Papourware Condensed

or

Persistently Pursuing a Vision with Transient Aid

or

Proof that 7 500 000 000 Are Little

Presentation at the Allschwil Meeting 2022 Walter Bonin

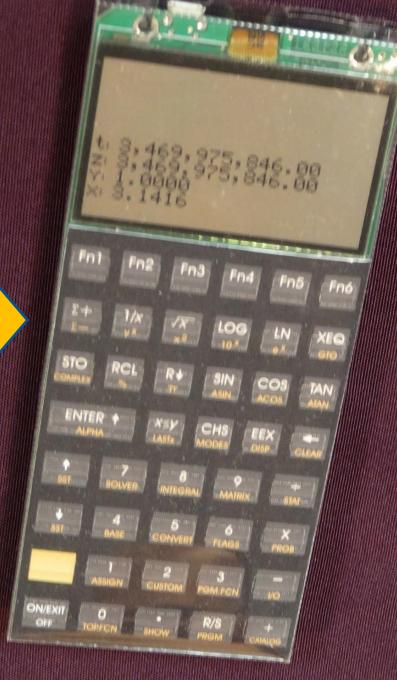




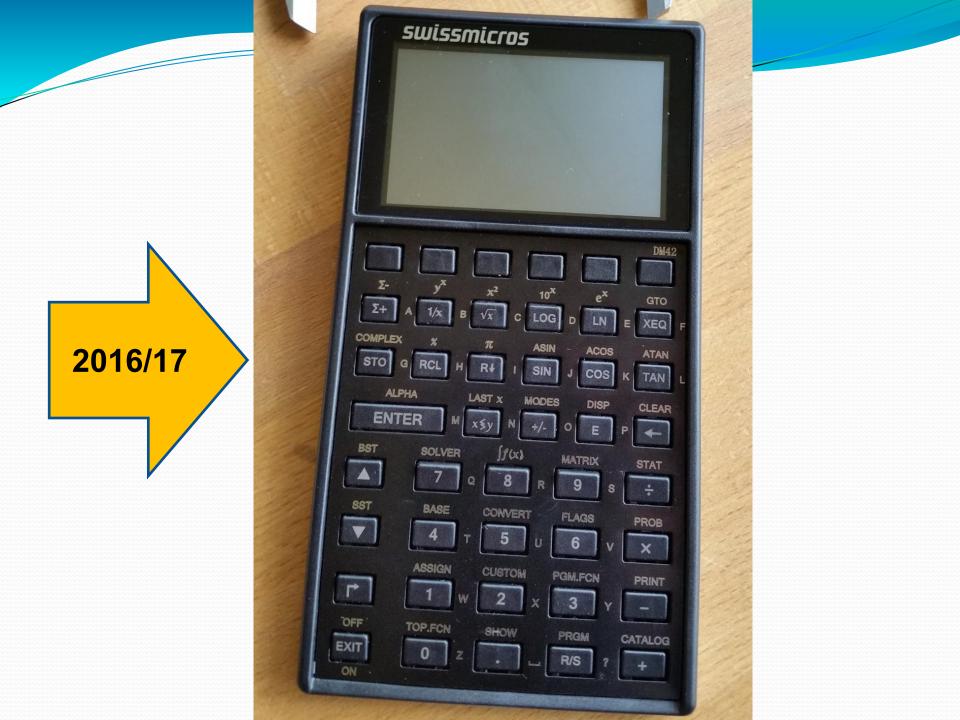


2014/15

A Mylar Reptile. Design by Eric Smith & Richard Ottosen, picture by Jake Schwartz at HHC 2015



	CLRG STO 1 BL 0 RCL 0	Byt QOE 1 00 NPUT		"9m)	
Fn1	Fn2	Fn3	Fn4	Fn5	Fn6
Σ+	1/x	√ <u>X</u>	LOG	LN	XEQ
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	1 ASSIGN		2 570M F	3 GM.FCN	— VO
ON/EXIT	0	SH	•	R/S	+
Off	TOP.FCN		ow	PRGM	CATALOG



And a simulator became available for the community (remember Allschwil 2018)

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1970-01-				4.5+	9 793 i×2.1 4567	
DBL/ IDIV A	123 DBLR RMDR B	4 56 DBL× MOD C	78 90 ^MOD ×MOD D	AB CI CEIL FLOOR E	D EF ₁₆ GCD LCM	
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SwissMicros WP43
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0.500 096 957 813 541π
2.236 067 98+i×1.414 213 56
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sin arcsin cos arccos tan arctan
F1 F2 F3 F4 F5 F6
a $b_{C} \stackrel{U \rightarrow}{=} \# \stackrel{BIT}{=} d.ms \stackrel{\Delta \rightarrow}{=} .d lg h.ms 10^{x} \propto \alpha \alpha.FN$ $1/x \stackrel{A}{=} EXP TRI (In) e^{x} \sqrt{x}$
ASN SAVE RBRVIEW R★ CPX x ∡ SNAP USER
STO G RCL H RV CC J
FILL DROP♦ x≠ STK Δ%FIN DSP DISP P CLR
ENTER \uparrow $x \neq y$ κ $+/ L$ E M \leftarrow
II MOD MODE LBL RTN GTOFLAG
÷ 7 0 8 9 Q XEQ
<u>x! PROB</u> <u>Σ</u> <u>STAT</u> R ← → P <u>③ CLK</u> ≡ ▲ SF
× _R 4 _s 5 _t 6 [°] _u ▲
<u>INTS PART</u> ADV EQN MATX X.FN π CONST $\equiv \nabla$ CF
- 🚆 1 🖞 2 x 3 y 🔻
LOOP TEST I/O 🚍 SHOWINFO P/R P.FN CATALOG
+ z 0 , • - R/S EXIT
ON OFF

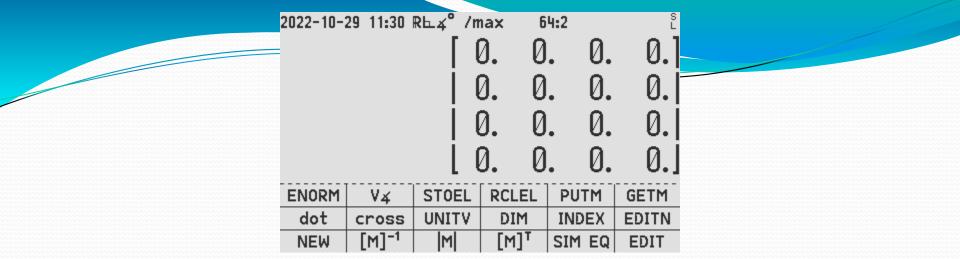
we go !

2022 Here

	P43
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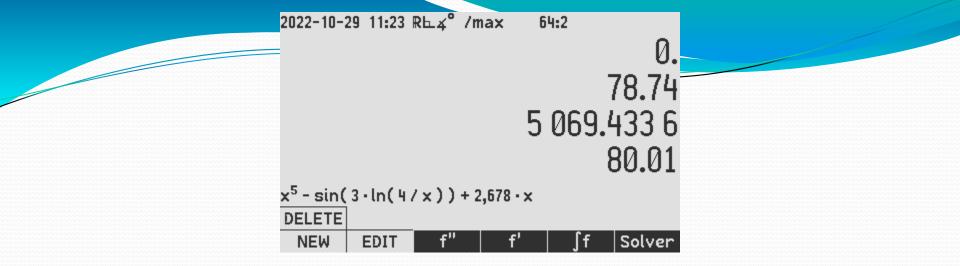
WP43 = WP 34S but no display limitations anymore,
plus

- ✓ 1st calculator with *direct access to up to 18 softkeys* at once
- ✓ Extended matrix operations incl. Matrix Editor
- ✓ Operations on *equations* incl. full fledge *Equation Editor*
- ✓ Assessing curve fits by plots and computed parameter errors
- ✓ Supporting *frequency histograms*
- ✓ First calculator supporting *measuring system analysis (MSA)*

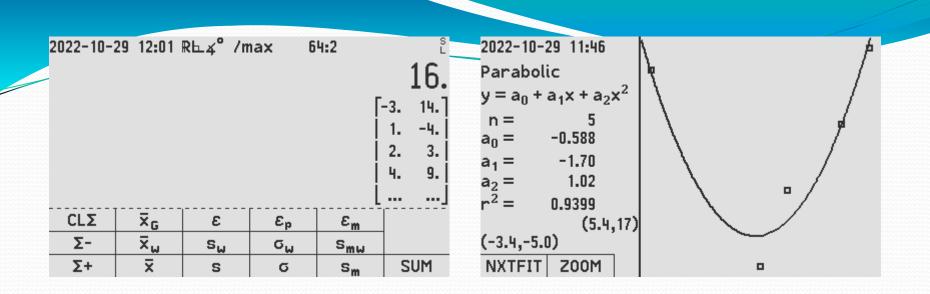


✓ Extended matrix operations incl. Matrix Editor

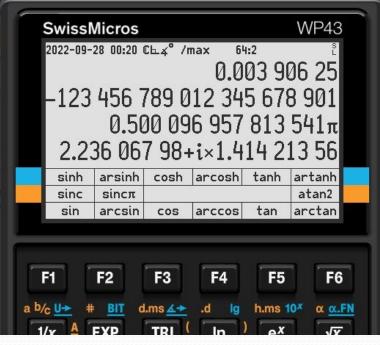
$\begin{bmatrix} 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 &$		
INSR DELR WRAP GROW INSR DELR ← ↑ 0LD GOTO ¥ → ← ↑ 0LD G	WRAP	GROW →



✓ Operations on *equations* incl. full fledge *Equation Editor*



✓ Assessing curve fits by plots and computed parameter errors



WP 34S plus

- ✓ State-of-the-art display !
- ✓ Real keys (no stickers)
- ✓ Lasting hardware supply (by SwissMicros instead of HP)
- ✓ Rugged stainless steel design
- ✓ Standard USB-B interface
- You can customise your keyboard layout by ASSIGNing for *user mode*
- ✓ Hardware provisions for overlays



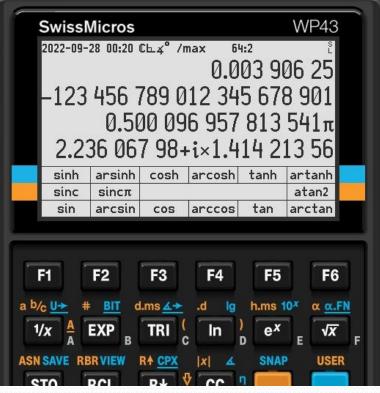
	SwissMicros	WP43	
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_			
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	sinc sincπ	atan2	
	sin arcsin cos arccos ta	an arctan	
	F1 F2 F3 F4	F5 F6	
a	b∕c <u>U→</u> # <u>BIT</u> d.ms <u>∡→</u> .d lg h.	ms 10 ^x α <u>α.FN</u>	
	1/x A EXP TRI (In)	e ^x _ √x _	
22222222	A B C D	E F	

plus

- ✓ Permanent 34-digit precision (≥ 39 digits under the hood)
- ✓ Data types:
 - ✓ **Real numbers** up to $\pm 10^{6145}$ (smaller limits can be set)
 - ✓ Infinite integers up to $\pm 10^{1001}$
 - ✓ Finite integers up to $\pm 2^{64}$ (i.e. 64 bits)
 - ✓ Complex numbers
 - ✓ Strings of up to 196 characters
 - ✓ Matrices as many and big as memory allows
 - ✓ Dates and times

How to feed your WP43

Input	Display	Meaning	
12345.678901 EXIT	12 345.678 901	Pool numbers see pp 85ff	
12 E 345 ENTER†	12.×10 ³⁴⁵	Real numbers, see pp. 85ff	
901.23.4567 ENTER +	> 901 ²³ /4 567	Fraction, see pp. 137ff	
270 <mark>(→∡)</mark> →MULπ	1.5π	Angle shown in multiples of π	
123.45678901 d.ms	123°46'7.89"	Sexagesimal <i>angle</i> ; see pp. 140ff also for other angular formats supported	
1234567890 ENTER+	1 234 567 890		
1234567890 # H	12 34 56 78 90,6	<i>Integers</i> of various bases and lengths, see pp. 150ff	
10100110111 📕 2	101 0011 0111 ₂		
	12.3-i×4.56	<i>Complex numbers</i> in rectangular or polar notation; mantissa plus	
12.3 CC 4.56 EXIT	12.3∡-4.56°	exponent format is settable as well; see pp. 165ff	
1.0203045 <u>a</u>	0001-02-03	<i>Date</i> , see pp. 198f	
1.2345678901 [h.ms]	1:23:45.678 901	Sexagesimal <i>time</i> , see pp. 201f	



- ✓ 88 functions accessible by \leq 2 keystrokes
- ✓ 251 functions accessible by \leq 3 keystrokes
- ✓ Some 680 functions in total
- \checkmark ≤ 1000 user defined variables, each can contain any object
- ✓ Up to 10 000 steps addressable per program 32 local flags and ≤ 100 local registers can be dedicated to each routine
- ✓ Store and recall calculator configurations
- ✓ Battery-fail-safe on-board backup in flash memory

And your choice of 4 or 8 stack registers,



... of course, as with *WP 34S* and *WP 31S* since 2011.

Enjoy !

Releasing the pilots WP43 v0.23.1

o Hardware by SwissMicros

Michael Steinmann (CH), David J. (CZ), and Emy Amstein (CH)

Software, user interface, specs and documentation by the WP43 authors

Core team: *Ben Titmus* (since 2021, GB), *Jaco Mostert* (s. 2020, SA), *Martin Lorang* (s. 2017, F), *Mihail* (s. 2021, J), *Paul Dale* (AUS), and *Walter Bonin* (D)

Contributions by *Friedrich Mütschele* ('20 –'20, D), *Gert Menke* ('18 –'20, D), *Gianluca Puggelli* ('19 –'21, I), and *Harald Overbeek* ('19 –'20, NL)

Project start: 2012

Releasing the pilots WP43 v0.23.1

- Finally, we have won the marathon against THE BOOK, q.e.d.!
- $_{\odot}$ What is not implemented yet but will come soon:
 - DELITM
 - READP and WRITEP
 - Printing via IR
- What will come a bit later:
 - PCB upgrade by *SwissMicros* in parallel to *DM32*

Releasing the pilots WP43 v0.23.1

Thanks for your attention!

Questions? Criticism? Wishes?