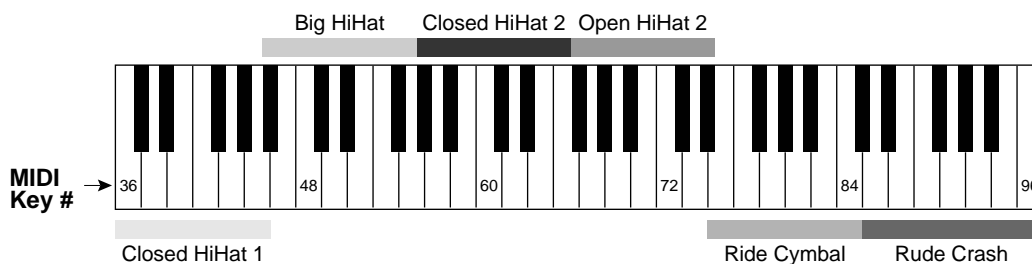
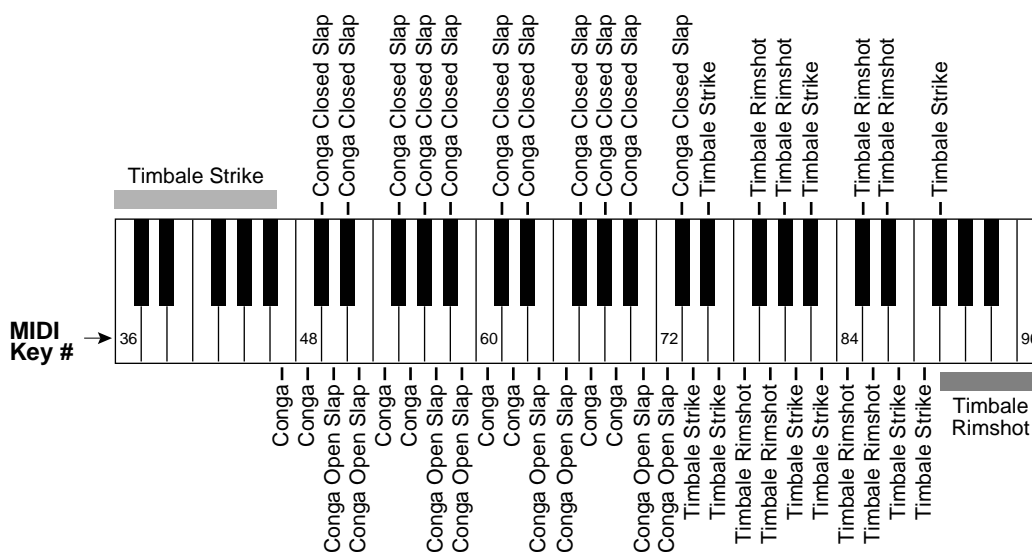


## PERCUSSION INSTRUMENT LOCATIONS

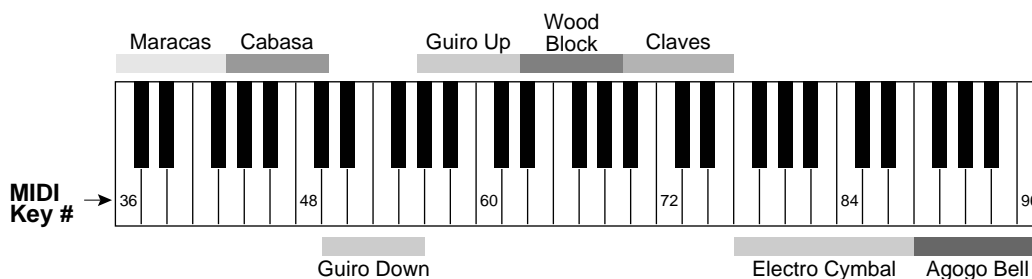


**Cymbals**  
Instrument 59



## Latin Drums

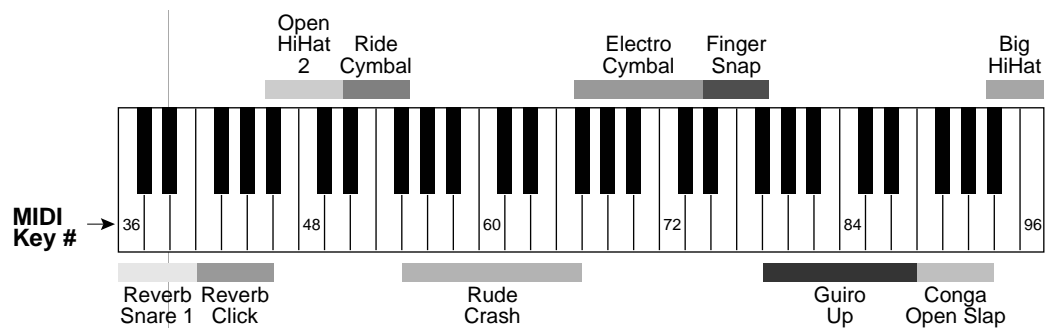
### Instrument 60



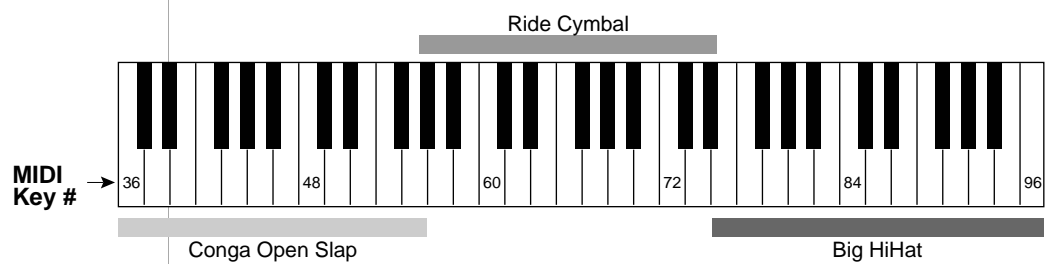
## Latin Percussion

### Instrument 61

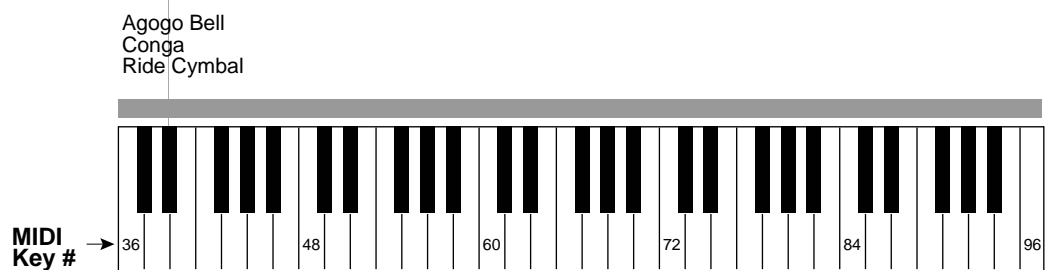
## PERCUSSION INSTRUMENT LOCATIONS



**Percussion FX 1**  
Instrument 67



**Percussion FX 2**  
Instrument 68



**Agogo Bell, Conga, Ride Cymbal**  
Instruments 62, 64, 66

## PROTEUS PARAMETER CHARTS

**A DELAY**

Knob	Time (mS)
5	4
10	8
20	16
30	24
50	40
75	60
100	81
125	101
150	121
175	141
200	161
255	206

**B DELAY**

Knob	Time (mS)
5	2
10	4
20	8
30	12
50	20
75	30
100	40
125	50
150	60
175	71
200	81
255	103

**ECHO DELAY**

Knob	Time (mS)
5	8
10	16
20	32
30	48
50	81
75	121
100	161
125	202
150	242
175	282
200	323
255	412

**EQ  
FREQUENCY**

Knob	Freq (Hz)
0	48.5
12	291
24	533
36	823.5
48	1218
60	1801
72	2663
84	3938
96	5823.5
108	8612
120	12735
127	16000

**EQ  
BANDWIDTH**

Knob	Freq (Hz)
0	9
12	17
24	33
36	64
48	122.5
60	235
72	452
84	868
96	1667
108	3202
120	6150
127	9000

**VOLUME  
ATTACK**

Knob	Time (sec)
0	0
5	.125
10	.25
15	.4
20	.6
30	1.2
40	2.2
50	4
60	9
75	15
80	20
99	60

**INSTRUMENT/  
ENVELOPE  
DELAY**

Knob	Time (sec)
000	0
5	.125
10	.25
20	.6
32	1
40	1.5
64	2.5
75	3.5
80	4.2
96	6.2
100	7
127	13

**LFO RATES**

Knob	Rate (Hz)
000	.052
5	.1
10	.6
15	.8
20	1.33
25	1.8
30	2.2
40	3.3
50	7
60	10
80	16
127	25

**AUXILIARY  
ATTACK**

Knob	Time (sec)
0	0
5	.125
10	.25
15	.5
20	.8
30	1.5
40	2.75
50	5.25
60	9
75	23
88	99
99	136

**HOLD**

Knob	Time (sec)
0	0
5	.125
10	.25
20	.4
30	.8
40	1.3
50	1.75
60	2.3
70	3.2
75	3.5
80	4.2
99	6.5

**DECAY**

Knob	Time (sec)
0	0
5	.125
10	.25
20	.4
30	.75
40	1.5
50	3
60	5
70	9
75	12
80	18
99	40

**RELEASE**

Knob	Time (sec)
0	0
5	.125
10	.25
15	.4
20	.6
30	1.2
40	2.2
50	4
60	9
75	15
80	20
99	60

## MIDI EFFECTS CONTROL

The internal effect processors on Proteus can be controlled in realtime using MIDI continuous controller channels. The controller channels are always connected to the destinations shown below. The parameters are not de-zippered (glitches may be heard if parameters are changed while sound is being processed), but we decided to include them anyway to further expand your control over the Proteus. Example: To turn effect B Off, send a value of 00 over continuous controller number 83. Try it!

Effects Amounts	
Parameter	Controller #
A Amount	84
B Amount	85
B>A Amount	86

"B" Effect Delay	
Parameter	Controller #
L Delay Time	110
L Tap Level	111
R Delay Time	112
R Tap Level	113
Feedback	114

"B" Effect Cross Delay	
Parameter	Controller #
R Delay Time	110
R Tap Level	111
L Delay Time	112
L Tap Level	113
Feedback	114

"B" Effect Stereo EQ B	
Parameter	Controller #
Frequency L	110
Bandwidth L	111
Boost/Cut L	112
Frequency R	113
Bandwidth R	114
Boost/Cut R	115

FX B Effect Type Controller #83	
Effect	Value
Off	00
Stereo Flange	01
Stereo Chorus	02
Phaser	03
Fuzz 1	04
Ring Modulator	05
Delay	06
Cross Delay	07
Stereo EQ B	08
Fuzz Lite	09

"B" Effect Fuzz1/Fuzz Lite	
Parameter	Controller #
Input Filter	110
Output Filter	111
Output Level	112

"B" Effect Flanger/Phaser	
Parameter	Controller #
LFO Rate	110
LFO Depth	111
Min Delay	112
Feedback	113

"B" Effect Chorus	
Parameter	Controller #
LFO Rate	110
LFO Depth	111
Min Delay	112
Feedback	113
Mix	114

For Chorus/Flanger/Phaser, a value of 40H = 0

## MIDI EFFECTS CONTROL

The A effects are controlled in the same way. As another example, to change the reverb decay time, change the value of continuous controller #70 from your sequencer. You can see the changes in the Proteus display.

Effects Amounts	
Parameter	Controller #
A Amount	84
B Amount	85
B>A Amount	86

“A” Effect Reverb Effects	
Parameter	Controller #
Decay Time	70

“A” Effect Delay/Echo	
Parameter	Controller #
L Delay Time	70
L Tap Level	71
R Delay Time	72
R Tap Level	73
Feedback	74

“A” Effect Cross Delay	
Parameter	Controller #
R Delay Time	70
R Tap Level	71
L Delay Time	72
L Tap Level	73
Feedback	74

“A” Effect Stereo EQ	
Parameter	Controller #
Frequency 1	70
Bandwidth 1	71
Boost/Cut 1	72
Frequency 2	73
Bandwidth 2	74
Boost/Cut 2	75

FX A Effect Type Controller #82	
Effect	Value
Off	00
Room	01
Warm Room	02
Plate 1	03
Plate 2	04
Chamber 1	05
Chamber 2	06
Hall 1	07
Hall 2	08
Delay	09
Cross Delay	0A
Phaser	0B
Stereo Flange	0C
Stereo Chorus	0D
Echo	0E
Stereo EQ A	0F
Small Room	10
Small Room 2	11
Hall 3	12
Early Refl. 1	13
Early Refl. 2	14
Early Refl. 3	15
Early Refl. 4	16
Rain	17

“A” Effect Flanger/Phaser	
Parameter	Controller #
LFO Rate	70
LFO Depth	71
Min Delay	72
Feedback	73

“A” Effect Chorus	
Parameter	Controller #
LFO Rate	70
LFO Depth	71
Min Delay	72
Feedback	73
Mix	74

For Chorus/Flanger/Phaser, a value of 40H = 0

## **TECHNICAL SPECIFICATIONS**

Audio Channels: 32  
Audio Outputs: 4  
Submix Inputs: 2  
Max. Output Level: +6 dBV  
Headphone Output Level: 60 mW into 60 $\Omega$   
Output Impedance (main): 1 K $\Omega$   
MIDI: In, Out, Thru  
Data Encoding: 16 bit Linear  
Signal to Noise: >90 dB  
Dynamic Range: >90 dB  
Frequency Response: 20Hz-18kHz  
THD +N: <.05%  
IMD: <.05%  
Stereo Phase: Phase Coherent

Power Requirements: 10 watts

Dimensions: H: 3.25" W: 13" L: 39.5"  
Weight: 22.8 lb (10.34 Kg)

## MIDI IMPLEMENTATION CHART

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	1 1-16	1 1-16	Memorized
Mode	Default Messages	X	Mode 1, 3, 4 MONO, POLY OMNI ON/OFF	Memorized
Note Number	True Voice	0-127 0-127	0-127 0-127	
Velocity	Note ON Note OFF	0 X	0 v = 1-127 X 8N	xmit rel. is ignored v = 40H (64)
After Touch	Keys Channels	X 0X	0 0X	Key = recognized Chan = xmit/recog
Pitch Bender		0X	0X	0-12 semitones
Control Change		0X 0 - 120	0X	
Program Change	True Number	0X 0-127 * 0-127	0X 0-127 * 0-127	
System Exclusive		0	0	
System Common	:Song Pos :Song Sel :Tune	0 0 0	X X X	Any MIDI data up to 320 bytes can be transmitted
System Real Time	:Clock :Commands	X X	X X	
Aux. Messages	:Local ON/OFF :All Notes Off :Active Sense :Reset	X 0 X X	0 0 X X	Not Memorized
Notes:	Reset Controls * Bank Change Pan 0=hard left 127=hard right	0 0	0 0	

Mode 1: OMNI ON, POLY  
Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO  
Mode 4: OMNI OFF, MONO

12/1/91

## MIDI SPECIFICATIONS

### RECEIVED CHANNEL COMMANDS

Channels number (n) = 0-15. Message bytes are represented in hex. All other numbers are decimal.

Command	Message	Comments
Note Off	8n kk vv	release velocity is ignored
Note Off	9n kk vv	velocity 0 = note off
Key Pressure	An kk pp	
Program Change	Cn pp	
Channel Pressure	Dn pp	
Pitch Wheel	En ll mm	l = lsb, m = msb
Realtime Controller	Bn cc vv	cc = 00-31
Performance Map Select	Bn 50 mm	mm = map #
Quick Key Select	Bn 51 qq	qq = quickey #
Effect A Select	Bn 52 ee	ee = effect A #
Effect B Select	Bn 53 ee	ee = effect B #
Effect A Amount	Bn 54 ee	ee = effect A amount#
Effect B Amount	Bn 55 ee	ee = effect B amount#
Effect Series Amount	Bn 56 ee	ee = B->A effect amount#
Effect Assign Pri.	Bn 57 ee	ee = Pri. effect assign. value

*In multi-mode, this selects  
effect buss channel  
assignment.*



**MIDI SPECIFICATIONS****RECEIVED CHANNEL COMMANDS (cont)**

<b>Command</b>	<b>Message</b>	<b>Comments</b>
Effect Assign Sec.	Bn 58 ee	ee = Sec. effect assign. value  <i>In multi-mode, this selects effect buss channel assignment.</i>
Effect A Parameter Value	Bn cc vv	cc = 70-79 vv = parameter value
Effect B Parameter Value	Bn cc vv	cc = 110-119 vv = parameter value
Footswitch	Bn cc vv	cc = 64-79, vv ≥ 64 = on
Volume	Bn 07 vv	
Pan	Bn 0A vv	0 = hard left, 127 = hard right
Pan = "P"	Bn 5A 40	sets pan to "P"
Reset All Controllers	Bn 79 00	ignored in omni mode
Local Control	Bn 7A vv	0 = off, ≥ 1 = on
All Notes Off	Bn 7B 00	ignored in omni mode
Omni Mode	Bn 7D 00	forces all notes & controls off
Mono Mode	Bn 7E 00	forces all notes & controls off
Poly Mode	Bn 7F 00	forces all notes & controls off
Bank Select	Bn 00 mm 20 ll Cn pp	

*Bank Select is ignored if a  
Program->Preset Map is turned on.*

**mm = msb, ll = lsb**  
**pp = preset within new bank**

## MIDI SPECIFICATIONS

■ When Product ID 04 is received, MIDI commands are interpreted and responded to using the original Proteus MIDI specification.

### RECEIVED SYSTEM COMMANDS

For system exclusive commands, the following format is used:

```

F0  system exclusive status byte
18  E-mu ID byte
08  product ID byte
dd  device ID byte
cc  command byte
...  data bytes
F7  EOX

```

Two MIDI bytes (lsb, msb) are required for each 14 bit data word. Bits 0-6 are sent first, followed by bits 7-13 in the next MIDI byte. All data words are signed 2's complement values with sign-extension out to the most significant bit (bit 13). This convention applies to all data words, regardless of the parameter's value range.

Command	Message	Comments
Preset Data Request	F0 18 id dd 00 ll mm F7	ll= preset # lsb, mm = msb
Preset Data	F0 18 id dd 01 ll mm ... .. cs F7	cs = checksum = sum of all data bytes
Parameter Value Request	F0 18 id dd 02 pl pm F7	pl = parameter # lsb      pm = msb
Parameter Value	F0 18 id dd 03 pl pm vl vm F7	vl = value lsb      vm = msb
Tuning Table Request	F0 18 04 dd 04 F7	Original Proteus M.P.S. will send table #1
Tuning Table	F0 18 04 dd 05 ... .. F7	Original Proteus
Tuning Table Request	F0 18 08 dd 04 tt F7	Proteus M.P.S. tt = tuning table #

**MIDI SPECIFICATIONS****RECEIVED SYSTEM COMMANDS (Continued)**

<b>Command</b>	<b>Message</b>	<b>Comments</b>
Tuning Table	F0 18 08 dd 05 ... .. F7	Proteus M.P.S.
Program Map Request	F0 18 04 dd 06 F7	Original Proteus
Program Map Data	F0 18 04 dd 07 ... .. F7	Original Proteus
Program Map Request	F0 18 08 dd 06 mm F7	Proteus M.P.S. mm = map #
Program Map Data	F0 18 08 dd 07 mm ... .. F7	Proteus M.P.S. mm = map #
Performance Map Req.	F0 18 08 dd 14 rr F7	rr = map #
Performance Map Data	F0 18 08 dd 15 rr ... .. F7	rr = map #
User Data Request	F0 18 08 dd 16 rr F7	rr = map #
User Data	F0 18 08 dd 17 rr ll ml lm mm ... .. cs F7	rr=map # ll=ls byte of ls word ml= ms byte of ls word lm=ls byte of ms word mm= ms byte of ms word cs = checksum = sum of data bytes

*Note: When Proteus sends Performance Map data (invoked from the Master Edit menu), it sends both the Performance Map data (message #15) and its corresponding User Data (message #17). This method splits up the performance map into two more manageable chunks of MIDI SysEx data and provides more independence and flexibility.*

**WARNING:** *When transferring preset banks back and forth from the Proteus to a computer, the data should be recorded as you would a regular sequence. Sending the data in one huge chunk will choke the Proteus on playback. In particular, utilities like the Master Tracks Pro4 Sysx loader will not work because they send the data all at once.*

## MIDI SPECIFICATIONS

### TRANSMITTED SYSTEM COMMANDS

Command	Message	Comments
Preset Data	F0 18 id dd 01 ll mm ... .. CS F7	
		cs = checksum = sum of all data bytes
Parameter Value	F0 18 id dd 03 pl pm vl vm F7	
	pl = parameter # lsb    pm = msb    vl = value lsb    vm = msb	
Tuning Table	F0 18 id dd 05 ... .. F7	TT data = 256 bytes
Program Map Data	F0 18 08 dd 07 ... .. F7	
Performance Map Data	F0 18 08 dd 15 ... .. F7	

#### Parameter Editing

Preset performance map and setup parameters may be edited individually using system exclusive commands. **The preset or performance map being edited is the one which is currently active.** The value of a given parameter may be changed by sending a *parameter value* command. The value of a parameter may be read by sending a *parameter value request*, to which the machine will respond by sending back the parameter value.

Preset data may also be transmitted or received in a single block (one complete preset) using system exclusive commands. A *preset data request* may be issued by a host computer, to which the machine will respond sending the data block for the requested preset. Conversely, the computer may send new preset data which will replace the specified preset currently in the machine. Additionally, a front panel command will transmit one or all user presets for backup onto an external sequencer. These presets may be restored by simply playing back the sequence into the machine.

#### Alternate Tuning

The “user tuning table” allows any key to be tuned to an arbitrary pitch over an 8 octave range. If selected in the preset, an alternate tuning may

## MIDI SPECIFICATIONS

be achieved by modifying the tuning values from the front panel or downloading a new table into the machine. The table consists of 128 words, corresponding to the MIDI key range, kept in non-volatile memory. Each word is a pitch value expressed in 1/64 semitones, offset from key number 0 (c-2). Therefore, for equal temperament, each entry in the table would be equal to its key number times 64.

### Preset Data Format

Preset data is transmitted and received using the following format: The standard system exclusive header (described below) is followed by the preset number (lsb, msb), a 14 bit word for each preset parameter (lsb, msb) starting at parameter #0 and continuing upward, a one-byte checksum, and the end-of-exclusive byte (F7). The checksum is the modulo 128 sum of all the parameter value bytes; that is, all of the data bytes following the preset number and before the checksum.

### PRESET PARAMETERS

Parameter#	(H)	Parameter Name
0-11	(00 00-0B 00)	preset name (12 ASCII characters)
12-14	(0C 00-0E 00)	link 1-3
15-18	(0F 00-12 00)	low key 0-3
19-22	(13 00-16 00)	high key 0-3
23	(17 00)	pri instrument
24	(18 00)	pri sample start offset
25	(19 00)	pri tuning (coarse)
26	(1A 00)	pri tuning (fine)
27	(1B 00)	pri volume
28	(1C 00)	pri pan
29	(1D 00)	pri delay
30	(1E 00)	pri low key
31	(1F 00)	pri high key
32	(20 00)	pri alt attack
33	(21 00)	pri alt hold
34	(22 00)	pri alt decay
35	(23 00)	pri alt sustain
36	(24 00)	pri alt release
37	(25 00)	pri alt envelope on
38	(26 00)	pri solo mode

**MIDI SPECIFICATIONS****PRESET PARAMETERS (cont)**

<b>Parameter#</b>	<b>(H)</b>	<b>Parameter Name</b>
39	(27 00)	pri double + detune
40	(28 00)	pri reverse sound
41	(29 00)	sec instrument
42	(2A 00)	sec sample start offset
43	(2B 00)	sec tuning (coarse)
44	(2C 00)	sec tuning (fine)
45	(2D 00)	sec volume
46	(2E 00)	sec pan
47	(2F 00)	sec delay
48	(30 00)	sec low key
49	(31 00)	sec high key
50	(32 00)	sec alt attack
51	(33 00)	sec alt hold
52	(34 00)	sec alt decay
53	(35 00)	sec alt sustain
54	(36 00)	sec alt release
55	(37 00)	sec alt envelope on
56	(38 00)	sec solo mode
57	(39 00)	sec double + detune
58	(3A 00)	sec reverse sound
59	(3B 00)	crossfade mode
60	(3C 00)	crossfade direction
61	(3D 00)	crossfade balance
62	(3E 00)	crossfade amount
63	(3F 00)	switch point
64	(40 00)	LFO 1 shape
65	(41 00)	LFO 1 frequency
66	(42 00)	LFO 1 delay
67	(43 00)	LFO 1 variation
68	(44 00)	LFO 1 amount
69	(45 00)	LFO 2 shape
70	(46 00)	LFO 2 frequency
71	(47 00)	LFO 2 delay
72	(48 00)	LFO 2 variation
73	(49 00)	LFO 2 amount
74	(4A 00)	aux delay
75	(4B 00)	aux attack
76	(4C 00)	aux hold
77	(4D 00)	aux decay

**MIDI SPECIFICATIONS****PRESET PARAMETERS (cont)**

Parameter#	(H)	Parameter Name
78	(4E 00)	aux sustain
79	(4F 00)	aux release
80	(50 00)	aux amount
81-86	(51 00-56 00)	key/vel source 1-6
87-92	(57 00-5C 00)	key/vel dest 1-6
93-98	(5D 00-62 00)	key/vel amount 1-6
99-106	(63 00-6A 00)	realtime source 1-8
107-114	(6B 00-72 00)	realtime dest 1-8
115-117	(73 00-75 00)	footswitch dest 1-3
118-121	(76 00-79 00)	controller amount A-D
122	(7A 00)	pressure amount
123	(7B 00)	pitch bend range
124	(7C 00)	velocity curve
125	(7D 00)	keyboard center
126	(7E 00)	submix ( <i>Use parm 128 on M. P. S.</i> )
127	(7F 00)	keyboard tuning

*(This is the last parameter transmitted if the ID is 04)*

128	(00 01)	effect buss assignment primary
129	(01 01)	effect buss assignment secondary
130	(02 01)	effect "A" type
131	(03 01)	effect "A" amount
132-141	(04 01-0D 01)	effect "A" parameter values
142	(0E 01)	effect "B" type
143	(0F 01)	effect "B" amount
144-153	(10 01-19 01)	effect "B" parameter values
154	(1A 01)	series effect feed amount

## MIDI SPECIFICATIONS

### GLOBAL/SETUP PARAMETERS

If the ID in the data requesting message is 04, then the first 4 parameters (basic channel through current preset) are sent 16 times to communicate the current multi-map. Other differences are that the extra setup parameters are not sent.

Parameter #	msb lsb	Parameter Name
256	(00 02)	MIDI basic channel
257	(01 02)	MIDI volume
258	(02 02)	MIDI pan
259	(03 02)	current preset
260	(04 02)	master tune
261	(05 02)	transpose
262	(06 02)	global pitch bend range
263	(07 02)	global velocity curve
264	(08 02)	MIDI mode
265	(09 02)	MIDI overflow
266-269	(0A 02- 0D 02)	controller A-D numbers
270-272	(0E 02-10 02)	footswitch 1-3 numbers
273	(11 02)	mode change enable
274	(12 02)	device ID number
275 *	(13 02)	global pressure amount
276 *	(14 02)	pedal routing
277 *	(15 02)	local control
278 *	(16 02)	receive program change
279 *	(17 02)	send program changes
280 *	(18 02)	send controllers
281-295 *	(19 02-27 02)	startup message characters #1-15
296 *	(28 02)	effect transition mode
384-399	(00 03- 0F 03)	MIDI channel enable
512-639	(00 04-7F 04)	MIDI program/preset map #1

### Program Mapping

MIDI program changes will normally correspond to internal preset numbers 0-127. If the current performance map option is set to 'Off' then Cosmo will respond to the MIDI bank select command. In addition, the user may "re-map" any MIDI program number, assigning it to an arbitrary internal preset. This feature allows any of the internal presets to be selected from a MIDI keyboard controller.

\* Not sent for Proteus ID (04)



**MIDI SPECIFICATIONS****PERFORMANCE MAP PARAMETERS**

<b>Parameter Number</b>	<b>Parameter Name</b>
1024-1033	map name (10 ASCII characters)
1034-1043	quick key preset assign (0-9 Zone 1)
1044-1053	quick key preset assign (0-9 Zone 2)
1054-1063	quick key preset assign (0-9 Zone 3)
1064-1073	quick key preset assign (0-9 Zone 4)
1074-1083	quick key MIDI prog. change (0-9 Zone 1)
1084-1093	quick key MIDI prog. change (0-9 Zone 2)
1094-1103	quick key MIDI prog. change (0-9 Zone 3)
1104-1113	quick key MIDI prog. change (0-9 Zone 4)
1114-1023	quick key MIDI channel # (0-9 Zone 1)
1024-1033	quick key MIDI channel # (0-9 Zone 2)
1034-1143	quick key MIDI channel # (0-9 Zone 3)
1144-1153	quick key MIDI channel # (0-9 Zone 4)
1154-1063	quick key MIDI low split pt. (0-9 Zone 1)
1064-1073	quick key MIDI low split pt. (0-9 Zone 2)
1074-1183	quick key MIDI low split pt. (0-9 Zone 3)
1184-1193	quick key MIDI low split pt. (0-9 Zone 4)
1194-1003	quick key MIDI high split pt. (0-9 Zone 1)
1104-1113	quick key MIDI high split pt. (0-9 Zone 2)
1114-1123	quick key MIDI high split pt. (0-9 Zone 3)
1124-1133	quick key MIDI high split pt. (0-9 Zone 4)
1134-1143	quick key preset volume (0-9 Zone 1)
1144-1153	quick key preset volume (0-9 Zone 2)
1154-1163	quick key preset volume (0-9 Zone 3)
1164-1173	quick key preset volume (0-9 Zone 4)
1174-1183	quick key preset pan (0-9 Zone 1)
1184-1193	quick key preset pan (0-9 Zone 2)
1194-1203	quick key preset pan (0-9 Zone 3)
1204-1213	quick key preset pan (0-9 Zone 4)
1214-1223	quick key octave transpose (0-9 Zone 1)
1224-1233	quick key octave transpose (0-9 Zone 2)
1234-1243	quick key octave transpose (0-9 Zone 3)
1244-1253	quick key octave transpose (0-9 Zone 4)
1254-1263	quick key control enable (0-9 Zone 1)
1264-1273	quick key control enable (0-9 Zone 2)
1274-1283	quick key control enable (0-9 Zone 3)
1284-1293	quick key control enable (0-9 Zone 4)

## MIDI SPECIFICATIONS

### PERFORMANCE MAP PARAMETERS (cont)

Parameter Number	Parameter Name
1394-1409	MIDI volume per channel (multimap)
1410-1425	MIDI pan per channel (multimap)
1426-1441	preset per channel (multimap)
1442	MIDI multi mode
1443-1458	receive program changes (16)
1459-1474	effect assign (16)
1475	effect A type
1476	effect A amount
1477-1486	effect A parameter values
1487	effect B type
1488	effect B amount
1489-1498	effect B parameter values
1499	series effect feed amount
1500	MIDI program -> preset map
1501-1504	MIDI command string channels
1505-1508	MIDI command string type
1509-1512	MIDI command string values

### Preset Data Request

Proteus Master Performance System presets are organized into banks. Each bank consists of 100 presets. Banks may be requested using the preset request command and the appropriate preset code listed below:

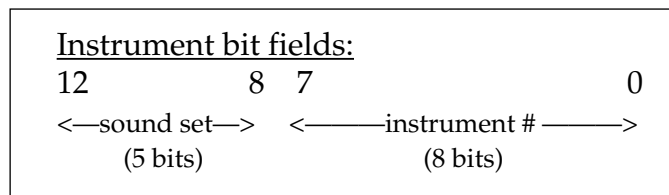
Bank	Preset	Requested Preset#	MIDI Message
0	0-99	1024 (0x400)	F0 18 id dd 00 00 08 F7
1	100-199	1025 (0x401)	F0 18 id dd 00 01 08 F7
2	200-299	1026 (0x402)	F0 18 id dd 00 02 08 F7

The original commands for requesting user presets (-1:100-199) and factory presets (-2:0-99) are still supported to retain compatibility with existing software.



## MIDI SPECIFICATIONS

In order to achieve this compatibility between different Proteus configurations, it is necessary to include the sound set number as part of the instrument number when exchanging data. The instrument number (as expressed over MIDI) now contains two fields: bits 8-12 specify the sound set (0-31) and bits 0-7 specify the instrument within the sound set (0-255). Since Proteus/1 contains sound set #0, compatibility with existing products is maintained.



Within any given sound set, the first instrument is #1. #0 selects None.

### Expanded Presets

An expanded Proteus/1 will contain additional factory presets in ROM. The additional presets can be uploaded using the “preset/bank request” command. The new presets will be in bank #3 (0x403) for non-XR, and bank #6 (0x406) for XR versions.

### Product ID

The product ID code is the same for all configurations.

### Configuration Message

A new MIDI command has been added to identify the sound sets in a given Proteus. The configuration request command is:

**F0 18 id dd 0C F7**

Proteus will respond to this command with the configuration message:

**F0 18 id dd 0D pl pm s1 l1 m1 s2 l2 m2 F7**

where pl and pm are the lsb and msb of the total number of presets, s1 and s2 are the ID numbers of the sound sets contained in this unit, and n1 = l1, m1 and n1 = l1, m1 represent the lsb and msb of the number of instruments in each sound set.

## MIDI SPECIFICATIONS

If no expansion set is present, s2 will be 7F and n2 will be zero. If the Proteus contains firmware earlier than version 2.10, no response will be given, and one can assume sound set #0. The current configurations are as follows:

Product	Sound Set(s)
Proteus/1	0
Proteus/2	1, 2
Proteus/1+	0, 2

### INSTRUMENT LIST

A new MIDI command has been added to allow external software to upload the instrument list as an array of ascii strings. The instrument list request command is: **F0 18 id dd 0E F7**

Proteus will respond to this command with the instrument list message:

**F0 18 id dd 0F (14 bytes per instrument) ... .. F7**

The instruments are transmitted in the same order they appear to the user on Proteus. Note that a given instrument's position in this list may be different from its actual number within the sound set.

**Instrument entry: il im (11 ASCII bytes) 00**

Each instrument entry in the list consists of the actual instrument number (as defined in "Sound Sets" above) in lsb, msb format, followed by the instrument name (11 ascii characters plus a zero terminator) for a total of 14 (decimal) bytes. The first instrument is #1 as displayed on Proteus. The total number of instrument names is equal to (n1 + n2) in the configuration message above. Proteus firmware earlier than version 2.10 will not respond to this command.

## **MIDI SPECIFICATIONS**

### **PRESET LIST**

A new MIDI command has been added to allow external software to upload all preset names as an array of ascii strings. The preset list request command is: **F0 18 id dd 12 F7**

Proteus will respond to this command with the preset list message:

**F0 18 id dd 13 (13 bytes per preset) ... .. F7**

Each preset name is 12 ascii characters, plus a zero terminator, for a total of 13 (decimal) bytes. The first preset is #0. The total number of preset names is equal to pp in the configuration message above. Proteus firmware earlier than version 2.10 will not respond to this command.

### **VARIABLE CHORUS**

Proteus firmware starting with version 2.10 features a variable chorus depth. The range of values is now 0 (Off) through 15, with a value of 7 corresponding to 1 (On) in Proteus/1. The MIDI parameter number is unchanged.

## **E-MU SYSTEMS PRODUCT WARRANTY**

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