KENTON

PRO SOLO mk3

HIGH SPEC MIDI TO CV CONVERTER

IN — MIDI — THRU   AUX3   AUX2   AUX1   GATE   CV   DC IN
(SYNC24)   (S-TRIG)   (Hz/V)   9V

high specification single channel midi to cv converter

MAIN PARAMETERS ONLY LISTED BELOW

– ⊙ +

┌ PARA ┌ VAL ┌ GATE

P 01

GENERAL	01	MIDI RECEIVE CHANNEL
NOTE	02	RETRIG TIME
	03	NOTE PRIORITY LO/HI/NEW
	04	PITCHBEND RANGE
	06	PORTAMENTO TIME/RATE
	07	PORTAMENTO TYPE
	12	COARSE TUNE (SEMITONES)
	13	FINE TUNE
	14	SCALE
	15	CV/HZ SELECT
	16	GATE TYPE SELECT
AUX 1	20	CONTROLLER #
	21	MINIMUM VALUE
	22	MAXIMUM VALUE
	23	RESET VALUE
	24	KEY SCALE TO AUX 1
AUX2	30	CONTROLLER #
AUX3	40	CONTROLLER #
LFO	50	LFO RATE
CLK1	60	DIVIDE
CLK2	70	DIVIDE
OTHER	90	SOCKET SELECT
	98	LOAD
	99	STORE

SELECT   DEC   INC
PARAMETER / VALUE TOGGLE
LONG HOLD TO STORE

0
1

PRO SOLO Mk3

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CE

SysEx Implementation

Introduction

There are four different types of System Exclusive message that the PRO SOLO Mk3 can receive:
Program Dump Request, Program Dump Receive, Info Change and Firmware Upgrade.

The first five bytes of SysEx are the same for every message type:

Byte	Data	Description
[1]	F0h	SysEx command
[2]	00h	Company ID
[3]	20h	Company ID
[4]	13h	Company ID (Kenton Electronics Ltd.)
[5]	1Ah	Product ID (PRO SOLO Mk3)
[6]	xxh	SysEx Device Number (00h to 0Fh) or 7Fh for firmware update

Program Dump Request

…		
[7]	10h	Program Dump Request
[8]	xxh	Program number to dump (01h to 20h), or 00h for the edit buffer
[9]	F7h	End of exclusive

The PRO SOLO Mk3 will respond by sending the requested program dump in the format given below.
Note: 'Socket Select' (Parameter 90) must be set to MIDI Out for this to work.

Examples:	F0 00 20 13 1A 00 10 **01** F7	will request Program 1 to be dumped
(SysEx dev no. = 1)	F0 00 20 13 1A 00 10 **20** F7	will request Program 32 to be dumped
	F0 00 20 13 1A 00 10 **00** F7	will request the edit buffer to be dumped

Program Dump Receive

…		
[7]	40h	Program Dump Receive
[8]	xxh	Program number read from (01h to 20h) or 00h for the edit buffer
[9]	00h / 01h	High 7 bits of data (either 00h or 01h for PRO SOLO Mk3)
[10]	0nnnnnnn	Where nnnnnnn = low 7 bits of data
…	…	[9] & [10] are executed 61 times (for 61 bytes of data)
[131]	F7h	End of exclusive

Note: Only the first 55 values (addresses 00 to 54) sent are valid (55 to 60 are for possible future use)

Firmware Upgrade

…		
[7] to [65406]		Where 57225 bytes of 8-bit code are packed as 65400 bytes of 7 bits.
[65407]	F7h	End of exclusive

Note: The PRO SOLO Mk3 must start receiving the firmware upgrade within 20 seconds of "P01" appearing in the display after power-up, otherwise it will be ignored.

Info (Parameter) Change

...

[7]	20h	Info Change	
[8]	00h	High 7 bits of parameter number (always 00h for PRO SOLO Mk3)	
[9]	0nnnnnnn	Where nnnnnnn = low 7 bits of parameter number	
[10]	00h / 01h	High 7 bits of data (either 00h or 01h for PRO SOLO Mk3)	
[11]	0nnnnnnn	Where nnnnnnn = low 7 bits of data	
[12]	F7h	End of exclusive	

The PRO SOLO Mk3 is sent a two-byte address, which directly corresponds to a parameter. It is also sent two bytes of data, which represent the value at the parameter. It responds by changing the data and updating the display if necessary. The new value is **NOT** stored, as would be the case if you were using the front panel to change a parameter. The list of addresses and possible data values is below.

Note: All SysEx addresses and data are range checked and out-of-range values will either be ignored or adjusted to give a valid response.

Add.	(Hex)	Function	Range	Notes
00	00h	P01 MIDI Receive Channel	0 to 15	Corresponds to channels 1 to 16
01	01h	P02 Retrigger Time	0 to 25	0 = Off / 1 to 25
02	02h	P03 Note Priority	0 to 2	0 = New / 1 = Low / 2 = High
03	03h	P04 Pitch Bend Range	0 to 48	
04	04h	P05 Portamento Controller	253 > 0 > 119	See note (1)
05	05h	P06 Portamento Rate	1 to 127	
06	06h	P07 Portamento Type	0 or 1	0 = Fixed Rate / 1 = Fixed Time
07	07h	P08 LFO to CV Controller	252 > 0 > 119	See note (2)
08	08h	P09 LFO to CV Min Value	0 to 127	
09	09h	P10 LFO to CV Max Value	0 to 127	
10	0Ah	P11 LFO to CV Reset Value	0 to 127	
11	0Bh	P12 Coarse Tune	232 > 0 > 24	See note (3)
12	0Ch	P13 Fine Tune	129 > 0 > 127	129 to 255 negative / 0 to 127 positive
13	0Dh	P14 Scale	129 > 0 > 127	129 to 255 negative / 0 to 127 positive
14	0Eh	P15 CV / Hz Select	0 to 2	0 = CV / 1 = Hz / 2 = 1.2V
15	0Fh	P16 Gate Type	0 to 6	See note (4)
16	10h	P20 Aux 1 Controller	246 > 0 > 119	See note (5)
17	11h	P21 Aux 1 Min Value	0 to 127	Corresponds to -27 to +100
18	12h	P22 Aux 1 Max Value	0 to 127	Corresponds to -27 to +100
19	13h	P23 Aux 1 Reset Value	0 to 127	
20	14h	P24 Aux 1 Key Scale	0 to 127	
21	15h	P25 LFO to Aux 1 Controller	252 > 0 > 119	See note (2)
22	16h	P26 LFO to Aux 1 Min Value	0 to 127	
23	17h	P27 LFO to Aux 1 Max Value	0 to 127	
24	18h	P28 LFO to Aux 1 Reset Value	0 to 127	
25	19h	P29 Aux 1 Drum Trig. Note No.	0 to 127	
26	1Ah	P30 Aux 2 Controller	246 > 0 > 119	See note (4)
27	1Bh	P31 Aux 2 Min Value	0 to 127	Corresponds to -27 to +100
28	1Ch	P32 Aux 2 Max Value	0 to 127	Corresponds to -27 to +100
29	1Dh	P33 Aux 2 Reset Value	0 to 127	
30	1Eh	P34 Aux 2 Drum Trig. Note No.	0 to 127	
31	1Fh	P40 Aux 3 Controller	246 > 0 > 119	See note (5)
32	20h	P41 Aux 3 Min Value	0 to 127	
33	21h	P42 Aux 3 Max Value	0 to 127	
34	22h	P43 Aux 3 Reset Value	0 to 127	
35	23h	P44 Aux 3 Drum Trig. Note No.	0 to 127	
36	24h	P50 LFO Rate	0 to 191	
37	25h	P51 LFO Waveshape	0 to 8	See note (6)

Continued on next page…

Add.	(Hex)	Function	Range	Notes
38	26h	P52 LFO Sync	0 or 96	0 = Off / 1 to 96 corresponds to divide ratio
39	27h	P53 LFO Start Point Offset	0 to 255	
40	28h	P54 LFO Key-On Reset	0 or 1	0 = Off / 1 = On
41	29h	P60 Clock 1 Divide Ratio	0 to 24	0 = C24 / 1 to 23 = d2 to d24 / 24 = C48
42	2Ah	P61 Clock 1 Shift	0 to 255	
43	2Bh	P70 Clock 2 Divide Ratio	1 to 23	Corresponds to d2 to d24
44	2Ch	P71 Clock 2 Shift	0 to 255	
45	2Dh	P80 EG Attack Time	0 to 127	
46	2Eh	P81 EG Decay Time	0 to 127	
47	2Fh	P82 EG Sustain Level	0 to 127	
48	30h	P83 EG Release Time	0 to 127	
49	31h	P84 EG Invert	0 or 1	0 = Off / 1 = On
50	32h	P85 EG Reset to Zero	0 or 1	0 = Off / 1 = On
51	33h	P86 EG Attack Time CC	0 to 119	
52	34h	P87 EG Decay Time CC	0 to 119	
53	35h	P88 EG Sustain Level CC	0 to 119	
54	36h	P89 EG Release Time CC	0 to 119	
64	40h	P90 Socket Select	0 to 3	See note (7)
65	41h	P91 SysEx Device Number	0 to 15	Corresponds to numbers 1 to 16
66	42h	P92 Continue = Start	0 or 1	0 = Off / 1 = On
67	43h	P93 Drum Trigger Length	0 to 127	
68	44h	P94 Aux 1 Slew Rate	0 to 31	
69	45h	P95 Aux 2 Slew Rate	0 to 31	
70	46h	P96 Aux 3 Slew Rate	0 to 31	
71	47h	P97 Prog. Change Rx Enable	0 or 1	0 = Off / 1 = On

Notes:

(1)   **253** = On / **254** = Off / **255** = Auto / (CCs) **0 to 119**

(2)   **252** = Ignore / **253** = Pitch Bend / **254** = Velocity / **255** = Aftertouch / (CCs) **0 to 119**

(3)   **232** = -24 Semitones / **0** = No Transpose / **24** = + 24 Semitones (25 to 231 are invalid)

(4)   **0** = Gate 5V / **1** = G 10V / **2** = G 15V / **3** = S no pull-up / **4** = S 5V pu / **5** = S 10V pu / **6** = S 15V pu

(5)   **246** = EG / **247** = Drum Trig. / **248** = Start/Stop / **249** = CL2 / **250** = CL1 / **251** = Note Trig.
        252 = Ignore / **253** = Pitch Bend / **254** = Velocity / **255** = Aftertouch / (CCs) **0 to 119**

(5)   **0** = Tri / **1** = Saw Up / **2** = Saw Down / **3** = 10 / **4** = 20 / **5** = 30 / **6** = 40 / **7** = 50% Pulse / **8** = S&H

(6)   **0** = MIDI Thru, Out / **1** = Sync 24 (fixed) / **2** = Sync 24 (Clock 1) / **3** = Sync 24 (Clock 2)

Examples (SysEx device number = 1):

F0 00 20 13 1A 00 20 **00 00 00 0F** F7   will set the MIDI Receive Channel to 16

F0 00 20 13 1A 00 20 **00 31 00 01** F7   will set the ADSR envelope to Inverted

F0 00 20 13 1A 00 20 **00 25 00 08** F7   will set the LFO wave to Sample & Hold

Addendum for firmware version 2006

Firmware v2006 added support for the following additional System Exclusive messages (note: Pro Solos with earlier firmware cannot be updated to v2006):

Firmware Version Request

The Firmware Version Request does not use byte 6 exclusively for Sysex Device No. The Sysex Device No is encoded into the 4 lowest significant bits, and the 4 most significant bits are set to 06h.

…		
[6]	6xh	Firmware Version Request, Device No, where x is the Device No
[7]	F7h	End of exclusive

The PRO SOLO Mk3 will respond by sending the firmware version in the format given below.
Note: 'Socket Select' (Parameter 90) must be set to MIDI Out for this to work.

Firmware Version Receive

…		
[6]	6xh	Program Dump Receive, **complement** of Device No, where x is the Device No
[7]	xxh	where xx is the ASCII code for the first digit of the firmware version
[8]	xxh	where xx is the ASCII code for the second digit of the firmware version
[9]	xxh	where xx is the ASCII code for the third digit of the firmware version
[10]	xxh	where xx is the ASCII code for the fourth digit of the firmware version
[11]	F7h	End of exclusive

Example:	F0 00 20 13 1A **60** F7	will request version from device no = 0
	F0 00 20 13 1A **6F** 32 30 30 36 F7	responds with 2006

Program Dump Request – Global Parameters

…		
[7]	10h	Program Dump Request
[8]	7Fh	Global Parameters
[9]	F7h	End of exclusive

The PRO SOLO Mk3 will respond by sending Addresses 64 to 71 in the format given below.
Note: 'Socket Select' (Parameter 90) must be set to MIDI Out for this to work.

Program Dump Receive – Global Parameters

…		
[7]	40h	Program Dump Receive
[8]	7Fh	Global Parameters
[9]	00h / 01h	High 7 bits of data (either 00h or 01h)
[10]	0nnnnnnn	Where nnnnnnn = low 7 bits of data
…	…	[9] & [10] are executed 12 times (for 12 bytes of data)
[33]	F7h	End of exclusive

Note: Only the first 8 values (addresses 64 to 71) are valid (72 to 75 are for possible future use)

Info (Parameter) Change – store/load setups

Info Changes are not automatically stored – changes will be lost after a power cycle. On versions prior to v2006, you would have to manually save by pressing the SEL button on the Pro Solo after each Info Change. From v2006, the store and load versions of Info Change have been added. Now you can explicitly save the changes you have made using the Store version of the message (using program 00).

…

[7]	20h	Info Change
[8]	00h	
[9]	7Eh / 7Fh	Where 7E Loads a program into the edit buffer, and 7F stores the buffer
[10]	00h	
[11]	xxh	Where xx is the program to save to: 00h is current setup, 01-20h for stored programs, or 7F for global parameters (addresses 64-71).
[12]	F7h	End of exclusive

Examples (SysEx device number = 1):

To change a value and store it:

F0 00 20 13 1A 00 20 **00 00 00 0F** F7   will set the MIDI Receive Channel to 16

F0 00 20 13 1A 00 20 **00 7F 00 00** F7   Store the current setup

To load Program 32 as the current setup:

F0 00 20 13 1A 00 20 **00 7E 00 20** F7   Load program 32

To store the current setup as Program 32:

F0 00 20 13 1A 00 20 **00 7F 00 20** F7   Store program 32