

S03

MUSIC SYNTHESIZER

DATA LIST

DATEN-LISTE

LISTE DE DONNÉES

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YAMAHA
MUSIC SYNTHESIZER
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S03 Normal Voice List

PRESET

Bank Select MSB=63, LSB=0

No.	Category	Voice Name	Variation Type	Element Switch			
				1	2	3	4
1	Pf	StPiano1	2Band EQ	on	on	on	on
2	Pf	StPiano2	2Band EQ	on	on	on	on
3	Pf	WarmStPf	Early Ref1	on	on		
4	Pf	Dark Pf	3Band EQ	on			
5	Pf	Mono Pf	3Band EQ	on			
6	Pf	Dance Pf	2Band EQ	on	on		
7	Pf	Pf+Road	Celeste1	on	on	on	
8	Pf	Pf+DxEp	Chorus1	on	on	on	
9	Pf	StPf+Str	2Band EQ	on	on	on	on
10	Pf	StPf+Pad	2Band EQ	on	on	on	on
11	Pf	Honky Pf	3Band EQ	on	on		
12	Pf	Montuno	Gate Reverb	on	on	on	
13	Pf	Brite Pf	3Band EQ	on			
14	Pf	CP80	3Band EQ	on			
15	Pf	FlangeCP	Flanger1	on			
16	Pf	CP80+DX	Celeste1	on	on		
17	Pf	NtrlRoad	3Band EQ	on	on	on	
18	Pf	SoftRoad	3Band EQ	on			
19	Pf	Mid Road	3Band EQ	on	on	on	
20	Pf	CrstRoad	2Band EQ	on	on		
21	Pf	StereoEP	2Band EQ	on	on		
22	Pf	Pan EP	Auto Pan	on	on	on	
23	Pf	PhaserEP	Phaser1	on	on	on	
24	Pf	Wurli	2Band EQ	on			
25	Pf	AmpWurli	Amp Simulator	on			
26	Pf	AtkWurli	Celeste4	on	on		
27	Pf	Fulltline	3Band EQ	on	on		
28	Pf	TX816	Chorus1	on	on	on	on
29	Pf	ToneBars	3Band EQ	on	on		
30	Pf	Urban DX	3Band EQ	on			
31	Pf	Dream EP	Auto Pan	on	on		
32	Pf	DXEP+Pad	2Band EQ	on	on	on	
33	Pf	Dx+Road	3Band EQ	on	on	on	on
34	Pf	CP30	Phaser2	on	on		
35	Pf	Wah EP	Auto Wah	on	on	on	
36	Pf	GranHrps	Early Ref1	on	on		
37	Pf	PhazClav	Phaser2	on			
38	Pf	Wah Clav	Auto Wah	on			
39	Cp	CrystBel	Symphonic	on	on		
40	Cp	PetitBel	Chorus2	on	on	on	
41	Cp	ST Bell	Delay L.C.R	on	on	on	
42	Cp	MeloVibe	Tremolo	on			
43	Cp	EurpTubl	Echo	on			
44	Cp	Kalimba	Early Ref2	on	on		
45	Or	Rock	Rotary Speaker	on	on	on	
46	Or	Full 4	Rotary Speaker	on	on	on	on
47	Or	Feet	Rotary Speaker	on	on	on	on
48	Or	FastOrgn	Rotary Speaker	on	on	on	on
49	Or	Drive	2Band EQ	on	on		
50	Or	Warm	Celeste1	on	on	on	
51	Or	Swish	2Band EQ	on	on		
52	Or	Ballad	Celeste1	on	on	on	
53	Or	Gospel	Rotary Speaker	on	on	on	on
54	Or	Soul	Phaser2	on	on		
55	Or	TopBotom	Celeste4	on	on	on	
56	Or	Slow	Rotary Speaker	on	on	on	on
57	Or	Cool !	Room2	on			
58	Or	4 Bars	Rotary Speaker	on	on	on	on
59	Or	4Bar+Prc	Rotary Speaker	on	on	on	on
60	Or	RockPerc	Celeste4	on	on	on	on
61	Or	JazzPerc	No Effect	on	on	on	
62	Or	Dist	OverDrive	on	on	on	on
63	Or	BassWalk	Rotary Speaker	on	on	on	
64	Or	Falf	Amp Simulator	on			

No.	Category	Voice Name	Variation Type	Element Switch			
				1	2	3	4
65	Or	FuzFalF	Amp Simulator	on			
66	Or	VxOrgan	2Band EQ	on			
67	Or	Dance	2Band EQ	on	on	on	
68	Or	Pipes	2Band EQ	on	on	on	on
69	Or	Church	2Band EQ	on	on		
70	Or	Cathedrl	Hall1	on	on	on	
71	Gt	Nylon	3Band EQ	on			
72	Gt	Steel	3Band EQ	on			
73	Gt	12 Strng	2Band EQ	on	on		
74	Gt	AttackAG	Early Ref1	on	on		
75	Gt	Clean	Echo	on	on		
76	Gt	Dist	Amp Simulator	on	on	on	
77	Gt	AltPower	OverDrive	on	on	on	on
78	Gt	DistSolo	Amp Simulator	on			
79	Gt	Pwr Dist	Amp Simulator	on	on		
80	Gt	Cry-Wow	Auto Wah	on	on		
81	Ba	VelFingr	2Band EQ	on	on		
82	Ba	Amped RW	Amp Simulator	on	on		
83	Ba	FuzzPick	Amp Simulator	on			
84	Ba	VelSlap	2Band EQ	on	on		
85	Ba	SoftSlap	OverDrive	on	on		
86	Ba	HardSlap	Distortion	on	on		
87	Ba	MeloFrls	Flanger1	on	on		
88	Co	PadFrls	Chorus3	on	on	on	
89	Co	G&B Unsn	Flanger1	on	on	on	on
90	Co	Frls&CIG	Celeste1	on	on		
91	St	Rich St	2Band EQ	on	on	on	
92	St	Stereo 1	2Band EQ	on	on		
93	St	Stereo 2	2Band EQ	on	on		
94	St	Presto	2Band EQ	on	on		
95	St	Overture	2Band EQ	on	on		
96	St	Small	2Band EQ	on	on	on	
97	St	Quartet	Early Ref2	on	on	on	on
98	St	CelloSol	Early Ref2	on			
99	St	Solo Bow	2Band EQ	on	on	on	
100	St	Pizz Oct	2Band EQ	on	on		
101	St	OrchHarp	3Band EQ	on			
102	St	Symphony	2Band EQ	on	on	on	on
103	St	Filharmoni	2Band EQ	on	on	on	on
104	St	Tape Str	2Band EQ	on			
105	Pd	Oooo	2Band EQ	on	on		
106	Pd	OooAah	Chorus4	on	on	on	
107	Pd	OohLR	Flanger3	on	on		
108	Pd	OooWarm	Flanger3	on	on		
109	Pd	Mixed	No Effect	on	on		
110	Pd	5thVoice	Chorus4	on	on		
111	Pd	SwellChr	Phaser1	on	on	on	on
112	Pd	CmpChoir	2Band EQ	on			
113	Pd	Itopia	Chorus4	on			
114	Pd	Padpia	Chorus4	on			
115	Br	BriteSec	2Band EQ	on	on		
116	Br	Warm Sec	2Band EQ	on	on		
117	Br	Big Sect	2Band EQ	on	on	on	on
118	Br	SmallSec	Gate Reverb	on	on	on	on
119	Br	7th 11th	Gate Reverb	on	on	on	on
120	Br	FrenchHr	Room2	on	on	on	
121	Br	Real&Syn	2Band EQ	on	on	on	on
122	Br	Solo Tp	Early Ref1	on			
123	Br	SoloMute	Reverse Gate	on			
124	Rp	MeloSop	Delay L.R	on			
125	Rp	Alto	3Band EQ	on			
126	Rp	SoftTnr	OverDrive	on			
127	Rp	NtrHarmo	Delay L.R	on			
128	Rp	AndesPan	Delay L.R	on	on		

USER

Bank Select MSB=63, LSB=8

No.	Category	Voice Name	Variation Type	Element Switch			
				1	2	3	4
1	St	Synth St	2Band EQ	on	on		
2	St	Pro-Ana	Phaser2	on	on		
3	St	AnaStrg1	2Band EQ	on	on		
4	St	AnaStrg2	2Band EQ	on	on	on	
5	St	SynCh&St	Flanger3	on	on	on	
6	St	Rich Oct	2Band EQ	on	on	on	on
7	St	SynSymph	Gate Reverb	on	on	on	on
8	St	Solings	Symphonic	on	on		
9	Pd	Over Pad	Chorus4	on	on		
10	Pd	Soft Syn	2Band EQ	on	on		
11	Pd	Pulse	Phaser1	on	on		
12	Pd	JunePad	2Band EQ	on	on		
13	Pd	SoftSaw	Chorus1	on	on		
14	Pd	CSBrssPd	Delay L.R	on	on		
15	Pd	Warmer	Chorus2	on	on		
16	Pd	Unstable	Chorus4	on	on		
17	Pd	Sine Pad	Chorus4	on	on		
18	Pd	Tri Pad	Delay L.R	on	on		
19	Pd	Silent	Phaser2	on	on	on	on
20	Pd	4D-Space	Phaser2	on	on		
21	Pd	Sunbeams	Chorus3	on	on	on	
22	Pd	Expand	Chorus1	on	on	on	
23	Pd	SoliPhaz	Phaser1	on	on		
24	Pd	Bright	Celeste2	on	on		
25	Pd	Fantasia	3Band EQ	on	on	on	on
26	Pd	FingOrgn	Flanger1	on	on	on	on
27	Pd	OuterSpc	Chorus1	on	on	on	
28	Pd	Whisper	Flanger2	on	on	on	
29	Pd	DigiAna	Symphonic	on	on	on	
30	Pd	ObrDrone	2Band EQ	on	on	on	
31	Pd	GrandP&M	3Band EQ	on	on		
32	Pd	Crystal	2Band EQ	on	on		
33	Br	CS80	Symphonic	on	on		
34	Br	VntgAna1	Early Ref1	on	on		
35	Br	VntgAna2	Gate Reverb	on	on		
36	Br	SquSaw	2Band EQ	on	on		
37	Br	WarmSyn	2Band EQ	on	on		
38	Br	Reso Syn	Echo	on	on		
39	Br	Dark Syn	3Band EQ	on	on		
40	Br	Over Hrn	2Band EQ	on	on		
41	Br	J Stabs	2Band EQ	on	on		
42	Br	Pure Syn	Delay L.R	on	on	on	on
43	Br	NewRoman	Symphonic	on	on		
44	Br	Oct Syn	Echo	on	on		
45	Br	Syn Tp	Delay L.R	on	on		
46	Ba	EleSynBs	Phaser1	on	on		
47	Ba	CS Unisn	2Band EQ	on	on		
48	Ba	DX Hard	Flanger1	on	on		
49	Ba	Mg Funk	2Band EQ	on	on		
50	Ba	J Square	2Band EQ	on	on		
51	Ba	Min Ana	2Band EQ	on	on		
52	Ba	Min Fat	2Band EQ	on	on		
53	Ba	Wound	Chorus1	on	on		
54	Ba	Smooth	3Band EQ	on	on		
55	Ba	PhatRamp	3Band EQ	on	on		
56	Ba	Happy	3Band EQ	on	on		
57	Ba	Travel	Phaser2	on	on		
58	Ba	Phat50%	3Band EQ	on	on		
59	Ba	HipOct1	2Band EQ	on	on		
60	Ba	HipOct2	2Band EQ	on	on		
61	Ba	DarkHip	2Band EQ	on	on		
62	Ba	Maximum	Distortion	on	on		
63	Ba	FunkVox	2Band EQ	on	on	on	
64	Ba	BottomUp	2Band EQ	on	on		

No.	Category	Voice Name	Variation Type	Element Switch			
				1	2	3	4
65	Ld	Saw	Delay L.C.R	on			
66	Ld	DarkSync	Phaser1	on			
67	Ld	BritSync	Echo	on	on		
68	Ld	SP Sync	3Band EQ	on			
69	Ld	Porta Ld	Delay L.R	on	on		
70	Ld	Squ-Mono	Delay L.R	on	on		
71	Ld	Pulse	Phaser1	on			
72	Ld	Reminis	Echo	on			
73	Ld	Magical	Echo	on	on	on	on
74	Ld	BritReso	Chorus4	on	on		
75	Ld	LandMoon	Flanger1	on	on		
76	Ld	DigiVox	3Band EQ	on	on		
77	Ld	LowCut!	3Band EQ	on			
78	Ld	Dgtalian	3Band EQ	on	on		
79	Ld	SynHarmo	Delay L.R	on	on		
80	Ld	WarmSolo	Delay L.R	on	on		
81	Ld	DistReso	Distortion	on			
82	Me	GranBlue	Delay L.R	on	on	on	on
83	Me	Spiral	Flanger	on	on	on	on
84	Me	Phantom	Flanger3	on	on	on	on
85	Me	Emperor	Chorus4	on	on	on	on
86	Me	TimeTrvl	Flanger2	on	on	on	
87	Me	EastWind	Celeste4	on	on	on	
88	Me	Ripple	Phaser2	on	on	on	
89	Me	Maya	2Band EQ	on	on	on	
90	Me	GlassChr	Chorus4	on	on	on	on
91	Me	Electro	Phaser1	on	on		
92	Me	Jet	Phaser2	on	on		
93	Me	Aqua	Celeste4	on	on	on	on
94	Me	TinMellw	Delay L.R	on	on	on	
95	Me	Ancient	Cross Delay	on	on	on	
96	Me	Cloudy	Chorus2	on	on		
97	Sc	SynPfcmp	Delay L.R	on	on		
98	Sc	SynBrCmp	Early Ref1	on	on		
99	Sc	SynVcCmp	Dealy L.R	on	on		
100	Sc	SynMalet	Echo	on	on		
101	Sc	SynMrmba	Echo	on	on	on	
102	Sc	SynCrstl	Celeste1	on	on		
103	Sc	UrbnGard	Reverse Gate	on	on	on	
104	Sc	SynVox	Echo	on	on		
105	Sc	Oriental	Echo	on	on		
106	Sc	WoodyCmp	Delay L.C.R	on	on		
107	Sc	PulseSeq	Delay L.R	on	on		
108	Sc	HappyVox	Cross Delay	on	on	on	
109	Sc	FMClkOrg	2Band EQ	on	on		
110	Sc	FM Compy	Early Ref1	on	on		
111	Sc	Planet	Flanger3	on	on		
112	Se	Big Hit	Gate Reverb	on	on	on	on
113	Se	Industry	Phaser2	on	on	on	
114	Se	Scream	Distortion	on	on		
115	Se	Spring	Flanger3	on	on	on	
116	Se	Haunted	Delay L.R	on	on	on	on
117	Se	SpceShip	Phaser1	on	on		
118	Se	Increase	Distortion	on	on		
119	Se	a Blow	Distortion	on	on		
120	Se	Fire	Distortion	on	on		
121	Dr	BassPerc	2Band EQ	on	on		
122	Co	PianoCmb	Gate Reverb	on	on	on	on
123	Co	EG Combo	Early Ref1	on	on	on	on
124	Co	IndiaSet	Early Ref2	on	on	on	on
125	Co	AsianSet	Early Ref2	on	on	on	on
126	Co	JamicSet	Early Ref2	on	on		
127	Co	AfrcaSet	Early Ref1	on	on	on	
128	Co	MdEstSet	Gate Reverb	on	on	on	on

Drum Voice List

Bank Select LSB=0

Bank MSB#				127	127	127	127	127	127	127	127	127	127	127
Program #				1	2	9	17	25	26	28	33	41	49	
Note#	Note	Key off	Alternate assign	StdKit1 (Standard Kit)	StdKit2 (Standard2 Kit)	Room Kit	Rock Kit	ElctrKit (Electro Kit)	AnalgKit (Analog Kit)	Dance Kit	Jazz Kit	Brush Kit	SymphKit (Symphony Kit)	
13	C#-1		3	Surdo Mute										
14	D-1		3	Surdo Open										
15	D-1#			Hi Q										
16	E-1			Whip Slap										
17	F-1		4	Scratch H										
18	F#-1		4	Scratch L										
19	G-1			Finger Snap										
20	G#-1			Click Noise										
21	A-1			Mtrnm Click										
22	A#-1			Mtrnm Bell										
23	B-1			Seq Click L										
24	C0			Seq Click H										
25	C#0			Brush Tap										
26	D0	O		Brush Swirl										
27	D#0			Brush Slap										
28	E0	O		BrushTapSwrl				ReversCymbal	ReversCymbal	ReversCymbal				
29	F0	O		Snare Roll										
30	F#0			Castanet				Hi Q 2	Hi Q 2	Hi Q 2				
31	G0			Snare Soft	Snare Soft 2		Snare Noisy	SnrSnpyElctr	SnareNoisy 4	Snare Techno	Snare Jazz H	Brush Slap 2		
32	G#0			Sticks										
33	A0			Kick Soft				Kick 3	Kick 3	KickTechno Q			Kick Soft 2	
34	A#0			OpenRimShot	RimShotHShrt					Rim Gate		RimShotLight		
35	B0			Kick Tight			Kick 2	Kick Gate	KickAnlgShrt	KickTechno L			Gran Cassa	
36	C1			Kick	Kick Short		Kick Gate	KckGateHeavy	Kick Analog	KickTechno 2	Kick Jazz	Kick Jazz	GranCassa Mu	
37	C#1			Side Stck	Stck Light				SideStckAn	SideStckAn	Stck Light	Stck Light		
38	D1			Snare	Snare Short	Snare Snappy	Snare Rock	SnareNoisy 2	SnareAnalog	Snare Clap	Snare Jazz L	Brush Slap 3	Band Snare	
39	D#1			Hand Clap										
40	E1			Snare Tight	SnareTight H	SnrTightSnpy	SnrRockTight	SnareNoisy 3	SnareAnalog2	Snare Dry	Snare Jazz M	Brush Tap 2	Band Snare 2	
41	F1			Floor Tom L	Tom Room 1	Tom Rock 1	Tom Rock 1	TomElectro 1	Tom Analog 1	Tom Analog 1		Tom Brush 1		
42	F#1		1	Hi-HatClosed					HatCloseAnlg	Hi-HatCis 3				
43	G1			Floor Tom H		Tom Room 2	Tom Rock 2	TomElectro 2	Tom Analog 2	Tom Analog 2		Tom Brush 2		
44	G#1		1	Hi-Hat Pedal					HatCloseAn 2	HatCloseAn 3				
45	A1			Low Tom		Tom Room 3	Tom Rock 3	TomElectro 3	Tom Analog 3	Tom Analog 3		Tom Brush 3		
46	A#1		1	Hi-Hat Open					HatOpen Anlg	Hi-HatOpn 3				
47	B1			Mid Tom L		Tom Room 4	Tom Rock 4	TomElectro 4	Tom Analog 4	Tom Analog 4		Tom Brush 4		
48	C2			Mid Tom H		Tom Room 5	Tom Rock 5	TomElectro 5	Tom Analog 5	Tom Analog 5		Tom Brush 5		
49	C#2			CrashCymbal1					Crash Analog	Crash Analog			Hand Cymbal	
50	D2			High Tom		Tom Room 6	Tom Rock 6	TomElectro 6	Tom Analog 6	Tom Analog 6		Tom Brush 6		
51	D#2			RideCymbal 1									HandCymShort	
52	E2			Chinese Cym										
53	F2			Ride Cym Cup										
54	F#2			Tambourine										
55	G2			SplashCymbal										
56	G#2			Cowbell					Cowbell Anlg	Cowbell Anlg				
57	A2			CrashCymbal2									HandCymbal 2	
58	A#2			Vibraslap										
59	B2			RideCymbal 2									HandCym2Shrt	
60	C3			Bongo H										
61	C#3			Bongo L										
62	D3			Conga H Mute					Conga Anlg H	Conga Anlg H				
63	D#3			Conga H Open					Conga Anlg M	Conga Anlg M				
64	E3			Conga L					Conga Anlg L	Conga Anlg L				
65	F3			Timbale H										
66	F#3			Timbale L										
67	G3			Agogo H										
68	G#3			Agogo L										
69	A3			Cabasa										
70	A#3			Maracas					Maracas 2	Maracas 2				
71	B3	O		SambaWhistlH										
72	C4	O		SambaWhistlL										
73	C#4			Guiro Short										
74	D4	O		Guiro Long										
75	D#4			Claves					Claves 2	Claves 2				
76	E4			Wood Block H										
77	F4			Wood Block L										
78	F#4			Cuica Mute				Scratch H 2	Scratch H 2	Scratch H 2				
79	G4			Cuica Open				Scratch L 2	Scratch L 2	Scratch L 2				
80	G#4		2	TriangleMute										
81	A4		2	TriangleOpen										
82	A#4			Shaker										
83	B4			Jingle Bells										
84	C5			Bell Tree										
85	C#5													
86	D5													
87	D#5													
88	E5													
89	F5													
90	F#5													
91	G5													

: Same as Standard Kit

: No sound

Bank MSB#				127	127	127	127	127	127	127	127	126	126
Program #				121	122	123	124	125	126	127	128	1	2
Note#	Note	Key off	Alternate assign	NwStdKit (New Standard Kit)	TightKit	StudioKit (Studio Kit)	ElPopKit (Electro Pop Kit)	Funk Kit	R&B Kit	TimberKit (Timber Kit)	HvyHipKit (Heavy Hip Kit)	SFX Kit 1	SFX Kit 2
13	C#-1		3										
14	D-1		3										
15	D-1#												
16	E-1												
17	F-1		4										
18	F#-1		4										
19	G-1												
20	G#-1												
21	A-1												
22	A#-1												
23	B-1												
24	C0												
25	C#0												
26	D0	O							Noise Dark 1	Noise Dark 1	Noise Dark 2		
27	D#0												
28	E0	O					ReversCymBal		ReversCymBal	ReversCymBal	ReversCymBal		
29	F0	O											
30	F#0						Hi Q 2		Hi Q 2	Hi Q 2	Castanet 2		
31	G0					Snare Studio	SnareSnpyElctr		Snare Techno	Snare Tmbr 1	Snare Hip 1		
32	G#0								Stick Dark	Stick Dark	Stick Dark		
33	A0						Kick 3		Kick Bass	Kick Bass	Kick Bass		
34	A#0			Rim Hard	Rim Tight			Snare Funk 1	OpenRimVari1	Rim Timber	OpenRimVari2		
35	B0			Kick Hard	Kick Tight 2	Kick Studio1	Kick ElNoiz	Kick Funk 1	Kick Techno L	Kick Timber	Kick Techno 2		
36	C1			Kick Attack	Kick Tight 3	Kick Studio2	Kick ElPop	Kick Funk 2	Kick Noise	Kick Noise	Kick Hip	CuttingNoiz	Phone Call
37	C#1						ElSideStick		SideStickR&B	SideStkTmbr	SideStickHip	CuttingNoiz	Door Squeak
38	D1			Snare High	Snare Tight2	Rim Studio 1	Snare ElPop	Snare Funk 2	Snare R&B	Snare Tmbr 2	Snare Hip 2		Door Slam
39	D#1						Clap ElPop					String Slap	Scratch Cut
40	E1			Snare Snap	Snare Tight3	Rim Studio 2	Snare ElPop	SnareRimFunk	SnareClapR&B	Snare Tmbr 3	Snare Hip 3		Scratch H 3
41	F1					Tom Studio 1	TomElectro 1		Tom Vari 1	Tom Vari 1	Tom Vari 1		Wind Chime
42	F#1		1					HatCloseFunk	HatClose R&B	HatCloseTmbr	HatCloseHip		Telephone 2
43	G1					Tom Studio 2	TomElectro 2		Tom Vari 2	Tom Vari 2	Tom Vari 2		
44	G#1		1	HatPedal Hard	HatPedalTght			HatPedalFunk	HatCloseAn 2	HatPedalTmbr	HatPedalHip		
45	A1					Tom Studio 3	TomElectro 3		Tom Vari 3	Tom Vari 3	Tom Vari 3		
46	A#1		1	HatOpen Low	HatOpenTight			HatOpenFunk	HatOpen R&B	HatOpenTmbr	HatOpenHip		
47	B1					Tom Studio 4	TomElectro 4		Tom Vari 4	Tom Vari 4	Tom Vari 4		
48	C2					Tom Studio 5	TomElectro 5		Tom Vari 5	Tom Vari 5	Tom Vari 5		
49	C#2								Crash Analog	Crash Analog	Crash Hip 1		
50	D2					Tom Studio 6	TomElectro 6		Tom Vari 6	Tom Vari 6	Tom Vari 6		
51	D#2								RideCymbal 3	RideCymbal 3	Ride Hip 1		
52	E2											Fl.Key Click	CarEngnIgnit
53	F2								Ride Cup Vari	Ride Cup Vari			CarTireSqueal
54	F#2								Tambourine 2	Tambourine 3	Tambourine 2		Car Passing
55	G2												Car Crash
56	G#2								Cowbell Anlg	Cowbell Anlg	Cowbell		Siren
57	A2										Crash Hip 2		Train
58	A#2												Jet Plane
59	B2								RideCym Vari	RideCym Vari	Ride Hip 2		Starship
60	C3												Burst
61	C#3												Coaster
62	D3								Conga Anlg H	Conga Anlg H	Conga Anlg H		Submarine
63	D#3								Conga Anlg M	Conga Anlg M	Conga Anlg M		
64	E3								Conga Anlg L	Conga Anlg L	Conga Anlg L		
65	F3												
66	F#3												
67	G3												
68	G#3											Shower	Laugh
69	A3								Cabasa 2	Cabasa 2	Cabasa 2	Thunder	Scream
70	A#3								Maracas 3	Maracas 3	Maracas 3	Wind	Punch
71	B3	O								Telephone 1		Stream	Heartbeat
72	C4	O								Telephone 2		Bubble	Footsteps
73	C#4											Feed	
74	D4	O											
75	D#4								Claves 2	Claves 2	Claves 2		
76	E4												
77	F4												
78	F#4								Scratch H 2	Scratch H 2	Scratch H 2		
79	G4								Scratch L 2	Scratch L 2	Scratch L 2		
80	G#4		2										
81	A4		2										
82	A#4												
83	B4								JingleBells2	JingleBells2	JingleBells2		
84	C5											Dog	Machine Gun
85	C#5											Horse	Laser Gun
86	D5											Bird Tweet 2	Explosion
87	D#5												FireWork
88	E5												
89	F5												
90	F#5											Gorst	
91	G5											Maou	

: Same as Standard Kit : No sound

Multi List

Bank Select MSB=63, LSB=64

Number	Category	Name
1	PF	DigiRich
2	PF	RosePad
3	OR	Minister
4	GT	Gtr+Pad
5	ST	Str+Bell
6	PD	SuperPad
7	BR	FatBrass
8	RP	PipePad
9	SC	AtkComp
10	CO	SynBa_Ep
11	CO	Gt_SynLd
12	CO	Pizz_Str
13	CO	Pad_Dist
14	CO	FBass_Or
15	CO	Ep_Trpt
16	CO	Org_Lead
17	--	Pops
18	--	Ballad
19	--	R&B
20	--	HipHop
21	--	ClubJazz
22	--	Techno
23	--	House
24	--	Fusion
25	--	80sDance
26	--	FunkRock
27	--	HardRock
28	--	Blues
29	--	Big Band
30	--	Salsa
31	--	Trance
32	--	DrmnBass

Control List

Controller

Name	No.	Remarks
PITCH BEND		Pitch Bend
MODULATION WHEEL	(1)	Set in the Utility Mode
FOOT CONTROLLER	(11)	Set in the Utility Mode
FOOT SWITCH	(64)	Set in the Utility Mode

The control numbers in the parentheses are the defaults.

Control Change Number List

No.	Controller or function
000	Bank select MSB (off)
001	Modulation wheel
002-004	Unused
005	Portamento time
006	Data entry MSB
007	Volume control
008-009	Unused
010	Panpot
011	Expression
012-031	Unused
032	Bank select LSB (off)
033-037	Unused
038	Data entry LSB
039-063	Unused
064	Hold 1 (Sustain)
065	Portamento switch
066	Sostenuto
067	Soft pedal
068-070	Unused
071	Harmonic Content
072	Release Time
073	Attack Time
074	Brightness
075-083	Unused
084	Portamento Control
085-090	Unused
091	Effect1 Depth (Reverb Send Level)
092	Unused
093	Effect3 Depth (Chorus Send Level)
094	Effect4 Depth (Variation Effect Send Level)
095	Unused
096	Data Increment
097	Data Decrement
098	NRPN LSB
099	NRPN MSB
100	RPN LSB
101	RPN MSB
102-119	Unused
120	All Sounds Off
121	Reset All Controllers
122	Unused
123	All Notes Off
124	Omni Off
125	Omni On
126	Mono
127	Poly

Effect Type List

REVERB

No.	MSB	LSB	Effect Type	Features
0	00H	00H	No Effect	Effect turned off.
1	01H	00H	Hall 1	Reverb simulating the resonance of a hall.
2	01H	01H	Hall 2	
3	02H	00H	Room 1	Reverb simulating the resonance of a room.
4	02H	01H	Room 2	
5	02H	02H	Room 3	
6	03H	00H	Stage 1	Reverb appropriate for a solo instrument.
7	03H	01H	Stage 2	
8	04H	00H	Plate	Reverb simulating a metal plate reverb unit.
9	10H	00H	White Room	A unique short reverb with a bit of initial delay.
10	11H	00H	Tunnel	Simulation of a tunnel space expanding to left and right.
11	13H	00H	Basement	A bit of initial delay followed by reverb with a unique resonance.

CHORUS

No.	MSB	LSB	Effect Type	Features
0	00H	00H	No Effect	Effect turned off.
1	41H	00H	Chorus 1	Conventional chorus program that adds natural spaciousness.
2	41H	01H	Chorus 2	
3	41H	02H	Chorus 3	
4	41H	08H	Chorus 4	Chorus with stereo input. The pan setting specified for the Part will also apply to the effect sound.
5	42H	00H	Celeste 1	A 3-phase LFO adds modulation and spaciousness to the sound.
6	42H	01H	Celeste 2	
7	42H	02H	Celeste 3	
8	42H	08H	Celeste 4	CELESTE with stereo input. The pan setting specified for the Part will apply to the effect sound.
9	43H	00H	Flanger 1	Adds a jet-airplane effect to the sound.
10	43H	01H	Flanger 2	
11	43H	08H	Flanger 3	

VARIATION

NOTE When the effect type is set to "No Effect" while the Insertion effect is used, no sound is output. If you don't want to use the Variation effect, select "Thru" to pass the signal through the Variation effect without applying any effect.

No.	MSB	LSB	Effect Type	Features
0	00H	00H	No Effect	Effect turned off.
1	01H	00H	Hall 1	Reverb simulating the resonance of a hall.
2	01H	01H	Hall 2	
3	02H	00H	Room 1	Reverb simulating the resonance of a room.
4	02H	01H	Room 2	
5	02H	02H	Room 3	
6	03H	00H	Stage 1	Reverb appropriate for a solo instrument.
7	03H	01H	Stage 2	
8	04H	00H	Plate	Reverb simulating a metal plate reverb unit.
9	05H	00H	Delay L,C,R	A program that creates three delay sounds; L, R, and C (center).
10	06H	00H	Delay L,R	A program that creates two delay sounds; L and R. Two feedback delays are provided.
11	07H	00H	Echo	Two delays (L and R) and independent feedback delays for L and R.
12	08H	00H	Cross Delay	A program that crosses the feedback of two delays.
13	09H	00H	EarlyRef 1	An effect that produces only the early reflection component of reverb.
14	09H	01H	EarlyRef 2	
15	0AH	00H	Gate Reverb	A simulation of gated reverb.
16	0BH	00H	Reverse Gate	A program that simulates gated reverb played backwards.
17	14H	00H	Karaoke 1	A delay with feedback of the same type as used for karaoke reverb.
18	14H	01H	Karaoke 2	
19	14H	02H	Karaoke 3	
20	41H	00H	Chorus 1	A conventional chorus program, providing natural spaciousness.
21	41H	01H	Chorus 2	
22	41H	02H	Chorus 3	
23	41H	08H	Chorus 4	Chorus with stereo input.
24	42H	00H	Celeste 1	A 3-phase LFO adds modulation and spaciousness to the sound.
25	42H	01H	Celeste 2	
26	42H	02H	Celeste 3	
27	42H	08H	Celeste 4	
28	43H	00H	Flanger 1	Adds a jet-airplane effect to the sound.
29	43H	01H	Flanger 2	
30	43H	08H	Flanger 3	
31	44H	00H	Symphonic	A multi-phase version of CELESTE.
32	45H	00H	Rotary Speaker	A simulation of a rotary speaker. You can use an AC1 (assignable controller) etc. to control the speed of rotation.
33	46H	00H	Tremolo	An effect that cyclically modulates the volume.
34	47H	00H	Auto Pan	A program that cyclically moves the sound image to left and right, front and back.
35	48H	00H	Phaser 1	Cyclically changes the phase to add modulation to the sound.
36	48H	08H	Phaser 2	Phaser with stereo input.
37	49H	00H	Distortion	Adds a sharp-edged distortion to the sound.
38	4AH	00H	Overdrive	Adds mild distortion to the sound.
39	4BH	00H	Amp Simulator	A simulation of a guitar amp.
40	4CH	00H	3Band EQ(Mono)	A mono EQ with adjustable LOW, MID, and HIGH equalizing.
41	4DH	00H	2Band EQ(Stereo)	A stereo EQ with adjustable LOW and HIGH. Ideal for drum Parts.
42	4EH	00H	Auto Wah(LFO)	Cyclically modulates the center frequency of a wah filter. With an AC1 etc. this can function as a pedal wah.
43	40H	00H	Thru	Bypass without applying an effect.

Effect Parameter List

NOTE Parameters marked with a ● in the "Control" column can be controlled from an AC1 (assignable controller 1) etc. However, this is valid only for a Variation effect (when selected for Insertion).

**HALL1,HALL2
ROOM1,ROOM2,ROOM3
STAGE1,STAGE2
PLATE (reverb, variation block)**

No.	Parameter	Display	Value	See Table	Control
1	Reverb Time	0.3 - 30.0s	0 - 69	table#4	
2	Diffusion	0 - 10	0 - 10		
3	Initial Delay	0.1 - 99.3ms	0 - 63	table#5	
4	HPF Cutoff	Thru - 8.0kHz	0 - 52	table#3	
5	LPF Cutoff	1.0k - Thru	34 - 60	table#3	
6					
7					
8					
9					
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11	Rev Delay	0.1 - 99.3ms	0 - 63	table#5	
12	Density	0 - 4	0 - 4		
13	Er/Rev Balance	E63>R - E=R - E<R63	1 - 127		
14					
15	Feedback Level	-63 - +63	1 - 127		
16					

**WHITE ROOM
TUNNEL
BASEMENT (reverb block)**

No.	Parameter	Display	Value	See Table	Control
1	Reverb Time	0.3 - 30.0s	0 - 69	table#4	
2	Diffusion	0 - 10	0 - 10		
3	Initial Delay	0.1 - 99.3ms	0 - 63	table#5	
4	HPF Cutoff	Thru - 8.0kHz	0 - 52	table#3	
5	LPF Cutoff	1.0k - Thru	34 - 60	table#3	
6	Width	0.5 - 10.2m	0 - 37	table#8	
7	Height	0.5 - 20.2m	0 - 73	table#8	
8	Depth	0.5 - 30.2m	0 - 104	table#8	
9	Wall Vary	0 - 30	0 - 30		
10					
11	Rev Delay	0.1 - 99.3ms	0 - 63	table#5	
12	Density	0 - 4	0 - 4		
13	Er/Rev Balance	E63>R - E=R - E<R63	1 - 127		
14					
15	Feedback Level	-63 - +63	1 - 127		
16					

DELAY L,C,R (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Lch Delay	0.1 - 715.0ms (variation block)	1 - 7150		
2	Rch Delay	0.1 - 715.0ms (variation block)	1 - 7150		
3	Cch Delay	0.1 - 715.0ms (variation block)	1 - 7150		
4	Feedback Delay	0.1 - 715.0ms (variation block)	1 - 7150		
5	Feedback Level	-63 - +63	1 - 127		
6	Cch Level	0 - 127	0 - 127		
7	High Damp	0.1 - 1.0	1 - 10		
8					
9					
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11					
12					
13	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
14	EQ Low Gain	-12 - +12dB	52 - 76		
15	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
16	EQ High Gain	-12 - +12dB	52 - 76		

DELAY L,R (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Lch Delay	0.1 - 715.0ms (variation block)	1 - 7150		
2	Rch Delay	0.1 - 715.0ms (variation block)	1 - 7150		
3	Feedback Delay 1	0.1 - 715.0ms (variation block)	1 - 7150		
4	Feedback Delay 2	0.1 - 715.0ms (variation block)	1 - 7150		
5	Feedback Level	-63 - +63	1 - 127		
6	High Damp	0.1 - 1.0	1 - 10		
7					
8					
9					
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11					
12					
13	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
14	EQ Low Gain	-12 - +12dB	52 - 76		
15	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
16	EQ High Gain	-12 - +12dB	52 - 76		

ECHO (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Lch Delay1	0.1 - 355.0ms (variation block)	1 - 3550		
2	Lch Feedback Level	-63 - +63	1 - 127		
3	Rch Delay1	0.1 - 355.0ms (variation block)	1 - 3550		
4	Rch Feedback Level	-63 - +63	1 - 127		
5	High Damp	0.1 - 1.0	1 - 10		
6	Lch Delay2	0.1 - 355.0ms (variation block)	1 - 3550		
7	Rch Delay2	0.1 - 355.0ms (variation block)	1 - 3550		
8	Delay2 Level	0 - 127	0 - 127		
9					
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11					
12					
13	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
14	EQ Low Gain	-12 - +12dB	52 - 76		
15	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
16	EQ High Gain	-12 - +12dB	52 - 76		

CROSS DELAY (variation block)

No.	Parameter	Display	Value	See Table	Control
1	L->R Delay	0.1 - 355.0ms (variation block)	1 - 3550		
2	R->L Delay	0.1 - 355.0ms (variation block)	1 - 3550		
3	Feedback Level	-63 - +63	1 - 127		
4	Input Select	L, R, L&R	0 - 2		
5	High Damp	0.1 - 1.0	1 - 10		
6					
7					
8					
9					
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11					
12					
13	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
14	EQ Low Gain	-12 - +12dB	52 - 76		
15	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
16	EQ High Gain	-12 - +12dB	52 - 76		

EARLY REF1,EARLY REF2(variation block)

No.	Parameter	Display	Value	See Table	Control
1	Type	S-H, L-H, Rdm, Rvs, Plt, Spr	0 - 5		
2	Room Size	0.1 - 7.0	0 - 44	table#6	
3	Diffusion	0 - 10	0 - 10		
4	Initial Delay	0.1 - 99.3ms	0 - 63	table#5	
5	Feedback Level	-63 - +63	1 - 127		
6	HPF Cutoff	Thru - 8.0kHz	0 - 52	table#3	
7	LPF Cutoff	1.0k - Thru	34 - 60	table#3	
8					
9					
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11	Liveness	0 - 10	0 - 10		
12	Density	0 - 3	0 - 3		
13	High Damp	0.1 - 1.0	1 - 10		
14					
15					
16					

**GATE REVERB
REVERSE GATE (variation block)**

No.	Parameter	Display	Value	See Table	Control
1	Type	TypeA,TypeB	0 - 1		
2	Room Size	0.1 - 7.0	0 - 44	table#6	
3	Diffusion	0 - 10	0 - 10		
4	Initial Delay	0.1 - 99.3ms	0 - 63	table#5	
5	Feedback Level	-63 - +63	1 - 127		
6	HPF Cutoff	Thru - 8.0kHz	0 - 52	table#3	
7	LPF Cutoff	1.0k - Thru	34 - 60	table#3	
8					
9					
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11	Liveness	0 - 10	0 - 10		
12	Density	0 - 3	0 - 3		
13	High Damp	0.1 - 1.0	1 - 10		
14					
15					
16					

KARAOKE1,2,3 (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Delay Time	0.1 - 400ms	0 - 127	table#7	
2	Feedback Level	-63 - +63	1 - 127		
3	HPF Cutoff	Thru - 8.0kHz	0 - 52	table#3	
4	LPF Cutoff	1.0k - Thru	34 - 60	table#3	
5					
6					
7					
8					
9					
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11					
12					
13					
14					
15					
16					

ROTARY SPEAKER (variation block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz - 39.7Hz	0 - 127	table#1	●
2	LFO Depth	0 - 127	0 - 127		
3					
4					
5					
6	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
7	EQ Low Gain	-12 - +12dB	52 - 76		
8	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
9	EQ High Gain	-12 - +12dB	52 - 76		
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		
11					
12					
13					
14					
15					
16					

**CHORUS1,2,3,4
CELESTE1,2,3,4 (chorus, variation block)**

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz - 39.7Hz	0 - 127	table#1	
2	LFO Depth	0 - 127	0 - 127		
3	Feedback Level	-63 - +63	1 - 127		
4	Delay Offset	0.0 - 50	0 - 127	table#2	
5					
6	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
7	EQ Low Gain	-12 - +12dB	52 - 76		
8	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
9	EQ High Gain	-12 - +12dB	52 - 76		
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11					
12					
13					
14					
15	Input Mode	mono/stereo	0 - 1		
16					

TREMOLO (variation block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz - 39.7Hz	0 - 127	table#1	●
2	AM Depth	0 - 127	0 - 127		
3	PM Depth	0 - 127	0 - 127		
4					
5					
6	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
7	EQ Low Gain	-12 - +12dB	52 - 76		
8	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
9	EQ High Gain	-12 - +12dB	52 - 76		
10					
11					
12					
13					
14	LFO Phase Difference	-180 - +180deg	4 - 124	resolution=3deg.	
15	Input Mode	mono/stereo	0 - 1		
16					

FLANGER1,2,3 (chorus, variation block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz - 39.7Hz	0 - 127	table#1	
2	LFO Depth	0 - 127	0 - 127		
3	Feedback Level	-63 - +63	1 - 127		
4	Delay Offset	0.0 - 6.3	0 - 63	table#2	
5					
6	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
7	EQ Low Gain	-12 - +12dB	52 - 76		
8	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
9	EQ High Gain	-12 - +12dB	52 - 76		
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11					
12					
13					
14	LFO Phase Difference	-180 - +180deg	4 - 124	resolution=3deg.	
15					
16					

AUTO PAN (variation block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz - 39.7Hz	0 - 127	table#1	●
2	L/R Depth	0 - 127	0 - 127		
3	F/R Depth	0 - 127	0 - 127		
4	PAN Direction	L<>R, L->R, L<-R, Lturn, Rturn, L/R	0 - 5		
5					
6	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
7	EQ Low Gain	-12 - +12dB	52 - 76		
8	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
9	EQ High Gain	-12 - +12dB	52 - 76		
10					
11					
12					
13					
14					
15					
16					

SYMPHONIC (variation block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz - 39.7Hz	0 - 127	table#1	
2	LFO Depth	0 - 127	0 - 127		
3	Delay Offset	0.0 - 50	0 - 127	table#2	
4					
5					
6	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
7	EQ Low Gain	-12 - +12dB	52 - 76		
8	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
9	EQ High Gain	-12 - +12dB	52 - 76		
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11					
12					
13					
14					
15					
16					

PHASER 1 (variation block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz - 39.7Hz	0 - 127	table#1	
2	LFO Depth	0 - 127	0 - 127		
3	Phase Shift Offset	0 - 127	0 - 127		
4	Feedback Level	-63 - +63	1 - 127		
5					
6	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
7	EQ Low Gain	-12 - +12dB	52 - 76		
8	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
9	EQ High Gain	-12 - +12dB	52 - 76		
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11	Stage	6 - 10	6 - 10		
12					
13					
14					
15					
16					

PHASER 2 (variation block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz - 39.7Hz	0 - 127	table#1	
2	LFO Depth	0 - 127	0 - 127		
3	Phase Shift Offset	0 - 127	0 - 127		
4	Feedback Level	-63 - +63	1 - 127		
5					
6	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
7	EQ Low Gain	-12 - +12dB	52 - 76		
8	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
9	EQ High Gain	-12 - +12dB	52 - 76		
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		●
11	Stage	3 - 5	3 - 5		
12					
13	LFO Phase Difference	-180deg - +180deg	4 - 124	resolution=3deg.	
14					
15					
16					

2BAND EQ(STEREO) (variation block)

No.	Parameter	Display	Value	See Table	Control
1	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
2	EQ Low Gain	-12 - +12dB	52 - 76		
3	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
4	EQ High Gain	-12 - +12dB	52 - 76		
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

**DISTORTION
OVERDRIVE (variation block)**

No.	Parameter	Display	Value	See Table	Control
1	Drive	0 - 127	0 - 127		●
2	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
3	EQ Low Gain	-12 - +12dB	52 - 76		
4	LPF Cutoff	1.0k - Thru	34 - 60	table#3	
5	Output Level	0 - 127	0 - 127		
6					
7	EQ Mid Frequency	500Hz - 10.0kHz	28 - 54	table#3	
8	EQ Mid Gain	-12 - +12dB	52 - 76		
9	EQ Mid Width	1.0 - 12.0	10 - 120		
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		
11	Edge(Clip Curve)	0 - 127	0 - 127	mild - sharp	
12					
13					
14					
15					
16					

AUTO WAH (variation block)

No.	Parameter	Display	Value	See Table	Control
1	LFO Frequency	0.00Hz - 39.7Hz	0 - 127	table#1	
2	LFO Depth	0 - 127	0 - 127		
3	Cutoff Frequency Offset	0 - 127	0 - 127		●
4	Resonance	1.0 - 12.0	10 - 120		
5					
6	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
7	EQ Low Gain	-12 - +12dB	52 - 76		
8	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
9	EQ High Gain	-12 - +12dB	52 - 76		
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		
11					
12					
13					
14					
15					
16					

AMP SIMULATOR (variation block)

No.	Parameter	Display	Value	See Table	Control
1	Drive	0 - 127	0 - 127		●
2	AMP Type	Off,Stack,Combo,Tube	0 - 3		
3	LPF Cutoff	1.0k - Thru	34 - 60	table#3	
4	Output Level	0 - 127	0 - 127		
5					
6					
7					
8					
9					
10	Dry/Wet	D63>W - D=W - D<W63	1 - 127		
11	Edge(Clip Curve)	0 - 127	0 - 127	mild - sharp	
12					
13					
14					
15					
16					

3BAND EQ(MONO) (variation block)

No.	Parameter	Display	Value	See Table	Control
1	EQ Low Gain	-12 - +12dB	52 - 76		
2	EQ Mid Frequency	500Hz - 10.0kHz	28 - 54	table#3	
3	EQ Mid Gain	-12 - +12dB	52 - 76		
4	EQ Mid Width	1.0 - 12.0	10 - 120		
5	EQ High Gain	-12 - +12dB	52 - 76		
6	EQ Low Frequency	50Hz - 2.0kHz	8 - 40	table#3	
7	EQ High Frequency	500Hz - 16.0kHz	28 - 58	table#3	
8					
9					
10					
11					
12					
13					
14					
15					
16					

table#6
Room Size

Data	Value
0	0.1
1	0.3
2	0.4
3	0.6
4	0.7
5	0.9
6	1.0
7	1.2
8	1.4
9	1.5
10	1.7
11	1.8
12	2.0
13	2.1
14	2.3
15	2.5
16	2.6
17	2.8
18	2.9
19	3.1
20	3.2
21	3.4
22	3.5
23	3.7
24	3.9
25	4.0
26	4.2
27	4.3
28	4.5
29	4.6
30	4.8
31	5.0
32	5.1
33	5.3
34	5.4
35	5.6
36	5.7
37	5.9
38	6.1
39	6.2
40	6.4
41	6.5
42	6.7
43	6.8
44	7.0

table#7
Delay Time(400.0ms)

Data	Value	Data	Value
0	0.1	64	201.6
1	3.2	65	204.8
2	6.4	66	207.9
3	9.5	67	211.1
4	12.7	68	214.2
5	15.8	69	217.4
6	19.0	70	220.5
7	22.1	71	223.7
8	25.3	72	226.8
9	28.4	73	230.0
10	31.6	74	233.1
11	34.7	75	236.3
12	37.9	76	239.4
13	41.0	77	242.6
14	44.2	78	245.7
15	47.3	79	248.9
16	50.5	80	252.0
17	53.6	81	255.2
18	56.8	82	258.3
19	59.9	83	261.5
20	63.1	84	264.6
21	66.2	85	267.7
22	69.4	86	270.9
23	72.5	87	274.0
24	75.7	88	277.2
25	78.8	89	280.3
26	82.0	90	283.5
27	85.1	91	286.6
28	88.3	92	289.8
29	91.4	93	292.9
30	94.6	94	296.1
31	97.7	95	299.2
32	100.9	96	302.4
33	104.0	97	305.5
34	107.2	98	308.7
35	110.3	99	311.8
36	113.5	100	315.0
37	116.6	101	318.1
38	119.8	102	321.3
39	122.9	103	324.4
40	126.1	104	327.6
41	129.2	105	330.7
42	132.4	106	333.9
43	135.5	107	337.0
44	138.6	108	340.2
45	141.8	109	343.3
46	144.9	110	346.5
47	148.1	111	349.6
48	151.2	112	352.8
49	154.4	113	355.9
50	157.5	114	359.1
51	160.7	115	362.2
52	163.8	116	365.4
53	167.0	117	368.5
54	170.1	118	371.7
55	173.3	119	374.8
56	176.4	120	378.0
57	179.6	121	381.1
58	182.7	122	384.3
59	185.9	123	387.4
60	189.0	124	390.6
61	192.2	125	393.7
62	195.3	126	396.9
63	198.5	127	400.0

table#8
Reverb Width;Depth;Height

Data	Value	Data	Value
0	0.5	64	17.6
1	0.8	65	17.9
2	1.0	66	18.2
3	1.3	67	18.5
4	1.5	68	18.8
5	1.8	69	19.1
6	2.0	70	19.4
7	2.3	71	19.7
8	2.6	72	20.0
9	2.8	73	20.2
10	3.1	74	20.5
11	3.3	75	20.8
12	3.6	76	21.1
13	3.9	77	21.4
14	4.1	78	21.7
15	4.4	79	22.0
16	4.6	80	22.4
17	4.9	81	22.7
18	5.2	82	23.0
19	5.4	83	23.3
20	5.7	84	23.6
21	5.9	85	23.9
22	6.2	86	24.2
23	6.5	87	24.5
24	6.7	88	24.9
25	7.0	89	25.2
26	7.2	90	25.5
27	7.5	91	25.8
28	7.8	92	26.1
29	8.0	93	26.5
30	8.3	94	26.8
31	8.6	95	27.1
32	8.8	96	27.5
33	9.1	97	27.8
34	9.4	98	28.1
35	9.6	99	28.5
36	9.9	100	28.8
37	10.2	101	29.2
38	10.4	102	29.5
39	10.7	103	29.9
40	11.0	104	30.2
41	11.2		
42	11.5		
43	11.8		
44	12.1		
45	12.3		
46	12.6		
47	12.9		
48	13.1		
49	13.4		
50	13.7		
51	14.0		
52	14.2		
53	14.5		
54	14.8		
55	15.1		
56	15.4		
57	15.6		
58	15.9		
59	16.2		
60	16.5		
61	16.8		
62	17.1		
63	17.3		

MIDI Data Format

1. Channel messages

1.1 Note on/note off

These messages convey keyboard performance data.

Range of note numbers received = 0 (C-2)...60 (C3)...127 (G8)
Velocity range = 1...127 (Velocity is received only for note-on)

When the Multi Part parameter "Rcv NOTE MESSAGE" = OFF, that part will not receive these messages.

For a drum part*, key-off is not received if the DrumSetup parameter Rcv NOTE OFF = OFF.

For a drum part, key-on is not received if the DrumSetup parameter Rcv NOTE ON = OFF.

* Drum Part indicates that the Multi Part parameter PART MODE is "set to DRUM, DRUMS1, DRUMS2."

1.2 Control changes

These messages control volume or pan etc.

Their functions are differentiated by the control number (Ctrl#).

If the Multi Part parameter Rcv CONTROL CHANGE = OFF, that part will not receive control changes.

1.2.1 Bank Select

This message selects the voice bank.

Control#	Parameter	Data Range
0	Bank Select MSB	0, 63, 64, 126, 127 (Normal voice, Native voice, SFX voice, SFX kit, Drum kit)
32	Bank Select LSB	0...127

The Bank Select data will be processed only after a Program Change is received, and then voice bank will change at that time.

If you wish to change the voice bank as well as the voice, you must transmit Bank Select and Program Change messages as a set, in the order of Bank Select MSB, LSB, and Program Change.

Not received when Receive Bank Select in Native System Parameters is set to off.

1.2.2 Modulation

This message is used primarily to control the depth of vibrato, but the depth of the following 7 types of effect can be controlled.

The effect of this message can be changed by the following parameters.

• Multi Part Parameter

1. MW PITCH CONTROL
2. MW FILTER CONTROL
3. MW AMPLITUDE CONTROL
4. MW LFO PMOD DEPTH
5. MW LFO FMOD DEPTH
6. MW LFO AMOD DEPTH

• Effect1 Parameter

7. MW VARIATION CONTROL DEPTH
(Valid when Variation Effect is assigned to a part as Insertion)

Control#	Parameter	Data Range
1	Modulation	0...127

If the Multi Part parameter Rcv MODULATION = OFF, that part will not receive Modulation.
If the receive channel is a drum part, effects 5 and 6 will not apply.

1.2.3 Portamento Time

This message controls the degree of Portamento (refer to 1.2.9).

Control#	Parameter	Data Range
5	Portamento Time	0...127

When Portamento (control number 065) is ON, this regulates the speed of the pitch change.

A value of 0 is the shortest portamento time, and 127 is the longest portamento time.

If the receive channel is a drum part, Portamento Time is not received.

1.2.4 Data Entry

This message sets the value of the parameter which was specified by RPN MSB/LSB (see 1.2.22) and NRPN MSB/LSB (see 1.2.21).

Control#	Parameter	Data Range
6	Data Entry MSB	0...127
38	Data Entry LSB	0...127

1.2.5 Main Volume

This message controls the volume of each part.

This is used to adjust the volume balance between parts.

Control#	Parameter	Data Range
7	Main Volume	0...127

When the Multi Part parameter Rcv VOLUME = OFF, that part will not receive Main Volume.

With a value of 0 there will be no sound, and a value of 127 will be the maximum volume.

1.2.6 Panpot

This message control the panning (stereo location) of each part.

Control#	Parameter	Data Range
10	Pan	0...64...127

When the Multi Part parameter Rcv PAN = OFF, that part will not receive Panpot.
0 is left, 64 is center, and 127 is right.

1.2.7 Expression

This message controls expression (dynamics within a musical line) for each part. It is used to create volume changes during a song.

Control#	Parameter	Data Range
11	Expression	0...127

If the Multi Part parameter Rcv EXPRESSION = OFF, that part will not receive Expression.

1.2.8 Hold1

This message controls sustain pedal on/off.

Control#	Parameter	Data Range
64	Hold1	0...63,64...127 (OFF, ON)

When this is ON, currently-sounding notes will continue to sound even if note-off messages are received.

If the Multi Part parameter Rcv HOLD1 = OFF, that part will not receive Hold1.

1.2.9 Portamento

This message controls portamento on/off.

Control#	Parameter	Data Range
65	Portamento	0...63,64...127 (OFF, ON)

When this is ON, the pitch will change smoothly between notes. The time over which the pitch changes is adjusted by Portamento Time (see 1.2.3). Also, when the Multi Part parameter MONO/POLY MODE = MONO, the tone will also change smoothly (legato) if Portamento = ON.

If any of the following Multi Part parameter settings apply, that part will not receive Portamento.

- Rcv PORTAMENTO = OFF
- PART MODE=DRUM, DRUMS1, 2

1.2.10 Sostenuto

This message controls sostenuto pedal on/off.

Control#	Parameter	Data Range
66	Sostenuto	0...63,64...127 (OFF, ON)

If sostenuto is turned on while a note is sounding, that note will be sustained until sostenuto is turned OFF.

Sostenuto for the specified part is not received when Rcv SOSTENUTO of the part in Multi Part Parameters is set to off.

1.2.11 Soft Pedal

This message controls soft pedal on/off.

Control#	Parameter	Data Range
67	Soft Pedal	0...63,64...127 (OFF, ON)

The sound will become mellower when Soft Pedal is ON.

If any of the following Multi Part parameter settings apply, that part will not receive the Soft Pedal.

- Rcv SOFT PEDAL=OFF
- PART MODE=DRUM, DRUMS1, DRUMS2

1.2.12 Harmonic Content

This message adjusts the resonance of the filter that is specified for the sound.

Control#	Parameter	Data Range
71	Harmonic Content	0...64...127 (-64...0...+63)

Since this is a relative change parameter, it specifies a boost or cut relative to 64. Higher values will produce a more distinctive sound.

For some sounds, the effective range may be less than the possible range of settings.

1.2.13 Release Time

This message adjusts the EG release time that was specified by the sound data.

Control#	Parameter	Data Range
72	Release Time	0...64...127 (-64...0...+63)

Since this is a relative change parameter, it specifies an increase or decrease relative to 64.

Increasing this value will lengthen the release that follows a note-off.

1.2.14 Attack Time

This message adjusts the EG attack time that was specified by the sound data.

Control#	Parameter	Data Range
73	Attack Time	0...64...127 (-64...0...+63)

Since this is a relative change parameter, it specifies an increase or decrease relative to 64. Increasing this value will make the attack more gradual, and decreasing this value will make the attack sharper.

1.2.15 Brightness

This message adjusts the cutoff frequency of the low pass filter specified by the sound data.

Control#	Parameter	Data Range
74	Brightness	0...64...127 (-64...0...+63)

Since this is a relative change parameter, it specifies an increase or decrease relative to 64.

Lower values will produce a more mellow sound.

For some sounds, the effective range may be less than the possible range of settings.

1.2.16 Portamento Control

This message specifies the portamento source key number (the key number at which portamento will begin).
Data of 0...127 specifies the portamento source key.
When Portamento Control is received, the currently-sounding pitch will change at a Portamento Time of 0 to the key of the next-received note-on of the same channel.

Control#	Parameter	Data Range
84	Portamento Control	0...127 (C-2...G8)

This is received even if Rcv PORTAMENTO = OFF.

1.2.17 Effect1 Depth (Reverb Send Level)

This message specifies the send level for the reverb effect.

Control#	Parameter	Data Range
91	Effect1 Depth	0...127

Increasing this value will produce a richer reverb. The effect of the value will depend on the state of the reverb effect.

1.2.18 Effect3 Depth (Chorus Send Level)

This message specifies the send level for the chorus effect.

Control#	Parameter	Data Range
93	Effect3 Depth	0...127

Raising this value will increase the modulation or spaciousness. The effect of the value will depend on the state of the chorus effect.

1.2.19 Effect4 Depth (Variation Effect Send Level)

This message specifies the send level for the variation effect.

Control#	Parameter	Data Range
94	Effect4 Depth	0...127

However, this is not received if the Variation Effect parameter Variation Connection = 0 (Insertion).

1.2.20 Data Increment/Decrement (for RPN)

This message increases or decreases the parameter value specified for RPN (see 1.2.22), by increments of 1.

Control#	Parameter	Data Range
96	RPN Increment	--
97	RPN Decrement	--

The data byte is ignored.

1.2.21 NRPN (Non-registered parameter number)

This message is used to specify a sound parameter (such as vibrato, filter, EG, drum setup etc.) as an offset value.
Use NRPN MSB and NRPN LSB to specify the parameter that you wish to modify, and then use Data Entry (see 1.2.4) to set the value for the specified parameter.

Control#	Parameter	Data Range
98	NRPN LSB	0...127
99	NRPN MSB	0...127

If the Multi Part parameter Rcv NRPN = OFF, that part will not receive NRPN.

The following NRPN messages can be received.

NRPN MSB LSB	Data Entry ^{*1} MSB LSB	Parameter name and value range
01H 08H	mm -- ^{*2}	Vibrato rate mm : 00H - 40H - 7FH (-64...0...+63)
01H 09H	mm --	Vibrato depth mm : 00H - 40H - 7FH (-64...0...+63)
01H 0AH	mm -- ^{*3}	Vibrato delay mm : 00H - 40H - 7FH (-64...0...+63)
01H 20H	mm --	Low pass filter cutoff frequency mm : 00H - 40H - 7FH (-64...0...+63)
01H 21H	mm --	Low pass filter resonance mm : 00H - 40H - 7FH (-64...0...+63)
01H 63H	mm --	EG attack time mm : 00H - 40H - 7FH (-64...0...+63)
01H 64H	mm --	EG decay time mm : 00H - 40H - 7FH (-64...0...+63)
01H 66H	mm --	EG release time mm : 00H - 40H - 7FH (-64...0...+63)
14H rr	mm --	Drum low pass filter cutoff frequency rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63)
15H rr	mm --	Drum low pass filter resonance rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63)
16H rr	mm --	Drum EG attack rate rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63)
17H rr	mm --	Drum EG decay rate rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63) The effect will apply both to Decay 1 and 2.
18H rr	mm --	Drum instrument pitch coarse rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63)

NRPN MSB LSB	Data Entry ^{*1} MSB LSB	Parameter name and value range
19H rr	mm --	Drum instrument pitch fine rr : drum instrument note number mm : 00H - 40H - 7FH (-64...0...+63)
1AH rr	mm --	Drum instrument level rr : drum instrument note number mm : 00H - 7FH (0...maximum)
1CH rr	mm --	Drum instrument panpot rr : drum instrument note number mm : 00H, 01H-40H-7FH (RND, L63...C...R63)
1DH rr	mm --	Drum instrument reverb send level rr : drum instrument note number mm : 00H - 7FH (0...maximum)
1EH rr	mm --	Drum instrument chorus send level rr : drum instrument note number mm : 00H - 7FH (0...maximum)
1FH rr	mm --	Drum instrument variation send level rr : drum instrument note number mm : 00H - 7FH (0...maximum) (when Variation Connection = SYSTEM) mm : 00H, 01H-7FH (OFF, ON) (when Variation Connection = INSERTION)

MSB 14H - 1FH (for drums) is received when Multi Part parameter PART MODE = DRUMS1, 2.

- *1 Refer to 1.2.4
- *2 '-' indicates that the setting value is ignored.
- *3 Adjusts the time after the note is played until vibrato begins to take effect. The effect will begin more quickly for higher values, and more slowly for higher values.

1.2.22 RPN (Registered parameter number)

This message is used to specify part parameters such as Pitch Bend Sensitivity or Tuning etc. as an offset value.
Use RPN MSB and RPN LSB to specify the parameter that you wish to modify, and then use Data Entry (see 1.2.4) to set the value of the specified parameter.

Control#	Parameter	Data Range
100	RPN LSB	0...127
101	RPN MSB	0...127

If the Multi Part parameter Rcv RPN = OFF, that part will not receive this message.

The following RPN messages can be received.

NRPN MSB LSB	Data Entry ^{*1} MSB LSB	Parameter name and value range
00H 00H	mm -- ^{*2}	Pitch bend sensitivity mm:00-18H (0...+24 semitones) Specify up to 2 octaves in semitone steps\
00H 01H	mm ll	Fine tuning mm ll: 00H 00H -100 cents : : mm ll: 40H 00H 0 cents : : mm ll: 7FH 7FH +100 cents [Note] mm ll: 00H 7FH (= -87.5) cents is followed by 01H 00H (= -87.4) cents.
00H 02H	mm --	Coarse tuning mm:28H - 40H - 58H (-24...0...+24 semitones)
7FH 7FH	-- --	RPN Null This sets RPN and NRPN numbers to an unset state. Internal data is not affected.

- *1 Refer to 1.2.4
- *2 '-' indicates that the setting value is ignored.

1.2.23 Assignable controller

By assigning a control change number of 0...95 to a part, the specified effect can be controlled.
This device allows two control change numbers (AC1 and AC2) to be specified for each part.

The following parameters specify the effect of AC1 and AC2.

- Multi Part Parameter
 1. AC1, AC2 PITCH CONTROL
 2. AC1, AC2 FILTER CONTROL
 3. AC1, AC2 AMPLITUDE CONTROL
 4. AC1, AC2 LFO PMOD DEPTH
 5. AC1, AC2 LFO FMOD DEPTH
 6. AC1, AC2 LFO AMOD DEPTH
 - Effect1 Parameter
 7. AC1, AC2 VARIATION CONTROL DEPTH
(Valid if Variation Effect is assigned to a part as Insertion)
- The AC1 control change number is specified by the Multi Part parameter AC1 CONTROLLER NUMBER, and the AC2 control change number is specified by the Multi Part parameter AC2 CONTROLLER NUMBER.

1.3 Channel mode messages

These messages specify the basic operation of a part.

1.3.1 All Sound Off

This message silences all currently-sounding notes on the corresponding channel. However, the settings of channel messages such as Hold will be maintained.

Control#	Parameter	Data Range
120	All Sound Off	0

1.3.2 Reset All Controllers

This message resets the following controllers to their default values.

Controller	Value
Pitch bend change	±0 (center)
Channel Aftertouch	0 (off)
Polyphonic Aftertouch	0 (off)
Modulation	0 (off)
Expression	127 (maximum)
Hold	0 (off)
Portamento	0 (off)
Sostenuto	0 (off)
Soft pedal	0 (off)
Portamento control	Reset the portamento source note number that was received.
RPN	Number unset, internal data is not affected.
NRPN	Number unset, internal data is not affected.

The following data is not changed. Parameter values specified by program change, bank select MSB/LSB, volume, pan, effect send levels 1, 3, 4, RPN and NRPN.

Control#	Parameter	Data Range
121	Reset All Controllers	0

1.3.3 All Note Off

This message turns off all notes which are currently on for the corresponding part. However, if Hold 1 or Sostenuto are on, notes will continue to sound until these are turned off.

Control#	Parameter	Data Range
123	All Note Off	0

1.3.4 Omni Off

Perform the same processing as when All Note Off is received.

Control#	Parameter	Data Range
124	Omni Off	0

1.3.5 Omni On

Perform the same processing as when All Note Off is received.

Control#	Parameter	Data Range
125	Omni On	0

1.3.6 Mono

Perform the same processing as when All Sound Off is received, and if the value (mono number) is in the range of 0...16, set the corresponding channel to Mode4* (m = 1).

Control#	Parameter	Data Range
126	Mono	0...16

*Mode4 is a state in which only channel messages on the specified channel will be received, and notes will be sounded individually (monophonically).

1.3.7 Poly

Perform the same processing as when All Sound Off is received, and set the corresponding channel to Mode3*.

Control#	Parameter	Data Range
127	Poly	0

*Mode3 is when channel messages will be received only on the specified channel, and will be sounded polyphonically.

1.4 Program change

This message reports sound selection changes and changes the program number of the receiving channel.

In order to include changes to the voice bank, Program Change and Bank Select messages must be sent as a set (see 1.2.1). When RevPROGRAM CHANGE = OFF for Multi Part Parameter, the program change for that part is not received. Not received when Receive Program Change in Native System Parameters is set to off.

1.5 Pitch bend

This message conveys movements of the pitch bender.

This message is generally used to modify the pitch of a part, but the depth of the following seven effects can be controlled.

The effect of this message can be modified by the following parameters.

- Multi Part Parameter
 1. BEND PITCH CONTROL
 2. BEND FILTER CONTROL
 3. BEND AMPLITUDE CONTROL
 4. BEND LFO PMOD DEPTH
 5. BEND LFO FMOD DEPTH
 6. BEND LFO AMOD DEPTH
- Effect1 Parameter
 7. BEND VARIATION CONTROL DEPTH
(Valid when Variation Effect is assigned to a part as Insertion)

By default, the Pitch Control effect is applied.

If the Multi Part parameter Rcv PITCH BEND CHANGE = OFF, that part will not receive pitch bend messages.

1.6 Channel aftertouch (Receive only)

This message conveys the pressure which is applied to the keyboard after playing a note in order to create tonal changes (for an entire MIDI channel).

The pressure can be controlled for each part. This message will affect the currently-sounding notes.

The effect of this message will be determined by the settings of the following parameters.

- EMulti Part Parameter
 1. CAT PITCH CONTROL
 2. CAT FILTER CONTROL
 3. CAT AMPLITUDE CONTROL
 4. CAT LFO PMOD DEPTH
 5. CAT LFO FMOD DEPTH
 6. CAT LFO AMOD DEPTH
- Effect1 Parameter
 7. CAT VARIATION CONTROL DEPTH
(Valid when the Variation Effect is assigned to a part as Insertion)

By default, there will be no effect.

If the Multi Part parameter Rcv CHANNEL AFTER TOUCH = OFF, that part will not receive Channel Aftertouch.

1.7 Polyphonic aftertouch (Receive only)

This message conveys the pressure that is applied to the keyboard after playing a note (for individual note numbers).

The pressure can be controlled independently for each note. This message will affect currently-sounding notes.

The effect of this message is determined by the following Multi Part parameters.

1. PAT PITCH CONTROL
2. PAT FILTER CONTROL
3. PAT AMPLITUDE CONTROL
4. PAT LFO PMOD DEPTH
5. PAT LFO FMOD DEPTH
6. PAT LFO AMOD DEPTH

By default, there will be no effect.

The effect will apply to note numbers 36...97.

In the case of either of the following Multi Part parameter settings, that part will not receive Polyphonic Aftertouch.

Rcv CHANNEL AFTER TOUCH = OFF
PART MODE = DRUM, DRUMS1, 2

2. System exclusive messages

2.1 Parameter changes

This device uses the following parameter changes.

[UNIVERSAL REALTIME MESSAGE]

- 1) Master Volume

[UNIVERSAL NON REALTIME MESSAGE]

- 1) General MIDI System On

[XG PARAMETER CHANGE]

- 1) XG System on
- 2) XG System parameter change
- 3) Multi Effect1 parameter change
- 4) Multi Part parameter change
- 5) Drums Setup parameter change

[NATIVE PARAMETER CHANGE]

- 1) Native System parameter change
- 2) Remote Switch parameter change
- 3) Normal Voice parameter change
- 4) Drum Voice parameter change

[Others]

- 1) Master tuning

2.1.1 Universal realtime messages

2.1.1.1 Master Volume

11110000	F0H	= Exclusive status
01111111	7FH	= Universal Real Time
01111111	7FH	= ID of target device
00000100	04H	= Sub-ID #1=Device Control Message
00000001	01H	= Sub-ID #2=Master Volume
*0sssssss	SSH	= Volume LSB
0ttttttt	TTH	= Volume MSB
11110111	F7H	= End of Exclusive

or,

11110000	F0H	= Exclusive status
01111111	7FH	= Universal Real Time
0xxxnnnn	XNH	= n:Device Number, x=don't care
00000100	04H	= Sub-ID #1=Device Control Message
00000001	01H	= Sub-ID #2=Master Volume
0sssssss	SSH	= Volume LSB
0ttttttt	TTH	= Volume MSB
11110111	F7H	= End of Exclusive

When this is received, the Volume MSB will be reflected by the System parameter MASTER VOLUME.

*The binary expression 0sssssss is expressed in hexadecimal as SSH. The same applies elsewhere.

2.1.2 Universal non-realtime messages

2.1.2.1 General MIDI System On

11110000	F0H	= Exclusive status
01111110	7EH	= Universal Non-Real Time
01111111	7FH	= ID of target device
00001001	09H	= Sub-ID #1=General MIDI Message
00000001	01H	= Sub-ID #2=General MIDI On
11110111	F7H	= End of Exclusive

or,

11110000	F0H	= Exclusive status
01111110	7EH	= Universal Non-Real Time
0xxxnnnn	XNH	= n:Device Number, x=don't care
00001001	09H	= Sub-ID #1=General MIDI Message
00000001	01H	= Sub-ID #2=General MIDI On
11110111	F7H	= End of Exclusive

When this message is received in the Multi mode, all MIDI messages defined by GM will be received.

All data except for MIDI Master Tuning will be restored to the default value. Since approximately 50[ms] is required in order to process this message, be sure to allow an appropriate interval before sending the next message.

2.1.2.2 Identity Request

11110000	F0H	= Exclusive status
01111110	7EH	= Universal Non-Real Time
0mmmmmmm	MMH	= Device Number
00000110	06H	= Sub-ID #1=General Information
00000001	01H	= Sub-ID #2=Identity Request
11110111	F7H	= End of Exclusive

When this message is received, this device will transmit an Identity Reply message as described in the following section 2.1.2.3.

2.1.2.3 Identity Reply

11110000	F0H	= Exclusive status
01111110	7EH	= Universal Non-Real Time
0mmmmmmm	MMH	= Device Number
00000110	06H	= Sub-ID #1=General Information
00000010	02H	= Sub-ID #2=Identity Reply
01000011	43H	= YAMAHA ID
00000000	00H	= Device Family Code LSB S03 ID #1
01000001	41H	= Device Family Code MSB S03 ID #2
01110111	77H	= Device Number Code LSB S03 ID #3
00000100	04H	= Device Number Code MSB S03 ID #4
00000000	00H	
00000000	00H	
00000000	00H	
00000000	00H	
00000001	01H	= Tone Generator Code=XG
11110111	F7H	= End of Exclusive

This device will transmit this message when it receives the Identity Request message of 2.1.2.2.

2.1.3 XG parameter change

This message sets XG-related parameters. Each message can set a single parameter. The message format is as follows.

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	1NH	N:device Number
01001100	4CH	Model ID
0gggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
0sssssss	SSH	Data
:	:	
11110111	F7H	End of Exclusive

For parameters whose Data Size is 2 or 4, the appropriate amount of data will be transmitted as indicated by Size

2.1.3.1 XG System On

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	1NH	N:device Number
01001100	4CH	Model ID
00000000	00H	Address High
00000000	00H	Address Mid
01111110	7EH	Address Low
00000000	00H	Data
11110111	F7H	End of Exclusive

When On is received in the Multi mode, XG parameters will be restored to the default value. Since approximately 50[ms] are required in order to execute this message, please allow an appropriate interval before transmitting the next message.

2.1.3.2 XG System parameter change

This message sets the XG SYSTEM block (refer to tables <1-1>, <1-2>).

2.1.3.3 Multi Effect1 parameter change

This message sets the MULTI EFFECT1 block (refer to tables <1-1>, <1-4>). The S03 responds to this message only when it is set to the Multi mode.

2.1.3.4 Multi Part parameter change

This message sets the MULTI PART block (refer to tables <1-1>, <1-5>). The S03 responds to this message only when it is set to the Multi mode.

2.1.3.5 Drums Setup parameter change

This message sets the DRUMS SETUP block (refer to tables <1-1>, <1-6>). The S03 responds to this message only when it is set to the Multi mode.

2.1.4 S03 native parameter change

This message sets parameters unique to the S03. Each message sets a single parameter. Each message modifies a single parameter. The message format is as follows.

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	1NH	N:device Number
01101100	6CH	Model ID
0gggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
0sssssss	SSH	Data
:	:	
11110111	F7H	End of Exclusive

For parameters whose Data Size is 2 or 4, the number of data bytes indicated by Size are transmitted.

2.1.4.1 Native System parameter change

This message sets the NATIVE SYSTEM block (refer to tables <2-1>, <2-3>).

2.1.4.2 Remote Switch parameter change

This message sets the REMOTE SWITCH block (refer to tables <2-1>, <2-5>).

2.1.4.3 Normal Voice parameter change

This message sets the NORMAL VOICE (Edit Buffer) block (refer to tables <2-1>, <2-9>, <2-10>). The S03 responds to this message only when it is set to the Voice mode.

2.1.4.4 Drum Voice parameter change

This message sets the Drum VOICE (Edit Buffer) block (refer to tables <2-1>, <2-11>, <2-12>). The S03 responds to this message only when it is set to the Voice mode.

2.1.5 Other parameter changes

2.1.5.1 Master tuning

This message simultaneously modifies the tuning of all channels.

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	1NH	N:device Number
00100111	27H	Model ID
00110000	30H	Address High
00000000	00H	Address Mid
00000000	00H	Address Low
0000mmmm	0MH	Master Tune MSB
00001111	0LH	Master Tune LSB
0xxxxxxx	XXH	don't care
11110111	F7H	End of Exclusive

Normally, the XG SYSTEM message MASTER TUNE should be used (refer to table <1-2>).

2.2 Bulk dump

This device uses the following bulk dump messages.

[XG BULK DUMP]

- 1) XG System bulk dump
- 2) System Information bulk dump
- 3) Multi Effect1 bulk dump
- 4) Multi Part bulk dump
- 5) Drums Setup bulk dump

[NATIVE BULK DUMP]

- 1) Native System bulk dump
- 2) Bulk Control bulk dump
- 3) Native Multi bulk dump
- 4) Normal Voice bulk dump
- 5) Drum Voice bulk dump

2.2.1 XG bulk dump

This message sets XG-related parameters. Unlike parameter change messages, a single message can modify multiple parameters. The message format is as follows.

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0000nnnn	0NH	N:Device Number
01001100	4CH	Model ID
0sssssss	SSH	ByteCountMSB
0ttttttt	TTH	ByteCountLSB
0ggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
0vvvvvvv	VVH	Data
:	:	:
0kkkkkkk	KKH	Check-sum
11110111	F7H	End of Exclusive

Address and Byte Count are given in tables 1-n. Byte Count is indicated by the total size of the Data in tables 1-n.

Bulk dump and dump request messages are received when the beginning of the block is specified as the 'Address'.

'Block' indicates the unit of the data string that is indicated in tables 1-n as 'Total size'.

Check sum is the value that produces a lower 7 bits of 0 when the Start Address, Byte Count, Data, and the Check-sum itself are added.

2.2.1.1 XG System bulk dump

This message sets the XG SYSTEM block (refer to tables <1-1>, <1-2>).

2.2.1.2 System Information bulk dump

This message indicates the contents of the SYSTEM INFORMATION block (refer to tables <1-1>, <1-3>).

This message is transmitted in response to a Dump Request, but this message will be ignored if it is received.

2.2.1.3 Multi Effect1 bulk dump

This message sets the MULTI EFFECT1 block (refer to tables <1-1>, <1-4>).

2.2.1.4 Multi Part bulk dump

This message sets the MULTI PART block (refer to tables <1-1>, <1-5>).

2.2.1.5 Drums Setup bulk dump

This message sets the DRUMS SETUP block (refer to tables <1-1>, <1-6>).

2.2.2 S03 native bulk dump

This message modifies parameters unique to the S03. Unlike parameter change messages, a single message will modify multiple parameters.

The message format is as follows.

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0000nnnn	0NH	N:Device Number
01101100	6CH	Model ID
0sssssss	SSH	ByteCountMSB
0ttttttt	TTH	ByteCountLSB
0ggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
0vvvvvvv	VVH	Data
:	:	:
0kkkkkkk	KKH	Check-sum
11110111	F7H	End of Exclusive

Address and Byte Count are given in tables x-n. Byte Count is indicated by the total size of the Data in tables x-n.

Bulk dump and dump request messages are received when the beginning of the block is specified as the 'Address'.

Block indicates the unit of the data string that is indicated in tables x-n as 'Total size'.

Check sum is the value that produces a lower 7 bits of 0 when the Start Address, Byte Count, Data, and the Check-sum itself are added.

2.2.2.1 Native System bulk dump

This message sets the NATIVE SYSTEM block (refer to tables <2-1>, <2-2>, <2-3>).

2.2.2.2 Bulk Control bulk dump

Bulk Control bulk dump This message sets the parameters such as Multi Number, Memory Bank and Voice Number when the Native Multi bulk dump, Normal Voice bulk dump or Drum Voice Bulk dump is received (refer to tables <2-1>, <2-2>, <2-4>).

2.2.2.3 Native Multi bulk dump

This message sets the NATIVE MULTI block (refer to tables <2-1>, <2-2>, <2-6>, <2-7>, <2-8>).

To receive this message, the Bulk Header and Bulk Footer of Bulk Control must be received before and after reception, respectively.

The Bulk Header determines the Multi number to which the data is stored.

2.2.2.4 Normal Voice bulk dump

This message sets the NORMAL VOICE block (refer to tables <2-1>, <2-2>, <2-9>, <2-10>).

To receive this message, the Bulk Header and Bulk Footer of Bulk Control must be received before and after reception, respectively.

The Bulk Header determines the Memory Bank/Voice number to which the data is stored.

2.2.2.5 Drum Voice bulk dump

This message sets the NORMAL VOICE block (refer to tables <2-1>, <2-2>, <2-11>, <2-12>).

To receive this message, the Bulk Header and Bulk Footer of Bulk Control must be received before and after reception, respectively.

The Bulk Header determines the Memory Bank/Voice number to which the data is stored.

2.3 Parameter request

This message requests transmission of a parameter value.

The output is transmitted in the Parameter Change message format (refer to 2.1.x).

2.3.1 XG parameter request

This message requests transmission of XG parameter settings.

Settings are transmitted in the format of an XG parameter change (refer to 2.1.3).

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	3NH	N:device Number
01001100	4CH	Model ID
0ggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
11110111	F7H	End of Exclusive

2.3.2 S03 native parameter request

This message requests transmission of a parameter value unique to the S03.

The output is transmitted in the format of a S03 native parameter change (refer to 2.1.4).

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	3NH	N:device Number
01101100	6CH	Model ID
0ggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
11110111	F7H	End of Exclusive

2.4 Dump request

This message requests transmission of a specific block of parameter values.

The output is the same as the bulk dump format.

2.4.1 XG dump request

This message requests transmission of all parameters of the specified block of XG parameters.

The output is the same as the format of XG bulk dump (refer to 2.2.1).

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	2NH	N:device Number
01001100	4CH	Model ID
0ggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
11110111	F7H	End of Exclusive

Address is valid only when the beginning of the block has been specified.

2.4.2 S03 native dump request

This message requests transmission of all parameters of the specified block of S03 native parameters.

The output is in the same format as an S03 native bulk dump (refer to 2.2.2).

11110000	F0H	Exclusive status
01000011	43H	YAMAHA ID
0001nnnn	2NH	N:device Number
01101100	6CH	Model ID
0ggggggg	GGH	Address High
0mmmmmmm	MMH	Address Mid
01111111	LLH	Address Low
11110111	F7H	End of Exclusive

Address is valid only when the beginning of the block has been specified.

No System Exclusive Message is received when the Compare function is active.

3. Realtime messages

3.1 Active sensing

a) Transmission

Transmitted at every 270 msec.

b) Receive

Once FE has been received, failure to receive any MIDI message for an interval longer than approximately 300 msec will cause processing to be performed as if ALL SOUND OFF, ALL NOTE OFF, and RESET ALL CONTROLLERS messages were received, and the unit will reset to a condition in which FE was never received.

MIDI Data Table

Bank Select

Available Bank Select/Program Change

MSB	(HEX)	LSB	(HEX)	Program No.	Type	Memory	Description
0	00	*1		0 - 127	Normal Voice	GM/XG	
64	40	0	00	*1			
126	7E	0	00	0 - 1			
127	7F	0	00	*1	Drum Voice		
63	3F	0	00	0 - 127	Normal Voice	Preset	
63	3F	8	08	0 - 127		User	
63	3F	40	28	0 - 1		Drum Voice	User
63	3F	64	40	0 - 127	Multi	User	Effective only when in the Multi mode

*1 Refer to Voice List

<Table 1 - 1 >

XG Parameter Base Address

MODEL ID = 4C

Parameter	Address		Description	Remarks
	(H)	(M)		
XG SYSTEM	00	00	00	XG System
	00	00	7D	Drum Setup Reset
	00	00	7E	XG System On
	00	00	7F	All Parameter Reset
INFORMATION	01	00	00	System Information
EFFECT 1	02	01	00	Effect1 (Reverb, Chorus, Variation)
MULTI PART	08	00	00	Multi Part 1
				:
	08	0F	00	Multi Part 16
DRUM	30	0D	00	Drum Setup 1
	31	0D	00	Drum Setup 2

The S03 responds to the message "MODEL ID = 4C" only when in the Multi mode.

Address	Parameter
3n 0D 00	note number 13
3n 0E 00	note number 14
:	:
3n 5B 00	note number 91

<Table 1 - 2 >

MIDI Parameter Change table (XG SYSTEM)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00	00 4	00 - 0F	MASTER TUNE	-102.4...0...+102.3[cent]	00 04 00 00
01 01	00 0F	00 - 0F		1st bit3-0 -bit15-12	
02 02	00 0F	00 - 0F		2nd bit3-0 -bit11-8	
03 03	00 0F	00 - 0F		3rd bit3-0 -bit7-4	
				4th bit3-0 -bit3-0	
04 04	1 00 - 7F		MASTER VOLUME	0...127	7F
05 05	1		not used		
06 06	1 28 - 58		TRANPOSE	-24...0...+24 [semitones]	40
7D 7D	1 N		DRUM SETUP RESET	N: Drum setup number (0,1)	--
7E 7E	1 00		XG SYSTEM ON	00=XG system ON (receive only)	--
7F 7F	1 00		ALL PARAMETER RESET	00=ON (receive only)	--

TOTAL SIZE 07

<Table 1 - 3 >

MIDI Parameter Change table (SYSTEM INFORMATION)

Address (H)	Size (H)	Data (H)	Parameter	Description
01 00	00 E	20 - 7F	Model Name 1	32...127(ASCII CHARACTER)
				:
	0D	20 - 7F	Model Name 14	32...127 (ASCII CHARACTER)
	0E 1	00 - 7F	XG Level 1	
	0F 1	00 - 7F	XG Level 2	

TOTAL SIZE 10

Transmitted in response to Dump Request. Not received.

<Table 1 - 4 >

MIDI Parameter Change table (EFFECT)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
02 01	00 2	00 - 7F	REVERB TYPE MSB	Refer to Effect Type List	01(=HALL1)
		00 - 7F	REVERB TYPE LSB		00
	02 1	00 - 7F	REVERB PARAMETER 1		12(depends on reverb type)
	03 1	00 - 7F	REVERB PARAMETER 2		0A(*)
	04 1	00 - 7F	REVERB PARAMETER 3		08(*)
	05 1	00 - 7F	REVERB PARAMETER 4		0D(*)
	06 1	00 - 7F	REVERB PARAMETER 5		31(*)
	07 1	00 - 7F	REVERB PARAMETER 6		00(*)
	08 1	00 - 7F	REVERB PARAMETER 7		00(*)
	09 1	00 - 7F	REVERB PARAMETER 8		00(*)
	0A 1	00 - 7F	REVERB PARAMETER 9		00(*)
	0B 1	00 - 7F	REVERB PARAMETER 10		00(*)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
	0C 1	00 - 7F	REVERB RETURN	--dB...0dB...+6dB(0...96...127)	40
	0D 1	01 - 7F	REVERB PAN	L63...C...R63	40

TOTAL SIZE 0E

02 01	10 1	00 - 7F	REVERB PARAMETER 11	Refer to Effect Parameter List	00(depends on reverb type)
	11 1	00 - 7F	REVERB PARAMETER 12		04(*)
	12 1	00 - 7F	REVERB PARAMETER 13		32(*)
	13 1	00 - 7F	REVERB PARAMETER 14		08(*)
	14 1	00 - 7F	REVERB PARAMETER 15		40(*)
	15 1	00 - 7F	REVERB PARAMETER 16		00(*)

TOTAL SIZE 6

02 01	20 2	00 - 7F	CHORUS TYPE MSB	Refer to Effect Type List	41(=CHORUS1)
		00 - 7F	CHORUS TYPE LSB		00
	22 1	00 - 7F	CHORUS PARAMETER 1		06(depends on chorus type)
	23 1	00 - 7F	CHORUS PARAMETER 2		36(*)
	24 1	00 - 7F	CHORUS PARAMETER 3		4D(*)
	25 1	00 - 7F	CHORUS PARAMETER 4		6A(*)
	26 1	00 - 7F	CHORUS PARAMETER 5		00(*)
	27 1	00 - 7F	CHORUS PARAMETER 6		1C(*)
	28 1	00 - 7F	CHORUS PARAMETER 7		40(*)
	29 1	00 - 7F	CHORUS PARAMETER 8		2E(*)
	2A 1	00 - 7F	CHORUS PARAMETER 9		40(*)
	2B 1	00 - 7F	CHORUS PARAMETER 10		40(*)
	2C 1	00 - 7F	CHORUS RETURN	--dB...0dB...+6dB(0...96...127)	40
	2D 1	01 - 7F	CHORUS PAN	L63...C...R63(1...64...127)	40
	2E 1	00 - 7F	SEND CHORUS TO REVERB	--dB...0dB...+6dB(0...96...127)	00

TOTAL SIZE 0F

02 01	30 1	00 - 7F	CHORUS PARAMETER 11	Refer to Effect Type List	2E(depends on chorus type)
	31 1	00 - 7F	CHORUS PARAMETER 12		40(*)
	32 1	00 - 7F	CHORUS PARAMETER 13		0A(*)
	33 1	00 - 7F	CHORUS PARAMETER 14		00(*)
	34 1	00 - 7F	CHORUS PARAMETER 15		00(*)
	35 1	00 - 7F	CHORUS PARAMETER 16		00(*)

TOTAL SIZE 6

02 01	40 2	00 - 7F	VARIATION TYPE MSB	Refer to Effect Type List	05(=DELAY L, C, R)
		00 - 7F	VARIATION TYPE LSB		00
	42 2	00 - 7F	VARIATION PARAMETER 1 MSB		1A(depends on variation type)
		00 - 7F	VARIATION PARAMETER 1 LSB		05(*)
	44 2	00 - 7F	VARIATION PARAMETER 2 MSB		0D(*)
		00 - 7F	VARIATION PARAMETER 2 LSB		03(*)
	46 2	00 - 7F	VARIATION PARAMETER 3 MSB		27(*)
		00 - 7F	VARIATION PARAMETER 3 LSB		08(*)
	48 2	00 - 7F	VARIATION PARAMETER 4 MSB		27(*)
		00 - 7F	VARIATION PARAMETER 4 LSB		08(*)
	4A 2	00 - 7F	VARIATION PARAMETER 5 MSB		00(*)
		00 - 7F	VARIATION PARAMETER 5 LSB		4A(*)
	4C 2	00 - 7F	VARIATION PARAMETER 6 MSB		00(*)
		00 - 7F	VARIATION PARAMETER 6 LSB		64(*)
	4E 2	00 - 7F	VARIATION PARAMETER 7 MSB		00(*)
		00 - 7F	VARIATION PARAMETER 7 LSB		0A(*)
	50 2	00 - 7F	VARIATION PARAMETER 8 MSB		00(*)
		00 - 7F	VARIATION PARAMETER 8 LSB		00(*)
	52 2	00 - 7F	VARIATION PARAMETER 9 MSB		00(*)
		00 - 7F	VARIATION PARAMETER 9 LSB		00(*)
	54 2	00 - 7F	VARIATION PARAMETER 10 MSB		00(*)
		00 - 7F	VARIATION PARAMETER 10 LSB		20(*)
	56 1	00 - 7F	VARIATION RETURN	--dB...0dB...+6dB(0...96...127)	40
	57 1	01 - 7F	VARIATION PAN	L63...C...R63(1...64...127)	40
	58 1	00 - 7F	SEND VARIATION TO REVERB	--dB...0dB...+6dB(0...96...127)	00
	59 1	00 - 7F	SEND VARIATION TO CHORUS	--dB...0dB...+6dB(0...96...127)	00
	5A 1	00 - 01	VARIATION CONNECTION	INSERTION, SYSTEM	00
	5B 1	00 - 7F	VARIATION PART NUMBER	Part1 OFF(127)	7F
	5C 1	00 - 7F	MW VARIATION CONTROL DEPTH		-64...0...+63
	5D 1	00 - 7F	BEND VARIATION CONTROL DEPTH		-64...0...+63
	5E 1	00 - 7F	CAT VARIATION CONTROL DEPTH		-64...0...+63
	5F 1	00 - 7F	AC1 VARIATION CONTROL DEPTH		-64...0...+63
	60 1	00 - 7F	AC2 VARIATION CONTROL DEPTH		-64...0...+63

TOTAL SIZE 21

02 01	70 1	00 - 7F	VARIATION PARAMETER 11	Refer to Effect Parameter List	00(depends on variation type)
	71 1	00 - 7F	VARIATION PARAMETER 12		3C(*)
	72 1	00 - 7F	VARIATION PARAMETER 13		1C(*)
	73 1	00 - 7F	VARIATION PARAMETER 14		40(*)
	74 1	00 - 7F	VARIATION PARAMETER 15		2E(*)
	75 1	00 - 7F	VARIATION PARAMETER 16		40(*)

TOTAL SIZE 6

<Table 1 - 5>

MIDI Parameter Change table (MULTI PART)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
08 nn 00 1	00 - 20		ELEMENT RESERVE	0...64	part10 = 0 other parts = 2
	01 1	00 - 7F	BANK SELECT MSB	0...127	part10 = 7F other parts = 0
	02 1	00 - 7F	BANK SELECT LSB	0...127	00
	03 1	00 - 7F	PROGRAM NUMBER	1...128	00
	04 1	00-0F 7F	Rcv CHANNEL	A1...A16, OFF	Part No.
	05 1	00 - 01	MONO/POLY MODE	MONO, POLY	01
	06 1	00 - 02	SAME NOTE NUMBER KEY ON ASSIGN	SINGLE, MULTI, INST (for DRUM)	01
	07 1	00 - 03	PART MODE	NORMAL, DRUM, DRUMS1	Part10=2 other parts=0
	08 1	28 - 5B	NOTE SHIFT	-24...0...+24[semitones]	40
	09 2	00 - 0F	DETUNE	-12.8...0...+12.7[Hz]	08 00
	0A	00 - 0F		1st bit3-0 -bit7-4	
				2nd bit3-0 -bit3-0	
	0B 1	00 - 7F	VOLUME	0...127	64
	0C 1	00 - 7F	VELOCITY SENSE DEPTH	0...127	40
	0D 1	00 - 7F	VELOCITY SENSE OFFSET	0...127	40
	0E 1	00 - 7F	PAN	RND, L63...C...R63	40
	0F 1	00 - 7F	NOTE LIMIT LOW	C-2...G8	00
	10 1	00 - 7F	NOTE LIMIT HIGH	C-2...G8	7F
	11 1	00 - 7F	DRY LEVEL	0...127	7F
	12 1	00 - 7F	CHORUS SEND	0...127	00
	13 1	00 - 7F	REVERB SEND	0...127	28
	14 1	00 - 7F	VARIATION SEND	0...127	00
	15 1	00 - 7F	VIBRATO RATE	-64...0...+63	40
	16 1	00 - 7F	VIBRATO DEPTH	-64...0...+63	40(drum part ignores)
	17 1	00 - 7F	VIBRATO DELAY	-64...0...+63	40(drum part ignores)
	18 1	00 - 7F	LOW PASS FILTER CUTOFF FREQUENCY	-64...0...+63	40
	19 1	00 - 7F	LOW PASS FILTER RESONANCE	-64...0...+63	40
	1A 1	00 - 7F	EG ATTACK TIME	-64...0...+63	40
	1B 1	00 - 7F	EG DECAY TIME	-64...0...+63	40
	1C 1	00 - 7F	EG RELEASE TIME	-64...0...+63	40
	1D 1	28 - 5B	MW PITCH CONTROL	-24...0...+24[semitones]	40
	1E 1	00 - 7F	MW LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
	1F 1	00 - 7F	MW AMPLITUDE CONTROL	-100...0...+100[%]	40
	20 1	00 - 7F	MW LFO PMOD DEPTH	0...127	0A
	21 1	00 - 7F	MW LFO FMOD DEPTH	0...127	00
	22 1	00 - 7F	MW LFO AMOD DEPTH	0...127	00
	23 1	28 - 5B	BEND PITCH CONTROL	-24...0...+24[semitones]	42
	24 1	00 - 7F	BEND LOWPASS FILTER CONTROL	-9600...0...+9450[cent]	40
	25 1	00 - 7F	BEND AMPLITUDE CONTROL	-100...0...+100[%]	40
	26 1	00 - 7F	BEND LFO PMOD DEPTH	0...127	00
	27 1	00 - 7F	BEND LFO FMOD DEPTH	0...127	00
	28 1	00 - 7F	BEND LFO AMOD DEPTH	0...127	00

TOTAL SIZE 29

08 nn	30 1	00 - 01	Rcv PITCH BEND	OFF, ON	01
	31 1	00 - 01	Rcv CH AFTER TOUCH(CAT)	OFF, ON	01
	32 1	00 - 01	Rcv PROGRAM CHANGE	OFF, ON	01
	33 1	00 - 01	Rcv CONTROL CHANGE	OFF, ON	01
	34 1	00 - 01	Rcv POLY AFTER TOUCH(PAT)	OFF, ON	01
	35 1	00 - 01	Rcv NOTE MESSAGE	OFF, ON	01
	36 1	00 - 01	Rcv RPN	OFF, ON	01
	37 1	00 - 01	Rcv NRPN	OFF, ON	XGmode=01, GMmode=00
	38 1	00 - 01	Rcv MODURATION	OFF, ON	01
	39 1	00 - 01	Rcv VOLUME	OFF, ON	01
	3A 1	00 - 01	Rcv PAN	OFF, ON	01
	3B 1	00 - 01	Rcv EXPRESSION	OFF, ON	01
	3C 1	00 - 01	Rcv HOLD1	OFF, ON	01
	3D 1	00 - 01	Rcv PORTAMENTO	OFF, ON	01
	3E 1	00 - 01	Rcv SOSTENUTO	OFF, ON	01
	3F 1	00 - 01	Rcv SOFT PEDAL	OFF, ON	01
	40 1	00 - 01	Rcv BANK SELECT	OFF, ON	XGmode=01, GMmode=00
	41 1	00 - 7F	SCALE TUNING C	-64...0...+63[cent]	40
	42 1	00 - 7F	SCALE TUNING C#	-64...0...+63[cent]	40
	43 1	00 - 7F	SCALE TUNING D	-64...0...+63[cent]	40
	44 1	00 - 7F	SCALE TUNING D#	-64...0...+63[cent]	40
	45 1	00 - 7F	SCALE TUNING E	-64...0...+63[cent]	40
	46 1	00 - 7F	SCALE TUNING F	-64...0...+63[cent]	40
	47 1	00 - 7F	SCALE TUNING F#	-64...0...+63[cent]	40
	48 1	00 - 7F	SCALE TUNING G	-64...0...+63[cent]	40
	49 1	00 - 7F	SCALE TUNING G#	-64...0...+63[cent]	40
	4A 1	00 - 7F	SCALE TUNING A	-64...0...+63[cent]	40
	4B 1	00 - 7F	SCALE TUNING A#	-64...0...+63[cent]	40
	4C 1	00 - 7F	SCALE TUNING B	-64...0...+63[cent]	40
	4D 1	28 - 5B	CAT PITCH CONTROL	-24...0...+24[semitones]	40
	4E 1	00 - 7F	CAT LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
	4F 1	00 - 7F	CAT AMPLITUDE CONTROL	-100...0...+100[%]	40
	50 1	00 - 7F	CAT LFO PMOD DEPTH	0...127	00
	51 1	00 - 7F	CAT LFO FMOD DEPTH	0...127	00
	52 1	00 - 7F	CAT LFO AMOD DEPTH	0...127	00
	53 1	28 - 5B	PAT PITCH CONTROL	-24...0...+24[semitones]	40
	54 1	00 - 7F	PAT LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
	55 1	00 - 7F	PAT AMPLITUDE CONTROL	-100...0...+100[%]	40
	56 1	00 - 7F	PAT LFO PMOD DEPTH	0...127	00
	57 1	00 - 7F	PAT LFO FMOD DEPTH	0...127	00
	58 1	00 - 7F	PAT LFO AMOD DEPTH	0...127	00
	59 1	00 - 5F	AC1 CONTROLLER NUMBER	0...95	10
	5A 1	28 - 5B	AC1 PITCH CONTROL	-24...0...+24[semitones]	40
	5B 1	00 - 7F	AC1 LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
	5C 1	00 - 7F	AC1 AMPLITUDE CONTROL	-100...0...+100[%]	40

	5D 1	00 - 7F	AC1 LFO PMOD DEPTH	0...127	00
	5E 1	00 - 7F	AC1 LFO FMOD DEPTH	0...127	00
	5F 1	00 - 7F	AC1 LFO AMOD DEPTH	0...127	00
	60 1	00 - 5F	AC2 CONTROLLER NUMBER	0...95	11
	61 1	28 - 5B	AC2 PITCH CONTROL	-24...0...+24[semitones]	40
	62 1	00 - 7F	AC2 LOW PASS FILTER CONTROL	-9600...0...+9450[cent]	40
	63 1	00 - 7F	AC2 AMPLITUDE CONTROL	-100...0...+100[%]	40
	64 1	00 - 7F	AC2 LFO PMOD DEPTH	0...127	00
	65 1	00 - 7F	AC2 LFO FMOD DEPTH	0...127	00
	66 1	00 - 7F	AC2 LFO AMOD DEPTH	0...127	00
	67 1	00 - 01	PORTAMENTO SWITCH	OFF, ON	00
	68 1	00 - 7F	PORTAMENTO TIME	0...127	00
	69 1	00 - 7F	PITCH EG INITIAL LEVEL	-64...0...+63	40
	6A 1	00 - 7F	PITCH EG ATTACK TIME	-64...0...+63	40
	6B 1	00 - 7F	PITCH EG RELEASE LEVEL	-64...0...+63	40
	6C 1	00 - 7F	PITCH EG RELEASE TIME	-64...0...+63	40
	6D 1	01 - 7F	VELOCITY LIMIT LOW	1...127	01
	6E 1	01 - 7F	VELOCITY LIMIT HIGH	1...127	7F

TOTAL SIZE 3F

nn = PART NUMBER(00 - 0F)

In the case of DRUM PART, the following parameters will have no effect.

- BANK SELECT LSB
- MONO/POLY MODE
- SCALE TUNING
- PORTAMENTO

<Table 1 - 6>

MIDI Parameter Change table (DRUM SETUP)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
3n rr 00 1	00 - 7F		PITCH COARSE	-64...0...+63	40
	01 1	00 - 7F	PITCH FINE	-64...0...+63[cent]	40
	02 1	00 - 7F	LEVEL	0...127	depend on the note
	03 1	00 - 7F	ALTERNATE GROUP	OFF, 1...127	-
	04 1	00 - 7F	PAN	RND, L63...C...R63	-
	05 1	00 - 7F	REVERB SEND	0...127	-
	06 1	00 - 7F	CHORUS SEND	0...127	-
	07 1	00 - 7F	VARIATION SEND	0...127	7F
	08 1	00 - 01	KEY ASSIGN	SINGLE, MULTI	00
	09 1	00 - 01	Rcv NOTE OFF	OFF, ON	depend on the note
	0A 1	00 - 01	Rcv NOTE ON	OFF, ON	01
	0B 1	00 - 7F	LOW PASS FILTER CUTOFF FREQUENCY	-64...0...63	40
	0C 1	00 - 7F	LOW PASS FILTER RESONANCE	-64...0...63	40
	0D 1	00 - 7F	EG ATTACK RATE	-64...0...63	40
	0E 1	00 - 7F	EG DECAY1 RATE	-64...0...63	40
	0F 1	00 - 7F	EG DECAY2 RATE	-64...0...63	40

TOTAL SIZE 10

n = DRUM SETUP NUMBER(0 - 1)

rr = NOTE NUMBER(0D - 5B)

In the following cases, the S03 will initialize all Drum Setups.

- XG SYSTEM ON received
- GM SYSTEM ON received
- DRUM SETUP RESET received (the designated Drum Setup only when in XG mode)

[Note]

When a part to which a Drum Setup is assigned receives a program change, the assigned Drum Setup will be initialized.

If the same Drum Setup is assigned to two or more parts, changes in Drum Setup parameters (including program changes) will apply to all parts to which it is assigned.

<Table 2 - 1>

Native Parameter Base Address

MODEL ID = 6C

Parameter	Address		Description	Remarks
	(H)	(L)		
NATIVE SYSTEM	0A	00	Native System	
REMOTE SWITCH	0A	00	Remote Switch	Receives parameter change only
BULK CONTROL	0E	00	Header	Bulk dump only
	0F	00	Footer	
MULTI COMMON	30	00	Multi Common	
MULTI EFFECT	30	01	Multi Effect	Bulk dump only
MULTI PART	31	00	Multi Part 1	Bulk dump only
	:	:	:	
	31	0F	Multi Part 16	
NORMAL VOICE COMMON	40	00	Normal Voice Common	
NORMAL VOICE ELEMENT	41	00	Normal Voice Element 1	
	:	:	:	
	41	03	Normal Voice Element 4	
DRUM VOICE COMMON	46	00	Drum Voice Common	
DRUM VOICE KEY	47	0D	Drum Voice Key	

Address	Parameter
47 0D 00	note number 13
47 0E 00	note number 14
:	:
47 5B 00	note number 91

<Table 2 - 2>

Bulk Dump Block

Parameter Block	Description	Byte Count		Top Address		
		Dec	Hex	H	M	L
NATIVE SYSTEM	Native System	22	16	00	00	00
NATIVE MULTI	Bulk Header	0	00	0E	mm	nn
COMMON	Common	13	0B	30	00	00
EFFECT	Reverb Parameter	20	14	30	01	00
	Chorus Parameter	53	35	30	01	20
	Variation Parameter	103	67	30	01	40
PART	Multi Part1	43	2B	31	00	00
	: 16 Blocks	:	:	:	:	:
	Multi Part16	43	2B	31	0F	00
	Bulk Footer	0	00	0F	mm	nn
NATIVE NORMAL VOICE	Bulk Header	0	00	0E	mm	nn
COMMON	Common1	12	0C	40	00	00
	Common2	33	21	40	00	10
ELEMENT	Element1	106	6A	41	00	00
	Element2	106	6A	41	01	00
	Element3	106	6A	41	02	00
	Element4	106	6A	41	03	00
ELEMENT OPTION	Element Option1	52	34	42	00	00
	Element Option2	52	34	42	01	00
	Element Option3	52	34	42	02	00
	Element Option4	52	34	42	03	00
	Bulk Footer	0	00	0F	mm	nn
NATIVE DRUM VOICE	Bulk Header	0	00	0E	mm	nn
COMMON	Common	10	0A	46	00	00
KEY	Key C#-1	16	10	47	0D	00
	: 79 Blocks	:	:	:	:	:
	Key G5	16	10	47	5B	00
	Bulk Footer	0	00	0F	mm	nn

<Table 2 - 3>

MIDI Parameter Change table (NATIVE SYSTEM)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00	00 1	00 - 60	MW Transmit Control Number	0...95(0,32=off), AT(96)	01
	01 1	00 - 60	FC Transmit Control Number	0...95(0,32=off), AT(96)	0B
	02 1	00 - 61	FS Transmit Control Number	0...95(0,32=off), PC INC(96), PC DEC(97)	40
	03 1	00 - 01	Voice Mode Controller Reset	Hold, Reset	01
	04 1	00 - 01	Local Switch	off, on	01
	05 1	00 - 10	Receive Channel	1...16, ormi	10
	06 1	00 - 0F	Transmit Channel	1...16	00
	07 1	00 - 01	Receive Program Change	off, on	01
	08 1	00 - 01	Receive Bank Select	off, on	01
	09 1	00 - 01	Transmit Program Change	off, on	01
	0A 1	00 - 01	Transmit Bank Select	off, on	01
	0B 1	3D - 43	Octave Shift	-3...+3	40
	0C 1	35 - 4B	Keyboard Transpose	-11...+11	40
	0D 1	00 - 05	Velocity Curve	normal, soft1, soft2, easy, wide, hard	03
	0E 1	00 - 7F	Fixed Velocity	off, 1...127	00
	0F 1	00 - 01	Voice Effect Bypass	off, on	00
	10 1	00 - 5F	Voice Mode AC1 Control Number	0...95	10
	11 1	00 - 07	Thru Port	1...8	00
	12 4	00	MASTER TUNE	-102.4...0...+102.3[cent]	00 04 00 00
	13	00 - 07		1st bit3-0 -bit15-12	
	14	00 - 0F		2nd bit3-0 -bit11-8	
	15	00 - 0F		3rd bit3-0 -bit7-4	
				4th bit3-0 -bit3-0	

TOTAL SIZE 16

<Table 2 - 4>

MIDI Parameter Change table (BULK CONTROL)

Address (H)	Size (H)	Data (H)	Parameter	Description	
0E 00	nn 0	-	Bulk Header	Normal Voice PRESET (nn = 0 - 127)	
0B nn	0 -			Normal Voice USER (nn = 0 - 127)	
0F nn	0 -			Normal Voice Edit Buffer (nn = 0)	
28 nn	0 -			Drum Voice USER (nn = 0 - 1)	
2F nn	0 -			Drum Voice Edit Buffer (nn = 0)	
40 nn	0 -			Multi USER (nn = 0 - 31)	
41 nn	0 -			Multi Edit Buffer (nn=0)	
7F nn	0 -			Drum Voice S03 Kit (nn = 120 - 127)	
0F 00	nn 0	-		Bulk Footer	Normal Voice PRESET (nn = 0 - 127)
0B nn	0 -				Normal Voice USER (nn = 0 - 127)
0F nn	0 -				Normal Voice Edit Buffer (nn = 0)
28 nn	0 -				Drum Voice USER (nn = 0 - 1)
2F nn	0 -		Drum Voice Edit Buffer (nn = 0)		
40 nn	0 -		Multi USER (nn = 0 - 31)		
41 nn	0 -		Multi Edit Buffer (nn=0)		
7F nn	0 -		Drum Voice S03 Kit (nn = 120 - 127)		

<Table 2 - 5>

MIDI Parameter Change table (REMOTE SWITCH)

Address (H)	Size (H)	Data (H)	Parameter	Description
0A 00	00 1	01	MULTI	on
	01 1	01	VOICE	on
	02 1	01	DEMO	on
	03 1	01	UTILITY	on
	04 1	01	MIDI	on
	05 1	01	EDIT	on
	06 1	01	JOB	on
	07 1	01	STORE	on
	08 1	01	PART PLUS	on
	09 1	01	PART MINUS	on
	0A 1	01	PART PLUS + MINUS	on
	0B 1	01	INC/YES	on
	0C 1	01	DEC/NO	on
	0D 1	01	PAGE UP	on
	0E 1	01	PAGE DOWN	on
	0F 1	01	LEFT	on
	10 1	01	RIGHT	on
	11 1	01	OCT DOWN	on
	12 1	01	OCT UP	on
	13 1	01	OCT DOWN + UP	on
	14 1	01	ENTER	on
	15 1	01	EXIT	on
	16 1	01	CATEGORY SEARCH	on
	17 1	01	PRESET	on
	18 1	01	USER	on
	19 1	01	GM/XG	on
	1A 1	01	DRUM + USER	on
	1B 1	01	DRUM + GM/XG	on
	1C 1	01	0	on
	1D 1	01	1	on
	1E 1	01	2	on
	1F 1	01	3	on
	20 1	01	4	on
	21 1	01	5	on
	22 1	01	6	on
	23 1	01	7	on
	24 1	01	8	on
	25 1	01	9	on
	26 1	01	MINUS	on
	27 1	01	MUTE	on

<Table 2 - 6>

MIDI Parameter Change table (NATIVE MULTI COMMON)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
30 00	00 1	20 - 7F	Multi Name 1	32...127(ASCII)	49 (!)
	01 1	20 - 7F	Multi Name 2	32...127(ASCII)	6E (n)
	02 1	20 - 7F	Multi Name 3	32...127(ASCII)	69 (i)
	03 1	20 - 7F	Multi Name 4	32...127(ASCII)	74 (t)
	04 1	20 - 7F	Multi Name 5	32...127(ASCII)	20 (')
	05 1	20 - 7F	Multi Name 6	32...127(ASCII)	4D (M)
	06 1	20 - 7F	Multi Name 7	32...127(ASCII)	6C (!)
	07 1	20 - 7F	Multi Name 8	32...127(ASCII)	74 (t)
	08 1	00 - 10	Multi Category	0, 2...16(--, PF, OR, GT, BA, ST, BR, RP, LD, PD, SC, CP, DR, SE, ME, CO)	00 (--)
	09 1	00 - 7F	Multi Volume	0...127	7F
	0A 1	28 - 5B	Multi Transpose	-24...+24	40

TOTAL SIZE 0B

<Table 2 - 7>

MIDI Parameter Change table (NATIVE MULTI EFFECT)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
30 01	00 2	00 - 7F	REVERB TYPE MSB	Refer to Effect Program List	01(=HALL1)
	00 2	00 - 7F	REVERB TYPE LSB	"	00
	02 1	00 - 7F	REVERB PARAMETER 1	"	12(depends on reverb type)
	03 1	00 - 7F	REVERB PARAMETER 2	"	0A(*)
	04 1	00 - 7F	REVERB PARAMETER 3	"	0B(*)
	05 1	00 - 7F	REVERB PARAMETER 4	"	0D(*)
	06 1	00 - 7F	REVERB PARAMETER 5	"	31(*)
	07 1	00 - 7F	REVERB PARAMETER 6	"	00(*)
	08 1	00 - 7F	REVERB PARAMETER 7	"	00(*)
	09 1	00 - 7F	REVERB PARAMETER 8	"	00(*)
	0A 1	00 - 7F	REVERB PARAMETER 9	"	00(*)
	0B 1	00 - 7F	REVERB PARAMETER 10	"	00(*)
	0C 1	00 - 7F	REVERB RETURN	--dB...0dB...+6dB(0...96...127)	40
	0D 1	01 - 7F	REVERB PAN	L63...C...R63	40
	0E 1	00 - 7F	REVERB PARAMETER 11	Refer to Effect Parameter List	00(depends on reverb type)
	0F 1	00 - 7F	REVERB PARAMETER 12	"	04(*)
	10 1	00 - 7F	REVERB PARAMETER 13	"	32(*)
	11 1	00 - 7F	REVERB PARAMETER 14	"	0B(*)
	12 1	00 - 7F	REVERB PARAMETER 15	"	40(*)
	13 1	00 - 7F	REVERB PARAMETER 16	"	00(*)

TOTAL SIZE 14

30 01	20 2	00 - 7F	CHORUS TYPE MSB	Refer to Effect Program List	41(=CHORUS1)
	00 2	00 - 7F	CHORUS TYPE LSB	"	00
	22 1	00 - 7F	CHORUS PARAMETER 1	"	06(depends on chorus type)
	23 1	00 - 7F	CHORUS PARAMETER 2	"	3B(*)
	24 1	00 - 7F	CHORUS PARAMETER 3	"	4D(*)
	25 1	00 - 7F	CHORUS PARAMETER 4	"	6A(*)

Function...	Transmitted	Recognized	Remarks
Basic Channel Default Changed	1 - 16 1 - 16	1 - 16 1 - 16	Memorized
Mode Default Messages Altered	3 X *****	3 1 - 4 (m=1) *2 X	Memorized
Note Number : True voice	0 - 127 *****	0 - 127 0 - 127	
Velocity Note ON Note OFF	O 9nH, v=1-127 X 9nH, v=0	O 9nH, v=1-127 X	
After Touch Key's Ch's	X O *3	O *1 O *1	
Pitch Bend	O	O 0-24 semi *1	
Control Change 0,32 1,5,7,10,11 6,38 64-67 71-74 84 91,93,94 96-97 98-99 100-101 1-31,33-95	O X X X X X X X X X X O	O *1 O *1 O *1 O *1 O *1 O *1 O *1 O *1 O *1 O *1 O *1	Bank Select Data Entry Sound Controller Portamento Cntrl Effect Depth RPN Inc,Dec NRPN LSB,MSB RPN LSB,MSB Assignable Cntrl
Prog Change : True #	O 0 - 127 *****	O 0 - 127 0 - 127	
System Exclusive	O	O	
Common : Song Pos. : Song Sel. : Tune	X X X	X X X	
System : Clock Real Time : Commands	X X	X X	
Aux : All Sound Off : Reset All Cntrls : Local ON/OFF Mes- : All Notes OFF sages: Active Sense : Reset	X X X X O X	O (120,126,127) O (121) X O (123-125) O X	

Notes:
 *1 receive if switch is on.
 *2 m is always treated as "1" regardless of its value.
 *3 though the keyboard itself has no after touch,
 after touch data can be transmitted from MW and FC
 when after touch is assigned to the controllers.