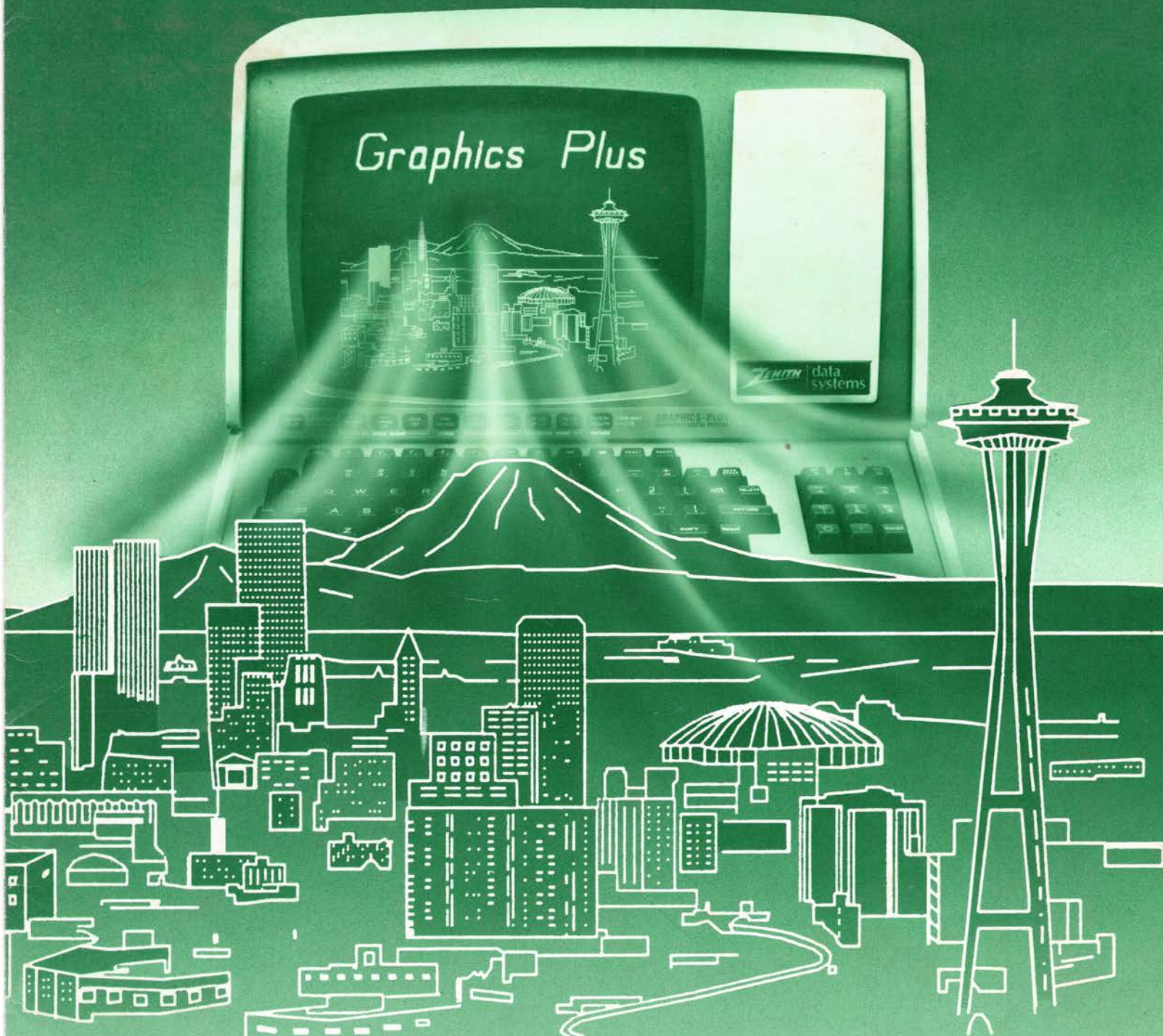


GRAPHICS-PLUS

Enhancement Board for Z19 Terminals



Add powerful new functions to your Z19

- Four text modes • Two graphics modes • Transparent mode
- Set-Up mode • And much more.

POWERFUL TEXT FEATURES

Four Text Modes

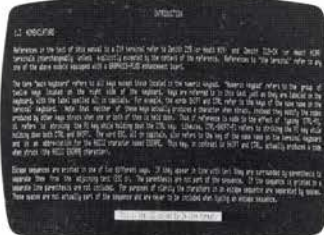
The GRAPHICS-PLUS enhancement board dramatically and cost effectively increases the capability of the popular Zenith Z19 terminal. To now fulfill a wider range of applications, at the touch of a key you can choose among four screen formats: 132 columns and 80 columns with either 24 or 49 lines. And this improved format flexibility does not alter normal operation of your Z19. GRAPHICS-PLUS simply adds functions and features. You still retain complete screen control to insert and delete by character or entire line, or entire page.



This is the 80 column by 49 line format.



This is the 132 column by 49 line format.



This is the 132 column by 24 line format.

DEC Compatibility

An important feature for DEC based installations, GRAPHICS-PLUS allows your Z19 to emulate the DEC VT52 terminal and most of the features of the DEC VT100. Also, it supports operation of the DEC EDT screen editor in both 80 and 132 column modes. GRAPHICS-PLUS provides both Z19 and VT100 character sets.

Off-Screen Memory

An exciting bonus feature of GRAPHICS-PLUS is seven pages (16,000 characters) of scrolling off-screen memory. No more "lost" data when text scrolls off the screen. Instead, simple keyboard commands let you easily scroll forward or backward to retrieve data you have "put aside" in memory. Scroll a line at a time or a page at a time. There's more. You can freeze any portion of the screen and scroll the remaining portion. This definable scrolling region feature operates in all four text formats.

Screen Reverse

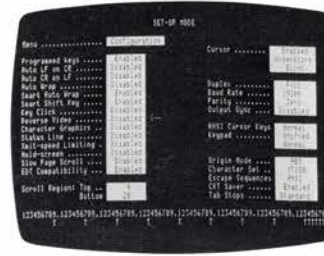
For editing purposes, a fresh look, or to see how a printout would appear, the screen display can be easily reversed (dark text on a light field) via a local function key.

EASY TO USE MENU SET-UP

"Plain English" Set-Up

With GRAPHICS-PLUS, configuration of the Z19 to the desired operating mode is fast and easy. For example, switching from VT100 mode to Zenith mode and back again can be

done at any time from the keyboard. A menu of parameters is displayed on the screen and the operator simply selects via a key command the proper value for any parameter. Thus, awkward DIP switch settings or obscure escape sequences are eliminated. By using the local Set-Up mode, over 30 terminal characteristics can be easily configured.



16 Programmable Keys

For better program control or conformity to different software programs, GRAPHICS-PLUS lets you reprogram the Z19 function keys. (The original functions of the keys are not affected.) You can program up to 16 new functions. Each key can be programmed with up to 128 characters. The functions can be defined via the host computer or the Set-Up mode. Set-Up mode allows the user to enter, edit or display the programmed string for each function key.

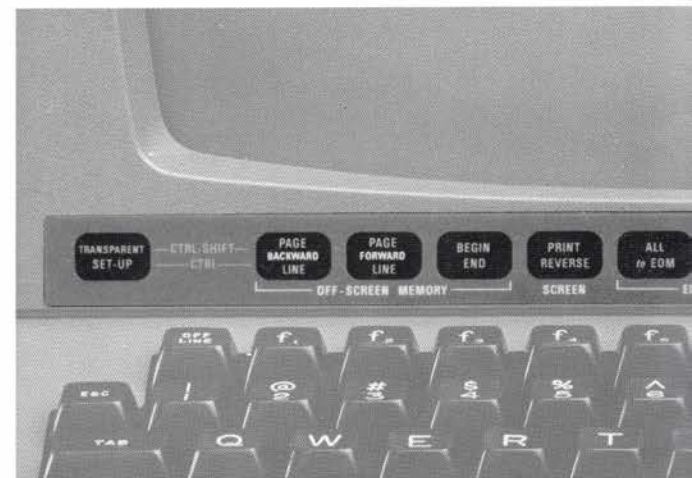
More Tab Stops

For enhanced format control, GRAPHICS-PLUS allows the operator to set tab stops at any column position. Normal Z19 fixed column tabbing can still be selected.

FULL GRAPHICS CAPABILITY

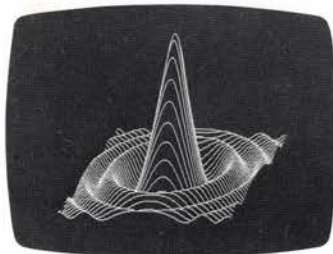
Tektronix Compatible

Now you can enjoy the advantages of an expensive Tektronix 4010 graphics display terminal for a fraction of the cost. With GRAPHICS-PLUS your Z19 emulates the 4010 (including Graphics Input mode) and becomes compatible with industry standard graphics software packages. Now your Z19



For operator convenience, a keyboard decal displays the additional functions that can be enabled with the standard function keys on the Z19 keyboard.

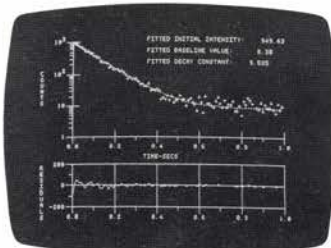
terminal can generate every imaginable image from business graphs and pie charts to 3-dimensional engineering drawings. In the Tektronix mode, three graphics states are offered: Alpha state for receipt of alphanumeric characters; Graph state that interprets vector end point coordinates for display; GIN (Graphics



INput) state that allows operator input of screen coordinates via a cross-hair cursor. All operations, such as changing display formats, changing graphics modes, going to text mode, or erasing the screen, can be accomplished with a single key stroke.

Additional Protocols

GRAPHICS-PLUS also supports extensions to the Tektronix protocol. You get **selective erase** whereby selected characters, dots or lines are removed from the screen without affecting the remainder of the screen content. Other features include area fill, area erase, white on black vectors and black on white vectors.



A separate "Easy-Entry" mode provides a decimal notation protocol for use with small computer systems not equipped with plotting software.

Graphics Scrolling

When the terminal is in either of the graphics modes, the display can be scrolled horizontally either left or right. Thus, you can use the Z19 to simulate a chart recorder or moving histogram.

High Resolution

GRAPHICS-PLUS delivers the same high quality, high resolution graphics output (512 horizontal by 250 vertical) as more expensive, dedicated graphics terminals.

ADDITIONAL ENHANCEMENTS

Transparent Mode

As a programming aid and operator convenience, GRAPHICS-PLUS offers a Transparent mode that displays characters not normally seen on the screen, such as escape code sequences and control characters. All received ASCII characters, including control characters, can be displayed for easy viewing.

Printer Port

A valuable option to GRAPHICS-PLUS is the Printer Port that allows a dot matrix printer to be interfaced directly to the Z19 to capture both graphics and text from the screen. In addition, all standard VT100 Printer Port capabilities are supported. Both serial and parallel interface boards are available for compatibility with the majority of popular dot matrix printers on the market.

CRT Saver

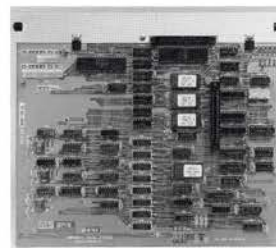
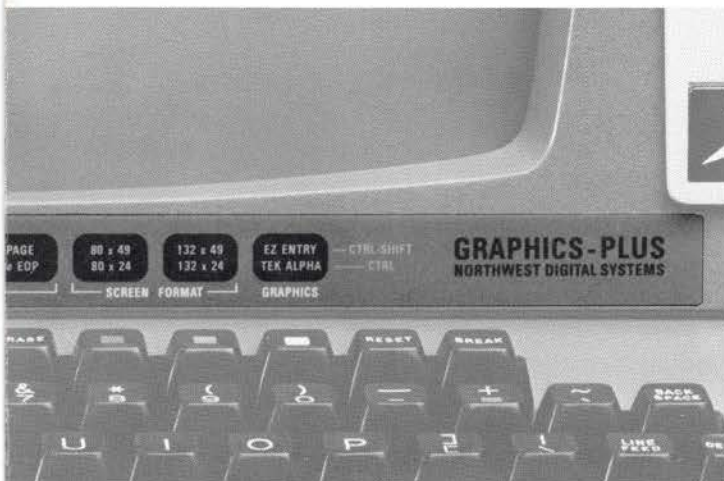
Another bonus feature with GRAPHICS-PLUS is a switch selectable screen time-out so images do not "burn in" on an unattended CRT. After ten minutes of inactivity the screen blanks.

Integral Diagnostics

For trouble free operation, GRAPHICS-PLUS has integral self diagnostics to check all ROMs, RAMs and the Z-80 processor.

Field Installable

Enhancement of the Z19 terminal with GRAPHICS-PLUS is fast and simple. Only a screwdriver is required and installation takes about 15 minutes. Each board is shipped with complete documentation which includes installation instructions, theory of operation, operators manual and schematics. GRAPHICS-PLUS has a 180-day parts and labor warranty.



SPECIFICATIONS

Physical

Size:

11" × 9.75" printed circuit card.

Installation:

Mounts in forward card position of terminal.

Power:

Consumes approx. 10 watts. Separate power supply provided for Z19-CN terminals.

Graphics

Format:

512 dots width × 250 dots height.

8.25" width × 6.5" height display area.

7 × 7 alpha character cell.

73 character × 35 line alpha format.

Performance:

Full length vectors can be continuously drawn at 1200 Baud.

25 ms longest vector drawing time.

Input buffering and XON/XOFF protocol support allows 9600 Baud operation.

96 ms maximum screen erase time.

Protocol Extensions:

Selective vector and character erase.

Area fill and area erase.

Easy-Entry decimal notation protocol.

Horizontal scrolling of selected region.

Text Mode

Display Formats:

80 column by 24 lines (plus 25th status line)

80 column by 49 lines (plus 50th status line)

132 column by 24 lines (plus 25th status line)

132 column by 49 lines (plus 50th status line)

Off-Screen Memory:

16,384 characters of scrolling display memory.

(203 lines in 80-column mode, 123 lines in

132-column mode.)

Local Function Keys

Scroll forward a page.

Scroll backward a page.

Scroll forward a line.

Scroll backward a line.

Go to beginning of display memory.

Go to end of display memory.

Erase all of memory.

Erase from current cursor position to end of display memory.

Erase the screen.

Erase from the current cursor position to the bottom of the screen.

Toggle reverse screen state.

Print screen contents.

Select 80 × 24 display format.

Select 80 × 49 display format.

Select 132 × 24 display format.

Select 132 × 49 display format.

Select Tektronix graphics mode.

Select Easy-Entry graphics mode.

Enter/Exit Set-up mode.

Enter/Exit Transparent mode.

General

Tab Stops:

Standard Z19 Tab stops (or)

User programmable at any column position.

Programmable Function Keys:

16 programmable keys.

128 characters maximum per key.

512 characters total for all keys.

Reverse Screen Capability:

Characters displayed dark against light background.

Buffering:

1024 character input buffer.

128 character output buffer.

XON/XOFF protocol supported for both.

ORDERING INFORMATION

GP-19 Upgrade for Z19, H19 or H19-HW terminals.

GP-19A Upgrade for Z19-HN or H19A terminals.

GP-19CN Upgrade for Z19-CN terminals.

GP-19T Z19 terminal with GP-19 installed.

GP-19-PP Printer port with parallel interface.

GP-19-PS Printer port with serial interface.

Educational and quantity discounts are available.

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