CHAPTER 11   Color

The graphics devices that DATAPLOT supports vary widely in the degree of color support. However, for the sake of device independence, all devices recognize the same set of color names and color indices. If a given device does not support a requested color, DATAPLOT maps it to the closest available supported color (closest is somewhat arbitrary, although we tried to be reasonably consistent).

DATAPLOT borrowed its color scheme from Release 3 of X11 with a few additions from Release 4. The X Window System is a computer independent protocol developed at MIT for supporting windowing and graphics applications in a networked environment. It uses the RGB values from Release 4 for devices that support direct RGB specification (currently Postscript and CGM). Although these values should be reasonably robust, different devices will generate different colors from them.

The color examples throughout this manual use gray scales due to the costs of color reproduction. You are encouraged to generate the examples using some of the colors listed below.

The following list are the colors that DATAPLOT recognizes. Only the first 4 characters of the color name are significant and colors can be specified either by name or by index.

COLOR	INDEX	NAME
=====	=====	========
WHITE	0	WHIT
BLACK	1	BLAC
RED	2	RED
BLUE	3	BLUE
GREEN	4	GREE
MAGENTA	5	MAGE
ORANGE	6	ORAN
CYAN	7	CYAN
YELLOW	8	YELL
YELLOW GREEN	9	YGRE
DARK GREEN	10	DGRE
LIGHT BLUE	11	LBLU
BLUE VIOLET	12	VBLU
VIOLET RED	13	VRED
DARK SLATE GRAY	14	DGRA, DGRY
LIGHT GRAY	15	LGRA, LGRY
AQUAMARINE	16	AQUA
BROWN	17	BROW
CADET BLUE	18	CABL
CORAL	19	CORA
CORNFLOWER BLUE	20	CBLU
DARK OLIVE GREEN	21	DOGR
DARK ORCHID	22	DORC
DARK SLATE BLUE	23	DSBL
DARK TURQUOISE	24	DTUR
FIREBRICK	25	FIRE
FOREST GREEN	26	FGRE

COLOR	INDEX	NAME
=====	=====	========
GOLD	27	GOLD
GOLDENROD	28	GLDR
GRAY	29	GRAY, GREY
INDIAN RED	30	IRED
KHAKI	31	KHAK
DIM GRAY	32	DMGR
LIGHT STEEL BLUE	33	LSBL
LIME GREEN	34	LGRE
MAROON	35	MARO
MEDIUM AQUAMARINE	36	MAQU
MEDIUM BLUE	37	MBLU
MEDIUM FOREST GREEN	38	MFGR
LIGHT GOLDENROD YEL	39	MGLD
MEDIUM ORCHID	40	MORC
MEDIUM SEA GREEN	41	MSGR
MEDIUM SLATE BLUE	42	MSBL
MEDIUM SPRING GREEN	43	MSPG
MEDIUM TURQUOISE	44	MTUR
MEDIUM VIOLET RED	45	MVRD
MIDNIGHT BLUE	46	MDBL
NAVY BLUE	47	NAVY
ORANGE RED	48	ORED
ORCHID	49	ORCH
PALE GREEN	50	PGRE
PINK	51	PINK
PLUM	52	PLUM
PURPLE	53	PURP
SALMON	54	SALM
SEA GREEN	55	SGRE
SIENNA	56	SIEN
SKY BLUE	57	SKBL, SKYB
SLATE BLUE	58	SBLU
SPRING GREEN	59	SPGR
STEEL BLUE	60	STBL
TAN	61	TAN
THISTLE	62	THIS
TURQUOISE	63	TURQ
VIOLET	64	VIOL
WHEAT	65	WHEA
GREEN YELLOW	66	GYEL
LIGHT CYAN	67	LCYA
BLUE2	68	BLU2
BLUE3	69	BLU3
BLUE4	70	BLU4
CYAN2	71	CYA2
CYAN3	72	CYA3
CYAN4	73	CYA4
GREEN2	74	GRE2
GREEN3	75	GRE3
GREEN4	76	GRE4
YELLOW2	77	YEL2
YELLOW3	78	YEL3
YELLOW4	79	YEL4
ORANGE2	80	ORA2

COLOR	INDEX	NAME
=======	=======	======
ORANGE3	81	ORA3
ORANGE4	82	ORA4
RED2	83	RED2, LRED
RED3	84	RED3
RED4	85	RED4
MAGENTA2	86	MAG2, LMAG
MAGENTA3	87	MAG3
MAGENTA4	88	MAG4

In addition, gray scale can be specified with the following scheme:

G0	=	BLACK
G1-G99	=	GRAY SCALE FROM BLACK TO WHITE
G100	=	WHITE

Gray scale values can also be specified with negative indices (that is, -1 through -100).

Currently, Postscript and X11 support gray scale. Other devices will map gray scale to either black or white.

Penplotters no longer automatically map an index to the corresponding slot. Although this is somewhat counter intuitive, it allows color names and indices to be treated consistently across all devices. DATAPLOT assumes the following slot to color mapping:

SLOT	4 PENS	8 PENS:
======	========	=========
1	BLACK	BLACK
2	RED	RED
3	BLUE	BLUE
4	GREEN	GREEN
5		MAGENTA
6		ORANGE
7		CYAN
8		YELLOW

You can use the <HPGL/CALCOMP/ZETA> PEN MAP command, documented in the Output Devices chapter, to specify a different slot to color mapping for HP-GL, Calcomp, and Zeta plotters respectively.

The following command shows the available colors for all devices.

SHOW COLORS

The following commands show the colors available on the various color devices that DATAPLOT supports. That is, they show the color you actually get with the requested DATAPLOT color for that device.

SHOW COLORS TEKT 4115
SHOW COLORS TEKT 4662
SHOW COLORS TEKT 4027
SHOW COLORS HP 2622
SHOW COLOR HPGL
SHOW COLORS CALCOMP
SHOW COLORS ZETA
SHOW COLORS CGM
SHOW COLORS GENERAL
SHOW COLORS SUN
SHOW COLORS REGIS
SHOW COLORS POSTSCRIPT

SHOW COLORS X11

SHOW COLORS PC

For some color display terminals (e.g., Tektronix 4105/7/9/15), the color can be altered locally after the plot has been generated on the screen. This gives the analyst a "second chance" if the original color choices do not mix well.

Finally, be wary of the idiosyncracies of color hardcopy devices. They rarely capture the same color hues as on the screen (e.g., the Tektronix 4662 ink jet plotter maps a brilliant blue on the 4105/7/9/15 screen into a drab purple on the hardcopy). Also note that it is common for color hardcopies to map screen white into hardcopy black and vice versa.