EduCALC TECHNICAL NOTES

HP-41 PRINTERS
What Are The Choices?

The first HP-41 printer offered by Hewlett Packard was the HP-82143A 'strip printer' introduced with the HP-41C in 1979. This printer uses 2¼" paper with blue or black letters. It plugs into an HP-41 port and has 25 printing and plotting functions. Later came the HP-IL version in the same package except it connected to the HP-41 via HP-IL, and an HP-IL module was required to use it with the HP-41. Being an HP-IL printer, however, it is useable with any computer that has HP-IL—such as the HP-71, HP-75, series 80, HP-110, etc.

The 82162A HP-IL printer added one additional function—FMT. The price is $70 higher plus the $100 cost of the HP-IL module. One of the best printers introduced in recent years is the ThinkJet printer. This is an 8½ × 11" paper size printer that is available with HP-IL. It, however, was oriented to larger computer systems and did not include all of the HP-41 functions of HP's previous models. The 2225B ThinkJet printer has 16 functions; BLDSPEC and the plotting functions were omitted.

In November 1987 a new approach to printers became available. This is an infrared printer module that plugs into the HP-41 port which allows the HP-18/28[1] printer to be used with the HP-41. This combination is especially attractive because it provides the lowest cost, smallest size, lightest weight, greatest functionality printer for HP-41 users. Table 1 provides a comparison of the four printers available for HP-41 owners. All are battery powered.

Table 1: HP-41 Printer Comparisons

Feature/Specification	822143A	82162A	2225B	82242A
Number of functions	25	27	17	36
Type of printer	strip	strip	full page	strip
Weight with paper/batt.	1.8 lbs.	1.8 lbs.	5.5 lbs.	1.0 lbs.
Dimensions in inches	5.2 × 7.0 × 2.4	5.2 × 7.0 × 2.4	3.5 × 11.5 × 8.1	3.6 × 7.3 × 2.5
Volume in cubic inches	87.4	87.4	326.0	65.7
Listing cat. lines/sec.	1.09	1.09	1.74	1.03
PRA loop	1.17	1.17	0.97	0.97
Specification lines/sec	1.0	1.0	1.9	1.9

*OUTA is an important HP-IL function used with printers.

Table 2 lists the functions found on all four HP-41 printers. Functions not found on a particular model are indicated with a dash. The # symbol in the PR# functions represents the Greek letter Sigma.

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Table 2: HP-41 Printer Function List

	82143A	82162A	2225B	82242A	Description
1.	ACA	ACA	ACA	ACA	Accumulate ALPHA register
2.	ACCHR	ACCHR	ACCHR	ACCHR	Accumulate character
3.	ACCOL	ACCOL	–	ACCOL	Accumulate column
4.	ACSPEC	ACSPEC	ACSPEC	ACSPEC	Accumulate special register
5.	ACX	ACX	ACX	ACX	Accumulate X-register
6.	ADV	ADV	ADV	ADV	Advance paper (HP-41 function)
7.	BLDSPEC	BLDSPEC	–	BLDSPEC	Build special character
8.	–	–	–	DELAY	Set time delay to print lines
9.	–	FMT	–	FMT	Specify Format
10.	LIST	LIST	LIST	LIST	List program lines
11.	–	–	–	MAN	Clear flags 15 and 16
12.	–	–	–	MAPON	82143/82162 character set
13.	–	–	–	MAPOFF	82240A character set
14.	–	–	–	NORM	Clear flag 15, set flag 16
15	–	OUTA	OUTA	–	Output ALPHA to HP-IL
16.	PRA	PRA	PRA	PRA	Print ALPHA register
17.	PRAXIX	PRAXIX	–	PRAXIX	Print axis
18.	PRBUF	PRBUF	PRBUF	PRBUF	Print buffer
19.	PRFLAGS	PRFLAGS	PRFLAGS	PRFLAGS	Print flags and status information
20.	PRKEYS	PRKEYS	PRKEYS	PRKEYS	Print assigned keys
21.	PRP	PRP	PRP	PRP	Print assigned keys
22.	PRPLOT	PRPLOT	–	PRPLOT	Plot function interactively
23.	PRPLOTP	PRPLOTP	–	PRPLOTP	Plot function non-interactively
24.	PRREG	PRREG	PRREG	PRREG	Print registers
25.	PRREGX	PRREGX	PRREGX	PRREGX	Print registers as directed by X
26.	PR#	PR#	PR#	PR#	Print stat. regs (# represents Sigma)
27.	PRSTK	PRSTK	PRSTK	PRSTK	Print stack
28.	–	–	–	PRTON	Set flags 21 and 55
29.	–	–	–	PRTOFF	Clear flags 21 and 55
30.	PRX	PRX	PRX	PRX	Print X-register
31.	REGPLOT	REGPLOT	–	REGPLOT	Plot one line using data in registers
32.	–	–	–	RESETP	Set system flags to default state
33.	SKPCHR	SKPCHR	–	SKPCHR	Skip characters, accumulate in print buffer
34.	SKIPCOL	SKIPCOL	–	SKIPCOL	Skip columns, accumulate in print buffer
35.	–	–	–	STARTU	Accumulate start underlining
36.	–	–	–	STOPU	Stop underlining
37.	STKPLOT	STKPLOT	–	STKPLOT	Plot one line using data in stack
38.	–	–	–	TRACE	Set flag 15, clear flag 16

Conclusion:

- 82143A: Second lowest cost option. Box-like package form factor, rechargeable battery, direct plug-in, 41 dedicated strip printer, popular with surveyors.

- 82162A: Same as 82143A except FMT is added and interface is HP-IL.

- 2225B: Computer printer, full-page size, HP-IL, fastest, heaviest, fewest HP functions.

- 82240A/82242A: Latest, lowest cost, lightest weight, most functions, smallest size of four. Uses AA batteries, optional AC adapter, no spacing betwen lines, slowest printing speed.