



DECUS

PROGRAM LIBRARY

DECUS NO.	8-203
TITLE	ALPHA
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SOURCE LANGUAGE	PAL

DECUS

RESEARCH CENTER



ALPHA

DECUS Program Library Write-up

DECUS No. 8-203

OPERATING INSTRUCTIONS

1. Load binary tape in the usual manner.
2. Set RSW to 0200.
3. Press "START".
4. Select the writing direction. Set RSW bits 10 and 11:

Full page Y direction	10
Half page X direction	01
Full page X direction	00
Half page Y direction	00
5. Strike W on TTY to start the program. When an 8K memory is available and the program "PLOT", (DECUS No. 8-202) is in Field 1, striking P will start the computer in "PLOT". When striking P the computer will go to Field 1, location 200, for the calculation of the regression line, the point plot and the regression line plot. When bit 0 in the RSW is up, the computer will automatically write the x and y axis notations. When bit 0 is down, the computer will go back to the Alphanumeric program and wait for further action by the operator.
6. Type on TTY the required text according to the following instructions:
 - a. When upper case letters and large digits are required, they are typed in the normal manner.
 - b. Lower case letters and small digits should be typed by first striking ALTMODE and then the letter or digit. The ALTMODE must precede every lower case letter or small digit.
 - c. Space and carriage-return will be accepted and should be typed without ALTMODE regardless of letter size. More than one space or carriage-return will be accepted.
 - d. The RUBOUT key will delete as many characters as the number of times the key is struck.
 - e. A subscript can be plotted by typing LINEFEED followed by the subscript. Holding down the SHIFT and striking N will return the plotter to the normal writing line.
 - f. A superscript can be plotted by holding down the SHIFT and striking N followed by the superscript. LINEFEED will bring the plotter back to the normal writing position.
 - g. The option of subscript and superscript will allow the user to write a line of text below or above the normal writing line if that is desired.
7. Special characters that can be plotted are listed on the next page. When SHIFT is indicated, this key should be held down while striking the accompanying key.



		Key
.	decimal point	.
,	comma	,
/	slash	/
=	equal	=
+	plus	+
-	minus	-
±	plus or minus	SHIFT 8
x	multiply	SHIFT 3
÷	divide	SHIFT 2
%	percent	SHIFT 4
'	prime	SHIFT 6
^	caret	SHIFT P
[left bracket ¹	SHIFT ,
]	right bracket ¹	SHIFT .
(left parenthesis	SHIFT K
)	right parenthesis	SHIFT L
μ	mu	SHIFT 5
ρ	rho	SHIFT 7
∫	integral ¹	SHIFT 1
Σ	sigma ¹	SHIFT 9

Note 1: These tall symbols may require double line spacing above and below the line in which they appear.

- a. The typed characters will be stored in the computer. After the last character is entered, strike *. This will start the plotter.
 - b. After all characters are plotted, the computer will wait for the next entries, again preceded by W.
8. The scales are plotted automatically when RSW bit 0 is up. To plot the scales yourself, put bit 0 down while the regression line is being drawn.
- a. Set RSW to 0200 and START. This step can be omitted when a previous set of characters are plotted and the computer is waiting for the next entries.
 - b. Full page: Set bits 10 and 11 in RSW down.
Set plotter pen in such a way that when it is down it hits point A in Figure 2.
Half page: Set bit 10 up and bit 11 down.
Set plotter pen in such a way that when it is down it hits point A in Figure 1.
 - c. Strike W on TTY.
 - d. First, hold down CTRL and strike S. Then type (in small size digits) all scale markers on the y-axis beginning with the one on the upper left of the page, each marker followed by a CTRL S. After all y scale markers are entered, proceed with the scale markers on the x-axis beginning with the one on the lower left hand side, each marker followed by a CTRL S. After the last marker is entered on the x-axis strike *. Example (see Figure 1):

Hold down CTRL and strike S.

Strike in this order: ALTMODE 2 . ALTMODE 1 ALTMODE 0

Hold down CTRL and strike S.

Strike in this order: ALTMODE 2 . ALTMODE 0 ALTMODE 0

Hold down CTRL and strike S, etc.

After last y-axis entry hold down CTRL and strike S; then continue with the x-axis entries:

Strike in this order: ALTMODE 1 ALTMODE 2 . ALTMODE 5

Hold down CTRL and strike S

Continue to last x-axis entry; then terminate the series with *. This will start the plotter operation.

9. After the * the plotter will first draw a line along the x-axis followed by a line on the y-axis and then plot all the scale numbers. Be sure to read the following paragraph carefully.

a. For a half page there should be 7 numbers on the y-axis and not more than 10 numbers on the x-axis.

b. For a full page there should be 10 numbers on the y-axis and not more than 15 numbers on the x-axis.

c. All numbers must consist of 3 small size digits and a decimal point. The spaces between the numbers on the y and x axes are set up for this format. Large size digits or less than 3 digits or omission of the decimal point will upset the spacings.

10. All entries can be punched on a paper tape and then fed into the computer. This allows the operator to check the plot on a piece of paper first before plotting the entries on the final graph. Mistakes can thus be corrected beforehand.

11. The size of the upper case letters and the large digits is determined by the contents of location 144. The size of the lower case letters and the small digits is determined by the contents of location 143. The user can change the size of the characters by changing the contents of these locations.

The program uses locations:

2, 10, 11, 12, 16, 17

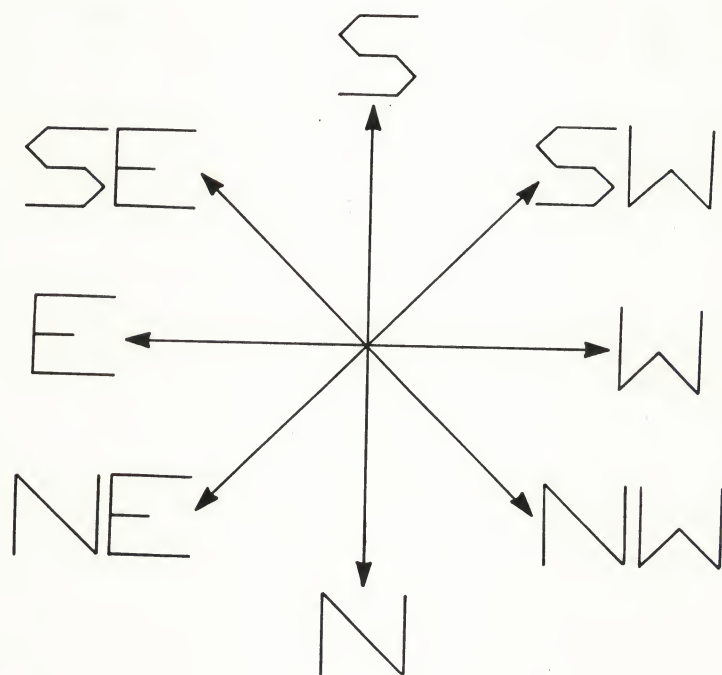
20 - 177

200 - 4374

Locations 4400 - 7700 are available for storage of the typed-in data. This allows for 1792 characters to be typed in at one time.

A B C D E F G H I
J K L M N O P Q R
S T U V W X Y Z

1 2 3 4 5 6 7 8
9 0



abcdefghijklmnopqr

stuvwxyz

[]() + - ± × =

∫ ∑ / √ ρ % ' ^



Figure 1

2.10

2.00

1.90

1.80

1.70

1.60

1.50

1.40

1.30

1.20

ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

abcdefghijklmnopqrstuvwxyz

FULL PAGE Y-AXIS

[left bracket	∫	integral
]	right bracket	Σ	sigma
(left parenthesis	/	slash
)	right parenthesis	.	decimal point
+	plus	,	comma
-	minus	μ	mu
±	plus or minus	ρ	rho
X	multiply	%	percent
÷	divide	'	prime
=	equal	^	caret

87.0 88.0 89.0 90.0 91.0 92.0 93.0 94.0 95.0 96.0 97.0 98.0 99.0 100.0 101.0

FULL PAGE X-AXIS

Figure 2