



DECUS

PROGRAM LIBRARY

DECUS NO.	12-43
TITLE	PLOT3D
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SOURCE LANGUAGE	LAP6-DIAL

PLOT3D

DECUS Program Library Write-up

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GENERAL DESCRIPTION

This program displays data from LINCtape and allows for user modification before plotting on an XY plotter. As each block is plotted, the previous data is not overwritten. This produces a three-dimensional effect. Data can be single or double precision. The space between each block is selectable. A subroutine to label each graph is included. Frequency power spectra data show time shifts.

LOADING AND STARTING INSTRUCTIONS

1. Mount Binary program on Unit \emptyset .
2. Read in DIAL 0701-7300, I/O, DO, Start 20.
3. Linefeed
4. Type "LO PLOT3D, \emptyset " then RETURN key.
5. Write Enable and Remote must be set on unit \emptyset .
6. Left Switches = 0020. I/O Preset. Start LS.
7. Turn Plotter on. Position Pen at desired origin.

PARAMETER INPUT

1. The program requests various parameters through the teletype. Name, Date, and Type of data are for labeling the output and not used in the program. Each must be at least one character and followed by an EOL.
2. SING. or DOUBLE? The two responses are S \downarrow or D \downarrow depending if the data is single or double precision.
3. Divide cycles, 0 - 4 - This asks how many times each block of data should be divided in half. For each division the right half of data, as displayed, is lost and the left half is expanded to full width and the points inbetween interpolated.
4. Start at Blk. Num... - The LINCtape block number of the first block of data. Leading zeroes optional. EOL.
5. 2nd Block Num - The location of the second block of data. EOL. This gives the increment (+ or -) for each succeeding block.
6. Last Block Num - The last block of data for this plot. EOL.
7. Plotter Spacing - This parameter determines the spacing between each line. Any 1 or 2 digit octal number followed by an EOL. Ten is commonly chosen.

After receiving these parameters, the program types one heading line and then draws the X-axis. It then proceeds to read the first data block and enter the display mode.

SWITCHES

a. Sense Switches

Sense switch 3-up to eliminate display

Sense switch 4-up to plot

Sense switch 5-up to eliminate hatch marks on X axis

(3 & 4 both up will plot automatically)

(3 up, 4 down will read data continuously and no plot)

(3 down, 4 up will wait for teletype instruction)

b. Switches

Right - Bits 8-11 scale the data down during display and for plotting

Left - A constant for subtraction of data

DISPLAY

During display the data can be modified by the right switches, bits 8-11. These scale the data down. Other changes are through the teletype.

A - draw AXIS. Omit remaining data. SNS 5 up to eliminate hatch marks.

C - CANCEL this block of data and proceed to next.

D - DIVIDE cycles. The left half is magnified. The right half of the display is lost. CTRL & D - return to DIAL

F - FILTER. Simple 3 point averaging.

L - Make data LARGER.

O - Restore ORIGINAL data.

P - PLOT data as displayed.

T - Enter TYPE routine to label on plotter. See below.

- Subtracts the contents of the left switches. Any other key waits for an EOL or a legal letter.

PLOTTING

The size of the display is similar to the size of the plot. After plotting the next data block is read and display mode is entered.

TELETYPE OUTPUT

First the block number is typed. The scale factor (S.F.) is the sum of internal scaling for double precision and the right switches. The cycles per second assumes the original data is 64 c/s and each "D" divides this in half. If no data is omitted, the block number is given every 4th time.

TYPE ROUTINE

This is a Bristol Subroutine to label. Each key struck is drawn on the plot from the teletype. A) the right switches, bits 7-11, determine the character size. B) Sense Switches. These are checked only after an EOL. SNS 0 on to rotate 90 counterclockwise. SNS 1 on to invert all characters. C) Control Key and

B	Back One Space
C	Center Pen in X-direction
D	Return to DIAL
E	Exit to PLOT3D
H	Plot Head Pattern
P	Pen to Left Position
U	Move Up One Space (Opposite to LF)
←	Plots →
↑	Plots ↓

After the axis is drawn the program halts. Press CONTINUE to enter TYPE. If another plot is desired, position pen at new origin and exit to PLOT3D where new block number parameters are requested.

