CIRCUIT

Programmer's Reference Guide 1.3

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novation

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Circuit MIDI Parameters

Synths 1 & 2

Send messages on MIDI Channel 1 for Synth 1 and Channel 2 for Synth.

Section	Parameter	CC / NRPN	Control No.	Range	Default Value	Notes
Voice						
	Polyphony Mode	CC	3	0 – 2	2	0=Mono, 1=Mono AG, 2=Poly
	Portamento Rate	CC	5	0 – 127	0	
	Pre-Glide	CC	9	52 – 76 (-12 – 12)	64 (0)	
	Keyboard Octave	CC	13	58 – 69 (-6 – 5)	64 (0)	60=-4 Octaves, 64=0 Octaves, 68=+4 Octaves
Oscillator						
	osc 1 wave	CC	19	0 – 29	2	See Osc Waveform Table
	osc 1 wave interpolate	CC	20	0 – 127	0	
	osc 1 pulse width index	CC	21	0 – 127 (-64 – 63)	127 (63)	
	osc 1 virtual sync depth	CC	22	0 – 127	0	
	osc 1 density	CC	24	0 – 127	0	
	osc 1 density detune	CC	25	0 – 127	0	
	osc 1 semitones	CC	26	0 – 127 (-64 – 63)	64 (0)	
	osc 1 cents	CC	27	0 – 127 (-64 – 63)	64 (0)	
	osc 1 pitchbend	CC	28	52 – 76 (-12 – 12)	76 (12)	
	osc 2 wave	CC	29	0 – 29	2	See Osc Waveform Table
	osc 2 wave interpolate	CC	30	0 – 127	0	
	osc 2 pulse width index	CC	31	0 – 127 (-64 – 63)	127 (63)	
	osc 2 virtual sync depth	CC	33	0 – 127	0	
	osc 2 density	CC	35	0 – 127	0	
	osc 2 density detune	CC	36	0 – 127	0	
	osc 2 semitones	CC	37	0 – 127 (-64 – 63)	64 (0)	
	osc 2 cents	CC	39	0 – 127 (-64 – 63)	64 (0)	
	osc 2 pitchbend	CC	40	52 – 76 (-12 – 12)	76 (12)	
Mixer						
	osc 1 level	CC	51	0 – 127	127	
	osc 2 level	CC	52	0 – 127	0	
	ring mod level	CC	54	0 – 127	0	
	noise level	CC	56	0 – 127	0	
	pre FX level	CC	58	52 – 82 (-12 – 18)	64 (0)	-12 to +18 dB
	post FX level	CC	59	52 – 82 (-12 – 18)	64 (0)	-12 to +18 dB
Filter						
	routing	CC	60	0 – 2	0	0=Normal 1=Osc 1 bypasses the filter 2=Osc 1 + Osc 2 bypasses the
	drive	CC	63	0 – 127	0	filter
	drive type	CC	65	0 – 6	0	See Filter Table
	type	CC	68	0 – 5	1	
	frequency	CC	74	0 – 127	127	
	tracking	CC	69	0 – 127	127	
	resonance	CC	71	0 – 127	0	
	Q normalize	CC	78	0 – 127	64	
	env 2 to frequency	CC	79	0 – 127 (-64 – 63)	64 (0)	

Envelope						
	env 1 velocity	CC	108	0 – 127 (-64 – 63)	64 (0)	
	env 1 attack	CC	73	0 – 127	2	
	env 1 decay	CC	75	0 – 127	90	
	env 1 sustain	CC	70	0 – 127	127	
	env 1 release	CC	72	0 – 127	40	
	env 2 velocity	NRPN	0:0	0 – 127 (-64 – 63)	64 (0)	
	env 2 attack	NRPN	0:1	0 – 127	2	
	env 2 decay	NRPN	0:2	0 – 127	75	
	env 2 sustain	NRPN	0:3	0 – 127	35	
	env 2 release	NRPN	0:4	0 – 127	45	
	env 3 delay	NRPN	0:14	0 – 127	0	
	env 3 attack	NRPN	0:15	0 – 127	10	
	env 3 decay	NRPN	0:16	0 – 127	70	
	env 3 sustain	NRPN	0:17	0 – 127	64	
	env 3 release	NRPN	0:18	0 – 127	40	
LFO						
	lfo 1 waveform	NRPN	0:70	0 – 37	0	See LFO waveform table
	lfo 1 phase offset	NRPN	0:71	0 – 119	0	(0° - 357°) in steps of 3°
	lfo 1 slew rate	NRPN	0:72	0 – 127	0	
	lfo 1 delay	NRPN	0:74	0 – 127	0	
	lfo 1 delay sync	NRPN	0:75	0 – 35	0	
	lfo 1 rate	NRPN	0:76	0 – 127	68	
	lfo 1 rate sync	NRPN	0:77	0 – 35	0	
	lfo 1 one shot	NRPN	0:122	12 – 13	12 (OFF)	12=OFF, 13=ON
	lfo 1 key sync	NRPN	0:122	14 – 15	14 (OFF)	14=OFF, 15=ON
	Lfo 1 common sync	NRPN	0:122	16 – 17	16 (OFF)	16=OFF, 17=ON
	Lfo 1 delay trigger	NRPN	0:122	18 – 19	18 (OFF)	18=OFF, 19=ON
	Lfo 1 fade mode	NRPN	0:123	0 – 3	0	0=Fade In, 1=Fade Out, 2=Gate In, 3=Gate Out
	Lfo 2 waveform	NRPN	0:79	0 – 37	0	See LFO Waveform Table
	Lfo 2 phase offset	NRPN	0:80	0 – 119	0	(0° - 357°) in steps of 3°
	Lfo 2 slew rate	NRPN	0:81	0 – 127	0	
	Lfo 2 delay	NRPN	0:83	0 – 127	0	
	Lfo 2 delay sync	NRPN	0:84	0 – 35	0	
	Lfo 2 rate	NRPN	0:85	0– 127	68	
	Lfo 2 rate sync	NRPN	0:86	0– 35	0	
	lfo 2 one shot	NRPN	0:122	22– 23	22 (OFF)	22=OFF, 23=ON
	lfo 2 key sync	NRPN	0:122	24– 25	24 (OFF)	24=OFF, 25=ON
	lfo 2 common sync	NRPN	0:122	26– 27	26 (OFF)	26=OFF, 27=ON
	lfo 2 delay trigger	NRPN	0:122	28– 29	28 (OFF)	28=OFF, 29=ON
	lfo 2 fade mode	NRPN	0:123	4– 7	4	4=Fade In, 5=Fade Out, 6=Gate In, 7=Gate Out
Effects and EQ						
	distortion level	CC	91	0– 127	0	
	chorus level	CC	93	0–127	0	
	EQ bass frequency	NRPN	0:104	0– 127	64	
	EQ bass level	NRPN	0:105	0– 127 (-64 – 63)	64 (0)	
	EQ mid frequency	NRPN	0:106	0– 127	64	
	EQ mid level	NRPN	0:107	0– 127 (-64 – 63)	64 (0)	
	EQ treble frequency	NRPN	0:108	0– 127	125	
	EQ treble level	NRPN	0:109	0– 127 (-64 – 63)	64 (0)	
	distortion type	NRPN	1:0	0– 6	0	See Distortion Table
	distortion compensation	NRPN	1:1	0– 127	100	
	chorus type	NRPN	1:24	0– 1	1	0=Phaser, 1=Chorus
	chorus rate	NRPN	1:25	0– 127	84 (20)	
	chorus rate sync	NRPN	1:26	0– 35	0	
	chorus feedback	NRPN	1:27	0– 127 (-64 – 63)	74 (10)	
	chorus mod depth	NRPN	1:28	0– 127	64	
	chorus delay	NRPN	1:29	0– 127	64	
Mod Matrix						
	Mod matrix 1 source 1	NRPN	1:83	0 – 12	0	See Mod Matrix Table
	Mod matrix 1 source 2	NRPN	1:84	0 – 12	0	See Mod Matrix Table
	mod matrix 1 depth	NRPN	1:86	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 1 destination	NRPN	1:87	0 – 17	0	See Mod Matrix Table
	mod matrix 2 source 1	NRPN	1:88	0– 12	0	See Mod Matrix Table
	mod matrix 2 source 2	NRPN	1:89	0 – 12	0	See Mod Matrix Table
	mod matrix 2 depth	NRPN	1:91	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 2 destination	NRPN	1:92	0 – 17	0	See Mod Matrix Table
	mod matrix 3 source 1	NRPN	1:93	0 – 12	0	See Mod Matrix Table

	mod matrix 3 source 2	NRPN	1:94	0 – 12	0	See Mod Matrix Table
	mod matrix 3 depth	NRPN	1:96	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 3 destination	NRPN	1:97	0 – 17	0	See Mod Matrix Table
	mod matrix 4 source 1	NRPN	1:98	0 – 12	0	See Mod Matrix Table
	mod matrix 4 source 2	NRPN	1:99	0 – 12	0	See Mod Matrix Table
	mod matrix 4 depth	NRPN	1:101	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 4 destination	NRPN	1:102	0 – 17	0	See Mod Matrix Table
	mod matrix 5 source 1	NRPN	1:103	0 – 12	0	See Mod Matrix Table
	mod matrix 5 source 2	NRPN	1:104	0 – 12	0	See Mod Matrix Table
	mod matrix 5 depth	NRPN	1:106	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 5 destination	NRPN	1:107	0 – 17	0	See Mod Matrix Table
	mod matrix 6 source 1	NRPN	1:108	0 – 12	0	See Mod Matrix Table
	mod matrix 6 source 2	NRPN	1:109	0 – 12	0	See Mod Matrix Table
	mod matrix 6 depth	NRPN	1:111	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 6 destination	NRPN	1:112	0 – 17	0	See Mod Matrix Table
	mod matrix 7 source 1	NRPN	1:113	0 – 12	0	See Mod Matrix Table
	mod matrix 7 source 2	NRPN	1:114	0 – 12	0	See Mod Matrix Table
	mod matrix 7 depth	NRPN	1:116	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 7 destination	NRPN	1:117	0 – 17	0	See Mod Matrix Table
	mod matrix 8 source 1	NRPN	1:118	0 – 12	0	See Mod Matrix Table
	mod matrix 8 source 2	NRPN	1:119	0 – 12	0	See Mod Matrix Table
	mod matrix 8 depth	NRPN	1:121	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 8 destination	NRPN	1:122	0 – 17	0	See Mod Matrix Table
	mod matrix 9 source 1	NRPN	1:123	0 – 12	0	See Mod Matrix Table
	mod matrix 9 source 2	NRPN	1:124	0 – 12	0	See Mod Matrix Table
	mod matrix 9 depth	NRPN	1:126	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 9 destination	NRPN	1:127	0 – 17	0	See Mod Matrix Table
	mod matrix 10 source 1	NRPN	2:0	0 – 12	0	See Mod Matrix Table
	mod matrix 10 source 2	NRPN	2:1	0 – 12	0	See Mod Matrix Table
	mod matrix 10 depth	NRPN	2:3	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 10 destination	NRPN	2:4	0 – 17	0	See Mod Matrix Table
	mod matrix 11 source 1	NRPN	2:5	0 – 12	0	See Mod Matrix Table
	mod matrix 11 source 2	NRPN	2:6	0 – 12	0	See Mod Matrix Table
	mod matrix 11 depth	NRPN	2:8	0 – 127 (-64 – 63)	64 (0)	

	Lfo 1 common sync	NRPN	0:122	16 – 17	16 (OFF)	16=OFF, 17=ON
	Lfo 1 delay trigger	NRPN	0:122	18 – 19	18 (OFF)	18=OFF, 19=ON
	Lfo 1 fade mode	NRPN	0:123	0 – 3	0	0=Fade In, 1=Fade Out, 2=Gate In, 3=Gate Out
	Lfo 2 waveform	NRPN	0:79	0 – 37	0	See LFO Waveform Table
	Lfo 2 phase offset	NRPN	0:80	0 – 119	0	(0° - 357°) in steps of 3°
	Lfo 2 slew rate	NRPN	0:81	0 – 127	0	
	Lfo 2 delay	NRPN	0:83	0 – 127	0	
	Lfo 2 delay sync	NRPN	0:84	0 – 35	0	
	Lfo 2 rate	NRPN	0:85	0– 127	68	
	Lfo 2 rate sync	NRPN	0:86	0– 35	0	
	lfo 2 one shot	NRPN	0:122	22– 23	22 (OFF)	22=OFF, 23=ON
	lfo 2 key sync	NRPN	0:122	24– 25	24 (OFF)	24=OFF, 25=ON
	lfo 2 common sync	NRPN	0:122	26– 27	26 (OFF)	26=OFF, 27=ON
	lfo 2 delay trigger	NRPN	0:122	28– 29	28 (OFF)	28=OFF, 29=ON
	lfo 2 fade mode	NRPN	0:123	4– 7	4	4=Fade In, 5=Fade Out, 6=Gate In, 7=Gate Out
Effects and EQ						
	distortion level	CC	91	0– 127	0	
	chorus level	CC	93	0–127	0	
	EQ bass frequency	NRPN	0:104	0– 127	64	
	EQ bass level	NRPN	0:105	0– 127 (-64 – 63)	64 (0)	
	EQ mid frequency	NRPN	0:106	0– 127	64	
	EQ mid level	NRPN	0:107	0– 127 (-64 – 63)	64 (0)	
	EQ treble frequency	NRPN	0:108	0– 127	125	
	EQ treble level	NRPN	0:109	0– 127 (-64 – 63)	64 (0)	
	distortion type	NRPN	1:0	0– 6	0	See Distortion Table
	distortion compensation	NRPN	1:1	0– 127	100	
	chorus type	NRPN	1:24	0– 1	1	0=Phaser, 1=Chorus
	chorus rate	NRPN	1:25	0– 127	84 (20)	
	chorus rate sync	NRPN	1:26	0– 35	0	
	chorus feedback	NRPN	1:27	0– 127 (-64 – 63)	74 (10)	
	chorus mod depth	NRPN	1:28	0– 127	64	
	chorus delay	NRPN	1:29	0– 127	64	

Mod Matrix						
	Mod matrix 1 source 1	NRPN	1:83	0 – 12	0	See Mod Matrix Table
	Mod matrix 1 source 2	NRPN	1:84	0 – 12	0	See Mod Matrix Table
	mod matrix 1 depth	NRPN	1:86	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 1 destination	NRPN	1:87	0 – 17	0	See Mod Matrix Table
	mod matrix 2 source 1	NRPN	1:88	0– 12	0	See Mod Matrix Table
	mod matrix 2 source 2	NRPN	1:89	0 – 12	0	See Mod Matrix Table
	mod matrix 2 depth	NRPN	1:91	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 2 destination	NRPN	1:92	0 – 17	0	See Mod Matrix Table
	mod matrix 3 source 1	NRPN	1:93	0 – 12	0	See Mod Matrix Table
	mod matrix 3 source 2	NRPN	1:94	0 – 12	0	See Mod Matrix Table
	mod matrix 3 depth	NRPN	1:96	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 3 destination	NRPN	1:97	0 – 17	0	See Mod Matrix Table
	mod matrix 4 source 1	NRPN	1:98	0 – 12	0	See Mod Matrix Table
	mod matrix 4 source 2	NRPN	1:99	0 – 12	0	See Mod Matrix Table
	mod matrix 4 depth	NRPN	1:101	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 4 destination	NRPN	1:102	0 – 17	0	See Mod Matrix Table
	mod matrix 5 source 1	NRPN	1:103	0 – 12	0	See Mod Matrix Table
	mod matrix 5 source 2	NRPN	1:104	0 – 12	0	See Mod Matrix Table
	mod matrix 5 depth	NRPN	1:106	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 5 destination	NRPN	1:107	0 – 17	0	See Mod Matrix Table
	mod matrix 6 source 1	NRPN	1:108	0 – 12	0	See Mod Matrix Table
	mod matrix 6 source 2	NRPN	1:109	0 – 12	0	See Mod Matrix Table
	mod matrix 6 depth	NRPN	1:111	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 6 destination	NRPN	1:112	0 – 17	0	See Mod Matrix Table
	mod matrix 7 source 1	NRPN	1:113	0 – 12	0	See Mod Matrix Table
	mod matrix 7 source 2	NRPN	1:114	0 – 12	0	See Mod Matrix Table
	mod matrix 7 depth	NRPN	1:116	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 7 destination	NRPN	1:117	0 – 17	0	See Mod Matrix Table
	mod matrix 8 source 1	NRPN	1:118	0 – 12	0	See Mod Matrix Table
	mod matrix 8 source 2	NRPN	1:119	0 – 12	0	See Mod Matrix Table
	mod matrix 8 depth	NRPN	1:121	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 8 destination	NRPN	1:122	0 – 17	0	See Mod Matrix Table
	mod matrix 9 source 1	NRPN	1:123	0 – 12	0	See Mod Matrix Table
	mod matrix 9 source 2	NRPN	1:124	0 – 12	0	See Mod Matrix Table
	mod matrix 9 depth	NRPN	1:126	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 9 destination	NRPN	1:127	0 – 17	0	See Mod Matrix Table
	mod matrix 10 source 1	NRPN	2:0	0 – 12	0	See Mod Matrix Table
	mod matrix 10 source 2	NRPN	2:1	0 – 12	0	See Mod Matrix Table
	mod matrix 10 depth	NRPN	2:3	0 – 127 (-64 – 63)	64 (0)	
	mod matrix 10 destination	NRPN	2:4	0 – 17	0	See Mod Matrix Table
	mod matrix 11 source 1	NRPN	2:5	0 – 12	0	See Mod Matrix Table
	mod matrix 11 source 2	NRPN	2:6	0 – 12	0	See Mod Matrix Table
	mod matrix 11 depth	NRPN	2:8	0 – 127 (-64 – 63)	64 (0)	

	macro knob 3 depth A	NRPN	3:35	0 – 127 (-64 – 63)	64 (0)	
	macro knob 3 destination B	NRPN	3:36	0 – 70	0	
	macro knob 3 start position B	NRPN	3:37	0 – 127	0	
	macro knob 3 end position B	NRPN	3:38	0 – 127	127	
	macro knob 3 depth B	NRPN	3:39	0 – 127 (-64 – 63)	64 (0)	
	macro knob 3 destination C	NRPN	3:40	0 – 70	0	
	macro knob 3 start position C	NRPN	3:41	0 – 127	0	
	macro knob 3 end position C	NRPN	3:42	0 – 127	127	
	macro knob 3 depth C	NRPN	3:43	0 – 127 (-64 – 63)	64 (0)	
	macro knob 3 destination D	NRPN	3:44	0 – 70	0	
	macro knob 3 start position D	NRPN	3:45	0 – 127	0	
	macro knob 3 end position D	NRPN	3:46	0 – 127	127	
	macro knob 3 depth D	NRPN	3:47	0 – 127 (-64 – 63)	64 (0)	
	macro knob 4 position	CC	83	0 – 127	0	
	macro knob 4 destination A	NRPN	3:48	0 – 70	0	
	macro knob 4 start position A	NRPN	3:49	0 – 127	0	
	macro knob 4 end position A	NRPN	3:50	0 – 127	127	
	macro knob 4 depth A	NRPN	3:51	0 – 127 (-64 – 63)	64 (0)	
	macro knob 4 destination B	NRPN	3:52	0 – 70	0	
	macro knob 4 start position B	NRPN	3:53	0 – 127	0	
	macro knob 4 end position B	NRPN	3:54	0 – 127	127	
	macro knob 4 depth B	NRPN	3:55	0 – 127 (-64 – 63)	64 (0)	
	macro knob 4 destination C	NRPN	3:56	0 – 70	0	
	macro knob 4 start position C	NRPN	3:57	0 – 127	0	
	macro knob 4 end position C	NRPN	3:58	0 – 127	127	
	macro knob 4 depth C	NRPN	3:59	0 – 127 (-64 – 63)	64 (0)	
	macro knob 4 destination D	NRPN	3:60	0 – 70	0	
	macro knob 4 start position D	NRPN	3:61	0 – 127	0	
	macro knob 4 end position D	NRPN	3:62	0 – 127	127	
	macro knob 4 depth D	NRPN	3:63	0 – 127 (-64 – 63)	64 (0)	

	macro knob 5 position	CC	84	0 – 127	0	
	macro knob 5 destination A	NRPN	3:64	0 – 70	0	
	macro knob 5 start position A	NRPN	3:65	0 – 127	0	
	macro knob 5 end position A	NRPN	3:66	0 – 127	127	
	macro knob 5 depth A	NRPN	3:67	0 – 127 (-64 – 63)	64 (0)	
	macro knob 5 destination B	NRPN	3:68	0 – 70	0	
	macro knob 5 start position B	NRPN	3:69	0 – 127	0	
	macro knob 5 end position B	NRPN	3:70	0 – 127	127	
	macro knob 5 depth B	NRPN	3:71	0 – 127 (-64 – 63)	64 (0)	
	macro knob 5 destination C	NRPN	3:72	0 – 70	0	
	macro knob 5 start position C	NRPN	3:73	0 – 127	0	
	macro knob 5 end position C	NRPN	3:74	0 – 127	127	
	macro knob 5 depth C	NRPN	3:75	0 – 127 (-64 – 63)	64 (0)	
	macro knob 5 destination D	NRPN	3:76	0 – 70	0	
	macro knob 5 start position D	NRPN	3:77	0 – 127	0	
	macro knob 5 end position D	NRPN	3:78	0 – 127	127	
	macro knob 5 depth D	NRPN	3:79	0 – 127 (-64 – 63)	64 (0)	
	macro knob 6 position	CC	85	0 – 127	0	
	macro knob 6 destination A	NRPN	3:80	0 – 70	0	
	macro knob 6 start position A	NRPN	3:81	0 – 127	0	
	macro knob 6 end position A	NRPN	3:82	0 – 127	127	
	macro knob 6 depth A	NRPN	3:83	0 – 127 (-64 – 63)	64 (0)	
	macro knob 6 destination B	NRPN	3:84	0 – 70	0	
	macro knob 6 start position B	NRPN	3:85	0 – 127	0	
	macro knob 6 end position B	NRPN	3:86	0 – 127	127	
	macro knob 6 depth B	NRPN	3:87	0 – 127 (-64 – 63)	64 (0)	
	macro knob 6 destination C	NRPN	3:88	0 – 70	0	
	macro knob 6 start position C	NRPN	3:89	0 – 127	0	
	macro knob 6 end position C	NRPN	3:90	0 – 127	127	
	macro knob 6 depth C	NRPN	3:91	0 – 127 (-64 – 63)	64 (0)	
	macro knob 6 destination D	NRPN	3:92	0 – 70	0	
	macro knob 6 start position D	NRPN	3:93	0 – 127	0	
	macro knob 6 end position D	NRPN	3:94	0 – 127	127	
	macro knob 6 depth D	NRPN	3:95	0 – 127 (-64 – 63)	64 (0)	
	macro knob 7 position	CC	86	0 – 127	0	
	macro knob 7 destination A	NRPN	3:96	0 – 70	0	
	macro knob 7 start position A	NRPN	3:97	0 – 127	0	
	macro knob 7 end position A	NRPN	3:98	0 – 127	127	
	macro knob 7 depth A	NRPN	3:99	0 – 127 (-64 – 63)	64 (0)	
	macro knob 7 destination B	NRPN	3:100	0 – 70	0	
	macro knob 7 start position B	NRPN	3:101	0 – 127	0	
	macro knob 7 end position B	NRPN	3:102	0 – 127	127	
	macro knob 7 depth B	NRPN	3:103	0 – 127 (-64 – 63)	64 (0)	
	macro knob 7 destination C	NRPN	3:104	0 – 70	0	
	macro knob 7 start position C	NRPN	3:105	0 – 127	0	
	macro knob 7 end position C	NRPN	3:106	0 – 127	127	
	macro knob 7 depth C	NRPN	3:107	0 – 127 (-64 – 63)	64 (0)	
	macro knob 7 destination D	NRPN	3:108	0 – 70	0	
	macro knob 7 start position D	NRPN	3:109	0 – 127	0	
	macro knob 7 end position D	NRPN	3:110	0 – 127	127	
	macro knob 7 depth D	NRPN	3:111	0 – 127 (-64 – 63)	64 (0)	
	macro knob 8 position	CC	87	0 – 127	0	
	macro knob 8 destination A	NRPN	3:112	0 – 70	0	
	macro knob 8 start position A	NRPN	3:113	0 – 127	0	
	macro knob 8 end position A	NRPN	3:114	0 – 127	127	
	macro knob 8 depth A	NRPN	3:115	0 – 127 (-64 – 63)	64 (0)	
	macro knob 8 destination B	NRPN	3:116	0 – 70	0	
	macro knob 8 start position B	NRPN	3:117	0 – 127	0	
	macro knob 8 end position B	NRPN	3:118	0 – 127	127	
	macro knob 8 depth B	NRPN	3:119	0 – 127 (-64 – 63)	64 (0)	
	macro knob 8 destination C	NRPN	3:120	0 – 70	0	
	macro knob 8 start position C	NRPN	3:121	0 – 127	0	
	macro knob 8 end position C	NRPN	3:122	0 – 127	127	
	macro knob 8 depth C	NRPN	3:123	0 – 127 (-64 – 63)	64 (0)	
	macro knob 8 destination D	NRPN	3:124	0 – 70	0	
	macro knob 8 start position D	NRPN	3:125	0 – 127	0	
	macro knob 8 end position D	NRPN	3:126	0 – 127	127	
	macro knob 8 depth D	NRPN	3:127	0 – 127 (-64 – 63)	64 (0)	

Filter Table

	Value	Type
Drive Type		
	0	diode
	1	valve
	2	clipper
	3	cross-over
	4	rectifier
	5	bit reducer
	6	rate reducer
Type		
	0	low pass 12dB
	1	low pass 24dB
	2	band pass 6/\6 dB
	3	band pass 12/\12 dB
	4	high pass 12dB
	5	high pass 24dB

Distortion Table

Value	Type
0	diode
1	valve
2	clipper
3	cross-over
4	rectify
5	bit reducer
6	rate reducer

Mod Matrix Table

	Value	Type
Source		
	0	direct
	4	velocity
	5	keyboard
	6	LFO 1 +
	7	LFO 1 +/-
	8	LFO 2 +
	9	LFO 2 +/-
	10	env amp
	11	env filter
	12	env 3
Destination		
	0	osc 1 & 2 pitch
	1	osc 1 pitch
	2	osc 2 pitch
	3	osc 1 v-sync
	4	osc 2 v-sync
	5	osc 1 pulse width / index
	6	osc 2 pulse width / index
	7	osc 1 level
	8	osc 2 level
	9	noise level
	10	ring modulation 1*2 level
	11	filter drive amount
	12	filter frequency
	13	filter resonance
	14	LFO 1 rate
	15	LFO 2 rate
	16	amp envelope decay
	17	filter envelope decay

Osc Waveform Table

	Value	Type
Waveforms		
	0	sine
	1	triangle
	2	sawtooth
	3	saw 9:1 PW
	4	saw 8:2 PW
	5	saw 7:3 PW
	6	saw 6:4 PW
	7	saw 5:5 PW
	8	saw 4:6 PW
	9	saw 3:7 PW
	10	saw 2:8 PW
	11	saw 1:9 PW
	12	pulse width
	13	square
Wavetables		
	14	sine table
	15	analogue pulse
	16	analogue sync
	17	triangle-saw blend
	18	digital nasty 1
	19	digital nasty 2
	20	digital saw-square
	21	digital vocal 1
	22	digital vocal 2
	23	digital vocal 3
	24	digital vocal 4
	25	digital vocal 5
	26	digital vocal 6
	27	random collection 1
	28	random collection 2
	29	random collection 3

LFO Waveform Table

Value	Type
0	sine
1	triangle
2	sawtooth
3	square
4	random S/H
5	time S/H
6	piano envelope
7	sequence 1
8	sequence 2
9	sequence 3
10	sequence 4
11	sequence 5
12	sequence 6
13	sequence 7
14	alternative 1
15	alternative 2
16	alternative 3
17	alternative 4
18	alternative 5
19	alternative 6
20	alternative 7
21	alternative 8
22	chromatic
23	chromatic 16
24	major
25	major 7
26	minor 7
27	min arp 1
28	min arp 2
29	diminished
30	dec minor
31	minor 3rd
32	pedal
33	4ths
34	4ths x12
35	1625 maj
36	1625 Min
37	2511

Patch and Session Select

MIDI Channel	Parameter	Value	Notes
1	PGM*	0 – 63	select synth 1 patch
2	PGM	0 – 63	select synth 2 patch
16	PGM	0 – 31	select session (instant)
16	PGM	64 – 95	select session (queued)

*PGM = Program Change
Note, for drum patch selection see Drum Control table

Supported Realtime Messages

Message
start
stop
continue
timing clock

Supported System Common Messages

Message
song position pointer
song select

Drum Control

Messages on MIDI Channel 10

Parameter	CC / NRPN	Control No.	Range	Default Value
drum 1 patch select	CC	8	0 – 63	0
drum 1 level	CC	12	0 – 127	0
drum 1 pitch	CC	14	0 – 127 (-64 – 63)	64 (0)
drum 1 decay	CC	15	0 – 127	0
drum 1 distortion	CC	16	0 – 127	0
drum 1 EQ	CC	17	0 – 127 (-64 – 63)	64 (0)
drum 1 pan	CC	77	0 – 127 (-64 – 63)	64 (0)
drum 2 patch select	CC	18	0 – 63	0
drum 2 level	CC	23	0 – 127	0
drum 2 pitch	CC	34	0 – 127 (-64 – 63)	64 (0)
drum 2 decay	CC	40	0 – 127	0
drum 2 distortion	CC	42	0 – 127	0
drum 2 EQ	CC	43	0 – 127 (-64 – 63)	64 (0)
drum 2 pan	CC	78	0 – 127 (-64 – 63)	64 (0)
drum 3 patch select	CC	44	0 – 63	0
drum 3 level	CC	45	0 – 127	0
drum 3 pitch	CC	46	0 – 127 (-64 – 63)	64 (0)
drum 3 decay	CC	47	0 – 127	0
drum 3 distortion	CC	48	0 – 127	0
drum 3 EQ	CC	49	0 – 127 (-64 – 63)	64 (0)
drum 3 pan	CC	79	0 – 127 (-64 – 63)	64 (0)
drum 4 patch select	CC	50	0 – 63	0
drum 4 level	CC	53	0 – 127	0
drum 4 pitch	CC	55	0 – 127 (-64 – 63)	64 (0)
drum 4 decay	CC	57	0 – 127	0
drum 4 distortion	CC	61	0 – 127	0
drum 4 EQ	CC	76	0 – 127 (-64 – 63)	64 (0)
drum 4 pan	CC	80	0 – 127 (-64 – 63)	64 (0)

Drum Notes Table

MIDI Note	Drum Number
60	Drum 1
62	Drum 2
64	Drum 3
65	Drum 4

Session Control

Send messages on MIDI Channel 16.

Section	Parameter	CC / NRPN	Control No.	Range	Default Value	Notes
Reverb						
	synth 1 send level	CC	88	0 – 127	0	
	synth 2 send level	CC	89	0 – 127	0	
	drum 1 send level	CC	90	0 – 127	0	
	drum 2 send level	CC	106	0 – 127	0	
	drum 3 send level	CC	109	0 – 127	0	
	drum 4 send level	CC	110	0 – 127	0	
	type	NRPN	1:18	0 – 5	2	0=Chamber, 1=Small Room, 2=Large Room 3=Small Hall, 4=Large Hall, 5=Great Hall
	decay	NRPN	1:19	0 – 127	64	
	damping	NRPN	1:20	0 – 127	64	
Delay						
	synth 1 send level	CC	111	0 – 127	0	
	synth 2 send level	CC	112	0 – 127	0	
	drum 1 send level	CC	113	0 – 127	0	
	drum 2 send level	CC	114	0 – 127	0	
	drum 3 send level	CC	115	0 – 127	0	
	drum 4 send level	CC	116	0 – 127	0	
	time	NRPN	1:6	0 – 127	64	
	time sync	NRPN	1:7	0 – 35	20	
	feedback	NRPN	1:8	0 – 127	64	
	width	NRPN	1:9	0 – 127	127	
	left-right ratio	NRPN	1:10	0 – 12	4	0=1:1, 1=4:3, 2=3:4, 3=3:2, 4=2:3, 5=2:1, 6=1:2 7=3:1, 8=1:3, 9=4:1, 10=1:4, 11=1:OFF, 12=OFF:1
	slew rate	NRPN	1:11	0 – 127	5	
Master Filter						
	frequency	CC	74	0 – 127 (-64 – 63)	64 (0)	0-63=Low Pass, 64=OFF, 65-127=High Pass
	resonance	CC	71	0 – 127	30	
Sidechain						
	synth 1 source	NRPN	2:55	0 – 4	0	0=Drum 1, 1=Drum 2, 2=Drum 3, 3=Drum 4, 4=OFF
	synth 1 attack	NRPN	2:56	0 – 127	0	
	synth 1 hold	NRPN	2:57	0 – 127	50	
	synth 1 decay	NRPN	2:58	0 – 127	70	
	synth 1 depth	NRPN	2:59	0 – 127	0	
	synth 2 source	NRPN	2:65	0 – 4	0	0=Drum 1, 1=Drum 2, 2=Drum 3, 3=Drum 4, 4=OFF
	synth 2 attack	NRPN	2:66	0 – 127	0	
	synth 2 hold	NRPN	2:67	0 – 127	50	
	synth 2 decay	NRPN	2:68	0 – 127	70	
	synth 2 depth	NRPN	1:69	0 – 127	0	
Mixer						
	synth 1 level	CC	12	0 – 127	100	
	synth 2 level	CC	14	0 – 127	100	
	synth 1 pan	CC	117	0 – 127 (-64 – 63)	64 (0)	
	synth 2 pan	CC	118	0 – 127 (-64 – 63)	64 (0)	
Additional Controls						
	FX Bypass	NRPN	1:21	0 – 1	0	0=Off (FX enabled), 1=On (FX disabled)

Synth Patch Sysex Message Formats

For best results, we recommend using Circuit's USB connection for SysEx communication, as it is faster and more reliable. Although Circuit will receive SysEx messages via MIDI DIN, any response will be sent via USB only.

Replace Current Patch

This table describes the format of the "Replace current patch" message.

When this is received by Circuit it replaces the contents of the current sound (in RAM) for the specified Synth part.

There are states in which the device is not capable of receiving this message. For example, it may be busy processing another sysex message. In these situations the message will be ignored. The message may be sent without delays between the bytes. However, consecutive messages should have at least 20 ms between them to allow time for processing.

Hex	Dec	Description
F0	240	Sysex message
00 20 29	0 32 41	Manufacturer ID (Novation)
01	1	Novation Product Type (Synth)
60	96	Novation Product Number (Circuit)
00	0	Circuit Command: 00h - Replace current patch
00 / 01	0 / 1	Location: 00h - Synth 1 01h - Synth 2
00	0	Reserved for future use: set to 0
00 - 7F	0 - 127	Synth patch data: 340 bytes (see the Patch Table)
F7	247	End of sysex (EOX)

350 bytes in total

Replace Patch

This table describes the format of the "Replace Patch" message.

When this is received by Circuit it replaces the contents of the specified patch in Flash memory.

There are states in which the device is not capable of receiving this message. For example, it may be busy processing another sysex message. In these situations the message will be ignored. The message may be sent without delays between the bytes. However, consecutive messages should have at least 20 ms between them to allow time for processing.

Hex	Dec	Description
F0	240	Sysex message
00 20 29	0 32 41	Manufacturer ID (Novation)
01	1	Novation Product Type (Synth)
60	96	Novation Product Number (Circuit)
01	1	Circuit Command: 01h - Replace Patch
00 - 3F	0 - 63	Patch number to overwrite
00	0	Reserved for future use: set to 0
00 - 7F	0 - 127	Synth patch data: 340 bytes (see the Patch Table)
F7	247	End of sysex (EOX)

350 bytes in total

Current Patch Dump Request

This table describes the format of the "Current Patch Dump Request" message. There are states in which the device is not capable of receiving this message. For example, it may be busy processing another sysex message. In these situations the message will be ignored. The message may be sent without delays between the bytes. However, consecutive messages should have at least 20 ms between them to allow time for processing.

When this message is received on either MIDI DIN or MIDI USB, Circuit will respond by sending a Replace Current Patch message to its USB port. The location in the response will match the location in the request, and the patch data will correspond accordingly.

Hex	Dec	Description
F0	240	Sysex message
00 20 29	0 32 41	Manufacturer ID (Novation)
01	1	Novation Product Type (Synth)
60	96	Novation Product Number (Circuit)
40	64	Circuit Command: 40h - Current Patch Dump Request
00 / 01	0 / 1	Location: 00h - Synth 1 01h - Synth 2
F7	247	End of sysex (EOX)

9 bytes in total

Patch Dump Request

To obtain a patch from Flash memory, follow these steps:

1. First send a Program Change message with the desired patch number (0 - 63) to a synth MIDI channel.
1. Wait enough time for the patch to load from Flash memory (10 ms should be plenty)
1. Send a Current Patch Dump Request message with the Location set to the corresponding Synth part.

Consecutive sequences should have at least 20 ms between them to allow time for processing.

Format of a Synth Patch (Single) SysEx File

To create a single patch in a portable format that can be shared with others, use a sysex file containing a single "Replace Current Patch" sysex message with the Location set to Synth 1.

Format of a Synth Patch (Bank) Sysex File

To create an entire bank of 64 synth patches, use a sysex file containing a concatenation of 64 separate "Replace Patch" sysex messages. Each message should overwrite consecutive patch numbers, starting from 0 and counting up to 63.

Synth Patch Format

Address	Default	Min	Max	Parameter(s)
0	73			Patch_Name
1	110	-	-	Patch_Name
2	105	-	-	Patch_Name
3	116	-	-	Patch_Name
4	105	-	-	Patch_Name
5	97	-	-	Patch_Name
6	108	-	-	Patch_Name
7	32	-	-	Patch_Name
8	80	-	-	Patch_Name
9	97	-	-	Patch_Name
10	116	-	-	Patch_Name
11	99	-	-	Patch_Name
12	104	-	-	Patch_Name
13	32	-	-	Patch_Name
14	32	-	-	Patch_Name
15	32	-	-	Patch_Name
16	0	0	14	Patch_Category
17	0	0	9	Patch_Genre
18	0	-	-	Patch_Reserved1
19	0	-	-	Patch_Reserved2
20	0	-	-	Patch_Reserved3
21	0	-	-	Patch_Reserved4
22	0	-	-	Patch_Reserved5
23	0	-	-	Patch_Reserved6
24	0	-	-	Patch_Reserved7
25	0	-	-	Patch_Reserved8
26	0	-	-	Patch_Reserved9
27	0	-	-	Patch_Reserved10
28	0	-	-	Patch_Reserved11
29	0	-	-	Patch_Reserved12
30	0	-	-	Patch_Reserved13
31	0	-	-	Patch_Reserved14
32	2	0	2	Voice_PolyphonyMode
33	0	0	127	Voice_PortamentoRate
34	64	52	76	Voice_PreGlide
35	64	58	69	Voice_KeyboardOctave
36	2	0	29	Osc1_Wave
37	127	0	127	Osc1_WaveInterpolate
38	64	0	127	Osc1_PulseWidthIndex
39	0	0	127	Osc1_VirtualSyncDepth
40	0	0	127	Osc1_Density
41	0	0	127	Osc1_DensityDetune
42	64	0	127	Osc1_Semitones
43	64	0	127	Osc1_Cents
44	76	52	76	Osc1_PitchBend
45	2	0	29	Osc2_Wave
46	127	0	127	Osc2_WaveInterpolate
47 64		0	127	Osc2_PulseWidthIndex

48 0	0	127	Osc2_VirtualSyncDepth
49 0	0	127	Osc2_Density
50 0	0	127	Osc2_DensityDetune
51 64	0	127	Osc2_Semitones
52 64	0	127	Osc2_Cents
53 76	52	76	Osc2_PitchBend
54 127	0	127	Mixer_Osc1Level
55 0	0	127	Mixer_Osc2Level
56 0	0	127	Mixer_RingModLevel12
57 0	0	127	Mixer_NoiseLevel
58 64	52	82	Mixer_PreFXLevel
59 64	52	82	Mixer_PostFXLevel
60 0	0	2	Filter_Routing
61 0	0	127	Filter_Drive
62 0	0	6	Filter_DriveType
63 1	0	5	Filter_Type
64 127	0	127	Filter_Frequency
65 127	0	127	Filter_Track
66 0	0	127	Filter_Resonance
67 64	0	127	Filter_QNormalise
68 64	0	127	Filter_Env2ToFreq
69 64	0	127	Envelope1_Velocity
70 2	0	127	Envelope1_Attack
71 90	0	127	Envelope1_Decay
72 127	0	127	Envelope1_Sustain
73 40	0	127	Envelope1_Release
74 64	0	127	Envelope2_Velocity
75 2	0	127	Envelope2_Attack
76 75	0	127	Envelope2_Decay
77 35	0	127	Envelope2_Sustain
78 45	0	127	Envelope2_Release
79 0	0	127	Envelope3_Delay
80 10	0	127	Envelope3_Attack
81 70	0	127	Envelope3_Decay
82 64	0	127	Envelope3_Sustain
83 40	0	127	Envelope3_Release
84 0	0	37	LFO1_Waveform
85 0	0	119	LFO1_PhaseOffset
86 0	0	127	LFO1_SlewRate
87 0	0	127	LFO1_Delay
88 0	0	35	LFO1_DelaySync
89 68	0	127	LFO1_Rate
90 0	0	35	LFO1_RateSync
91 0	-	-	LFO1_OneShot (bit 0), LFO1_KeySync (bit 1), LFO1_CommonSync (bit 2), LFO1_DelayTrigger (bit 3), LFO1_FadeMode (bits 4-5)
92 0	0	37	LFO2_Waveform
93 0	0	119	LFO2_PhaseOffset
94 0	0	127	LFO2_SlewRate
95 0	0	127	LFO2_Delay

96 0	0	35	LFO2_DelaySync
97 68	0	127	LFO2_Rate
98 0	0	35	LFO2_RateSync
99 0	-	-	LFO2_OneShot (bit 0), LFO2_KeySync (bit 1), LFO2_CommonSync (bit 2), LFO2_ DelayTrigger (bit 3), LFO2_FadeMode (bits 4-5)
100 0	0	127	Distortion_Level
101 0	0	127	FX_Reserved1
102 0	0	127	Chorus_Level
103 0	-	-	FX_Reserved2
104 0	-	-	FX_Reserved3
105 64	0	127	Equaliser_BassFrequency
106 64	0	127	Equaliser_BassLevel
107 64	0	127	Equaliser_MidFrequency
108 64	0	127	Equaliser_MidLevel
109 125	0	127	Equaliser_TrebleFrequency
110 64	0	127	Equaliser_TrebleLevel
111 0	-	-	FX_Reserved4
112 0	-	-	FX_Reserved5
113 0	-	-	FX_Reserved6
114 0	-	-	FX_Reserved7
115 0	-	-	FX_Reserved8
116 0	0	6	Distortion_Type
117 100	0	127	Distortion_Compensation
118 1	0	1	Chorus_Type
119 20	0	127	Chorus_Rate
120 0	0	35	Chorus_RateSync
121 74	0	127	Chorus_Feedback
122 64	0	127	Chorus_ModDepth
123 64	0	127	Chorus_Delay
124 0	0	12	ModMatrix1_Source1
125 0	0	12	ModMatrix1_Source2
126 64	0	127	ModMatrix1_Depth
127 0	0	17	ModMatrix1_Destination
128 0	0	12	ModMatrix2_Source1
129 0	0	12	ModMatrix2_Source2
130 64	0	127	ModMatrix2_Depth
131 0	0	17	ModMatrix2_Destination
132 0	0	12	ModMatrix3_Source1
133 0	0	12	ModMatrix3_Source2
134 64	0	127	ModMatrix3_Depth
135 0	0	17	ModMatrix3_Destination
136 0	0	12	ModMatrix4_Source1
137 0	0	12	ModMatrix4_Source2
138 64	0	127	ModMatrix4_Depth
139 0	0	17	ModMatrix4_Destination
140 0	0	12	ModMatrix5_Source1
141 0	0	12	ModMatrix5_Source2
142 64	0	127	ModMatrix5_Depth
143 0	0	17	ModMatrix5_Destination
144 0	0	12	ModMatrix6_Source1

145 0	0	12	ModMatrix6_Source2
146 64	0	127	ModMatrix6_Depth
147 0	0	17	ModMatrix6_Destination
148 0	0	12	ModMatrix7_Source1
149 0	0	12	ModMatrix7_Source2
150 64	0	127	ModMatrix7_Depth
151 0	0	17	ModMatrix7_Destination
152 0	0	12	ModMatrix8_Source1
153 0	0	12	ModMatrix8_Source2
154 64	0	127	ModMatrix8_Depth
155 0	0	17	ModMatrix8_Destination
156 0	0	12	ModMatrix9_Source1
157 0	0	12	ModMatrix9_Source2
158 64	0	127	ModMatrix9_Depth
159 0	0	17	ModMatrix9_Destination
160 0	0	12	ModMatrix10_Source1
161 0	0	12	ModMatrix10_Source2
162 64	0	127	ModMatrix10_Depth
163 0	0	17	ModMatrix10_Destination
164 0	0	12	ModMatrix11_Source1
165 0	0	12	ModMatrix11_Source2
166 64	0	127	ModMatrix11_Depth
167 0	0	17	ModMatrix11_Destination
168 0	0	12	ModMatrix12_Source1
169 0	0	12	ModMatrix12_Source2
170 64	0	127	ModMatrix12_Depth
171 0	0	17	ModMatrix12_Destination
172 0	0	12	ModMatrix13_Source1
173 0	0	12	ModMatrix13_Source2
174 64	0	127	ModMatrix13_Depth
175 0	0	17	ModMatrix13_Destination
176 0	0	12	ModMatrix14_Source1
177 0	0	12	ModMatrix14_Source2
178 64	0	127	ModMatrix14_Depth
179 0	0	17	ModMatrix14_Destination
180 0	0	12	ModMatrix15_Source1
181 0	0	12	ModMatrix15_Source2
182 64	0	127	ModMatrix15_Depth
183 0	0	17	ModMatrix15_Destination
184 0	0	12	ModMatrix16_Source1
185 0	0	12	ModMatrix16_Source2
186 64	0	127	ModMatrix16_Depth
187 0	0	17	ModMatrix16_Destination
188 0	0	12	ModMatrix17_Source1
189 0	0	12	ModMatrix17_Source2
190 64	0	127	ModMatrix17_Depth
191 0	0	17	ModMatrix17_Destination
192 0	0	12	ModMatrix18_Source1
193 0	0	12	ModMatrix18_Source2
194 64	0	127	ModMatrix18_Depth

195 0	0	17	ModMatrix18_Destination
196 0	0	12	ModMatrix19_Source1
197 0	0	12	ModMatrix19_Source2
198 64	0	127	ModMatrix19_Depth
199 0	0	17	ModMatrix19_Destination
200 0	0	12	ModMatrix20_Source1
201 0	0	12	ModMatrix20_Source2
202 64	0	127	ModMatrix20_Depth
203 0	0	17	ModMatrix20_Destination
204 0	0	127	MacroKnob1_Position
205 0	0	70	MacroKnob1_DestinationA
206 0	0	127	MacroKnob1_StartPosA
207 127	0	127	MacroKnob1_EndPosA
208 64	0	127	MacroKnob1_DepthA
209 0	0	70	MacroKnob1_DestinationB
210 0	0	127	MacroKnob1_StartPosB
211 127	0	127	MacroKnob1_EndPosB
212 64	0	127	MacroKnob1_DepthB
213 0	0	70	MacroKnob1_DestinationC
214 0	0	127	MacroKnob1_StartPosC
215 127	0	127	MacroKnob1_EndPosC
216 64	0	127	MacroKnob1_DepthC
217 0	0	70	MacroKnob1_DestinationD
218 0	0	127	MacroKnob1_StartPosD
219 127	0	127	MacroKnob1_EndPosD
220 64	0	127	MacroKnob1_DepthD
221 0	0	127	MacroKnob2_Position
222 0	0	70	MacroKnob2_DestinationA
223 0	0	127	MacroKnob2_StartPosA
224 127	0	127	MacroKnob2_EndPosA
225 64	0	127	MacroKnob2_DepthA
226 0	0	70	MacroKnob2_DestinationB
227 0	0	127	MacroKnob2_StartPosB
228 127	0	127	MacroKnob2_EndPosB
229 64	0	127	MacroKnob2_DepthB
230 0	0	70	MacroKnob2_DestinationC
231 0	0	127	MacroKnob2_StartPosC
232 127	0	127	MacroKnob2_EndPosC
233 64	0	127	MacroKnob2_DepthC
234 0	0	70	MacroKnob2_DestinationD
235 0	0	127	MacroKnob2_StartPosD
236 127	0	127	MacroKnob2_EndPosD
237 64	0	127	MacroKnob2_DepthD
238 0	0	127	MacroKnob3_Position
239 0	0	70	MacroKnob3_DestinationA
240 0	0	127	MacroKnob3_StartPosA
241 127	0	127	MacroKnob3_EndPosA
242 64	0	127	MacroKnob3_DepthA
243 0	0	70	MacroKnob3_DestinationB
244 0	0	127	MacroKnob3_StartPosB

245 127	0	127	MacroKnob3_EndPosB
246 64	0	127	MacroKnob3_DepthB
247 0	0	70	MacroKnob3_DestinationC
248 0	0	127	MacroKnob3_StartPosC
249 127	0	127	MacroKnob3_EndPosC
250 64	0	127	MacroKnob3_DepthC
251 0	0	70	MacroKnob3_DestinationD
252 0	0	127	MacroKnob3_StartPosD
253 127	0	127	MacroKnob3_EndPosD
254 64	0	127	MacroKnob3_DepthD
255 0	0	127	MacroKnob4_Position
256 0	0	70	MacroKnob4_DestinationA
257 0	0	127	MacroKnob4_StartPosA
258 127	0	127	MacroKnob4_EndPosA
259 64	0	127	MacroKnob4_DepthA
260 0	0	70	MacroKnob4_DestinationB
261 0	0	127	MacroKnob4_StartPosB
262 127	0	127	MacroKnob4_EndPosB
263 64	0	127	MacroKnob4_DepthB
264 0	0	70	MacroKnob4_DestinationC
265 0	0	127	MacroKnob4_StartPosC
266 127	0	127	MacroKnob4_EndPosC
267 64	0	127	MacroKnob4_DepthC
268 0	0	70	MacroKnob4_DestinationD
269 0	0	127	MacroKnob4_StartPosD
270 127	0	127	MacroKnob4_EndPosD
271 64	0	127	MacroKnob4_DepthD
272 0	0	127	MacroKnob5_Position
273 0	0	70	MacroKnob5_DestinationA
274 0	0	127	MacroKnob5_StartPosA
275 127	0	127	MacroKnob5_EndPosA
276 64	0	127	MacroKnob5_DepthA
277 0	0	70	MacroKnob5_DestinationB
278 0	0	127	MacroKnob5_StartPosB
279 127	0	127	MacroKnob5_EndPosB
280 64	0	127	MacroKnob5_DepthB
281 0	0	70	MacroKnob5_DestinationC
282 0	0	127	MacroKnob5_StartPosC
283 127	0	127	MacroKnob5_EndPosC
284 64	0	127	MacroKnob5_DepthC
285 0	0	70	MacroKnob5_DestinationD
286 0	0	127	MacroKnob5_StartPosD
287 127	0	127	MacroKnob5_EndPosD
288 64	0	127	MacroKnob5_DepthD
289 0	0	127	MacroKnob6_Position
290 0	0	70	MacroKnob6_DestinationA
291 0	0	127	MacroKnob6_StartPosA
292 127	0	127	MacroKnob6_EndPosA
293 64	0	127	MacroKnob6_DepthA
294 0	0	70	MacroKnob6_DestinationB
295 0	0	127	MacroKnob6_StartPosB

296 127	0	127	MacroKnob6_EndPosB
297 64	0	127	MacroKnob6_DepthB
298 0	0	70	MacroKnob6_DestinationC
299 0	0	127	MacroKnob6_StartPosC
300 127	0	127	MacroKnob6_EndPosC
301 64	0	127	MacroKnob6_DepthC
302 0	0	70	MacroKnob6_DestinationD
303 0	0	127	MacroKnob6_StartPosD
304 127	0	127	MacroKnob6_EndPosD
305 64	0	127	MacroKnob6_DepthD
306 0	0	127	MacroKnob7_Position
307 0	0	70	MacroKnob7_DestinationA
308 0	0	127	MacroKnob7_StartPosA
309 127	0	127	MacroKnob7_EndPosA
310 64	0	127	MacroKnob7_DepthA
311 0	0	70	MacroKnob7_DestinationB
312 0	0	127	MacroKnob7_StartPosB
313 127	0	127	MacroKnob7_EndPosB
314 64	0	127	MacroKnob7_DepthB
315 0	0	70	MacroKnob7_DestinationC
316 0	0	127	MacroKnob7_StartPosC
317 127	0	127	MacroKnob7_EndPosC
318 64	0	127	MacroKnob7_DepthC
319 0	0	70	MacroKnob7_DestinationD
320 0	0	127	MacroKnob7_StartPosD
321 127	0	127	MacroKnob7_EndPosD
322 64	0	127	MacroKnob7_DepthD
323 0	0	127	MacroKnob8_Position
324 0	0	70	MacroKnob8_DestinationA
325 0	0	127	MacroKnob8_StartPosA
326 127	0	127	MacroKnob8_EndPosA
327 64	0	127	MacroKnob8_DepthA
328 0	0	70	MacroKnob8_DestinationB
329 0	0	127	MacroKnob8_StartPosB
330 127	0	127	MacroKnob8_EndPosB
331 64	0	127	MacroKnob8_DepthB
332 0	0	70	MacroKnob8_DestinationC
333 0	0	127	MacroKnob8_StartPosC
334 127	0	127	MacroKnob8_EndPosC
335 64	0	127	MacroKnob8_DepthC
336 0	0	70	MacroKnob8_DestinationD
337 0	0	127	MacroKnob8_StartPosD
338 127	0	127	MacroKnob8_EndPosD
339 64	0	127	MacroKnob8_DepthD