

SysEx Format for P3 Sequencer - as of v3.985
=====

Notes:

Full dump of bank/FTS user scales, all parts and all patterns totals 83,290 bytes of data, including headers.

Consists of 1 x Bank/FTS block; 96 x Part/playlist blocks; 384 x Pattern blocks
Delay between blocks is approx 50ms.

In receive mode, blocks will be accepted in any order. Any pattern or part can be received individually.

REQuest blocks can also be received, to initiate individual block transmit.

=====

Data dump messages:

Data Function
---- -

Bank / User FTS data:

F0 SysEx Header
43 "C"
4A "J"
46 "F"
00
50 "P"
33 "3"

03 packet type 03 = Bank / FTS user defined scales

nn * 48

48 data bytes, 8 to 7 bit encoding of 42 bytes

12 * bank initial tempo
12 * bank initial program number

9 * user FTS scale lo byte
9 * user FTS scale hi byte

cc checksum (sum of packet type + data block before encoding) MOD 128

F7 SysEx End

58 bytes total

Part / Playlist data:

F0 SysEx Header
43 "C"
4A "J"
46 "F"
00
50 "p"
33 "3"

02 packet type 02 = Part and playlist data

aa bank/part (0 - 95 / 0 - 0x5F) 12 banks of 8 parts

nn * 168

168 data bytes, 8 to 7 bit encoding of 147 bytes

gbar length
part chain repeat count
initial track mute status
FTS root
FTS scale

8 * playlist data:
 length
 8 * pattern/chg/reps
 8 * transpose

PXPos

5 zero bytes padding to ensure correct encoding

cc checksum (sum of packet type + data block before encoding) MOD 128

F7 SysEx End

bytes total 179

Pattern data:

```
F0          SysEx Header
43          "C"
4A          "J"
46          "F"
00
50          "P"
33          "3"

01          packet type 01 = Pattern data

aa          (pbank << 3) + track      (0 - 23 / 0 - 0x17) 3 pattern banks for 8 tracks
bb          pattern number          (0 - 15 / 0 - 0xF) 16 patterns
          (pattern banks may not match user banks - depends on memory layout)

nn * 152

          160 data bytes, 8 to 7 bit encoding of 140 bytes

          16 * note
          16 * velocity
          16 * length
          16 * status / delay      (status bits: d7 = gate, d6 = tie, d5 = skip, d4
= X)

          16 * aux controller A
          16 * aux controller B
          16 * aux controller C
          16 * aux controller D

          pattern time-base / length

          aux config controller A
          aux config controller B
          aux config controller C
          aux config controller D

          pattern direction

          6 zero bytes padding to ensure correct encoding

cc          checksum (sum of packet type + data block before encoding) MOD 128

F7          SysEx End

          bytes total 172
```

Configuration data:

Data	Function
----	-----

Configuration data:

F0	SysEx Header
43	"C"
4A	"J"
46	"F"
00	
50	"P"
33	"3"

04 packet type 04 = Configuration data

nn * 120

160 data bytes, 8 to 7 bit encoding of 140 bytes

Memory Layout (3, 6 or 12)

User Config Options - 2 bytes

Midi clock config
Midi thru channel
Record mode options
Arp mode options

12 banks * 8 midi channels - 96 bytes

12 banks * pgm channel

safe stop status

base note & note range * 8 - 16 bytes

randomizer note base
randomizer note range
randomizer ctrl base
randomizer ctrl range

4 zero bytes to ensure correct encoding

cc checksum (sum of packet type + data block before encoding) MOD 128

F7 SysEx End

bytes total 170

Data REQuest messages:

Data	Function
----	-----

Request Bank / User FTS data:

F0	SysEx Header
43	"C"
4A	"J"
46	"F"
00	
50	"P"
33	"3"
23	packet type 23 = REQuest Bank / FTS user defined scales
F7	SysEx End
	bytes total 9

Request Part / Playlist data:

F0	SysEx Header
43	"C"
4A	"J"
46	"F"
00	
50	"P"
33	"3"
22	packet type 22 = REQuest Part and playlist data
aa	bank/part (0 - 95 / 0 - 0x5F) 12 banks of 8 parts
F7	SysEx End
	bytes total 10

Request Pattern data:

F0	SysEx Header
43	"C"
4A	"J"
46	"F"
00	
50	"P"
33	"3"
21	packet type 21 = REQuest Pattern data
aa	(pbank << 3) + track (0 - 23 / 0 - 0x17) 3 pattern banks for 8 tracks
bb	pattern number (0 - 15 / 0 - 0xF) 16 patterns (pattern banks may not match user banks - depends on memory layout)
F7	SysEx End
	bytes total 11

Request Configuration data:

F0 SysEx Header
43 "C"
4A "J"
46 "F"
00
50 "P"
33 "3"

24 packet type 24 = REQuest Configuration

F7 SysEx End

bytes total 9

=====

Transmitted messages:

Data	Function
----	-----

Bad data received:

F0	SysEx Header
43	"C"
4A	"J"
46	"F"
00	
50	"P"
33	"3"
1E	BAD DATA !
F7	SysEx End

Good data received:

F0	SysEx Header
43	"C"
4A	"J"
46	"F"
00	
50	"P"
33	"3"
10	OK
F7	SysEx End