

# **SysEx Data documentation and addenda for the Virus rack**

## **Version OSR1.5**

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The Virus - Resistance is futile



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## NEW FEATURES

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### ■ 1024 Patches

OS version 1.5 or higher supports 1024 internal sound patches. Overwriting the demo song frees up the necessary space in the flash ROM.

Install OSxx second1024.mid to load the additional patches into your Virus.

Details on the installation can be found in the user manual.

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# SYSEX DOCUMENTATION

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## ■ Classes

**P: PERFORMANCE CONTROLLER** Accessible by Control message. Performance Controllers are not stored with a Single-Sound. If more than one Multi Part is set to the same MIDI channel, all Parts on this MIDI channel receive the same Performance Controllers.

**A: SOUND PARAMETER OF BANK A**  
Accessible by Control message, SysEx-Parameterchange and Single-Dump. The Sound Parameters are stored with a Single Sound. When received as Control Message, the Sound Parameter is received only by the Multi Part with the lowest part number, if more than one Multi Part is set to the same MIDI channel. When received as SysEx-Parameterchange or Single-Dump, the part is addressed by the part number irrespective of the actual MIDI channel setting.

### **B: SOUND PARAMETER OF BANK B**

Accessible by MIDI Polyphonic Pressure, SysEx-Parameterchange and Single-Dump. The Sound Parameters are stored with a Single Sound. When received as Polyphonic Pressure, the Sound Parameter is received only by the Multi Part with the lowest part number, if more than one Multi Part is set to the same MIDI channel. When received as SysEx-Parameterchange or Single-Dump, the part is addressed by the part number irrespective of the actual MIDI channel setting.

**M: MULTI PARAMETER** Accessible by SysEx-Parameterchange and Multi-Dump. The Multi Parameters are stored with a Multi Patch.

**MS: MULTI/SINGLE PARAMETER** When in Single Mode, the parameter is received and stored with the Single Sound. When in Multi Mode, the parameter is received and stored with the Multi Patch. In Multi Mode the Single Sound settings are ignored while the corresponding Multi Patch settings are active.

**NP: NON-PART-SENSITIVE SOUND**

**PARAMETER** When in Multi Mode, the parameter affects all Multi Parts.

**BPC: BANK/PROGRAM-CHANGE PARAMETER BANK SELECT**

selects the Single bank accessed by a subsequent Program Change, similar to the regular Bank Select. Bank Change directly changes the Single program to the requested bank, without changing the program number. Program Change directly changes the Single program to the requested program number, without changing the bank number; similar to the regular Program Change. Part number \$40 will address the Single buffer in Single Mode.

**G: GLOBAL PARAMETER** The Global Parameters are independent of Single Sounds or Multi Patches and non-part sensitive.

**VB: VIRUS B PARAMETER** These parameters are only available on Virus b and Virus kb/Indigo in Version 3.0 and followers. Virus b parameter changes are ignored by Virus a

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■ *On non-part-sensitive parameters the part number is ignored, but must still be sent as any value.*

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■ *The Virus can be switched between Multi Mode and Single Mode by parameter C123 Part Number.*

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■ *Remarks for editor/librarian programs Not all 256 bytes of a Single or Multi Dump are defined as a parameter. Some of them are defined for internal use or reserved for future applications. In a bulk dump these byte should not be changed, they should be sent to the Virus on the same value as they were received in the dump.*

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■ *One of the internal parameter (Page A #0) is the Sound Version Number. On future Virus system updates new parameters will be defined. When the Virus receives an older sound, the new parameters will be set to default values in the edit buffer and the version number will be updated automatically. The Virus update algorithm can be used from outside just by sending a dump and requesting it back. To prevent incompatibilities and confusion, the Sound Version Number should not be changed by any other device than the Virus itself. When sounds are imported into a software library, they should be automatically pathed through the Virus first, before allowing a change of parameters. Otherwise the Virus might reset new parameters, when the sound is loaded into the Virus, after editing parameters.*

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# PARAMETERS DESCRIPTION

No.	Class	Name	Range	Value	Text
PAGE A					
A 0	p	Bank Select	0..3		Bank A..D
A 1	p	Modulation Wheel			
A 2	p	Breath Controller			
A 3	p	Contr 3			
A 4	p	Foot Controller			
A 5	a	Portamento Time	0..127		
A 6	p	Data Slider			
A 7	p	Channel Volume	0..127		
A 8	p	Balance			
A 9	p	Contr 9			
A 10	a	Panorama	0..127	-64..0..+63:	Left..Center..Right
A 11	p	Expression	0..127		
A 12	p	Contr 12			
A 13	p	Contr 13			
A 14	p	Contr 14			
A 15	p	Contr 15			
A 16	p	Contr 16			
A 17	a	Osc1 Shape	0..127	-64..0..+63:	Wave..Saw..Pulse
A 18	a	Osc1 Pulsewidth	0..127		
A 19	a	Osc1 Wave Select	0..64		Sine, Triangle, Wave 3..64
A 20	a	Osc1 Semitone	0..127	-64..+63	
A 21	a	Osc1 Keyfollow	0..127	-64..+63,	Default: 32



No.	Class	Name	Range	Value	Text
A 22	a	Osc2 Shape	0..127	-64..0..+63:	Wave..Saw..Pulse
A 23	a	Osc2 Pulsewidth	0..127		
A 24	a	Osc2 Wave Select	0..64		Sine, Triangle, Wave 3..64
A 25	a	Osc2 Semitone	0..127	-64..+63	
A 26	a	Osc2 Detune	0..127		
A 27	a	Osc2 FM Amount	0..127		
A 28	a	Osc2 Sync	0..1		0:Off 1:On
A 29	a	Osc2 Filt Env Amt	0..127	-64..+63	
A 30	a	FM Filt Env Amt	0..127	-64..+63	
A 31	a	Osc2 Keyfollow	0..127	-64..+63:	Default: 32
A 32	p	Bank Select	0..3		Bank A..D
A 33	a	Osc Balance	0..127		-64..+63:
A 34	a	Suboscillator Volume	0..127		
A 35	a	Suboscillator Shape	0..1		0:Square 1:Triangle
A 36	a	Osc Mainvolume	0..127		
A 37	a	Noise Volume	0..127		
A 38	a	Ringmodulator Volume	0..127		
A 39	a	Noise Color	0..127	-64..0..+63	
A 40	a	Cutoff	0..127		
A 41	a	Cutoff2	0..127	-64..+63	
A 42	a	Filter1 Resonance	0..127		
A 43	a	Filter2 Resonance	0..127		
A 44	a	Filter1 Env Amt	0..127		
A 45	a	Filter2 Env Amt	0..127		
A 46	a	Filter1 Keyfollow	0..127	-64..+63	
A 47	a	Filter2 Keyfollow	0..127	-64..+63	
A 48	a	Filter Balance	0..127	-64..+63	

No.	Class	Name	Range	Value	Text
A 49	a	Saturation Curve	0..6		0:Off 1:Light 2:Soft 3:Middle 4:Hard 5:Digital ..
A 51	a	Filter1 Mode	0..3		0:LP 1:HP 2:BP 3:BS
A 52	a	Filter2 Mode	0..3		0:LP 1:HP 2:BP 3:BS
A 53	a	Filter Routing	0..3		0:Ser4 1:Ser6 2:Par4 3:Split
A 54	a	Filter Env Attack	0..127		
A 55	a	Filter Env Decay	0..127		
A 56	a	Filter Env Sustain	0..127		
A 57	a	Filter Env Sustain Time	0..127	-64..+63:	Fall..Infinite..Rise
A 58	a	Filter Env Release	0..127		
A 59	a	Amp Env Attack	0..127		
A 60	a	Amp Env Decay	0..127		
A 61	a	Amp Env Sustain	0..127		
A 62	a	Amp Env Sustain Time	0..127	-64..+63:	Fall..Infinite..Rise
A 63	a	Amp Env Release	0..127		
A 64	p	Hold Pedal			
A 65	p	Portamento Pedal			
A 66	p	Sostenuto Pedal			
A 67	a	Lfo1 Rate	0..127		
A 68	a	Lfo1 Shape	0..5		0:Sine 1:Tri 2:Saw 3:Square 4:S&H 5:S&G ..
A 69	a	Lfo1 Env Mode	0..1		0:Off 1:On
A 70	a	Lfo1 Mode	0..1		0:Poly 1:Mono
A 71	a	Lfo1 Symmetry	0..127	-64..+63	
A 72	a	Lfo1 Keyfollow	0..127		
A 73	a	Lfo1 Keytrigger	0..127		0:Off, 1..127:Keytrigger Phase
A 74	a	Osc1 Lfo1 Amount	0..127	-64..+63	
A 75	a	Osc2 Lfo1 Amount	0..127	-64..+63	

No.	Class	Name	Range	Value	Text
A 76	a	PW Lfo1 Amount	0..127	-64..+63	
A 77	a	Reso Lfo1 Amount	0..127	-64..+63	
A 78	a	FiltGain Lfo1 Amount	0..127	-64..+63	
A 79	a	Lfo2 Rate	0..127		
A 80	a	Lfo2 Shape	0..5		0:Sine 1:Tri 2:Saw 3:Square 4:S&H 5:S&G ..
A 81	a	Lfo2 Env Mode	0..1		0:Off 1:On
A 82	a	Lfo2 Mode	0..1		0:Poly 1:Mono
A 83	a	Lfo2 Symmetry	0..127	-64..+63	
A 84	a	Lfo2 Keyfollow	0..127		
A 85	a	Lfo2 Keytrigger	0..127		0:Off, 1..127:Keytrigger Phase
A 86	a	OscShape Lfo2 Amount	0..127	-64..+63	
A 87	a	FmAmount Lfo2 Amount	0..127	-64..+63	
A 88	a	Cutoff1 Lfo2 Amount	0..127	-64..+63	
A 89	a	Cutoff2 Lfo2 Amount	0..127	-64..+63	
A 90	a	Panorama Lfo2 Amount	0..127	-64..+63	
A 91	a	Patch Volume	0..127		
A 93	a	Transpose	0..127	-64..+63	
A 94	a	Key Mode	0..4		0:Poly 1..4: Mono1-4
A 97	a	Unison Mode	0..15		0:Off 1:Twin 2..15
A 98	a	Unison Detune	0..127		
A 99	a	Unison Panorama Spread	0..127		
A100	a	Unison Lfo Phase	0..127	-64..+63	
A101	a	Input Mode	0..2		0:Off 1:Dynamic 2:Static 3:ToEffects
A102	a	Input Select	0..8		0:In1L 1:In1L+R 2:In1R ..
A105	a	Chorus Mix	0..127		
A106	a	Chorus Rate	0..127		
A107	a	Chorus Depth	0..127		

No.	Class	Name	Range	Value	Text
A108	a	Chorus Delay	0..127		
A109	a	Chorus Feedback	0..127	-64..+63	
A110	a	Chorus Lfo Shape	0..5		0:Sine 1:Tri 2:Saw 3:Square 4:S&H 5:S&G ..
A112	a	Delay/Reverb Mode	0..1		0:Off 1:Delay 2:Reverb 3:Rev+Feedb1
A113	a,ms	Effect Send	0..127		
A114	a,ms,np	Delay Time	0..127		
A115	a,ms,np	Delay Feedback	0..127		
A116	a,ms,np	Delay Rate	0..127		
		Reverb Decay Time	0..127		
A117	a,ms,np	Delay Depth	0..127		
		Reverb Room Size	0..3		0:Ambience 1:SmallRoom 2:LargeRoom 3:Hall
A118	a,ms,np	Delay Lfo Shape	0..5		0:Sine 1:Tri 2:Saw 3:Square 4:S&H 5:S&G ..
		Reverb Damping	0..127		
A119	a,ms,np	Delay Color	0..127	-64..+63	
A123	p	All Notes Off			

No.	Class	Name	Range	Value	Text
PAGE B					
B 1	b	Arp Mode	0..6		0:Off 1:Up 2:Down 3:Up&Down 4:AsPlayed 5:Random 6:Chord
B 2	b	Arp Pattern Select	0..31		
B 3	b	Arp Octave Range	0..3		
B 4	b	Arp Hold Enable	0..1		0:Off 1:On
B 5	b	Arp Note Length	0..127	-64..+63c	
B 6	b	Arp Swing	0..127	50%..75%	
B 7	b	Lfo3 Rate	0..127		
B 8	b	Lfo3 Shape	0..5		0:Sine 1:Tri 2:Saw 3:Square 4:S&H 5:S&G ..
B 9	b	Lfo3 Mode	0..1		0:Poly 1:Mono
B 10	b	Lfo3 Keyfollow	0..127		
B 11	b	Lfo3 Destination	0..5		0:Osc1 1:Osc1+2 2:Osc2 3:PW1 4:PW1+2 5:PW2
B 12	b	Osc Lfo3 Amount	0..127		
B 13	b	Lfo3 Fade-In Time	0..127		
B 16	b	Clock Tempo	0..127	63..190 BPM	
B 17	b	Arp Clock	1..17	1/64..1/1	
B 18	b	Lfo1 Clock	0..19		Off, 1/64..4/1
B 19	b	Lfo2 Clock	0..19		Off, 1/64..4/1
B 20	b,ms,np	Delay Clock	0..16		Off, 1/64..3/4
B 21	b	Lfo3 Clock	0..19		Off, 1/64..4/1
B 25	b	Control Smooth Mode	0..3		0:Off, 1:On, 2:Auto, 3:Note
B 26	b	Bender Range Up	0..127	-64..+63	
B 27	b	Bender Range Down	0..127	-64..+63	
B 28	b	Bender Scale	0..1		0:Linear 1:Exponential
B 30	b	Filter1 Env Polarity	0..1		0:Negative 1:Positive
B 31	b	Filter2 Env Polarity	0..1		0:Negative 1:Positive

No.	Class	Name	Range	Value	Text
B 32	b	Filter2 Cutoff Link	0..1		0:Off 1:On
B 33	b	Filter Keytrack Base	0..127		C-1..G9
B 35	b	Osc Init Phase	0..127		0:Off 1..127
B 36	b	Punch Intensity	0..127		
B 39	b	Vocoder Mode	0..12		0:Off 1:Osc 2:OscHold 3:Noise 4:In L 5:In L+R ..
B 47	b	Osc1 Shape Velocity	0..127	-64..+63	
B 48	b	Osc2 Shape Velocity	0..127	-64..+63	
B 49	b	PulseWidth Velocity	0..127	-64..+63	
B 50	b	Fm Amount Velocity	0..127	-64..+63	
B 54	b	Filter1 EnvAmt Velocity	0..127	-64..+63	
B 55	b	Filter1 EnvAmt Velocity	0..127	-64..+63	
B 56	b	Resonance1 Velocity	0..127	-64..+63	
B 57	b	Resonance2 Velocity	0..127	-64..+63	
B 60	b	Amp Velocity	0..127	-64..+63	
B 61	b	Panorama Velocity	0..127	-64..+63	
B 62	b	Definable1 Single			see Definable List
B 63	b	Definable2 Single			see Definable List
B 64	b	Assign1 Source			see Assign Sources List
B 65	b	Assign1 Destination			see Assign Destinations List
B 66	b	Assign1 Amount	0..127	-64..+63	
B 67	b	Assign2 Source			see Assign Sources List
B 68	b	Assign2 Destination1			see Assign Destinations List

No.	Class	Name	Range	Value	Text
B 69	b	Assign2 Amount1	0..127	-64..+63	
B 70	b	Assign2 Destination2			see Assign Destinations List
B 71	b	Assign2 Amount2	0..127	-64..+63	
B 72	b	Assign3 Source			see Assign Sources List
B 73	b	Assign3 Destination1			see Assign Destinations List
B 74	b	Assign3 Amount1	0..127	-64..+63	
B 75	b	Assign3 Destination2			see Assign Destinations List
B 76	b	Assign3 Amount2	0..127	-64..+63	
B 77	b	Assign3 Destination3			see Assign Destinations List
B 78	b	Assign3 Amount3	0..127	-64..+63	
B 79	b	LFO1 Assign Dest			see Assign Destinations List
B 80	b	LFO1 Assign Amount	0..127	-64..+63	
B 81	b	LFO2 Assign Dest			see Assign Destinations List
B 82	b	LFO2 Assign Amount	0..127	-64..+63	
B 97	b	Abalog Boost Intensity	0..127		
B 98	b	Analog Boost Tune	0..127		
B112	b	Single Name Char1	32..127	ASCII	
B113	b	Single Name Char2	32..127	ASCII	
B114	b	Single Name Char3	32..127	ASCII	
B115	b	Single Name Char4	32..127	ASCII	
B116	b	Single Name Char5	32..127	ASCII	
B117	b	Single Name Char6	32..127	ASCII	
B118	b	Single Name Char7	32..127	ASCII	
B119	b	Single Name Char8	32..127	ASCII	

No.	Class	Name	Range	Value	Text
B120	b	Single Name Char9	32..127	ASCII	
B121	b	Single Name Char10	32..127	ASCII	
B122	b	Filter Select	0..2		0:Filt1 1:Filt2 2:Filt1*2
B123	b				Category1
B124	b				Category2



No.	Class	Name	Range	Value	Text
Page C					
C 5	m,np	Multi Name Char1	32..127	ASCII	
C 6	m,np	Multi Name Char2	32..127	ASCII	
C 7	m,np	Multi Name Char3	32..127	ASCII	
C 8	m,np	Multi Name Char4	32..127	ASCII	
C 9	m,np	Multi Name Char5	32..127	ASCII	
C 10	m,np	Multi Name Char6	32..127	ASCII	
C 11	m,np	Multi Name Char7	32..127	ASCII	
C 12	m,np	Multi Name Char8	32..127	ASCII	
C 13	m,np	Multi Name Char9	32..127	ASCII	
C 14	m,np	Multi Name Char10	32..127	ASCII	
C 22	m,np	Delay Output Select	0..14		0:Out1L 1:Out1L+R 2:Out1R ..
C 31	m,bpc	Part Bank Select	0..3	Bank A..D	
C 32	m,bpc	Part Bank Change	0..3	Bank A..D	
C 33	m,bpc	Part Program Change	0..127		
C 34	m	Part Midi Channel	0..15	1..16	
C 35	m	Part Low Key	0..127	C-1..G9	
C 36	m	Part High Key	0..127	C-1..G9	
C 37	m	Part Transpose	0..127	-64..+63	
C 38	m	Part Detune	0..127	-64..+63	
C 39	m	Part Volume	0..127	-64..+63	0=Unity Gain
C 40	m	Part Midi Volume Init	0..127	Off, 1..127	
C 41	m	Part Output Select	0..14		0:Out1L 1:Out1L+R 2:Out1R ..
C 45	g	Second Output Select	0..15		0:Off 1:Out1L 2:Out1L+R 3:Out1R ..
C 66	g	Keyb Transpose	0..127	-64..+63	
C 72	m	Part Enable	0..1		0:Off 1:On

No.	Class	Name	Range	Value	Text
C 73	m	Part Midi Volume Enable	0..1		0:Off 1:On
C 74	m	Part Hold Pedal Enable	0..1		0:Off 1:On
C 75	m	Keyb To Midi	0..1		0:Off 1:On
C 77	m	Note Steal Priority	0..1		0:Low 1:High
C 78	m	Part Prog Change Enable	0..1		0:Off 1:On
C 85	g	Glob Prog Change Enable	0..1		0:Off 1:On
C 86	g	MultiProg Change Enable	0..1		0:Off 1:On
C 87	g	Glob Midi Volume Enable	0..1		0:Off 1:On
C 90	g	Input Thru Level	0..127		
C 91	g	Input Boost	0..127		
C 92	g	Master Tune	0..127	-64..+63	
C 93	g	Device ID	0..16	1..16, Omni	
C 94	g	Midi Control Low Page	0..1		0:SysEx 1:Contr
C 95	g	Midi Control High Page	0..1		0:SysEx 1:PolyPrs
C 96	g	Midi Arpeggiator Send	0..1		0:Off 1:On
C 97	g	Knob Display	0..3		0:Off 1:Short 2:Long 3:On
C 98	g	Midi Dump Tx	0..4		0:Single 1:SingleBankA 2:SingleBankB ..
C 99	g	Midi Dump Rx	0..4		0:Disable 1:Enable 2:ForceToBankA ..
C105	g	Multi Program Change	0..127		
C106	g	Midi Clock Rx			0:Disable 1:Auto 2:Send
C110	g	Definable1 Mode	0..2		0:Single 1:Global 2:Midi
C111	g	Definable2 Mode	0..2		0:Single 1:Global 2:Midi
C112	g	Definable1 Global			see Definable List
C113	g	Definable2 Global			see Definable List
C114	g	Definable1 Midi	0..127		
C115	g	Definable2 Midi	0..127		
C116	g	Expert Mode	0..1		0:Off 1:On

No.	Class	Name	Range	Value	Text
C117	g	Knob Mode	0..3		0:Off 1:Jump 2:Snap 3:Relative
C118	g	Memory Protect	0..1		0:Off 1:Warn 2:On
C120	g	Soft Thru	0..1		0:Off 1:On
C121	g	Panel Destination	0..2		0:Internal 1:Int+Midi 2:Midi
C122	g	Play Mode	0..2		0:Single 1:MultiSingle 2:Multi
C123	g	Part Number	0..15;40		0..15:Multi Part 1..16; 40:Single Buffer
C124	g	Global Channel	0..15	1..16	
C125	g	Led Mode	0..2		0:Lfo 1:Input 2:Auto ..
C126	g	LCD Contrast	0..127		
C127	g	Master Volume	0..127		

## MULTI DUMP TABLE

NO	REF	NAME	RANGE	VALUE	TEXT
0..3		Internal			
4..13		Multi Name Characters 1..10	32..127	ASCII	
14		Internal			
15		Multi Clock Tempo	0..127	63..190 BPM	
16		Multi Delay Mode	0..1	0:Off 1:On	
17		Multi Delay Time	0..127		
18		Multi Delay Feedback	0..127		
19		Multi Delay Rate	0..127		
20		Multi Delay Depth	0..127		
21		Multi Delay Shape	0..5		0:Sine 1:Tri 2:Saw 3:Square 4:S&H 5:S&G
22		Multi Delay Output Select	0..127		0:Out1L 1:Out1L+R 2:Out1R ..
23		Multi Delay Clock	0..16		Off, 1/64..3/4
24		Multi Delay Color	0..127	-64..+63	
25..31		Internal			
32..47	Part 1..16	Bank Number	0..1		
48..63	Part 1..16	Program Number	0..127		
64..79	Part 1..16	Midi Channel	0..15	1..16	
80..95	Part 1..16	Low Key	0..127	C-1..G9	
96..111	Part 1..16	High Key	0..127	C-1..G9	

NO	REF	NAME	RANGE	VALUE	TEXT
112..127	Part 1..16	Transpose	0..127	-64..+63	
128..143	Part 1..16	Detune	0..127	-64..+63	
144..159	Part 1..16	Part Volume	0..127	-64..+63;	0=Unity Gain
160..175	Part 1..16	Midi Volume Init	0..127	Off, 1..127	
176..191	Part 1..16	Output Select	0..14		0:Out1L 1:Out1L+R 2:Out1R ..
192..207	Part 1..16	Effect Send	0..127		
208..239		Internal			
240..255		Part State		Part 1..16	Bitfield (see Part State Bitfield)



NO	REF	NAME	RANGE	VALUE	TEXT
Part State Bitfield:					
Bit 0		Part Enable			0:Off 1:On
Bit 1		Part Midi Volume Enable			0:Off 1:On
Bit 2		Part Hold Pedal Enable			0:Off 1:On
Bit 4		Internal			
Bit 5		Note Steal Priority			0:Low 1:High
Bit 6		Part Prog Change Enable			0:Off 1:On

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All bytes are shown in decimal representation.

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MOD MATRIX SOURCES

All sources of the definable knobs 1/2				
Off	PitchBnd	ChanPres	ModWheel	Breath
Contr3	Foot	Data	Balance	Contr 9
Express	Contr 12	Contr 13	Contr 14	Contr 15
Contr 16	HoldPed	PortaSw	SostPed	AmpEnv
FiltEnv	Lfo 1	Lfo 2	Lfo 3	VeloOn
VeloOff	KeyFlw	Random		



# MOD MATRIX DESTINATIONS

All destinations of the Modulation Matrix					
Off	PatchVol	ChannelVol	Panorama	Transpose	Portamento
Osc1Shape	Osc1PlsWdh	Osc1WavSel	Osc1Pitch	Osc1Keyflw	Osc2Shape
Osc2PlsWdh	Osc2WavSel	Osc2Pitch	Osc2Detune	Osc2FmAmt	Osc2EnvAmt
FmEnvAmt	Osc2Keyflw	OscBalance	SubOscVol	OscMainVol	NoiseVol
Cutoff	Cutoff2	Filt1Reso	Filt2Reso	Filt1EnvAmt	Filt2EnvAmt
Filt1Keyflw	Filt2Keyflw	FiltBalance	FiltAttack	FiltDecay	FiltSustain
FiltSusTime	FiltRelease	AmpAttack	AmpDecay	AmpSustain	AmpSusTime
AmpRelease	Lfo1Rate	Lfo1Cont	Lfo1>Osc1	Lfo1>Osc2	Lfo1>PlsWd
Lfo1>Reso	Lfo1>FiltGn	Lfo2Rate	Lfo2Cont	Lfo2>Shape	Lfo2>Fm
Lfo2>Cut1	Lfo2>Cut2	Lfo2>Pan	Lfo3Rate	Lfo3OscAmt	UniDetune
UniSpread	UniLfoPhs	ChorusMix	ChorusRate	ChorusDpth	ChorusDly
ChorusFeed	EffectSend	DelayTime	DelayFeed	DelayRate	DelayDepth
Osc1ShpVel	Osc2ShpVel	PlsWhdVel	FmAmtVel	Filt1EnvVel	Filt2EnvVel
Reso1Vel	Reso2Vel	AmpVel	PanVel	Ass1Amt1	Ass2Amt1
Ass2Amt2	Ass3Amt1	Ass3Amt2	Ass3Amt3	OscInitPhs	PunchInt
RingMod	NoiseColor	DelayColor	ABoostInt	ABoostTune	
				Lfo1AssAmt	Lfo2AssAmt
RevbDecay	RevDamping	RevbColor	RevPredely	RevFeedbck	
ArpNoteLen	ArpSwing	ArpPattern			



## DEFINABLE KNOBS DESTINATIONS

All destinations of the definable knobs 1/2				
Off	ModWheel	Breath	Contr3	Foot
Data	Balance	Contr9	Expression	Contr12
Contr13	Contr14	Contr15	Contr16	PatchVolume
ChannelVolume	Panorama	Transpose	Portamento	UnisonDetune
UnisonPanSprd	UnisonLfoPhase	ChorusMix	ChorusRate	ChorusDepth
ChorusDelay	ChorusFeedback	EffectSend	DelayTime(ms)	DelayFeedback
DelayRate	DelayDepth	Osc1WavSelect	Osc1PulseWidth	Osc1Semitone
Osc1Keyfollow	Osc2WavSelect	Osc2PulseWidth	Osc2EnvAmount	FmEnvAmount
Osc2Keyfollow	NoiseVolume	Filt1Resonance	Filt2Resonance	Filt1EnvAmount
Filt2EnvAmount	Filt1Keyfollow	Filt2Keyfollow	Lfo1Symmetry	Lfo1>Osc1
Lfo1>Osc2	Lfo1>PulsWidth	Lfo1>Resonance	Lfo1>FiltGain	Lfo2Symmetry
Lfo2>Shape	Lfo2>FmAmount	Lfo2>Cutoff1	Lfo2>Cutoff2	Lfo2>Panorama
Lfo3Rate	Lfo3OscAmount	Osc1ShapeVel	Osc2ShapeVel	PulsWidthVel
FmAmountVel	Filt1EnvVel	Filt2EnvVel	Resonance1Vel	Resonance2Vel
AmplifierVel	PanoramaVel	Assign1Amt1	Assign2Amt1	Assign2Amt2
Assign3Amt1	Assign3Amt2	Assign3Amt3	ClockTempo	InputThru
OscInitPhase	PunchIntensity	Ringmodulator	NoiseColor	DelayColor
AnalogBoostInt	AnalogBstTune			
		Lfo1AssignAmt	Lfo2AssignAmt	
RevDecayTime	ReverbDamping	ReverbColor	ReverbFeedback	
ArpMode	ArpPattern	ArpClock	ArpNoteLength	ArpSwing
ArpOctaves	ArpHold			

