

E-16

INTELLIGENT SYNTHESIZER

MIDI Implementation

E-16 INTELLIGENT SYNTHESIZER

1 Receive data

- Channel Voice Message -

■ Note off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 kk=Note number : 00H - 7FH (0 - 127)
 vv=Velocity : 00H - 7FH (0 - 127)

*Velocity is ignored.

■ Note on

Status	Second	Third
9nH	kkH	vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 kk=Note number : 00H - 7FH (0 - 127)
 vv=Velocity : 01H - 7FH (1 - 127)

■ Control change

Bank select

Status	Second	Third
BnH	00H(00)	mmH
BnH	20H(32)	llH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 mm=Bank number : 00H, - 7FH, (0 - 127)
 ll=Bank number : 00H, - 7FH, (0 - 127)

* see Table 1
 * "Bank select" is suspended until received "Program Change"

Modulation

Status	Second	Third
BnH	01H(01)	vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 vv=Modulation depth : 00H - 7FH (0 - 127)

Volume

Status	Second	Third
BnH	07H(07)	vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 vv=Volume : 00H - 7FH (0 - 127)

*You can adjust the volume of specified midi channel (part).

Panpot

Status	Second	Third
BnH	0AH(10)	vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 vv=Panpot : 00H(00) - 40H(64) - 7FH(127) (Left - Center - Right)

*Resolution of panpot is approx. 7-bit (127 steps).

Expression

Status	Second	Third
BnH	0BH(11)	vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 vv=Expression : 00H - 7FH (0 - 127)

*You can adjust the volume of specified channel(part).

Hold1

Status	Second	Third
BnH	40H(64)	vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 vv=Control Value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

Effect1 depth(Reverb send depth)

Status	Second	Third
BnH	5BH(91)	vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 vv=Reverb send depth : 00H - 7FH (0 - 127)

Effect3 depth(Chorus send depth)

Status	Second	Third
BnH	5DH(93)	vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 vv=Chorus send depth : 00H - 7FH (0 - 127)

Program change

Status	Second
CnH	ppH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 pp=Program number : 00H - 7FH (0 - 127)

* see Table 1

Pitch bend change

Status	Second	Third
EnH	llH	mmH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
 mm,ll=Value : 00H,00H - 40H,00H - 7FH,7FH (-8192 - 0 - +8191)

- Channel Mode Message -

Reset all controllers

Status	Second	Third
BnH	79H(121)	00H

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16

*When "reset all controllers" is received, the following controller value of specified midi channel return to default at power on.

Controller	Value
Hold1	0 (off)
Modulation	0 (off)
Panpot	40H (Center)
Expression	7FH (Maximum)
Pitch bender	(center)

All notes off

Status Second Third
BnH 7BH(123) 00H

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16

*When "All notes off" is received, all on state notes turn to off in the specified midi channel. However, sound remains when hold1 is ON.

OMNI OFF

Status Second Third
BnH 7CH(124) 00H

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16

*OMNI OFF is only recognized as "all notes off". Mode doesn't change.

OMNI ON

Status Second Third
BnH 7DH(125) 00H

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16

*OMNI ON is only recognized as "all notes off". Mode doesn't change.

MONO

Status Second Third
BnH 7EH(126) mmH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
mm=number of mono : 00H - 10H (0 - 16)

*MONO is only recognized as "all notes off". Mode doesn't change.

POLY

Status Second Third
BnH 7FH(127) 00H

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16

*POLY is only recognized as "all notes off". Mode doesn't change.

- System Real Time Message -

Active sensing

Status
FEH

*Having received "active sensing", E 16 expects the interval of any data up to 300 milli-second.
If the interval is over 360 milli-second, E 16 resets all controller and turns off the received notes from MIDI IN.

Sequencer start

Status
FAH

When "Sequencer start" is received the internal sequencer and/or the internal arranger starts.

Sequencer stop

Status
FCH

When "Sequencer stop" is received the internal sequencer and/or the internal arranger stops.

Timing clock

Status
F8H

When "Timing clock" is received the internal sequencer and/or the internal arranger are synchronized with an external clock.

- System Exclusive Message -

Status Data

F0H iiH,ddH,.....,eeH
F7H

F0H : System exclusive
ii=ID number : 41H (65)
dd,.....,ee=data : 00H - 7FH (0 - 127)
F7H : EOX (End of Exclusive System)

"GM and GS enter/exit" sys exe only are recognized!

The E-16 has not a full GS/GM compatibility, because the number of parts are 6 instead of 16.

When "GM or GS enter" system exclusive is received, E-16 will recognize as drum kit program change, every program change (Cn vv) received on midi channel 10 not preceded by bank select control change (*).

When "GM or GS exit" system exclusive is received, E-16 will recognize as style program change, every program change (Cn vv) received on midi channel 10 not preceded by bank select control change (*).

(*) At power-on every program change (Cn vv) received on midi channel 10, not preceded by bank select control change, is recognized as style program change to get old series compatibility.

F0 41 10 42 12 40 00 7F 00 41 F7 Enter GS mode
F0 7E 7F 09 01 F7 Enter GM mode

F0 41 10 42 12 40 00 7F 7F 42 F7 Exit GS mode
F0 7E 7F 09 02 F7 Exit GM mode

2 Transmit data

- Channel Voice Message -

■ Note off

Status Second Third
9nH kkH 00H

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
kk=Note number : 00H - 7FH (0 - 127)

■ Note on

Status Second Third
9nH kkH vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
kk=Note number : 00H - 7FH (0 - 127)
vv=Velocity : 01H - 7FH (1 - 127)

■ Control change

Bank select

Status Second Third
BnH 00H(00) mmH
BnH 20H(32) llH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
mm=Bank number : 00H, - 7FH, (0 - 127)
ll=Bank number : 00H, - 7FH, (0 - 127)

* see Table 1

Modulation

Status Second Third
BnH 01H(01) vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
vv=Modulation depth : 00H - 7FH (0 - 127)

Expression

Status Second Third
BnH 0BH(11) vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
vv=Expression : 00H - 7FH (0 - 127)

* Expression is transmitted if the message is recorded into
"recorder" from MIDI IN

Panpot

Status Second Third
BnH 0AH(10) vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
vv=Panpot : 00H(00) - 40H(64) - 7FH(127) (Left - Center - Right)

*Resolution of panpot is approx. 7-bit (127 steps).
Panpot is transmitted if the message is recorded into
"recorder" from MIDI IN

Hold1

Status Second Third
BnH 40H(64) vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
vv=Control Value : 00H - 7FH (0 - 127) 0-63=OFF 64-127=ON

Effect1 depth (Reverb send depth)

Status Second Third
BnH 5BH(91) vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
vv=Reverb send depth : 00H - 7FH (0 - 127)

Effect3 depth (Chorus send depth)

Status Second Third
BnH 5DH(93) vvH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
vv=Chorus send depth : 00H - 7FH (0 - 127)

Program change

Status Second
CnH ppH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
pp=Program number : 00H - 7FH (0 - 127)

* see Table 1

Pitch bend change

Status Second Third
EnH llH mmH

n=MIDI channel number : 0, 2, 3, 4, 7, 9, 15 0=ch.1 15=ch.16
mm,ll=Value : 00H,00H - 40H,00H - 7FH,7FH (-8192 - 0 - +8191)

- System Realtime Message -

Active sensing

Status
FEH

Active sense is always transmitted every 300 milli-second.

Sequencer start

Status
FAH

"Sequencer start" is transmitted if START/STOP button is pushed
and the internal sequencer/arranger is in STOP mode.

Sequencer stop

Status
FCH

"Sequencer stop" is transmitted if START/STOP button is pushed
and the internal sequencer/arranger is in START mode.

Timing clock

Status
F8H

"Timing clock" is always transmitted.

E-16 TONE MAPPING (Table 1)

Number of voices 1 : Single
1(VS) : Velocity Switch
2(D) : Dual
2(VM) : Velocity Mix
2(KO) : with Note Off sound

PC# / CC0		Tone Name	Number of Voices	Comment
piano				
1. 00H	/ 00H	Piano 1	1	
	/ 08H	Piano 1w	2(D)	Piano-1 with panning
	/ 10H	Piano 1d	1	Dark Piano-1
2. 01H	/ 00H	Piano 2	1	
	/ 08H	Piano 2w	2(D)	Piano-2 with Panning
3. 02H	/ 00H	Piano 3	1	
	/ 08H	Piano 3w	2(D)	Piano-3 with Panning
4. 03H	/ 00H	Honky-tonk	2(D)	
	/ 08H	Honky-tonk w	1	Honky-tonk with Panning
5. 04H	/ 00H	E.Piano 1	1	
	/ 08H	Detuned EP 1	2(D)	
	/ 10H	E.Piano 1v	2(VM)	
	/ 18H	60's E.Piano	1	
6. 05H	/ 00H	E.Piano 2	1	
	/ 08H	Detuned EP 2	2(D)	
	/ 10H	E.Piano 2v	2(VM)	
7. 06H	/ 00H	Harpsichord	1	
	/ 08H	Coupled Hps.	2(D)	
	/ 10H	Harpsi.w	2(D)	Harpsichord with Panning
	/ 18H	Harpsi.o	2(KO)	Harpsichord with key off sound
8. 07H	/ 00H	Clav.	1	
chromatic percussion				
9. 08H	/ 00H	Celesta	1	
10. 09H	/ 00H	Glockenspiel	1	
11. 0AH	/ 00H	Music Box	1	
12. 0BH	/ 00H	Vibraphone	1	
	/ 08H	Vib.w	2(D)	Vibraphone with Panning
13. 0CH	/ 00H	Marimba	1	
	/ 08H	Marimba w	2(D)	Marimba with Panning
14. 0DH	/ 00H	Xylophone	1	
15. 0EH	/ 00H	Tubular-bell	1	
	/ 08H	Church Bell	1	
	/ 09H	Carillon	1	Similar to Church Bell
16. 0FH	/ 00H	Santur	1	

organ

17.	10H / 00H	Organ 1	1
	/ 08H	Detuned Or.1	2(D)
	/ 10H	60's Organ 1	1
	/ 20H	Organ 4	2(D)
18.	11H / 00H	Organ 2	1
	/ 08H	Detuned Or.2	2(D)
	/ 20H	Organ 5	2(D)
19.	12H / 00H	Organ 3	2(D)
20.	13H / 00H	Church Org.1	1
	/ 08h	Church Org.2	2(D)
	/ 10h	Church Org.3	2(D)
21.	14H / 00H	Reed Organ	1
22.	15H / 00H	Accordion Fr	2(D)
	/ 08H	Accordion It	2(D)
23.	16H / 00H	Harmonica	1
24.	17H / 00H	Bandoneon	2(D)

guitar

25.	18H / 00H	Nylon-str.Gt	1
	/ 08H	Ukulele	1
	/ 10H	Nylon Gt.o	2(KO)
	/ 20H	Nylon Gt.2	1
26.	19H / 00H	Steel-str.Gt	1
	/ 08H	12-str.Gt	2(D)
	/ 10H	Mandolin	1\
27.	1AH / 00H	Jazz Gt.	1
	/ 08H	Hawaiian Gt.	1
28.	1BH / 00H	Clean Gt.	1
	/ 08H	Chorus Gt.	2(D)
29.	1CH / 00H	Muted Gt.	1
	/ 08H	Funk Gt.	1
	/ 10H	Funk Gt.2	1(VS)
30.	1DH / 00H	Overdrive Gt	1
31.	1EH / 00H	DistortionGt	1
	/ 08H	Feedback Gt.	2(D)
32.	1FH / 00H	Gt.Harmonics	1
	/ 08H	Gt. Feedback	1

bass

33.	20H / 00H	Acoustic Bs.	1
34.	21H / 00H	Fingered Bs.	1
35.	22H / 00H	Picked Bs.	1
36.	23H / 00H	Fretless Bs.	1
37.	24H / 00H	Slap Bass 1	1
38.	25H / 00H	Slap Bass 2	1
39.	26H / 00H	Synth Bass 1	1
	/ 01H	SynthBass101	1
	/ 08H	Synth Bass 3	1
40.	27H / 00H	Synth Bass 2	2(D)
	/ 08H	Synth Bass 4	2(D)
	/ 10H	Rubber Bass	2(D)

strings & orchestral instruments

41.	28H / 00H	Violin	1
	/ 08H	Slow Violin	1
42.	29H / 00H	Viola	1
43.	2AH / 00H	Cello	1
44.	2BH / 00H	Contrabass	1
45.	2CH / 00H	Tremolo Str	1
46.	2DH / 00H	PizzicatoStr	1
47.	2EH / 00H	Harp	1
48.	2FH / 00H	Timpani	1

ensemble

49.	30H / 00H	Strings	1
	/ 08H	Orchestra	2(D)
50.	31H / 00H	Slow Strings	1
51.	32H / 00H	Syn.Strings1	1
	/ 08H	Syn.Strings3	2(D)
52.	33H / 00H	Syn.Strings2	2(D)
53.	34H / 00H	Choir Aahs	1
	/ 20H	Choir Aahs 2	1
54.	35H / 00H	Voice Oohs	1
55.	36H / 00H	SynVox	1
56.	37H / 00H	OrchestraHit	2(D)

brass

57.	38H / 00H	Trumpet	1
58.	39H / 00H	Trombone	1
	/ 01H	Trombone 2	2(D)
59.	3AH / 00H	Tuba	1
60.	3BH / 00H	MutedTrumpet	1
61.	3CH / 00H	French Horn	2(D)
	/ 01H	French Horn 2	2(D)
62.	3DH / 00H	Brass 1	1
	/ 08H	Brass 2	2(D)
63.	3EH / 00H	Synth Brass1	2(D)
	/ 08H	Synth Brass3	2(D)
	/ 10H	AnalogBrass1	2(D)
64.	3FH / 00H	Synth Brass2	2(D)
	/ 08H	Synth Brass4	1
	/ 10H	AnalogBrass2	2(D)

reed

65.	40H / 00H	Soprano Sax	1
66.	41H / 00H	Alto Sax	1
67.	42H / 00H	Tenor Sax	1
68.	43H / 00H	Baritone Sax	1
69.	44H / 00H	Oboe	1
70.	45H / 00H	English Horn	1
71.	46H / 00H	Bassoon	1
72.	47H / 00H	Clarinet	1

pipe

73.	48H / 00H	Piccolo	1
74.	49H / 00H	Flute	1
75.	4AH / 00H	Recorder	1
76.	4BH / 00H	Pan Flute	1
77.	4CH / 00H	Bottle Blow	2(D)
78.	4DH / 00H	Shakuhachi	2(D)
79.	4EH / 00H	Whistle	1
80.	4FH / 00H	Ocarina	1

synth lead

81.	50H / 00H	Square Wave	2(D)
	/ 01H	Square	1
	/ 08H	Sine Wave	1
82.	51H / 00H	Saw Wave2(D)	
	/ 01H	Saw	1
	/ 08H	Doctor Solo	2(D)
83.	52H / 00H	Syn.Calliope	2(D)
84.	53H / 00H	Chiffer Lead	2(D)
85.	54H / 00H	Charang	2(D)
86.	55H / 00H	Solo Vox2(D)	
87.	56H / 00H	5th Saw Wave	2(D)
88.	57H / 00H	Bass & Lead	2(D)

synth pad

89.	58H / 00H	Fantasia	2(D)
90.	59H / 00H	Warm Pad	1
91.	5AH / 00H	Polysynth	2(D)
92.	5BH / 00H	Space Voice	1
93.	5CH / 00H	Bowed Glass	2(D)
94.	5DH / 00H	Metal Pad	2(D)
95.	5EH / 00H	Halo Pad	2(D)
96.	5FH / 00H	Sweep Pad	1

synth sfx

97.	60H / 00H	Ice Rain	2(D)
98.	61H / 00H	Soundtrack	2(D)
99.	62H / 00H	Crystal	2(D)
	/ 01H	Syn Mallet	1
100.	63H / 00H	Atmosphere	2(D)
101.	64H / 00H	Brightness	2(D)
102.	65H / 00H	Goblin	2(D)
103.	66H / 00H	Echo Drops	1
	/ 01H	Echo Bell	2(D)
	/ 02H	Echo Pan	2(D)
104.	67H / 00H	Star Theme	2(D)

ethnic misc

105.	68H / 00H	Sitar	1
	/ 01H	Sitar 2	2(D)
106.	69H / 00H	Banjo	1
107.	6AH / 00H	Shamisen	1
108.	6BH / 00H	Koto	1
	/ 08H	Taisho Koto	2(D)
109.	6CH / 00H	Kalimba	1
110.	6DH / 00H	Bag Pipe	1
111.	6EH / 00H	Fiddle	1
112.	6FH / 00H	Shanai	1

percussive

113.	70H / 00H	Tinkle Bell	1
114.	71H / 00H	Agogo	1
115.	72H / 00H	Steel Drums	1
116.	73H / 00H	Woodblock	1
	/ 08H	Castanets	1
117.	74H / 00H	Taiko	1
	/ 08H	Concert BD	1
118.	75H / 00H	Melo. Tom 1	1
	/ 08H	Melo. Tom 2	1
		Similar to Melo.Tom1	
119.	76H / 00H	Synth Drum	1
	/ 08H	808 Tom	1
	/ 09H	Elec Perc	1
120.	77H / 00H	Reverse Cym.	1

sfx

121.	78H / 00H	Gt.FretNoise	1
	/ 01H	Gt.Cut Noise	1
	/ 02H	String Slap	1
122.	79H / 00H	Breath Noise	1
	/ 01H	Fl.Key Click	1
123.	7AH / 00H	Seashore	1
	/ 01H	Rain	1
	/ 02H	Thunder	1
	/ 03H	Wind	1
	/ 05H	Bubbl	2(D)
124.	7BH / 00H	Bird	2(D)
	/ 01H	Dog	1
	/ 02H	Horse-Gallop	1
	/ 03H	Bird 2	1
125.	7CH / 00H	Telephone 1	1
	/ 01H	Telephone 2	1
	/ 02H	DoorCreaking	1
	/ 03H	Door	1
	/ 04H	Scratch	1
126.	7DH / 00H	Helicopter	1
	/ 01H	Car-Engine	1
	/ 02H	Car-Stop	1
	/ 03H	Car-Pass	1
	/ 04H	Car-Crash	2(D)
	/ 05H	Siren	1
	/ 06H	Train	1
	/ 07H	Jetplane	2(D)
	/ 08H	Starship	2(D)
	/ 09H	Burst Noise	2(D)
127.	7EH / 00H	Applause	2(D)
	/ 02H	Screaming	1
	/ 03H	Punch	1
	/ 04H	Heart Beat	1
	/ 05H	Footsteps	1
128.	7FH / 00H	Gun Shot	1
	/ 01H	Machine Gun	1
	/ 02H	Lasergun	1
	/ 03H	Explosion	2(D)

* Style program change *

A Style is selected by the message : BnH 00H mmH BnH 20H iiH CnH ppH

Bn 00 Bn 20 Cn pp

01H	05H	pph ;	11 ROCK1	(ROCK1	E-70	)
01H	06H	pph ;	12 ROCK2	(ROCK2	E-70	)
21H	01H	pph ;	13 RAP1	(RAP	E-70	)
02H	04H	pph ;	14 DANCE1	(DANCE	E-70	)
03H	03H	pph ;	15 FUNK1	(FUNK1	E-70	)
03H	04H	pph ;	16 FUNK2	(FUNK2	E-70	)
04H	04H	pph ;	17 BALLAD1	(BALLAD2	E-70	)
05H	06H	pph ;	18 SL ROCK1	(SL ROCK4	TN-SC2-05)	)
06H	03H	pph ;	21 8BEAT1	(8BEAT1	E-70	)
06H	04H	pph ;	22 8BEAT2	(8BEAT2	E-70	)
07H	04H	pph ;	23 16BEAT1	(16BEAT1	E-70	)
07H	05H	pph ;	24 16BEAT2	(16BEAT2	E-70	)
08H	03H	pph ;	25 REGGAE1	(REGGAE	E-70	)
0AH	08H	pph ;	26 ROCK'N	(ROCK'N4	TN-SC2-05)	)
0AH	0CH	pph ;	27 TWIST1	(TWIST2	TN-SC2-05)	)
0BH	01H	pph ;	28 DIXIE1	(DIXIE	E-70	)
0DH	01H	pph ;	31 SL SWING1	(SL SWING1	E-70	)
0CH	02H	pph ;	32 SWING1	(SWING	E-70	)
0FH	02H	pph ;	33 SHUFFLE1	(SHUFFLE	E-70	)
10H	02H	pph ;	34 COUNTRY1	(COUNTRY	E-70	)
12H	02H	pph ;	35 SL WALTZ1	(SL WALTZ	E-70	)
11H	05H	pph ;	36 WALTZ	(WALTZ	E-70	)

Values of ppH

00H	Original Basic
01H	Original Advanced
08H	Variation Basic
09H	Variation Advanced
40H	Intro Basic
41H	Intro Advanced
48H	Ending Basic
49H	Ending Advanced
58H	Fill in to Original Basic
59H	Fill in to Original Advanced
60H	Fill in to variation Basic
61H	Fill in to variation Advanced
70H	Break Mute
50H	Fill in to Variation <-
51H	Fill in to Original <-
52H	Intro <- Old series compatibility
53H	Ending <-
54H	Break Mute <-

E-16 list of Drum sets

Prog# : Drum Set

1	(00h) : Standard set
9	(08h) : Room Set
17	(10h) : Power Set
25	(18h) : Electronic Set
26	(19h) : TR-808 Set
33	(20h) : Jazz Set
41	(28h) : Brush Set
49	(30h) : Orchestra Set
57	(38h) : SFX set

Std. set / Room/Jazz set 00H / 08H / 20H	Power set 10H	Elec set 18H	TR-808 set 19H	Brush set 28H	Orchestra set 30H	SFX set 38H
D#1 (27) High Q					Closed Hi-Hat [EXC1]	-
E1 (28) Slap					Pedal Hi-Hat [EXC1]	-
F1 (29) Scratch Push					Open Hi-Hat [EXC1]	-
F#1 (30) Scratch Pull					Ride Cymbal	-
G1 (31) Sticks						-
G#1 (32) Square Click						-
A1 (33) Metronome Click						-
A#1 (34) Metronome Bell						-
B1 (35) Kick Drum 2					Concert BD 2	-
C2 (36) Kick Drum 1	MONDO Kick	Elec BD	808 Bass Drum		Concert BD 1	-
C#2 (37) Side Stick			808 Rim Shot			-
D2 (38) Snare Drum 1	Gated SD	Elec SD	808 Snare Drum	Brush Swish	Concert SD	-
D#2 (39) Hand Clap				Brush Slap	Castanets	High Q
E2 (40) Snare Drum 2		Gated SD		Brush Swirl	Concert SD	Slap
F2 (41) Low Tom 2		Elec Low Tom 2	808 Low Tom 2		Timpani F	Scratch Push
F#2 (42) Closed Hi-Hat [EXC1]			808 CHH [EXC1]		Timpani F#	Scratch Pull
G2 (43) Low Tom 1		Elec Low Tom 1	808 Low Tom 1		Timpani G	Sticks
G#2 (44) Pedal Hi-Hat [EXC1]			808 CHH [EXC1]		Timpani G#	Square Click
A2 (45) Mid Tom 2		Elec Midi Tom 2	808 Midi Tom 2		Timpani A	Metronome Click
A#2 (46) Open Hi-Hat [EXC1]			808 0HH [EXC1]		Timpani A#	Metronome Bell
B2 (47) Mid Tom 1		Elec Midi Tom 1	808 Midi Tom 1		Timpani B	Guitar Sliding Finger
C3 (48) High Tom 2		Elec Hi Tom 2	808 Hi Tom 2		Timpani c	Guitar cutting noise (down)
C#3 (49) Crash Cymbal 1			808 Cymbal		Timpani c#	Guitar cutting noise (up)
D3 (50) High Tom 1		Elec Hi Tom 1	808 Hi Tom 1		Timpani d	String Slap of double bass
D#3 (51) Ride Cymbal 1					Timpani d#	Key Click
E3 (52) Chinese Cymbal		Reverse Cymbal			Timpani e	-
F3 (53) Ride Bell					Timpani f	Screaming
F#3 (54) Tambaurine						Punch
G3 (55) Splash Cymbal						Heart Beat
G#3 (56) Cowbell			808 Cowbell			Footsteps 1
A3 (57) Crash Cymbal 2					Concert Cymbal 2	Footsteps 2
A#3 (58) Vibra-slap						Applause
B3 (59) Ride Cymbal 2					Concert Cymbal 1	Door Creaking
C4 (60) High Bongo						Door
C#4 (61) Low Bongo						Scratch
D4 (62) Mute High Conga			808 Hi Conga			-
D#4 (63) Open High Conga			808 Mid Conga			Car-Engine
E4 (64) Low Conga			808 Low Conga			Car-Stop
F4 (65) High Timbale						Car-Pass
F#4 (66) Low Timbale						Car-Crash
G4 (67) High Agogo						Siren
G#4 (68) Low Agogo						Train
A4 (69) Cabasa						Jetplane
A#4 (70) Maracas			808 Maracas			Helicopter
B4 (71) Short Hi-Whistle [EXC2]						Starship
C5 (72) Long Low Whistle [EXC2]						Gun Shot
C#5 (73) Short Guiro [EXC2]						Machinegun
D5 (74) Long Guiro [EXC2]						Lasergun
D#5 (75) Claves			808 Claves			Explosion
E5 (76) High Wood Block						Dog
F5 (77) Low Wood Block						Horse-Gallop
F#5 (78) Mute Cuica [EXC4]						Birds
G5 (79) Open Cuica [EXC4]						Rain
G#5 (80) Mute Triangle [EXC4]						Thunder
A5 (81) Open Triangle [EXC4]						Wind
						Sea Shore
A#5 (82) Shaker						-
B5 (83) Jingle Bell						Bubble
C6 (84) Belltree						-
C#6 (85) Castanets						-
D6 (86) Mute Surdo [EXC6]						-
D#6 (87) Open Surdo [EXC6]					Applause	-
E6 (88) -						

*** NOTES ***

The blank position has the same instrument of "Standard set".

" - " means "empty".

Some instruments with [EXC?], when number is same, mutes each other

MIDI IMPLEMENTATION CHART

[INTELLIGENT SYNTHESIZER]
Model E-16

Date: February 1993
Version: 1.00

FUNCTION		TRANSMITTED	RECOGNIZED	REMARKS
Basic	Default	1-3-4-5-8-10-16	1-3-4-5-8-10-16	1=Accomp. 2 3=Lower 4=Upper 5=Accomp. 1, Accomp 3 8=Acc. Bass 10=Man. Drums, Acc. Drums, Style Pg. Ch. 16=Note to arr.
Channel	Changed	X	X	Midi channels are unchangeable
Mode	Default Messages Altered	X X * * * * *	Mode 3 X X	*1 *1
Note Number:	True voice	0-127 * * * * *	0-127 0-127	
Velocity	Note ON Note OFF	O X	O X	
After Touch	Key's Ch's	X X	X X	
Pitch Bender		O	O	Resolution: 12 bit
Control Change	0,32 1 7 10 11 64 91 93 121	O O X *2 *2 O O O O X	O (MSB only) O O O O O O (Reverb) O (Chorus) O	Bank select Modulation Volume Panpot Expression Hold 1 Effect 1 depth Effect 3 depth Reset all controllers
Program change:	True #	O * * * * *	O 1-128	
System Exclusive		X	O	*3
System Common	: Song Pos : Song Sel : Tune	X X X	X X X	
System Real Time	: Clock : Commands	O O (FA, Fc)	O O (FA, Fc)	
Aux Messages	: Local ON/OFF : All Notes OFF : Active Sense : Reset	X X O X	X O (123-127) O X	
Notes *1 Recognized as "all note off" *2 Transmitted if recorded into the recorder. *3 "GM and GS enter / exit" sys exe only are recognized.				

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

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

O: YES
X: NO