

Changing Six-Trak Parameters Over MIDI

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1. The Six-Trak must be ready to receive parameter changes. On power-up, this ability is disabled. Press and hold the Control Record and Number 4

2. The parameter changes may be sent over sys-ex or by MIDI continuous controllers. See point "a" for CC information and "b" for system-exclusive information.

a. Most sequencers send CCs in a format similar to "control *a,b*" where *a* is the controller number (usually in decimal) and *b* is the particular value assigned (not always in decimal). Determine which number system the sequencer uses, and translate accordingly by the Parameter Translation Table. For example, a sequencer which sends the controller number in decimal and controller values in hexadecimal would turn Unison on by sending "control 37, 40". A sequencer that sends both the controller number and values in decimal would send "control 37, 64".

b. A system-exclusive opening string must be sent that serves to alert the Six-Trak that sys-ex is about to be sent. On some systems, this opening string is not needed. It contains the generic sys-ex identifier, plus Sequential Circuit's ID, the Six-Trak's ID, and the Parameter Change command. It follows:

Hexadecimal	F0 01 05 B0
Binary	1111 0000 0000 0001 0000 0101 1011 0000
Decimal	240 1 5 176

Next, using the parameter table on the next page, the parameter number is sent. Once again, either binary, hexadecimal or the decimal may be used, according to the sequencer's method.

Finally, the parameter's new value is sent. The parameter values' resolutions range from 1-bit to 7-bit. The parameter resolution must match up with the correct table for the value to be received correctly (i.e. since the "oscillator fine frequency" is a 5-bit number, the hexadecimal, decimal, or binary can be converted only in the 5-bit table).

On systems that required the sys-ex opening string, the sys-ex "End of Line" must be sent:

Hexadecimal	F7
Binary	1111 0111
Decimal	247

3. Parameter changes made over MIDI are all defaulted once the patch is reloaded. If patch nine was selected, and parameter changes were made over MIDI, they were all be lost if patch nine was selected again. This is a convenient way to restore the patch back to normal instead of undoing each change.

Parameter Translation Table					
Parameter Number (on synth)	Name	Decimal	Hex	Binary	Resolution
-	MOD WHEEL	1	01	0000 0001	5
0	OSC COARSE FREQ	2	02	0000 0010	6
1	OSC FINE FREQ	3	03	0000 0011	5
2	OSC GLIDE RATE	4	04	0000 0100	4
3	OSC LFO	5	05	0000 0101	1
4	OSC ENVELOPE AMOUNT	6	06	0000 0110	4
5	OSC ENV INVERT	7	07	0000 0111	1
6	OSC ENV ATTACK	8	08	0000 1000	4
7	OSC ENV DECAY	9	09	0000 1001	4
8	OSC ENV SUSTAIN	10	0A	0000 1010	4
9	OSC ENC RELEASE	11	0B	0000 1011	4
10	OSC SAWTOOTH WAVE	12	0C	0000 1100	1
11	OSC TRIANGLE WAVE	13	0D	0000 1101	1
12	OSC PULSE WAVE	14	0E	0000 1110	1
13	OSC PULSE WIDTH	15	0F	0000 1111	6
14	OSC PULSE LFO-MOD	16	10	0001 0000	1
15	LFO FREQUENCY	17	11	0001 0001	4
16	LFO PROGRAM AMOUNT	18	12	0001 0010	5
17	LFO TRI/SQUARE WAVE	19	13	0001 0011	1
18	OSC/NOISE MIXER	20	14	0001 0100	5
19	FILT CUTOFF FREQ	21	15	0001 0101	7
20	FILT RESONANCE	22	16	0001 0110	6
21	FILT ENVELOPE AMOUNT	23	17	0001 0111	4
22	FILT ENV INVERT	24	18	0001 1000	1
23	FILT ENV ATTACK	25	19	0001 1001	4
24	FILT ENV DECAY	26	1A	0001 1010	4
25	FILT ENV SUSTAIN	27	1B	0001 1011	4
26	FILT ENV RELEASE	28	1C	0001 1100	4
27	FILT LFO-MODULATION	29	1D	0001 1101	1
28	FILT KEYBOARD AMT	30	1E	0001 1110	2
29	FILT OSC TRI MOD AMT	31	1F	0001 1111	6
30	AMP ATTACK	32	20	0010 0000	4
31	AMP DECAY	33	21	0010 0001	4
32	AMP SUSTAIN	34	22	0010 0010	4
33	AMP RELEASE	35	23	0010 0011	4
34	VOICE VOLUME	36	24	0010 0100	4
35	UNISON	37	25	0010 0101	1

1-bit			
Resolution	Decimal	Hexadecimal	Binary
0	0	00	0000 0000
1	64	40	0100 0000

2-bit			
Resolution	Decimal	Hexadecimal	Binary
0	0	00	0000 0000
1	32	20	0010 0000
2	64	40	0100 0000
3	96	60	0110 0000

4-bit			
Resolution	Decimal	Hexadecimal	Binary
0	0	00	0000 0000
1	8	08	0000 1000
2	16	10	0001 0000
3	24	18	0001 1000
4	32	20	0010 0000
5	40	28	0010 1000
6	48	30	0011 0000
7	56	38	0011 1000
8	64	40	0100 0000
9	72	48	0100 1000
10	80	50	0101 0000
11	88	58	0101 1000
12	96	60	0110 0000
13	104	68	0110 1000
14	112	70	0111 0000
15	120	78	0111 1000

5-bit			
Resolution	Decimal	Hexadecimal	Binary
0	0	00	0000 0000
1	4	04	0000 0100
2	8	08	0000 1000
3	12	0C	0000 1100
4	16	10	0001 0000
5	20	14	0001 0100
6	24	18	0001 1000
7	28	1C	0001 1100
8	32	20	0010 0000
9	36	24	0010 0100
10	40	28	0010 1000
11	44	2C	0010 1100
12	48	30	0011 0000
13	52	34	0011 0100
14	56	38	0011 1000
15	60	3C	0011 1100
16	64	40	0100 0000
17	68	44	0100 0100
18	72	48	0100 1000
19	76	4C	0100 1100
20	80	50	0101 0000
21	84	54	0101 0100
22	88	58	0101 1000
23	92	5C	0101 1100
24	96	60	0110 0000
25	100	64	0110 0100
26	104	68	0110 1000
27	108	6C	0110 1100
28	112	70	0111 0000
29	116	74	0111 0100
30	120	78	0111 1000
31	124	7C	0111 1100

6-bit			
Resolution	Decimal	Hexadecimal	Binary
0	0	00	0000 0000
1	2	02	0000 0010
2	4	04	0000 0100
3	6	06	0000 0110
4	8	08	0000 1000
5	10	0A	0000 1010
6	12	0C	0000 1100
7	14	0E	0000 1110
8	16	10	0001 0000
9	18	12	0001 0010
10	20	14	0001 0100
11	22	16	0001 0110
12	24	18	0001 1000
13	26	1A	0001 1010
14	28	1C	0001 1100
15	30	1E	0001 1110
16	32	20	0010 0000
17	34	22	0010 0010
18	36	24	0010 0100
19	38	26	0010 0110
20	40	28	0010 1000
21	42	2A	0010 1010
22	44	2C	0010 1100
23	46	2E	0010 1110
24	48	30	0011 0000
25	50	32	0011 0010
26	52	34	0011 0100
27	54	36	0011 0110
28	56	38	0011 1000
29	58	3A	0011 1010
30	60	3C	0011 1100
31	62	3E	0011 1110
32	64	40	0100 0000
33	66	42	0100 0010
34	68	44	0100 0100
35	70	46	0100 0110
36	72	48	0100 1000
37	74	4A	0100 1010
38	76	4C	0100 1100
39	78	4E	0100 1110
40	80	50	0101 0000
41	82	52	0101 0010

6-bit			
Resolution	Decimal	Hexadecimal	Binary
42	84	54	0101 0100
43	86	56	0101 0110
44	88	58	0101 1000
45	90	5A	0101 1010
46	92	5C	0101 1100
47	94	5E	0101 1110
48	96	60	0110 0000
49	98	62	0110 0010
50	100	64	0110 0100
51	102	66	0110 0110
52	104	68	0110 1000
53	106	6A	0110 1010
54	108	6C	0110 1100
55	110	6E	0110 1110
56	112	70	0111 0000
57	114	72	0111 0010
58	116	74	0111 0100
59	118	76	0111 0110
60	120	78	0111 1000
61	122	7A	0111 1010
62	124	7C	0111 1100
63	126	7E	0111 1110

7-bit			
Resolution	Decimal	Hexadecimal	Binary
0	0	00	0000 0000
1	1	01	0000 0001
2	2	02	0000 0010
3	3	03	0000 0011
4	4	04	0000 0100
5	5	05	0000 0101
6	6	06	0000 0110
7	7	07	0000 0111
8	8	08	0000 1000
9	9	09	0000 1001
10	10	0A	0000 1010
11	11	0B	0000 1011
12	12	0C	0000 1100
13	13	0D	0000 1101
14	14	0E	0000 1110
15	15	0F	0000 1111
16	16	10	0001 0000
17	17	11	0001 0001
18	18	12	0001 0010
19	19	13	0001 0011
20	20	14	0001 0100
21	21	15	0001 0101
22	22	16	0001 0110
23	23	17	0001 0111
24	24	18	0001 1000
25	25	19	0001 1001
26	26	1A	0001 1010
27	27	1B	0001 1011
28	28	1C	0001 1100
29	29	1D	0001 1101
30	30	1E	0001 1110
31	31	1F	0001 1111
32	32	20	0010 0000
33	33	21	0010 0001
34	34	22	0010 0010
35	35	23	0010 0011
36	36	24	0010 0100
37	37	25	0010 0101
38	38	26	0010 0110
39	39	27	0010 0111
40	40	28	0010 1000
41	41	29	0010 1001

7-bit			
Resolution	Decimal	Hexadecimal	Binary
42	42	2A	0010 1010
43	43	2B	0010 1011
44	44	2C	0010 1100
45	45	2D	0010 1101
46	46	2E	0010 1110
47	47	2F	0010 1111
48	48	30	0011 0000
49	49	31	0011 0001
50	50	32	0011 0010
51	51	33	0011 0011
52	52	34	0011 0100
53	53	35	0011 0101
54	54	36	0011 0110
55	55	37	0011 0111
56	56	38	0011 1000
57	57	39	0011 1001
58	58	3A	0011 1010
59	59	3B	0011 1011
60	60	3C	0011 1100
61	61	3D	0011 1101
62	62	3E	0011 1110
63	63	3F	0011 1111
64	64	40	0100 0000
65	65	41	0100 0001
66	66	42	0100 0010
67	67	43	0100 0011
68	68	44	0100 0100
69	69	45	0100 0101
70	70	46	0100 0110
71	71	47	0100 0111
72	72	48	0100 1000
73	73	49	0100 1001
74	74	4A	0100 1010
75	75	4B	0100 1011
76	76	4C	0100 1100
77	77	4D	0100 1101
78	78	4E	0100 1110
79	79	4F	0100 1111
80	80	50	0101 0000
81	81	51	0101 0001
82	82	52	0101 0010
83	83	53	0101 0011

7-bit			
Resolution	Decimal	Hexadecimal	Binary
84	84	54	0101 0100
85	85	55	0101 0101
86	86	56	0101 0110
87	87	57	0101 0111
88	88	58	0101 1000
89	89	59	0101 1001
90	90	5A	0101 1010
91	91	5B	0101 1011
92	92	5C	0101 1100
93	93	5D	0101 1101
94	94	5E	0101 1110
95	95	5F	0101 1111
96	96	60	0110 0000
97	97	61	0110 0001
98	98	62	0110 0010
99	99	63	0110 0011
100	100	64	0110 0100
101	101	65	0110 0101
102	102	66	0110 0110
103	103	67	0110 0111
104	104	68	0110 1000
105	105	69	0110 1001
106	106	6A	0110 1010
107	107	6B	0110 1011
108	108	6C	0110 1100
109	109	6D	0110 1101
110	110	6E	0110 1110
111	111	6F	0110 1111
112	112	70	0111 0000
113	113	71	0111 0001
114	114	72	0111 0010
115	115	73	0111 0011
116	116	74	0111 0100
117	117	75	0111 0101
118	118	76	0111 0110
119	119	77	0111 0111
120	120	78	0111 1000
121	121	79	0111 1001
122	122	7A	0111 1010
123	123	7B	0111 1011
124	124	7C	0111 1100
125	125	7D	0111 1101

7-bit			
Resolution	Decimal	Hexadecimal	Binary
126	126	7E	0111 1110
127	127	7F	0111 1111