

Circuit Programmer's Reference Guide v1.1

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Circuit MIDI Parameters

Synths 1 & 2

(Send messages on MIDI Channel 1 for Synth 1 and Channel 2 for Synth 2)

| 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 filter |
| | drive | CC | 63 | 0 – 127 | 0 | |
| | 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) | |

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|-------------------|-------------------------------|------|------|--------------------|--------|----------------------|
| | mod matrix 11 destination | NRPN | 2:9 | 0 – 17 | 0 | See Mod Matrix Table |
| | mod matrix 12 source 1 | NRPN | 2:10 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 12 source 2 | NRPN | 2:11 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 12 depth | NRPN | 2:13 | 0 – 127 (-64 – 63) | 64 (0) | |
| | mod matrix 12 destination | NRPN | 2:14 | 0 – 17 | 0 | See Mod Matrix Table |
| | mod matrix 13 source 1 | NRPN | 2:15 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 13 source 2 | NRPN | 2:16 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 13 depth | NRPN | 2:18 | 0 – 127 (-64 – 63) | 64 (0) | |
| | mod matrix 13 destination | NRPN | 2:19 | 0 – 17 | 0 | See Mod Matrix Table |
| | mod matrix 14 source 1 | NRPN | 2:20 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 14 source 2 | NRPN | 2:21 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 14 depth | NRPN | 2:23 | 0 – 127 (-64 – 63) | 64 (0) | |
| | mod matrix 14 destination | NRPN | 2:24 | 0 – 17 | 0 | See Mod Matrix Table |
| | mod matrix 15 source 1 | NRPN | 2:25 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 15 source 2 | NRPN | 2:27 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 15 depth | NRPN | 2:28 | 0 – 127 (-64 – 63) | 64 (0) | |
| | mod matrix 15 destination | NRPN | 2:29 | 0 – 17 | 0 | See Mod Matrix Table |
| | mod matrix 16 source 1 | NRPN | 2:30 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 16 source 2 | NRPN | 2:32 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 16 depth | NRPN | 2:33 | 0 – 127 (-64 – 63) | 64 (0) | |
| | mod matrix 16 destination | NRPN | 2:34 | 0 – 17 | 0 | See Mod Matrix Table |
| | mod matrix 17 source 1 | NRPN | 2:35 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 17 source 2 | NRPN | 2:37 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 17 depth | NRPN | 2:38 | 0 – 127 (-64 – 63) | 64 (0) | |
| | mod matrix 17 destination | NRPN | 2:39 | 0 – 17 | 0 | See Mod Matrix Table |
| | mod matrix 18 source 1 | NRPN | 2:40 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 18 source 2 | NRPN | 2:42 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 18 depth | NRPN | 2:43 | 0 – 127 (-64 – 63) | 64 (0) | |
| | mod matrix 18 destination | NRPN | 2:44 | 0 – 17 | 0 | See Mod Matrix Table |
| | mod matrix 19 source 1 | NRPN | 2:45 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 19 source 2 | NRPN | 2:47 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 19 depth | NRPN | 2:48 | 0 – 127 (-64 – 63) | 64 (0) | |
| | mod matrix 19 destination | NRPN | 2:49 | 0 – 17 | 0 | See Mod Matrix Table |
| | mod matrix 20 source 1 | NRPN | 2:50 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 20 source 2 | NRPN | 2:52 | 0 – 12 | 0 | See Mod Matrix Table |
| | mod matrix 20 depth | NRPN | 2:53 | 0 – 127 (-64 – 63) | 64 (0) | |
| | mod matrix 20 destination | NRPN | 2:54 | 0 – 17 | 0 | See Mod Matrix Table |
| Macro Knob | | | | | | |
| | macro knob 1 position | CC | 80 | 0 – 127 | 0 | |
| | macro knob 1 destination A | NRPN | 3:0 | 0 – 70 | 0 | |
| | macro knob 1 start position A | NRPN | 3:1 | 0 – 127 | 0 | |
| | macro knob 1 end position A | NRPN | 3:2 | 0 – 127 | 127 | |
| | macro knob 1 depth A | NRPN | 3:3 | 0 – 127 (-64 – 63) | 64 (0) | |
| | macro knob 1 destination B | NRPN | 3:4 | 0 – 70 | 0 | |
| | macro knob 1 start position B | NRPN | 3:5 | 0 – 127 | 0 | |
| | macro knob 1 end position B | NRPN | 3:6 | 0 – 127 | 127 | |
| | macro knob 1 depth B | NRPN | 3:7 | 0 – 127 (-64 – 63) | 64 (0) | |
| | macro knob 1 destination C | NRPN | 3:8 | 0 – 70 | 0 | |
| | macro knob 1 start position C | NRPN | 3:9 | 0 – 127 | 0 | |
| | macro knob 1 end position C | NRPN | 3:10 | 0 – 127 | 127 | |
| | macro knob 1 depth C | NRPN | 3:11 | 0 – 127 (-64 – 63) | 64 (0) | |
| | macro knob 1 destination D | NRPN | 3:12 | 0 – 70 | 0 | |
| | macro knob 1 start position D | NRPN | 3:13 | 0 – 127 | 0 | |
| | macro knob 1 end position D | NRPN | 3:14 | 0 – 127 | 127 | |
| | macro knob 1 depth D | NRPN | 3:15 | 0 – 127 (-64 – 63) | 64 (0) | |
| | macro knob 2 position | CC | 81 | 0 – 127 | 0 | |
| | macro knob 2 destination A | NRPN | 3:16 | 0 – 70 | 0 | |
| | macro knob 2 start position A | NRPN | 3:17 | 0 – 127 | 0 | |
| | macro knob 2 end position A | NRPN | 3:18 | 0 – 127 | 127 | |
| | macro knob 2 depth A | NRPN | 3:19 | 0 – 127 (-64 – 63) | 64 (0) | |
| | macro knob 2 destination B | NRPN | 3:20 | 0 – 70 | 0 | |
| | macro knob 2 start position B | NRPN | 3:21 | 0 – 127 | 0 | |
| | macro knob 2 end position B | NRPN | 3:22 | 0 – 127 | 127 | |
| | macro knob 2 depth B | NRPN | 3:23 | 0 – 127 (-64 – 63) | 64 (0) | |
| | macro knob 2 destination C | NRPN | 3:24 | 0 – 70 | 0 | |
| | macro knob 2 start position C | NRPN | 3:25 | 0 – 127 | 0 | |
| | macro knob 2 end position C | NRPN | 3:26 | 0 – 127 | 127 | |
| | macro knob 2 depth C | NRPN | 3:27 | 0 – 127 (-64 – 63) | 64 (0) | |
| | macro knob 2 destination D | NRPN | 3:28 | 0 – 70 | 0 | |
| | macro knob 2 start position D | NRPN | 3:29 | 0 – 127 | 0 | |
| | macro knob 2 end position D | NRPN | 3:30 | 0 – 127 | 127 | |
| | macro knob 2 depth D | NRPN | 3:31 | 0 – 127 (-64 – 63) | 64 (0) | |
| | macro knob 3 position | CC | 82 | 0 – 127 | 0 | |
| | macro knob 3 destination A | NRPN | 3:32 | 0 – 70 | 0 | |
| | macro knob 3 start position A | NRPN | 3:33 | 0 – 127 | 0 | |
| | macro knob 3 end position A | NRPN | 3:34 | 0 – 127 | 127 | |

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|--|-------------------------------|------|-------|--------------------|--------|--|
| | 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 |
| 1 | modulation wheel |
| 2 | after touch |
| 3 | expression |
| 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 | Notes |
|---------------------|-----------|-------------|--------------------|---------------|-------|
| 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.
2. Wait enough time for the patch to load from Flash memory (10 ms should be plenty)
3. 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 |

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|-----|-----|---|-----|-------------------------|
| 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 |

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|-----|-----|---|-----|-------------------------|
| 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 |

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|-----|-----|---|-----|-------------------------|
| 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 |
