

## CHAPTER 6    **Diagrammatic Graphics Commands**

Commands in this category generate text strings, diagrams, schematics, word charts, etc., and specify details (e.g., character font and character height) of elements on such diagrams. Examples include MOVE, DRAW, CIRCLE, BOX, TEXT, FONT, and HEIGHT.

DATAPLOT defines a 0 to 100 (i.e., a percentage) coordinate system in both the horizontal and vertical directions where (0,0) is the lower left corner and (100,100) is the upper right corner. All the commands in this category use this 0 to 100 coordinate system unless otherwise noted.

The commands in this category are:

### **Device attributes**

ERASE	Erases the current screen.
HARDCOPY	Specifies that subsequent plots are automatically copied on the local hardcopy unit.
RING BELL	Rings the bell.
WINDOW COORDINATES	Specifies the graphics region.

### **Text and text attributes**

ANGLE	Specifies the angle at which text is drawn.
CASE	Specifies the text case (UPPER or LOWER).
COLOR	Specifies the text color (RED, BLUE, etc.).
CR	Specifies an automatic carriage return after TEXT.
CRLF	Specifies an automatic carriage return/line feed after TEXT.
FILL	Specifies whether certain symbols in subsequent TEXT commands are filled or not filled.
FONT	Specifies the text font (TRIPLEX, COMPLEX, etc.).
HEIGHT	Specifies the text height.
HORIZONTAL SPACING	Specifies the horizontal spacing between characters.
HW	Specifies the text height and width.
JUSTIFICATION	Specifies the text justification (LEFT, CENTER, RIGHT).
LF	Specifies an automatic line feed after TEXT.
MARGIN	Specifies the position for the carriage return.
SPACING	Specifies whether text in subsequent TEXT commands are drawn with fixed or proportional spacing.
TEXT	Writes a text string.
THICKNESS	Specifies the text line thickness.
VERTICAL SPACING	Specifies the vertical spacing between lines.
WIDTH	Specifies the text width.
()	Specifies a math or Greek character in TEXT.

### **Graphics input**

CROSS-HAIR	Activates and reads the cross-hair.
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**Graphical Figures**

AND	Draws an AND box.
AMPLIFIER	Draws an amplifier.
ARC	Draws an arc.
ARROW	Draws an arrow.
BOX	Draws a box.
CAPACITOR	Draws a capacitor.
CIRCLE	Draws a circle.
DIAMOND	Draws a diamond.
CUBE	Draws a cube.
DRAW	Draws a line.
DRAWDATA	Draws a line in the units of the most recent plot.
ELLIPSE	Draws an ellipse.
GROUND	Draws a ground.
HEXAGON	Draws a hexagon.
INDUCTOR	Draws an inductor.
LATTICE	Draw a lattice.
MOVE	Moves to a point.
MOVEDATA	Moves to a point in coordinates of the most recent plot.
NAND [not working]	Draws a NAND box.
NOR	Draws a NOR box.
OR	Draws an OR box.
OVAL	Draws an oval.
PYRAMID	Draws a pyramid.
POINT	Draws a point.
RESISTOR	Draws a resistor.
SEMI-CIRCLE	Draws a semi-circle.
TRIANGLE	Draws a triangle.

**General Considerations**

1. Diagrammatic graphics are generated immediately.
2. No initial page erase is performed before generating diagrammatic graphics commands. The ERASE command can be used to generate a page erase.
3. Boxes, arrows, text, and lines can be generated in two ways. They can be generated by diagrammatic graphics commands documented in this chapter. Alternatively, they can be generated via plot control commands (see BOX CORNER COORDINATES, ARROW CORNER COORDINATES, LEGEND COORDINATES, and SEGMENT COORDINATES in the Plot Control chapter). The distinction is that diagrammatic graphics are generated immediately and only once while plot control commands are not generated until a subsequent plot command is entered. However, they are generated on all subsequent plots until they are turned off.
4. Most diagrammatic graphics commands use the LINE, LINE THICKNESS, and LINE COLOR commands to control the attributes of the line used to draw the border of the figure.

Most filled diagrammatic graphics use the various REGION commands to set the attributes of the interior of the figure. The setting for the first trace of these commands is used.

A few diagrammatic graphics commands have their own specific attribute setting commands.

The documentation for the individual diagrammatic graphics commands specifies which commands are used to set its attributes. All of the attribute setting commands are documented in the Plot Control chapter.

5. Parameter names are allowed when specifying the coordinates for diagrammatic graphics commands. However, expressions are not. For example,

```
AMPLIFIER X1+2 Y1+2 X2 Y2
```

should be coded as

```
LET XTEMP = X1 + 2  
LET YTEMP = Y1 + 2  
AMPLIFIER XTEMP YTEMP X2 Y2
```

6. Although there are numerous specialized 2D figures, there is not a user defined polygon. However, the REGION BASE POLYGON command can be used with the PLOT command to draw general polygons. These polygons can either be solid filled or filled with a cross hatch pattern. See the documentation for the REGION BASE command in the Plot Control chapter for details.

There is currently no support for filled 3D polygons (the borders can be drawn with the standard 3D PLOT command).