

Blofeld System Exclusive Specifications,
Software release 1.04

If you find any documentation bug herein, please mail it to
bugs@waldorfmusic.de

1. General

Sys-Ex Dumps have the following form:

F0h IDW IDE DEV IDM BB NN -----Data----- CHK F7h

where

h : Hex

IDW : Waldorf Music MIDI ID = 3Eh

IDE : Equipment ID = 13h for Blofeld

DEV : Device number, 00h to 7Eh, 7Fh = broadcast

IDM : Message ID

BB : Location High Byte, can be Program Bank,
Parameter Bank, Edit Buffer etc.

NN : Location Low Byte, can be Program Number,
Parameter Address etc.

Data : whatever data bytes, 00h to 7Fh

CHK : Sum of all databytes truncated to 7 bits.

The addition is done in 8 bit format, the result is
masked to 7 bits (00h to 7Fh). A checksum of 7Fh is
always accepted as valid.

IMPORTANT: the MIDI status-bytes as well as the
ID's are not used for computing the checksum.

CHK is only sent on Sys-Ex transfers of dump type Dump (xxxD).

BB is omitted on Sys-Ex transfers of data type Global Data (GLBx).

Data is only sent on Sys-Ex transfers of dump type Dump (xxxD) and
Parameter Change (xxxP).

1.1 Message IDs (IDM)

Message IDs (IDM) are organized in a matrix where the row defines the
data type and the column identifies the type of dump. The data type is
coded in the four least significant bits of the IDM. The following data

types are currently defined:

Label	Value	Description
SNDx	x0h	Sound data type
GLBx	x4h	Global Data

The dump type is coded in the upper three bits of IDM, note that bit seven cannot be used. The following dump types are currently defined:

Label	Value	Description
xxxR	0xh	Request
xxxD	1xh	Dump
xxxP	2xh	Parameter Change

Not all combinations of dump types and data types are currently supported, only those given below:

Request (xxxR = 0x)		
Dump (xxxD = 1x)		
Parameter Change (xxxP = 2x)		
Data Type		
00 10 20	SNDx x0	Sound
04 14	GLBx x4	Global Data

So following valid IDM exist:

Label	Value	Description
SNDR	00h	Sound Request
SNDD	10h	Sound Dump
SNDP	20h	Sound Parameter Change
GLBR	04h	Global Request
GLBD	14h	Global Dump

2. Details

2.11 SNDR

SNDR 00h Sound Request

Upon reception of a valid sound request the Blofeld will dump the selected Sound(s). The location is given in two bytes with the following conventions:

BB NN	Location
00 00 .. 00 7F	Locations A001..A128
01 00 .. 01 7F	Locations B001..B128
19 00 .. 19 7F	Locations Z001..Z128 (*1)
40 00	All Sounds
7F 00	Sound Mode Edit Buffer
7F 00 .. 7F 0F	Multi Instrument Edit Buffer 1..16

So the full format of a SNDR Dump is:

F0h, 3Eh, 13h, DEV, 00h, BB, NN, CHK, F7

where:

Index	Label	Value	Description
0	EXC	F0h	Marks Start of SysEx
1	IDW	3Eh	Waldorf Music ID
2	IDE	13h	Blofeld ID
3	DEV		Device ID
4	IDM	00h	here SNDR (Sound request)
5	BB	see above	Location
6	NN	see above	Location
8	EOX	F7h	End of SysEx

Note that the checksum is omitted here.

*1: Note that the actual number of banks can be lower. Some

banks are reserved for future extension.

2.12 SNDD

SNDD 10h Sound Dump

A sound dump is used to transfer sound data from and to the Blofeld. The location is given in two bytes with the following conventions:

BB NN	Location
00 00 .. 00 7F	Locations A001..A128
01 00 .. 01 7F	Locations B001..B128
...	
19 00 .. 19 7F	Locations Z001..Z128 (*1)
7F 00	Sound Mode Edit Buffer
7F 00 .. 7F 0F	Multi Instrument Edit Buffer 1..16

So the full format of a SNDD Dump is:

F0h, 3Eh, 13h, DEV, 10h, BB, NN, --SDATA--, CHK, F7h

where:

Index	Label	Value	Description
0	EXC	F0h	Marks Start of SysEx
1	IDW	3Eh	Waldorf Music ID
2	IDE	13h	Blofeld ID
3	DEV		Device ID
4	IDM	10h	here SNDD (Sound Dump)
5	BB	see above	Location
6	NN	see above	Location
7-389	SDATA	see 3.1	Sound data
390	CHK	SDATA & 7Fh	Checksum
391	EOX	F7h	End of SysEx

Upon reception of a Sound Request SNDR for All Sounds 40h 00h,

the Blofeld will transmit all its sounds in separate SNDD messages.

*1: Note that the actual number of banks can be lower. Some banks are reserved for future extension.

2.13 SNDP

SNDP 20h Sound Parameter Change

Upon reception of a valid Sound Parameter Change Dump, the specified parameter will change its value immediately according to the given value. The location is given in one byte with the following conventions:

LL	Location
00h	Sound Mode Edit Buffer or...
00h..0Fh	Multi Mode Instrument 1..16 Sound Edit Buffer

The Parameter index is given in two bytes:

HH	PP	Parameter index
00h	00..7Fh	Parameters with indices 0..127
01h	00..7Fh	Parameters with indices 128..255
02h	00..7Eh	Parameters with indices 256..382

See 3.1 for a detailed list of parameters and indices.

So the actual Format is:

F0h, 3Eh, 13h, DEV, 20h, LL, HH, PP, XX, F7h

where:

Index	Label	Value	Description
0	EXC	F0h	Marks Start of SysEx

1	IDW	3Eh	Waldorf Music ID
2	IDE	13h	Blofeld ID
3	DEV		Device ID
4	IDM	20h	here SNDP (Sound Parameter change)
5	LL	see above	Location
6	HH	see above	Parameter index high byte
7	PP	see above	Parameter index low byte
8	XX	see 3.1	New Parameter value
9	EOX	F7h	End of Exclusive

Note that the checksum is omitted here.

2.51 GLBR

GLBR 04h Global Parameter Request

Upon reception of a valid Global Parameter request, the Blofeld will dump the Global Parameters. No location is given.

The full format of a GLBR Request is:

Index	Label	Value	Description
0	EXC	F0h	Marks Start of SysEx
1	IDW	3Eh	Waldorf Music ID
2	IDE	13h	Blofeld ID
3	DEV		Device ID
4	IDM	04h	here GLBR (Global Parameter request)
8	EOX	F7h	End of SysEx

Note that the checksum is omitted here.

2.52 GLBD

GLBD 14h Global Parameter Dump

A Global Parameter dump is used to transfer Global Parameter data from and to the Blofeld.

The full format of a GLBD Dump is:

Index	Label	Value	Description
0	EXC	F0h	Marks Start of SysEx
1	IDW	3Eh	Waldorf Music ID
2	IDE	13h	Blofeld ID
3	DEV		Device ID
4	IDM	14h	here GLBD (Global Parameter Dump)
5-59	GDATA	see 3.6	Global Parameter Data
37	CHK	GDATA&7Fh	Checksum
38	EOX	F7h	End of SysEx

3. Data Formats

3.1 SDATA - Sound Data

Index	Range	Value	Parameter
0		reserved	
1	16..112	128'..1/2'	Osc 1 Octave, in steps of 12
2	52..76	-12..+12	Osc 1 Semitone
3	0..127	-64..+63	Osc 1 Detune
4	40..88	-24..+24	Osc 1 Bend Range
5	0..127	-200%..+196%	Osc 1 Keytrack
6	0..11	see 4.2	Osc 1 FM Source
7	0..127	0..127	Osc 1 FM Amount
8	0..72	see 4.1	Osc 1 Shape
9	0..127	0..127	Osc 1 Pulsewidth
10	0..30	see 4.7	Osc 1 PWM Source
11	0..127	-64..+63	Osc 1 PWM Amount
12		reserved	
13		reserved	
14	0..1	on,off	Osc 1 Limit WT
15		reserved	
16	0..127	0..127	Osc 1 Brilliance

17	16..112 128'..1/2'	Osc 2 Octave, in steps of 12
18	52..76 -12..+12	Osc 2 Semitone
19	0..127 -64..+63	Osc 2 Detune
20	40..88 -24..+24	Osc 2 Bend Range
21	0..127 -200%..+196%	Osc 2 Keytrack
22	0..11 see 4.2	Osc 2 FM Source
23	0..127 0..127	Osc 2 FM Amount
24	0..72 see 4.1	Osc 2 Shape
25	0..127 0..127	Osc 2 Pulsewidth
26	0..30 see 4.7	Osc 2 PWM Source
27	0..127 -64..+63	Osc 2 PWM Amount
28	reserved	
29	reserved	
30	0..1 on,off	Osc 2 Limit WT
31	reserved	
32	0..127 0..127	Osc 2 Brilliance
33	16..112 128'..1/2'	Osc 3 Octave, in steps of 12
34	52..76 -12..+12	Osc 3 Semitone
35	0..127 -64..+63	Osc 3 Detune
36	40..88 -24..+24	Osc 3 Bend Range
37	0..127 -200%..+196%	Osc 3 Keytrack
38	0..11 see 4.2	Osc 3 FM Source
39	0..127 0..127	Osc 3 FM Amount
40	0..4 see 4.1	Osc 3 Shape
41	0..127 0..127	Osc 3 Pulsewidth
42	0..30 see 4.7	Osc 3 PWM Source
43	0..127 -64..+63	Osc 3 PWM Amount
44	reserved	
45	reserved	
46	reserved	
47	reserved	
48	0..127 0..127	Osc 3 Brilliance
49	0..1 off,on	Osc 2 Sync to O3
50	0..30 see 4.7	Osc Pitch Source
51	0..127 -64..+63	Osc Pitch Amount
52	reserved	
53	0..1 off,on	Glide
54	reserved	
55	reserved	
56	0..3 see 4.3	Glide Mode
57	0..127 0..127	Glide Rate
58	0..127 see 4.10	Allocation Mode and Unisono
59	0..127 0..127	Unisono Uni Detune

60	reserved	
61	0..127 0..127	Mixer Osc 1 Level
62	0..127 F1 64..F2 63	Mixer Osc 1 Balance
63	0..127 0..127	Mixer Osc 2 Level
64	0..127 F1 64..F2 63	Mixer Osc 2 Balance
65	0..127 0..127	Mixer Osc 3 Level
66	0..127 F1 64..F2 63	Mixer Osc 3 Balance
67	0..127 0..127	Mixer Noise Level
68	0..127 F1 64..F2 63	Mixer Noise Balance
69	0..127 -64..+63	Mixer Noise Colour
70	reserved	
71	0..127 0..127	Mixer RingMod Level
72	0..127 F1 64..F2 63	Mixer RingMod Balance
73	reserved	
74	reserved	
75	reserved	
76	reserved	
77	0..11 see 4.4	Filter 1 Type
78	0..127 0..127	Filter 1 Cutoff
79	reserved	
80	0..127 0..127	Filter 1 Resonance
81	0..127 0..127	Filter 1 Drive
82	0..12 see 4.11	Filter 1 Drive Curve
83	reserved	
84	reserved	
85	reserved	
86	0..127 -200%..+196%	Filter 1 Keytrack
87	0..127 -64..+63	Filter 1 Env Amount
88	0..127 -64..+63	Filter 1 Env Velocity
89	0..30 see 4.7	Filter 1 Mod Source
90	0..127 -64..+63	Filter 1 Mod Amount
91	0..11 see 4.2	Filter 1 FM Source
92	0..127 off..127	Filter 1 FM Amount
93	0..127 left 64..right 63	Filter 1 Pan
94	0..30 see 4.7	Filter 1 Pan Source
95	0..127 -64..+63	Filter 1 Pan Amount
96	reserved	
97	0..11 see 4.4	Filter 2 Type
98	0..127 0..127	Filter 2 Cutoff
99	reserved	
100	0..127 0..127	Filter 2 Resonance
101	0..127 0..127	Filter 2 Drive
102	0..12 see 4.11	Filter 2 Drive Curve

103	reserved	
104	reserved	
105	reserved	
106	0..127 -200%..+196%	Filter 2 Keytrack
107	0..127 -64..+63	Filter 2 Env Amount
108	0..127 -64..+63	Filter 2 Env Velocity
109	0..30 see 4.7	Filter 2 Mod Source
110	0..127 -64..+63	Filter 2 Mod Amount
111	0..11 see 4.2	Filter 2 FM Source
112	0..127 off..127	Filter 2 FM Amount
113	0..127 left 64..right 63	Filter 2 Pan
114	0..30 see 4.7	Filter 2 Pan Source
115	0..127 -64..+63	Filter 2 Pan Amount
116	reserved	
117	0..1 parallel,serial	Filter Routing
118	reserved	
119	reserved	
120	reserved	
121	0..127 0..127	Amplifier Volume
122	0..127 -64..+63	Amplifier Velocity
123	0..30 see 4.7	Amplifier Mod Source
124	0..127 -64..+63	Amplifier Mod Amount
125	reserved	
126	reserved	
127	reserved	
128	0..127 see 5	Effect 1 Type
129	0..127 0..127	Effect 1 Mix
130	0..127 see 5	Effect 1 Parameter 1
131	0..127 see 5	Effect 1 Parameter 2
132	0..127 see 5	Effect 1 Parameter 3
133	0..127 see 5	Effect 1 Parameter 4
134	0..127 see 5	Effect 1 Parameter 5
135	0..127 see 5	Effect 1 Parameter 6
136	0..127 see 5	Effect 1 Parameter 7
137	0..127 see 5	Effect 1 Parameter 8
138	0..127 see 5	Effect 1 Parameter 9
139	0..127 see 5	Effect 1 Parameter 10
140	0..127 see 5	Effect 1 Parameter 11
141	0..127 see 5	Effect 1 Parameter 12
142	0..127 see 5	Effect 1 Parameter 13
143	0..127 see 5	Effect 1 Parameter 14
144	0..127 see 5	Effect 2 Type
145	0..127 0..127	Effect 2 Mix

146	0..127	see 5	Effect 2 Parameter 1
147	0..127	see 5	Effect 2 Parameter 2
148	0..127	see 5	Effect 2 Parameter 3
149	0..127	see 5	Effect 2 Parameter 4
150	0..127	see 5	Effect 2 Parameter 5
151	0..127	see 5	Effect 2 Parameter 6
152	0..127	see 5	Effect 2 Parameter 7
153	0..127	see 5	Effect 2 Parameter 8
154	0..127	see 5	Effect 2 Parameter 9
155	0..127	see 5	Effect 2 Parameter 10
156	0..127	see 5	Effect 2 Parameter 11
157	0..127	see 5	Effect 2 Parameter 12
158	0..127	see 5	Effect 2 Parameter 13
159	0..127	see 5	Effect 2 Parameter 14
160	0..5	see 4.5	LFO 1 Shape
161	0..127	see 4.6	LFO 1 Speed
162	reserved		
163	0..1	off,on	LFO 1 Sync
164	0..1	off,on	LFO 1 Clocked
165	0..127	free..355 degree	LFO 1 Start Phase
166	0..127	0..127	LFO 1 Delay
167	0..127	-64..+63	LFO 1 Fade
168	reserved		
169	reserved		
170	0..127	-200%..+196%	LFO 1 Keytrack
171	reserved		
172	0..5	see 4.5	LFO 2 Shape
173	0..127	see 4.6	LFO 2 Speed
174	reserved		
175	0..1	off,on	LFO 2 Sync
176	0..1	off,on	LFO 2 Clocked
177	0..127	free..355 degree	LFO 2 Start Phase
178	0..127	0..127	LFO 2 Delay
179	0..127	-64..+63	LFO 2 Fade
180	reserved		
181	reserved		
182	0..127	-200%..+196%	LFO 2 Keytrack
183	reserved		
184	0..5	see 4.5	LFO 3 Shape
185	0..127	see 4.6	LFO 3 Speed
186	reserved		
187	0..1	off,on	LFO 3 Sync
188	0..1	off,on	LFO 3 Clocked

189	0..127 free..355 degree	LFO 3 Start Phase
190	0..127 0..127	LFO 3 Delay
191	0..127 -64..+63	LFO 3 Fade
192	reserved	
193	reserved	
194	0..127 -200%..+196%	LFO 3 Keytrack
195	reserved	
196	0..4 see 4.12	Filter Envelope Mode
197	reserved	
198	reserved	
199	0..127 0..127	Filter Envelope Attack
200	0..127 0..127	Filter Envelope Attack Level
201	0..127 0..127	Filter Envelope Decay
202	0..127 0..127	Filter Envelope Sustain
203	0..127 0..127	Filter Envelope Decay 2
204	0..127 0..127	Filter Envelope Sustain 2
205	0..127 0..127	Filter Envelope Release
206	reserved	
207	reserved	
208	0..4 see 4.12	Amplifier Envelope Mode
209	reserved	
210	reserved	
211	0..127 0..127	Amplifier Envelope Attack
212	0..127 0..127	Amplifier Envelope Attack Level
213	0..127 0..127	Amplifier Envelope Decay
214	0..127 0..127	Amplifier Envelope Sustain
215	0..127 0..127	Amplifier Envelope Decay 2
216	0..127 0..127	Amplifier Envelope Sustain 2
217	0..127 0..127	Amplifier Envelope Release
218	reserved	
219	reserved	
220	0..4 see 4.12	Envelope 3 Mode
221	reserved	
222	reserved	
223	0..127 0..127	Envelope 3 Attack
224	0..127 0..127	Envelope 3 Attack Level
225	0..127 0..127	Envelope 3 Decay
226	0..127 0..127	Envelope 3 Sustain
227	0..127 0..127	Envelope 3 Decay 2
228	0..127 0..127	Envelope 3 Sustain 2
229	0..127 0..127	Envelope 3 Release
230	reserved	
231	reserved	

232	0..4	see 4.12	Envelope 4 Mode
233		reserved	
234		reserved	
235	0..127	0..127	Envelope 4 Attack
236	0..127	0..127	Envelope 4 Attack Level
237	0..127	0..127	Envelope 4 Decay
238	0..127	0..127	Envelope 4 Sustain
239	0..127	0..127	Envelope 4 Decay 2
240	0..127	0..127	Envelope 4 Sustain 2
241	0..127	0..127	Envelope 4 Release
242		reserved	
243		reserved	
244		reserved	
245	0..30	see 4.7	Modifier 1 Source A
246	0..30	see 4.7	Modifier 1 Source B
247	0..7	see 4.9	Modifier 1 Operation
248	0..127	-64..+63	Modifier 1 Constant
249	0..30	see 4.7	Modifier 2 Source A
250	0..30	see 4.7	Modifier 2 Source B
251	0..7	see 4.9	Modifier 2 Operation
252	0..127	-64..+63	Modifier 2 Constant
253	0..30	see 4.7	Modifier 3 Source A
254	0..30	see 4.7	Modifier 3 Source B
255	0..7	see 4.9	Modifier 3 Operation
256	0..127	-64..+63	Modifier 3 Constant
257	0..30	see 4.7	Modifier 4 Source A
258	0..30	see 4.7	Modifier 4 Source B
259	0..7	see 4.9	Modifier 4 Operation
260	0..127	-64..+63	Modifier 4 Constant
261	0..30	see 4.7	Modulation 1 Source
262	0..53	see 4.8	Modulation 1 Destination
263	0..127	-64..+63	Modulation 1 Amount
264	0..30	see 4.7	Modulation 2 Source
265	0..53	see 4.8	Modulation 2 Destination
266	0..127	-64..+63	Modulation 2 Amount
267	0..30	see 4.7	Modulation 3 Source
268	0..53	see 4.8	Modulation 3 Destination
269	0..127	-64..+63	Modulation 3 Amount
270	0..30	see 4.7	Modulation 4 Source
271	0..53	see 4.8	Modulation 4 Destination
272	0..127	-64..+63	Modulation 4 Amount
273	0..30	see 4.7	Modulation 5 Source
274	0..53	see 4.8	Modulation 5 Destination

275	0..127	-64..+63	Modulation 5 Amount
276	0..30	see 4.7	Modulation 6 Source
277	0..53	see 4.8	Modulation 6 Destination
278	0..127	-64..+63	Modulation 6 Amount
279	0..30	see 4.7	Modulation 7 Source
280	0..53	see 4.8	Modulation 7 Destination
281	0..127	-64..+63	Modulation 7 Amount
282	0..30	see 4.7	Modulation 8 Source
283	0..53	see 4.8	Modulation 8 Destination
284	0..127	-64..+63	Modulation 8 Amount
285	0..30	see 4.7	Modulation 9 Source
286	0..53	see 4.8	Modulation 9 Destination
287	0..127	-64..+63	Modulation 9 Amount
288	0..30	see 4.7	Modulation 10 Source
289	0..53	see 4.8	Modulation 10 Destination
290	0..127	-64..+63	Modulation 10 Amount
291	0..30	see 4.7	Modulation 11 Source
292	0..53	see 4.8	Modulation 11 Destination
293	0..127	-64..+63	Modulation 11 Amount
294	0..30	see 4.7	Modulation 12 Source
295	0..53	see 4.8	Modulation 12 Destination
296	0..127	-64..+63	Modulation 12 Amount
297	0..30	see 4.7	Modulation 13 Source
298	0..53	see 4.8	Modulation 13 Destination
299	0..127	-64..+63	Modulation 13 Amount
300	0..30	see 4.7	Modulation 14 Source
301	0..53	see 4.8	Modulation 14 Destination
302	0..127	-64..+63	Modulation 14 Amount
303	0..30	see 4.7	Modulation 15 Source
304	0..53	see 4.8	Modulation 15 Destination
305	0..127	-64..+63	Modulation 15 Amount
306	0..30	see 4.7	Modulation 16 Source
307	0..53	see 4.8	Modulation 16 Destination
308	0..127	-64..+63	Modulation 16 Amount
309	reserved		
310	reserved		
311	0..3	off,on,One Shot,Hold	Arpeggiator Mode
312	0..16	off..15	Arpeggiator Pattern
313	reserved		
314	0..42	see 4.13	Arpeggiator Clock
315	0..43	1/96..legato	Arpeggiator Length
316	0..9	1..10	Arpeggiator Octave
317	0..3	Up,Down,Alt Up,Alt Down	Arpeggiator Direction

318	0..5	see 4.14	Arpeggiator Sort Order
319	0..6	see 4.15	Arpeggiator Velocity
320	0..127	0..127	Arpeggiator Timing Factor
321	reserved		
322	0..1	off,on	Arpeggiator Ptn Reset
323	0..15	1..16	Arpeggiator Ptn Length
324	reserved		
325	reserved		
326	0..127	40..300	Arpeggiator Tempo
327	0..127	0sssgaaa	Arp Pattern Step/Glide/Accent 1
328	0..127	sss=0: normal	Arp Pattern Step/Glide/Accent 2
329	0..127	sss=1: pause	Arp Pattern Step/Glide/Accent 3
330	0..127	sss=2: previous	Arp Pattern Step/Glide/Accent 4
331	0..127	sss=3: first	Arp Pattern Step/Glide/Accent 5
332	0..127	sss=4: last	Arp Pattern Step/Glide/Accent 6
333	0..127	sss=5: first+last	Arp Pattern Step/Glide/Accent 7
334	0..127	sss=6: chord	Arp Pattern Step/Glide/Accent 8
335	0..127	sss=7: random	Arp Pattern Step/Glide/Accent 9
336	0..127	g: glide off, on	Arp Pattern Step/Glide/Accent 10
337	0..127	aaa=0: silent	Arp Pattern Step/Glide/Accent 11
338	0..127	aaa>0: accent	-96..+96 Arp Pattern Step/Glide/Accent 12
339	0..127		Arp Pattern Step/Glide/Accent 13
340	0..127		Arp Pattern Step/Glide/Accent 14
341	0..127		Arp Pattern Step/Glide/Accent 15
342	0..127		Arp Pattern Step/Glide/Accent 16
343	0..127	0lll0ttt	Arp Pattern Timing/Length 1
344	0..127	lll=0: legato	Arp Pattern Timing/Length 2
345	0..127	lll>0: -3..+3	Arp Pattern Timing/Length 3
346	0..127	ttt=0: random	Arp Pattern Timing/Length 4
347	0..127	ttt>0: -3..+3	Arp Pattern Timing/Length 5
348	0..127		Arp Pattern Timing/Length 6
349	0..127		Arp Pattern Timing/Length 7
350	0..127		Arp Pattern Timing/Length 8
351	0..127		Arp Pattern Timing/Length 9
352	0..127		Arp Pattern Timing/Length 10
353	0..127		Arp Pattern Timing/Length 11
354	0..127		Arp Pattern Timing/Length 12
355	0..127		Arp Pattern Timing/Length 13
356	0..127		Arp Pattern Timing/Length 14
357	0..127		Arp Pattern Timing/Length 15
358	0..127		Arp Pattern Timing/Length 16
359	reserved		
360	reserved		

361	reserved	
362	reserved	
363	32..127 ASCII	Name Char
364	32..127 ASCII	Name Char
365	32..127 ASCII	Name Char
366	32..127 ASCII	Name Char
367	32..127 ASCII	Name Char
368	32..127 ASCII	Name Char
369	32..127 ASCII	Name Char
370	32..127 ASCII	Name Char
371	32..127 ASCII	Name Char
372	32..127 ASCII	Name Char
373	32..127 ASCII	Name Char
374	32..127 ASCII	Name Char
375	32..127 ASCII	Name Char
376	32..127 ASCII	Name Char
377	32..127 ASCII	Name Char
378	32..127 ASCII	Name Char
379	0..12 see 4.16	Category
380	reserved	
381	reserved	
382	reserved	

3.2 GDATA - Global Data

Index	Range	Value	Parameter
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0		reserved	
1	0..1	off,on	Multi Mode
2	0..7	A..H	Bank
3	0..127	1..128	Sound
4	0..7	A..H	Bank
5	0..127	1..128	Sound
6	0..7	A..H	Bank
7	0..127	1..128	Sound
8	0..7	A..H	Bank
9	0..127	1..128	Sound
10	0..7	A..H	Bank
11	0..127	1..128	Sound

12	0..7	A..H	Bank
13	0..127	1..128	Sound
14	0..7	A..H	Bank
15	0..127	1..128	Sound
16	0..7	A..H	Bank
17	0..127	1..128	Sound
18	0..7	A..H	Bank
19	0..127	1..128	Sound
20	0..7	A..H	Bank
21	0..127	1..128	Sound
22	0..7	A..H	Bank
23	0..127	1..128	Sound
24	0..7	A..H	Bank
25	0..127	1..128	Sound
26	0..7	A..H	Bank
27	0..127	1..128	Sound
28	0..7	A..H	Bank
29	0..127	1..128	Sound
30	0..7	A..H	Bank
31	0..127	1..128	Sound
32	0..7	A..H	Bank
33	0..127	1..128	Sound
34	reserved		
35	0..1	off,on	Auto Edit
36	0..16	omni..16	MIDI Channel
37	0..126	0 (00h)..126 (7Eh)	Device ID
38	1..127	0.1s..15.5s	Popup Time
39	0..127	0..127	Contrast
40	54..74	430..450	Master Tune
41	52..76	-12..+12	Transpose
42	reserved		
43	reserved		
44	0..3	see 4.17	Ctrl Send
45	0..1	off,on	Ctrl Receive
46	reserved		
47	reserved		
48	0..1	Auto,Internal	Clock
49	reserved		
50	0..8	linear..fix 127	Vel Curve
51	0..120	0 (00h)..120 (78h)	Control W
52	0..120	0 (00h)..120 (78h)	Control X
53	0..120	0 (00h)..120 (78h)	Control Y
54	0..120	0 (00h)..120 (78h)	Control Z

55	0..127 0..127	Volume
56	0..13 see 4.18	Cat. Filter
57	reserved	
58	reserved	
59	reserved	
60	reserved	
61	reserved	
62	reserved	
63	reserved	
64	reserved	
65	reserved	
66	reserved	
67	reserved	
68	reserved	
69	reserved	
70	reserved	
71	reserved	

4. Parameter Values

4.1 Oscillator Shapes and Waves

Oscillator 3 only features Shapes 0 (off) to 4 (Sine).

Index	Description
-------	-------------

0	off
1	Pulse
2	Saw
3	Triangle
4	Sine
5	Alt 1
6	Alt 2
7	Resonant
8	Resonant2
9	MalletSyn
10	Sqr-Sweep
11	Bellish
12	Pul-Sweep

13	Saw-Sweep
14	MellowSaw
15	Feedback
16	Add Harm
17	Reso 3 HP
18	Wind Syn
19	High Harm
20	Clipper
21	Organ Syn
22	SquareSaw
23	Formant 1
24	Polated
25	Transient
26	ElectricP
27	Robotic
28	StrongHrm
29	PercOrgan
30	ClipSweep
31	ResoHarms
32	2 Echoes
33	Formant 2
34	FmntVocal
35	MicroSync
36	Micro PWM
37	Glassy
38	Square HP
39	SawSync 1
40	SawSync 2
41	SawSync 3
42	PulSync 1
43	PulSync 2
44	PulSync 3
45	SinSync 1
46	SinSync 2
47	SinSync 3
48	PWM Pulse
49	PWM Saw
50	Fuzz Wave
51	Distorted
52	HeavyFuzz
53	Fuzz Sync
54	K+Strong1
55	K+Strong2

- 56 K+Strong3
- 57 1-2-3-4-5
- 58 19/twenty
- 59 Wavetrip1
- 60 Wavetrip2
- 61 Wavetrip3
- 62 Wavetrip4
- 63 MaleVoice
- 64 Low Piano
- 65 ResoSweep
- 66 Xmas Bell
- 67 FM Piano
- 68 Fat Organ
- 69 Vibes
- 70 Chorus 2
- 71 True PWM
- 72 UpperWaves

4.2 FM Sources

Index	Description
-------	-------------

0	off
1	Osc 1
2	Osc 2
3	Osc 3
4	Noise
5	LFO 1
6	LFO 2
7	LFO 3
8	FilterEnv
9	AmpEnv
10	Env3
11	Env4

4.3 Glide Modes

Index	Description
-------	-------------

0	Portamento
1	fingered P
2	Glissando
3	fingered G

4.4 Filter Types

Index	Description
-------	-------------

0	Bypass
1	LP 24dB
2	LP 12dB
3	BP 24dB
4	BP 12dB
5	HP 24dB
6	HP 12dB
7	Notch24dB
8	Notch12dB
9	Comb+
10	Comb-
11	PPG LP

4.5 LFO Shapes

Index	Description
-------	-------------

0	Sine
1	Triangle
2	Square
3	Saw
4	Random

4.6 LFO Clocks

Index	Description
-------	-------------

0..1	1280 bars
2..3	1152 bars
4..5	1024 bars
6..7	896 bars
8..9	768 bars
10..11	640 bars
12..13	576 bars
14..15	512 bars
16..17	448 bars
18..19	384 bars
20..21	320 bars
22..23	288 bars
24..25	256 bars
26..27	224 bars
28..29	192 bars
30..31	160 bars
32..33	144 bars
34..35	128 bars
36..37	112 bars
38..39	96 bars
40..41	80 bars
42..43	72 bars
44..45	64 bars
46..47	56 bars
48..49	48 bars
50..51	40 bars
52..53	36 bars
54..55	32 bars
56..57	28 bars
58..59	24 bars
60..61	20 bars
62..63	18 bars
64..65	16 bars

66..67	14 bars
68..69	12 bars
70..71	10 bars
72..73	9 bars
74..75	8 bars
76..77	7 bars
78..79	6 bars
80..81	5 bars
82..83	4 bars
84..85	3.5 bars
86..87	3 bars
88..89	2.5 bars
90..91	2 bars
92..93	1.5 bars
94..95	1 bar
96..97	1/2.
98..99	1/1T
100..101	1/2
102..103	1/4.
104..105	1/2T
106..107	1/4
108..109	1/8.
110..111	1/4T
112..113	1/8
114..115	1/16.
116..117	1/8T
118..119	1/16
120..121	1/32.
122..123	1/16T
124..125	1/32
126..127	1/48

4.7 Modulation Sources

Index	Description
-------	-------------

0	off
1	LFO 1
2	LFO1*MW

3	LFO 2
4	LFO2*Press
5	LFO 3
6	FilterEnv
7	AmpEnv
8	Env3
9	Env4
10	Keytrack
11	Velocity
12	Rel. Velo
13	Pressure
14	Poly Press
15	Pitch Bend
16	Mod Wheel
17	Sustain
18	Foot Ctrl
19	BreathCtrl
20	Control W
21	Control X
22	Control Y
23	Control Z
24	Unisono V.
25	Modifier 1
26	Modifier 2
27	Modifier 3
28	Modifier 4
29	minimum
30	MAXIMUM

4.8 Modulation Destinations

Index	Description
0	Pitch
1	O1 Pitch
2	O1 FM
3	O1 PW/Wave
4	O2 Pitch
5	O2 FM

6	O2 PW/Wave
7	O3 Pitch
8	O3 FM
9	O3 PW
10	O1 Level
11	O1 Balance
12	O2 Level
13	O2 Balance
14	O3 Level
15	O3 Balance
16	RMod Level
17	RMod Bal.
18	NoiseLevel
19	Noise Bal.
20	F1 Cutoff
21	F1 Reson.
22	F1 FM
23	F1 Drive
24	F1 Pan
25	F2 Cutoff
26	F2 Reson.
27	F2 FM
28	F2 Drive
29	F2 Pan
30	Volume
31	LFO1Speed
32	LFO2Speed
33	LFO3Speed
34	FE Attack
35	FE Decay
36	FE Sustain
37	FE Release
38	AE Attack
39	AE Decay
40	AE Sustain
41	AE Release
42	E3 Attack
43	E3 Decay
44	E3 Sustain
45	E3 Release
46	E4 Attack
47	E4 Decay
48	E4 Sustain

49	E4 Release
50	M1 Amount
51	M2 Amount
52	M3 Amount
53	M4 Amount

4.9 Modifier Operators

Index	Description
-------	-------------

0	+
1	-
2	*
3	AND
4	OR
5	XOR
6	MAX
7	min

4.10 Allocation and Unisono Modes

0uuu000a

uuu:

Index	Description
-------	-------------

0	off
1	dual
2	3
3	4
4	5
5	6

a:

Index	Description
-------	-------------

0	Poly
1	Mono

4.11 Drive Curves

Index	Description
-------	-------------

0	Clipping
1	Tube
2	Hard
3	Medium
4	Soft
5	Pickup 1
6	Pickup 2
7	Rectifier
8	Square
9	Binary
10	Overflow
11	Sine Shaper
12	Osc 1 Mod

4.12 Envelope Modes and Triggers

Ottmmmmm

tt:

Index	Description
-------	-------------

0	normal
1	single

mmmm:

Index	Description
-------	-------------

0	ADSR
1	ADS1DS2R
2	One Shot
3	Loop S1S2
4	Loop All

4.13 Arpeggiator Clocks

Index	Description
-------	-------------

0	1/96
1	1/48
2	1/32
3	1/16T
4	1/32.
5	1/16
6	1/8T
7	1/16.
8	1/8
9	1/4T
10	1/8.
11	1/4
12	1/2T
13	1/4.
14	1/2
15	1/1T
16	1/2.
17	1 bar
18	1.5 bars
19	2 bars
20	2.5 bars
21	3 bars
22	3.5 bars
23	4 bars
24	5 bars

25	6 bars
26	7 bars
27	8 bars
28	9 bars
29	10 bars
30	12 bars
31	14 bars
32	16 bars
33	18 bars
34	20 bars
35	24 bars
36	28 bars
37	32 bars
38	36 bars
39	40 bars
40	48 bars
41	56 bars
42	64 bars

4.14 Arpeggiator Sort Orders

Index	Description
-------	-------------

0	as played
1	reversed
2	Key Lo>Hi
3	Key Hi>Lo
4	Vel Lo>Hi
5	Vel Hi>Lo

4.15 Arpeggiator Velocity Modes

Index	Description
-------	-------------

0	Each Note
---	-----------

- 1 First Note
- 2 Last Note
- 3 fix 32
- 4 fix 64
- 5 fix 100
- 6 fix 127

4.16 Categories

Index	Description
-------	-------------

- | | |
|----|------|
| 0 | Init |
| 1 | Arp |
| 2 | Atmo |
| 3 | Bass |
| 4 | Drum |
| 5 | FX |
| 6 | Keys |
| 7 | Lead |
| 8 | Mono |
| 9 | Pad |
| 10 | Perc |
| 11 | Poly |
| 12 | Seq |

4.17 Ctrl Send Modes

Index	Description
-------	-------------

- | | |
|---|------------|
| 0 | off |
| 1 | Ctrl |
| 2 | SysEx |
| 3 | Ctrl+SysEx |

4.18 Category Filters

Index	Description
-------	-------------

0	off
1	Init
2	Arp
3	Atmo
4	Bass
5	Drum
6	FX
7	Keys
8	Lead
9	Mono
10	Pad
11	Perc
12	Poly
13	Seq

5. Effects

The Blofeld has two Effect units per Sound. In a multi-timbral setup, the first Effect unit is retained for parts 1-4 while the second Effect unit is used from the first part.

The second Effect unit has Delay and Reverb Effect Types in addition to the Effect Types of the first Effect unit.

5.1 Effect Types

Value	Description	Availability
0	Bypass	FX1 FX2
1	Chorus, see 5.2	FX1 FX2

2	Flanger, see 5.3	FX1 FX2
3	Phaser, see 5.4	FX1 FX2
4	Overdrive, see 5.5	FX1 FX2
5	Triple FX, see 5.6	FX1 FX2
6*	Delay, see 5.7	FX2
7*	Clk.Delay, see 5.8	FX2
8*	Reverb, see 5.9	FX2

*: Values for these effects are likely to change in a future version.

5.2 Chorus Effect Parameters

FX1	FX2	Range	Value	Parameter
130	146	0..127	0..127	Speed
131	147	0..127	0..127	Depth

5.3 Flanger Effect Parameters

FX1	FX2	Range	Value	Parameter
130	146	0..127	0..127	Speed
131	147	0..127	0..127	Depth
134	150	0..127	0..127	Feedback
138	154	0..1	positive,negative	Polarity

5.4 Phaser Effect Parameters

FX1	FX2	Range	Value	Parameter
130	146	0..127	0..127	Speed

131	147	0..127	0..127	Depth
134	150	0..127	0..127	Feedback
135	151	0..127	0..127	Center
136	152	0..127	0..127	Spacing
138	154	0..1	positive,negative	Polarity

5.5 Overdrive Effect Parameters

FX1	FX2	Range	Value	Parameter
131	147	0..127	0..127	Drive
132	148	0..127	0..127	Post Gain
135	151	0..127	0..127	Cutoff
139	155	0..11	Clipping..Sine Shaper	Curve

5.6 Triple FX Effect Parameters

FX1	FX2	Range	Value	Parameter
130	146	0..127	0..127	Speed
131	147	0..127	0..127	Depth
133	149	0..127	0..127	Chorus Mix
134	150	0..127	0..127	Sample&Hold
135	151	0..127	0..127	Overdrive

5.7 Delay Effect Parameters

Index	Range	Value	Parameter
149	0..127	0..127	Length
150	0..127	0..127	Feedback

151	0..127	0..127	Cutoff
154	0..1	positive,negative	Polarity
155	0..127	-64..+63	Spread

5.8 Clk.Delay Effect Parameters

Index	Range	Value	Parameter
150	0..127	0..127	Feedback
151	0..127	0..127	Cutoff
154	0..1	positive,negative	Polarity
155	0..127	-64..+63	Spread
156	0..29	1/96..10 bars	Length

5.9 Reverb Effect Parameters

Index	Range	Value	Parameter
146	0..127	0..127	Size
147	0..127	0..127	Shape
148	0..127	0..127	Decay
151	0..127	0..127	Lowpass
152	0..127	0..127	Highpass
153	0..127	0..127	Diffusion
154	0..127	0..127	Damping

6. Device Inquiry

The Blofeld responds to the Universal Device Inquiry message F0, 7E, <channel>, 06, 01, F7 if <channel> is set to 7F or if <channel> matches the specific Device ID. The Blofeld will

respond with the following:

F0,7E,	Universal Sysex Header
<channel>,	Device ID
06,02	Device Inquiry Dump
3E,	Waldorf Music Manufacturer ID
13,00,	Device family code : Blofeld
XX,YY,	Device family member code, see below
VV,VV,VV,VV,	Software revision, ASCII, e.g. "1.04"
F7	EOX

Device family member codes (XX,YY):

00,00	Blofeld Desktop
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