

PROPER CALCULATOR KEYBOARDS AND ATTACHABLE OVERLAYS

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Figure 1. The HP35, where it all started. RPN, large ENTER key, HP handhelds are off and running.

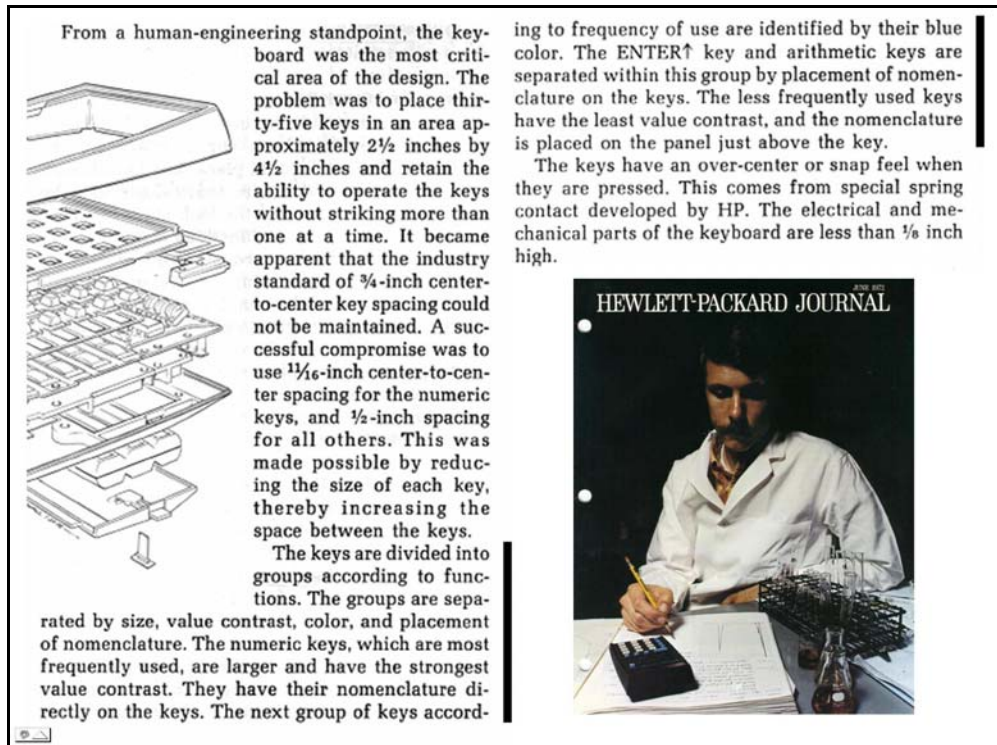


Figure 2. HP35 keyboard description from Hewlett-Packard Journal.

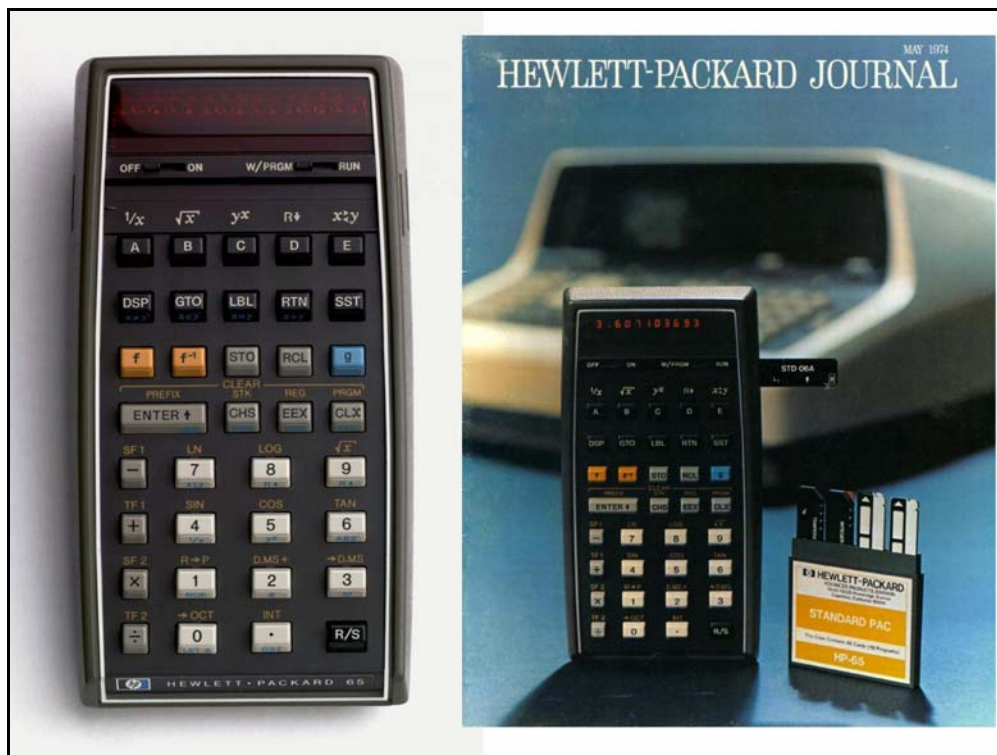


Figure 3. The HP65 with magnetic cards which define the top-row keys.

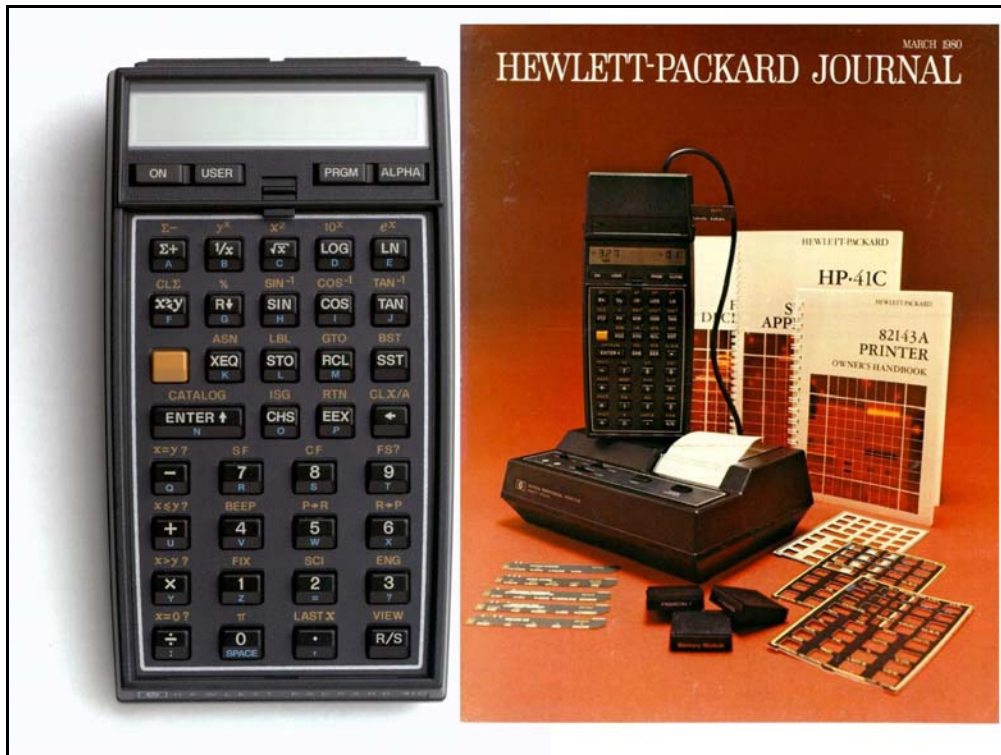


Figure 4. The HP41 with key assignments, full keyboard overlays and I/O ports.

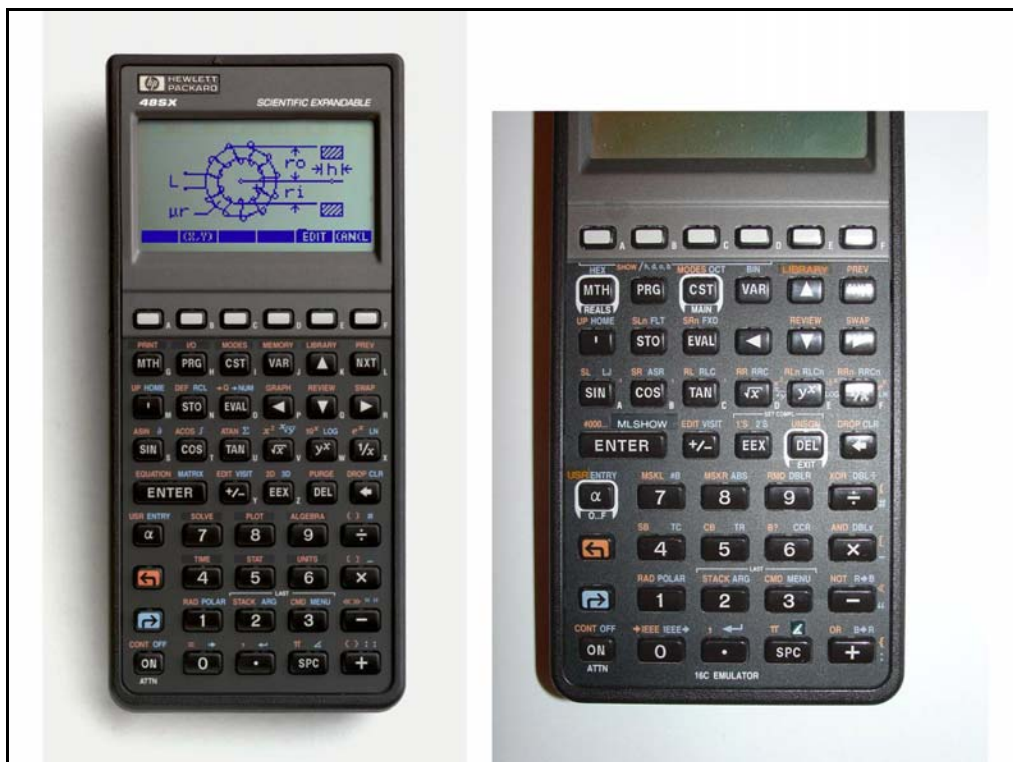


Figure 5. The HP48SX which added the top-row soft-key LCD menu

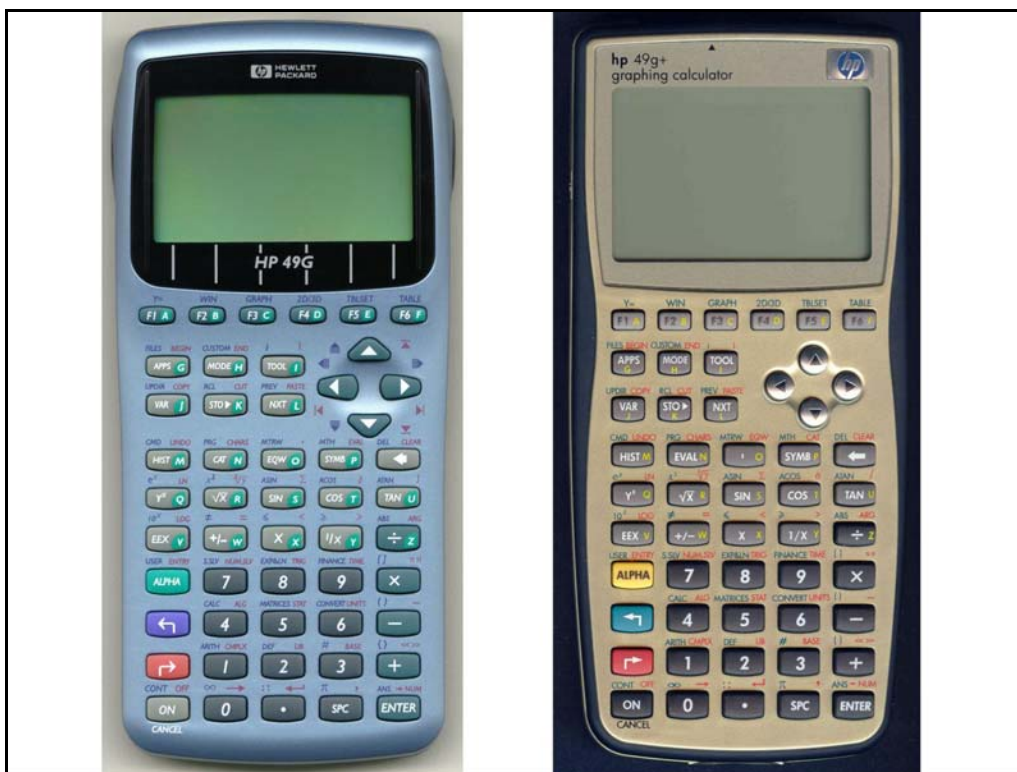


Figure 6. The HP49G and HP49G+.

Where did the overlays go?

- The HP41 first adopted them
- The HP48 had them
- The HP49 removed them
 - What could it have cost to leave the slots in place?
- Still missing on the HP49G+
 - How does one identify key assignments for software packages?
 - Doesn't that discourage third-party applications?
- Shouldn't user-customizability be *increasing*?



Figure 7. The HP49 Data Collector software and environmental case w/built-in overlay.

Can We Attach Overlays to the HP49G+ Anyway?

1. Plastic device which “grips” around the sides and contains the slots to which an overlay may attach
2. Post-it note paper cut to cover the keyboard and stick to the calc surface

emu48/49



HP Calculator User Customizability Scorecard

	Top-Row Key Assignments	Keyboard Overlays	Full-Keyboard Key Assignments	Ports	I/O	Score
HP65A	LBL A thru LBL E	Mag Card sits over top row keys		Card Reader	--	3
HP41C	Local labels A-J	Mag Card sits over top row keys, plus full-key overlays	Yes	4 modules	HPIL	8
HP48SX	Yes, plus soft keys & LCD soft-key menus	Full-key overlays	Yes	2 cards	IR, Serial	8
HP49G	Yes, plus soft keys & LCD soft-key menus		Yes		Serial	4
HP49G+	Yes, plus soft keys & LCD soft-key menus		Yes	1 SD card	IR, USB	6



Figure 8. The HP32S-II and HP33S. Keystroke sequences have become more complex.

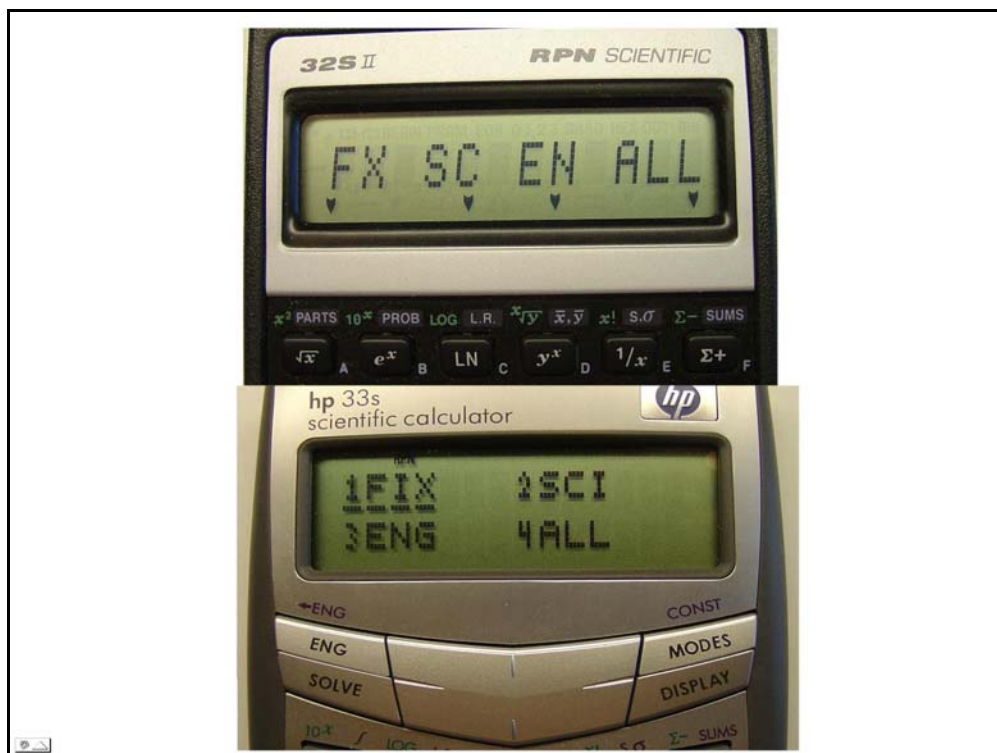


Figure 9. The DISP menu on the 32S-II and 33S. Why search for number keys?

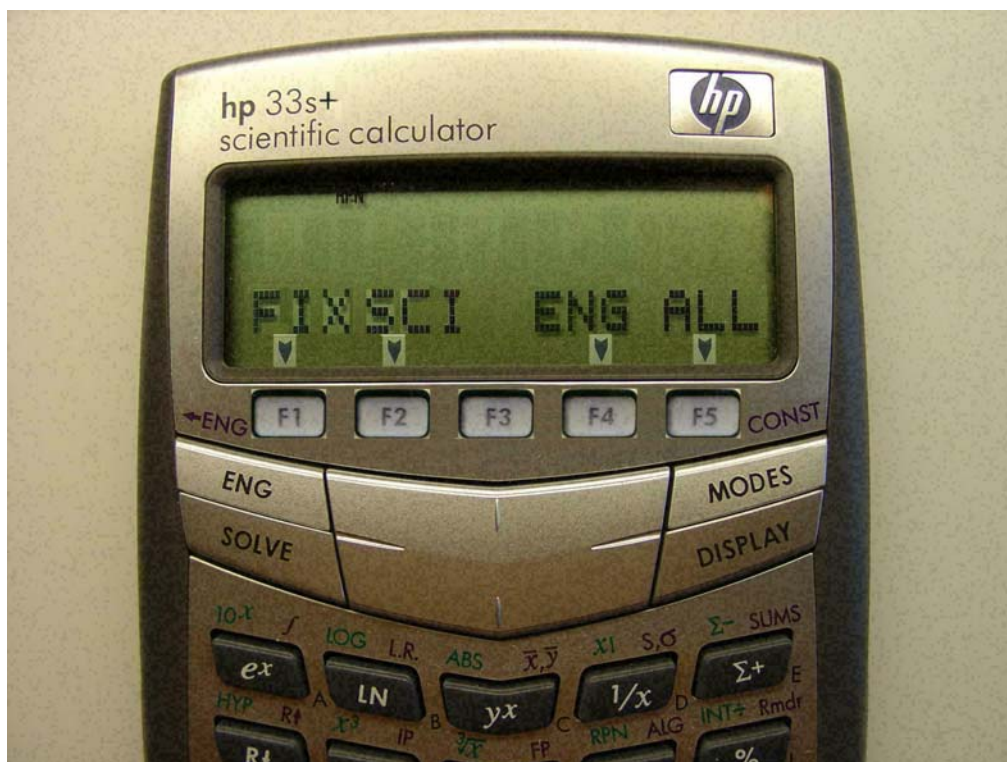


Figure 10. A mythical “33S+” with 32S-II-type menus and a new top row of keys.

What About The ENTER key? (Compromises for ALG users)

- The HP49G moved the ENTER key to the bottom right
- The HP49G+ left it in the same place
- Why make this fundamental move solely for the users who prefer Algebraic logic?
- Why not have an ENTER key in BOTH places?
- And what happened to program keys for DUP, SWAP & DROP?

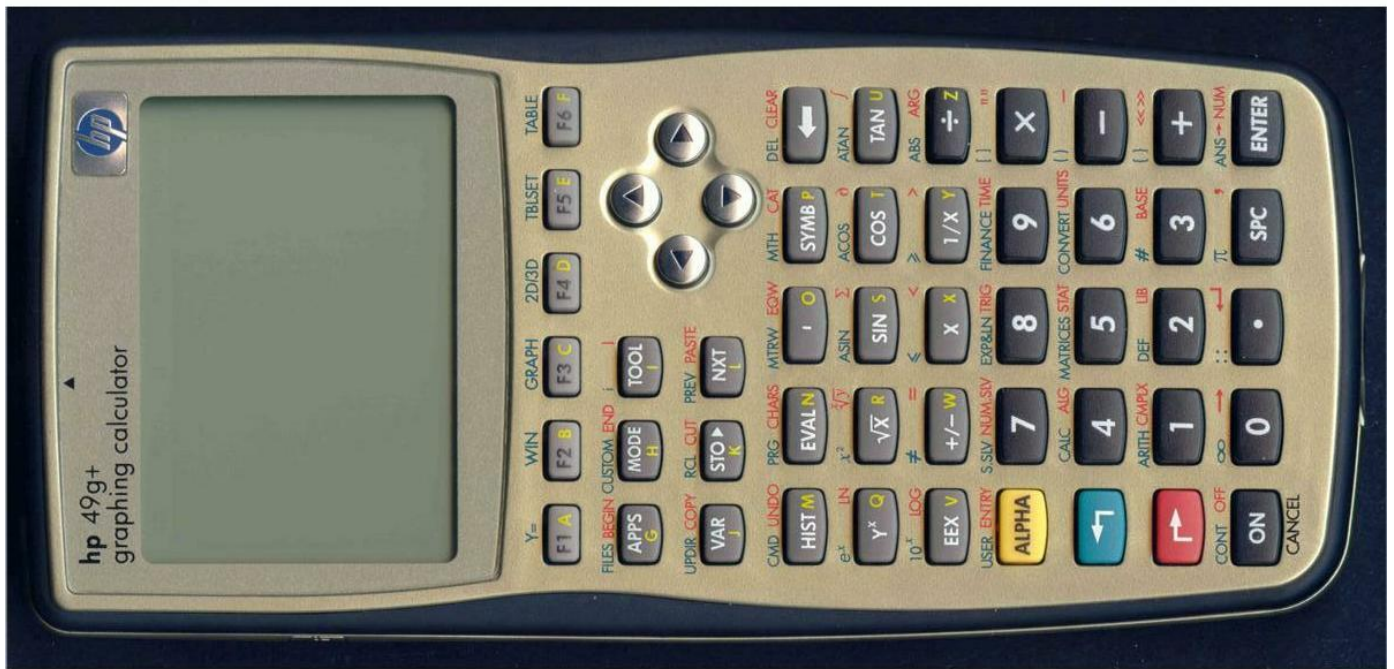
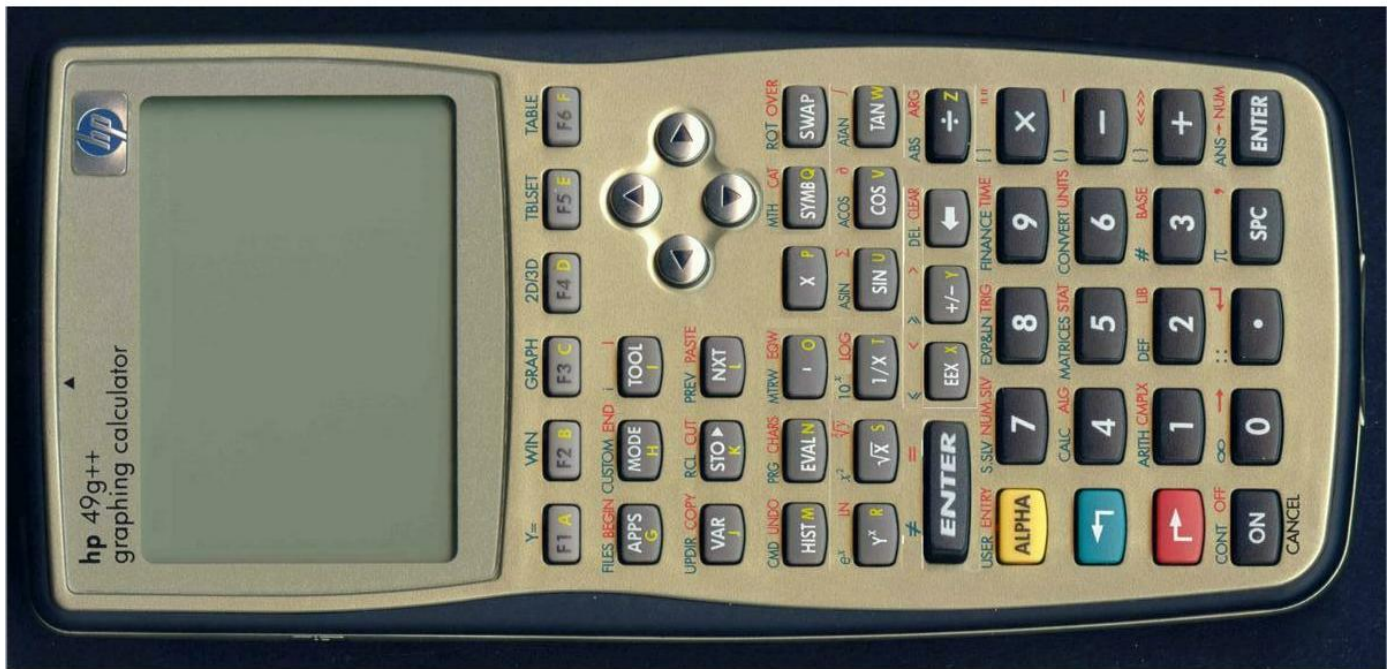


Figure 11. The HP49G+ and a mythical “49G++” with some key adjustments.



Figure 12. A concept drawing and breadboard photo of Hydrix' upcoming Qonos device.

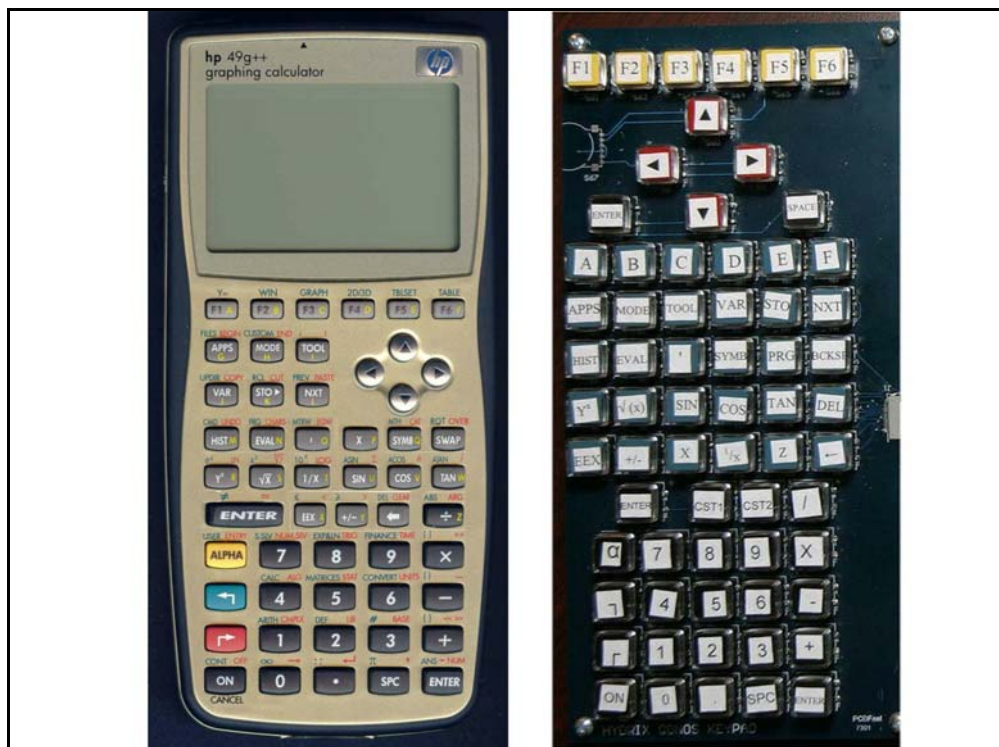


Figure 13. The "HP49G++" and closeup of breadboard Qonos keyboard.

User Customizability Scorecard w/Qonos

	Top-Row Key Assignments	Keyboard Overlays	Full-Keyboard Key Assignments	Ports	I/O	Score
HP65A	LBL A thru LBL E	Mag Card sits over top row keys		Card Reader	--	3
HP41C	Local labels A-J	Mag Card sits over top row keys, plus full-key overlays	Yes	4 modules	HPIL	8
HP48SX	Yes, plus soft keys & LCD soft-key menus	Full-key overlays	Yes	2 cards	IR, Serial	8
HP49G	Yes, plus soft keys & LCD soft-key menus		Yes		Serial	4
HP49G+	Yes, plus soft keys & LCD soft-key menus		Yes	1 SD card	IR, USB	6
Qonos	Yes, plus soft keys & LCD soft-key menus (HP49 emulator mode)		Yes, plus touchscreen LCD	SD, CF	IR, USB, docking sled	8+