Parameter HOAX3 Firmware from Version #3.0 and up

Communication with serial TTL interface PL3 (resp. PL2 on HOAX1)- tested with FTDI USB cable TTL-232 5V. Use converter for RS-232!
Interface parameters: 57600 Bd, 8n1. Backspace (#8) erases last char from input buffer, others ignored
HOAXtransmits no echo. Only one command per line. Lines terminated by CR ($0D).
Setting commands terminated with "!" will be responded wit #0:255=0 [OK] message, may be omitted - yields faster transmission.

Please refrain from randomly changing parameters - you may render your HOAX board useless if you don't know what you're doing!
Each command/request may be given by SubCh or Mnemonic plus offset (if available).
Examples separated by comma. Each command/request must be terminated by <CR> (ASCII 13).
Values will be stored in non-volatile EEPROM if preceeded by WEN=1 command

General

Mnem.	Argument	SubCh	Param Range	Examples	Example Response	Factory Default	Remarks/Hints
IDN**	--	254		IDN?	#0:255=3.04 [HOAX ...]		Identify, Serial Number
STR**	--	255		STR?, 255?	#0:255=0 [OK]		Status Request
ERC	--	251	Integer	ERC?	#0:251=0		Error Counter Read
SBD	--	252	Byte	252=51!, 252?	#0:252=51	51	Serial baud rate setting, UBRR-value of Atmega. DO NOT USE!
WEN	--	250	0..1	WEN=1!, 0:250=1!, WEN=1, 250=1	#0:255=16 [OK]		**EEPROM Write Enable, store next command setting to EEPROM (non-volatile)**
RST	--	9999		RST, 9999?	(Reboot)		System Reset, restore EEPROM default values
	--	9998	--	9998?			Reload all default params from EEPROM
VAL**	0..3**	0..3	LongInt	VAL 0?, 7?	#0:2=0.0		FPGA SPI register direct access, raw values, for debug use. VAL 3 yields FPGA date code like [$24012011]
VAL*	4..249*	0..127	LongInt	16?	#0:16=255		FPGA Register direct access to HOAX-Core, raw values (may be overwritten by firmware) - see note at bottom
VAL**	2**	2	LongInt				Last received MIDI message from FIFO, 3 bytes CMD, DB1, DB2
…		0..9999	different	16?, 999, 300, 305=44	#0:16=255		general form <SubCh>=<value>for setting or <SubCh>? for query

Live Parameter Table Upper/Lower

		400..408	0..127				**Upper Drawbars**
		409	0..5	409?, 409=3	#0:409=3		**Upper, 409=Vibrato position 0 to 5 (6 positions V1, C1, V2, C2, V3, C3)**
		410	0..1				**Vibrato On Upper, value 0=OFF, 1=ON**
		411	0..2				**Percussion SelectTab, value 0=OFF, 1=2nd, 2=3rd**
		412	0..1				**Percussion LengthTab, value 0=Short, 1=Long**
		413	0..1				**Percussion VolumeTab, value 0=Soft, 1=Normal**
		416..424	0..127				**Lower Drawbars**
		425..426	0..127				**Bass, SubCh: 425=Bass 16', 426=Bass 5 1/3', 427=Bass 8'**
		428	0..127				**Bass Sustain**
		429	0..1				**Vibrato On Lower, value 0=OFF, 1=ON**
		430	0..3			0	SplitOpt, 0=OFF, 1=Lower To Upper, 2=Bass To Upper, 3=Bass To Lower - valid only on particular scan boards

Preset/Program Change

Mnem.	Argument	SubCh	Param Range	Examples	Example Response	Factory Default	Remarks/Hints
		350	0..15	350=4			**Program/Preset Change Upper**
		351	0..15				**Program/Preset Change Upper**
		352	0..3	352=3!			**EFX Change (Reverb-Stufe)**

Defaults Parameter Table Organ

Commands preceeded by WEN=1 will be non-volatile

Mnem.	Argument	SubCh	Param Range	Examples	Example Response	Factory Default	Remarks/Hints
VAL		500	0..15	500=0		0	Preset Lower
...		501	0..15	501=0		0	Preset Upper
		502	Byte	502=14		29	Vib1 amplitude modulation depth
		503	Byte			55	Vib2 amplitude modulation depth
		504	Byte			95	Vib3 amplitude modulation depth
		505	Byte	505=17		70	Vib1 phase/frequ modulation depth
		506	Byte			120	Vib2 phase/frequ modulation depth
		507	Byte			180	Vib3 phase/frequ modulation depth
		508	Byte			167	ChorusDryMix
		509	Byte			154	ChorusVibMix (wet)

	510	Byte			2	MIDI Option, 0=Thru, 1=Send, 2=Merge/Receive
	511	0..15			0	**MIDI cannel 0..15 (i.e. channel 1..16)**
	512	0..63			180	PercNormalLevel
	513	0..64			88	PercSoftLevel
	514	Byte			11	PercLongTimer
	515	Byte			35	PercShrtTimer
	516	0..15	516=7		7	Flutter
	517	0..3			2	Leakage (0 minimal, 3 maximal)
	518	0..1			0	Vintage ("old capacitors")
	519	0..31	519=6			Scan Core Select, 0 = Chained OrganScan61, 1 = MIDI receive, 2 = FatarScan2, 3 = OrganScan16/Bass parallel 44 keys, 4 = OrganScan16/Bass parallel 49 keys, 5 = OrganScan16/Bass parallel 61 keys, 6 = Test-Routine, 7 = OptoScan by Gerrit. Will be activated by reboot
	520	Byte			0	ScanOpt, dependant on PicoBlaze scan routine, Default 4014-SR on AUXPORT (=0), SCANPORT (=1) or one manual on SCANPORT (=2, für HOAX1), FatarScan2 on SCANPORT with bass pedal on AUXPORT (=0), without bass pedal (=1)
	521	Byte			0	AuxOption, Local controllers DISABLED if "1"
	522	Boolean	522=255		255	**Swell potentiometer input enable**
	523	Byte			220	Swell value if pot disabled
	524	Boolean	524=0		0	**Tone potentiometer input enable**
	525	0..127			110	Tone Pot value if TonePot disabled
	526	0..127			88	AO28 Preamp lowpass 125 Hz equalizer bass
	527	Boolean			255	**Disable 1' on Percussion**
	528	Boolean	528=255		0	**Disable 16' Foldback on lowest octave**
	529	Boolean	529=0			

Defaults Parameter Table Leslie

Commands preceeded by WEN=1 will be non-volatile

Mnem.	Argument	SubCh	Param Range	Examples	Example Response	Factory Default	Remarks/Hints
		600..631	Byte	602=75			Leslie levels, frequency/phase modulation and amplitude modulation
		602	Byte			75	Horn Phase 1 FM
		603	Byte			94	Horn Phase 2 FM
		604	Byte			120	Horn Phase 3 FM
		605	Byte			128	Horn Phase 2 Level
		606	Byte			117	Horn Phase 3 Level
		607	Byte			156	Horn Phase 1 Level
		608	Byte			145	Horn 2 kHz Highpass Filter AM
		609	Byte				not used (was Horn Level Post Delay on pre 2012 configurations)
		618	Byte			122	Rotor Phase 1 FM
		619	Byte			81	Rotor Phase 2 FM
		620	Byte				not used
		621	Byte			159	Rotor Phase 1 Level
		622	Byte			133	Rotor Phase 2 Level
		623	Byte			130	Rotor Dry Level, bypass non-modulated
		624	Byte			24	Rotor AM
		640..655	Byte				Leslie Timers/Speeds
		642	Byte			14	Horn Speed Slow
		643	Byte			12	Rotor Speed Slow
		644	Byte			145	Horn Speed Fast
		645	Byte			133	Rotor Speed Fast
		646	Byte			5	Horn Ramp Up
		647	Byte			15	Rotor Ramp Up
		648	Byte			3	Horn Ramp Down
		649	Byte			18	Rotor Ramp Down
		650	Byte			255	Amp 122 Volume potentiometer enable
		651	Byte			100	Amp 122 Fixed volume if disabled
		652	Byte			0	not used (was Bass on Leslie on pre 3.0 Firmware)
		660..691	Byte				Leslie Equalizer
		660	Byte			48	Horn band pass 1 frequency param
		661	Byte			24	Horn band pass 1 damping/inverse Q factor
		662	Byte			70	Horn band pass 1 level
		663	Byte			70	Horn band pass 2 frequency param
		664	Byte			15	Horn band pass 2 damping/inverse Q factor
		665	Byte			50	Horn band pass 2 level
		666	Byte			172	Horn band pass 3 frequency param
		667	Byte			37	Horn band pass 3 damping/inverse Q factor
		668	Byte			93	Horn band pass 3 level

		679	Byte			28	Rotor band pass 2 frequency param
		680	Byte			145	Rotor band pass 2 damping/inverse Q factor
		681	Byte			234	Rotor band pass 2 level
		685	Byte			192	frequency divider network frequency param
		686	Byte			164	frequency divider network damping/inverse Q factor
		687	Byte			163	frequency divider network level

Defaults Parameter Table EFX/Reverb

Commands preceeded by WEN=1 will be non-volatile

Mnem.	Argument	SubCh	Param Range	Examples	Example Response	Factory Default	Remarks/Hints
		700..715	Byte				4 Effekt-Programme DSP, 3 PWM analog vals 0..255 and FV-1-Program number 0..7
		700..703	Byte			0	not used (Reverb OFF)
		704	Byte			86	PWM Pot 0 FV-1 (Hall 1)
		705	Byte			0	PWM Pot 1 FV-1
		706	Byte			135	PWM Pot 2 FV-1 (Reverb Output Level)
		707	Byte			1	FV-1 Program number
		708	Byte			0	PWM Pot 0 FV-1 (Reverb 2)
		709	Byte			0	PWM Pot 1 FV-1
		710	Byte			172	PWM Pot 2 FV-1 (Reverb Output Level)
		711	Byte			3	FV-1 Program number
		712	Byte			91	PWM Pot 0 FV-1 (Reverb 3)
		713	Byte			31	PWM Pot 1 FV-1
		714	Byte			205	PWM Pot 2 FV-1 (Reverb Output Level)
		715	Byte			3	FV-1 Program number

Miscellaneous, communication

Mnem.	Argument	SubCh	Param Range	Examples	Example Response		Remarks/Hints
		998**		998?			**MIDI Lockout Status, 0=operating controls ON, 1=operating controls OFF if controlled by MIDI**
		999	0..1	999=1, 999?		0	**Local Lockout, 0=operating controls ON, 1=operating controls OFF for serial remote operation**
		300..323**	--	300?	#0:723=232		ADC read values raw, 24 analog inputs
		324**					read PL07 bit status
		325**					read PL11 bit status
		326**					read PL05 bit status
		327**					read PL08 bit status
		328**					read PL12 bit status
		1000..1255					Upper Preset Table Bulk, 16 vals per preset as on Live Param Table
		1256..1511					Lower Preset Table Bulk, 16 vals per preset as on Live Param Table Preset 0 not used - is live set!
							Caution! Imprudent use of following commands may render FPGA configuration useless!
DFP	0..1	9900, 9901		DFP = 4!			PB core config, 9901 = with serial output for debug use
DFC	--	9910	--	DFC?			DataFlash Config, FPGA Reconfiguration from DataFlash
DFS	--	9920		DFS?, DFS=0!			Read DataFlash status or DataFlash write enable with "DFS=0!" (set write protect OFF)
DFX	0..1	9930, 9931		DFX = 0, DFX 1=3!	XMODEM Request		DataFlash FPGA config (Ar.g=0, absolute block number given by parameter) or PB core (Arg.=1, relative block number/CoreSel after FPGA config data) by XMODEM128 (checksum) receive
DFE	0..2	9940..9942		DFE 2=0			DataFlash Erase, Arg. 0 = without offset, 1 = block after FPGA config data, 2 = chip erase (will erase scan cores as well!)
SFX		9960		SFX=10			SPIN EEPROM Config from Flash Core Block
							Commands preceeded by WEN=1 will be non-volatile
KEY	0	9950		9950=1234567, 9950?			**Enter or query licence number for organ**
KEY	1	9951		9951=1234568			**Enter or query licence number for leslie**

Legende ***write only** **** read only**

Factory Defaults may change without notice!

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