

HP 2392A User's Manual Supplement

Model Number
**2392A
DISPLAY TERMINAL**

Manual
USER's MANUAL

2392A DISPLAY TERMINAL OPTION 049 ANSI X3.64 OPERATION

This manual supplement contains the information necessary to use the HP 2392A Display Terminal's Option 049—ANSI X3.64 Operation. Option 049 features are in addition to the standard features of the HP 2392A Terminal described in the User's Manual. The HP 2392A Reference Manual and Supplement contain detailed programming information for both HP and ANSI operations.

The term "ANSI" appearing here in no way implies endorsement of this product by the American National Standards Institute. "ANSI" refers specifically to Institute's X3.64 1979 Standard, which defines a set of terminal control sequences known as the ANSI STANDARD. Option 049 implements control sequences from the ANSI STANDARD used by DEC® terminals. Certain DEC private control codes are also implemented. This allows the HP2392A to run most applications written for the VT100® and VT52® terminals.

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ANSI Operation SECTION 7

INTRODUCTION

Option 049 provides features that enable the HP 2392A Display Terminal to use standard software application programs on DEC® computer systems.

When equipped with Option 049, the 2392A terminal has three operating modes:

- 1) HP Mode — the terminal functions as described in the HP 2392A User's Manual
- 2) ANSI Mode — the terminal functions like a DEC VT100® terminal when using software on a DEC computer system written specifically for the VT100
- 3) EM52 Mode — the terminal operates like a DEC VT52® terminal when using software on a DEC system written for the VT52

This manual supplement describes how to use the 2392A terminal in ANSI and EM52 Modes, emphasizing the functional differences between the two new modes and HP Mode operation.

The following sections tell how to select operating modes, how to configure the terminal for ANSI and EM52 Mode operations, and how these modes affect keyboard functions and other terminal characteristics.

HOW TO SELECT OPERATING MODES

You can select the terminal's operating mode:

- via the TermMode setting in the Terminal Configuration Menu
- using keyboard-entered escape sequences
- by commands issued from a host computer program

NOTE: The instructions in the following sections refer to several sets of function keys and their associated screen labels. Figure 7-6 at the end of this supplement illustrates the label sets used. Refer to the User's Manual for more information on function key operations.

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Using The Terminal Configuration Menu

The primary method for selecting operating mode—and the only one that saves the selected mode in nonvolatile memory—is via the TermMode setting in the Terminal Configuration Menu.

To display the Terminal Configuration Menu:

- Press the [User System] key to display the SYSTEM labels
- Press [f8] <config keys> to display the main configuration labels
- Press [f5] <terminal config> to display the Terminal Configuration Menu

The Terminal Configuration Menu appears on the screen as shown in Figure 7-1.

TERMINAL CONFIGURATION							
Datacomm/ExtDev	PORT1/PORT2		Keyboard	USASCII			
TerminalId	2392A		Language	ENGLISH			
LocalEcho	OFF	CapsLock	OFF	Start Col	01	Bell	ON
XmitFunctn (A)	NO	SPOW (B)	NO	InhEolWrp (C)	NO	Line/Page (D)	LINE
InhHndShk (G)	NO	Inh DC2 (H)	NO	EscXfer (N)	NO		
FldSeparator	␣	BlkTerminator	␣	ReturnDef	␣	TermMode	HP

SAVE CONFIG	NEXT CHOICE	PREVIOUS CHOICE	DEFAULT VALUES			DISPLAY FUNCTNS	config keys

Figure 7-1. Terminal Configuration Menu with default settings (bottom row shows labels for function keys used in making menu selections)

To select the desired operating mode—HP, ANSI or EM52:

- Using the [Tab] or cursor control keys, position the cursor at the TermMode field (the lower right-hand corner of the menu)
- Press [f2] <NEXT CHOICE> or [f3] <PREVIOUS CHOICE> until the desired TermMode setting is displayed
- Press [f1] <SAVE CONFIG> to enter the selected operating mode. This step also saves the selection in non-volatile memory—so the terminal always powers on in the mode selected—and returns the SYSTEM labels to the screen.

When the operating mode is changed from HP to ANSI, or from ANSI to HP, display memory is cleared. This leaves the screen blank except for function key labels and status indicators. The cursor moves to the upper left-hand corner of the screen.

NOTE: You may need to make other selections in the Terminal Configuration Menu as required by your application. Ask the Data Processing Manager at your site to assist you in determining the proper settings. Consult the User's Manual for more information about using the Terminal Configuration Menu.

Using Keyboard-Entered Escape Sequences

You can TEMPORARILY change the terminal's operating mode by typing the appropriate escape sequence from the keyboard. The escape sequences that change operating modes are listed in Table 1. These sequences alter the TermMode setting in the Terminal Configuration Menu JUST FOR THE CURRENT SESSION. When you perform a hard reset or turn the terminal off and back on, the operating mode reverts to the previously saved setting.

If your application requires frequent mode changes, you may want to define the terminal's User Keys with the escape sequences that change operating modes (Table 1). This method allows you to change modes by pressing a single key. Consult the User's Manual for instructions on defining and using the User Function Keys.

ACTION	ESCAPE SEQUENCE
HP to ANSI Mode	$\text{E}_C \& k 1 \backslash$
ANSI to HP Mode	$\text{E}_C \& k 0 \backslash$
EM52 to ANSI	$\text{E}_C \& <$
ANSI to EM52	$\text{E}_C \& [? 2 $

Table 7-1. Escape Sequences Used to Change Modes

Selecting Operating Mode Programmatically

You can also change operating mode via commands issued from a host computer program. The escape sequences used to change modes are listed in Table 1. Consult the Reference Manual for complete information on programming the terminal.

CONFIGURING THE TERMINAL FOR ANSI OPERATIONS

Before using the terminal in ANSI or EM52 Mode, you must make certain configuration settings. Some of these settings allow the terminal to talk to the host computer; other settings allow application programs to run properly on the terminal.

Make the appropriate selections following the instructions in this section.

Using The ANSI Configuration Menu

Option 049 provides the terminal with an additional menu—the ANSI Configuration Menu. This new menu allows you to make several settings to tailor the terminal for specific application programs running on a standard DEC computer system.

To display the ANSI Configuration Menu:

- Ensure that the terminal is currently operating in ANSI or EM52 Mode (“ANSI” or “EM52” appears in the status line)
- Press the [User System] key to display the SYSTEM labels
- Press [f8] <config keys> to display the main configuration labels
- Press [f6] <ansi config> to display the ANSI Configuration Menu as shown in Figure 7-2. Settings made in this menu apply to both ANSI and EM52 Mode operations. Note that the <ansi config> label appears only when the terminal is in ANSI or EM52 Mode

ANSI CONFIGURATION									
MultiPage	YES	BackspaceDef (Unshft/shft)	Backspace/Del						
Answerback Message									
T	T	T	T	T	T	T	T	T	T
12345678901234567890123456789012345678901234567890123456789012345678901234567890									
SAVE CONFIG	NEXT CHOICE	PREVIOUS CHOICE	DEFAULT VALUES	ANSWER BACK	CLR ALL TABS	DISPLAY FUNCTNS	config keys		

Figure 7-2. ANSI Configuration Menu shown with default settings (bottom row shows labels that apply to the function keys used in making menu selections)

As in other menus, use functions keys [f1] through [f8] when making menu selections. Table 2 describes the operation of the function keys while the ANSI Configuration Menu is displayed.

LABEL	FUNCTION (ANSI MENU CONTROL KEYS)
<SAVE CONFIG >	Saves the displayed configuration parameters in the non-volatile memory, and returns terminal to normal operations with SYSTEM labels.
<NEXT CHOICE >	When the cursor is in the "MultiPage" or "Backspace def" field or "Tab stop" line, the <NEXT CHOICE > and <PREVIOUS CHOICE > keys scroll forward/backward through the pre-set list of values.
<PREVIOUS CHOICE >	
<DEFAULT VALUES >	Set all displayed parameter fields to their pre-set default values (regardless of the cursor position), and moves cursor to the first parameter. The Answerback Message is only reset (to no message) when the Answerback field is displayed.
<ANSWER BACK >	Toggles ON/OFF "Answerback Message" field. When ON, it allows you to enter data in the field. Note that a configured Answerback message cannot be recalled from non-volatile memory.
<CLR ALL TABS >	Clear all the tab stops in menu (in all columns except implicit tab at left margin).
<DISPLAY FUNCTNS* >	When cursor is in a "Answerback Message" field, allows control characters to be entered and displayed symbolically in field.
<config keys >	Terminates the configuration mode without saving the entered values, and returns the terminal to normal operations with main configuration labels displayed.

Table 7-2. Function Key Operations For ANSI Menu

To make a selection in the ANSI Configuration Menu:

- Using the [Tab] or cursor control keys, position the cursor in the desired field of the menu
- Press [f2] <NEXT CHOICE> or [f3] <PREVIOUS CHOICE> to display the desired setting
- Use other function keys as needed to define each field appropriately
- When you are finished making selections in the ANSI Configuration Menu, press [f1] <SAVE CONFIG> to store the settings in non-volatile memory and re-display the SYSTEM labels

The ANSI Configuration Menu allows you to define the following four fields:

- 1) MultiPage — specifies the amount of display memory available in the terminal. Changing the MultiPage setting clears the contents of display memory. This blanks the screen and positions the cursor in the upper left-hand corner of the screen when you exit the menu.

When MultiPage is set to "NO", subsequent applications use a single page of memory (24 lines) for all operations. This setting should be used when running host computer programs designed for ANSI terminals with a single page of memory. Ask your Data Processing Manager for assistance in determining whether your application is meant for a terminal with only one page of display memory). If single-page operation is selected, the [Next], [Prev], [Shift] [▲] (ROLL UP) and [Shift] [▼] (ROLL DOWN) keys are disabled.

When MultiPage is set to "YES", all available memory (up to 4 pages on the standard 2392A terminal) is used in subsequent program operations.

- 2) BackspaceDef(Unshft/shft) — defines the function of the **[Back space]** key for use in DEC software applications. Normally the **[Back space]** key simply moves the cursor backward a character at a time. Some programs, however require this key to be a DELETE key that deletes a character as it backspaces.

When set to DEL/BACKSPACE, the **[Back space]** key functions as a DELETE key when pressed by itself, and as a normal BACKSPACE key when pressed simultaneously with the **[Shift]** key.

When set to BACKSPACE/DEL, the **[Back space]** functions as a normal BACKSPACE key when pressed by itself, and as a DELETE key when pressed with the **[Shift]** key.

- 3) Ansback Message — allows you to define an “answerback message”. Some ANSI applications require such a message in response to a host computer enquiry (ENQ).

The Ansback field does not appear unless **[f5] <ANSWERBACK>** is pressed first. Once the field is displayed, you can enter the answerback message you need (up to 40 characters long). Pressing **[f7] <DISPLAY FUNCTIONS>** lets you enter control characters into the answerback message, where they are displayed as the appropriate symbols. Note that your definition is not redisplayed when you re-enter the menu. When you press **[f5] <ANSWERBACK>** upon re-entering the menu, a blank field is displayed, allowing you to define and save a new message.

- 4) Tab — allows you to set tab stops for subsequent use in in ANSI and EM52 operations.

To set a tab stop, use the cursor control keys to position the cursor in the desired column on the tab stop indicator line (bottom of menu). Press **[f2] <NEXT CHOICE>** or **[f3] <PREVIOUS CHOICE>** to toggle a tab stop on and off. A “T” on the tab stop indicator line shows an active tab stop. Press **[f6] <CLEAR ALL TABS>** to clear all tabs.

Making Additional Terminal Settings

To use the terminal in ANSI or EM52 Mode, you must also configure the terminal data communication parameters to conform with those of the host system being used. You must set the terminal to Remote Mode operation as well.

Datacomm Configuration

To display the Datacomm Configuration Menu:

- Press the **[User System]** key to display the SYSTEM labels
- Press **[f8] <config keys>** to display the main configuration labels.
- Press **[f3] <datacomm config>** to display the Datacomm Configuration Menu as shown in Figure 3.

DATACOMM CONFIGURATION							
BaudRate	<input type="text" value="2400"/>	Parity/DataBits	<input type="text" value="None/8"/>			EnqAck	<input type="text" value="YES"/>
Asterisk	<input type="text" value="OFF"/>	Chk Parity	<input type="text" value="NO"/>	SR (CH)	<input type="text" value="LO"/>		
RecvPace	<input type="text" value="None"/>					CS (CB) Xmit	<input type="text" value="NO"/>
XmitPace	<input type="text" value="None"/>						
<input type="button" value="SAVE CONFIG"/>	<input type="button" value="NEXT CHOICE"/>	<input type="button" value="PREVIOUS CHOICE"/>	<input type="button" value="DEFAULT VALUES"/>	<input type="button" value=""/>	<input type="button" value=""/>	<input type="button" value="DISPLAY FUNCTNS"/>	<input type="button" value="config keys"/>

Figure 7-3. Datacomm Configuration menu with default settings (bottom row shows function key labels)

To make a selection in the Datacomm Configuration Menu:

- Use the [Tab] key or cursor control keys to position the cursor at a desired field
- Press [f2] <NEXT CHOICE> or [f3] <PREVIOUS CHOICE> to display the desired setting
- Press [f1] <SAVE CONFIG> to save the settings in non-volatile memory and re-display the SYSTEM labels

See the User Manual for complete descriptions of the selections available in the Datacomm Configuration Menu. Your Data Processing manager can assist you in determining the exact settings required by the host computer system.

Selecting Remote Mode

For ANSI or EM52 Mode operations, set the terminal to Remote Mode:

- Press the [User System] key to display the SYSTEM labels
- Press [f4] <modes> to display the MODES labels
- Press [f4] <REMOTE MODE> to activate Remote Mode. An asterisk appears in the label when it is active (<REMOTE MODE*>).

The terminal is now ready for online operations. Refer to the User's Manual for a complete description of MODES function keys.

NOTE: In ANSI and EM52 Modes, the terminal is automatically set for Character Mode operation. Therefore, when the MODES labels are displayed, no asterisk appears in the <BLOCK MODE> label and [f3] is functionally disabled. Ensure that the <AUTO LF> label has no asterisk in it when running programs that require disabling automatic line feed.

STATUS LINE INDICATORS

ANSI and EM52 Mode operations add special indicators to the terminal's status line. The following section describes the functions of the new indicators. See the User's Manual for information about all other displayable status line indicators.

ANSI Mode Indicators

In ANSI Mode, the terminal mode indicator "ANSI" appears in the status line. This shows that the terminal is currently operating in ANSI Mode.

The Status Line can also display up to four additional symbols in ANSI Mode—L1, L2, L3, or L4—which are activated by a program running on the host computer. These four symbols are provided to simulate the four LED indicators on a VT100 keyboard, allowing applications utilizing these LED indicators to run without modification on the HP 2392A. The meaning of symbols L1 through L4 depends on the program used.

EM52 Mode Indicator

In EM52 Mode, the Status Line displays the indicator "EM52" to inform you that the terminal is operating in EM52 Mode.

KEYBOARD OPERATION IN ANSI AND EM52 MODES

The functions of several keys are changed when the terminal is operating in ANSI or EM52 Mode. Figure 7-4 shows the keys whose functions are changed.

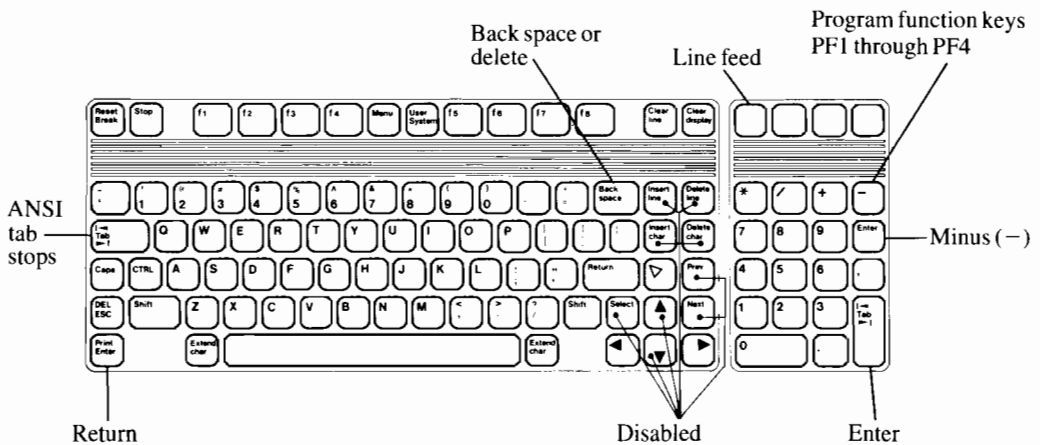


Figure 7-4. Keys Altered in ANSI and EM52 Modes Numeric Keypad

Numeric Keypad

A numeric keypad overlay (HP part number 5180-6303) is supplied with Option 049. The overlay, illustrated in Figure 7-5, indicates the new functions of the numeric pad keys in ANSI and EM52 Modes. For your convenience, mount the overlay on the numeric keypad for ANSI and EM52 operations.

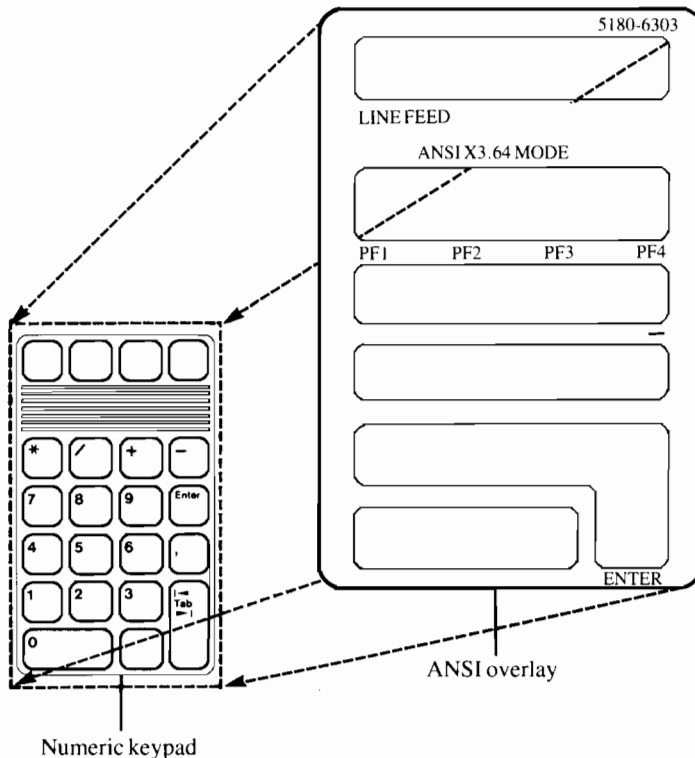


Figure 7-5. ANSI Numeric Keypad Overlay

The keys on the numeric keypad with new functions include:

- 1) The unmarked key directly above the [*] key. This key functions as the Linefeed key.
- 2) The keys [*], [/], [+], and [-]. These keys act as program function keys [PF1], [PF2], [PF3] and [PF4], whose functions vary with the application program being used.
- 3) The [Enter] key. This key becomes the [-] key in ANSI and EM52 Modes.
- 4) The [Tab] key. This numeric pad key becomes the [Enter] key, operating like the [Return] key does in normal HP Mode operation.

In addition, the numeric keys on the keypad can be set by a host computer program to perform special functions. These functions vary with the program being used; their meanings are defined and explained by the software controlling them.

Alphanumeric Keys

Certain keys on the alphanumeric or “typewriter” portion of the keyboard are affected by ANSI and EM52 operation. These keys, illustrated in Figure 7-4, include the following:

- 1) The **[Tab]** key. Pressing the **[Tab]** key while in ANSI or EM52 Mode moves the cursor to the tab position set in the ANSI Configuration Menu.
- 2) The **[Back space]** key. This key functions as a normal backspace or as a delete key (see the ANSI Configuration Menu section for a description of how to configure and use the **[Back space]** key).
- 3) The **[Insert line]**, **[Delete line]**, **[Insert char]** and **[Delete char]** keys. These keys are disabled during ANSI or EM52 Mode operation (they are available for use when making selections in the ANSI Configuration Menu).
- 4) The **[Select]** key is disabled in ANSI and EM52 Modes.
- 5) The **[Enter]** key, located on the lower left portion of the keyboard, duplicates the operation of the **[Return]** key. When in ANSI or EM52 Mode, you may press either **[Enter]** or **[RETURN]** for a carriage return.
- 6) The **[Next]**, **[Prev]**, **[Shift] [▲]** (ROLL UP) and **[Shift] [▼]** (ROLL DOWN) keys are disabled when the terminal is set for single-page operations (see the “CONFIGURING THE TERMINAL FOR ANSI OPERATIONS” section).

In addition, the following function keys are affected in ANSI and EM52 Mode operations:

- The **<Right Margin>**, **<Left Margin>** and **<Clear All Margins>** functions keys are disabled.
- The **<Block Mode>** key is disabled and the terminal is always forced into Character Mode.

Finally, the following two key sequences are added to the terminal’s operating features:

- Press the **[CTRL]** and **[Break]** keys simultaneously to transmit the user-configured Answerback Message to the host computer system. See “Using the ANSI Configuration Menu” for further information.
- Press the **[CTRL]** and **[Stop]** keys simultaneously to transmit a 3.5 second BREAK to the host computer.

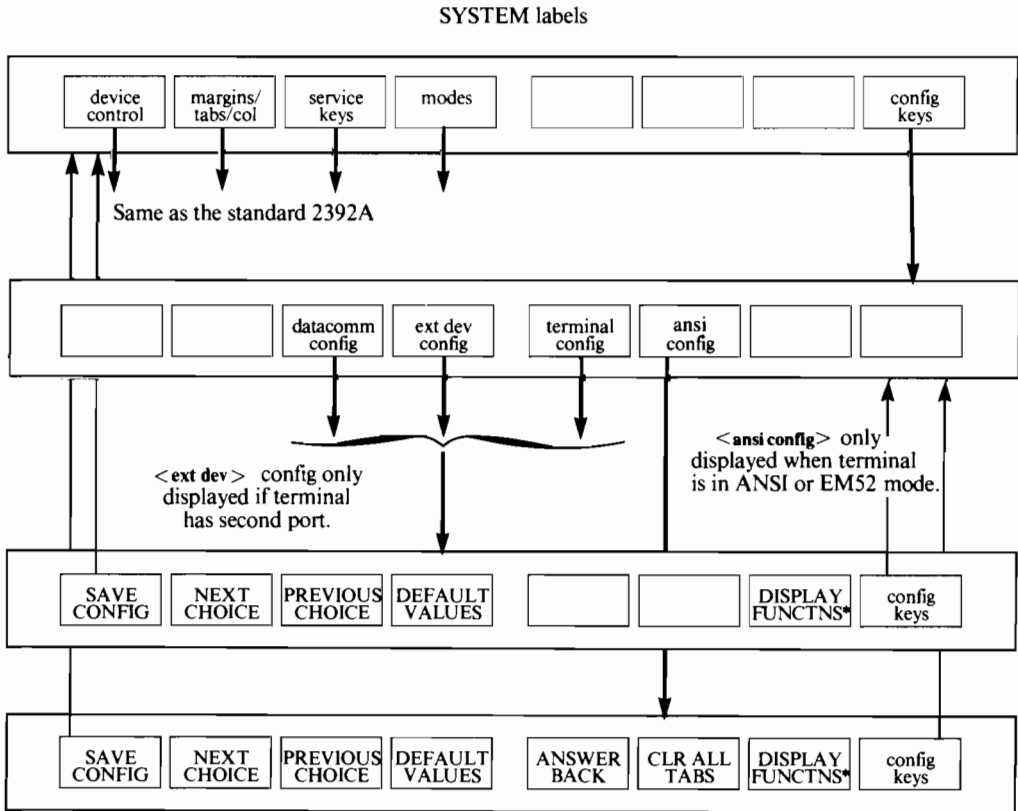


Figure 7-6. ANSI Operation Screen Labels Tree



