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=255		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			122	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
		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
		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**
		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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