

KENTON

PRO SOLO *mk3*

HIGH SPEC MIDI TO CV CONVERTER

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

high specification single channel midi to cv converter

┌ PARA ┐ ┌ VAL ┐ ┌ GATE ┐

SELECT DEC INC
PARAMETER / VALUE TOGGLE
LONG HOLD TO STORE

PRO SOLO Mk3
KENTON
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MAIN PARAMETERS ONLY LISTED BELOW

- 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
- AUX 2 30 CONTROLLER #
- AUX 3 40 CONTROLLER #
- LFO 50 LFO RATE
- CLK1 60 DIVIDE
- CLK2 70 DIVIDE
- OTHER 90 SOCKET SELECT
- 98 LOAD
- 99 STORE

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SysEx Implementation

Introduction

There are four SysEx messages that the Pro Solo mk3 can receive:

Firmware Version Request	requests the firmware version as a Firmware Version Receive message
Serial Number Request	requests the serial number as a Serial Number Receive message (this is not the same as the “Px-xxxx” serial number, but a unique serial number for the device)
Program Dump Request	requests configuration info in the form of a Program Dump Receive message.
Info Change	Sets a parameter, loads and stores presets

Note: Not all firmware versions support all these messages, nor all variations of some messages – firmware version support is detailed throughout this document.

Note: ‘Socket Select’ (Parameter 90) must be set to MIDI Out for SysEx Receive messages to be sent by the Pro Solo.

The first five bytes of SysEx are the same for every message, and are always followed by the device ID and message type:

Byte	Data	Description
[1]	F0h	Start of System Exclusive
[2]	00h	Company ID
[3]	20h	Company ID
[4]	13h	Company ID (Kenton Electronics Ltd.)
[5]	1Ah	Product ID (Pro Solo mk3)
[6]	xxh	Device ID (00h – 15h)
[7]	xxh	[10h] Program Dump Request [20h] Info Change [40h] Program Dump Receive [60h] Firmware Version Request [61h] Serial Number Request [6Eh] Serial Number Receive [6Fh] Firmware Version Receive
[x]	xxh	Optional data bytes
[x]	F7h	End of System Exclusive

Note: Older versions of the Pro Solo mk3 used a Firmware Version Request that combined device ID and message type (bytes 6 and 7) into a single byte – this “old style” format is covered below and is supported by all Pro Solo mk3 firmware versions. Firmware Version Requests with separate device ID and message type is supported from firmware version 2008 onwards.

“Old style” Firmware Version Request (all firmware versions)

Firmware Version Request asks the Pro Solo to report its firmware version. If the device ID matches, the Pro Solo mk3 will respond by sending a Firmware Version Receive message. Bytes 6 and 7 are combined: 60h plus device ID

Examples:

F0 00 20 13 1A **60** F7

will request version from device ID 1

F0 00 20 13 1A **61** F7

will request version from device ID 2

“Old Style” Firmware Version Receive (all firmware versions)

Bytes 6 and 7 are combined: 6Fh minus the device Id

...
[7-10] xxh where xx is the ASCII code for a digit of the firmware version
[11] F7h End of exclusive

Examples:

F0 00 20 13 1A 6F 32 30 30 38 F7 device ID 1 has responded with version 2008
F0 00 20 13 1A 6E 32 30 30 38 F7 device ID 2 has responded with version 2008

Firmware Version Request (firmware version 2008 onwards)

Firmware Version Request asks the Pro Solo to report its firmware version. If the device ID matches, the Pro Solo mk3 will respond by sending a Firmware Version Receive message.

Examples:

F0 00 20 13 1A 00 60 F7 will request version from device ID 1
F0 00 20 13 1A 01 60 F7 will request version from device ID 2

Firmware Version Receive (firmware version 2008 onwards)

...
[8-11] xxh where xx is the ASCII code for a digit of the firmware version
[12] F7h End of exclusive

Examples:

F0 00 20 13 1A 00 6F 32 30 30 38 F7 device ID 1 has responded with version 2008
F0 00 20 13 1A 01 6F 32 30 30 38 F7 device ID 2 has responded with version 2008

Serial Number Request (firmware version 2008 onwards)

Serial Number Request asks the Pro Solo to report its USB serial number. If the device ID matches, the Pro Solo mk3 will respond by sending a Serial Number Receive message.

Examples:

F0 00 20 13 1A 00 61 F7 will request version from device ID 1
F0 00 20 13 1A 01 61 F7 will request version from device ID 2

Serial Number Receive (firmware version 2008 onwards)

...
[8-23] xxh where xx is the ASCII code for a character of the serial number
[24] F7h End of exclusive

Examples:

F0 00 20 13 1A 00 6E 20 36 30 56 34 31 50 30 32 30 30 33 41 30 30 35 44 F7 device ID
1 has responded with serial number _60V41P02003A005D
F0 00 20 13 1A 01 6E 20 36 30 56 34 31 50 30 32 30 30 33 41 30 30 35 44 F7 device ID
2 has responded with serial number _60V41P02003A005D

Program Dump Request (all firmware versions)

Program Dump Request will request configuration information for a given program. There are multiple sources available to this request:

Config		The saved configuration (parameters 1-89)		
Config Edit Buffer		The current, unsaved configuration (parameters 1-89)		
Global		The saved global configuration (parameters 90-97)		
Global Edit Buffer		The current, unsaved global configuration (parameters 90-97)		
Preset		Saved preset configuration (parameters 1-89)		
...				
[8]	xxh	[00h] -	Saved configuration	(all firmware versions)
		[01h] to [20h] -	Preset	(version 2006 onwards)
		[7Dh]	Configuration Edit Buffer	(version 2008 onwards)
		[7Eh]	Global Edit buffer	(version 2008 onwards)
		[7Fh]	Saved global configuration	(version 2006 onwards)
[9]	F7h	End of System Exclusive		

The Pro Solo will respond by sending a Program Dump Receive message.

Examples (Device No = 1):

FO 00 20 13 1A 00 10 00 F7	will request the saved configuration
FO 00 20 13 1A 00 10 7D F7	will request the configuration edit buffer
FO 00 20 13 1A 00 10 7E F7	will request the global edit buffer
FO 00 20 13 1A 00 10 7F F7	will request the saved global configuration
FO 00 20 13 1A 00 10 01 F7	will request preset 1
FO 00 20 13 1A 00 10 20 F7	will request preset 32

Program Dump Receive (all firmware versions)

Program Dump Receive will contain configuration information for a given program. There are multiple sources of configuration information:

Config		The saved configuration (parameters 1-89)		
Config Edit Buffer		The current, unsaved configuration (parameters 1-89)		
Global		The saved global configuration (parameters 90-97)		
Global Edit Buffer		The current, unsaved global configuration (parameters 90-97)		
Preset		Saved preset configuration (parameters 1-89)		
...				
[8]	xxh	[00h] -	Saved configuration	(all firmware versions)
		[01h] to [20h] -	Preset	(version 2006 onwards)
		[7Dh]	Configuration Edit Buffer	(version 2008 onwards)
		[7Eh]	Global edit buffer	(version 2008 onwards)
		[7Fh]	Saved global configuration	(version 2006 onwards)
[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 or 61 times (for 12 global parameters or 61 configuration parameters)		
[33 or 131]	F7h	End of System Exclusive		

See the table at the end of this document for details of the configuration data.

Note: Only the first 55 values (addresses 00 to 54) of configuration data are valid (55 to 60 are reserved for possible future use). Only the first 8 values (addresses 00 to 07) of global data are valid (8-12 are reserved for possible future use)

Info Change (all firmware versions)

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 parameter and briefly updating the display. The new value is **NOT** stored in EEPROM, 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 listed in the table at the end of this document.

...		
[8]	00h	High 7 bits of parameter address (always 00h)
[9]	0nnnnnnn	Where nnnnnnn = low 7 bits of parameter address
[10]	00h / 01h	High 7 bits of data (either 00h or 01)
[11]	0nnnnnnn	Where nnnnnnn = low 7 bits of data
[12]	F7h	End of System Exclusive

Info Changes are not automatically stored to EEPROM, only in the edit buffer – changes will be lost after a power cycle. You can explicitly save the changes you have made using the **store** version of the message (using program 00) – see the **Info (Parameter) Change – store/load presets** section below.

Examples (Device No = 1):

FO 00 20 13 1A 00 20 00 00 00 0F F7	will set the MIDI Receive Channel to 16
FO 00 20 13 1A 00 20 00 31 00 01 F7	will set the ADSR envelope to Inverted
FO 00 20 13 1A 00 20 00 25 00 08 F7	will set the LFO wave to Sample & Hold

Info Change – store/load presets (firmware version 2006 onwards)

The Info Change message can be used to store the edit buffer to EEPROM, or to a preset.

...		
[8]	00h	Always 00h
[9]	7Eh / 7Fh	[7Eh] Loads into the edit buffer [7Fh] Stores the edit buffer
[10]	00h	Always 00h
[11]	xxh	[00h] Stores/loads configuration edit buffer to/from EEPROM [01h] to-[20h] Stores/Loads configuration edit buffer to/from preset [7Fh] Stores/loads global edit buffer to/from EEPROM
[12]	F7h	End of System Exclusive

Examples (Device No = 1):

FO 00 20 13 1A 00 20 00 7E 00 20 F7	Load Preset 32
FO 00 20 13 1A 00 20 00 7F 00 20 F7	Store Preset 32

To change a parameter and then store it to EEPROM:

FO 00 20 13 1A 00 20 00 00 00 0F F7	will set the MIDI Receive Channel to 16
FO 00 20 13 1A 00 20 00 7F 00 00 F7	Store the configuration edit buffer to EEPROM

Configuration Data

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)	Parameter	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 ms
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	See note (4)
15	0Fh	P16 Gate Type	0 to 6	See note (5)
16	10h	P20 Aux 1 Controller	245 > 0 > 119	See note (6)
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	245 > 0 > 119	See note (6)
27	1Ah	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	245 > 0 > 119	See note (6)
32	20h	P41 Aux 3 Min Value	0 to 100	
33	21h	P42 Aux 3 Max Value	0 to 100	
34	22h	P43 Aux 3 Reset Value	0 to 100	
35	23h	P44 Aux 3 Drum Trig. Note No.	0 to 100	
36	24h	P50 LFO Rate	0 to 191	
37	25h	P51 LFO Waveshape	0 to 8	See note (7)
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

Continued on next page...

Add.	(Hex)	Parameter	Range	Notes
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 (8)
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) firmware versions below 2008: **0** = CV (1V/Oct) / **1** = Hz/V / **2** = 1.2V
2008 onwards: **0** = CV (1V/Oct) / **1** = Hz/V / **3** = 1.1V / **4** = 1.2V / **5** = 1.3V / **6** = 1.4V / **7** = 1.5V
- (5) **0** = Gate 5V / **1** = Gate 10V / **2** = Gate 15V / **3** = S-Trig no pull-up / **4** = S-Trig 5V pull-up / **5** = S-Trig 10V pull-up / **6** = S-Trig 15V pull-up
- (6) **245** = Auto Portamento / **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**
Note: Auto Portamento is available on firmware version 2008 onwards
- (7) **0** = Tri / **1** = Saw Up / **2** = Saw Down / **3** = 10 / **4** = 20 / **5** = 30 / **6** = 40 / **7** = 50% Pulse / **8** = S&H
- (8) **0** = MIDI Thru, Out / **1** = Sync 24 (fixed) / **2** = Sync 24 (Clock 1) / **3** = Sync 24 (Clock 2)



Unit 3, Epsom Downs Metro Centre, Waterfield, Tadworth, KT20 5LR, UK
+44 (0)20 8544 9200 www.kenton.co.uk tech@kenton.co.uk