEN OFF

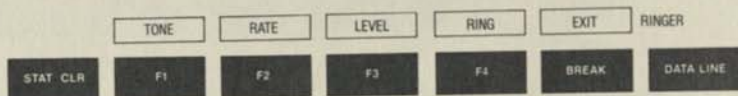
BREAK

Depressing SCREEN OFF (BREAK) turns off the screen.

To turn the screen back on and redisplay the last screen of data, depress any key on the main keyboard. Depressing REPTY in this case would erase the last screen of data and display PAGE 1 of the repertory.

Programming the ringer

Each XT300 in a large office can be set up so that its ringer is distinctive as to pitch, rate, and volume and therefore easily recognized. To change the ringer to suite your preferences, start from the LOCAL mode and depress the soft key RINGER (F2). The soft key labels for their corresponding keys will now look like this:



Depress RING (F4) to hear the sound.



Depress TONE (F1) to switch between a high and low pitched pair of frequencies.



Depress RATE (F2) to switch between a fast and slow rate.



Depress LEVEL (F3) to choose among four levels of volume.



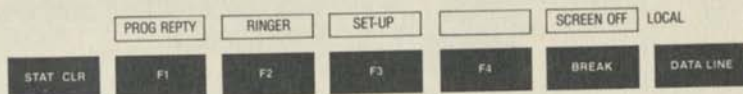
Depress EXIT (BREAK) to turn off the ringer and return to the LOCAL mode.



Programming the repertory

The natural language instructions and screen prompting make the procedures for programming the repertory easy to learn and remember. The same straightforward procedure is used for entering, correcting, or deleting information. Programming can be done at any time, even when you have a voice or data call, or both, in progress.

To enter the Programming mode for the repertory, start from the LOCAL mode which has the familiar status line:

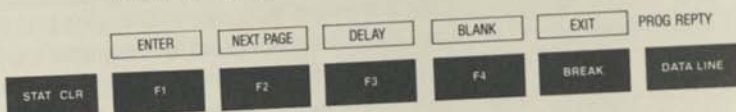


PROG REPTY Depress the soft key PROG REPTY (F1), and PAGE 1 of the repertory appears on the screen. On the left top of the screen, ID? is blinking to prompt you to select a free line on the repertory and type the two digit ID number for that line.

The memory counter appears on the top right of the screen so that you can see the remaining memory capacity in nibbles (4 bits). Four bits are required for each digit of a telephone number and eight bits for each other character. Leading and imbedded spaces count as characters and require memory space. Spaces at the end are ignored and do not require memory.

A beep is sounded when you run out of memory as a signal to review what you have stored and delete what you no longer need. One way to conserve memory is to abbreviate names and eliminate unnecessary spaces in the name and function key fields. If you are using your XT300 behind a PABX equipped with abbreviated speed dialing, you can further conserve memory by programming the PABX speed dialing codes rather than the telephone numbers.

The soft key labels now look like this:



ENTER (F1) Depress ENTER (F1) when you have typed the necessary information, confirmed it for accuracy, and are ready to have it stored in memory.

NEXT PAGE (F2) Depress NEXT PAGE (F2) to switch between PAGE 1 and PAGE 2 of the repertory.

DELAY (F3) DELAY (F3) has two different functions. When programming a telephone number field, depressing this key enters a dial tone sensing code that instructs the XT300 to wait for a dial tone.

When programming a sign-on or function key field, DELAY is used to enter a variable pause that corresponds in length to the host's requests for your commands.

BLANK (F4) Depress BLANK (F4) before and after you enter your personal password for a sign-on to a host computer so that it won't be displayed on the screen. This is a security feature that can be used anywhere in the sign-on or function key fields at your discretion.

EXIT (BREAK) Depress EXIT (BREAK) to return the terminal to the LOCAL mode.

Programming names and telephone numbers

PAGE 1 of the repertory, shown below, has 40 memory locations for the names and telephone numbers of frequently placed calls. The locations are divided into four blocks of ten each to allow you to organize your phone numbers into categories for quick and easy reference. There are two sections, each with the same headings in reversed video: ID, Name, and Telephone Number.

MEM: 2029

REPERTORY PAGE 1

ID? █

ID	NAME	TELEPHONE NUMBER	ID	NAME	TELEPHONE NUMBER
10	13 Characters	22 Digits	30	13 Characters	22 Digits
11			31		
12			32		
13			33		
14			34		
15			35		
16			36		
17			37		
18			38		
19			39		
20			40		
21			41		
22			42		
23			43		
24			44		
25			45		
26			46		
27			47		
28			48		
29			49		

ENTER NEXT PAGE DELAY BLANK EXIT PROG REPTY

All Programming and SET-UP entries, deletions, and corrections are made from the main keyboard. Begin the programming by responding to the blinking ID? at the top left of the screen. Choose a free location and type that ID number on the main keyboard.

The cursor moves two positions to the right of the ID you have entered, and the corresponding name and number fields are highlighted in reversed video. Fill out this part of the form by typing the name. This field will accept all displayable characters.

SHIFT To correct an error, hold down SHIFT and depress the space bar as often as necessary, or hold it down for automatic repeat to backspace to the error. Then retype the information correctly. The backspace key is not used in the Programming mode to permit entering the BS character in the sign-on and function key fields.

SPACE BAR

Use the space bar to move the cursor over to the beginning of the telephone number field and type a prefix, such as 9, if one is required by your telephone system, and the telephone number without spaces between the digits. If you would ordinarily have to wait for a dial tone after the prefix, depress the soft key DELAY (F3) between the prefix and phone number. A tilde sign ~ appears between them on the screen to indicate that the terminal has been instructed to wait until it senses the dial tone before continuing to send out the number.

DELAY

F3

The telephone number field will accept only the digits from 0-9, the symbols *, #, and the FLASH signal \. Typed on the main keyboard, not the keypad, these are used for programming telephone numbers and special PABX functions, such as call forward.

ENTER

F1

When you have made your entries, check the name and number for accuracy, and depress ENTER (F1) to put the information into the repertory memory.

The procedure for deleting or changing the information at an ID location is the same as for entering it. To delete an entry already made, type the desired ID number and depress ENTER (F1). Since you have entered nothing, the ID number will now have a blank field. To change an entry, type the ID number, type the new information and depress ENTER (F1).

ENTER

F1

EXIT

BREAK

If you select an ID number by mistake, depress EXIT (BREAK) to go back to the LOCAL mode and then come back to the repertory. The information will not be erased because you didn't depress ENTER (F1).

Programming PABX codes

Modern PABX and central office features are activated by a sequence of codes that include in a variety of combinations: the hookswitch FLASH; waiting for special dial tones; and dialing on the keypad the *, #, or any of the digits. These sequences can be programmed into any of the name and telephone number fields of your XT300's repertory and then accessed by typing the corresponding two digit ID number on the main keyboard when it is in the dialing mode.

Before you program one of these sequences into your repertory, it is recommended that you do it manually and write down the entire sequence, including a DELAY ~ anytime you have to wait for a special dial tone.

To program codes, type all entries on the main keyboard, not the keypad. First type the name of the feature, such as Call Forward, into the name field. Then type into the telephone number field the required combination of \ for the hookswitch FLASH, soft-key DELAY ~ for a special dial tone, SHIFT 3 for the # symbol, SHIFT 8 for the * symbol, 6 for the digit 6, or any other required digit.

These entries (which do not represent an actual code) would appear on the repertory display as follows:

ID	NAME	TELEPHONE NUMBER
----	------------	------------------------

65 Call Forward \ ~ # * 6

You can also program the telephone number in the telephone number field along with the PABX code, if you desire.

Programming automatic sign-ons

NEXT PAGE

F2

PAGE 2 of the repertory replaces PAGE 1 on the screen when the soft key NEXT PAGE (F2) is depressed.

At the top of PAGE 2 are eight memory locations for automatic sign-on to remote host computers, which are divided into two groups.

The four numbered from 50–53 are used for those host computers that require differences in certain protocol parameters. (For a definition of protocol, see the Glossary.) For each of these four, the XT300 can be set-up on PAGE 3 so that its parameters are compatible with those of the host computer in terms of echo, screen format, line feed, and parity.

The four memory locations from 54–57 are for those hosts that have protocols that are all alike and therefore do not have to be set-up individually. Each data service will supply the information to you that will allow you to choose the appropriate location.

ID?		REPERTORY PAGE 2		MEM: 2029
ID	SERVICE	TELEPHONE NO. . . .	SIGN-ON SEQUENCE	
50	10 Characters	14 Digits	50 Characters	
51				
52				
53				
54				
55				
56				
57				
ID	SPECIAL SERV. . . .	TELEPHONE NUMBER	ID	NAME
58	13 Characters	30 Digits	63	13 Characters
59			64	
60			65	
61			66	
62			67	
FUNCTION KEYS		D = DIRECT	S = SHIFT KEY	C = CTRL KEY
D1	36 Characters		D2	36 Characters
D3			D4	
S1			S2	
S3			S4	
C1			C2	
C3			C4	
ENTER		NEXT PAGE	DELAY	BLANK
				EXIT
				PROG REPTY

Once you have chosen the memory location, type the ID, the name of the data service, and the telephone number (with prefix and DELAY for second dial tone, if needed) as you did on PAGE 1. Note that there is an additional field in which to program the sign-on sequence that is supplied to

you when you subscribe to a data service. It consists of a dialogue between you and the host computer. The steps in this dialogue must be handled one at a time during a manual sign-on. However, the XT300 allows you to program all the steps so that a two digit ID number is all that is required for fully automatic sign-on. To understand the steps, it is recommended that you first do the sign-on manually (see pages 64 and 65) and write down each step of the host request and your response.

To program the sign-on sequence, use the main keyboard to type the appropriate responses that you would normally give to the host's requests during a manual sign-on. Enter appropriate soft-key DELAY codes in places where you would normally wait for the host's request for your next response.

DELAY

F3

Methods for Entering the Variable DELAY

Two methods are provided for entering the variable delay in the automatic sign-on dialogue. These codes cause the XT300 to delay sending out the next response until all characters of the host's request or message have been received.

1. Character Recognition

The character recognition method causes the XT300 to wait until a specific character is received before sending out the next response in the sign-on dialogue. The specific character is usually the last character in a host request.

To enter the character recognition code, depress the soft key DELAY (F3) before and after typing the specific character to be recognized. The two DELAY key depressions result in open and closed single quotation marks displayed on the screen with the specific character between them.

DELAY

F3

The character recognition code for a frequent terminal identifier request, TERMINAL = , would appear as '=' on the screen. As another example, Command? would appear as '?'.

Character recognition is used for most sign-on applications where host computer requests are short in length.

2. Count-down timer

The count-down timer method causes the XT300 to wait for a timed period that is slightly longer than it takes for all characters of the host computer request or message to be received before sending out the next response.

DELAY

F3

To enter the count-down timer code, depress the soft-key DELAY (F3) twice without typing any character between the two depressions. This appears as ' ' on the screen.

The count-down timer method is preferred where delays for longer uninterrupted character strings are required that could be as much as a paragraph in length. It is also useful in a sign-on dialogue where the last character of a host computer request appears elsewhere in the same character string.

Password blanking

BLANK

F4



For maximum convenience, you can include your password in the automatic sign-on sequence. However, as a security measure, depress the soft key BLANK (F4) before and after entering your password or any other information you do not want to be displayed in the sign-on field. What you will see on the screen are open and closed square brackets with as many spaces between them as there are characters in your password.





To make your password even more secure, you can omit the last character of your password and enter it and the final RETURN manually.




You can also omit the second depression of BLANK (F4), in which case all data to the right of the open square bracket will not be displayed.





Example of a sign-on sequence






Applying the character recognition method to the sign-on sequence for Telemail, an electronic mail service offered by GTE's Telenet, the programming procedure would be:





- 1  


- 2  
3  = 





- 3   






- 4  
5  @ 





- 5     

- 6  
7  ? 

- 7 Type your user name 

- 8  
9  ? 

- 9  
10  type your password  

- 10  
10  ? 

Adding step 10 delays the beep that normally sounds at the end of the sign-on sequence to the first Command? that indicates the XT300 is ready for your input. (See page 66.)

ENTER

F1

EXIT

BREAK

When you have completed the sign-on sequence, check it for accuracy and depress ENTER (F1) to place it in memory. Type another ID number to program another entry or depress EXIT (BREAK) to return to the LOCAL mode. (At this point, double check the user set-up and host computer protocol choices by depressing the soft-key SET-UP (F3).)

This is how an automatic sign-on sequence to Telemail for J. Jones appears on the screen after it has been entered on PAGE 2:

SIGN-ON SEQUENCE

CR'CR'='D1CR'@'MAILCR'? J.JonesCR'? []CR'?

In this case the DELAY code inserts a variable delay as follows:

'='	causes a delay for	TERMINAL =
'@'	causes a delay for	@
'?'	causes a delay for	User Name?
'?'	causes a delay for	Password?
'?'	causes a delay until	Command?

The two methods of providing variable delays can be mixed and the count-down timer method ' ' can be used in multiples within any sign-on or function key field.

Programming special service telephone numbers

In the middle of PAGE 2 on the left, there are five locations (ID numbers 58–62) which have extra long telephone number fields for up to 30 digits. In these fields, you can program the telephone numbers and identification codes required for such special long distance services as SPRINT and MCI among others, along with the long distance numbers that you call frequently. These calls can then be placed by simply typing a two digit code on the main keyboard.

To program these special service telephone numbers, use the same procedure as you did for PAGE 1. Whenever you would normally wait for a dial tone during manual dialing, depress DELAY (F3) to insert the dial tone sensing code ~ at appropriate locations in the telephone number.

DELAY

F3

To the right of the extra long telephone number fields are five memory locations (ID numbers 63–67) that can store telephone numbers with up to 14 digits. These can be used for regular telephone numbers as on PAGE 1, PABX feature codes, or the access numbers to special telephone services. The access numbers would then be used for convenient two-step automatic dialing as described on page 31.

Programming the function keys

When the XT300 is in the LOCAL mode, the F1 to F4 function keys are used to enter the various Programming and SET-UP modes. In the ON-LINE mode, however, these four keys have a different purpose. They can be programmed for twelve frequently used character strings. Four of the character strings (D1 to D4) are activated by a direct depression of the function key, four (S1 to S4) by holding down SHIFT while depressing the function key, and four (C1 to C4) by holding down CTRL while depressing the function key.

Examples of the kinds of character strings that can be programmed into the function keys are:

- Frequently used commands
- Attributes that highlight the screen display: reversed video, underlining, blinking, and half intensity
- Letter signatures
- File names
- Limited graphics
- Book marks for data base searching
- Host computer sign-ons and sign-offs

To program a function key with PAGE 2 in the Programming mode, select a location from those listed at the bottom of PAGE 2. This will be D1 to D4, S1 to S4, or C1 to C4. Enter the ID code by typing the letter D, S, or C and number 1, 2, 3, or 4 on the main keyboard. Type the desired character string and depress ENTER (F1). Continue with the programming or depress EXIT (BREAK) to return to the LOCAL mode.

ENTER

F1

EXIT

BREAK

Each function key memory location can contain up to 36 characters in any combination of the 128 ASCII characters. In addition, the variable DELAY codes 'x' and ' ' and the BLANKing code [] can be used as they are in the sign-on field.

The function keys cannot be programmed to dial telephone numbers.

Copying the entries

Once you have programmed the repertory and have tested the entries to be sure they work, it is recommended that you copy down the entries, including the passwords and other parts that have been blanked out. This is for your convenience in case an entry is accidentally deleted or changed.

SET-UP on PAGE 3

PAGE 3 is used to select user preference options and network and host protocols. It is accessed by depressing the soft key SET-UP (F3), starting from the LOCAL mode. On the left at the top of the page are the seven user preference options. Below is the SET-UP for those host computers with protocols that are alike and to the right the SET-UP for those with individual protocols.

SET-UP

F3

PAGE 3 SET-UP

DIALING
 AUTO DISCON.
 AUTO STOP
 RING MUTE
 BEEP TONES
 SIGN-ON BLANK
 BAUD-RATE

PULSE	DTMF
YES	NO
YES	NO
YES	NO
YES	NO
YES	NO
300	1200
2400	4800

50 SIGN-ON ECHO
 SCREEN
 AUTO LF
 PARITY

REM	LOC
80	40
YES	NO
EVEN	ODD
MARK	SPACE

51 SIGN-ON ECHO
 SCREEN
 AUTO LF
 PARITY

REM	LOC
80	40
YES	NO
EVEN	ODD
MARK	SPACE

52 SIGN-ON ECHO
 SCREEN
 AUTO LF
 PARITY

REM	LOC
80	40
YES	NO
EVEN	ODD
MARK	SPACE

MANUAL, ID 54 TO 57 & MAIN PORT

ECHO
 SCREEN
 AUTO LF
 PARITY

REM	LOC
80	40
YES	NO
EVEN	ODD
MARK	SPACE

53 SIGN-ON ECHO
 SCREEN
 AUTO LF
 PARITY

REM	LOC
80	40
YES	NO
EVEN	ODD
MARK	SPACE

DOWN

UP

ALTER

EXIT

SET-UP

The XT300 comes from the factory with typical selections already made on PAGE 3, as shown on the opposite page. If the options chosen do not meet your needs, you can make changes through simple either/or choices. The option currently selected appears in full brightness; the other option is shown in half intensity.

The soft key labels in the SET-UP mode look like this:



DOWN **UP** Depress DOWN (F1) and UP (F2) to move the cursor. If you continue to press either key until the cursor goes off the screen, it moves diagonally to the other column and continues in the same direction.

ALTER Depress ALTER (F3) to change the existing SET-UP.

EXIT As with the other programming modes, EXIT (BREAK) is used to return to the LOCAL mode.

User preference options

The seven user preference options on the left side of PAGE 3 are:

DIALING The XT300 works with either pulse (rotary) or DTMF (tone) dialing systems. Choose the option that matches your office telephone system.

AUTO DISCON. With this option, YES means that after ten minutes of inactivity on the main keyboard, the XT300 automatically disconnects from a network to prevent connect charges from being incurred unnecessarily. Ten seconds before disconnect the terminal sounds two beeps as a warning, and another beep sounds when disconnect occurs. To prevent automatic disconnect, depress any key on the main keyboard to reset the ten minute timer.

AUTO STOP	<p><u>YES</u> automatically stops the data reception when the screen is full, allowing you to study the information. You can signal the host to start transmitting another page by depressing START/STOP.</p>
RING MUTE	<p><u>YES</u> turns off the ring sound on line one as a courtesy feature when you are on a voice or data connection on line two. The light below L1 still flashes to signal an incoming call.</p>
BEEP TONES	<p><u>YES</u> allows beep tones to be sounded under the following conditions:</p> <ul style="list-style-type: none"> ▪ When an unacceptable entry has been made from the keyboard and ERROR is displayed ▪ After sign-on to a host is completed and again when the connection is terminated ▪ When the end of a line is approaching when entering data ▪ When an ASCII bell character is received ▪ Ten seconds before automatic disconnect (two beeps) and again when it has occurred (one beep) ▪ When L1 or L2 is depressed to disconnect from the line <p>If <u>NO</u> is chosen for this option, all of these beeps are suppressed.</p>
SIGN-ON BLANK	<p><u>YES</u> means that the entire dialogue associated with an automatic sign-on is blanked from the screen.</p>
BAUD RATE	<p>The communication speed of the XT300's built-in modem is 300 baud. The baud rate selection of 300, 1200, 2400 or 4800 is for the communication speed of the MAIN RS-232-C port.</p>

SET-UP for host computer protocols

One of the XT300's main advantages is that you can set it up yourself to be compatible with the protocol of the different data services to which you subscribe. This means you do not have to reset your terminal each time a different host computer's protocol is required. The information about the protocol is supplied to you by the data service and you can then program it on PAGE 3. The choices are as follows:

ECHO (full and half duplex)	REM(ote)	LOC(al)
SCREEN (format)	80	40
AUTO LF (automatic line feed)	YES	NO
PARITY	EVEN	ODD
	MARK	SPACE

In the lower left section of PAGE 3 is the SET-UP for manual sign-on, automatic sign-on for those host computers that will be assigned ID numbers from 54–57, and the MAIN port.

On the right hand side of PAGE 3 are ID numbers 50–53, for those host computers that require a different protocol. The choices for echo, screen format, automatic line feed, and parity can be different for each one. When one of these ID's is used for automatic sign-on, the XT300 resets itself automatically so that it is compatible with the host.

Programming during active voice/data calls

All Programming and SET-UP procedures can be performed during an active voice call, a data session, or a simultaneous voice/data connection. This can be helpful during a data session, when you may wish to program a function key for a frequently used command or character string, or change one of the SET-UP options on PAGE 3. You can also program your repertory for telephone numbers and sign-on procedures while receiving instructions over the telephone.

STAT CLR

To initiate programming, depress STAT CLR, which changes the status line and the operation of the function keys to the LOCAL mode. Your XT300 is now ready to enter any of the Programming or SET-UP modes.

An active voice call is not affected by Programming or SET-UP, except that the status line displays the soft-key labels. All status information about the call is redisplayed when the status line is switched back to the ON-LINE mode by depressing STAT CLR.

If programming is initiated during a data session, the XT300 sends an automatic X-OFF to the host computer to stop receipt of data and clear the screen. The last screen of data will be lost, so make sure you no longer need the data before you depress STAT CLR. To resume your data session, depress STAT CLR. This switches the status line and function keys to the ON-LINE mode and sends an automatic X-ON to the host computer.

5. Data communications

In today's business environment, it is increasingly important for you to have at your fingertips the timely, relevant information that you need for effective decision-making. The XT300 has been designed to fill this need. It takes all the mystique out of connecting to data bases and receiving and entering data, and makes using its data functions as easy and convenient as using the telephone.

Establishing data connections

Your XT300 is user programmable to establish fully automatic connections to remote host computers with the same ease and convenience as placing an automatically dialed telephone call. This is one of the most powerful features of the XT300.

With automatic sign-on, all you need to do is depress DATA LINE and type the appropriate two digit ID number for the desired data base. The XT300 automatically:

- Dials the telephone number of any required format, including waiting for additional dial tones
- Establishes the data connection
- Sets the XT300 protocol parameters to be compatible with the host computer's protocol for echo, screen format, line feed, and parity
- Conducts the sign-on dialogue
- Sends initial query commands to the host
- Alerts you with one beep when the last command in the sign-on field has been transmitted

You can establish a data connection with a conventional manual sign-on procedure by dialing the telephone number on the keypad and conducting the sign-on dialogue on the main keyboard. Here, too, data connect and the setting of the XT300 host protocol parameters are automatic.

The XT300 can also be hard wired to a local computer through its RS-232-C MAIN port or connected to an external higher speed modem or concentrator through its MAIN port for access to remote computers.

When a data call is initiated, the status line changes to the ON-LINE format. DATA 2 appears in place of VOICE when using the telephone network; DATA 1 appears when using the MAIN port. CAPS appears on the left side if the ALL CAPS key has been activated, and STOP appears when an X-OFF has been sent to the host computer.

Manual sign-on over the telephone network

DATA LINE

To go on-line before or after dialing the telephone number on the keypad, depress the DATA LINE key. Correct dialing errors by using the same procedures described for voice calls on pages 29 and 30.

The status line displays the telephone number, blinking if you dialed before going on-line and solid if you dialed after going on-line. The L2 indicator light turns on, and DATA 2 appears blinking on the status line when DATA LINE is depressed. (L2 is inoperative during a data session to prevent accidental disconnect.)

Monitor the progress of the telephone network connection over the speakerphone until automatic data connect is established. This is indicated by a short burst of high pitched carrier tone, DATA 2 displayed solid, and a clear screen, with the cursor in the home position.

You are now ready to conduct the manual sign-on dialogue that is appropriate for the particular data service, from the main keyboard.

As an example of a manual sign-on, the following is the procedure for Telemail, an electronic mail service offered by GTE's Telenet:

Your action	XT300 response	Request from host
1 DATA LINE		
2 Dial Telenet's phone number on the keypad	Establishes data connection	
3 After carrier detect, RETURN RETURN		
		TERMINAL =
4 D 1 RETURN		
		@
5 M A I L RETURN		
		User Name?
6 Type your name RETURN		
		Password?
7 Type your password RETURN		

Automatic sign-on over the telephone network

To initiate an automatic connection to a host computer over the telephone network, use one of the following two procedures. Correct errors as you did for automatically dialed telephone calls (see pages 30 and 31).

1. Display the repertory and type the ID before going on-line.

REPTY

- Depress REPTY twice to call up PAGE 2 of the repertory. This automatically switches the main keyboard to the dialing mode for predialing and changes the status line to the ON-LINE mode.
- Select the ID number for the desired data service from the repertory and type it on the main keyboard.
- Confirm that you have made the correct selection by observing the name of the data service blinking on the status line, and go on-line by depressing the DATA LINE key.

DATA LINE

2. Go on-line and enter the ID number.

DATA LINE

- Depress DATA LINE to go on-line and to switch the main keyboard to the dialing mode.
- Type the ID number for the desired data service on the main keyboard.

RE
DIAL

If for any reason the data connection to the host computer is not established on the first try, all you need to do is depress the RE DIAL key. The XT300 will automatically disconnect from the line and repeat the entire procedure.

If you prefer to have the XT300 sound a beep when it is ready for your input, after the sign-on has been completed, you can add to the end of the sign-on sequence using the character recognition method the last character of the host computer's command prompt. The beep will sound when the command prompt appears on the screen, alerting you to make an entry.

DATA LINE

After completing a data session with one host computer (see page 69 for information on signing off), you can easily sign on to another computer. Depress DATA LINE twice (disconnect/reconnect) and type the new ID number on the main keyboard. The XT300 automatically times the disconnect, reconnect, and wait for the dial tone, and establishes the connection to the new host computer.

DATA LINE

To disconnect the XT300 from the telephone line, simply depress DATA LINE. The L2 status light turns off, and one beep sounds from the speaker to confirm disconnect.

The convenience of automatic sign-on can be illustrated by looking at what happens when you use a two digit ID to sign on to Telemail.

Your action

XT300 response

Request from host

1

DATA LINE

2

Type the two digit ID for Telemail

Dials Telemail's telephone number and establishes data connection

RETURN RETURN

TERMINAL =

D1 RETURN

@

MAIL RETURN

User Name?

Your name
RETURN

Password?

Your password
RETURN

SHIFT

DATA LINE

Sign-on through the MAIN port

The internal modem of the XT300 can be bypassed by depressing DATA LINE while holding down SHIFT. This activates the MAIN port and permits access to host computers by direct hard wire connections or through a higher speed external modem or concentrator.

SHIFT

DATA LINE

To disconnect the XT300 from a host computer accessed through the MAIN port, depress DATA LINE again while holding down SHIFT.

DATA LINE

After completing a data session with a computer through the MAIN port, you can establish a direct data connection over the telephone line by depressing DATA LINE. The XT300 deactivates the MAIN port and connects the internal modem to line two. To reactivate the MAIN port and disconnect from line two, depress DATA LINE while holding down SHIFT.

Establishing a data connection during a voice call

With a voice call in progress on line one, you can establish a simultaneous data connection over line two as follows:

HOLD

- Place line one on hold by depressing HOLD.

- Establish the data connection in the usual manner.

L1

- Release line one from hold by depressing L1 after carrier detect.

To prevent accidental disconnect of the voice call, the DATA LINE key is inoperative until line one is placed on hold. Also, L1 is inoperative (HOLD cannot be released) until data connect occurs, as indicated by a short burst of carrier tone and the clearing of the screen. The voice call HOLD is required because the voice circuitry is used to monitor the progress of the data connection.

Conducting data sessions

The XT300's ability to connect to remote and local computers allows you to conduct data sessions from your own desk. For electronic mail, it does not matter whether the other person with whom you intend to communicate owns an XT300 or some other data terminal.

Whether you want to send or receive a brief electronic mail message or a lengthy report that includes graphics, you will enjoy the many convenience features of the XT300. High resolution character display, well defined spacing between characters and lines, and low glare give the screen the appearance of a typewritten page and make it clearly legible. Procedures are familiar and intuitive and the number of key strokes required for any action has been cut to the minimum. In addition, the user preference options programmed on PAGE 3 allow you to tailor data sessions to your own needs. You may want to review automatic disconnect, automatic stop, ring mute, and beep tones on pages 57 and 58 to be sure you have selected the option you prefer. You may also want to review Section 3, "Understanding the Main Keyboard."

To avoid an accidental disconnect of an active data session on line two, L2 is inoperative during a data session.

Signing off

Each outside data service and your in-house computer representative will provide you with instructions for signing off at the end of a data session. For example, for Telemail you have only to type BYE and depress RETURN in response to the query COMMAND?. If you want to sign off in the middle of a message, depress BREAK, wait for COMMAND?, and then enter BYE and RETURN. Once the disconnect message has been received from the host, depress DATA LINE to disconnect.

RETURN

DATA LINE

Escape sequences and control codes

Escape sequences and control codes allow a variety of special functions to be performed. To enter an escape sequence, depress ESC and type the characters that follow, without spacing, using upper and lower case as indicated. Control codes are entered by holding down CTRL while typing a designated key. Frequently used escape sequences can be programmed into the function keys.

ESC

CTRL

Screen display format

The XT300 is capable of displaying 24 lines plus the status line, with either 80 or 40 columns of characters across the width of the screen. The choice of 80 or 40 columns is available whether the XT300 is in the ON-LINE or LOCAL mode. Characters in the 40 column format are the same height, but twice as wide as in 80 column. When the XT300 is first turned on, the screen appears in the 80 column format.

The desired screen format can be selected using one of these three methods:

Control of screen format	80 columns	40 columns
Escape sequence received from the host, keyboard, or function key	ESC[<1l	ESC[<1h
Program PAGE 3 for automatic screen format during sign-on	80	40
Local control of the screen format	CTRL 3	CTRL 4

When the screen format is changed, the XT300 clears the screen and displays all subsequent characters in the new format. After signing off from a host, the screen remains in the selected format to retain the last screen of data.

Clear screen functions

The standard clear screen function is performed by STAT CLR in the shifted mode. For greater flexibility and control, additional clear screen functions are provided that are activated by escape sequences received from the host or keyboard entry as follows:

Clear screen functions	Escape sequence
Clear the entire screen	ESC[2J
Clear from the cursor to end of screen	ESC[J
Clear from home to the cursor	ESC[1J
Clear from the cursor to end of line	ESC[K

Highlighting attributes

The XT300's character attribute features make it possible to highlight selected characters in messages and reports with blinking, underlining, reversed video, or half intensity. The escape sequences that invoke these commands are:

Display attribute	Escape sequence
Blinking	ESC[5m
Underlining	ESC[4m
Reversed Video	ESC[7m
Half Intensity	ESC[2m
Attributes off	ESC[m

These escape sequences can be originated from the host, typed on the keyboard, or sent from the function keys.

Highlighting attributes can be used in any combination by connecting the commands with a semicolon. For example, ESC[7;5m will cause subsequent characters to be displayed in reversed video and to blink.

To turn off any attribute or combination of attributes and return to the normal character display, enter ESC[m.

As an example of how highlighting is turned on and off, suppose that you want URGENT to blink in the middle of a message. Depress consecutively ESC, the open square bracket, the number 5, and the lower case m. Type URGENT and then depress ESC, open square bracket, m.

Mosaic graphics

In addition to the standard ASCII alphanumeric G0 character set, the XT300 supports the G1 character set for mosaic graphics that can be used to create simple graphic displays on the screen. Mosaic graphics characters are formed by a 2 X 3 matrix of equal-sized picture elements. Either contiguous or separated mosaic characters can be formed in normal or reversed video display.

Selection of the character set is controlled by appropriate ASCII control characters. The graphics format is selected by escape sequences that can be received from the host, typed on the keyboard, or sent from a function key when the XT300 is in the ON-LINE or LOCAL mode. Do not use the ALL CAPS key when using graphics.

Character set	Keyboard entry
Mosaic Graphics G1	Hold down CTRL Depress N
Alphanumeric G0	Hold down CTRL Depress O
Graphics format	Escape sequences
Separated picture elements	ESC)1
Contiguous picture elements	ESC)0

When the XT300 is first turned on, it displays the G0 alphanumeric character set. When switched to the G1 set, graphics characters are in the contiguous format.

The G1 graphic character set is contained in columns 2, 3, 5, 6 and 7 or the standard ASCII chart, which can be found in Section 8, "Specifications." The graphics characters are typed by the associated keys shown on page 74.

If you depress BREAK while receiving graphics, the XT300 will remain in the graphics mode. To return to normal character entry, hold down CTRL and type the letter O.

The G1 graphics character set

row	column 2	column 3	column 5	column 6	column 7
0	Space Bar	0		\	p
1	!	1		a	q
2	"	2		b	r
3	#	3		c	s
4	\$	4		d	t
5	%	5		e	u
6	&	6		f	v
7	'.	7		g	w
8	(	8		h	x
9	)	9		i	y
10	*	:		j	z
11	+	;		k	{
12	.	<		l	;
13	-	=		m	}
14	.	>		n	~
15	/	?	-	o	

Cursor control

Movement of the cursor is controlled by appropriate ASCII control characters or ANSI escape sequences that can be received from the host or typed on the keyboard when the XT300 is in the ON-LINE or LOCAL mode.

Cursor control by ANSI escape sequences provide for considerably more flexibility, which includes direct cursor positioning and reporting of the cursor position to the host.

The cursor control characters and escape sequences are summarized below:

Cursor movement	Separate key	Keyboard entry	Escape sequences
UP	—	CTRL K	ESC[PnA
DOWN	—	CTRL J	ESC[PnB
RIGHT	—	CTRL L	ESC[PnC
LEFT	BS	CTRL H	ESC[PnD
Position by line (PL) and column (Pc)			ESC[PL;PcH
To the beginning of line (PL)			ESC[PLH
To the top of column (Pc)			ESC[;PcH
Home position line one, column one			ESC[H
Host request for cursor position			ESC[6n
Report position to the host			ESC[PL;PcR

Note:

Pn = Number of character positions

PL = Line number

Pc = Column number

If no number is given for Pn, the cursor moves one position.

AUXILIARY port control

Signal flow to any device connected to the AUXILIARY RS-232-C port can be controlled by escape sequences received from the host, keyboard entry, or function key, or by a local CTRL code as follows:

Control of AUXILIARY port	AUX. port activated	AUX. port deactivated
Escape sequence received from the host, keyboard, or function key	ESC[5i	ESC[4i
Local control of the signal to the AUXILIARY port	CTRL 9	CTRL 0

When the XT300 is turned on, the AUXILIARY port is automatically activated.

Constructing horizontal graphs

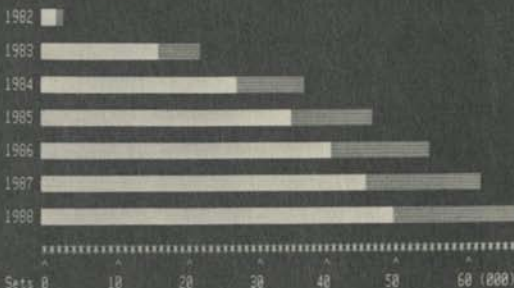
One of the more interesting features of the XT300 is a form of data compression that can be used to speed up the transmission of certain non-text graphics displays that form repetitive horizontal patterns.

The repeat character feature is intended for this purpose and is activated by the escape sequence ESC[Pnb, where Pn represents the number of times the last character is to be repeated. For example, ESC[50b instructs the XT300 to repeat whatever character precedes the escape sequences fifty times.

Typical applications for the repeat feature are horizontal lines, rows of symbols, bar charts, and scales, as shown in the following example of a hypothetical sales projection.

For any repetitive horizontal pattern, only the information necessary to instruct the XT300 about the nature and length of the display is received from the host computer. The actual display is generated locally by the XT300 at the speed of its internal circuitry.

SALES PROJECTIONS



Using the 1985 bar graph as an example, a conservative sales forecast of 35,000 units is indicated by the solid white horizontal bar, represented by the space bar in reversed video, with an optimistic projection of an additional 12,000 units shown in half intensity, reversed video. This bar graph is created as follows:

- 1 Type 1985 at the extreme left of the screen and then space once.
- 2 Start the bar on the graph with the space bar in reversed video by entering the reversed video escape sequence, ESC[7m.
- 3 Depress the space bar once to display one space in reversed video.
- 4 Enter ESC[34b to repeat "space" 34 more times, representing the 35,000 units.
- 5 Enter the escape sequence for half intensity display, ESC[2m, to extend the reversed video bar on the graph.
- 6 Continue the bar of the graph by entering one space in half intensity, reversed video.
- 7 Enter the repeat escape sequences ESC[11b to repeat the half intensity space 11 more times, representing the 12,000 units.
- 8 Enter the attribute off escape sequence, ESC[m, to return the display to normal. Then depress RETURN to start a new line.

The top and bottom border lines of the bar chart are created with the escape sequence for underlining, ESC[4m. Enter one underlined space and repeat it as required, 66 times in this case. The row of asterisks is created by entering one asterisk and repeating it in the same fashion, using the sequence ESC[66b.

The scale at the bottom is created in a similar manner, except that the cursor control feature is used to move the cursor the 9 and 8 positions respectively for the hash marks and numbers every 10 positions as follows:

-
- 1 Enter the first hash mark at the beginning of the scale.

 - 2 Enter ESC[9C to move the cursor 9 positions to the right.

 - 3 Enter the next hash mark, ESC[9C, and repeat until the scale is complete.
-

The numbers are entered in a similar manner except that the cursor is moved 8 positions between each number.

ASCII control code summary

The XT300 responds to ten control characters of the ASCII G0 character set as listed below. All others are ignored when received.

Key typed	Col/row	Character	Action to be taken by the XT300
G	0/7	BEL	Sound audible beep
H	0/8	BS	Backspace
J	0/10	LF	Line feed
K	0/11	VT	Upline
L	0/12	FF	Forward space
M	0/13	CR	Return
N	0/14	SO	Invoke G1 set
O	0/15	SI	Invoke G0 set
X	1/8	CAN	Terminate an escape sequence
[	1/11	ESC	Introduce an escape sequence

Control representation mode

When the XT300 is switched to the Control Representation Mode (CRM), all control characters from columns 0 to 1 of the ASCII chart received from the host or keyboard entry are displayed on the screen.

All data including control characters are displayed in a continuous string on the screen and not otherwise acted upon.

The CRM can be turned on or off at any time, whether the XT300 is in the ON-LINE or LOCAL mode, by a local CTRL key function as follows:

Display mode	Keyboard entry
CRM ON	CTRL 7
CRM OFF	CTRL 8

When the Control Representation Mode is invoked, the control characters from the ASCII chart are displayed as the C0 character set shown on the following pages.

ASCII column 0

ASCII row	Key typed	C0 character set	Mnemonic	Meaning
0	@	N _U	NUL	Null
1	A	S _H	SOH	Start of heading
2	B	S _X	STX	Start of text
3	C	E _X	ETX	End of text
4	D	E _T	EOT	End of transmission
5	E	E _Q	ENQ	Enquiry
6	F	A _K	ACK	Acknowledge
7	G	B _L	BEL	Bell
8	H	B _S	BS	Backspace
9	I	H _T	HT	Horizontal tabulation
10	J	L _F	LF	Line feed
11	K	V _T	VT	Vertical tabulation
12	L	F _F	FF	Form feed
13	M	C _R	CR	Carriage return
14	N	S _O	SO	Shift out
15	O	S _I	SI	Shift in

ASCII column 1

ASCII row	Key typed	C0 character set	Mnemonic	Meaning
0	P	D _L	DLE	Data line escape
1	Q	D ₁	DC1	Device control 1
2	R	D ₂	DC2	Device control 2
3	S	D ₃	DC3	Device control 3
4	T	D ₄	DC4	Device control 4
5	U	N _K	NAK	Negative acknowledge
6	V	S _Y	SYN	Synchronous idle
7	W	E _B	ETB	End of transmission block
8	X	C _N	CAN	Cancel
9	Y	E _M	EM	End of medium
10	Z	S _B	SUB	Substitute
11	[	E _C	ESC	Escape
12	\	F _S	FS	File separator
13	]	G _S	GS	Group separator
14	^	R _S	RS	Record separator
15	—	U _S	US	Unit separator

6. Expanding the XT300

While the XT300 can stand alone as a voice/data terminal, its two RS-232-C ports make it easily expandable. It can be customized to answer specific user needs by connecting it to such products as a printer, communicating word processor, personal or in-house computer, and/or higher speed external modem.

Establishing compatibility

Any equipment that you wish to connect to the XT300 must have an RS-232-C port and must also be set up to be compatible with the XT300 operation. (RS-232-C pin assignments can be found on page 96.)

Connecting to the MAIN port

For the location of the XT300's MAIN RS-232-C port, see Section 1, "Installation." This port is a serial Data Terminal Equipment (DTE) port. Therefore, only equipment that has a Data Communications Equipment (DCE) port can connect to it. Examples include an in-house computer, a concentrator, or a higher speed external modem supporting baud rates of 1200, 2400, or 4800. The latter is recommended if you want to increase the line speed of the XT300, whose built-in modem speed is 300 baud. (For definitions of modem and baud, see the Glossary.) Connecting an external modem requires that you change the SET-UP options for the MAIN port on PAGE 3 to the appropriate baud rate.

SHIFT

DATA LINE

When you are using the XT300 and want to switch to a device connected to the MAIN port, hold SHIFT down and depress DATA LINE. To disconnect, repeat the same procedure.

Connecting to the AUXILIARY port

The AUXILIARY RS-232-C port is also located on the back panel of the XT300. Adjacent to the MAIN port, it is a serial DCE port that can only be connected to devices that have a DTE port and that are intended to be subordinate to the XT300. Examples are a hard copy printer, communicating word processor, or another XT300.

When the XT300 is connected to external equipment through its MAIN port, the AUXILIARY port assumes the same baud rate programmed for the MAIN port on PAGE 3.

See page 76 for AUXILIARY port control methods.

7.
Maintenance
and problem resolution

Self-test

When the power switch is turned on, the XT300 will automatically perform the power-up self-test, which tests six major sections of the terminal. After a brief warm-up period, six ones (111111) are displayed for 10 seconds on the right side of the status line, when all sections are operational. A zero (0) will be displayed for any section that is defective. The digits from left to right indicate operation of the following sections:

- Internal modem
- Reference clock
- Firmware ROM
- User programmable memory
- Screen display memory
- Scratchpad RAM

The self-test information on the status line can be helpful when discussing the operation of your XT300 with your GTE service representative.

Operation check

The XT300 architecture lets you perform a simple operational test that checks virtually all functions of the XT300 for two-line operation. Perform the following checks, starting from the LOCAL mode:

Your action

XT300 response

L1

L1 light on
Status line to ON-LINE mode
Dial tone from speaker

L2

L2 light on
L1 light out
Dial tone from speaker

HOLD

Line two on HOLD
L2 light blinks
No dial tone

L2

Releases line two
L2 light on solid
Dial tone from speaker

L2

L2 light out
Disconnects line two
Status line to LOCAL mode

DATA LINE

L2 light on
Status line to ON-LINE mode
Dial tone from speaker

Dial all digits on keypad

Dialed digits are heard over speaker and displayed on status line

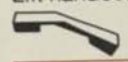
RE DIAL

Disconnects line two
Waits 3 seconds
Reconnects line two
Waits for dial tone
Dials out digits

DATA LINE

Disconnects line two
L2 light out
Status line to LOCAL mode

Lift handset



L1 light out
Status line to ON-LINE mode

Listen

Dial tone from handset

SPEAKER

Dial tone from speaker and handset



Volume up and down


Return handset





Dial tone remains on speaker

L1














Disconnects line one
L1 light out
Status line to LOCAL mode

Hold down 

String of H's appears on screen

Hold down Type  

Moves cursor one space left

Hold down Type	 	Moves cursor one space down
Hold down Type	 	Moves cursor one space up
Hold down Type	 	Moves cursor one space right
		Displays PAGE 1 of repertory Status line to ON-LINE mode
		Displays PAGE 2 of repertory
		Returns to LOCAL mode
	 	Displays PAGE 3 and SET-UP soft keys
	 	Returns to LOCAL mode

User maintenance

The XT300 may be cleaned with a slightly dampened clean cloth, using any mild soap or detergent. Before cleaning, disconnect the power cord and all other cables from the back of the XT300. Avoid using excessive water, as some of it may run into the ventilation slots and come into contact with the circuitry. Use a soft brush or barely moist cloth to clean the keys.

Keep the ventilation slots on the top, back, and bottom of the XT300 clear. Do not set the terminal on a soft pad that could block the cooling vents on the bottom.

8.
Specifications

Specifications

CRT Screen

9-inch diagonal CRT
High contrast P4 phosphor
Nonglare faceplate
Flicker free refresh
Automatic screen on/off

Character set

96 alphanumeric ASCII set
32 control characters
64 mosaic contiguous
64 mosaic separated

Display format

1920 characters
80 characters by 24 lines
40 characters selectable
2K x 12 bits display RAM
25th line for status
or soft key labels.

Character typestyle

10 x 12 dot matrix cell
7 x 9 upper case
7 x 6 lower case
3 ascenders, 2 descenders
3 dots between lines and
characters

Cursor

10 x 12 dot matrix block
Nonflashing grey
Readable and addressable
Up, down, right, left,
absolute, home

Screen display attributes

Underline text
Blinking
Half tone or grey level
Reverse video
Repeat character

Ergonomics

Nonreflective surfaces
High contrast, nonreflective CRT
screen
Low profile keyboard with sculptured
full-travel keys and tactile feedback

Keyboard

Attached 63 key main keyboard
and 12 key dial pad
Typewriter style full ASCII
Programmable function keys
Dedicated start/stop, all caps,
and backspace keys
Homing beads on F and J keys

Interfaces

RS-232-C serial DTE main port
RS-232-C serial DCE auxiliary port
Line 1 RJ11, 12 & 13 compatible
Line 2 RJ11, 12 & 13 compatible

Data communications

300 baud full duplex built-in
Bell 103 compatible modem
300, 1200, 2400, 4800 selectable
for the RS-232-C ports

Power requirements

120 volts, 60 Hz single phase
35 watts (22 watts with CRT off)

Operating environment

Temperature—0 deg. to 40 deg. C
Humidity—up to 95%

Dimension/weight

Width*	Height	Depth
12.4 in.	10.2 in.	19.9 in.
314 mm	260 mm	404 mm

Weight 13.7 lbs.

*Plus cradle 3.1 in. 80 mm

Telephone section

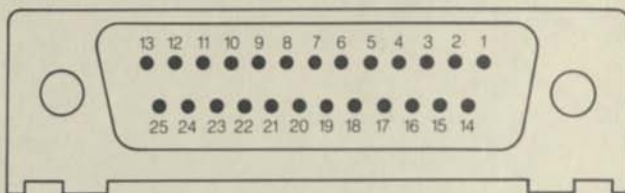
Line 1, line 2, hold key
DTMF or pulse dialing
Handsfree speakerphone
Last number redial key
Calibrated flash key
On-hook predialing
Automatic dial tone sensing
Power down manual phone operation
A two page repertory stores:
• 50 names and telephone numbers
• 8 sign-on procedures to computers
• 12 function key character strings

Product design and specifications
are subject to change without notice.

The XT300 is listed with Underwriters
Laboratories (UL) and complies
with FCC regulations Part 15 and Part
68 and with D.H.H.S. limits on x-ray
emission.

Product made in France

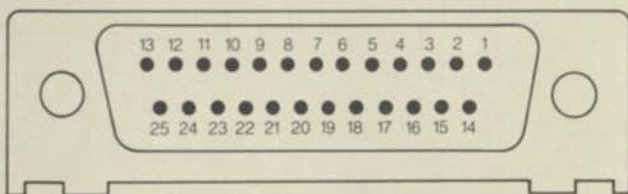
Pin assignments for the MAIN port



Rear view
EIA RS-232-C Pin assignments

EIA Circuit	Connector Pin No.	Description
PG	1	Protective ground
TD	2	Transmitted data
RD	3	Received data
RTS	4	Request to send
CTS	5	Clear to send
DSR	6	Data set ready
SG	7	Signal ground
DSR	20	Data terminal ready

Pin assignments for the AUXILIARY port



Rear view
EIA RS-232-C Pin assignments

EIA Circuit	Connector Pin No.	Description
PG	1	Protective ground
TD	2	Transmitted data
RD	3	Received data
CTS	5	Clear to send
DSR	6	Data set ready
SG	7	Sig. ground
DCD	8	Data carrier detect
DTR	20	Data terminal ready

American National Standard Code for Information Interchange

row \ col	0	1	2	3	4	5	6	7
0	NUL	DLE	SP	0	@	P	\	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	\$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	,	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
10	LF	SUB	*	:	J	Z	j	z
11	VT	ESC	+	;	K	[	k	{
12	FF	FS	,	<	L	\	l	;
13	CR	GS	-	=	M	]	m	}
14	SO	RS	.	>	N	^	n	~
15	SI	US	/	?	O	_	o	DEL

9. Glossary

A glossary of technical terms used in this manual is provided for your convenience. Please refer to it if you need additional familiarity with voice and data telecommunications terms.

ASCII:

An acronym for American Standard Code for Information Interchange, the most generally used code for exchanging textual information among computers, whereby each of 96 characters representing letters, numbers, signs, and symbols is given a unique binary number code consisting of 1's and 0's.

AUXILIARY port (DCE):

An RS-232-C port on the back of the XT300 to which a printer, communicating word processor, or personal desktop computer can be attached. (See MAIN port.)

Baud:

A measure of the speed at which telecommunication data signals are sent, with one baud equaling one bit (see below) per second. The internal modem of the XT300 communicates at 300 baud.

Bit:

A contraction of binary digit, the smallest unit of instruction, either 1 or 0, in a binary notation system.

Byte:

A sequence of 8 bits representing a single character.

Character:

A letter of the alphabet, numerical digit, or special symbol for which a coded representation can be transmitted over a telecommunications circuit.

Character attributes:

Special attributes (blinking, underlining, reversed video, and half intensity) that are turned on and off by escape sequences and can be assigned to each character entered by the XT300.

CRT:

The XT300's display, abbreviated from Cathode Ray Tube; an electronic vacuum tube like a TV picture tube, used to display images.

Cursor:

A character position indicator on the display unit. The XT300's cursor is in reversed video. As a key is depressed, the character is entered and the cursor moves to the next character position.

Data call:

Distinct from a voice call, a dial-up connection over the telephone network to a host computer for a data session.

Data line:

For the XT300, a data line is a telephone line or RS-232-C cable connection over which data is transmitted.

DCE:

Abbreviation for Data Communications Equipment, a digital interface which links a user machine such as a printer to the XT300. The AUXILIARY port on the XT300 is a DCE.

DTE:

Abbreviation for Data Terminal Equipment, a digital interface which links the XT300 to a modem (see below), host computer, terminal controller, or concentrator. The MAIN port on the XT300 is a DTE.

EIA interface:

A standardized set of signal characteristics (time duration, voltage, and current) specified by the Electronic Industries Association.

Electronic mail:

A computer-based message system that allows for the transmission of messages and short documents nearly instantaneously through the use of a store and forward computer. Editing, storage, broadcast, mailing, and certain copying functions are usually available.

Full duplex:

A communications system circuit or component capable of transmitting data simultaneously in two directions. Full duplex and remote echo on the SET-UP page of the XT300 are the same thing.

Half duplex:

A communications system circuit or component capable of transmitting data alternately, but not simultaneously, in two directions. Half duplex and local echo on the SET-UP page of the XT300 are the same thing.

Handshaking:

An exchange of predetermined signals for purposes of control when a data communications session is established. This is what occurs between the time the carrier detect is received and the point when the sign-on sequence commences.

Hard copy:

A machine printed document in readable form (as opposed to a visual display on a CRT).

Line speed:

The maximum rate at which signals may be transmitted over a given channel, usually measured in baud or bps. Line speed varies with the capabilities of the equipment used. The XT300 has a 300 baud line speed when using the internal modem.

LOCAL mode:

The mode of operation for the XT300 from which the repertory, the RINGER, and the SET-UP page are accessed for Programming and SET-UP.

MAIN port (DTE):

The RS-232-C port on the back of the XT300 to which a higher speed external modem, a local computer, or concentrator can be attached.

Memory:

That part of the XT300 which stores the repertory information and the software to make the XT300 operate.

Microprocessor:

That part of the XT300 which processes the software instructions.

Modem:

A contraction of MOdulator/DEModulator, a generic term for a device that changes a digital signal to an analog signal or vice versa. The XT300 has an internal modem that communicates with a similar modem during a data session over the telephone network.

Modular plug:

A telephone company standard jack for connecting to the telephone network, replacing the traditional four prong jack. It is defined by USOC-RJ-11, 12, or 13 specifications.

Nibble:

A unit of memory storage in the repertory of the XT300, comprising four bits. One nibble is used per numeral, two nibbles per character.

Parity:

A means of error checking a message during a transmission. The XT300 can be dynamically set for even, odd, mark, or space parity.

PABX:

A private automatic branch telephone switching exchange that is installed in a business, providing switching services in a local network or to a central office for outside and long distance calls.

Peripheral ports:

For the XT300, two RS-232-C ports described as the AUXILIARY port and the MAIN port.

Programmable function keys:

The F1 to F4 keys on the upper row of the XT300's keyboard in the ON-LINE mode. After a memory location for one of these keys is programmed by the user, depressing the key transmits that stored character string to the host computer.

Protocol:

The handshaking and communications dialogue that exists between the XT300 and a computer during a data session. The protocol parameters, which are keyboard selectable on the XT300, are echo (duplex), screen format, automatic line feed, and parity.

Reversed video:

One of the four highlighting attributes that may be assigned to a character that has been entered by the XT300. It consists of dark characters on a light background. The others are blinking, underlining, and half intensity.

RS-232-C interface:

A standard communications cabling interface consisting of twenty-four pins that perform specific functions in a prescribed sequence. The XT300 has one interface called an AUXILIARY port (DCE) for connecting a printer, and one called a MAIN port (DTE) for connecting a higher speed external modem, a local computer, or a concentrator.

Self-test:

A diagnostic routine that the XT300 goes through to test its circuitry, performed when the terminal is turned on.

Serial transmission:

The mode of transmission used by the XT300 in which each bit of a character is sent sequentially on a single circuit or channel, rather than simultaneously as with parallel transmission.

SET-UP options:

User preference and host computer protocol options, specified to the XT300 and stored in its memory.

Soft keys:

The function keys and BREAK when the XT300 is in the LOCAL mode, with their labels shown on the status line of the screen.

Speed dialing:

The ability to dial a telephone number or perform a sign-on sequence automatically by entering a preprogrammed two digit number.

Status line:

The twenty-fifth line of the XT300 display which provides the user with various prompting and status messages. It has a number of formats for the ON-LINE and LOCAL modes.

Timesharing:

A method of processing information in which a computer or communications facility is shared by several users for different purposes at effectively the same time. Although the system actually services each user in sequence, the rapid electronic speeds make it appear that all users are accommodated simultaneously.

Voice line:

For the XT300, a telephone connection for voice conversations. The XT300 also uses the voice-grade lines of the telephone network to transmit data.

10.
FCC requirements and
notices

Notifying the telephone company

The XT300 complies with FCC rules Part 68. Before connecting it, notify your local telephone company of your intent to use it on your telephone line. Give the telephone company your telephone number and the information located on the label on the bottom of the XT300, as follows:

Registrant's Name:

GTE Business Communication Systems Incorporated
FCC Registration Number: Refer to label on bottom of XT300

Model Number: XT300 ActionStation

Ringer Equivalence Number:

Line 1 REN: 2.8B

Line 2 REN: 3.7B

USOC Number: RJ11C, RJ12C or RJ13C

The XT300 should not be used on party lines or coin telephone lines.

Should the equipment cause harm to the telephone network, the telephone company shall, where practicable, notify the customer that temporary discontinuance of service may be required. However, where prior written notice is not practicable, the telephone company may temporarily discontinue service forthwith, if such action is reasonable in the circumstances. The telephone company may make changes in its communications facilities, equipment, or operations procedures, where such action is reasonably required in the operation of its business and is not inconsistent with the rules and regulations of the Federal Communications Commission.

When you permanently disconnect the XT300 from your particular line, notify your local telephone company of this action.

FCC class A computing device warning

Warning:

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this User's Manual, may cause interference to radio communications. It has been tested and found to comply with the limits for Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be necessary to correct the interference.

User's manual disclaimers

Notice

GTE reserves the right to make improvements in the product described in this manual at any time and without notice.

This User's Manual is subject to change without notice, as changes may be made to the XT300 ActionStation or any technical inaccuracies or typographical errors in this publication are corrected.

GTE Business Communication Systems Incorporated makes no warranty of any kind with regard to this User's Manual. It shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Address comments concerning the contents of this manual to GTE Business Communication Systems Incorporated. GTE may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever. You may continue to use the information you supply.

11.
Warranty and service

Limited warranty for GTE XT300 ActionStation

GTE Business Communication Systems Incorporated (GTE) warrants the GTE XT300 ActionStation when used in the USA to be free from defects in material and workmanship under normal use and service for one year from the original date of purchase. To obtain limited warranty service, return your XT300 in its original shipping carton to:

Service Depot
GTE Business Communication Systems Incorporated
13000 Memorial Parkway South
Huntsville, AL 35803

The return must be identified by a Return Authorization number which will be supplied upon calling **800-257-7778**
800-572-2030 in VA
GTE reserves the right to request proof of date of purchase.

The purchaser assumes the risk of loss or damages in transit and must prepay shipping charges to the Service Depot.

Your warranty does not cover:

- Damage by negligence, misuse or accident
- Compatibility with equipment or systems of any particular telephone or data products company
- Modifications to the XT300 other than those made by GTE
- Damage to the product resulting from improper installation, environment, or operation
- Damage caused by unauthorized repair

GTE's sole obligation under this warranty shall be, at its option, to repair or to replace parts or the XT300 unit itself found to be defective, and return it to the customer freight prepaid.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THIS LIMITED WARRANTY SHALL BE PURCHASER'S EXCLUSIVE REMEDY AS AGAINST GTE AND UNDER NO CIRCUMSTANCES WILL GTE BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES EVEN IF GTE HAS BEEN ADVISED OF THE POSSIBILITIES OF SUCH DAMAGES.

Service

If you encounter problems in using your XT300, first make sure the power indicator light on the left of the keyboard is on.

Turn the AC power switch off for about five seconds and then back on again. This initiates the power-up self-test and resets a variety of functions to their normal operating condition.

If the problem still exists, make sure that the XT300 is installed and operated in accordance with the instructions in this manual.

Attempt to locate the problem in the network or host computer, the XT300, other equipment you may have connected to the XT300, or the interconnecting cables.

To isolate the problem, you can try to call other networks or host computers, substituting other equipment or cables until the problem area is identified.

If trouble is experienced on the telephone line, disconnect the XT300 to determine if it is causing the malfunction. If it is, do not reconnect it until the problem has been corrected.

Caution:

Do not attempt to repair the XT300. If it is found to be defective, obtain service from GTE or an authorized agent of GTE.

To make inquiries or to determine if your XT300 requires service, call

800-257-7778


800-572-2030 in VA

When calling, please be sure to identify yourself as an XT300 user.

Powering up the XT300


When the indicator light on the left front of the unit is lit, AC power is on.



Status line or soft-key labels on the screen indicate screen is on.




If unit has power, but screen is off, depress any key on the main keyboard or the repertory key. 



Standard calls can be made by using the handset when AC power has been lost.




Modes of operation

Standard handset calls Use the 

Group listening calls Use the  and depress 









- To go to standard handset mode, depress 
- To go to handsfree speakerphone mode, return  to cradle
- To hang up, return  to cradle and depress the active line key

Handsfree speakerphone calls Depress  or 





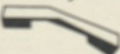







- To go to standard handset mode, pick up 
- To go to group listening mode, pick up  and depress 
- To hang up, depress the active line key

Dialing











Manual dialing

- Pick up  and dial on keypad
To correct an error, depress  or  twice and start over
- To predial, enter number and then depress  or 
To correct an error, depress  or depress  or  twice, and start over





Automatic dialing

- Depress , predial by entering , then depress  or , or pick up 
or
- Depress  or , or pick up , then enter 
To correct an error when predialing, enter the correct 
To correct an error when on-line, depress  or  twice


Two step dialing

- Depress  or  then  and  or
- Dial prefix from keypad then depress  or , then  or
- Depress  or , dial prefix from keypad, then 



Flash

- Depress , then dial the code (and phone number) from the keypad; or program the PABX code in the repertory and select  or , then type PABX code 

Redialing

Use 

New call connection

Depress  or  twice

Using the telephone

Programming

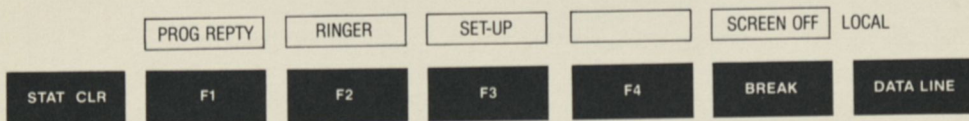
Data communications

Set-up

Control codes and escape sequences

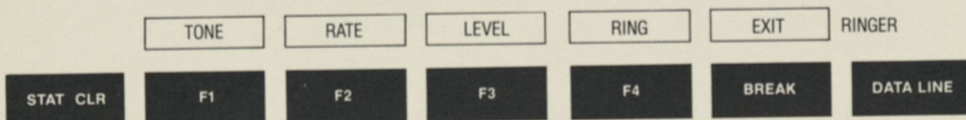
Programming

All programming begins from the LOCAL mode where the soft-key labels are:



Each soft key function is activated when the key directly below it is depressed.

Programming the ringer ■ Depress and the soft-key labels change to:

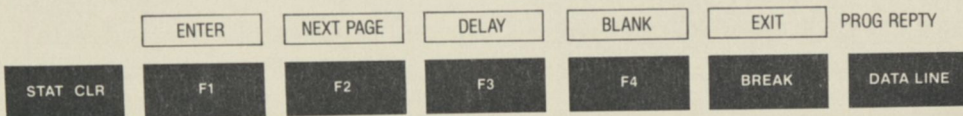


- Depress to hear sound, then choose desired , , and
- Depress to return to LOCAL mode

Programming names and telephone numbers

Type all IDs, names, and telephone numbers from the main keyboard, not the keypad.

- Depress for PAGE 1, for PAGE 2
- The soft-key labels change to:



- Type selected
- Type name in name field
- Space to telephone field
- Type in telephone number
- If a second dial tone is required, depress
(~ appears on the screen)
- To correct an error: hold down and depress for each backspace
- To enter the information: depress
- To modify: select the , type the correct information, depress
- To delete: select the , type nothing, depress
- If you select an by mistake: depress and start over

Programming PABX codes

- PABX codes can be programmed in any of the name and telephone number fields. For example:

ID	NAME	TELEPHONE NUMBER
----	------------	------------------------

65 CALL FORWARD \ ~ # * 6 (plus phone number, if required)

Programming during voice/data connections

- Depress to enter LOCAL mode, then depress the appropriate soft-key function
- Depress again to return to ON-LINE mode

Programming

Data communications

Set-up

Control codes and escape sequences

From LOCAL mode, depress **PROG REPT**, then **NEXT PAGE** to display fields discussed below.

Programming automatic sign-ons

Example below shows sign-on to GTE's Telemail for user J. Jones:

ID	SERVICE	TELEPHONE NO. . . .	SIGN-ON SEQUENCE
55	TELEMAIL	9~9653622	CRCR = 'D1CR '@MAILCR'?J.JONESCR'?[]CR'?

Your keyboard entry	The screen displays
RETURN RETURN	CRCR
DELAY = DELAY	'='
D 1 RETURN	D1CR
DELAY @ DELAY	'@'
M A I L RETURN	MAILCR
DELAY ? DELAY	'?
Type the user name RETURN	J.JONESCR
DELAY ? DELAY	'?
BLANK type the password,	[
BLANK again and RETURN	]CR
DELAY ? DELAY	'?

ENTER to enter it in memory, or **EXIT** to start this entry over. **EXIT** to return to LOCAL mode or select another **ID**

Programming function keys

- To select a programmable function key **ID**, depress either D, S, or C for Direct, Shift or Control, respectively, and then 1, 2, 3, or 4, all from the main keyboard
- Enter the desired character string into the field

Data communications

Manual sign-on/off over the telephone network

- Be sure host computer protocol choices are correctly SET-UP on PAGE 3
- Depress **DATA LINE**, and dial host computer number on the keypad
- Conduct manual sign-on dialog from main keyboard
- Sign-off as required by your data service
- Depress **DATA LINE** to disconnect from the telephone line

Automatic sign-on/off over the telephone network

- Either depress **REPLY** twice, select **ID**, and depress **DATA LINE**; **or** depress **DATA LINE** and select **ID**
- If the data connection is not established, depress **RE DIAL**
- Sign-off as required by your data service
- Depress **DATA LINE**

Sign-on/off through the main port

- Hold down **SHIFT** and depress **DATA LINE**
- Sign-on using manual or automatic procedure from the function keys
- Sign-off as required by your data service
- Hold down **SHIFT** and depress **DATA LINE**

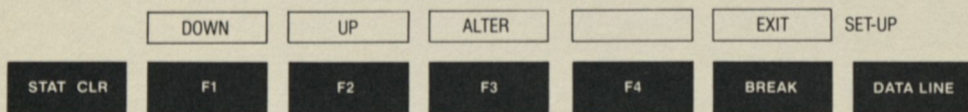
Data communications

Set-up

Control codes and escape sequences

Programming SET-UP on PAGE 3

- From LOCAL mode, depress . The soft-key labels will look like this:



- or moves the cursor
- changes the existing choice
- returns to LOCAL mode
- Choose the appropriate User preference options:

DIALING	Choose the option that matches your telephone system.
AUTO DISCON.	Automatically disconnects from a network after 10 minutes.
AUTO STOP	Stops data reception when screen is full; press <input type="button" value="START STOP"/> for next screen.
RING MUTE	Turns off line one ringer sound when you are on line two.
BEEP TONES	Suppresses all beep tones.
SIGN-ON BLANK	Blanks out sign-on dialog that normally appears on the screen.
BAUD-RATE	Controls communication speed of the MAIN PORT.

SET-UP for host computer protocols

- Make keyboard selectable either/or choices to store the parameters for echo (duplex), screen size, automatic line feed, and parity for the host computers you program into IDs 50-57.
- The lower left section of PAGE 3 is used for the protocols for manual sign-ons, automatic sign-ons for IDs 54-57 and the MAIN port, where choices must all be the same.
- The right side of PAGE 3 is used for the host computer protocols for automatic sign-ons for IDs 50-53, where the choices can be different for each one.
- Contact your data service representative to ascertain appropriate host choices, the telephone number, your user ID and password.

80 or 40 column screen format

The three alternatives are:

	80 Columns	40 Columns
Escape sequence received from the host, keyboard, or function key	ESC[<1l	ESC[<1h
Program PAGE 3 for automatic screen format during sign-on	80	40
Local control of the screen format	CTRL 3	CTRL 4

Highlighting attributes

Blinking	ESC[5m	To combine attributes, separate with a ; and use one m (e.g., ESC[7;5m)
Underlining	ESC[4m	
Reversed Video	ESC[7m	
Half Intensity	ESC[2m	
Attribute Off	ESC[m	

Repeat attribute feature

ESC[Pnb (Pn is the number
of times the last character
entered is repeated.)

Contiguous and separated mosaics

For graphics, hold down **CTRL**, depress **N**
To return to normal character entry, hold down **CTRL**,
depress **O**
Separated mosaics ESC)1
Contiguous mosaics ESC)0

AUXILIARY port control

Port ON, either ESC[5i or hold down **CTRL**, depress **g**
Port OFF, either ESC[4i or hold down **CTRL**, depress **0**

Clear screen functions

From cursor to end of screen ESC[J

Entire screen ESC[2J

Cursor control

Cursor movement	Separate key	Keyboard entry	Escape sequences
UP		CTRL K	ESC[PnA
DOWN		CTRL J	ESC[PnB
RIGHT		CTRL L	ESC[PnC
LEFT	BS	CTRL H	ESC[PnD
Position by line (PL) and column (Pc)			ESC[PL;PcH
To the beginning of line (PL)			ESC[PLH
To the top of column (Pc)			ESC[;PcH
Home position line one, column one			ESC[H
Host request for cursor position			ESC[6n
Report position to the host			ESC[PL;PcR

Note:

Pn = Number of character positions

PL = Line number

Pc = Column number

If no number is given for Pn, the cursor moves by one position.

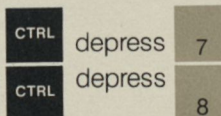
Control codes

Key	Mnemonic	Key	Mnemonic	Key	Mnemonic
@	NUL	K	VT*	V	SYN
A	SOH	L	FF*	W	ETB
B	STX	M	CR*	X	CAN*
C	ETX	N	SO*	Y	EM
D	EOT	O	SI*	Z	SUB
E	ENQ	P	DLE	[	ESC*
F	ACK	Q	DC1	\	FS
G	BEL*	R	DC2	]	GS
H	BS*	S	DC3	^	RS
I	HT	T	DC4	-	US
J	LF*	U	NAK		

*XT300 takes action with these commands.

Character representation mode

Enter, hold down



Return, hold down

The G1 graphics character set

column

2

3

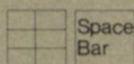
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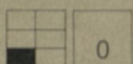
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row

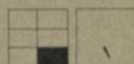
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Space
Bar



0

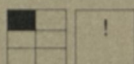


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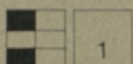


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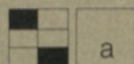
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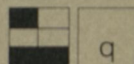
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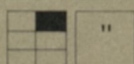


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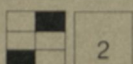


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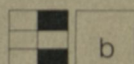
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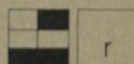
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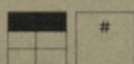


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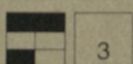


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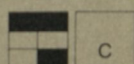
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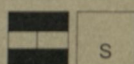
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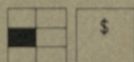


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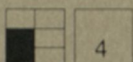


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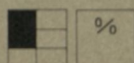


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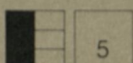


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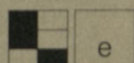
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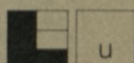
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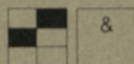


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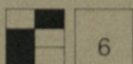


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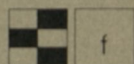
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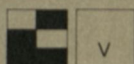
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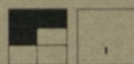


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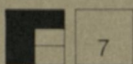


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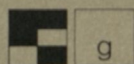
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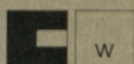
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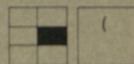


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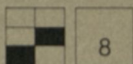


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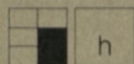
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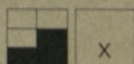
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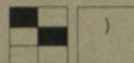


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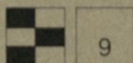


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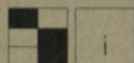
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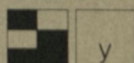
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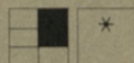


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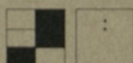


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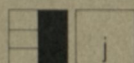
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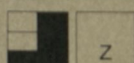
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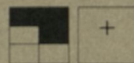


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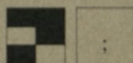


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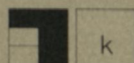
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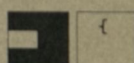
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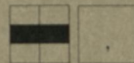


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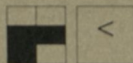


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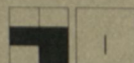
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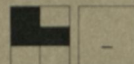


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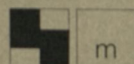
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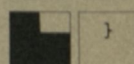
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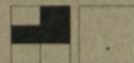


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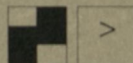


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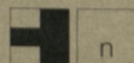
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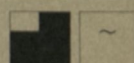
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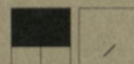


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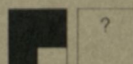


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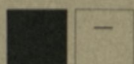
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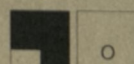
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