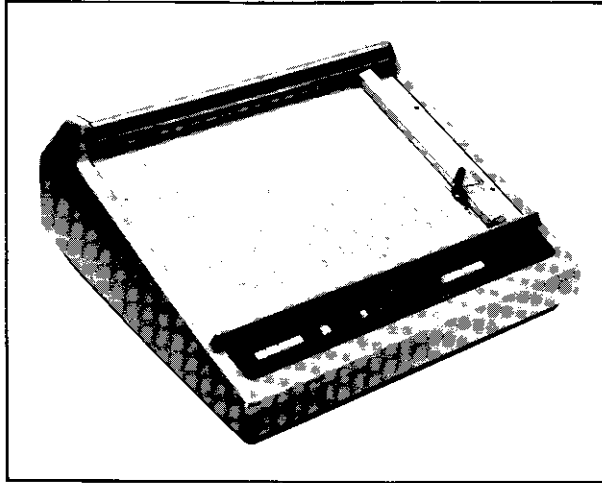


7202A, 7203A Graphic Plotters for Computer Terminals



Features

- Simple to use
- Easy to control
- simple to interface

7202A

SIMPLE COORDINATE FORMAT

Defined in four-digit X, space, four-digit Y format, ranging from 0000 to 9999.

SIMPLE MNEMONIC COMMANDS

Control plotter modes, pen position.

FLEXIBLE

With three switchable terminal speeds (10, 15, or 30 cps).

The 7202A Graphic Plotter brings complete graphic capability to your computer terminal with a minimum of programming effort and software overhead. ASCII characters are utilized in a brief and concise format to represent the high resolution absolute position coordinates. Only a few program statements are needed to bring full graphic display to your terminal. Scale the data with a simple formula and add a single print statement to cause the four-digit X and Y coordinates to be printed on a line and plotted. The result is your graph.

The plotter recognizes the following command mnemonics:

PLTL – Plotter active, plots line between coordinates.

PLTP – Plotter active, plots points at coordinates.

PLTT – Plotter inactive, does not accept data.

The plotting area can be adjusted by front panel controls. With the Plotter in the local mode, off-line plots can be made directly from punched paper tape, cassettes, or from the keyboard. For most applications, additional software routines are not required. The plotter uses the same software driver as the terminal.

The high resolution absolute address coordinates assures a smooth, precise graph on any size of paper. Front panel scaling controls allow the plot to be made in any size from 12.7 x 12.7 cm up to 29.9 x 43.2 cm (5 x 5 up to 11 x 17 inches) without program modifications. Interface cables are available for EIA-RS232C compatible terminals and MODEMS, as well as a 20 mA TTY current loop.

7203A

HIGH SPEED BINARY FORMAT

Efficient data format uses ASCII characters to represent plotter coordinates in binary form. Up to 450 vectors per minute.

SINGLE CHARACTER COMMANDS

For plotter on/off, and pen position.

LONG MOVES

Can be made at any angle any distance up to the maximum plot dimension.

The 7203A Graphic Plotter brings high-speed graphic display to your computer terminal. Serial ASCII characters transmitted by the computer system are interpreted as binary position data. Pen and position maneuvers are independent commands to provide increased flexibility and control.

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Data scaling and conversion into the proper ASCII character representation is easily handled by a program subroutine. Four ASCII characters representing X and Y coordinates are transmitted by the computer system for each data point. Moves of any length up to the maximum plot dimension can be made at any angle. Plotter control subroutines are available for most HP timesharing systems to handle all scaling, binary code conversion and timing considerations. You need only define the range of your data and the speed of your terminal.

Four plotter commands are transmitted to the plotter through ASCII code:

Plotter On – Lower case w – Enables plotter. Remains on until Plotter Off received.

Plotter Off – Lower Case s – Disables plotter circuits. Remains off until Plotter On received.

Pen Up – Rubout (DEL) – Raises pen.

Pen Down – Left bracket ({) – Lowers pen.

The absolute address coordinates system provides the same accuracy over the entire plotting area. Convenient front panel scaling controls let you choose any plot size or position on any style paper up to 29.9 x 43.2 cm (11 x 17 inches). Two terminal speeds (10 and 30 cps) and the universal RS232C interface cable supplied, make the 7203A easy to connect to any EIA-RS232C compatible terminal.

Specifications

GENERAL

PAPER SIZE: Any size up to 29.9 x 43.2 cm (11 x 17 in)

PLOTTING MODE: Absolute coordinates

WRITING METHOD: Ink, disposable pens

PHYSICAL CHARACTERISTICS

Height: 21.6 cm (8-1/2 inches)

Width: 50.8 cm (20 inches)

Depth: 51.1 cm (20-1/8 inches)

Weight: 18.1 kg (40 lbs)

Shipping Weight: 23.6 kg (52 lbs)

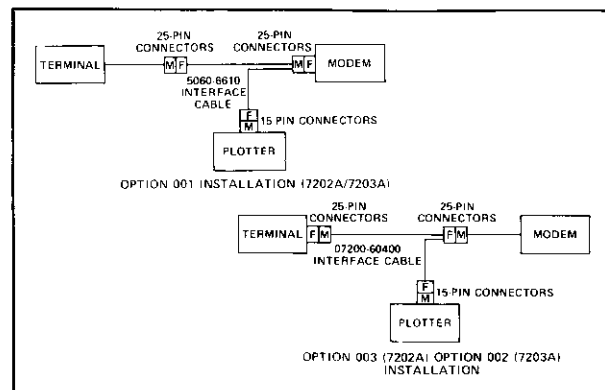
INTERFACE OPTIONS

Specify either Option 001 or 003 for Model 7202A; either Option 001 or 002 for Model 7203A. See INTERFACE CONNECTIONS and diagram.

Model	Option	Description
7202A	001	EIA RS232 MODEM Interface
7202A	003	EIA RS232 Terminal Interface
7203A	001	EIA RS232 MODEM Interface
7203A	002	EIA RS232 Terminal Interface
7203A	005	Software Driver for HP 2000 C/F
7203A	006	Software Driver for HP 3000

INTERFACE CONNECTIONS

Notes: EIA Options 001 and 003 for the 7202A, and Options 001 and 002 for the Model 7203A are identical except for the cable. The cables differ in their connector configuration. If the MODEM (or computer) has a female connector, use Option 001 (provides cable part number 5060-6610). If the terminal has a female connector, use Option 003 for the Model 7202A, or Option 002 for the Model 7203A (provides cable part number 07200-60400). If both MODEM (or computer) and terminal have female connectors, use either Option 001 or 003 for Model 7202A; use either Option 001 or 002 for the Model 7203A. Install Option 001 between the MODEM and the original interconnecting cable, or install Option 003 (7202A) or Option 002 (7203A) between the terminal and the original interconnecting cable, as shown.



7202A

PLOTTING AREA: Front panel scalable from 12.7 x 12.7 cm to 25.4 x 38.1 cm (5 x 5 to 10 x 15 inch)

PLOTTING MANEUVERS: Plots lines or points

SPEED: Up to 105 vectors per minute

NUMERICAL CODE: ASCII; X and Y represented by four-digit integers

NUMERICAL RESOLUTION: 1/10,000 (0.001%)

PLOT ACCURACY: Better than 0.076 cm (0.03 inch)

RESETTABILITY: 0.018 cm (0.007 inch) maximum

DATA RATE: 110, 150, or 300 baud, switchable

CONTROLS: Power, Chart Hold, Terminal Mute, Line/Local, Pen Down, Graph Limits, Characters/Sec.

INDICATORS: Power, Plot, Improper Format

INTERFACE: EIA RS232C or 20 mA current loop; select configuration option desired. Other interface configurations available – contact factory

MOVE LENGTH: 7.6 cm (3 inches) maximum with pen down; 25.4 cm (10 inches) maximum with pen up

POWER REQUIREMENTS: 115/230 Vac, 48 to 400 Hz, 100 VA

7203A

PLOTTING AREA: Front panel scalable from 0 x 0 to 25.4 x 38.1 cm (0 x 0 to 10 x 15 inch)



PLOTTING MANEUVERS: Pen or Position. Pen and Position maneuvers are independent commands.

SPEED: Up to 450 vectors per minute

NUMERICAL CODE: Binary; X and Y represented by ASCII character pairs

NUMERICAL RESOLUTION: 1/2500 (0.04%)

PLOT ACCURACY: Better than 0.10 cm (0.04 inch)

RESETTABILITY: 0.18 mm (0.007 inch) maximum

CONTROLS: Power, Chart Hold, Mute, Line/Local, Pen Up, Pen Down, Graph Limits, Characters/Sec

INDICATORS: Power, Error, Plot

DATA RATE: 110 or 300 baud, switchable

INTERFACE: EIA RS232C

MOVE LENGTH: Any length at any angle with appropriate software subroutine

POWER REQUIREMENTS: 100, 115, 200, or 230V ±10%, 48 to 66 Hz. 100 VA maximum

ORDERING INFORMATION

7202A Graphic Plotter

7203A Graphic Plotter

ACCESSORIES SUPPLIED

1. Accessory Kit
 - 1 Pkg Disposable Pens, Red (3) 5081-1190
 - 1 Pkg Disposable Pens, Blue (3) 5081-1191
 - 1 Pkg Disposable Pens, Black (3) 5081-1193
 - 1 Slidewire Cleaner 5080-3605
 - 1 Slidewire Lubricant 5080-3635
 - 1 Fuse (for 230V operation) 2110-0080
 - *1 Performance Verification Tape (Model 7202A) 10/15 cps 07202-60001
 - *1 Performance Verification Tape (Model 7202A) 30 cps 07202-60002
 - *1 Performance Verification Tape (Model 7203A) 72056-60001
- *2. Operator's Manual, 7202A 07200-90008
Operator's Manual 7203A 07203-90000
- *3. Pull-out Instruction Card (7202A only) 07200-90007
4. Dust Cover 4040-0477
5. Graph Paper, 20 sheets (English) 9270-1004
6. Graph Paper, 20 sheets (Metric) 9270-1024
7. Power Cord 2.28 m (7.5 ft) 8120-1348

*Supplied when applicable.

SOFTWARE AVAILABLE

Title	Description	Part No.
7202A Only		
FPLOT	Function Plotting (HP Basic)	36112A
TITLE	Character Generation (HP Basic)	36114A

HP PLOT HP 2000C File Plotting Program (HP Basic) 72051-14000

HP PLOT GE Mark III File Plotting Program (GE Basic) 72052-14000

7203A Only

HP 2000 Control Subroutine (HP Basic) 07203-18000

ASCII File Gen. (HP 2000 Basic) 07203-18001

HP 3000 Control Subroutine (HP Basic) 07203-18002

GE Mark III Control Subroutine (GE Basic) 07203-18004

ACCESSORIES AVAILABLE

Description	Part No.
1. Plotter Stand (w/mounting plate)	17260A
2. Mounting Plate	17261A
3. Carrying/Transit Case	9211-1377
4. Carrying Handle	07200-60360
5. Male-to-Male Interconnecting Cable (22.8 cm, 7.5 ft)	07261-60390

DISPOSABLE PENS

Package of 3	Part No.
Red	5081-1190
Blue	5081-1191
Green	5081-1192
Black	5081-1193

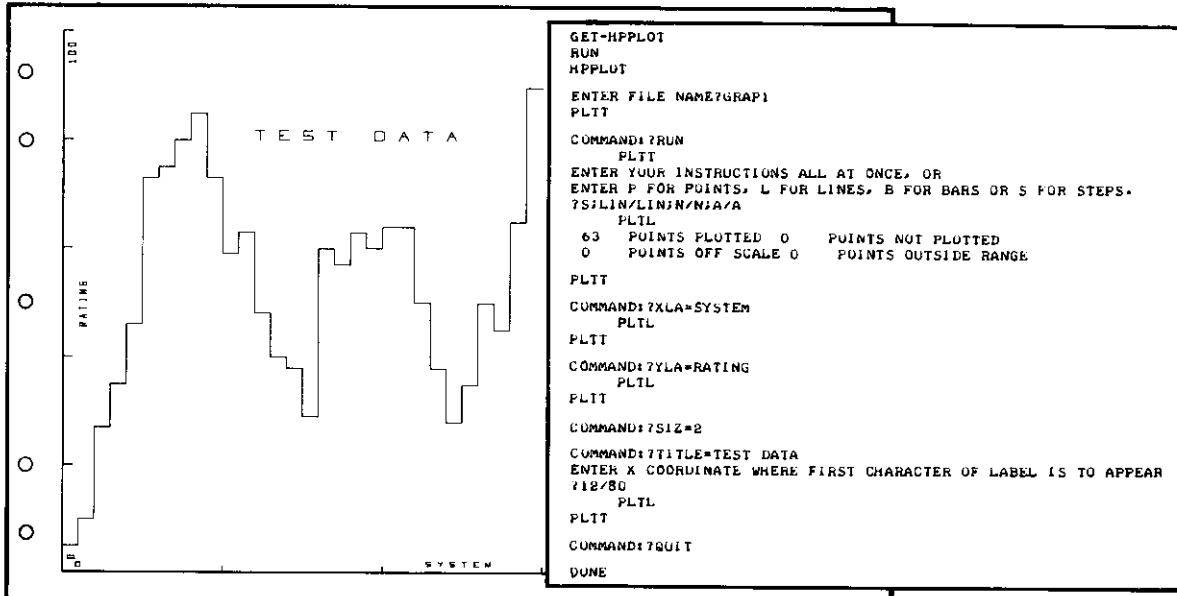
LUBRICANTS & CLEANERS

Description	Part No.
Slidewire Cleaner	5080-3605
Slidewire Lubricant	5080-3635

GRAPH PAPER

Box of 100 Sheets	Plot Area	Part No.
LINEAR	10 in. x 15 in.	9270-1004
	25 cm x 38 cm	9270-1024
	7 in. x 10 in.	9270-1006
	18 cm x 25 cm	9270-1023
	10 in. x 2 cycle	9280-0159
	10 in. x 3 cycle	9280-0160
	2 cycle x 15 in.	9280-0169
SEMI-LOG	3 cycle x 15 in.	9280-0168
	2 cycle x 3 cycle	9280-0167
	3 cycle x 2 cycle	9280-0165
LOG-LOG	3 cycle x 4 cycle	9280-0171
	BLANK (w/Scaling Point)	10 in. x 15 in. 9280-0180

SAMPLE PLOTS



PLOT DATA IN A FILE USING THE 7202A GRAPHIC PLOTTER AND THE CONVERSATIONAL PLOTTING PROGRAM 'HP PLOT'

7202A --- BASIC

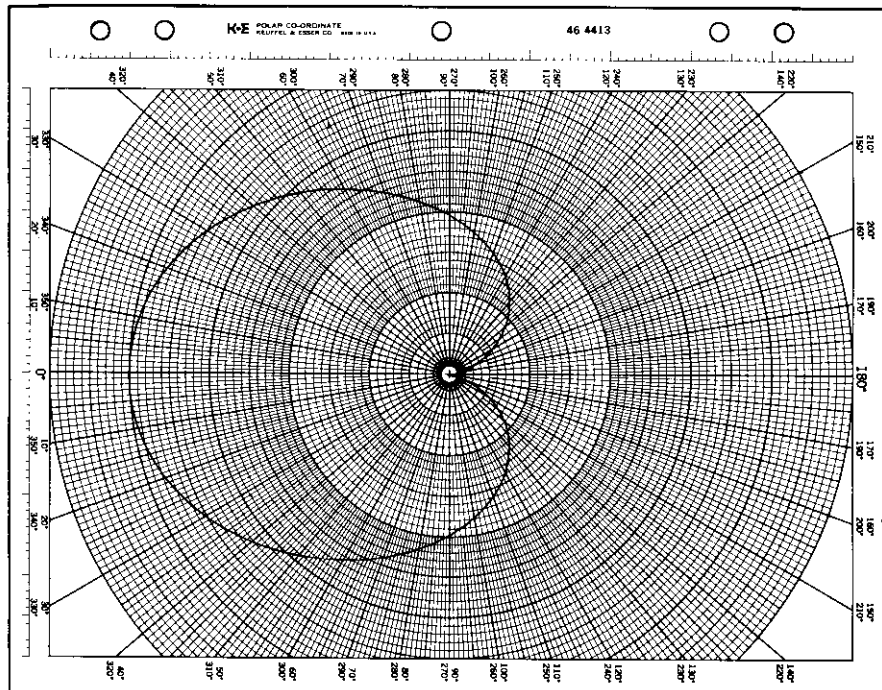
```

10 PRINT "PLTL"
20 FOR T=0 TO 6.4 STEP .075
30 LET R=2*COS(3.14159/4*(1+COS(T)))
40 LET Y=R*SIN(T)
50 LET X=R*COS(T)
60 LET XI=1999*X+5000
70 LET YI=1999*Y+5000
80 PRINT INT(XI);INT(YI)
90 NEXT T
100 PRINT " PLTT"
110 END
    
```

7203A --- BASIC

```

10 FILES ASCII
20 P(1)=1
30 P(2)=P(4)=-4
40 P(3)=P(5)=4
50 P(6)=10
60 P(7)=1
70 FOR I=0 TO 6.4 STEP .075
80 LET R=2*COS(3.14159/4*(1+COS(T)))
90 LET Y=R*SIN(T)
100 LET X=R*COS(T)
110 GOSUB 9000
120 NEXT T
130 GOSUB 9000
140 STOP
9000 REM
9005 REM
9010 REM
9015 REM
.
.
9445 PRINT USING 9115;Js(1,1)
9450 NEXT P9
9455 IF P(1) <= 0 THEN 9470
9460 PRINT USING 9115;Ks[60,60]
9465 P(1)=1
9470 P(1)=0
9475 RETURN
9480 END
    
```



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Sales and service from 172 offices in 65 countries.
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