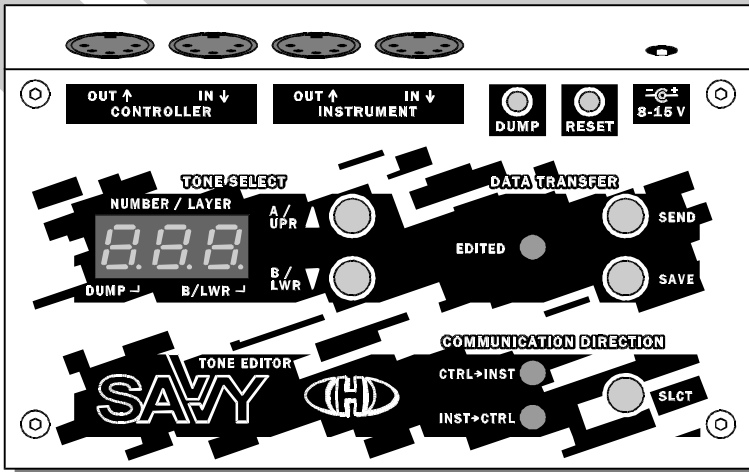


SAVVY

Tone Parameters Editor & Controller



MIDI System Exclusive Communication
Roland MKS-80 Super Jupiter

OS 006 ver. 2.0



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1 SYSEX MESSAGES STRUCTURE

For Roland MKS-80 Super Jupiter, SAVVY receives / transmits own specific SysEx messages with the following structure:

[hex]	[bin]	Byte	Range [dec]
F0	11110000	Start SysEx	
00	00000000	Manufacturer ID (always 3 byte)	
20	00100000		
21	00100001		
ii	0iiiiiii	Device ID ¹⁾	0 ~ 15 (MIDI Chnl) / 127 (Universal)
41	01000001	Model ID	
cc	0ccc0000	Command ²⁾	16 / 32 / 48 / 64
06	00000110	Instrument ID = Roland MKS-80	
20	00010000	Version ID = OS ver. 2.0	
d1	0ddddddd	Data Bytes ³⁾	
..		
dn	0ddddddd		
xx	0xxxxxxx	Checksum ⁴⁾	
F7	11110111	End SysEx	

Remarks:

¹⁾ The 'Device ID' byte is equal to a number of active MIDI channel (00h for channel Nr. 1, 01h for channel Nr. 2 etc.) for both received and transmitted messages. For messages sent to SAVVY, universal ID 127 can also be set – "Universal ID" message will be always recognized independently on the active MIDI channel number.

²⁾ The 'Command' byte specifies the message type i.e. the SAVVY activity after the whole SysEx message is received – see next chapters.

³⁾ Number of databytes and their structure is variable in dependence on 'Command' byte. Length of the datablock can be 12, 86, 75 or 3 bytes.

⁴⁾ The 'Checksum' byte confirms the validity of the SysEx message. It must be calculated as 7-bit complement of the sum of bytes from 'Model ID' to 'Data Bytes'. By other words, seven-bit sum of bytes from the 'Model ID' to 'Checksum' must be equal to zero (for the 'Checksum' calculation see also chapter 2.2).

1.1 BULK DUMP LOAD SYSTEM PARAMETERS COMMAND

By transmitting of the "**Bulk Dump Load System Parameters**" message to the device, it is allowed to change the content of system parameters memory bank saved in the device's user memory. This type of SysEx message is also sent from the device as immediate response to received "**Bulk Dump Request System Parameters**" SysEx command (see chapter 1.4). When **DUMP** button on the device's panel is pressed, "**Bulk Dump Load System Parameters**" message is sent from the device as one part of stream of SysEx messages.

Value of "cc" (Command) byte is 16 (i.e 10 hex) for "**Bulk Dump Load System Parameters**" command.

The data block "**d1...dn**" always contains 12 bytes with the following structure:

Byte	[hex]	[bin]	Range [dec]	Parameter
d1	xx	0xxxxxxx	0 ~ 15	Global Parameter: MIDI Channel
d2	00	00000000	0 ¹⁾	not used
d3	00	00000000	0 ¹⁾	not used
d4	xx	00f00cba		Inst → Ctrl Data Transfer Parameters:
			a: 0 ~ 1	Select Device ID for Bulk Dump
			b: 0 ~ 1	Send All CCs (Tone Change)
			c: 0 ~ 1	Send One CC (Parameter Change)
			f: 0 ~ 1	Send Manual Tone Slct as Pgm Chng



Byte	[hex]	[bin]	Range [dec]	Parameter
d5	xx	000e0cba		Ctrl → Inst Data Transfer Parameters:
			a: 0 ~ 1	Cache Modifications in Edit Buffer
			b: 0 ~ 1	Cache Macro Settings in Edit Buffer
			c: 0 ~ 1	Cache Random Setting in Edit Buffer
			e: 0 ~ 1	Accept Pgm Chng from Ctrl
d6	0x	0000dcba		Global Parameters:
			a: 0 ~ 1	MIDI Errors Auto Reset
			b: 0 ~ 1	Remember Last Tone
			c: 0 ~ 1	Tone Number Format
			d: 0 ~ 1	Use Bank Select Command
d7	00	00000000	0 ¹⁾	not used
d8	00	00000000	0 ¹⁾	not used
d9	00	00000000	0 ¹⁾	not used
d10	00	00000000	0 ¹⁾	not used
d11	00	00000000	0 ¹⁾	not used
d12	0x	0000xxxx	0 ~ 15	Global Parameter: Display Brightness

Remarks:

¹⁾ These bytes must be always equal to 0! If not, the SAVVY will not work correctly.

1.2 BULK DUMP LOAD INSTRUMENT PARAMETERS COMMAND

By transmitting of the "Bulk Dump Load Instrument Parameters" message to the device, it is allowed to change the content of instrument parameters memory bank saved in the device's user memory. This type of SysEx message is also sent from the device as immediate response to received "Bulk Dump Request Instrument Parameters" SysEx command (see chapter 1.4). When **DUMP** button on the device's panel is pressed, "Bulk Dump Load Instrument Parameters" message is sent from the device as one part of stream of SysEx messages.

Value of "cc" (Command) byte is 32 (i.e 20 hex) for "Bulk Dump Load Instrument Parameters" command.

The data block "d1...dn" always contains 86bytes with the following structure:

Byte	[hex]	[bin]	Range [dec]	CC Assignment to a Parameter
d1	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	LFO-1 RATE
d2	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	LFO-1 DELAY TIME
d3	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	LFO-1 WAVEFORM
d4	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO MOD LFO-1 DEPTH
d5	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO MOD ENV-1 DEPTH
d6	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	PW
d7	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	PWM
d8	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	PWM MODE SEL
d9	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	PWM POL
d10	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO KEY FOLLOW
d11	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO KEY FOLLOW SEL
d12	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	XMOD MANUAL DEPTH
d13	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	XMOD ENV-1 DEPTH
d14	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	XMOD POL
d15	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO-1 MOD
d16	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO1-1 RANGE
d17	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO-1 WAVEFORM
d18	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO SYNC
d19	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO-2 MOD
d20	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO-2 RANGE
d21	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO-2 FINE TUNE
d22	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCO-2 WAVEFORM
d23	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	MIXER
d24	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	HPF CUTOFF FREQ
d25	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCF CUTOFF FREQ
d26	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCF RESONANCE



Byte	[hex]	[bin]	Range [dec]	CC Assignment to a Parameter
d27	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCF ENV SEL
d28	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCF ENV POL
d29	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCF MOD ENV DEPTH
d30	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCF MOD LFO-1 DEPTH
d31	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCF KEY FOLLOW
d32	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCA ENV-2 LEVEL
d33	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	VCA MOD LFO-1 DEPTH
d34	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV DYNAMICS TIME
d35	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV DYNAMICS LEVEL
d36	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV RESET
d37	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-1 DYNAMICS
d38	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-1 ATTACK TIME
d39	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-1 DECAY TIME
d40	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-1 SUSTAIN LEVEL
d41	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-1 RELEASE TIME
d42	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-1 KEY FOLLOW
d43	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-2 DYNAMICS
d44	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-2 ATTACK TIME
d45	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-2 DECAY TIME
d46	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-2 SUSTAIN LEVEL
d47	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-2 RELEASE TIME
d48	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	ENV-2 KEY FOLLOW
d49	7F	01111111	127 ²⁾	not used
d50	7F	01111111	127 ²⁾	not used
d51	7F	01111111	127 ²⁾	not used
d52	7F	01111111	127 ²⁾	not used
d53	7F	01111111	127 ²⁾	not used
d54	7F	01111111	127 ²⁾	not used
d55	7F	01111111	127 ²⁾	not used
d56	7F	01111111	127 ²⁾	not used
d57	7F	01111111	127 ²⁾	not used
d58	7F	01111111	127 ²⁾	not used
d59	7F	01111111	127 ²⁾	not used
d60	7F	01111111	127 ²⁾	not used
d61	7F	01111111	127 ²⁾	not used
d62	7F	01111111	127 ²⁾	not used
d63	7F	01111111	127 ²⁾	not used
d64	7F	01111111	127 ²⁾	not used
d65	7F	01111111	127 ²⁾	not used
d66	7F	01111111	127 ²⁾	not used
d67	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Modifier: MOD RATE
d68	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Modifier: MOD DEPTH
d69	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Modifier: BRILLIANCE
d70	7F	01111111	127 ²⁾	not used
d71	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Modifier: ENV TIME
d72	7F	01111111	127 ²⁾	not used
d73	7F	01111111	127 ²⁾	not used
d74	7F	01111111	127 ²⁾	not used
d75	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Macro: ENV ATTACK
d76	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Macro: ENV DECAY
d77	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Macro: ENV SUSTAIN
d78	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	Macro: ENV RELEASE
d79	7F	01111111	127 ²⁾	not used
d80	7F	01111111	127 ²⁾	not used
d81	7F	01111111	127 ²⁾	not used
d82	7F	01111111	127 ²⁾	not used
d83	7F	01111111	127 ²⁾	not used
d84	7F	01111111	127 ²⁾	not used
d85	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	RANDOM FUNCTIONS
d86	xx	0xxxxxxxx	0 ~ 126 / 127 ¹⁾	SELECT LAYER FUNCTION

Remarks:

¹⁾ Values 0 to 126 assign corresponding CC number to the parameter, value 127 means that no CC is assigned to the parameter.

²⁾ These bytes must be always equal to 127! If not, the SAVVY will not work correctly.

1.3 BULK DUMP LOAD TONE DATA COMMAND

By transmitting of the "Bulk Dump Load Tone Data" message to the device, it is allowed to change the content of one part of tone data memory bank saved in the device's user memory. This type of SysEx message is also sent from the device as immediate response to received "Bulk Dump Request Tone Data" SysEx command (see chapter 1.4). When DUMP button on the device's panel is pressed, "Bulk Dump Load Tone Data" messages are sent from the device for each of stored tones as 128 parts of stream of SysEx messages.

Value of "cc" (Command) byte is 48 (i.e 30 hex) for "Bulk Dump Load Tone Data" command.

The data block "d1...dn" always contains 75 bytes with the following structure:

Byte	[hex]	[bin]	Range [dec]	Tone Parameter
d1	xx	00000xxx	0 ~ 5	BANK NUMBER ¹⁾
d2	xx	0xxxxxxx	0 ~ 127	tone NUMBER ²⁾
d3	xx	0xxxxxxx	0 ~ 100	LFO-1 RATE
d4	xx	0xxxxxxx	0 ~ 100	LFO-1 DELAY TIME
d5	0x	000000xx	0 ~ 3	LFO-1 WAVEFORM
d6	xx	0xxxxxxx	0 ~ 100	VCO MOD LFO-1 DEPTH
d7	xx	0xxxxxxx	0 ~ 100	VCO MOD ENV-1 DEPTH
d8	xx	0xxxxxxx	0 ~ 100	PW
d9	xx	0xxxxxxx	0 ~ 100	PWM
d10	0x	000000xx	0 ~ 2	PWM MODE SEL
d11	0x	0000000x	0 ~ 1	PWM POL
d12	xx	0xxxxxxx	0 ~ 100	VCO KEY FOLLOW
d13	0x	000000xx	0 ~ 2	VCO KEY FOLLOW SEL
d14	xx	0xxxxxxx	0 ~ 100	XMOD MANUAL DEPTH
d15	xx	0xxxxxxx	0 ~ 100	XMOD ENV-1 DEPTH
d16	0x	0000000x	0 ~ 1	XMOD POL
d17	0x	0000000xx	0 ~ 2	VCO-1 MOD
d18	xx	0xxxxxxx	36 ~ 84	VCO1-1 RANGE
d19	0x	000000xx	0 ~ 3	VCO-1 WAVEFORM
d20	0x	0000000xx	0 ~ 2	VCO SYNC
d21	0x	000000xx	0 ~ 2	VCO-2 MOD
d22	xx	0xxxxxxx	35 ~ 85	VCO-2 RANGE
d23	xx	0xxxxxxx	0 ~ 100	VCO-2 FINE TUNE
d24	0x	000000xx	0 ~ 3	VCO-2 WAVEFORM
d25	xx	0xxxxxxx	0 ~ 100	MIXER
d26	xx	0xxxxxxx	0 ~ 100	HPF CUTOFF FREQ
d27	xx	0xxxxxxx	0 ~ 100	VCF CUTOFF FREQ
d28	xx	0xxxxxxx	0 ~ 100	VCF RESONANCE
d29	0x	0000000x	0 ~ 1	VCF ENV SEL
d30	0x	0000000x	0 ~ 1	VCF ENV POL
d31	xx	0xxxxxxx	0 ~ 100	VCF MOD ENV DEPTH
d32	xx	0xxxxxxx	0 ~ 100	VCF MOD LFO-1 DEPTH
d33	xx	0xxxxxxx	0 ~ 100	VCF KEY FOLLOW
d34	xx	0xxxxxxx	0 ~ 100	VCA ENV-2 LEVEL
d35	xx	0xxxxxxx	0 ~ 100	VCA MOD LFO-1 DEPTH
d36	xx	0xxxxxxx	0 ~ 100	ENV DYNAMICS TIME
d37	xx	0xxxxxxx	0 ~ 100	ENV DYNAMICS LEVEL
d38	0x	0000000x	0 ~ 1	ENV RESET
d39	0x	0000000x	0 ~ 1	ENV-1 DYNAMICS
d40	xx	0xxxxxxx	0 ~ 100	ENV-1 ATTACK TIME
d41	xx	0xxxxxxx	0 ~ 100	ENV-1 DECAY TIME



Byte	[hex]	[bin]	Range [dec]	Tone Parameter
d42	xx	0xxxxxxxx	0 ~ 100	ENV-1 SUSTAIN LEVEL
d43	xx	0xxxxxxxx	0 ~ 100	ENV-1 RELEASE TIME
d44	xx	0xxxxxxxx	0 ~ 100	ENV-1 KEY FOLLOW
d45	0x	0000000x	0 ~ 1	ENV-2 DYNAMICS
d46	xx	0xxxxxxxx	0 ~ 100	ENV-2 ATTACK TIME
d47	xx	0xxxxxxxx	0 ~ 100	ENV-2 DECAY TIME
d48	xx	0xxxxxxxx	0 ~ 100	ENV-2 SUSTAIN LEVEL
d49	xx	0xxxxxxxx	0 ~ 100	ENV-2 RELEASE TIME
d50	xx	0xxxxxxxx	0 ~ 100	ENV-2 KEY FOLLOW
d51	xx	0xxxxxxxx	32 ~ 127 ⁴⁾	TONE NAME (CHR1)
d52	xx	0xxxxxxxx	32 ~ 127 ⁴⁾	TONE NAME (CHR2)
d53	xx	0xxxxxxxx	32 ~ 127 ⁴⁾	TONE NAME (CHR3)
d54	xx	0xxxxxxxx	32 ~ 127 ⁴⁾	TONE NAME (CHR4)
d55	xx	0xxxxxxxx	32 ~ 127 ⁴⁾	TONE NAME (CHR5)
d56	xx	0xxxxxxxx	32 ~ 127 ⁴⁾	TONE NAME (CHR6)
d57	xx	0xxxxxxxx	32 ~ 127 ⁴⁾	TONE NAME (CHR7)
d58	xx	0xxxxxxxx	32 ~ 127 ⁴⁾	TONE NAME (CHR8)
d59	xx	0xxxxxxxx	32 ~ 127 ⁴⁾	TONE NAME (CHR9)
d60	xx	0xxxxxxxx	32 ~ 127 ⁴⁾	TONE NAME (CHR10)
d61	40	01000000	64 ³⁾	not used
d62	40	01000000	64 ³⁾	not used
d63	40	01000000	64 ³⁾	not used
d64	40	01000000	64 ³⁾	not used
d64	40	01000000	64 ³⁾	not used
d65	40	01000000	64 ³⁾	not used
d66	40	01000000	64 ³⁾	not used
d67	40	01000000	64 ³⁾	not used
d68	xx	0xxxxxxxx	0 ~ 127	Modifier: MOD RATE
d69	xx	0xxxxxxxx	0 ~ 127	Modifier: MOD DEPTH
d70	xx	0xxxxxxxx	0 ~ 127	Modifier: BRILLIANCE
d71	40	01000000	64 ²⁾	not used
d72	xx	0xxxxxxxx	0 ~ 127	Modifier: ENV TIME
d73	40	01000000	64 ³⁾	not used
d74	40	01000000	64 ³⁾	not used
d75	40	01000000	64 ³⁾	not used

Remarks:

- ¹⁾ The 'Bank Number' byte specifies what tone data memory bank will be affected by the SysEx message.
- ²⁾ The 'Tone Number' byte specifies what part of selected tone data memory bank (i.e. what tone number) will be affected by the SysEx message.
- ³⁾ These bytes must be always equal to 64! If not, the SAVVY will not work correctly.
- ⁴⁾ All ASCII characters with codes 32 to 127 can be used.



1.4 BULK DUMP REQUEST COMMAND

When the "**Bulk Dump Request**" SysEx message is sent to the device, the device responds immediately with "**Bulk Dump Load**" message (see above). This message contents data from requested memory bank saved in the device's user memory.

Value of "**cc**" (Command) byte is 64 (i.e 40 hex) for "**Bulk Dump Request**" command.

The data block "**d1...dn**" always contains 3 bytes the following structure:

Byte	[hex]	[bin]	Range	Meaning
d1	01	00000001		Sub-command: Bulk Dump Request
d2	xx	00xxxxxxx	16 / 32 / 48 ~ 53 ¹⁾	Bank Type
d3	xx	0xxxxxxx	0 or 0 ~ 127 ²⁾	Bank Part Number

Remarks:

¹⁾ The 'Bank Type' byte specifies the memory area for the command processing: 16 (i.e 10 hex) is for System Parameters Bank, 32 (i.e 20 hex) is for Instrument Parameters Bank and 48 ~ 53 (i.e 30 hex to 35 hex) is for a Tone Data Bank Nr. 1 to 6.

²⁾ If Bank Type byte is 48 to 53 (i.e. Tone Data Bank Nr. 1 to 6), the 'Bank Part Number' byte specifies number of requested tone in the selected bank exactly (0 to 127). If 'Bank Type' byte is 16 or 32, the 'Bank Part Number' byte must be always equal to 0.

1.5 BULK DUMP INITIALIZE COMMAND

When the "**Bulk Dump Initialize**" SysEx message is sent to the device, data in requested memory bank in the device's user memory are rewritten with default "factory reset" data . Original data are lost!

Value of "**cc**" (Command) byte is 64 (i.e 40 hex) for "**Bulk Dump Initialize**" command.

The data block "**d1...dn**" always contains 3 bytes the following structure:

Byte	[hex]	[bin]	Range	Meaning
d1	00	00000000		Sub-command: Initialize
d2	xx	00xxxxxxx	16 / 32 / 48 ~ 53 ¹⁾	Bank Type
d3	xx	0xxxxxxx	0 or 0 ~ 127 ²⁾	Bank Part Number

Remarks:

¹⁾ The 'Bank Type' byte specifies the memory area for the command processing: 16 (i.e 10 hex) is for System Parameters Bank, 32 (i.e 20 hex) is for Instrument Parameters Bank and 48 ~ 53 (i.e 30 hex to 35 hex) is for a Tone Data Bank Nr. 1 to 6.

²⁾ If Bank Type byte is 48 to 53 (i.e. Tone Data Bank Nr. 1 to 6), the 'Bank Part Number' byte specifies number of requested tone in the selected bank exactly (0 to 127). If 'Bank Type' byte is 16 or 32, the 'Bank Part Number' byte must be always equal to 0.

2 SYSEX MESSAGES CREATING

2.1 SYSEX MESSAGES GENERATORS

As a support for the users we have made special software generators to create any SysEx messages to control the SAVVY editor. Usage of these generators is very easy for any user. Please see Manual Supplement for detailed description of SysEx Messages Generator.

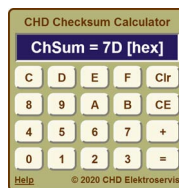
2.2 CHECKSUM CALCULATOR

If you want to create a SysEx message yourself, you need to calculate the 'Checksum' byte. This is difficult for most musicians because calculation with hexadecimal / binary numbers is necessary. For easy calculation of the checksum, special software **Checksum Calculator** is prepared.

The Checksum Calculator is based on Java scripts so it can run on any computer with web browser (Windows, OSX, etc.). Note that scripts and ActiveX elements must be enabled in the web browser for proper function of the calculator.

The Checksum Calculator is available at our website (www.chd-el.cz) on Support page.

The Checksum Calculator works on-line or it can be downloaded to your computer and then launched from it.





Tone Parameters Editor & Controller

Model TPE-1 Nr. 8-361 / Bios v. 1.00 / OS Nr. 006 v. 2.0

Document: 8361100-00620_sysex

Manufacturer:

CHD Elektroservis, Czech Republic
www.chd-el.cz info@chd-el.cz



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