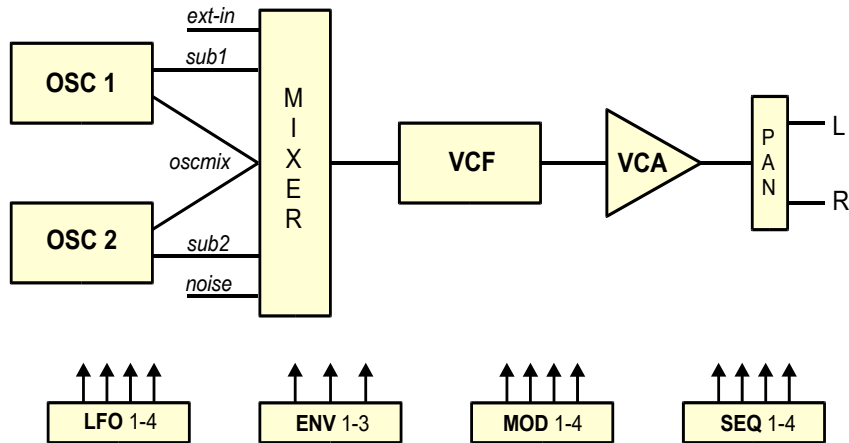


Mopho Reference

according to Mopho manual 1.0, Oct 2008



Globals

	nrpn	h,l	range	parameter	values
0	384	3,0	0-24	master transpose	12=none 0=-8ve 24=+8ve
1	385	3,1	0-100	master fine tune	50=none 0=-50cents 100=+50cents
2	386	3,2	0-16	midi channel	0=omni
3	388	3,4	0-3	midi clock select	see table
4	390	3,6	0-2	parameter send	0=nrpn 1=cc 2=off
5	391	3,7	0-3	parameter receive	0=all 1=nrpn 2=cc 3=off
6	394	3,9	0-1	midi controller send/recv	0=off 1=on
7	395	3,10	0-1	midi sysex send/recv	0=off 1=on
8	405	3,21	0-1	audio out	0=stereo 1=mono
9	406	3,22	0-1	midi out select	0=midi-out 1=midi-thru

MIDI Controls

CC Received		CC Sent			
1	mod wheel	7	volume knob	28	osc-mix
2	breath control	32	bank select	29	noise level
4	foot control	14	bpm	102	filter frequency
7	volume	15	clock divide	103	filter resonance
11	expression	20	osc1 frequency	104	filter keyboard amount
32	bank select	21	osc1 fine	105	filter audio mod
64	sustain	22	osc1 shape	106	env1 amount
74	brightness	23	osc1 glide	107	env1 veloc amount
121	reset controllers	24	osc2 frequency	108	env1 delay
123	all notes off	25	osc2 fine	109	env1 attack
		26	osc2 shape	110	env1 decay
		27	osc2 glide	111	env1 sustain
				112	env1 release
				113	amp level
				115	env2 amount
				116	env2 veloc amount
				117	env2 delay
				118	env2 attack
				119	env2 decay
				75	env2 sustain
				76	env2 release
				85	env3 destination
				86	env3 amount
				87	env3 veloc amount
				88	env3 delay
				89	env3 attack
				90	env3 decay
				77	env3 sustain
				78	env3 release

Program Data

	nrpn	h,l	range	parameter		nrpn	h,l	range	parameter
0	0	0,0	0-120	osc1 freq, semitones C0-C10	61	57	0,57	0-46	env3 mod destination*
1	1	0,1	0-100	osc1 fine tune, cents 0=-50 100=+50	62	58	0,58	0-254	env3 amount ±127
2	2	0,2	0-103	osc1 shape*	63	59	0,59	0-127	env3 velocity amount
3	3	0,3	0-127	osc1 glide rate (<i>unknown range</i>)	64	60	0,60	0-127	env3 delay
4	4	0,4	0-1	osc1 keyboard control	65	61	0,61	0-127	env3 attack
5	114	0,114	0-127	osc1-sub level	66	62	0,62	0-127	env3 decay
					67	63	0,63	0-127	env3 sustain
6	5	0,5	0-120	osc2 frequency	68	64	0,64	0-127	env3 release
7	6	0,6	0-100	osc2 fine tune	69	98	0,98	0-1	env3 repeat off/on
8	7	0,7	0-103	osc2 shape*					
9	8	0,8	0-127	osc2 glide rate	70	65	0,65	0-22	mod1 source*
10	9	0,9	0-1	osc2 keyboard control	71	66	0,66	0-254	mod1 amount ±127
11	115	0,115	0-127	osc2-sub level	72	67	0,67	0-46	mod1 destination*
					73	68	0,68	0-22	mod2 source*
12	10	0,10	0-1	osc sync 2->1 off/on	74	69	0,69	0-254	mod2 amount ±127
13	11	0,11	0-3	glide mode*	75	70	0,70	0-46	mod2 destination*
14	12	0,12	0-5	osc slop	76	71	0,71	0-22	mod3 source*
15	93	0,93	0-12	pitch bend range, semitones	77	72	0,72	0-254	mod3 amount ±127
16	96	0,96	0-5	key assign mode*	78	73	0,73	0-46	mod3 destination*
					79	74	0,74	0-22	mod4 source*
17	13	0,13	0-127	osc mix, 0=osc1 64=equal 127=osc2	80	75	0,75	0-254	mod4 amount ±127
18	14	0,14	0-127	noise level	81	76	0,76	0-46	mod4 destination*
19	116	0,116	0-127	ext in level					
					82	81	0,81	0-254	mod-wheel amount ±127
20	15	0,15	0-164	filter cutoff frequency, semitones	83	82	0,82	0-43	mod-wheel destination*
21	16	0,16	0-127	filter resonance					
22	17	0,17	0-127	filter keyboard amount	84	83	0,83	0-254	pressure amount ±127
23	18	0,18	0-127	filter audio mod	85	84	0,84	0-43	pressure destination*
24	19	0,19	0-1	filter poles, 0=2-pole 1=4-pole					
25	20	0,20	0-254	filter env amount ±127	86	85	0,85	0-254	breath amount ±127
26	20	0,21	0-127	filter env velocity amount	87	86	0,86	0-43	breath destination*
27	22	0,22	0-127	filter env delay					
28	23	0,23	0-127	filter env attack	88	87	0,87	0-254	velocity amount ±127
29	24	0,24	0-127	filter env decay	89	88	0,88	0-43	velocity destination*
30	25	0,25	0-127	filter env sustain					
31	26	0,26	0-127	filter env release	90	89	0,89	0-254	foot-ctrl amount ±127
					91	90	0,90	0-43	foot-ctrl destination*
32	27	0,27	0-127	amp initial level					
33	30	0,30	0-127	amp env amount	92	111	0,111	0-120	Push-It! note number: C0-C10
34	31	0,31	0-127	amp env velocity amount	93	112	0,112	0-127	Push-It! velocity
35	32	0,22	0-127	amp env delay	94	113	0,113	0-1	Push-It! mode*
36	33	0,23	0-127	amp env attack					
37	34	0,24	0-127	amp env decay	95	91	0,91	30-250	BPM tempo
38	35	0,25	0-127	amp env sustain	96	92	0,92	0-12	clock divide*
39	36	0,26	0-127	amp env release					
40	29	0,29	0-127	voice volume	97	97	0,97	0-3	arpeggiator mode*
					98	100	0,100	0-1	arp off/on
41	37	0,37	0-166	lfo1 frequency*					
42	38	0,38	0-4	lfo1 shape*	99	94	0,94	0-5	sequencer trigger*
43	39	0,39	0-127	lfo1 amount	100	101	0,101	0-1	sequencer off/on
44	40	0,40	0-46	lfo1 mod destination*	101	77	0,77	0-46	seq1 destination*
45	41	0,41	0-1	lfo1 key sync off/on	102	78	0,78	0-46	seq2 destination*
					103	79	0,79	0-46	seq3 destination*
46	42	0,42	0-166	lfo2 frequency*	104	80	0,80	0-46	seq4 destination*
47	43	0,43	0-4	lfo2 shape*					
48	44	0,44	0-127	lfo2 amount	105	105	0,105	0-183	assignable parameter 1
49	45	0,45	0-46	lfo2 mod destination*	106	106	0,106	0-183	assignable parameter 2
50	46	0,46	0-1	lfo2 key sync off/on	107	107	0,107	0-183	assignable parameter 3
					108	108	0,108	0-183	assignable parameter 4
51	47	0,47	0-166	lfo3 frequency*					
52	48	0,48	0-4	lfo3 shape*	120	120	0,120	0-127	seq1 step 1 * ...
53	49	0,49	0-127	lfo3 amount	135	135	1,7	0-127	seq1 step 16
54	50	0,50	0-46	lfo3 mod destination*	136	136	1,8	0-126	seq2 step 1 ...
55	51	0,51	0-1	lfo3 key sync off/on	151	151	1,23	0-126	seq2 step 16
					152	152	1,24	0-126	seq3 step 1 ...
56	52	0,52	0-166	lfo4 frequency*	167	167	1,39	0-126	seq3 step 16
57	53	0,53	0-4	lfo4 shape*	168	168	1,40	0-126	seq4 step 1 ...
58	54	0,54	0-127	lfo4 amount	183	183	1,55	0-126	seq4 step 16
59	55	0,55	0-46	lfo4 mod destination*	184	184	1,56	32-127	program name, character 1 ...
60	56	0,56	0-1	lfo4 key sync off/on	199	199	1,71	32-127	program name, character 16

Parameter Tables

midi clock select

	<u>clock src</u>	<u>send clk?</u>
0	internal	no
1	internal	yes
2	midi clock	no
3	midi clock	yes

osc shape

0	off
1	sawtooth
2	triangle
3	saw+tri
4-103	pulse, 54=square-wave

glide mode

0	fixed rate
1	fixed rate, auto (legato)
2	fixed time
3	fixed time, auto (legato)

key assign mode

0	low note
1	low note, retrigger
2	high note
3	high note, retrigger
4	last note
5	last note, retrigger

push-it mode

0	normal
1	toggle
2	audio-in

arpeggiator mode

0	up
1	down
2	up + down
3	assign (as played)

lfo shape

0	triangle
1	sawtooth, down
2	sawtooth, up
3	square
4	random

lfo frequency

0-89	<i>see chart</i>
90-150	equal-tempered steps
	90: C-2 8.18Hz
	150: ~B2 252Hz
151	seq rate / 32
152	seq rate / 16
153	seq rate / 8
154	seq rate / 6
155	seq rate / 4
156	seq rate / 3
157	seq rate / 2
158	seq rate / 1.5
159	1 cycle per step
160	2 cycles per 3 steps
161	2 cycles per step
162	3 cycles per step
163	4 cycles per step
164	6 cycles per step
165	8 cycles per step
166	16 cycles per step

clock divide

0	half
1	quarter
2	eighth
3	8 ^h hs
4	8 ^h sw
5	8 ^h triplets
6	16 th
7	16 ^h hs
8	16 ^h sw
9	16 ^h triplets
10	32 nd
11	32 nd triplets
12	64 th triplets

sequencer trigger

	<u>mode</u>	<u>reset?</u>	<u>trigger</u>
0	normal		seq
1	normal	no reset	seq
2	no gate		kbd
3	no gate	no reset	kbd
4	key-step		kbd
5	audio on		audio

sequence steps

0-125	quarter-tones, C0-D5+
126	reset
127	rest

mod sources

0	off
1	seq1
2	seq2
3	seq3
4	seq4
5	lfo1
6	lfo2
7	lfo3
8	lfo4
9	env1 (<i>filter</i>)
10	env2 (<i>amp</i>)
11	env3
12	pitch bend
13	mod wheel
14	pressure
15	breath
16	foot-control
17	expression
18	velocity
19	note number
20	noise
21	env follower
22	peak hold

mod destinations

0	off
1	osc1 frequency
2	osc2 frequency
3	osc frequency
4	osc mix

5	noise level
6	osc1 pulse width
7	osc2 pulse width
8	osc pulse width
9	filter frequency
10	filter resonance
11	filter audio mod amount
12	amp level
13	output pan
14	lfo1 frequency
15	lfo2 frequency
16	lfo3 frequency
17	lfo4 frequency
18	lfo frequency
19	lfo1 amount
20	lfo2 amount
21	lfo3 amount
22	lfo4 amount
23	lfo amount
24	env1 amount
25	env2 amount
26	env3 amount
27	env amount
28	env1 attack
29	env2 attack
30	env3 attack
31	env attack
32	env1 decay
33	env2 decay
34	env3 decay
35	env decay
36	env1 release
37	env2 release
38	env3 release
39	env.release
40	mod1 amount
41	mod2 amount
42	mod3 amount
43	mod4 amount
44	audio in level
45	osc1sub level
46	osc2sub level

Modulation Tuning

<u>Interval</u>	<u>LFO Amt</u>	<u>Env Sustain Level</u>
P8	96	48
M7	88	44
m7	80	40
M6	72	36
m6	64	32
P5	56	28
TT	48	24
P4	40	20
M3	32	16
m3	24	12
M2	16	8
m2	8	4

Bold values were measured, others interpolated.
 Values shown are LFO amount for square wave,
 and env sustain level for env mod amount of 64.

Calibration

Hold Assign Parameter button and press +/Increment button

SysEx Messages

Inquiry	F0 7E <i>ch</i> 06 01 F7
Response	F0 7E <i>ch</i> 06 02 01 25 01 00 00 <i>sw</i> 00 00 F7
Request Program Dump	F0 01 25 05 <i>bn pn</i> F7
Request Edit Buffer	F0 01 25 06 F7
Request Global Dump	F0 01 25 0E F7
Program Data Dump	F0 01 25 02 <i>bn pn data</i> F7
Edit Buffer Dump	F0 01 25 03 <i>data</i> F7
Global Dump	F0 01 25 0F <i>global</i> F7 (xmit only)

ch = MIDI channel, 7F=any
sw = software version: 0nnnMMMM, minor, Major
bn = bank number, 0-2
pn = program number, 0-127
data = 293 bytes, packed
global = 20 nibbles, l/h pairs

