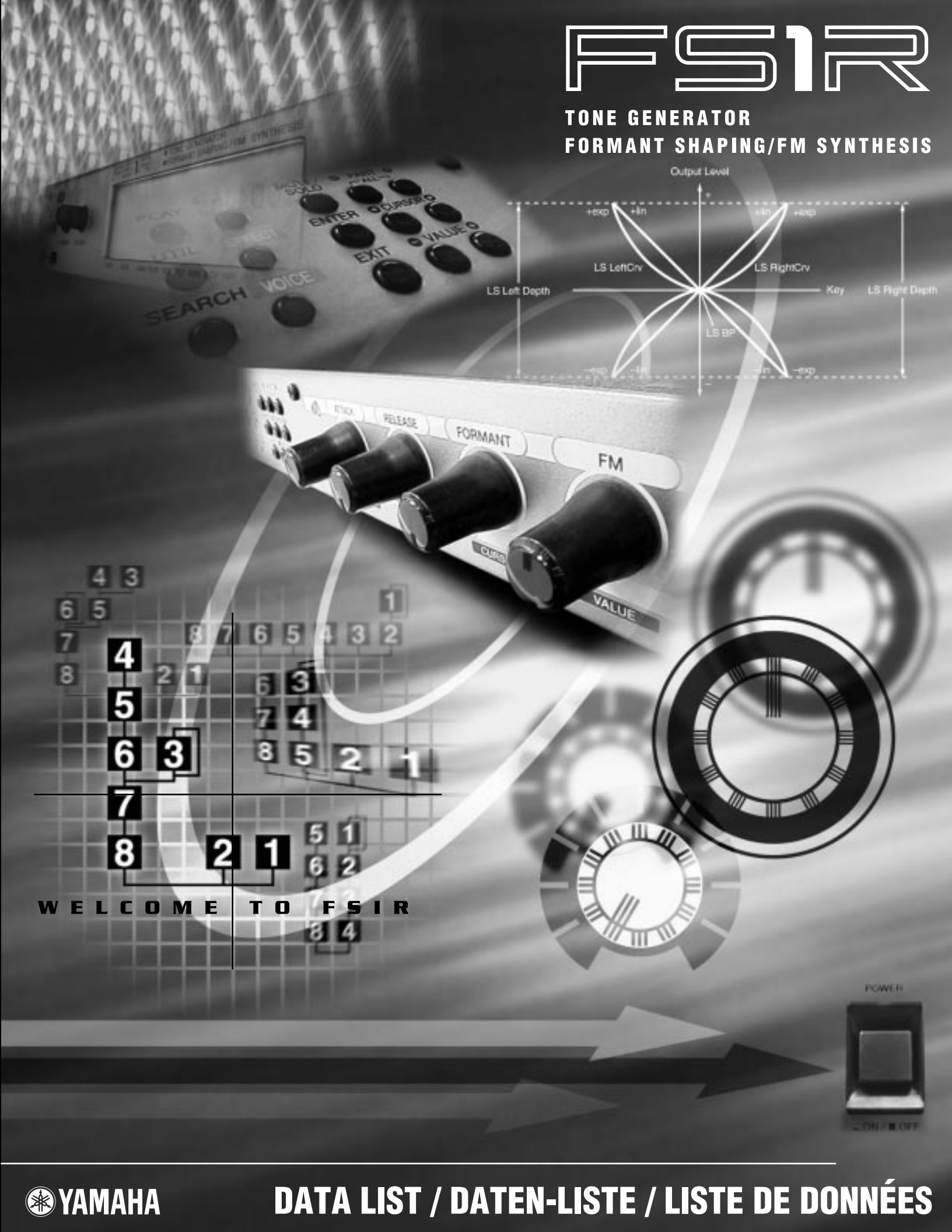
FS1R

TONE GENERATOR
FORMANT SHAPING/FM SYNTHESIS



YAMAHA

DATA LIST / DATEN-LISTE / LISTE DE DONNÉES

FS1R

TONE GENERATOR
FORMANT SHAPING/FM SYNTHESIS

DATA LIST
DATEN-LISTE
LISTE DE DONNÉES

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Internal

No.	Performance Name	Category
1	Teck Hook	Ld
2	Yes No	Se
3	Choir	Vo
4	EP Wide	Pf
5	Bleep	Co
6	B-Rave	Ba
7	Earth Lead	Ld
8	Ensemble	St
9	Full B3	Or
10	Nebulous	Pd
11	VocoTouch	Vo
12	Bassline 1	Ba
13	Nu Suitcase	Pf
14	StabbaBabb	Br
15	Dark	Se
16	Dog Bytes	Sq
17	FundaBass	Ba
18	Magic Laugh	Se
19	Breathy 5th	Vo
20	Velvet Dyno	Pf
21	Syncorgano	Ld
22	Acid King	Ba
23	Taxi Brass	Br
24	Moby II	Pd
25	Nightmare	Fx
26	Zansyo	Sc
27	Homy	Vo
28	Optical	Ba
29	Digi Clav	Pf
30	Relaxxx	Co
31	B3 Jazz Comp	Or
32	TekkSet	Dr
33	Strobe	Ba
34	HyperFuzz	Ba
35	Sho	Fx
36	Kalimba	Et
37	DX-Soft	Br
38	Technical	Ba
39	Obie Strings	St
40	Caravan	Fx
41	Brassetra	Br
42	Snow Decay	Sc
43	Bots	Fx
44	Plastic Bass	Ba
45	Full Tines	Pf
46	Pompeii	Pd
47	To Warp	Se
48	BoomTchak	Dr
49	Compu Saw	Ba
50	Dirt Vocoder	Vo
51	Lightyears	Vo
52	Nu Skool	Ld
53	EtherGuitar	Gt
54	Bassline 2	Ba
55	Blazin' Jim	Or
56	Shaman	Vo
57	Emperor II	Pd
58	Da Comp	Sc
59	Starship	Pd
60	Jungle Bass	Ba
61	Vulcan	Sc
62	Sand Voice	Vo
63	Hollywood	Co
64	Drum Kit 1	Dr

No.	Performance Name	Category
65	Fifths	Sc
66	Sweepers	Ld
67	Miracle	Fx
68	Platipus	Ld
69	Backin Organ	Or
70	LoFi Acid	Ba
71	Zap !	Se
72	JMichel	St
73	Stab	Br
74	Legend Vibe	Cp
75	Vox Move	Vo
76	Digital	Ba
77	Siam Prayer	Et
78	Mysterians	Fx
79	Venus	Co
80	Drum Kit 2	Dr
81	Lead Horn	Br
82	Mouth Pop	Co
83	Hard String	Gt
84	Baroque	Ld
85	Swarm	Co
86	Mitosis	Ld
87	Moving	Fx
88	Wind Pad	Pd
89	DistFeedback	Gt
90	EP Soft	Pf
91	Shooby Do	Vo
92	Furry Bell	Fx
93	Spiral	Se
94	ChurchOrgan	Or
95	Accordion	Or
96	Drum Kit 3	Dr
97	CP Hard	Pf
98	Warm Galaxy	Pd
99	Superarp	Sq
100	Fetish	Ld
101	B3 Perc 3rd	Or
102	Funky Tech	Sc
103	Fat Line	Sq
104	Can You Give	Vo
105	Snow Pixy	Sc
106	Earth Wind	Pd
107	Prophet F	Fx
108	Obi Hornz	Br
109	Tremolo	Pf
110	Open	Se
111	Elise	Pd
112	Drum Kit 9o9	Dr
113	Matze	Ba
114	Strat 7II	Gt
115	Morph	Fx
116	Hollow	Ld
117	Heimdal	Pd
118	Zapper	Sc
119	LS Night	Or
120	Spacious	St
121	Perc Arp	Sq
122	Spellbound	Sc
123	Trance Cosmo	Ld
124	Moon Bass	Ba
125	Manhattan	Sc
126	Angel Bells	Pd
127	Far West	Cp
128	Spacy Aaah	Vo

Preset A

No.	Performance Name	Category
1	Zap !	Se
2	Shaman	Vo
3	Nightmare	Fx
4	Acid King	Ba
5	Snow Decay	Sc
6	Hollywood	Co
7	Yes No	Se
8	Fetish	Ld
9	Platipus	Ld
10	Bots	Fx
11	Sho	Fx
12	Technical	Ba
13	Dirt Vocoder	Vo
14	Homy	Vo
15	BeatBox	Dr
16	Magic Laugh	Se
17	VocoTouch	Vo
18	The Seeker	Vo
19	Can You Give	Vo
20	Vox Morph	Vo
21	Vox Phase	Vo
22	F-Sweep	Vo
23	The Vocoder	Vo
24	Sand Voice	Vo
25	Everybody	Vo
26	HyperFuzz	Ba
27	Dist Mini	Ba
28	Strobe	Ba
29	Digital	Ba
30	Power Key	Ba
31	Moon Bass	Ba
32	LoFi Acid	Ba
33	Funk Bass	Ba
34	Matze	Ba
35	Glass Harp	Ld
36	Sweepers	Ld
37	Nu Skool	Ld
38	Syncorgano	Ld
39	Mitosis	Ld
40	Trance Cosmo	Ld
41	Glider	Ld
42	Night	Se
43	To Warp	Se
44	Space Bomb	Se
45	Open	Se
46	Dark	Se
47	Walking Robo	Se
48	Scaling	Se
49	Ghost	Se
50	Saucer	Se
51	Force Field	Se
52	Radio MW	Se
53	4-3-2-1	Se
54	Slow Attack	Se
55	Spiral	Se
56	Morph	Fx
57	Moving	Fx
58	Prophet F	Fx
59	Caravan	Fx
60	FormantSweep	Fx
61	Mysterians	Fx
62	DippeDut	Fx
63	Glacial	Fx
64	Mizu Guitar	Fx

No.	Performance Name	Category
65	Pure	Fx
66	Furry Bell	Fx
67	Replicant	Fx
68	Miracle	Fx
69	Swarm	Co
70	Venus	Co
71	Relaxxx	Co
72	Mouth Pop	Co
73	R.P.M.	Co
74	Solstice	Co
75	Bleep	Co
76	Starship	Pd
77	SuperPad	Pd
78	Moby II	Pd
79	Spacy Pad	Pd
80	Pompeii	Pd
81	The Shadow	Pd
82	Earth Wind	Pd
83	Nebulous	Pd
84	CineSweep	Pd
85	Qwerty	Pd
86	Warm Galaxy	Pd
87	Octavian	Pd
88	Fat Line	Sq
89	Metallic	Sq
90	Superarp	Sq
91	Noble Metal	Sq
92	Perc Arp	Sq
93	Dog Bytes	Sq
94	Iron Man	Sq
95	Hard Pulse	Sq
96	Zansyo	Sc
97	Da Comp	Sc
98	Snow Pixy	Sc
99	Fusion	Sc
100	Funk	Sc
101	Manhattan	Sc
102	Fifths	Sc
103	Vulcan	Sc
104	Fluffy	Sc
105	Spellbound	Sc
106	VeloSweep	Sc
107	Raymond	Sc
108	Zapper	Sc
109	Harry	Sc
110	Fast&Cheap	Sc
111	Funky Tech	Sc
112	Pluck Glass	Sc
113	Komodo	Sc
114	Suikinkutsu	Et
115	Gamelan	Et
116	Thai Boxing	Et
117	Siam Prayer	Et
118	EthnicPercs	Et
119	Mukkuri	Et
120	Kalimba	Et
121	Drum Kit 1	Dr
122	Drum Kit 2	Dr
123	Drum Kit 3	Dr
124	Drum Kit 9o9	Dr
125	TechBeat	Dr
126	BoomTchak	Dr
127	TechKicks	Dr
128	TekkSet	Dr

Preset B

No.	Performance Name	Category	No.	Performance Name	Category
1	Sweepy Voice	Vo	65	Perc Organ	Or
2	Breathy 5th	Vo	66	Dirty Organ	Or
3	Lightyears	Vo	67	ByonOrgan	Or
4	Vox Move	Vo	68	Blazin' Jim	Or
5	Vox Tron	Vo	69	Backin Organ	Or
6	Spacy Aaah	Vo	70	LS Night	Or
7	Celebration	Vo	71	Fat organ	Or
8	Choir	Vo	72	70s Organ	Or
9	Human Woo	Vo	73	Jazz Organ	Or
10	Human Ih	Vo	74	Full Organ	Or
11	Human Eh	Vo	75	The Lounge	Or
12	Human Oh	Vo	76	ChurchOrgan	Or
13	Shooby Do	Vo	77	Hard String	Gt
14	Full Tines	Pf	78	DX Jazz	Gt
15	DX Original	Pf	79	EtherGuitar	Gt
16	Dyno Rose	Pf	80	DistFeedback	Gt
17	EP 1980	Pf	81	Strat 7II	Gt
18	Crystal Rose	Pf	82	Taxi Brass	Br
19	DX Phase	Pf	83	BrightFilter	Br
20	DX Classic	Pf	84	Lead Horn	Br
21	EP Reece	Pf	85	Bright	Br
22	Nu Suitcase	Pf	86	DX-Soft	Br
23	EP Wide	Pf	87	Brassetra	Br
24	Velvet Dyno	Pf	88	Oberhorn	Br
25	Tremolo	Pf	89	Obi Brass	Br
26	EP Soft	Pf	90	Obi Hornz	Br
27	Wurli Dirty	Pf	91	Swell	Br
28	Wurli Clean	Pf	92	Stab	Br
29	CP Hard	Pf	93	Quackz	Br
30	UprightPiano	Pf	94	StabbaBabb	Br
31	Clavmann	Pf	95	Fanfare	Br
32	BryteClavman	Pf	96	Wind Pad	Pd
33	Fat Clavmann	Pf	97	Dark Pad	Pd
34	Digi Clav	Pf	98	Thermal	Pd
35	Thin Clav	Pf	99	Spacewind	Pd
36	Optical	Ba	100	Elise	Pd
37	FundaBass	Ba	101	OB Pad	Pd
38	B-Rave	Ba	102	Reflection	Pd
39	Square Bass	Ba	103	Emperor II	Pd
40	Ethno Bass	Ba	104	Fat Pad	Pd
41	Bassline 1	Ba	105	Polar	Pd
42	Bassline 2	Ba	106	Sky Bells	Pd
43	JungleBass	Ba	107	Heimdal	Pd
44	Plastic Bass	Ba	108	Ice Score	Pd
45	Punch Bass	Ba	109	Solair	Pd
46	Compu Saw	Ba	110	Angel Bells	Pd
47	Dry Syn	Ba	111	Vesuvius	Pd
48	Earth Lead	Ld	112	Space Harp	Pd
49	Hollow	Ld	113	Ministry	Pd
50	Samplon	Ld	114	Ensemble	St
51	Noodles	Ld	115	Obie Strings	St
52	BigAssSynth	Ld	116	JMichel	St
53	Teck Hook	Ld	117	Mild	St
54	Sunhead	Ld	118	Spacious	St
55	Moonweed	Ld	119	Oktavstrgs	St
56	Tech Lead	Ld	120	Hit	En
57	Retronic	Ld	121	Accordion	Or
58	Formo Whistl	Ld	122	Sitar	Et
59	Baroque	Ld	123	Bag Pipe	Et
60	Full B3	Or	124	Alloy	Cp
61	B3 Jazz Comp	Or	125	Tubular	Cp
62	B3 Perc 3rd	Or	126	Far West	Cp
63	J.Road	Or	127	Small Bell	Cp
64	Disto-Jam	Or	128	Legend Vibe	Cp

Preset C

No.	Performance Name	Category	No.	Performance Name	Category
1	UprightPiano	Pf	65	FM Lead Sax	Rd
2	FM Piano	Pf	66	FM Dbl Reed	Rd
3	EP Wide	Pf	67	Dark Clar	Rd
4	CP Hard	Pf	68	Moonweed	Ld
5	Velvet Dyno	Pf	69	Hollow	Ld
6	Clear EP	Pf	70	Tech Lead	Ld
7	DX Harpscd	Pf	71	Retronic	Ld
8	Digi Clav	Pf	72	HyperFuzz	Ba
9	5th Piano	Pf	73	FM Piccolo	Pi
10	Glocken	Cp	74	FM Flute	Pi
11	MusicBox	Cp	75	RecoBell	Pi
12	Legend Vibe	Cp	76	FM PanFlute	Pi
13	Marimba	Cp	77	FM Bottle	Pi
14	Xylophon	Cp	78	Heavy Pipe	Pi
15	TubulBel	Cp	79	Whistle	Pi
16	Dulcimer	Cp	80	Ocarina	Pi
17	B3 Perc 3rd	Or	81	Earth Lead	Ld
18	B3 Jazz Comp	Or	82	Platipus	Ld
19	Old Rotary	Or	83	FM Lead	Ld
20	Full Organ	Or	84	FM Lead 2	Ld
21	Dist Organ	Or	85	FM Lead 3	Ld
22	Accordion	Or	86	FM Lead 4	Ld
23	Chorus Harp	Or	87	Sunhead	Ld
24	ChurchOrgan	Or	88	Teck Hook	Ld
25	Nylon Guitar	Gt	89	Space Harp	Pd
26	Steel Guitar	Gt	90	Fat Pad	Pd
27	Jazz Guitar	Gt	91	Thermal	Pd
28	Clean Guitar	Gt	92	Nebulous	Pd
29	Mute Guitar	Gt	93	Qwerty	Pd
30	DistFeedback	Gt	94	FM Pad	Pd
31	Dist Guitar	Gt	95	Spacy Pad	Pd
32	Punch Bass	Ba	96	Spacewind	Pd
33	Aco Bass	Ba	97	Rain	Sc
34	Plastic Bass	Ba	98	Fifths	Sc
35	FM Slap	Ba	99	Crystal	Sc
36	Fretless	Ba	100	Atmospher	Sc
37	Pick Bass	Ba	101	Bright Ens	Pd
38	FM Slap 2	Ba	102	Goblins	Sc
39	Bassline 1	Ba	103	Harry	Sc
40	Compu Saw	Ba	104	Sci-Fi	Sc
41	Strobe	Ba	105	Sitar 2	Et
42	Acid King	Ba	106	Suikinkutsu	Et
43	Power Key	Ba	107	Mukkuri	Et
44	5th Funk	Ba	108	Kalimba	Et
45	DX Solo Str	St	109	Kalimba 2	Et
46	Tremolo Str	St	110	Bag Pipe	Et
47	FM Pizz	St	111	Fiddle	Et
48	FM Harp	St	112	Shanai	Et
49	Spacious	St	113	TnklBell	Pc
50	FM Strings	En	114	Agogo	Pc
51	JMichel	St	115	SteelDrm	Pc
52	Ensemble	St	116	WoodBlok	Pc
53	Vox Morph	Vo	117	TaikoDrm	Pc
54	Vox Move	Vo	118	Hollywood	Co
55	Vox Phase	Vo	119	Bleep	Co
56	Hit	En	120	4-3-2-1	Se
57	FM Solo Tp	Br	121	DippeDut	Fx
58	Fanfare	Br	122	Glacial	Fx
59	DX-Soft	Br	123	Ice	Fx
60	Lead Horn	Br	124	Angle	Fx
61	Fr.Horn	Br	125	Shooby Do	Vo
62	FM Section	Br	126	Everybody	Vo
63	Bright	Br	127	Vox Move 2	Vo
64	StabbaBabb	Br	128	Drum Kit 2	Dr

Voice List / Liste der Voices / Liste des voix

Program 1 ~ 64

Bank	Pre A		Pre B		Pre C		Pre D		Pre E		Pre F		Pre G	
PGM#	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name
1	Pf	Ballad EP	Et	BagPipe	Pf	FortePno 1	Pf	Harpsi 8	Cp	DumBells	Gt	DX-AcstGt1	Ba	BassNovo
2	Pf	Clavmann	Et	BagPipe-dl	Pf	FortePno 2	Pf	Harpsi 9	Cp	MellowBell	Gt	DX-AcstGt2	Ba	BassResWp
3	Pf	Clavmann 2	Et	Gamelan	Pf	MM-Piano 1	Pf	HarpsiWire	Cp	Mini Bell	Gt	DX-AcstGt3	Ba	Cutmandu
4	Pf	Digi Clav	Et	Gamelan2	Pf	MM-Piano 2	Pf	AD 1600s 1	Cp	Child Bell	Gt	DX-AcstGt4	Ba	DX-Bass 1
5	Pf	DX7Classic	Et	Mukkuri	Pf	Pianotone1	Pf	AD 1600s 2	Cp	PPP Thing	Gt	DX-AcstGt5	Ba	DX-Bass 2
6	Pf	Mtrial Pno	Et	SuikinStr	Pf	Pianotone2	Pf	AD 1900s	Cp	Stonemetal	Gt	GuitarBell	Ba	DX-Bass 3
7	Pf	MtrialPno2	Et	Thai Boxin	Pf	Pianotone3	Pf	Caffeine	Cp	Syn Chime	Gt	LuteGuitar	Ba	DX-Bass 4
8	Pf	MtrialPno3	Et	ThumKalimb	Pf	5thPiano 1	Pf	RazorWire	Cp	Air Bell	Gt	DX-PickGt1	Ba	DX-Bass 5
9	Pf	Real Rose	Pc	Big-Gamlan	Pf	5thPiano 2	Pf	Cembalim	Cp	WrapRound	Gt	DX-PickGt2	Ba	DX-Bass 6
10	Pf	Rose Att	Pc	Eth-Drum1	Pf	PrprdPiano	Pf	Cembalo	Cp	TempleBel1	Gt	DX-PickGt3	Ba	WireBass 1
11	Pf	Rose Sft1	Pc	Eth-Drum2	Pf	Claviano	Pf	ElecHarpsi	Cp	TempleBel2	Gt	DX-PickGt4	Ba	WireBass 2
12	Pf	Rose Sft2	Se	Beep VoX	Pf	BrightPno1	Pf	Syn Harpsi	Cp	TempleBel3	Gt	DX-PickGt5	Ba	HardDXBass
13	Pf	Suit Rose	Se	Dark	Pf	BrightPno2	Pf	DX-Clavi 1	Cp	TempleBel4	Gt	DX-PickGt6	Ba	SmakaBass
14	Pf	Velvt Rose	Se	ForceField	Pf	BrightPno3	Pf	DX-Clavi 2	Cp	TempleBel5	Gt	DX-PickGt7	Ba	AnaBass 1
15	Pf	4 Op Clav	Se	Ghost	Pf	Dark Piano	Pf	DX-Clavi 3	Cp	DX-Dlcm 1	Gt	DX-PickGt8	Ba	AnaBass 2
16	Cp	Da Comp	Se	Ghost2	Pf	Digi Piano	Pf	DX-Clavi 4	Cp	DX-Dlcm 2	Gt	Synhalon	Ba	AnaBass 3
17	Cp	Synth Bell	Se	Magic	Pf	PianoDrops	Pf	DX-Clavi 5	Cp	DX-Dlcm 3	Gt	Picksynth	Ba	81Z Bass
18	Cp	Tabla	Se	Night	Pf	PowerPiano	Pf	DX-Clavi 6	Cp	Frozentime	Gt	Compitar	Ba	DiscBass 1
19	Or	B3JazzComp	Se	Open Fseq	Pf	CP70 1	Pf	DX-Clavi 7	Cp	MetalDlcmr	Gt	Stratish	Ba	DiscBass 2
20	Or	B3Perc3rd	Se	RadioNoise	Pf	CP70 2	Pf	MM-Clavi 1	Cp	Silk Road	Gt	Banjitar	Ba	Hop Bass 1
21	Or	DrawOrgn	Se	Reso SE	Pf	CP70 3	Pf	MM-Clavi 2	Or	Full Organ	Gt	Touch Mute	Ba	Hop Bass 2
22	Or	DrawOrgn2	Se	Saucer	Pf	El.Grand 1	Pf	MM-Clavi 3	Or	DrawOrgan1	Gt	Firenze	Ba	After 88
23	Or	DrawOrgn3	Se	Scaling SE	Pf	El.Grand 2	Pf	BrightClv1	Or	DrawOrgan2	Gt	Folknik	Ba	Cable Bass
24	Or	Fs-Organ	Se	Slow Atk	Pf	El.Grand 3	Pf	BrightClv2	Or	DrawOrgan3	Gt	FunkyPluck	Ba	Wood Rez
25	Or	Full Drawb	Se	SpaceBomb	Pf	El.Grand 4	Pf	BasoClavi	Or	DrawOrgan4	Gt	Guitar Box	Ba	EazyAction
26	Or	Ham Organ	Se	WalkinRobo	Pf	MM-ElGnd 1	Pf	ChorusClav	Or	DrawOrgan5	Gt	Long Nail	Ba	ExciteBass
27	Or	OR-Right	Se	Warp1	Pf	MM-ElGnd 2	Pf	Clavecin	Or	DrawOrgan6	Gt	Pianatar	Ba	PrkussBass
28	Or	Organ Fseq	Se	Warp2	Pf	E.Piano 1	Pf	Clavi Comp	Or	DrawOrgan7	Gt	RhythmPluk	Ba	Flapstick
29	Or	The Lounge	Dr	09 OpenHat	Pf	E.Piano 2	Pf	ClaviExcel	Or	DrawOrgan8	Gt	SteelyPick	Ba	Jackson
30	Gt	Jazz Gtr	Dr	09ClHatBel	Pf	E.Piano 3	Pf	ClaviPluck	Or	DrawOrgan9	Gt	TiteGuitar	Ba	NipponBass
31	Gt	Stratmann	Dr	Beat BD	Pf	E.Piano 4	Pf	ClaviStaff	Or	DrawOrgn10	Gt	DX-JazzGt1	Ba	Bass Knock
32	Ba	Acid King	Dr	Beat Cym	Pf	E.Piano 5	Pf	Mute Clavi	Or	DrawOrgn11	Gt	DX-JazzGt2	Ba	Ana Stevie
33	Ba	Ana Bass	Dr	Beat SD	Pf	E.Piano 6	Pf	Revinett	Or	DrawOrgn12	Gt	DX-JazzGt3	Ba	Munkhen
34	Ba	AttackBass	Dr	Beat Zap	Pf	E.Piano 7	Pf	SkeltonClv	Or	DrawOrgn13	Gt	DX-JazzGt4	Ba	Perc Bass
35	Ba	B-Rave	Dr	Boom	Pf	E.Piano 8	Cp	Celesta 1	Or	DrawOrgn14	Gt	DX-JazzGt5	Ba	Remark
36	Ba	Bassline 1	Dr	Choos	Pf	E.Piano 9	Cp	Celesta 2	Or	DrawOrgn15	Gt	Guitorgan	Ba	SmoothBass
37	Ba	Bassline 2	Dr	ClosedHat1	Pf	E.Piano 10	Cp	Celesta 3	Or	DrawOrgn16	Gt	DX-ClGt 1	Ba	Ana Knock
38	Ba	BlegBass	Dr	ClosedHat2	Pf	E.Piano 11	Cp	Celesta 4	Or	Organsynth	Gt	DX-ClGt 2	Ba	Jaco Syn
39	Ba	DidgBass	Dr	DanceKick	Pf	E.Piano 12	Cp	MM-Celesta	Or	ChorusOrgn	Gt	DX-ClGt 3	Ba	Werksfunk
40	Ba	Dry Syn	Dr	FS-Kick1	Pf	E.Piano 13	Cp	Halloween	Or	RotaryOrgn	Gt	DX-ClGt 4	Ba	ZedRubba
41	Ba	FM Bass	Dr	FS-Kick2	Pf	E.Piano 14	Cp	Glocken 1	Or	CirkusOrgn	Gt	DX-ClGt 5	St	DX-Violin1
42	Ba	FundaBass	Dr	FS-Kick3	Pf	E.Piano 15	Cp	Glocken 2	Or	JazzDrwbr	Gt	DX-ClGt 6	St	DX-Violin2
43	Ba	HyperFuzz	Dr	Hatty	Pf	E.Piano 16	Cp	Glocken 3	Or	Keyclick	Gt	DX-ClGt 7	St	DX-Violin3
44	Ba	JungleBass	Dr	Hihat	Pf	E.Piano 17	Cp	Glocken 4	Or	VibraOrgan	Gt	DX-ClGt 8	St	DX-Violin4
45	Ba	LoFiAcid	Dr	Nu Kick 1	Pf	Aclectic	Cp	Glocken 5	Or	Farf Out	Gt	DX-ClGt 9	St	Violinz
46	Ba	Matze	Dr	Nu Kick 2	Pf	DX-Road 1	Cp	Glocken 6	Or	Grinder	Gt	DX-ClGt 10	St	DX-Viola 1
47	Ba	Moon Bass	Dr	Nu Kick 3	Pf	DX-Road 2	Cp	HamerGlock	Or	JazzOrgan1	Gt	DX-ClGt 11	St	DX-Viola 2
48	Ba	Phone Bass	Dr	Nu Snare 1	Pf	DX-Road 3	Cp	Magiglokk	Or	JazzOrgan2	Gt	DX-ClGt 12	St	DX-Viola 3
49	Ba	PlastBass	Dr	Nu Snare 2	Pf	DX-Road 4	Cp	AnvilGlock	Or	PercOrgan1	Gt	Buzzstring	St	DX-Cello 1
50	Ba	PunchBass	Dr	Nu Snare 3	Pf	DX-Road 5	Cp	MetalGlock	Or	PercOrgan2	Gt	DX-MuteGt1	St	DX-Cello 2
51	Ba	Syn Bass	Dr	Open Hat 1	Pf	BrightEP 1	Cp	Perc Glock	Or	PercOrgan3	Gt	DX-MuteGt2	St	DX-Cello 3
52	Ba	Technical	Dr	Open Hat 2	Pf	BrightEP 2	Cp	Glokenring	Or	PercOrgan4	Gt	DX-MuteGt3	St	DX-Cello 4
53	St	FairyStrgs	Dr	PowerKick	Pf	EP 1967	Cp	SynGlock 1	Or	PercOrgan5	Gt	DX-MuteGt4	St	Rosin
54	St	JMichel	Dr	Snare	Pf	EP 1970	Cp	SynGlock 2	Or	PercOrgan6	Gt	Heavy Gage	St	DX-Str 1
55	St	OB String	Dr	Tchak	Pf	EP 1980	Cp	MusicBox 1	Or	PercOrgan7	Gt	DX-OvDrGt	St	DX-Str 2
56	St	ResoStrgs	Dr	Tech BD	Pf	EP 1985	Cp	MusicBox 2	Or	PercOrgan8	Gt	DX-DistGt1	St	DX-Str 3
57	St	Saws	Dr	Tech HH	Pf	Soft EP 1	Cp	MusicBox 3	Or	PercOrgan9	Gt	DX-DistGt2	St	DX-Str 4
58	St	SloDu Saws	Dr	Tech Rim	Pf	Soft EP 2	Cp	MusicBox 4	Or	PercOrgn10	Gt	DX-DistGt3	St	DX-Str 5
59	St	SS String	Dr	Tech SD	Pf	Soft EP 3	Cp	MusicBox 5	Or	PercOrgn11	Gt	DX-DistGt4	St	DX-Str 6
60	St	SS String2	Dr	TR Kick	Pf	Hard EP 1	Cp	MusicBox 6	Or	PercOrgn12	Gt	DX-DistGt5	St	DX-Str 7
61	En	HitMatrial	Dr	TR Snare	Pf	Hard EP 2	Cp	MusicBox 7	Or	PercOrgn13	Gt	Stortion1	St	DX-Str 8
62	Br	ANSweep	Sc	DigiSQ1R	Pf	Hard EP 3	Cp	MusicBox 8	Or	PercOrgn14	Gt	Pluckoww	St	DX-Str 9
63	Br	FS Brass	Sc	DigiSQ3	Pf	Hard EP 4	Cp	MusicBox 9	Or	PercOrgn15	Gt	Stortion2	St	DX-Str 10
64	Br	Hook	Sc	DogBytes	Pf	Clicky EP	Cp	MusicBox10	Or	PercOrgn16	Gt	FuzzGuitar	St	DX-Str 11

Pre H		Pre I		Pre J		Pre K	
Ca	Voice Name	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name
Br	DX-Trpt 3	Et	Ukabanjo	Co	Orch Chime	Fx	MM-Shock 1
Br	DX-Trpt 4	Et	Xango	Co	Pno+Flute	Fx	MM-Shock 2
Br	DX-Trpt 5	Et	Xanu	Co	StringTine	Fx	Wallop 1
Br	DX-Trpt 6	Et	Zimbalon	Co	Xylo+Brass	Fx	Wallop 2
Br	SilverTrpt	Et	DX-Banjo	Ld	DX-SynLd 1	Fx	Angel
Br	Solo Trpt	Et	Shamisen 1	Ld	DX-SynLd 2	Fx	BackSuir
Br	SynTrumpet	Et	Shamisen 2	Ld	DX-SynLd 3	Fx	Bird View
Br	Trumponica	Et	Shamisen 3	Ld	DX-SynLd 4	Fx	ChorusElms
Br	DX-Trb 1	Et	DX-Koto	Ld	DX-SynLd 5	Fx	DX-Stars
Br	DX-Trb 2	Et	DX-Klmb 1	Ld	DX-SynLd 6	Fx	Electric
Br	DX-Trb 3	Et	DX-Klmb 2	Ld	DX-SynLd 7	Fx	Evolution
Br	Mute Trb	Et	DX-Klmb 3	Ld	DX-SynLd 8	Fx	FM-Growth
Br	DX-Tuba 1	Et	DX-Klmb 4	Ld	DX-SynLd 9	Fx	Paddawire
Br	DX-Tuba 2	Et	DX-Klmb 5	Ld	Pluck Lead	Fx	Fantasynt
Br	DX-Tuba 3	Et	DX-Bagpipe	Ld	Perka Lead	Fx	Fluv Push
Br	DX-Horn	Et	DX-Fiddle	Ld	GuitsynLd	Fx	Fmilters
Br	Hornz	Et	African	Ld	DXSynLd 1	Fx	Glassy
Br	Alps Horn	Et	Bali	Ld	DXSynLd 2	Fx	Glastine
Br	BlunchHorn	Et	Tibetan	Ld	DXSynLd 3	Fx	Glocker
Br	Horn Ens	Et	Charango	Ld	DXSynLd 4	Fx	IceRevEcho
Br	MelowHorn1	Et	Gamelan 1	Ld	DXSynLd 5	Fx	InitEnsmbl
Br	MelowHorn2	Et	Gamelan 2	Ld	DXSynLd 6	Fx	MetalSweep
Br	SimpleHorn	Et	Gamelan 3	Ld	DXSynLd 7	Fx	SquareModd
Br	Syn Horns	Et	Kinzoku 1	Ld	DXSynLd 8	Fx	Mpndg Doom
Br	Vibra Horn	Et	Kinzoku 2	Ld	SqueezeLd	Fx	Mystrian
Br	DX-Brass 1	Et	ScotchTone	Ld	Mooganic	Fx	RepertRise
Br	DX-Brass 2	Pc	DX-Agogo 1	Ld	BrassLead1	Fx	Space Trip
Br	Attack Brs	Pc	DX-Agogo 2	Ld	BrassLead2	Fx	Syn Rise
Br	Brasstring	Pc	DX-Bongo	Ld	BrassLead3	Fx	Glider
Br	DX-BrsSec1	Pc	Bongo	Ld	BrassLead4	Sc	Anna DX
Br	DX-BrsSec2	Pc	DX-Clave	Ld	Saw Lead	Sc	Analog-X
Br	MM-Brass 1	Pc	DX-Perc	Ld	DX-SawLd 1	Sc	DX-Atms 1
Br	MM-Brass 2	Pc	Block	Ld	DX-SawLd 2	Sc	DX-Atms 2
Br	MM-Brass 3	Pc	Conga Drum	Ld	DX-Squar	Sc	DX-Bright1
Br	5th Brass	Pc	Cowbell	Ld	DX-VoiceLd	Sc	DX-Bright2
Br	Blow Brass	Pc	Flexatone	Ld	DX-WahLead	Sc	90 K
Br	Brass Sect	Pc	Glaeser	Ld	DXAttackLd	Sc	200 K
Br	Chorus Brs	Pc	Log Drum	Ld	CaliopLd 1	Sc	Arrow-X
Br	Fanfare	Pc	SmlShaker	Ld	CaliopLd 2	Sc	Attacker
Br	Hard Brass	Pc	Metal	Ld	CaliopLd 3	Sc	Harp Pad
Br	Sample Brs	Pc	Percud	Ld	Fifths 1	Sc	ChiLight
Br	Single Brs	Pc	RefrsWhstl	Ld	Fifths 2	Sc	Digi Calio
Br	ThickBrass	Pc	Seq Pluck	Ld	LdSubHarm	Sc	Digitar
Br	TightBrs 1	Pc	BigShaker	Ld	Buzzer	Sc	Distracted
Br	TightBrs 2	Pc	Side Stick	Ld	Au Campo	Sc	FinerThing
Br	DX-SynBr 1	Pc	Perkabell	Ld	Bass Lead	Sc	Fuji Stabs
Br	DX-SynBr 2	Pc	Spoon	Ld	Comp Lead	Sc	TouchyEdgy
Br	DX-SynBr 3	Pc	DX-StelCan	Ld	EadgbeLead	Sc	Metal Box
Br	DX-SynBr 4	Pc	Steel Can	Ld	Flap Synth	Sc	MilkyWays
Br	DX-SynBr 5	Pc	DX-StelDr1	Ld	FretlessLd	Sc	New Elms
Br	DX-SynBr 6	Pc	DX-StelDr2	Ld	Giovanni	Sc	Pipebells
Br	DX-SynBr 7	Pc	SteelDrum1	Ld	HarmoSynth	Sc	Synsitar
Br	FilterHorn	Pc	SteelDrum2	Ld	Lead Line	Sc	OctiLate
Br	SharpBrass	Pc	Steel Band	Ld	Lead Phone	Sc	NoBoKuto
Br	Synthorns	Pc	Jamaica	Ld	Lyle Lead	Sc	Syn Bright
Br	CS80-Brs 1	Pc	Tambarin	Ld	PekingLead	Sc	Ting Voice
Br	CS80-Brs 2	Pc	Triangle 1	Ld	Puff Pipe	Sc	Bottlead
Br	Ana Poly	Pc	Triangle 2	Ld	Reed Lead	Sc	WhapSynth
Br	AnaFatBrs	Pc	BellGliss1	Ld	SingleLine	Se	DX-Flght
Br	AnalogBrs	Pc	BellGliss2	Ld	Super DX	Se	Take Off
Br	Faze Brass	Pc	Twincle	Ld	Sweep Lead	Se	DX-Helicpt
Br	Brassy	Pc	MetalBottl	Ld	Vibratoron	Se	Helicopter
Br	Court	Pc	NipponDrm1	Ld	DX-Vocoder	Se	DX-Ship
Br	DX-FatBrs	Pc	NipponDrm2	Ld	Winwood	Se	DX-Train

Program 65 ~ 128

Bank	Pre A		Pre B		Pre C		Pre D		Pre E		Pre F		Pre G	
PGM#	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name
65	Br	ObiehornL	Sc	Fast&Cheap	Pf	Digitine	Cp	DX-Vibe 1	Or	PercOrgn17	Ba	DX-WoodBa1	St	DX-Str 12
66	Br	ObiehornR	Sc	Fmt-Pluck	Pf	Woody EP	Cp	DX-Vibe 2	Or	XtraPerc	Ba	DX-WoodBa2	St	DX-Str 13
67	Br	Quackz	Sc	FunKey	Pf	Metaltine	Cp	DX-Vibe 3	Or	Road Organ	Ba	DX-WoodBa3	St	Quick Arco
68	Br	Stab	Sc	Funky Tech	Pf	Tinesquawk	Cp	DX-Vibe 4	Or	Fluteorgan	Ba	DX-WoodBa4	St	MidString1
69	Br	Swell	Sc	Fusion	Pf	FullTine 1	Cp	MM-Vibe 1	Or	ClickNoise	Ba	DX-WoodBa5	St	MidString2
70	Pi	Kuchibue	Sc	Metallic	Pf	FullTine 2	Cp	MM-Vibe 2	Or	Novalis	Ba	DX-WoodBa6	St	LowString1
71	Ld	Dual Saws2	Sc	NoiseDecay	Pf	Wurli EP	Cp	LFO Vibe	Or	TouchOrgan	Ba	DX-WoodBa7	St	LowString2
72	Ld	DualSquare	Sc	Raymond	Pf	Wurli Road	Cp	Vocal Vibe	Or	RockOrgan1	Ba	DarkWodBa1	St	MM-String
73	Ld	Earth Lead	Sc	SawSaw	Pf	Dark Wurli	Cp	Vibetron	Or	RockOrgan2	Ba	DarkWodBa2	St	DX-AnaSt 1
74	Ld	Fetish	Sc	Snow Decay	Pf	Big Wurlt	Cp	VibraPhone	Or	RockOrgan3	Ba	BoogieBass	St	DX-AnaSt 2
75	Ld	Glass Harp	Sc	Snow Pixy	Pf	Andrian	Cp	DX-Marimb1	Or	RockOrgan4	Ba	BassLegend	St	DX-AnaSt 3
76	Ld	Glider	Sc	Spellbound	Pf	Blustig	Cp	DX-Marimb2	Or	RockOrgan5	Ba	DX-FngrBa1	St	DX-SynSt 1
77	Ld	Lead Saw	Sc	Syncorgano	Pf	Woodmetal	Cp	DX-Marimb3	Or	RockOrgan6	Ba	DX-FngrBa2	St	DX-SynSt 2
78	Ld	Mitosis	Sc	Thin Mini	Pf	CastePiano	Cp	DX-Marimb4	Or	RockOrgan7	Ba	DX-FngrBa3	St	DX-SynSt 3
79	Ld	Retronic	Sc	VeloSweep	Pf	Chorus EP	Cp	DX-Marimb5	Or	RockOrgan8	Ba	DX-FngrBa4	St	DX-SynSt 4
80	Ld	Score Pad	Sc	Vox Tron	Pf	BigJazzyEP	Cp	DX-Marimb6	Or	RockOrgan9	Ba	Fusit Bass	St	DX-SynSt 5
81	Ld	Tech Lead	Sc	Zansyo	Pf	ClearElPno	Cp	DX-Marimb7	Or	RockOrgn10	Ba	FingerPick	St	DX-SynSt 6
82	Ld	Trance Csm	Sc	Zapper	Pf	NiteclubEP	Cp	TineMallet	Or	RockOrgn11	Ba	HardFinger	St	DX-SynSt 7
83	Ld	Voc Lead	Vo	Celebratn	Pf	CosaRosa	Cp	Thumbpick	Or	RockOrgn12	Ba	Harm Bass	St	WarmStr 1
84	Pd	Add Pad	Vo	Eh Human	Pf	DX-Ragtime	Cp	EchoMalet1	Or	RockOrgn13	Ba	Inorganic	St	WarmStr 2
85	Pd	Beauty	Vo	FairyVoice	Pf	Digi Poly	Cp	EchoMalet2	Or	RockOrgn14	Ba	Nasty Bass	St	WarmStr 3
86	Pd	Brassetra	Vo	FormSweep	Pf	Duke EP	Cp	EchoMalet3	Or	RockOrgn15	Ba	SkweekBass	St	WarmStr 4
87	Pd	CineSweep	Vo	FS-Choir	Pf	DynoRoad	Cp	Congorimba	Or	Vox Organ	Ba	DX-PickBa1	St	Afternoon
88	Pd	Fat Pad	Vo	FS-Sweep	Pf	Clavarpsi	Cp	Bamburimba	Or	SynOrgan 1	Ba	DX-PickBa2	St	Agitate
89	Pd	FormantPad	Vo	Homy	Pf	Wack EP	Cp	BrightMrmb	Or	SynOrgan 2	Ba	DX-PickBa3	St	AnnaString
90	Pd	FormSweep1	Vo	Human	Pf	HollowKeys	Cp	Guitarimba	Or	PlasticOrg	Ba	DX-PickBa4	St	Bright Str
91	Pd	FormSweep2	Vo	Ih Human	Pf	HonkyTonk1	Cp	MellowMrmb	Or	PipeOrgan1	Ba	Bass Magic	St	General
92	Pd	FormSweep3	Vo	Man_Eh	Pf	HonkyTonk2	Cp	Metal Mrmb	Or	PipeOrgan2	Ba	Chiff Bass	St	GentleMind
93	Pd	FormSweep4	Vo	NoisyVce	Pf	PotlidKeyz	Cp	DX-Xylo 1	Or	PipeOrgan3	Ba	Comped EB	St	Gypsy
94	Pd	FS Moby II	Vo	Oh Human	Pf	Knock EP	Cp	DX-Xylo 2	Or	PipeOrgan4	Ba	Metal Bass	St	MaxiString
95	Pd	Heimdal	Vo	Shaman Woo	Pf	Knock Wack	Cp	DX-Xylo 3	Or	PipeOrgan5	Ba	Owl Bass	St	Michelle
96	Pd	LFO Pad	Vo	Spacy Aaah	Pf	Mark III	Cp	DX-Xylo 4	Or	PipeOrgan6	Ba	Pick Pluck	St	MoterDrive
97	Pd	Moving	Vo	Spacy FX	Pf	XtremeTine	Cp	DX-Xylo 5	Or	PipeOrgan7	Ba	Plektrumbs	St	ReverbStrg
98	Pd	Nebulous	Vo	SpacySweep	Pf	Mod ElPno	Cp	DX-Xylo 6	Or	PipeOrgan8	Ba	Wired Bass	St	StrMachine
99	Pd	OBx Pad	Vo	SweepyVce	Pf	3D Road	Cp	Dual Xylo	Or	TheatreOrg	Ba	FretlesBa1	St	Silk Hall
100	Pd	OBx Pad2	Vo	VocoSweep	Pf	PinchedEP	Cp	Xylo Log	Or	SmallPipes	Ba	FretlesBa2	St	Small Sect
101	Pd	Octavian	Vo	VocPhaseB	Pf	No Tines	Cp	Syn Xylo	Or	ChorusPipe	Ba	FretlesBa3	St	Soft Bow
102	Pd	Paddy	Sq	AN Arp 1	Pf	Old Jazz	Cp	Digi Xylo	Or	Wedding	Ba	FretlesBa4	St	Soline
103	Pd	Qwerty	Sq	AN Arp 2	Pf	Politti	Cp	DX-Bell 1	Or	DX-Chrch 1	Ba	FretlesBa5	St	Violtron
104	Pd	Saws&Hold	Sq	Compu Saw	Pf	Pop Piano	Cp	DX-Bell 2	Or	DX-Chrch 2	Ba	SlapString	St	DX-PizzSt
105	Pd	Saws2	Sq	DigiSQ1	Pf	Prc ElPno	Cp	DX-Bell 3	Or	BrightOrgn	Ba	Lite Slap	St	PizzString
106	Pd	SleepyPad	Sq	DigiSQ2	Pf	Prds Piano	Cp	DX-Bell 4	Or	TamePipe	Ba	RoundWound	St	DX-Harp 1
107	Pd	Spacy Pad	Sq	Drw-EuroDr	Pf	Ratio Dob	Cp	DX-Bell 5	Or	PuffOrgan1	Ba	ImpactBass	St	DX-Harp 2
108	Pd	Starship	Sq	Hard Pulse	Pf	ThinnerEP	Cp	DX-Bell 6	Or	PuffOrgan2	Ba	Afresh	St	DX-Harp 3
109	Pd	SuperPad	Sq	Harry	Pf	Rezzo EP	Cp	DX-Bell 7	Or	Late Down	Ba	WireString	St	Baroquen
110	Pd	SweepersVx	Sq	New Key	Pf	RubbaRoad	Cp	DX-Bell 8	Or	SoftReedOr	Ba	Clakwire	St	Dbl Harp 1
111	Pd	Tech Lead2	Sq	Power Key	Pf	SawBellEP	Cp	DX-Bell 9	Or	SteamOrgan	Ba	SuperBass1	St	Dbl Harp 2
112	Pd	The Seeker	Sq	RythmLoop2	Pf	QuikPlayEP	Cp	DX-Bell 10	Or	StreetOrgn	Ba	SuperBass2	St	Apollon
113	Pd	The Shadow	Sq	Saw Pad	Pf	Loud Piano	Cp	DX-Bell 11	Or	DX-Acrd 1	Ba	DigiBass 1	St	CembaHarp
114	Pd	Thermal	Sq	TekBass	Pf	Urban	Cp	DX-Bell 12	Or	DX-Acrd 2	Ba	DigiBass 2	St	ElectrHarp
115	Pd	VocPhaseA	--	FseqBase01	Pf	Vics EP	Cp	SparklBell	Or	DX-Acrd 3	Ba	Digit Bass	St	HarpStrum
116	Pd	Win Pad	--	FseqBase02	Pf	DX Classic	Cp	Wire Bell	Or	DX-Acrd 4	Ba	Draft Bass	St	Lute Harp
117	Pd	Wind	--	FseqBase03	Pf	ToyPiano 1	Cp	DualSparkl	Or	DX-Acrd 5	Ba	Brainacus	St	Metal Harp
118	Fx	Caravan	--	FseqBase04	Pf	ToyPiano 2	Cp	BellGlassy	Or	DX-Acrd 6	Ba	DX-SynBa 1	St	Orch Harp
119	Fx	DippeDut	--	FseqBase05	Pf	ToyPiano 3	Cp	MM-Bell	Or	DX-TngAc	Ba	DX-SynBa 2	St	Syn Harp
120	Fx	Furry Bell	--	FseqBase06	Pf	ToyPiano 4	Cp	Crystal 1	Or	DX-Hmnc 1	Ba	DX-SynBa 3	St	DX-Timpani
121	Fx	Glacial	--	FseqBase07	Pf	Plasticky	Cp	Crystal 2	Or	DX-Hmnc 2	Ba	DX-SynBa 4	St	Timpanic!
122	Fx	Miracle	--	FseqBase08	Pf	Harpsi 1	Cp	SoftBell 1	Or	DX-Hmnc 3	Ba	DX-SynBa 5	St	Iron Timpa
123	Fx	MizuGuitar	--	FseqBase09	Pf	Harpsi 2	Cp	SoftBell 2	Or	DX-Hmnc 4	Ba	DX-SynBa 6	En	Ensemble
124	Fx	Morph	--	FseqBase10	Pf	Harpsi 3	Cp	Bell Pluck	Or	Chromonica	Ba	DX-SynBa 7	En	HallOrch 1
125	Fx	Nightmare	--	FseqBase11	Pf	Harpsi 4	Cp	Blow Bell	Or	FM-Hmnc 1	Ba	DX-SynBa 8	En	HallOrch 2
126	Fx	RhythmLoop	--	FseqBase12	Pf	Harpsi 5	Cp	Carillon	Or	FM-Hmnc 2	Ba	DX-SynBa 9	En	Orch Brass
127	Pd	Sho	--	FseqBase13	Pf	Harpsi 6	Cp	BellKeyzis	Or	Bluesharp	Ba	AnalogBass	Br	DX-Trpt 1
128	Fx	Spiral	--	FseqBase14	Pf	Harpsi 7	Cp	Digi Log	Or	Buzzharp	Ba	Nharmonik	Br	DX-Trpt 2

Pre H		Pre I		Pre J		Pre K	
Ca	Voice Name	Ca	Voice Name	Ca	Voice Name	Ca	Voice Name
Br	RezAttack	Pc	Janpany	Pd	DrkSweeper	Se	Mobile
Br	FunkyRhytm	Pc	Nou	Pd	AnaBrsPad	Se	Motors
Br	Chiffhorns	Pc	Sumoh Drum	Pd	8bitStrPad	Se	MotorCycle
Br	Juice	Pc	HandBell 1	Pd	DX-ChoPad1	Se	U Boat
Br	Kingdom	Pc	HandBell 2	Pd	DX-ChoPad2	Se	Ambulance
Br	PowerDrive	Pc	JingleBell	Pd	Bow Pad 1	Se	Whiz By
Br	Rahool Brs	Pc	Light Year	Pd	Bow Pad 2	Se	Out-Da-Way
Br	SyntiBrs	Pc	SlightBell	Pd	Bow Pad 3	Se	Patrol Car
Br	UltraDrive	Pc	TracerBell	Pd	Glassharp	Se	Sirens
Br	Warm Brass	Pc	MM-SynDr 1	Pd	Wineglass	Se	DX-TelBusy
Rd	SopranoSax	Pc	MM-SynDr 2	Pd	Ice Galaxy	Se	DX-TelCall
Rd	DX-ASax 1	Pc	Click Kick	Pd	Ice Heaven	Se	DX-TelTone
Rd	DX-ASax 2	Pc	Hexagon	Pd	Hit Pad 1	Se	DX-TlRing1
Rd	Alto Sax	Pc	Whapit	Pd	Hit Pad 2	Se	DX-TlRing2
Rd	DX-Tsax	Pc	Hi-Hat	Pd	SynBrsPad1	Se	Bugs&Birds
Rd	TenorSax	Pc	Deep Snare	Pd	SynBrsPad2	Se	DX-Insect1
Rd	Tenorsaxes	Pc	DX-MtlSnr	Pd	SynBrsPad3	Se	DX-Insect2
Rd	Oboe 1	Pc	Snapie	Pd	SynBrsPad4	Se	DX-Piyo
Rd	Oboe 2	Pc	Snare	Pd	SynBrsPad5	Se	DX-Growl 1
Rd	Oboe 3	Pc	Soft Head	Pd	SynBrsPad6	Se	DX-Growl 2
Rd	Eng.Horn	Pc	StreetSD	Pd	SynBrsPad7	Se	Animals
Rd	Bassoon	Pc	Tom Herz	Pd	Vector Pad	Se	DX-Wolf
Rd	DX-Clari 1	Pc	DX-RevCym1	Pd	Pada Perka	Se	ManEater
Rd	DX-Clari 2	Pc	DX-RevCym2	Pd	DX-MetalPd	Se	Alarm !
Rd	Clari Solo	Vo	DX-Chorus1	Pd	DX-SawPad	Se	Aura
Rd	Slow Clari	Vo	DX-Chorus2	Pd	Anna Pad	Se	Chi-S&H
Rd	VibratoCla	Vo	DX-Chorus3	Pd	Baroque	Se	Closing
Pi	Piccolo 1	Vo	DX-Chorus4	Pd	BrassyWarm	Se	Computer
Pi	Piccolo 2	Vo	DX-Chorus5	Pd	Bright Pad	Se	Crasher
Pi	DX-Flute 1	Vo	DX-Chorus6	Pd	Clavi Pad	Se	DX-BigBen
Pi	DX-Flute 2	Vo	DX-Chorus7	Pd	Digi Pad	Se	DX-Wave
Pi	DX-Flute 3	Vo	DX-Chorus8	Pd	Dispo Pad	Se	Descent
Pi	DX-Flute 4	Vo	DX-Chorus9	Pd	Ethereal	Se	Doppler
Pi	DX-Flute 5	Vo	DX-Voice 1	Pd	Film Pad	Se	Factory
Pi	DX-Flute 6	Vo	DX-Voice 2	Pd	Fl.Cloud	Se	GhostLine
Pi	DX-Flute 7	Vo	MM-Voice 1	Pd	Floating	Se	Heart Beat
Pi	Air Blower	Vo	MM-Voice 2	Pd	Forest99	Se	Imaging
Pi	MetalFlute	Vo	MM-Voice 3	Pd	Gior Pad	Se	IronEcho 1
Pi	Song Flute	Vo	MM-Voice 4	Pd	GreenPeace	Se	IronEcho 2
Pi	Recorder 1	Vo	DbVoxFem	Pd	Grunge Pad	Se	MM-Fall
Pi	Recorder 2	Vo	Fem Voice	Pd	Hyper Sqr	Se	MachineGun
Pi	Recorder 3	Vo	Lady Vox	Pd	MM-Pretty	Se	MobbyDick
Pi	DX-PnFlute	Vo	Space Vox	Pd	MonsterPad	Se	On the Run
Pi	Harvest	Vo	Syn Vox	Pd	Orwell	Se	OuterLimit
Pi	Fuhppps!	Co	Bell+Pno 1	Pd	PhaseSweep	Se	Perc Shot
Pi	DX-Bottle	Co	Bell+Pno 2	Pd	Phasers	Se	Repeater
Pi	Quena	Co	Bell+Vibe1	Pd	Glass Pad	Se	Jet Cars 1
Pi	Whistle 1	Co	Bell+Str	Pd	Sanctus	Se	Scorchers
Pi	Whistle 2	Co	Bell+Vibe2	Pd	StacHeaven	Se	Sci-Fi Too
Pi	Whistle 3	Co	Cho+Marimb	Pd	Sweep Pad	Se	Jet Cars 2
Pi	Sukiyaki	Co	Clavi+Bass	Pd	Water Log	Se	Speak-One
Pi	SambaWhstl	Co	DX-Ba+Lead	Pd	Spec-trail	Se	Stopper
Pi	Cosmowhist	Co	DX-HpSt	Pd	Whaser Pad	Se	Super Foot
Pi	DX-Ocrn 1	Co	EP+Brass 1	Pd	Whisper	Se	Talking DX
Pi	DX-Ocrn 2	Co	EP+Brass 2	Pd	WhistlePad	Se	Transport
Pi	DX-Ocrn 3	Co	EP+Chime	Fx	DX-ScFi 1	Se	Turn Table
Et	DX-Sitar 1	Co	EP+Clavi	Fx	DX-ScFi 2	Se	UfoTakeOff
Et	DX-Sitar 2	Co	Elec Combi	Fx	DX-ScFi 3	Se	Waterfall
Et	Ethre Four	Co	Glock+Brs	Fx	Image 1	Se	Whik Shot
Et	India	Co	Glock+Pno	Fx	Image 2	Se	Bubblets
Et	Juice Harp	Co	Harp+Flute	Fx	Laser 1	Se	Yes Talk
Et	Syntholin	Co	Koto+Flute	Fx	Laser 2	Se	Help me !
Et	Pilgrim	Co	MalletHorn	Fx	Laser 3	Se	Paranoir
Et	Tenjiku	Co	Mrmb+Gtr	Fx	Ri-zer	Se	Screamy

Preset Fseq List
Liste der vorprogrammierten Formant Sequenzen
Liste des séquences de formant programmées “FSeqs”

No.	Fseq Name	No.	Fseq Name	No.	Fseq Name
1	ShoobyDo	31	1BarBeat	61	ChowaUu
2	2BarBeat	32	1BrBeat2	62	Everybd2
3	D&B	33	Undo	63	Dodidowa
4	D&B Fill	34	RndArp4	64	Check123
5	4BarBeat	35	VoclRtm2	65	BranNewY
6	YouCanG	36	Reiyowha	66	BoomBoom
7	EBSayHey	37	RndArp5	67	Hi=Woo
8	RtmSynth	38	VocalArp	68	FreeForm
9	VocalRtm	39	CanYouGi	69	FreqPad
10	WooWaPa	40	Pu-Yo	70	YouKnow
11	UooLha	41	Yaof	71	OldTech
12	FemRtm	42	MyaOh	72	B/M
13	ByonRole	43	ChuckRtm	73	MiniJngl
14	WowYeah	44	ILoveYou	74	EveryB-S
15	ListenVo	45	Jan-On	75	IYaan
16	YAMAHAFS	46	Welcome	76	Yeah
17	Laugh	47	One-Two	77	ThankYou
18	Laugh2	48	Edokko	78	Yes=No
19	AreYouR	49	Everybdy	79	UnWaEDon
20	Oiyai	50	Uwau	80	MouthPop
21	Oiaiuo	51	YEEAAH	81	Fire
22	UuWaUu	52	4-3-2-1	82	TBLine
23	Wao	53	Test123	83	China
24	RndArp1	54	CheckSnd	84	Aeiou
25	FiltrArp	55	ShavaDo	85	YaYeYiYo
26	RndArp2	56	R-M-H-R	86	C7Seq
27	TechArp	57	HiSchool	87	SoundLib
28	RndArp3	58	M.Blastr	88	IYaan2
29	Voco-Seq	59	L&G MayI	89	Relax
30	PopTech	60	Hellow	90	PSYAMAHA

Control List
Liste der Steuerbefehle
Liste des contrôleurs

Control Parameter (Destination)	Explanation	Notes
off	No control even if the source controller is operated.	
(Insertion Parameter 1) (Insertion Parameter 2) (Insertion Parameter 3) (Insertion Parameter 4) (Insertion Parameter 5) (Insertion Parameter 6) (Insertion Parameter 7) (Insertion Parameter 8) (Insertion Parameter 9) (Insertion Parameter10) (Insertion Parameter11) (Insertion Parameter12) (Insertion Parameter13) (Insertion Parameter14)	The source controller controls insertion effect parameters. The parameters available depend on the selected insertion effect type. See the effect parameter list (page 13) for details. Nothing is controlled if (InsEF) appears on the display.	Controller operation directly controls the tone generator without affecting the edit buffer. (i.e. the "E" edit mark will not appear)
Send Insertion to Reverb	The source controller controls the Send Insertion To Reverb value.	
Send Insertion to Variation	The source controller controls the Send Insertion to Variation value.	
Volume	The source controller controls the PLAY-Volume(Part) value.	Controller operation controls the part parameters and therefore overwrites the edit buffer. (i.e. the "E" edit mark will appear)
Panpot	The source controller controls the PLAY-Pan(Part) value.	
Reverb Send	The source controller controls the PLAY-RevSend(Part) value.	
Variation Send	The source controller controls the PLAY-VarSend(Part) value.	
Filter Cutoff	The source controller controls the EDIT[PERFORM]-PART-Tone-Filter Freq value.	
Filter Resonance	The source controller controls the EDIT[PERFORM]-PART-Tone-Filter Reso value.	
Filter EG Depth	The source controller controls the EDIT[PERFORM]-PART-Tone-Flt EGDepth value.	
Attack Time	The source controller controls the EDIT[PERFORM]-PART-EG-Attack Time value.	
Decay Time	The source controller controls the EDIT[PERFORM]-PART-EG-Decay Time value.	
Release Time	The source controller controls the EDIT[PERFORM]-PART-EG-Release Time value.	
PEG Initial Level	The source controller controls the EDIT[PERFORM]-PART-EG-PEG InitLvl value.	
PEG Attack Time	The source controller controls the EDIT[PERFORM]-PART-EG-PEGAtakTime value.	
PEG Release Level	The source controller controls the EDIT[PERFORM]-PART-EG-PEG ReleLvl value.	
PEG Release Time	The source controller controls the EDIT[PERFORM]-PART-EG-PEGReleTime value.	
V/N Balance	The source controller controls the EDIT[PERFORM]-PART-Tone-V/N Balance value.	
Formant	The source controller controls the EDIT[PERFORM]-PART-Tone-Formant value.	
FM	The source controller controls the EDIT[PERFORM]-PART-Tone-FM value.	
Pitch Bias	The source controller has the same effect as pitch bend. For example, if Vcn depth is set to +2 then the maximum control value is + two semitones. If Vcn depth is set to +12 the maximum controllable pitch rise is one octave.	Controller operation directly controls the tone generator without affecting the edit buffer. (i.e. the “E” edit mark will not appear)
Amplitude EG Bias	The source controller controls Amplitude EG Bias. Sensitivity is set by the EDIT[VOICE]-OPERATOR-Sns-Amp EG Bias parameter.	
Frequency Bias	The source controller controls the operator center frequency. Sensitivity is set by the EDIT[VOICE]-OPERATOR-Sns-Freq Bias parameter.	
Voiced Band Width	The source controller controls voiced operator bandwidth. Sensitivity is set by the EDIT[VOICE]-OPERATOR-Sns-Width Bias (voiced) parameter.	
Unvoiced Band Width	The source controller controls unvoiced operator bandwidth. Sensitivity is set by the EDIT[VOICE]-OPERATOR-Sns-Width Bias (unvoiced) parameter.	
LFO1 pitch mod	The source controller applies LFO1 pitch modulation. The controller value is added to the sum of the EDIT[PERFORM]-PART-LFO1 Pmod and EDIT[VOICE]-COMMON-LFO1-PitchMod Dpt values.	
LFO1 amp mod	The source controller applies LFO1 amplitude modulation to the voice. The controller value is added to the EDIT[VOICE]-COMMON-LFO1-AmpMod Dpt value.	
LFO1 frequency mod	The source controller applies LFO1 frequency modulation to the operator center frequency. The controller value is added to the EDIT[VOICE]-COMMON-LFO1-FreqModDepth value.	
LFO1 filter mod	The source controller applies LFO1 cutoff frequency modulation to the voice. The controller value is added to the EDIT[VOICE]-COMMON-LFO1-FilterModDpt value.	
LFO1 Speed	The source controller controls LFO1 speed. The controller value is added to the sum of the EDIT[PERFORM]-PART-Tone-LFO1Speed and EDIT[VOICE]-COMMON-LFO1-Speed values.	
LFO2 filter mod	The source controller applies LFO2 cutoff frequency modulation to the voice. The controller value is added to the sum of the EDIT[PERFORM]-PART-Tone-LFO2 FltMod and EDIT[VOICE]-COMMON-LFO2-FilterModDpt values.	
LFO2 Speed	The source controller controls LFO2 speed. The controller value is added to the sum of the EDIT[PERFORM]-PART-Tone-LFO2 Speed and EDIT[VOICE]-COMMON-LFO2-Speed values.	
Fseq Speed	The source controller controls Fseq playback speed. The controller value is added to the EDIT[PERFORM]-COMMON-FSeq-Speed value.	
Formant scratch	The source controller directly controls Fseq playback. Effective when the EDIT[PERFORM]-COMMON-FSeq-Mode parameter is set to “scratch”.	

Effect Type List
Liste mit Effekt-Typen
Liste des type d'effets

Reverb

Effect Type	Remarks
No Effect	Turn off the effect.
Hall1	Reverb simulating the acoustics of a hall.
Hall2	
Room1	Reverb simulating the acoustics of a room.
Room2	
Room3	
Stage1	Reverb appropriate for a solo instrument.
Stage2	
Plate	Reverb simulating a metal plate reverb device.
White Room	Unique short reverb with a slight initial delay.
Tunnel	Simulation of a cylindrical space extending to left and right.
Basement	Reverb with distinctive resonance following a slight initial delay.
Canyon	A hypothetical acoustic space which extends without limit.
Delay LCR	Three delay sounds L, R and C (center).
Delay L, R	Two delay sounds L and R, with two feedback delays.
Echo	Two delays L and R, with independent feedback delay for L and R.
CrossDelay	This effect crosses the feedback of two delays.

Variation

Effect Type	Remarks
No Effect	Turns off the effect.
Chorus	A standard chorus effect, adding natural spaciousness to the sound.
Celeste	An effect which uses a 3-phase LFO to add modulation and spaciousness to the sound.
Flanger	An effect reminiscent of a jet airplane taking off and landing.
Symphonic	A multi-stage version of CELESTE modulation.
Phaser1	Cyclically changes the phase to modulate the sound.
Phaser2	
Ens Detune	Chorus effect without modulation, created by adding a slightly pitch-shifted sound.
Rotary SP	Simulation of a rotary speaker.
Tremolo	An effect which cyclically modulates the volume.
Auto Pan	An effect which cyclically moves the sound between left/right and front/back.
Auto Wah	Cyclically changes the center frequency of a wah filter.
Touch Wah	Changes the center frequency of a wah filter according to the input level.
3-Band EQ	EQ with equalization of LOW, MID and HIGH.
HM Enhncer	This effect adds new overtones to the input signal to make the sound stand out.
Noise Gate	Gates the input when the input signal falls below a specified level.
Compressor	Holds down the output when the input exceeds a specified level. Can also be used to add a sense of attack to the sound.
Distortion	Adds distortion with an edge to the sound.
Overdrive	Adds mild distortion to the sound.
Amp Sim	Simulation of a guitar amp.
Delay LCR	Three delay sounds L, R and C (center).
Delay L, R	Two delay sounds L and R, with two feedback delays.
Echo	Two delays L and R, with independent feedback delay for L and R.
CrossDelay	This effect crosses the feedback of two delays.
Karaoke	Echo for karaoke.
Hall	Reverb simulating the acoustics of a hall.
Room	Reverb simulating the acoustics of a room.
Stage	Reverb appropriate for a solo instrument.
Plate	Reverb simulating a metal plate reverb device.

Insertion

Effect Type	Remarks
Thru	Bypass without applying an effect.
Chorus	Conventional chorus effect which gives natural spaciousness to the sound.
Celeste	A three-phase LFO is used to give modulation and spaciousness to the sound.
Flanger	An effect reminiscent of a jet airplane taking off and landing.
Symphonic	A multi-stage version of CELESTE modulation.
Phaser1	Cyclically changes the phase to modulate the sound.
Phaser2	
Pitch Chng	This effect changes the pitch of the input signal.
Ens Detune	Chorus effect without modulation, created by adding a slightly pitch-shifted sound.
Rotary SP	Simulation of a rotary speaker.
2WayRotary	
Tremolo	An effect which cyclically modulates the volume.
Auto Pan	An effect which cyclically moves the sound between left/right and front/back.
Ambience	An effect which adds spatial breadth by blurring the location of the sound.
A-Wah+Dist	Applies DISTORTION to the output of AUTO WAH to distort the sound.
A-Wah+Odrv	Applies OVERDRIVE to the output of AUTO WAH to distort the sound.
T-Wah+Dist	Applies OVERDRIVE to the output of TOUCH WAH to distort the sound.
T-Wah+Odrv	Changes the center frequency of a wah filter according to the input level.
Wah+DS+Dly	TOUCH WAH, DISTORTION and DELAY are connected in series.
Wah+OD+Dly	TOUCH WAH, OVERDRIVE and DELAY are connected in series.
Lo-Fi	Degrades the audio quality of the input signal.
3-Band EQ	EQ with equalization of LOW, MID and HIGH.
HM Enhncer	This effect adds new overtones to the input signal to make the sound stand out.
Noise Gate	Gates the input when the input signal falls below a specified level.
Compressor	Holds down the output when the input exceeds a specified level. Can also be used to add a sense of attack to the sound.
Comp+Dist	Since a compressor is included in the first stage, distortion can be applied evenly, regardless of the input level.
Cmp+DS+Dly	COMPRESSOR, DISTORTION and DELAY are connected in series.
Cmp+OD+Dly	COMPRESSOR, OVERDRIVE and DELAY are connected in series.
Distortion	Adds distortion with an edge to the sound.
Dist+Delay	DISTORTION and DELAY are connected in series.
Overdrive	Adds mild distortion to the sound.
Odrv+Delay	OVERDRIVE and DELAY are connected in series.
Amp Sim	Simulation of a guitar amp.
Delay LCR	Three delay sounds L, R and C (center).
Delay L, R	Two delay sounds L and R, with two feedback delays.
Echo	Two delays L and R, with independent feedback delay for L and R.
CrossDelay	This effect crosses the feedback of two delays.
ER 1	This effect isolates only the early reflection components of the reverb.
ER 2	
Gate Rev	Simulation of gated reverb.
Revrs Gate	Simulation of gated reverb played back in reverse.

Effect Parameter List
Liste mit Effekt-Parametern
Liste des Paramètres d'effets

Param# matches the adress of a Pafermance Effect Parameter (mm, ll) found in MIDI data table <Table 1 >.

REVERB

No Effect

	Range(Default)	Param#	Description
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Hall1

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(2.0)	50	Reverb length (sec)
Diffusion	0~10(10)	52	Spread of the reverb
InitDelay	0.1~200.0(14.3)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(315)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(5.6k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Rev Delay	0.1~99.3(53.6)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(4)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E<R 5)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(1.0)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+ 0)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Hall2 Same parameters for Hall1

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(3.0)	50	Reverb length (sec)
Diffusion	0~10(10)	52	Spread of the reverb
InitDelay	0.1~200.0(44.2)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(40)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(4.0k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Rev Delay	0.1~99.3(44.2)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(3)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E<R36)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(1.0)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+ 0)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Room1 Same parameters for Hall1

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(1.4)	50	Reverb length (sec)
Diffusion	0~10(8)	52	Spread of the reverb
InitDelay	0.1~200.0(19.0)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(355)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(9.0k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Rev Delay	0.1~99.3(23.7)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(4)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E<R10)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(1.0)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+ 0)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Room2 Same parameters for Hall1

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(1.2)	50	Reverb length (sec)
Diffusion	0~10(10)	52	Spread of the reverb
InitDelay	0.1~200.0(12.7)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(110)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(thru)	58	Frequency at which the low pass filter will cut the high range (Hz)
Rev Delay	0.1~99.3(17.4)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(4)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E18>R)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.7)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+ 0)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Room3 Same parameters for Hall1

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(0.9)	50	Reverb length (sec)
Diffusion	0~10(10)	52	Spread of the reverb
InitDelay	0.1~200.0(0.1)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(110)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(4.0k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Rev Delay	0.1~99.3(14.3)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(4)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E15>R)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.5)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+ 0)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Stage1 Same parameters for Hall1

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(1.5)	50	Reverb length (sec)
Diffusion	0~10(10)	52	Spread of the reverb
InitDelay	0.1~200.0(25.3)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(45)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(7.0k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Rev Delay	0.1~99.3(45.7)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(3)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E 3>R)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.5)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+15)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Stage2 Same parameters for Hall1

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(1.0)	50	Reverb length (sec)
Diffusion	0~10(10)	52	Spread of the reverb
InitDelay	0.1~200.0(0.1)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(thru)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(12.0k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Rev Delay	0.1~99.3(45.7)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(4)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E18>R)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.6)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+9)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Plate Same parameters for Hall1

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(1.8)	50	Reverb length (sec)
Diffusion	0~10(5)	52	Spread of the reverb
InitDelay	0.1~200.0(11.1)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(40)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(10.0k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Rev Delay	0.1~99.3(3.2)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(3)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E=R)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.7)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+20)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

White Room

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(0.4)	50	Reverb length (sec)
Diffusion	0~10(5)	52	Spread of the reverb
InitDelay	0.1~200.0(0.1)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(70)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(1.6k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Width	0.5~10.2(4.6)	5A	Width of the simulated room (m)
Height	0.5~20.2(20.2)	5C	Height of the simulated room (m)
Depth	0.5~30.2(30.2)	5E	Depth of the simulated room (m)
Wall Vary	0~30(6)	60	Wall surface of the simulated room (higher values produce more random reflections)
Rev Delay	0.1~99.3(12.7)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(4)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E=R)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.4)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+ 5)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Tunnel Same parameters for White Room

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(2.3)	50	Reverb length (sec)
Diffusion	0~10(6)	52	Spread of the reverb
InitDelay	0.1~200.0(15.8)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(thru)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(3.2k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Width	0.5~10.2(9.1)	5A	Width of the simulated room (m)
Height	0.5~20.2(14.2)	5C	Height of the simulated room (m)
Depth	0.5~30.2(19.4)	5E	Depth of the simulated room (m)
Wall Vary	0~30(16)	60	Wall surface of the simulated room (higher values produce more random reflections)
Rev Delay	0.1~99.3(31.6)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(4)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E10>R)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(1.0)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+43)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Basement Same parameters for White Room

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(0.8)	50	Reverb length (sec)
Diffusion	0~10(6)	52	Spread of the reverb
InitDelay	0.1~200.0(4.8)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(thru)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(1.0k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Width	0.5~10.2(7.2)	5A	Width of the simulated room (m)
Height	0.5~20.2(0.5)	5C	Height of the simulated room (m)
Depth	0.5~30.2(10.2)	5E	Depth of the simulated room (m)
Wall Vary	0~30(15)	60	Wall surface of the simulated room (higher values produce more random reflections)
Rev Delay	0.1~99.3(50.5)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(3)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E<R10)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(1.0)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(-28)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Canyon Same parameters for White Room

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(12.0)	50	Reverb length (sec)
Diffusion	0~10(6)	52	Spread of the reverb
InitDelay	0.1~200.0(99.3)	54	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(thru)	56	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(3.6k)	58	Frequency at which the low pass filter will cut the high range (Hz)
Width	0.5~10.2(9.4)	5A	Width of the simulated room (m)
Height	0.5~20.2(17.1)	5C	Height of the simulated room (m)
Depth	0.5~30.2(25.8)	5E	Depth of the simulated room (m)
Wall Vary	0~30(13)	60	Wall surface of the simulated room (higher values produce more random reflections)
Rev Delay	0.1~99.3(17.4)	62	Delay time from the early reflections until the reverberation (msec)
Density	0~4(4)	63	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E<R 8)	64	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.4)	65	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+36)	66	Amount of feedback for the initial delay
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Delay LCR

	Range(Default)	Param#	Description
LchDelay	0.1~1365.0(333.3)	50	Length of left channel delay (msec)
RchDelay	0.1~1365.0(166.7)	52	Length of right channel delay (msec)
CchDelay	0.1~1365.0(500.0)	54	Length of center channel delay (msec)
FB Delay	0.1~1365.0(500.0)	56	Length of feedback delay (msec)
FB Level	-63~+63(+10)	58	Feedback amount
Cch Level	0~127(100)	5A	Volume of center channel
High Damp	0.1~1.0(0.3)	5C	High range attenuation (lower values cause the high range to decay faster)
EQ LowFreq	32~2.0k(400)	64	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	65	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(4.0k)	66	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	67	Gain with which the EQ will boost/cut the high range (dB)
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Delay L,R

	Range(Default)	Param#	Description
LchDelay	0.1~1365.0(250.0)	50	Length of left channel delay (msec)
RchDelay	0.1~1365.0(375.0)	52	Length of right channel delay (msec)
FBDelay1	0.1~1365.0(375.2)	54	Length of feedback delay 1 (msec)
FBDelay2	0.1~1365.0(375.0)	56	Length of feedback delay 2 (msec)
FB Level	-63~+63(+23)	58	Amount of feedback
High Damp	0.1~1.0(0.3)	5A	High range attenuation (lower values cause the high range to decay faster)
EQ LowFreq	32~2.0k(400)	64	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	65	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(4.0k)	66	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	67	Gain with which the EQ will boost/cut the high range (dB)
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

Echo

	Range(Default)	Param#	Description
LchDelay1	0.1~682.0(220.0)	50	Length of first delay of left channel (msec)
Lch FB Lvl	-63~+63(+22)	52	Amount of feedback for left channel
RchDelay1	0.1~682.0(210.0)	54	Length of first delay of right channel (msec)
Rch FB Lvl	-63~+63(+21)	56	Amount of feedback for right channel
High Damp	0.1~1.0(0.5)	58	High range attenuation (lower values cause the high range to decay faster)
LchDelay2	0.1~682.0(230.0)	5A	Length of second delay of left channel (msec)
RchDelay2	0.1~682.0(235.0)	5C	Length of second delay of right channel (msec)
Delay2 Lvl	0~127(62)	5E	Volume of second delay
EQ LowFreq	32~2.0k(280)	64	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(-6)	65	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(6.3k)	66	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(-1)	67	Gain with which the EQ will boost/cut the high range (dB)
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

CrossDelay

	Range(Default)	Param#	Description
L>R Delay	0.1~682.0(365.0)	50	Delay time from left (input) to right (output) (msec)
R>L Delay	0.1~682.0(365.0)	52	Delay time from right (input) to left (output) (msec)
FB Level	-63~+63(+24)	54	Amount of feedback
InputSelect	L,R,L&R(R)	56	Input select
High Damp	0.1~1.0(0.5)	58	High range attenuation (lower values cause the high range to decay faster)
EQ LowFreq	32~2.0k(355)	64	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	65	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(6.3k)	66	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(- 2)	67	Gain with which the EQ will boost/cut the high range (dB)
Reverb Pan	L63~ C ~R63	129	Reverb Pan
Rev Return	0~127	12A	ReverbReturn Level

VARIATION

No Effect

	Range(Default)	Param#	Description
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Chorus

	Range(Default)	Param#	Description
LFO Freq	0.000~43.21(0.229)	68	Delay modulation frequency (Hz)
LFO Depth	0~127(46)	6A	Delay modulation depth
FB Level	-63~+63(+28)	6C	Level at which the delay output is returned to the input (negative values invert the phase)
Delay Ofst	0.0~50.0(1.0)	6E	Offset value for delay modulation (ms)
EQ LowFreq	32~2.0k(200)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(6.3k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	78	Gain with which the EQ will boost/cut the high range (dB)
Mode	mono,stereo(stereo)	104	Mono/stereo selection for the input
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Celeste Same parameters for Chorus

	Range(Default)	Param#	Description
LFO Freq	0.000~43.21(0.687)	68	Delay modulation frequency (Hz)
LFO Depth	0~127(25)	6A	Delay modulation depth
FB Level	-63~+63(+30)	6C	Level at which the delay output is returned to the input (negative values invert the phase)
Delay Ofst	0.0~50.0(12.2)	6E	Offset value for delay modulation (ms)
EQ LowFreq	32~2.0k(500)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(4.0k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	78	Gain with which the EQ will boost/cut the high range (dB)
Mode	mono,stereo(stereo)	104	Mono/stereo selection for the input
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Flanger

	Range(Default)	Param#	Description
LFO Freq	0.000~43.21(0.504)	68	Frequency of delay modulation (Hz)
LFO Depth	0~127(30)	6A	Depth of delay modulation
FB Level	-63~+63(+40)	6C	Level at which delay output is returned to the input
Delay Ofst	0.0~50.0(0.2)	6E	Offset value for delay modulation (ms)
EQ LowFreq	32~2.0k(200)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(6.3k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	78	Gain with which the EQ will boost/cut the high range (dB)
LFO Phase	-180~+180(-180)	102	L/R phase difference of modulation waveform (no difference at 0 deg (=64))
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Symphonic

	Range(Default)	Param#	Description
LFO Freq	0.000~43.21(0.458)	68	Frequency of delay modulation (Hz)
LFO Depth	0~127(40)	6A	Depth of delay modulation
Delay Ofst	0.0~50.0(0.0)	6C	Delay modulation offset value (ms)
EQ LowFreq	32~2.0k(250)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(6.3k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	78	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Phaser1

	Range(Default)	Param#	Description
LFO Freq	0.000~43.21(0.916)	68	Frequency of phase modulation (Hz)
LFO Depth	0~127(111)	6A	Depth of phase modulation
Phase Shift	0~127(76)	6C	Phase shift offset value
FB Level	-63~+63(+51)	6E	Level at which phaser output will be returned to the input (negative values invert the phase)
Stage	4~10(6)	7C	Number of phaser shifter stages
Diffuse	mono,stereo(stereo)	7E	Diffusion
EQ LowFreq	32~2.0k(280)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(6.3k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	78	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Phaser2

	Range(Default)	Param#	Description
LFO Freq	0.000~43.21(0.091)	68	Frequency of phase modulation (Hz)
LFO Depth	0~127(127)	6A	Depth of phase modulation
Phase Shift	0~127(25)	6C	Phase shift offset value
FB Level	-63~+63(+51)	6E	Level at which phaser output will be returned to the input (negative values invert the phase)
Stage	3~5(5)	7C	Number of phaser shifter stages
LFO Phase	-180~+180(-180)	100	L/R phase difference in the modulation waveform (no difference at 0 deg (=64))
EQ LowFreq	32~2.0k(200)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(5.6k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	78	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Ens Detune

	Range(Default)	Param#	Description
Detune	-50~+50(-30)	68	Amount by which the pitch will be detuned (cent)
InitDelayL	0.0~50.0(1.0)	6A	Length of left channel delay (msec)
InitDelayR	0.0~50.0(3.0)	6C	Length of right channel delay (msec)
EQ LowFreq	32~2.0k(250)	7C	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	7E	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(5.0k)	100	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	102	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Rotary SP

	Range(Default)	Param#	Description
LFO Freq	0.000~43.21(2.335)	68	Rotation frequency of the speaker (Hz)
LFO Depth	0~127(76)	6A	Depth of modulation produced by speaker rotation
EQ LowFreq	32~2.0k(250)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(5.0k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	78	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Tremolo

	Range(Default)	Param#	Description
LFO Freq	0.000~43.21(5.493)	68	Modulation frequency (Hz)
AM Depth	0~127(60)	6A	Amplitude modulation depth
PM Depth	0~127(20)	6C	Delay modulation depth
LFO Phase	-180~+180(+0)	102	L/R phase difference of the modulation waveform (no difference at 0 deg (=64))
EQ LowFreq	32~2.0k(280)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(2.0k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	78	Gain with which the EQ will boost/cut the high range (dB)
Mode	mono,stereo(mono)	104	Mono/stereo selection for the input
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Auto Pan

	Range(Default)	Param#	Description
LFO Freq	0.000~43.21(4.028)	68	Auto pan frequency (Hz)
L/R Depth	0~127(127)	6A	Left/right depth of panning
F/R Depth	0~127(32)	6C	Front/rear depth of panning
PAN Dir	L<>R,L>R,L<R,Lturn,Rturn,L/R(L/R)	6E	Auto pan type (L<->R is sine wave, L/R is square wave)
EQ LowFreq	32~2.0k(225)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(4.0k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+12)	78	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Auto Wah

	Range(Default)	Param#	Description
LFO Freq	0.000~43.21(1.282)	68	Modulation frequency (Hz)
LFO Depth	0~127(66)	6A	Modulation depth
Cutoff Freq	0~127(33)	6C	Cutoff Frequency (Hz)
Resonance	1.0~12.0(3.8)	6E	Resonance
EQ LowFreq	32~2.0k(280)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(5.0k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	78	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Touch Wah

	Range(Default)	Param#	Description
Sensitivty	0~127(46)	68	Sensitivty
Cutoff Freq	0~127(28)	6A	Cutoff Frequency (Hz)
Resonance	1.0~12.0(2.3)	6C	Resonance
EQ LowFreq	32~2.0k(180)	72	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	74	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(5.0k)	76	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	78	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

3-Band EQ

	Range(Default)	Param#	Description
Low Freq	50~2.0k(180)	72	Frequency at which the EQ will boost/cut the low range (Hz)
Low Gain	-12~+12(+ 0)	68	Amount of gain by which the EQ will boost/cut the low range (dB)
Mid Freq	100~10.0k(1.0k)	6A	Frequency at which the EQ will boost/cut the mid range (Hz)
Mid Gain	-12~+12(+ 0)	6C	Amount of gain by which the EQ will boost/cut the mid range (dB)
Mid Q	1.0~12.0(5.0)	6E	Mid Q
High Freq	500~16.0k(8.0k)	74	Frequency at which the EQ will boost/cut the high range (Hz)
High Gain	-12~+12(+ 0)	70	Amount of gain by which the EQ will boost/cut the high range (dB)
Mode	mono,stereo(mono)	104	Mono/stereo input mode selection
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

HM Enhncer

	Range(Default)	Param#	Description
HPFCutoff	500~16.0k(5.6k)	68	Frequency at which the high pass filter will cut the low range of the effect sound (Hz)
Drive	0~127(20)	6A	Degree with which the exciter effect will be applied
Mix Level	0~127(30)	6C	Level at which the effect sound will be mixed into the dry sound
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Noise Gate

	Range(Default)	Param#	Description
Attack	1~40(1)	68	Time until when the gate begins to open (msec)
Release	10~680(140)	6A	Time until the gate closes (msec)
Threshold	-72~-30(-45)	6C	Input level at which the gate begins to open (dB)
OutputLevel	0~127(50)	6E	Output level
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Compressor

	Range(Default)	Param#	Description
Attack	1~40(12)	68	Time until when the compressor begins to take effect (msec)
Release	10~680(25)	6A	Time until the compressor effect disappears (msec)
Threshold	-48~-6(-28)	6C	Input level at which compression begins to be applied (dB)
Ratio	1.0~20.0(5.0)	6E	Compression ratio of the compressor
OutputLevel	0~127(80)	70	Output level
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Distortion

	Range(Default)	Param#	Description
Drive	0~127(60)	68	Degree of distortion
EQ LowFreq	32~2.0k(180)	6A	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 8)	6C	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	100~10.0k(1.1k)	74	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	-12~+12(+10)	76	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	1.0~12.0(1.0)	78	EQ Mid Q
LPFCutoff	1.0k~18.0k,thru(9.0k)	6E	Frequency at which the filter will cut the high range (Hz)
Edge	0~127(80)	7C	Curve of distortion characteristics (sharp (127): distortion begins suddenly;mild (0): distortion begins gradually)
OutputLevel	0~127(48)	70	Output level
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Overdrive Same parameters for Distortion

	Range(Default)	Param#	Description
Drive	0~127(29)	68	Degree of distortion
EQ LowFreq	32~2.0k(315)	6A	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 4)	6C	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	100~10.0k(1.2k)	74	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	-12~+12(+ 8)	76	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	1.0~12.0(1.0)	78	EQ Mid Q
LPFCutoff	1.0k~18.0k,thru(4.0k)	6E	Frequency at which the filter will cut the high range (Hz)
Edge	0~127(104)	7C	Curve of distortion characteristics (sharp (127): distortion begins suddenly;mild (0): distortion begins gradually)
OutputLevel	0~127(55)	70	Output level
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Amp Sim

	Range(Default)	Param#	Description
Drive	0~127(76)	68	Degree of distortion
Amp Type	off,stack,combo,tube(tube)	6A	Select the type of amp to be simulated
LPFCutoff	1.0k~18.0k,thru(2.5k)	6C	Frequency at which the low pass filter will cut the high range (Hz)
Edge	0~127(102)	7C	Curve of distortion characteristics (sharp (127): distortion begins suddenly;mild (0): distortion begins gradually)
OutputLevel	0~127(55)	6E	Output level
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Delay LCR

	Range(Default)	Param#	Description
LchDelay	0.1~1365.0(333.3)	68	Length of left channel delay (msec)
RchDelay	0.1~1365.0(166.7)	6A	Length of right channel delay (msec)
CchDelay	0.1~1365.0(500.0)	6C	Length of center channel delay (msec)
FB Delay	0.1~1365.0(500.0)	6E	Length of feedback delay (msec)
FB Level	-63~+63(+10)	70	Feedback amount
Cch Level	0~127(100)	72	Volume of center channel
High Damp	0.1~1.0(0.3)	74	High range attenuation (lower values cause the high range to decay faster)
EQ LowFreq	32~2.0k(400)	100	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	102	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(4.0k)	104	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	106	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Delay L,R

	Range(Default)	Param#	Description
LchDelay	0.1~1365.0(250.0)	68	Length of left channel delay (msec)
RchDelay	0.1~1365.0(375.0)	6A	Length of right channel delay (msec)
FBDelay1	0.1~1365.0(375.2)	6C	Length of feedback delay 1 (msec)
FBDelay2	0.1~1365.0(375.0)	6E	Length of feedback delay 2 (msec)
FB Level	-63~+63(+23)	70	Amount of feedback
High Damp	0.1~1.0(0.3)	72	High range attenuation (lower values cause the high range to decay faster)
EQ LowFreq	32~2.0k(400)	100	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	102	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(4.0k)	104	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(+ 0)	106	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Echo

	Range(Default)	Param#	Description
LchDelay1	0.1~682.0(220.0)	68	Length of first delay of left channel (msec)
Lch FB Lvl	-63~+63(+22)	6A	Amount of feedback for left channel
RchDelay1	0.1~682.0(210.0)	6C	Length of first delay of right channel (msec)
Rch FB Lvl	-63~+63(+21)	6E	Amount of feedback for right channel
High Damp	0.1~1.0(0.5)	70	High range attenuation (lower values cause the high range to decay faster)
LchDelay2	0.1~682.0(230.0)	72	Length of second delay of left channel (msec)
RchDelay2	0.1~682.0(235.0)	74	Length of second delay of right channel (msec)
Delay2 Lvl	0~127(62)	76	Volume of second delay
EQ LowFreq	32~2.0k(280)	100	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(- 6)	102	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(6.3k)	104	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(- 1)	106	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

CrossDelay

	Range(Default)	Param#	Description
L>R Delay	0.1~682.0(365.0)	68	Delay time from left (input) to right (output) (msec)
R>L Delay	0.1~682.0(365.0)	6A	Delay time from right (input) to left (output) (msec)
FB Level	-63~+63(+24)	6C	Amount of feedback
InputSelect	L,R,L&R(R)	6E	Input select
High Damp	0.1~1.0(0.5)	70	High range attenuation (lower values cause the high range to decay faster)
EQ LowFreq	32~2.0k(355)	100	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	-12~+12(+ 0)	102	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	500~16.0k(6.3k)	104	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	-12~+12(- 2)	106	Gain with which the EQ will boost/cut the high range (dB)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Karaoke

	Range(Default)	Param#	Description
DelayTime	0.1~400.0(198.5)	68	DelayTime (msec)
FB Level	-63~+63(+33)	6A	Amount of feedback
HPF Cutoff	thru,22~8.0k(thru)	6C	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(5.0k)	6E	Frequency at which the low pass filter will cut the high range (Hz)
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Hall

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(2.1)	68	Reverb length (sec)
Diffusion	0~10(10)	6A	Spread of the reverb
InitDelay	0.1~200.0(12.7)	6C	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(90)	6E	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(5.6k)	70	Frequency at which the low pass filter will cut the high range (Hz)
Density	0~4(2)	7E	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E14>R)	100	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.8)	102	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+ 0)	104	Amount of feedback for the initial delay
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Room Same parameters for Hall

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(0.8)	68	Reverb length (sec)
Diffusion	0~10(10)	6A	Spread of the reverb
InitDelay	0.1~200.0(25.3)	6C	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(32)	6E	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(5.6k)	70	Frequency at which the low pass filter will cut the high range (Hz)
Density	0~4(2)	7E	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E=R)	100	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.8)	102	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+ 0)	104	Amount of feedback for the initial delay
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Stage Same parameters for Hall

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(2.2)	68	Reverb length (sec)
Diffusion	0~10(10)	6A	Spread of the reverb
InitDelay	0.1~200.0(25.3)	6C	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(45)	6E	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(10.0k)	70	Frequency at which the low pass filter will cut the high range (Hz)
Density	0~4(2)	7E	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E=R)	100	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.6)	102	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+ 0)	104	Amount of feedback for the initial delay
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

Plate Same parameters for Hall

	Range(Default)	Param#	Description
ReverbTime	0.3~30.0(2.8)	68	Reverb length (sec)
Diffusion	0~10(10)	6A	Spread of the reverb
InitDelay	0.1~200.0(9.5)	6C	Delay time until the early reflections (msec)
HPF Cutoff	thru,22~8.0k(50)	6E	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	1.0k~18.0k,thru(5.6k)	70	Frequency at which the low pass filter will cut the high range (Hz)
Density	0~4(2)	7E	Density of the reverberation
ER/Rev	E63>R~E=R~E<R63(E=R)	100	Level balance of the early reflections and the reverberation
High Damp	0.1~1.0(0.5)	102	High range attenuation (lower values cause the high range to decay faster)
FB Level	-63~+63(+ 0)	104	Amount of feedback for the initial delay
Var Pan	L63~ C ~R63	12C	Variation Pan
Var Return	0~127	12D	Variation Return Level
SendVar-Rev	0~127	12E	Variation-to-Reverb Send Level

INSERTION

Thru

	Range(Default)	Param#	Ctrl Dest	Description
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Chorus

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(0.275)	108	I:LFO Freq	Delay modulation frequency (Hz)
LFO Depth	*0~127(62)	10A	I:LFO Depth	Delay modulation depth
FB Level	*-63~+63(+15)	10C	I:FB Level	Level at which the delay output is returned to the input (negative values invert the phase)
Delay Ofst	0.0~50.0(8.0)	10E		Offset value for delay modulation (ms)
EQ LowFreq	*32~2.0k(250)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	*100~10.0k(1.8k)	11C	I:EQMidFreq	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	*-12~+12(+ 0)	11E	I:EQMidGain	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	*1.0~12.0(1.0)	120	I:EQ Mid Q	EQ Mid Q
EQ HiFreq	*500~16.0k(7.0k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Mode	*mono,stereo(mono)	124	I:Mode	Mono/stereo selection for the input
Dry/Wet	*D63>W,D=W,D<W63(D=W)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Celeste Same parameters for Chorus

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(0.824)	108	I:LFO Freq	Delay modulation frequency (Hz)
LFO Depth	*0~127(28)	10A	I:LFO Depth	Delay modulation depth
FB Level	*-63~+63(+ 0)	10C	I:FB Level	Level at which the delay output is returned to the input (negative values invert the phase)
Delay Ofst	0.0~50.0(1.0)	10E		Offset value for delay modulation (ms)
EQ LowFreq	*32~2.0k(110)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	*100~10.0k(2.0k)	11C	I:EQMidFreq	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	*-12~+12(- 2)	11E	I:EQMidGain	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	*1.0~12.0(1.0)	120	I:EQ Mid Q	EQ Mid Q
EQ HiFreq	*500~16.0k(7.0k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Mode	*mono,stereo(mono)	124	I:Mode	Mono/stereo selection for the input
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Flanger

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(0.504)	108	I:LFO Freq	Frequency of delay modulation (Hz)
LFO Depth	*0~127(30)	10A	I:LFO Depth	Depth of delay modulation
FB Level	*-63~+63(+40)	10C	I:FB Level	Level at which delay output is returned to the input
Delay Ofst	0.0~50.0(0.2)	10E		Offset value for delay modulation (ms)
EQ LowFreq	*32~2.0k(200)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	*100~10.0k(1.8k)	11C	I:EQMidFreq	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	*-12~+12(+ 0)	11E	I:EQMidGain	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	*1.0~12.0(1.0)	120	I:EQ Mid Q	EQ Mid Q
EQ HiFreq	*500~16.0k(6.3k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
LFO Phase	-180~+180(-180)	122		L/R phase difference of modulation waveform (no difference at 0 deg (=64))
Dry/Wet	*D63>W,D=W,D<W63(D<W32)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Symphonic

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(0.458)	108	I:LFO Freq	Frequency of delay modulation (Hz)
LFO Depth	*0~127(40)	10A	I:LFO Depth	Depth of delay modulation
Delay Ofst	0.0~50.0(0.0)	10C		Delay modulation offset value (ms)
EQ LowFreq	*32~2.0k(250)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	*100~10.0k(4.0k)	11C	I:EQMidFreq	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	*-12~+12(- 3)	11E	I:EQMidGain	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	*1.0~12.0(1.0)	120	I:EQ Mid Q	EQ Mid Q
EQ HiFreq	*500~16.0k(6.3k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Dry/Wet	*D63>W,D=W,D<W63(D<W32)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Phaser1

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(0.641)	108	I:LFO Freq	Frequency of phase modulation (Hz)
LFO Depth	*0~127(92)	10A	I:LFO Depth	Depth of phase modulation
Phase Shift	0~127(76)	10C		Phase shift offset value
FB Level	*-63~+63(+36)	10E	I:FB Level	Level at which phaser output will be returned to the input (negative values invert the phase)
Stage	*4~12(6)	11C	I:Stage	Number of phaser shifter stages
Diffuse	mono,stereo(stereo)	11E		Diffusion
EQ LowFreq	*32~2.0k(250)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(2.0k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Dry/Wet	*D63>W,D=W,D<W63(D<W34)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Phaser2

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(0.091)	108	I:LFO Freq	Frequency of phase modulation (Hz)
LFO Depth	*0~127(127)	10A	I:LFO Depth	Depth of phase modulation
Phase Shift	0~127(25)	10C		Phase shift offset value
FB Level	*-63~+63(+51)	10E	I:FB Level	Level at which phaser output will be returned to the input (negative values invert the phase)
Stage	*3~6(5)	11C	I:Stage	Number of phaser shifter stages
LFO Phase	-180~+180(-180)	120		L/R phase difference in the modulation waveform (no difference at 0 deg (=64))
EQ LowFreq	*32~2.0k(200)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(5.6k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Dry/Wet	*D63>W,D=W,D<W63(D<W32)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Pitch Chng

	Range(Default)	Param#	Ctrl Dest	Description
Pitch	-24~+24(+ 0)	108		Pitch change in semitone steps
InitDelay	0.1~400.0(3.2)	10A		Delay length (msec)
Fine1	-50~+50(+15)	10C		Fine pitch setting for first unit (cent)
Fine2	-50~+50(-16)	10E		Fine pitch setting for second unit (cent)
FB Level	*-63~+63(+ 0)	110	I:FB Level	Amount of feedback
Pan1	*L63~ C ~R63(L63)	11C	I:Pan1	Panning of first unit
Out Level1	*0~127(125)	11E	I:OutLevel1	Output level of first unit
Pan2	*L63~ C ~R63(R63)	120	I:Pan2	Panning of second unit
Out Level2	*0~127(127)	122	I:OutLevel2	Output level of second unit
Dry/Wet	*D63>W,D=W,D<W63(D 3>W)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Ens Detune

	Range(Default)	Param#	Ctrl Dest	Description
Detune	-50~+50(-30)	108		Amount by which the pitch will be detuned (cent)
InitDelayL	0.0~50.0(1.0)	10A		Length of left channel delay (msec)
InitDelayR	0.0~50.0(3.0)	10C		Length of right channel delay (msec)
EQ LowFreq	*32~2.0k(250)	11C	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	11E	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(5.0k)	120	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	122	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Dry/Wet	*D63>W,D=W,D<W63(D=W)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Rotary SP

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(5.859)	108	I:LFO Freq	Rotation frequency of the speaker (Hz)
LFO Depth	*0~127(71)	10A	I:LFO Depth	Depth of modulation produced by speaker rotation
EQ LowFreq	*32~2.0k(250)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(- 4)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	*100~10.0k(2.8k)	11C	I:EQMidFreq	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	*-12~+12(-12)	11E	I:EQMidGain	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	*1.0~12.0(2.4)	120	I:EQ Mid Q	EQ Mid Q
EQ HiFreq	*500~16.0k(7.0k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(-10)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

2WayRotary

	Range(Default)	Param#	Ctrl Dest	Description
Rotor Spd	*0.000~43.21(6.958)	108	I:Rotor Spd	Rotation frequency of the speaker (Hz)
Drive Low	*0~127(89)	10A	I:Drive Low	Depth of modulation produced by low-range speaker rotation
Drive High	*0~127(62)	10C	I:DriveHigh	Depth of modulation produced by high-range speaker rotation
Low/High	*L63>H,L=H,L<H63(L46>H)	10E	I:Low/High	Volume balance between high-range speaker and low-range speaker
Mic Angle	0~180(87)	11E		L/R angle of mics which pick up the output (°)
CrossFreq	100~10.0k(700)	11C		Crossover frequency between high-range speaker and low-range speaker (Hz)
EQ LowFreq	*32~2.0k(110)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+0)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq=	*500~16.0k(3.2k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Tremolo

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(1.831)	108	I:LFO Freq	Modulation frequency (Hz)
AM Depth	*0~127(112)	10A	I:AM Depth	Amplitude modulation depth
PM Depth	*0~127(0)	10C	I:PM Depth	Delay modulation depth
LFO Phase	-180~+180(+ 0)	122		L/R phase difference of the modulation waveform (no difference at 0 deg (=64))
EQ LowFreq	*32~2.0k(100)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	*100~10.0k(1.8k)	11C	I:EQMidFreq	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	*-12~+12(+ 0)	11E	I:EQMidGain	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	*1.0~12.0(1.0)	120	I:EQ Mid Q	EQ Mid Q
EQ HiFreq	*500~16.0k(7.0k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Mode	mono,stereo(stereo)	124		Mono/stereo selection for the input
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Auto Pan

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(1.877)	108	I:LFO Freq	Auto pan frequency (Hz)
L/R Depth	*0~127(80)	10A	I:L/R Depth	Left/right depth of panning
F/R Depth	*0~127(32)	10C	I:F/R Depth	Front/rear depth of panning
PAN Dir	L<>R,L>R,L<R,Lturn,Rturn,L/R(L/R)	10E		Auto pan type (L<->R is sine wave, L/R is square wave)
EQ LowFreq	*32~2.0k(140)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	*100~10.0k(1.8k)	11C	I:EQMidFreq	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	*-12~+12(+ 0)	11E	I:EQMidGain	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	*1.0~12.0(1.0)	120	I:EQ Mid Q	EQ Mid Q
EQ HiFreq	*500~16.0k(6.3k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Ambience

	Range(Default)	Param#	Ctrl Dest	Description
Delay Time	0.0~50.0(26.5)	108		Delay length (ms)
Phase	*normal,inverse(inverse)	10A	I:Phase	Invert the phase of the effect sound between L/R
EQ LowFreq	*32~2.0k(250)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(5.0k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(-10)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Dry/Wet	*D63>W,D=W,D<W63(D<W10)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

A-Wah+Dist

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(1.465)	108	I:LFO Freq	Modulation frequency (Hz)
LFO Depth	*0~127(84)	10A	I:LFO Depth	Modulation Depth
Cutoff Freq	*0~127(46)	10C	I:CutofFreq	Cutoff Frequency (Hz)
Resonance	*1.0~12.0(3.4)	10E	I:Resonance	Resonance
EQ LowFreq	*32~2.0k(250)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 2)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(4.0k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Drive	*0~127(60)	11C	I:Drive	Degree of distortion
DS Low Gain	*-12~+12(+ 8)	11E	I:DSLowGain	Gain with which the distortion will boost/cut the low range (dB)
DS Mid Gain	*-12~+12(+ 4)	120	I:DSMidGain	Gain with which the distortion will boost/cut the middle range (dB)
LPFCutoff	*1.0k~18.0k,thru(8.0k)	122	I:LPFCutoff	Frequency at which the low pass filter will cut the high range (Hz)
OutputLevel	*0~127(64)	124	I:Out Level	Output Level
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

A-Wah+Odrv Same parameters for A-Wah+Dist

	Range(Default)	Param#	Ctrl Dest	Description
LFO Freq	*0.000~43.21(1.144)	108	I:LFO Freq	Modulation frequency (Hz)
LFO Depth	*0~127(64)	10A	I:LFO Depth	Modulation Depth
Cutoff Freq	*0~127(32)	10C	I:CutofFreq	Cutoff Frequency (Hz)
Resonance	*1.0~12.0(2.3)	10E	I:Resonance	Resonance
EQ LowFreq	*32~2.0k(250)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 2)	114	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(4.0k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Drive	*0~127(16)	11C	I:Drive	Degree of distortion
DS Low Gain	*-12~+12(+ 4)	11E	I:DSLowGain	Gain with which the distortion will boost/cut the low range (dB)
DS Mid Gain	*-12~+12(+ 8)	120	I:DSMidGain	Gain with which the distortion will boost/cut the middle range (dB)
LPFCutoff	*1.0k~18.0k,thru(3.6k)	122	I:LPFCutoff	Frequency at which the low pass filter will cut the high range (Hz)
OutputLevel	*0~127(68)	124	I:Out Level	OutputLevel
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

T-Wah+Dist

	Range(Default)	Param#	Ctrl Dest	Description
Sensitivty	*0~127(80)	108	I:Sens	Sensitivity at which the wah filter will change in response to the input level
Cutoff Freq	*0~127(18)	10A	I:CutofFreq	Offset value for the wah filter control frequency (Hz)
Resonance	*1.0~12.0(4.5)	10C	I:Resonance	Bandwidth of the wah filter
Release	*10~680(170)	126	I:Release	Time until the wah filter is closed (msec)
EQ LowFreq	*32~2.0k(250)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 2)	114	I:EQLowGain	Amount of gain by which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(4.0k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Amount of gain by which the EQ will boost/cut the high range (dB)
Drive	*0~127(30)	11C	I:Drive	(Distortion) Degree of distortion
DS Low Gain	*-12~+12(+ 8)	11E	I:DSLowGain	Gain with which the distortion will boost/cut the low range (dB)
DS Mid Gain	*-12~+12(+10)	120	I:DSMidGain	Gain with which the distortion will boost/cut the middle range (dB)
LPFCutoff	*1.0k~18.0k,thru(9.0k)	122	I:LPFCutoff	Frequency at which the low pass filter will cut the high range (Hz)
OutputLevel	*0~127(72)	124	I:Out Level	OutputLevel
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

T-Wah+Odrv Same parameters for T-Wah+Dist

	Range(Default)	Param#	Ctrl Dest	Description
Sensitivty	*0~127(61)	108	I:Sens	Sensitivity at which the wah filter will change in response to the input level
Cutoff Freq	*0~127(30)	10A	I:CutofFreq	Offset value for the wah filter control frequency (Hz)
Resonance	*1.0~12.0(4.1)	10C	I:Resonance	Bandwidth of the wah filter
Release	*10~680(170)	126	I:Release	Time until the wah filter is closed (msec)
EQ LowFreq	*32~2.0k(250)	112	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 2)	114	I:EQLowGain	Amount of gain by which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(4.0k)	116	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	118	I:EQ HiGain	Amount of gain by which the EQ will boost/cut the high range (dB)
Drive	*0~127(15)	11C	I:Drive	(Distortion) Degree of distortion
DS Low Gain	*-12~+12(+ 4)	11E	I:DSLowGain	Gain with which the distortion will boost/cut the low range (dB)
DS Mid Gain	*-12~+12(+ 8)	120	I:DSMidGain	Gain with which the distortion will boost/cut the middle range (dB)
LPFCutoff	*1.0k~18.0k,thru(5.6k)	122	I:LPFCutoff	Frequency at which the low pass filter will cut the high range (Hz)
OutputLevel	*0~127(72)	124	I:Out Level	OutputLevel
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Wah+DS+Dly

	Range(Default)	Param#	Ctrl Dest	Description
Sensitivty	*0~127(102)	11C	I:Sens	Sensitivty
Cutoff Freq	*0~127(20)	11E	I:CutofFreq	Cutoff Frequency (Hz)
Resonance	*1.0~12.0(2.3)	120	I:Resonance	Resonance
Release	*10~680(75)	122	I:Release	Time until the wah filter is closed (msec)
Drive	*0~127(60)	10E	I:Drive	Degree of distortion
OutputLevel	*0~127(53)	110	I:Out Level	OutputLevel
DS Low Gain	*-12~+12(+ 4)	112	I:DSLowGain	Gain with which the distortion will boost/cut the low range (dB)
DS Mid Gain	*-12~+12(+ 8)	114	I:DSMidGain	Gain with which the distortion will boost/cut the middle range (dB)
Delay	0.1~1365.0(190.0)	108		Delay time (msec)
FB Level	*-63~+63(+20)	10A	I:FB Level	Feedback Level
Delay Mix	*0~127(30)	10C	I:Delay Mix	Depth of delay effect
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Wah+OD+Dly Same parameters for Wah+DS+Dly

	Range(Default)	Param#	Ctrl Dest	Description
Sensitivty	*0~127(80)	11C	I:Sens	Sensitivty
Cutoff Freq	*0~127(35)	11E	I:CutofFreq	Cutoff Frequency (Hz)
Resonance	*1.0~12.0(3.0)	120	I:Resonance	Resonance
Release	*10~680(170)	122	I:Release	Time until the wah filter is closed (msec)
Drive	*0~127(16)	10E	I:Drive	Degree of distortion
OutputLevel	*0~127(87)	110	I:Out Level	OutputLevel
DS Low Gain	*-12~+12(+ 0)	112	I:DSLowGain	Gain with which the distortion will boost/cut the low range (dB)
DS Mid Gain	*-12~+12(+ 0)	114	I:DSMidGain	Gain with which the distortion will boost/cut the middle range (dB)
Delay	0.1~1365.0(160.0)	108		Delay time (msec)
FB Level	*-63~+63(+20)	10A	I:FB Level	Feedback Level
Delay Mix	*0~127(50)	10C	I:Delay Mix	Depth of delay effect
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Lo-Fi

	Range(Default)	Param#	Ctrl Dest	Description
Smpl Freq	*48k~375(16.0k)	108	I:Smpl Freq	Sampling Frequency (Hz)
Word Length	*1~127(1)	10A	I:Word Leng	Differential bit length of DPCM
Output Gain	*-6~+36(- 3)	10C	I:Out Gain	Output Gain
LPFCutoff	*63~18.0k,thru(thru)	10E	I:LPFCutoff	Frequency at which the low pass filter will cut the high range (Hz)
LPF Reso	*1.0~12.0(2.9)	112	I:LPF Reso	Resonance of low pass filter
Filter	thru,pbass,radio,tel,clean,low(clean)	110		Characteristics (quality) of low pass filter
Bit Assign	0~6(1)	114		Input signal depth of DPCM
Emphasis	off,on(off)	116		Adjustment of high frequency response
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

3-Band EQ

	Range(Default)	Param#	Ctrl Dest	Description
Low Freq	*50~2.0k(180)	112	I:Low Freq	Frequency at which the EQ will boost/cut the low range (Hz)
Low Gain	*-12~+12(+ 0)	108	I:Low Gain	Amount of gain by which the EQ will boost/cut the low range (dB)
Mid Freq	*100~10.0k(1.0k)	10A	I:Mid Freq	Frequency at which the EQ will boost/cut the mid range (Hz)
Mid Gain	*-12~+12(+ 0)	10C	I:Mid Gain	Amount of gain by which the EQ will boost/cut the mid range (dB)
Mid Q	*1.0~12.0(5.0)	10E	I:Mid Q	Mid Q
High Freq	*500~16.0k(8.0k)	114	I:High Freq	Frequency at which the EQ will boost/cut the high range (Hz)
High Gain	*-12~+12(+ 0)	110	I:High Gain	Amount of gain by which the EQ will boost/cut the high range (dB)
Mode	mono,stereo(mono)	124		Mono/stereo input mode selection
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

HM Enhncer

	Range(Default)	Param#	Ctrl Dest	Description
HPFCutoff	*500~16.0k(5.6k)	108	I:HPFCutoff	Frequency at which the high pass filter will cut the low range of the effect sound (Hz)
Drive	*0~127(20)	10A	I:Drive	Degree with which the exciter effect will be applied
Mix Level	*0~127(30)	10C	I:Mix Level	Level at which the effect sound will be mixed into the dry sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Noise Gate

	Range(Default)	Param#	Ctrl Dest	Description
Attack	*1~40(1)	108	I:Attack	Time until when the gate begins to open (msec)
Release	*10~680(140)	10A	I:Release	Time until the gate closes (msec)
Threshold	*-72~-30(-45)	10C	I:Threshold	Input level at which the gate begins to open (dB)
OutputLevel	*0~127(50)	10E	I:Out Level	Output level
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Compressor

	Range(Default)	Param#	Ctrl Dest	Description
Attack	*1~40(12)	108	I:Attack	Time until when the compressor begins to take effect (msec)
Release	*10~680(25)	10A	I:Release	Time until the compressor effect disappears (msec)
Threshold	*-48~-6(-28)	10C	I:Threshold	Input level at which compression begins to be applied (dB)
Ratio	*1.0~20.0(5.0)	10E	I:Ratio	Compression ratio of the compressor
OutputLevel	*0~127(80)	110	I:Out Level	Output level
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Comp+Dist

	Range(Default)	Param#	Ctrl Dest	Description
Attack	*1~40(7)	11E	I:Attack	Time until the compression takes effect (msec)
Release	*10~680(25)	120	I:Release	Time until the compression finishes (msec)
Threshold	*-48~-6(-27)	122	I:Threshold	Input level at which the compression takes effect (dB)
Ratio	*1.0~20.0(7.0)	124	I:Ratio	Ratio of compressed level to input level
Drive	*0~127(60)	108	I:Drive	Degree of distortion
EQ LowFreq	*32~2.0k(250)	10A	I:EQLowFreq	EQ low frequency (Hz)
EQ Low Gain	*-12~+12(+ 5)	10C	I:EQLowGain	EQ low gain (dB)
EQMidFreq	*100~10.0k(4.0k)	114	I:EQMidFreq	EQ middle frequency (Hz)
EQ Mid Gain	*-12~+12(+ 8)	116	I:EQMidGain	EQ middle gain (dB)
EQ Mid Q	*1.0~12.0(1.0)	118	I:EQ Mid Q	EQ middle Q
LPFCutoff	*1.0k~18.0k,thru(9.0k)	10E	I:LPFCutoff	Frequency at which the low pass filter will cut the high range (Hz)
Edge	*0~127(120)	11C	I:Edge	Sharpness of distorted sound
OutputLevel	*0~127(70)	110	I:Out Level	OutputLevel
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Cmp+DS+Dly

	Range(Default)	Param#	Ctrl Dest	Description
Attack	*1~40(7)	11C	I:Attack	Time until the compression takes effect (msec)
Release	*10~680(140)	11E	I:Release	Time until the compression finishes (msec)
Threshold	*-48~-6(-32)	120	I:Threshold	Input level at which the compression takes effect (dB)
Ratio	*1.0~20.0(7.0)	122	I:Ratio	Ratio of compressed level to input level
Drive	*0~127(60)	10E	I:Drive	Degree of distortion
OutputLevel	*0~127(51)	110	I:Out Level	OutputLevel
DS Low Gain	*-12~+12(+ 4)	112	I:DSLowGain	Gain with which the distortion will boost/cut the low range (dB)
DS Mid Gain	*-12~+12(+ 8)	114	I:DSMidGain	Gain with which the distortion will boost/cut the middle range (dB)
Delay	0.1~1365.0(190.0)	108		Delay time (msec)
FB Level	*-63~+63(+ 8)	10A	I:FB Level	Feedback level
Delay Mix	*0~127(38)	10C	I:Delay Mix	Depth of delay effect
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Cmp+OD+Dly Same parameters for Cmp+DS+Dly

	Range(Default)	Param#	Ctrl Dest	Description
Attack	*1~40(7)	11C	I:Attack	Time until the compression takes effect (msec)
Release	*10~680(25)	11E	I:Release	Time until the compression finishes (msec)
Threshold	*-48~-6(-32)	120	I:Threshold	Input level at which the compression takes effect (dB)
Ratio	*1.0~20.0(5.0)	122	I:Ratio	Ratio of compressed level to input level
Drive	*0~127(18)	10E	I:Drive	Degree of distortion
OutputLevel	*0~127(65)	110	I:Out Level	OutputLevel
DS Low Gain	*-12~+12(+ 4)	112	I:DSLowGain	Gain with which the distortion will boost/cut the low range (dB)
DS Mid Gain	*-12~+12(+ 5)	114	I:DSMidGain	Gain with which the distortion will boost/cut the middle range (dB)
Delay	0.1~1365.0(190.0)	108		Delay time (msec)
FB Level	*-63~+63(+10)	10A	I:FB Level	Feedback level
Delay Mix	*0~127(50)	10C	I:Delay Mix	Depth of delay effect
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Distortion

	Range(Default)	Param#	Ctrl Dest	Description
Drive	*0~127(60)	108	I:Drive	Degree of distortion
EQ LowFreq	*32~2.0k(180)	10A	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 8)	10C	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	*100~10.0k(1.1k)	114	I:EQMidFreq	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	*-12~+12(+10)	116	I:EQMidGain	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	*1.0~12.0(1.0)	118	I:EQ Mid Q	EQ Mid Q
LPFCutoff	*1.0k~18.0k,thru(9.0k)	10E	I:LPFCutoff	Frequency at which the filter will cut the high range (Hz)
Edge	*0~127(80)	11C	I:Edge	Curve of distortion characteristics (sharp (127): distortion begins suddenly;mild (0): distortion begins gradually)
OutputLevel	*0~127(65)	110	I:Out Level	Output level
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and the effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Dist+Delay

	Range(Default)	Param#	Ctrl Dest	Description
Drive	*0~127(60)	112	I:Drive	Degree of distortion
DS Low Gain	*-12~+12(+ 8)	116	I:DSLowGain	Gain with which the distortion will boost/cut the low range (dB)
DS Mid Gain	*-12~+12(+10)	118	I:DSMidGain	Gain with which the distortion will boost/cut the middle range (dB)
LchDelay	0.1~1365.0(50.0)	108		Left channel delay (msec)
RchDelay	0.1~1365.0(100.0)	10A		Right channel delay (msec)
FB Delay	0.1~1365.0(200.0)	10C		Feedback delay (msec)
FB Level	*-63~+63(+20)	10E	I:FB Level	Feedback Level
Delay Mix	*0~127(80)	110	I:Delay Mix	Depth of delay effect
OutputLevel	*0~127(42)	114	I:Out Level	OutputLevel
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Overdrive Same parameters for Distortion

	Range(Default)	Param#	Ctrl Dest	Description
Drive	*0~127(29)	108	I:Drive	Degree of distortion
EQ LowFreq	*32~2.0k(315)	10A	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 4)	10C	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQMidFreq	*100~10.0k(1.2k)	114	I:EQMidFreq	Frequency at which the EQ will boost/cut the mid range (Hz)
EQ Mid Gain	*-12~+12(+ 8)	116	I:EQMidGain	Gain with which the EQ will boost/cut the mid range (dB)
EQ Mid Q	*1.0~12.0(1.0)	118	I:EQ Mid Q	EQ Mid Q
LPFCutoff	*1.0k~18.0k,thru(4.0k)	10E	I:LPFCutoff	Frequency at which the filter will cut the high range (Hz)
Edge	*0~127(104)	11C	I:Edge	Curve of distortion characteristics (sharp (127): distortion begins suddenly;mild (0): distortion begins gradually)
OutputLevel	*0~127(80)	110	I:Out Level	Output level
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and the effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Odrv+Delay Same parameters for Dist+Delay

	Range(Default)	Param#	Ctrl Dest	Description
Drive	*0~127(25)	112	I:Drive	Degree of distortion
DS Low Gain	*-12~+12(+ 4)	116	I:DSLowGain	Gain with which the distortion will boost/cut the low range (dB)
DS Mid Gain	*-12~+12(+ 8)	118	I:DSMidGain	Gain with which the distortion will boost/cut the middle range (dB)
LchDelay	0.1~1365.0(50.0)	108		Left channel delay (msec)
RchDelay	0.1~1365.0(100.0)	10A		Right channel delay (msec)
FB Delay	0.1~1365.0(200.0)	10C		Feedback Delay (msec)
FB Level	*-63~+63(+20)	10E	I:FB Level	Feedback Level
Delay Mix	*0~127(64)	110	I:Delay Mix	Depth of delay effect
OutputLevel	*0~127(55)	114	I:Out Level	OutputLevel
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Amp Sim

	Range(Default)	Param#	Ctrl Dest	Description
Drive	*0~127(76)	108	I:Drive	Degree of distortion
Amp Type	off,stack,combo,tube(tube)	10A		Select the type of amp to be simulated
LPFCutoff	*1.0k~18.0k,thru(2.5k)	10C	I:LPFCutoff	Select the type of amp to be simulated (Hz)
Edge	*0~127(102)	11C	I:Edge	Curve of distortion characteristics (sharp (127): distortion begins suddenly;mild (0): distortion begins gradually)
OutputLevel	*0~127(80)	10E	I:Out Level	Output level
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Delay LCR

	Range(Default)	Param#	Ctrl Dest	Description
LchDelay	0.1~1365.0(333.3)	108		Length of left channel delay (msec)
RchDelay	0.1~1365.0(166.7)	10A		Length of right channel delay (msec)
CchDelay	0.1~1365.0(500.0)	10C		Length of center channel delay (msec)
FB Delay	0.1~1365.0(500.0)	10E		Length of feedback delay (msec)
FB Level	*-63~+63(+10)	110	I:FB Level	Feedback amount
Cch Level	*0~127(100)	112	I:Cch Level	Volume of center channel
High Damp	0.1~1.0(0.3)	114		High range attenuation (lower values cause the high range to decay faster)
EQ LowFreq	*32~2.0k(400)	120	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	122	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(4.0k)	124	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	126	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Dry/Wet	*D63>W,D=W,D<W63(D32>W)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Delay L,R

	Range(Default)	Param#	Ctrl Dest	Description
LchDelay	0.1~1365.0(250.0)	108		Length of left channel delay (msec)
RchDelay	0.1~1365.0(375.0)	10A		Length of right channel delay (msec)
FBDelay1	0.1~1365.0(375.2)	10C		Length of feedback delay 1 (msec)
FBDelay2	0.1~1365.0(375.0)	10E		Length of feedback delay 2 (msec)
FB Level	*-63~+63(+23)	110	I:FB Level	Amount of feedback
High Damp	0.1~1.0(0.3)	112		High range attenuation (lower values cause the high range to decay faster)
EQ LowFreq	*32~2.0k(400)	120	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	122	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(4.0k)	124	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(+ 0)	126	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Dry/Wet	*D63>W,D=W,D<W63(D32>W)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Echo

	Range(Default)	Param#	Ctrl Dest	Description
LchDelay1	0.1~682.0(220.0)	108		Length of first delay of left channel (msec)
Lch FB Lvl	*-63~+63(+22)	10A	I:Lch FBLvl	Amount of feedback for left channel
RchDelay1	0.1~682.0(210.0)	10C		Length of first delay of right channel (msec)
Rch FB Lvl	*-63~+63(+21)	10E	I:Rch FBLvl	Amount of feedback for right channel
High Damp	0.1~1.0(0.5)	110		High range attenuation (lower values cause the high range to decay faster)
LchDelay2	0.1~682.0(230.0)	112		Length of second delay of left channel (msec)
RchDelay2	0.1~682.0(235.0)	114		Length of second delay of right channel (msec)
Delay2 Lvl	*0~127(62)	116	I:Delay2Lvl	Volume of second delay
EQ LowFreq	*32~2.0k(280)	120	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(- 6)	122	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(6.3k)	124	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(- 1)	126	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Dry/Wet	*D63>W,D=W,D<W63(D32>W)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

CrossDelay

	Range(Default)	Param#	Ctrl Dest	Description
L>R Delay	0.1~682.0(365.0)	108		Delay time from left (input) to right (output) (msec)
R>L Delay	0.1~682.0(365.0)	10A		Delay time from right (input) to left (output) (msec)
FB Level	*-63~+63(+24)	10C	I:FB Level	Amount of feedback
InputSelect	L,R,L&R(R)	10E		Input select
High Damp	0.1~1.0(0.5)	110		High range attenuation (lower values cause the high range to decay faster))
EQ LowFreq	*32~2.0k(355)	120	I:EQLowFreq	Frequency at which the EQ will boost/cut the low range (Hz)
EQ Low Gain	*-12~+12(+ 0)	122	I:EQLowGain	Gain with which the EQ will boost/cut the low range (dB)
EQ HiFreq	*500~16.0k(6.3k)	124	I:EQ HiFreq	Frequency at which the EQ will boost/cut the high range (Hz)
EQ Hi Gain	*-12~+12(- 2)	126	I:EQ HiGain	Gain with which the EQ will boost/cut the high range (dB)
Dry/Wet	*D63>W,D=W,D<W63(D32>W)	11A	I:Dry/Wet	Balance of the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

ER 1

	Range(Default)	Param#	Ctrl Dest	Description
Early Type	S-H,L-H,rdm,rvs,plt,spr(S-H)	108		Type of early reflections (small hall, large hall, random, reverse, plate, spring)
Room Size	0.1~20.0(4.0)	10A		Room Size
Diffusion	0~10(5)	10C		Diffusion
InitDelay	0.1~200.0(9.5)	10E		Delay time until early reflections start (msec)
FB Level	*-63~+63(+10)	110	I:FB Level	Feedback Level
HPF Cutoff	*thru,22~8.0k(thru)	112	I:HPFCutoff	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	*1.0k~18.0k,thru(4.0k)	114	I:LPFCutoff	Frequency at which the low pass filter will cut the high range (Hz)
Liveness	0~10(7)	11C		Emphasis in high frequencies
Density	0~3(1)	11E		Density of early reflections
High Damp	0.1~1.0(1.0)	120		High range attenuation (lower values cause the high range to decay faster)
Dry/Wet	*D63>W,D=W,D<W63(D35>W)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

ER 2 Same parameters for ER 1

	Range(Default)	Param#	Ctrl Dest	Description
Early Type	S-H,L-H,rdm,rvs,plt,spr(rdm)	108		Type of early reflections (Small Hall, Large Hall, random, reverse, plate, spring)
Room Size	0.1~20.0(2.0)	10A		Room Size
Diffusion	0~10(8)	10C		Diffusion
InitDelay	0.1~200.0(6.4)	10E		Delay time until early reflections start (msec)
FB Level	*-63~+63(+ 3)	110	I:FB Level	Feedback Level
HPF Cutoff	*thru,22~8.0k(thru)	112	I:HPFCutoff	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	*1.0k~18.0k,thru(12.0k)	114	I:LPFCutoff	Frequency at which the low pass filter will cut the high range (Hz)
Liveness	0~10(5)	11C		Emphasis in high frequencies
Density	0~3(3)	11E		Density of early reflections
High Damp	0.1~1.0(1.0)	120		High range attenuation (lower values cause the high range to decay faster)
Dry/Wet	*D63>W,D=W,D<W63(D35>W)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Gate Rev

	Range(Default)	Param#	Ctrl Dest	Description
Gate Type	typeA,typeB(typeA)	108		Gate Reverb Type
Room Size	0.1~20.0(1.0)	10A		Room Size
Diffusion	0~10(10)	10C		Diffusion
InitDelay	0.1~200.0(0.1)	10E		Delay time until early reflections start (msec)
FB Level	*-63~+63(+ 0)	110	I:FB Level	Feedback Level
HPF Cutoff	*thru,22~8.0k(thru)	112	I:HPFCutoff	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	*1.0k~18.0k,thru(8.0k)	114	I:LPFCutoff	Frequency at which the low pass filter will cut the high range (Hz)
Liveness	0~10(5)	11C		Emphasis in high frequencies
Density	0~3(3)	11E		Density of early reflections
High Damp	0.1~1.0(0.5)	120		High range attenuation (lower values cause the high range to decay faster)
Dry/Wet	*D63>W,D=W,D<W63(D12>W)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

Revrs Gate Same parameters for Gate Rev

	Range(Default)	Param#	Ctrl Dest	Description
Gate Type	typeA,typeB(typeB)	108		Gate Reverb Type
Room Size	0.1~20.0(2.5)	10A		Room Size
Diffusion	0~10(8)	10C		Diffusion
InitDelay	0.1~200.0(4.8)	10E		Delay time until the early reflections (msec)
FB Level	*-63~+63(+ 0)	110	I:FB Level	Feedback Level
HPF Cutoff	*thru,22~8.0k(thru)	112	I:HPFCutoff	Frequency at which the high pass filter will cut the low range (Hz)
LPFCutoff	*1.0k~18.0k,thru(4.5k)	114	I:LPFCutoff	Frequency at which the low pass filter will cut the high range (Hz)
Liveness	0~10(6)	11C		Emphasis in high frequencies
Density	0~3(3)	11E		Density of early reflections
High Damp	0.1~1.0(1.0)	120		High range attenuation (lower values cause the high range to decay faster)
Dry/Wet	*D63>W,D=W,D<W63(D<W63)	11A	I:Dry/Wet	Balance between the dry sound and effect sound
Ins Pan	L63~ C ~R63	130		Insertion Pan
SendIns-Rev	0~127	131		Insertion-to-Reverb Send Level
SendIns-Var	0~127	132		Insertion-to-Variation Send Level
InsDryLevel	0~127	133		Insertion Dry Level

MIDI Data Format

Many MIDI messages listed in the MIDI Data Format section are expressed in hexadecimal or binary numbers. Hexadecimal numbers may include the letter “H” as a suffix. The letter “n” indicates a certain whole number.
The chart below lists the corresponding decimal number for each hexadecimal/binary number.

Decimal	Hexadecimal	Binary
0	00	0000 0000
1	01	0000 0001
2	02	0000 0010
3	03	0000 0011
4	04	0000 0100
5	05	0000 0101
6	06	0000 0110
7	07	0000 0111
8	08	0000 1000
9	09	0000 1001
10	0A	0000 1010
11	0B	0000 1011
12	0C	0000 1100
13	0D	0000 1101
14	0E	0000 1110
15	0F	0000 1111
16	10	0001 0000
17	11	0001 0001
18	12	0001 0010
19	13	0001 0011
20	14	0001 0100
21	15	0001 0101
22	16	0001 0110
23	17	0001 0111
24	18	0001 1000
25	19	0001 1001
26	1A	0001 1010
27	1B	0001 1011
28	1C	0001 1100
29	1D	0001 1101
30	1E	0001 1110
31	1F	0001 1111
32	20	0010 0000
33	21	0010 0001
34	22	0010 0010
35	23	0010 0011
36	24	0010 0100
37	25	0010 0101
38	26	0010 0110
39	27	0010 0111
40	28	0010 1000
41	29	0010 1001
42	2A	0010 1010
43	2B	0010 1011
44	2C	0010 1100
45	2D	0010 1101
46	2E	0010 1110
47	2F	0010 1111
48	30	0011 0000
49	31	0011 0001
50	32	0011 0010
51	33	0011 0011
52	34	0011 0100
53	35	0011 0101
54	36	0011 0110
55	37	0011 0111
56	38	0011 1000
57	39	0011 1001
58	3A	0011 1010
59	3B	0011 1011
60	3C	0011 1100
61	3D	0011 1101
62	3E	0011 1110
63	3F	0011 1111

Decimal	Hexadecimal	Binary
64	40	0100 0000
65	41	0100 0001
66	42	0100 0010
67	43	0100 0011
68	44	0100 0100
69	45	0100 0101
70	46	0100 0110
71	47	0100 0111
72	48	0100 1000
73	49	0100 1001
74	4A	0100 1010
75	4B	0100 1011
76	4C	0100 1100
77	4D	0100 1101
78	4E	0100 1110
79	4F	0100 1111
80	50	0101 0000
81	51	0101 0001
82	52	0101 0010
83	53	0101 0011
84	54	0101 0100
85	55	0101 0101
86	56	0101 0110
87	57	0101 0111
88	58	0101 1000
89	59	0101 1001
90	5A	0101 1010
91	5B	0101 1011
92	5C	0101 1100
93	5D	0101 1101
94	5E	0101 1110
95	5F	0101 1111
96	60	0110 0000
97	61	0110 0001
98	62	0110 0010
99	63	0110 0011
100	64	0110 0100
101	65	0110 0101
102	66	0110 0110
103	67	0110 0111
104	68	0110 1000
105	69	0110 1001
106	6A	0110 1010
107	6B	0110 1011
108	6C	0110 1100
109	6D	0110 1101
110	6E	0110 1110
111	6F	0110 1111
112	70	0111 0000
113	71	0111 0001
114	72	0111 0010
115	73	0111 0011
116	74	0111 0100
117	75	0111 0101
118	76	0111 0110
119	77	0111 0111
120	78	0111 1000
121	79	0111 1001
122	7A	0111 1010
123	7B	0111 1011
124	7C	0111 1100
125	7D	0111 1101
126	7E	0111 1110
127	7F	0111 1111

Additional Notes

* For example, 144 - 159(Decimal)/9nH/1001 0000 - 1001 1111(Binary) indicate the note-on messages for the channels 1 through 16 respectively. 176 - 191/BnH/1011 0000 - 1011 1111 indicate the control change messages for the channels 1 through 16 respectively. 192 - 207/CnH/1100 0000 - 1100 1111 indicate the program change messages for the channels 1 through 16 respectively. 240/F0H/1111 0000 is positioned at the beginning of data to indicate a system exclusive message. 247/F7H/1111 0111 is positioned at the end of the system exclusive message.

* aaH(Hexadecimal)/0aaaaaaa(Binary) indicates the data addresses. The data address consists of High, Mid and Low.

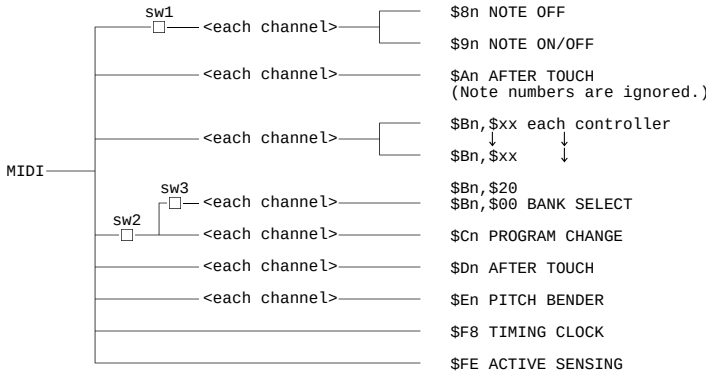
* bbH/0bbbbbbb indicates byte counts.

* ccH/0ccccccc indicates tcheck sums.

* ddH/0ddddddd indicates data/value.

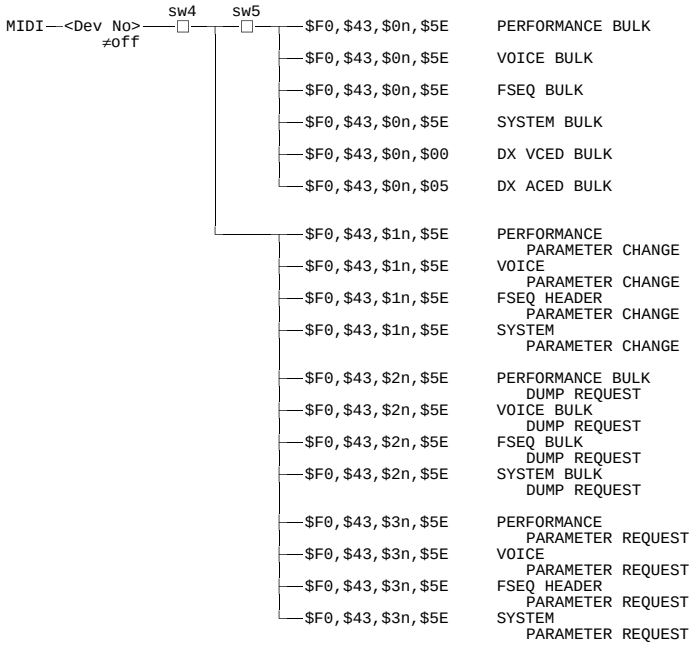
1.MIDI Reception/Transmission Block Diagrams

< MIDI Reception Conditions > 1/2



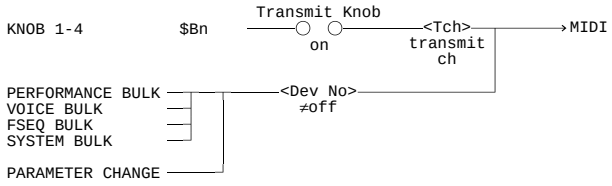
Note: sw1: Selected from among all, odd, and even in a MIDI setting (Receive Note).
sw2: Switched on with a MIDI setting (Receive Program Change = on).
sw3: Switched on with a MIDI setting (Receive Bank Select = on).

< MIDI Reception Conditions > 2/2



Note: sw4: Switched on with a MIDI setting (Receive System Exclusive = on).
sw5: Switched on with a MIDI setting (Receive Bulk Dump = on).

< MIDI Transmission Conditions >



2.Channel Messages

2.1 Transmission

2.1.1 Control Change

Assigned controller numbers are output when built-in knobs are turned.

Cntrl#	Parameter	Data Range
73	Attack Time	0~127
72	Release Time	0~127
1~31, 33~95	Formant Control	0~127
1~31, 33~95	FM Control	0~127
1~31, 33~95	Knob 1	0~127
1~31, 33~95	Knob 2	0~127
1~31, 33~95	Knob 3	0~127
1~31, 33~95	Knob 4	0~127

Note: Attack Time to FM Control are assigned to knobs with the upper LED lit. Knob 1 to 4 are assigned with the lower LED lit.

2.2 Reception

2.2.1 Note On/Off

2.2.1.1 Note Off

key range	=	C-2~G8
velocity range	=	not received

2.2.1.2 Note On / Off

key range	=	C-2~G8
velocity range	=	0~127 (0 = Note off)

2.2.2 Control Change

Parameters in the following table are controllable using MIDI. A part that can receives multiple channels operates by those channels in the received order.

Cntrl#	Parameter	Data Range	
0	Bank Select MSB	0~127	*1
32	Bank Select LSB	0~127	*1
1	Modulation wheel	0~127	
5	Portamento Time	0~127	*2
6	Data Entry	0~127	*2, *3
7	Volume	0~127	*2, *4
10	Pan	0~127	*2, *4
11	Expression	0~127	
64	Sustain (Hold1)	0, 127	
65	Portamento Switch	0, 127	*2
71	Harmonic Content	0~127	*2
72	Release Time	0~127	*2
73	Attack Time	0~127	*2
74	Brightness	0~127	*2
91	Reverb Send	0~127	*2
93	Variation Send	0~127	*2
1~31, 33~95	BC (default: 2)	0~127	
1~31, 33~95	FC (default: 4)	0~127	
1~31, 33~95	Formant Control	0~127	*2
1~31, 33~95	FM Control	0~127	*2
1~31, 33~95	Knob 1~4	0~127	
1~31, 33~95	MIDI Control 1~4	0~127	
98	NRPN LSB	8~102	*3
99	NRPN MSB	1	*3
100	RPN LSB	0~2	*3
101	RPN MSB	0	*3

*1: Refer to "2.2.3 Program Change."
*2: Corresponding parameter values directly change with control changes, without using the control matrix. Those values become reference points for control changes routed by the control matrix, which are not reset by Reset All Controllers.
*3: Parameters that follow are controllable using NRPN or RPN massages.

NRPN MSB	NRPN LSB	Data Entry MSB	Part Parameter	Data Range
01H	08H	00H~40H~7FH	LFO1 Speed	-64~+0~+63
01H	09H	00H~40H~7FH	LFO1 Pmod	-64~+0~+63
01H	0AH	00H~40H~7FH	LFO1 Delay	-64~+0~+63
01H	0BH	00H~40H~7FH	LFO2 Speed	-64~+0~+63
01H	0CH	00H~40H~7FH	LFO2 FltMod	-64~+0~+63
01H	20H	00H~40H~7FH	Filter Freq	-64~+0~+63
01H	21H	00H~40H~7FH	Filter Reso	-64~+0~+63
01H	63H	00H~40H~7FH	Attack Time	-64~+0~+63
01H	64H	00H~40H~7FH	Decay Time	-64~+0~+63
01H	66H	00H~40H~7FH	ReleaseTime	-64~+0~+63

RPN MSB	RPN LSB	Data Entry MSB	Part Parameter	Data Range
00H	00H	00H~18H	PB Range	+0, +1~+24
			PB Range Lo-	1~-24
00H	01H	0FH~40H~70H	Detune	-64~+0~+63
00H	02H	28H~40H~58H	Note Shift	-24~+0~+24

On reception of Pitch Bend Range, PB Range Lo is set to a minus value of received value.

*4: With "Program Change Mode = perform," Performance Volume and Pan are controllable using Performance Channel. With "Program Change Mode = multi," Performance Volume and Pan are controllable using Performance Channel while Part Volume and Pan are controllable using Part Receivee Channel.

2.2.3 Program Change

On reception of Program Change, FS1R operates as follows.

Receives Program Change is received only in PLAY MODE.

In case "Receive Program Change = off" is selected in system setup, Bank Select and Program Change are not received. With "Receive Program Change = on" and "Receive Bank Select = off, "Bank Select is not received. On reception of Program Change, a voice or performance program (1~128) , depending on the Program Change Mode setting, from the current bank is selected.

With "Program Change Mode = perform," a performance program is selected using Performance Channel. With "Program Change Mode = multi," a performance program is selected using Performance Channel and a voice program is selected using Part Receive Channel.

Bank Select and Program Change data bytes are as follow.

		Bank No.MSB / LSB	PGM CNG No.
Voice	INTERNAL	63($3F) / 0($00)	1~128($00~$7F)
	PRESET A	63($3F) / 1($01)	↓
	:	:	↓
	PRESET K	63($3F) / 11($0B)	↓
Performance	INTERNAL	63($3F) / 64($40)	1~128($00~$7F)
	PRESET A	63($3F) / 65($41)	↓
	PRESET B	63($3F) / 66($42)	↓
	PRESET C	63($3F) / 67($43)	↓

```
BANK SELECT    $Bn, $00, $3F (MSB)
               $Bn, $20, $00~$0B or $40~$43 (LSB)
PROGRAM CHANGE $Cn, $00~$7F
```

Bank Select other than found in the above table is ignored. Thus, any bank selection does not take place and a following Program Change selects from the current bank that is not changed.

2.2.3.1 Performance Program Change

Bank Select or Program Change for a performance is received using Performance Channel, as follows.

1-16 : Received only specified channel.
all : Received all channels (OMNI ON) .
off : Not received.

2.2.3.2 Voice Program Change

Bank Select or Program Change for a voice is received using Part Receive Channel (Part Receive Channel to Part Receive Channel Max) . With "Part Receive Channel = pfm," Part Receive Channel matches Performance Channel.

2.2.4 Pitch Bend Change

FS1R receives only Pitch Bend Change MSB. A part assigned with multiple channels can sound separately according to Pitch Bend Change on different channels.

2.2.5 After Touch

After Touch is received on Receive Channel (s) specified. A part assigned with multiple channels equivalently receives After Touch on different channels, giving proiority to last reception of this message. The 3rd byte of Polyphonic After Touch is ignored and processed as Channel After Touch.

2.2.6 Channel Mode Message

Cntrl#	Parameter	Data Range	
120	All Sound Off	0	
121	Reset All Controller	0	*1
123	ll Notes Off	0	
126	Mono	0	*2
127	Pol	0	

*1 A default value for each message reception is as follows.

$00 for Control Change other than Bank Select and After Touch. Control Changes set to route in the control matrix to affect part parameters have their corresponding part parameter values (last edited). Control Changes that can directly change parameters without the control matrix are not reset by Reset All Controllers, since their values are referred to by other Control Changes for the same parameters via the matrix.

```
Sustain = $00 (off)
Expression = $7F
RPN, NRPN = $7F (Null)
Pitch Bend = $00, $40 (Center)
```

*2 The 3rd byte is ignored.

3. System Exclusive Message

3.1 Parameter Change and Parameter Request

FS1R transmits and receives its native parameter changes. FS1R also receives requests for parameter changes for corresponding parameters, when "Receive System Exclusive = on" is set and Device Number contained in System Exclusive massages matches the FS1R Device Number setting. On reception of a request, FS1R transmits out the requested parameter.
FS1R receives a parameter constructed of 2 bytes (i.e. Fseq Speed Ratio) via an Address High.

Parameter Change

```
11110000       F0                Exclusive Status
01000011       43                YAMAHA ID
0001nnnn       1n                Device Number
01011110       5E                Model ID
0gggpppp       gggpppp           *Parameter Address High (H)
0mmmmmmm       mmmmmmm           *Parameter Address Middle (M)
0lllllll       lllllll           *Parameter Address Low (L)
0vvvvvvv       vvvvvvv           Data Value MS 7bit
0vvvvvvv       vvvvvvv           Data Value LS 7bit
11110111       F7                End of Exclusive
```

Parameter Request

```
11110000       F0                Exclusive Status
01000011       43                YAMAHA ID
0011nnnn       3n                Device Number
01011110       5E                Model ID
0gggpppp       gggpppp           *Parameter Address High (H)
0mmmmmmm       mmmmmmm           *Parameter Address Middle (M)
0lllllll       lllllll           *Parameter Address Low (L)
11110111       F7                End of Exclusive
```

```
*Parameter Address     (H) (M) (L)     Description

SYSTEM                 00  00  ll

PERFORM                10  mm  ll      Performance Common
/VOICE                 30  00  ll      Performance Part 1
                       31  00  ll      Performance Part 2
                       32  00  ll      Performance Part 3
                       33  00  ll      Performance Part 4

                       40  00  ll      Part 1 Voice Common
                       60  00  ll      Part 1 Voice Operator 1
                           :   :
                           07  ll      Part 1 Voice Operator 8
                       :   :   :
                       43  00  ll      Part 4 Voice Common
                       63  00  ll      Part 4 Voice Operator 1
                           :   :
                           07  ll      Part 4 Voice Operator 8

FSEQ                   70  00  ll      Fseq Header

mm = Parameter Number MSB
ll = Parameter Number LSB
```

See MIDI data tables <Table 1> to <table 4> for details.

3.2 Bulk Data

FS1R transmits and receives 4 kinds of bulk data (1~4, FS1R native) in addition to reception of Yamaha DX series' bulk data (5~6, VCED and ACED), with "Receive Bulk Dump = on" and Device Number contained in System Exclusive massages matches the FS1R Device Number setting. On reception of a request, FS1R transmits out the requested parameter change.

```
1.  Performance bulk dump
2.  Voice bulk dump
3.  Fseq bulk dump
4.  System bulk dump
5.  DX Series VCED bulk dump
6.  DX Series ACED bulk dump
```

3.2.1 FS1R Native Bulk Dump and Dump Request (1, 2, 3, 4)

FS1R Native Bulk Dump

```
11110000       F0                Exclusive Status
01000011       43                YAMAHA ID
0000nnnn       0n                Device Number
01011110       5E                Model ID
0bbbbbbb       bbbbbbb           Byte Count High
0bbbbbbb       bbbbbbb           Byte Count Low
0hhhhhhh       hhhhhhh           *Address High (H)
0mmmmmmm       mmmmmmm           *Address Middle (M)
0lllllll       lllllll           *Address Low (L)
0ddddddd       ddddddd           Data
|              |                      ┐
                                      ├ Byte Count
0ddddddd       ddddddd           Data
0ccccccc       ccccccc           Check-sum
11110111       F7                End of Exclusive
```

The Data section matches "vv" in the MIDI data tables <Table 1> to <Table 4>.
Check-sum is a value that makes "0" (zero) in lower 7 bits of an added value of Byte Count, Address, Data, and Check-sum itself.

Dump Request

```
11110000       F0                Exclusive Status
01000011       43                YAMAHA ID
0010nnnn       2n                Device Number
01011110       5E                Model ID
0hhhhhhh       hhhhhhh           *Address High (H)
0mmmmmmm       mmmmmmm           *Address Middle (M)
0lllllll       lllllll           *Address Low (L)
11110111       F7                End of Exclusive


*Address       (H) (M) (L)     Description

SYSTEM         00  00  00

PERFORM        10  00  00      Current Performance Bulk
/VOICE         11  00  nn      1 Internal Performance Bulk

               40  00  00      Part 1 Current Voice Bulk
                :   :   :      :
               43  00  00      Part 4 Current Voice Bulk
               51  00  nn      1 Internal Voice Bulk

               6b  00  nn      FSeq Bulk

b   = Bank 0:Current, 1:Internal
nn  = Memory No.
```

See the MIDI data tables <Table 1> to <Table 4> for more information of Address and Byte Count.
FSeq Bulk does not interpret Byte Count.

3.2.2 DX Series VCED and ACED Bulk Dump (5, 6)

```
11110000       F0
01000011       43
0000nnnn       nnnn = Device Number
0ttttttt       ttttttt = Format Number
0bbbbbbb       bbbbbbb = Byte Count High
0bbbbbbb       bbbbbbb = Byte Count Low
0ddddddd       ddddddd = Data ──┐
|              |                ├ Byte Count
0ddddddd       ddddddd = Data ──┘
0ccccccc       ccccccc = Check-sum
11110111       F7
```

See the MIDI data table <Table 5> for more information of Format Number and Byte Count.
VCED and ACED bulk data is received using the Part 1 Voice edit buffer. VCED data represents Voice data for Yamaha DX7 while ACED data represents additions to DX7's Voice data, which is available with DX7II, DX7S, and TX802.

4. Real Time Message

4.1 Active Sensing

a) Transmission
Not transmitted.

b) Reception
If an "FE" (Active Sensing status message) is received, FS1R starts to wait for next "FE." If the next message does not arrive in approximately 500 msec., FS1R mutes the notes currently sounding.

4.2 Timing Clock

a) Transmission
Not transmitted.

b) Reception
Received and used as sync clock when "Fseq Speed = midi (1/4,1/2,1/1,2/1,4/1)" is selected.

MIDI Data Tables

<Table 1> Performance Parameter

Byte Count	
common	80
effect data	112
part data	52 x 4 = 208
total	400

Performance Common Parameter (Byte Count: 80 bytes)

F0 43 1n 5E 10 00 ll vv vv F7

ll	vv vv	Description
00	20-7F	NAME 0
01	20-7F	NAME 1
02	20-7F	NAME 2
03	20-7F	NAME 3
04	20-7F	NAME 4
05	20-7F	NAME 5
06	20-7F	NAME 6
07	20-7F	NAME 7
08	20-7F	NAME 8
09	20-7F	NAME 9
0A	20-7F	NAME 10
0B	20-7F	NAME 11
0C		reserved
0D		reserved
0E	00-16	CATEGORY
0F		reserved
10	00-7F	performance volume
11	01-7F	performance pan (L63~0~R63)
12	00-30	performance note shift (-24~0~+24)
13		reserved
14	00-02	individual out (0: off, 1: pre ins, 2: post ins)
15	00-04	FSEQ PART (0: off, 1~4: part)
16	00-01	FSEQ bank 0: int, 1: pre
17	00-59	FSEQ number int (0-5) , pre (0-89)
18	00-7F	FSEQ Speed Ratio (10.0~500.0) / MIDI Clock (0-4)
		MIDI Clock: 0: 1/4, 1: 1/2, 2: 1/1, 3: 2/1, 4: 4/1
1A	00-7F	FSEQ start step offset (hi byte)
	00-7F	FSEQ start step offset (lo byte)
1C	00-7F	FSEQ start step of loop point (hi byte)
	00-7F	FSEQ start step of loop point (lo byte)
1E	00-7F	FSEQ end step of loop point (hi byte)
	00-7F	FSEQ end step of loop point (lo byte)
20	00-01	FSEQ loop mode (0: one way, 1: round)
21	01-02	FSEQ play mode (1: scratch, 2: fseq)
22	00-07	FSEQ velocity sensitivity for tempo
23	00-01	FSEQ formant pitch mode
24	00-01	FSEQ key on trigger (0: first, 1: all)
25		reserved
26	00-63	FSEQ formant seqence delay
27	00-7F	FSEQ level velocity sensitivity (-64~+63)
28	00-0F	controller 1 part switch [----pppp]
↓	↓	↓
2F	00-0F	controller 8 part switch [----pppp]
30	00-7F	controller 1 source switch (bitmap-high)
31	00-7F	controller 1 source switch (bitmap-low)
↓	↓	↓
32	00-7F	controller 8 source switch (bitmap-high)
3F	00-7F	controller 8 source switch (bitmap-low)
40	00-2F	controller 1 destination
↓	↓	↓
47	00-2F	controller 8 destination
48	00-7F	controller 1 depth (-64~+63)
↓	↓	↓
4F	00-7F	controller 8 depth (-64~+63)

Performance Effect Parameter (Byte Count: 112 bytes)

F0 43 1n 5E 10 mm ll vv vv F7

mm ll	vv vv	Description	
00 50	00-7F	Reverb parameter	(See "Effect Parameter List.")
	00-7F	Same as above.	Same as above.
00 52	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 54	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 56	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 58	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 5A	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 5C	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 5E	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 60	00-7F	Same as above.	Same as above.
00 61	00-7F	Reverb parameter	(See "Effect Parameter List.")
00 62	00-7F	Same as above.	Same as above.
00 63	00-7F	Same as above.	Same as above.
00 64	00-7F	Same as above.	Same as above.
00 65	00-7F	Same as above.	Same as above.
00 66	00-7F	Same as above.	Same as above.
00 67	00-7F	Same as above.	Same as above.
00 68	00-7F	Variation parameter	(See "Effect Parameter List.")
	00-7F	Same as above.	Same as above.
00 6A	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 6C	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 6E	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 70	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 72	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 74	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 76	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 78	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 7A	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 7C	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
00 7E	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 00	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 02	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 04	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 06	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 08	00-7F	Insertion parameter	(See "Effect Parameter List.")
	00-7F	Same as above.	Same as above.
01 0A	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 0C	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 0E	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 10	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 12	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 14	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 16	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 18	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 1A	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 1C	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 1E	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 20	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 22	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 24	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 26	00-7F	Same as above.	Same as above.
	00-7F	Same as above.	Same as above.
01 28	00-10	Reverb type	(See "Effect Type List.")
01 29	01-7F	Reverb pan	L63...C...R63 (1..64..127)
01 2A	00-7F	Reverb return	
01 2B	00-1C	Variation type	(See "Effect Type List.")
01 2C	01-7F	Variation pan	L63...C...R63 (1..64..127)
01 2D	00-7F	Variation return	
01 2E	00-7F	Send Variation to Reverb	
01 2F	00-28	Insertion type	(See "Effect Type List.")
01 30	01-7F	Insertion pan	L63...C...R63 (1..64..127)
01 31	00-7F	Send insertion to Reverb	
01 32	00-7F	Send insertion to Variation	
01 33	00-7F	Insertion level	
01 34	34-4C	EQ low gain	-12~+12 [dB]
01 35	04-28	EQ low frequency	32~2000 [Hz]
01 36	01-78	EQ low Q	0.1~12.0
01 37	00-01	EQ low shape	00: shelving, 01: peaking
01 38	34-4C	EQ mid gain	-12~+12 [dB]
01 39	0E-36	EQ mid frequency	100~10.0 [kHz]
01 3A	01-78	EQ mid Q	0.1~12.0

01 3B	34-4C	EQ high gain	-12~+12 [dB]
01 3C	1C-3A	EQ high frequency	0.5~16.0 [kHz]
01 3D	01-78	EQ high Q	0.1-12.0
01 3E	00-01	EQ high shape	00: shelving, 01: peaking
01 3F		reserved	

Performance Part Parameter (Byte Count : 52 x 4 = 208 bytes)

F0 43 1n 5E 3p 00 ll vv vv F7 p = 0..3 (Part1..3)

ll	vv vv	Description	
00	00-20	NOTE RESERVE	0~32
01	00-0C	BANK NUMBER	off, Int, PrA~PrK
02	00-7F	PROGRAM NUMBER	0~127
03	00-0F, 7F	Rcv CHANNEL MAX	A1~A16, off
04	00-0F, 10, 7F	Rcv CHANNEL	A1~A16, pfm, off
05	00-01	MONO/POLY MODE	0:MONO,1:POLY
06	00-03	MONO PRIORITY	0: last, 1: top, 2: bottom, 3: first
07	00-01	FilterSw	0: off, 1: on
08	00-30	NOTE SHIFT	-24~+24 [semitones]
09	00-7F	DETUNE	-64~+63
0A	00-7F	VOICED/UNVOICED BALANCE	-64~+63
0B	00-7F	VOLUME	0~127
0C	00-7F	VELOCITY SENSE DEPTH	0~127
0D	00-7F	VELOCITY SENSE OFFSET	0~127
0E	00-7F	PAN	Rnd, L63...C...R63 (0: random, 1~64 -127)
0F	00-7F	NOTE LIMIT LOW	C-2~G8
10	00-7F	NOTE LIMIT HIGH	C-2~G8
11	00-7F	DRY LEVEL	0~127
12	00-7F	VARIATION SEND	0~127
13	00-7F	REVERB SEND	0~127
14	00-01	INSERTION SW	off/on
15	00-7F	LFO1 RATE	-64~+63
16	00-7F	LFO1 PITCH MOD DEPTH	-64~+63
17	00-7F	LFO1 DELAY	-64~+63
18	00-7F	FILTER CUTOFF FREQ	-64~+63
19	00-7F	FILTER RESONANCE	-64~+63
1A	00-7F	EG ATTACK TIME	-64~+63
1B	00-7F	EG DECAY TIME	-64~+63
1C	00-7F	EG RELEASE TIME	-64~+63
1D	00-7F	FORMANT	-64~+63
1E	00-7F	FM	-64~+63
1F	00-7F	FILTER EG DEPTH	-64~+63
20	00-7F	PITCH EG INITIAL LEVEL	-64~+63
21	00-7F	PITCH EG ATTACK TIME	-64~+63
22	00-7F	PITCH EG RELEASE LEVEL	-64~+63
23	00-7F	PITCH EG RELEASE TIME	-64~+63
24	00-01/00-01	PORTAMENTO SWITCH/MODE bit0: off/on bit1: 0: fingerd, 1: fulltime	
25	00-7F	PORTAMENTO TIME	0~127
26	10-58	PITCH BEND RANGE HIGH	-48~+24
27	10-58	PITCH BEND RANGE LOW	-48~+24
28	00-64	PAN SCALING	0~100
29	00-63	PAN LFO DEPTH	0~99
2A	01-7F	VELOCITY LIMIT LOW	1~127
2B	01-7F	VELOCITY LIMIT HIGH	1~127
2C	00-7F	EXPRESSION LOW LIMIT	0~127
2D	00-01	SUSTAIN Rcv SW	off/on
2E	00-7F	LFO2 RATE	-64~+63
2F	00-7F	LFO2 MOD DEPTH	-64~+63
30		Reserved	
31		Reserved	
32		Reserved	
33		Reserved	

<Table 2> Voice Parameter

Byte Count	
Common	112
OP data	62 x 8 = 496
total	608

Voice Common Parameter (Byte Count: 112 bytes)

F0 43 1n 5E 4p 00 ll vv vv F7 p = 0..3 (Part1..3)

ll	vv vv	Description
00	20-7F	NAME 0
01	20-7F	NAME 1
02	20-7F	NAME 2
03	20-7F	NAME 3
04	20-7F	NAME 4
05	20-7F	NAME 5
06	20-7F	NAME 6
07	20-7F	NAME 7
08	20-7F	NAME 8
09	20-7F	NAME 9
0A		reserved
0B		reserved
0C		reserved
0D		reserved
0E	00-16	CATEGORY
0F		reserved
10	00-05	COMMON LFO1 - waveform
11	00-63	COMMON LFO1 - speed
12	00-63	COMMON LFO1 - delay
13	00-01	COMMON LFO1 - key sync
14		reserved
15	00-63	COMMON LFO1 - pitch modulation depth
16	00-63	COMMON LFO1 - amplitude modulation depth
17	00-63	COMMON LFO1 - frequency modulation depth
18	00-05	COMMON LFO2 - waveform
19	00-7F	COMMON LFO2 - speed
1A		reserved
1B		reserved
1C	00-03	COMMON LFO2 - phase (0: 0, 1: 90, 2: 180, 3: 270)
1D	00-01	COMMON LFO2 - key sync
1E	00-30	COMMON Note shift (-24-0-+24)
1F	00-64	COMMON Pitch EG - level 0
20	00-64	COMMON Pitch EG - level 1
21	00-64	COMMON Pitch EG - level 2
22	00-64	COMMON Pitch EG - level 4
23	00-63	COMMON Pitch EG - time 1
24	00-63	COMMON Pitch EG - time 2
25	00-63	COMMON Pitch EG - time 3
26	00-63	COMMON Pitch EG - time 4
27	00-07	COMMON Pitch EG - velocity sensitivity
28	00-01	COMMON Fseq voiced op (8) switch -high
29	00-7F	COMMON Fseq voiced op (1-7) switch -low
2A	00-01	COMMON Fseq unvoiced op (8) switch -high
2B	00-7F	COMMON Fseq unvoiced op (1-7) switch -low
2C	00-57	COMMON Algorithm preset number
2D	00-0F	COMMON Voiced op1 carrier level correction
2E	00-0F	COMMON Voiced op2 carrier level correction
2F	00-0F	COMMON Voiced op3 carrier level correction
30	00-0F	COMMON Voiced op4 carrier level correction
31	00-0F	COMMON Voiced op5 carrier level correction
32	00-0F	COMMON Voiced op6 carrier level correction
33	00-0F	COMMON Voiced op7 carrier level correction
34	00-0F	COMMON Voiced op8 carrier level correction
35		reserved
↓	↓	
3A		reserved
3B	00-03	COMMON Pitch EG - range (8va, 2va, 1va, 1/2va)
3C	00-07	COMMON Pitch EG - time scaling depth
3D	00-07	COMMON Voiced feedback level
3E	00-64	COMMON Pitch EG - level 3
3F		reserved
40	00-03/00-01/00-07	COMMON Formant Control Destination 1
↓	↓	dest (off,out,freq,width) /V/N/OP (1~8) [--ddvooo]
44	↓	COMMON Formant Control Destination 5
45	00-7F	COMMON Formant Control Depth 1 (-64~+63)
↓	↓	↓
49	00-7F	COMMON Formant Control Depth 5 (-64~+63)
4A	00-03/00-01/00-07	COMMON FM Control Destination 1
↓	↓	dest (off,out,freq,width) /V/N/OP (1~8) [--ddvooo]
4E	↓	COMMON FM Control Destination 5
4F	00-7F	COMMON FM Control Depth 1 (-64~+63)
↓	↓	↓
53	00-7F	COMMON FM Control Depth 5 (-64~+63)
54	00-05	COMMON Filter Type (LPF24, LPF18, LPF12, HPF, BPF, BEF)
55	00-74	COMMON Filter Resonance (-16~+100)
56	00-0E	COMMON Filter Resonance Vel Sens (-7~+7)
57	00-7F	COMMON Filter Cutoff Frequency
58	00-0E	COMMON Filter EG Depth Vel Sens (-7~+7)
59	00-63	COMMON Filter Cutoff Frequency LFO1 Depth
5A	00-63	COMMON Filter Cutoff Frequency LFO2 Depth
5B	00-7F	COMMON Flt Cutoff Frq. Key Scale Dpt (-64~+63)
5C	00-7F	COMMON Filter Cutoff Frequency Key Scale Point
5D	00-18	COMMON Filter Input Gain (-12~+12)
5E		reserved
↓	↓	
63		reserved
64	00-7F	COMMON Filter EG - depth (-64~+63)
65	00-64	COMMON Filter EG - level4
66	00-64	COMMON Filter EG - level1
67	00-64	COMMON Filter EG - level2
68	00-64	COMMON Filter EG - level3
69	00-63	COMMON Filter EG - time1
6A	00-63	COMMON Filter EG - time2
6B	00-63	COMMON Filter EG - time3
6C	00-63	COMMON Filter EG - time4
6D		reserved
6E	00-07/00-07	COMMON Filter EG - attack time vel/time scale
6F		reserved

Voice Voiced Parameter (Byte Count : 35 bytes / op)

F0 43 1n 5E 6p mm ll vv vv F7 p = 0..3 (Part1..3), m = 0..7 (OP1..8)

ll	vv	Description
00	00-01/00-30	VOICED oscillator key sync/transpose [-stttttt]
01	00-1F	VOICED oscillator frequency - coarse
02	00-7F	VOICED oscillator frequency - fine
03	00-63	VOICED oscillator frequency - note scaling
04	00-0E/00-07	VOICED oscillator bw bias sense (-7~7) /spectral form [-lllfff]
05	00-01/00-07/00-07	VOICED oscillator mode/spectral skirt/ Operator fseq track number [-msssnnn]
06	00-63	VOICED oscillator freq. ratio of band spectrum
07	00-1E	VOICED oscillator detune
08	00-64	VOICED oscillator frequency EG - initial value
09	00-64	VOICED oscillator frequency EG - attack value
0A	00-63	VOICED oscillator frequency EG - attack time
0B	00-63	VOICED oscillator frequency EG - decay time
0C	00-63	VOICED EG - level1
0D	00-63	VOICED EG - level2
0E	00-63	VOICED EG - level3
0F	00-63	VOICED EG - level4
10	00-63	VOICED EG - time1
11	00-63	VOICED EG - time2
12	00-63	VOICED EG - time3
13	00-63	VOICED EG - time4
14	00-63	VOICED EG - hold time
15	00-07	VOICED EG - time scaling
16	00-63	VOICED level scaling - total level
17	00-63	VOICED level scaling - break point (A-1~C8)
18	00-63	VOICED level scaling - left depth
19	00-63	VOICED level scaling - right depth
1A	00-03	VOICED level scaling - left curve (0:-lin, 1:-exp, 2:+exp, 3:+lin)
1B	00-03	VOICED level scaling - right curve (0:-lin, 1:-exp, 2:+exp, 3:+lin)
1C		reserved
1D		reserved
1E		reserved
1F	00-0E/00-07	VOICED - freq bias sense/pitch mod sense fbs : (-7~7) [-bbbbmmm]
20	00-07/00-0E	VOICED - freq mod sense/freq velocity sense fvs : (-7~7) [-fffvvvv]
21	00-07/00-0E	VOICED - amp mod sense/amp velocity sense vs : (-7~7) [-aaavvvv]
22	00-0E	VOICED - EG bias sense (-7~7)

Voice Unvoiced Parameter (Byte Count : 27 bytes / op)

F0 43 1n 5E 6p mm ll vv vv F7 p = 0..3 (Part1..3) , m = 0..7 (OP1..8)

ll	vv	Description
23	00-30	UNVOICED formant pitch - transpose
24	00-02/00-15	UNVOICED formant pitch - mode /coarse [-mmccccc]
25	00-7F	UNVOICED formant pitch - fine
26	00-63	UNVOICED formant pitch - note scaling
27	00-63	UNVOICED formant shape - band width
28	00-0E	UNVOICED formant shape - bw bias sense (-7~7)
29	00-07/00-07	UNVOICED formant resonance / formant skirt /nskt [--rrrsss]
2A	00-64	UNVOICED frequency EG - initial value
2B	00-64	UNVOICED frequency EG - attack value
2C	00-63	UNVOICED frequency EG - attack time
2D	00-63	UNVOICED frequency EG - decay time
2E	00-63	UNVOICED level
2F	00-0E	UNVOICED level - key scaling
30	00-63	UNVOICED EG - level1
31	00-63	UNVOICED EG - level2
32	00-63	UNVOICED EG - level3
33	00-63	UNVOICED EG - level4
34	00-63	UNVOICED EG - time1
35	00-63	UNVOICED EG - time2
36	00-63	UNVOICED EG - time3
37	00-63	UNVOICED EG - time4
38	00-63	UNVOICED EG - hold time
39	00-07	UNVOICED EG - time scaling
3A	00-0E	UNVOICED - freq bias sense nfbs : (-7~7) [----bbbb]
3B	00-07/00-0E	UNVOICED - freq mod sense/freq velocity sense nfvs : (-7~7) [-fffvvvv]
3C	00-07/00-0E	UNVOICED - amp mod sense/amp velocity sense nvs : (-7~7) [-aaavvvv]
3D	00-0E	UNVOICED - EG bias sense (-7~7)

<Table 3> Fseq Parameter

F0 43 1n 5E 70 00 ll vv vv F7

Header Parameter

ll	vv vv	Description	
00	20-7F	NAME 0	
01	20-7F	NAME 1	
02	20-7F	NAME 2	
03	20-7F	NAME 3	
04	20-7F	NAME 4	
05	20-7F	NAME 5	
06	20-7F	NAME 6	
07	20-7F	NAME 7	
08		reserved	
09		reserved	
0A		reserved	
0B		reserved	
0C		reserved	
0D		reserved	
0E		reserved	
0F		reserved	
10	00-7F	Fseq - start step of loop point (hi byte) Fseq - start step of loop point (lo byte)	
12	00-7F	Fseq - end step of loop point (hi byte) Fseq - end step of loop point (lo byte)	
14	00-01	Fseq - loop mode (0: one way, 1: round)	
15	00-7F	Fseq - speed adjust	
16	00-07	Fseq - velocity sensitivity for tempo	
17	00-01	Fseq - formant pitch mode 0: pitch, 1: non-pitch	
18	00-7F	Fseq - formant note assign	
19	00-7E	Fseq - formant pitch tuning (-63~63)	
1A	00-63	Fseq - formant seqence delay	
1B	00-03	Fseq - frame data format	*1
1C		reserved	
1D		reserved	
1E	00-7F	RMTC - end step of valid data (hi byte) RMTC - end step of valid data (lo byte)	

*1 frame data format
0: total of frames 128
1: total of frames 256
2: total of frames 384
3: total of frames 512

Frame Parameter

ll	vv	Description
10	00-7F	Fseq - fundamental pitch (hi byte)
11	00-7F	Fseq - fundamental pitch (lo byte)
12	00-7F	Fseq - voiced formant frequency (hi byte)
↓	↓	↓
19	00-7F	Fseq - voiced formant frequency (hi byte)
20	00-7F	Fseq - voiced formant frequency (lo byte)
↓	↓	↓
21	00-7F	Fseq - voiced formant frequency (lo byte)
22	00-7F	Fseq - voiced formant level
↓	↓	↓
29	00-7F	Fseq - voiced formant level
2A	00-7F	Fseq - unvoiced formant frequency (hi byte)
↓	↓	↓
31	00-7F	Fseq - unvoiced formant frequency (hi byte)
32	00-7F	Fseq - unvoiced formant frequency (lo byte)
↓	↓	↓
39	00-7F	Fseq - unvoiced formant frequency (lo byte)
3A	00-7F	Fseq - unvoiced formant level
↓	↓	↓
41	00-7F	Fseq - unvoiced formant level

<Table 4> System Parameter (Byte Count: 76 bytes)

```
F0 43 1n 5E 00 00 ll vv vv F7
```

ll	vv	Description	
00	00-7F	master tuning	(-64~+63)
01		reserved	
02		↓	
03		reserved	
04		reserved	
05		reserved	
06	00-7F	master note shift	(-64~+63)
07	00-04	dump interval	(50 msec ... 300 msec)
08	00-01	program change mode	(0: pfm, 1: multi)
09	00-10,7F	performance channel	
			(00-0F: 1-16, 10: all, 7F: off)
0A		reserved	
0B	00-01	knob control mode	(0:abs, 1:rel)
0C		reserved	
0D	00-03	BC curve	(0:thru, 1~3)
0E	00-04	velocity curve	(thru, sft1, sft2, wid, hrd)
			(default:thru)
0F		reserved	
10	00-01	Rx Excl. (Not changed with Parameter Change.)	
11	00-02	note event receive sw	(0~2: all/odd/even)
12	00-01	bank select receive sw	
13	00-01	program change receive sw	
14	00-01	knob receive sw	(0~1: off/on)
15	00-01	knob transmit sw	(0~1: off/on)
16	01-1F, 21-5F	KN1 control number	(default: 16)
17	01-1F, 21-5F	KN2 control number	(default: 17)
18	01-1F, 21-5F	KN3 control number	(default: 18)
19	01-1F, 21-5F	KN4 control number	(default: 19)
1A	01-1F, 21-5F	MC1 control number	(default: 20)
1B	01-1F, 21-5F	MC2 control number	(default: 21)
1C	01-1F, 21-5F	MC3 control number	(default: 22)
1D	01-1F, 21-5F	MC4 control number	(default: 13)
1E	01-1F, 21-5F	FC control number	(default: 4)
1F	01-1F, 21-5F	BC control number	(default: 2)
20	01-1F, 21-5F	Formant control number	(default: 80)
21	01-1F, 21-5F	FM control number	(default: 81)
22	00-7F	play sound 1 note	
23	00-7F	play sound 1 velocity	(0: off)
24	00-7F	play sound 2 note	
25	00-7F	play sound 2 velocity	(0: off)
26	00-7F	play sound 3 note	
27	00-7F	play sound 3 velocity	(0: off)
28	00-7F	play sound 4 note	
29	00-7F	play sound 4 velocity	(0: off)
2A		not used	
2B		not used	
2C		not used	
2D		not used	
2E		not used	
2F		not used	
30		not used	
31		not used	
32		not used	
33		not used	
34		not used	
35		not used	
36		not used	
37		not used	
38		not used	
39		not used	
3A		not used	
3B		not used	
3C		not used	
3D		not used	
3E		not used	
3F		not used	
40		not used	
41		not used	
42		not used	
43		not used	
44		not used	
45		not used	

Bulk Dump does not change the following.

46	0	fseq init command	

Bulk Dump and Parameter Change do not change the following, ignoring Parameter Request.

47	00-01	memory allocation (0:128Voice/0FSeq, 1:64Voice/6FSeq)	
48	00-07	LCD contrast	
49	00-10, 7F	system exclusive device number	
		(0-0F: 1-16, 10: all, 7F: off)	
4A	00-01	bulk dump protect on/off switch (0~1:off/on)	
4B	not used		

<Table 5> DX Bulk Data

FS1R can partly receive VCED or ACED bulk data for Yamaha DX series.
Since not all parameters and their value ranges for DX series are compatible to FS1R, it automatically converts received DX bulk data into FS1R native data for original DX sound reproduction to be available. ACED bulk data is not interpreted until its following VCED bulk data is received.

DX Bulk Data

```
11110000              F0
01000011              43
0000nnnn              nnnn = Device Number
0ttttttt              ttttttt = Format No.
0bbbbbbb              bbbbbbb = Byte Count High
0bbbbbbb              bbbbbbb = Byte Count Low
0ddddddd              ddddddd = Data ┐
|                     |              │ Byte Count
0ddddddd              ddddddd = Data ┘
0ccccccc              ccccccc = Check-sum
11110111              F7


Format No.            00              VCED (Voice Edit Buffer)
05   ACED (Additional Edit Buffer)

Byte Count 1          55 bytes        VCED (Voice Edit Buffer)
                      49 bytes        ACED (Additional Edit Buffer)
```

VCED and ACED parameters (data structures) are as follow.
Parameter (Data) is described in the order of Parameter Group # to Parameter#.

Parameter Group #	g	h		
	00	00	VCED (Voice Edit Buffer)	0~127
	00	01	VCED (Voice Edit Buffer)	0~26
	06	00	ACED (Additional Edit Buffer)	0~73

DX Voice Parameter (Data) - VCED format (Byte Count : 155 bytes)

Parameter Group#		Parameter#						Data Range	Description
g	h	OP6	OP5	OP4	OP3	OP2	OP1		
00	00	00	15	2A	3F	54	69	00-63	EG rate1
00	00	01	16	2B	40	55	6A	00-63	EG rate2
00	00	02	17	2C	41	56	6B	00-63	EG rate3
00	00	03	18	2D	42	57	6C	00-63	EG rate4
00	00	04	19	2E	43	58	6D	00-63	EG lelel1
00	00	05	1A	2F	44	59	6E	00-63	EG lelel2
00	00	06	1B	30	45	5A	6F	00-63	EG lelel3
00	00	07	1C	31	46	5B	70	00-63	EG lelel4
00	00	08	1D	32	47	5C	71	00-63	Break Point
00	00	09	1E	33	48	5D	72	00-63	Left Depth
00	00	0A	1F	34	49	5E	73	00-63	Right Depth
00	00	0B	20	35	4A	5F	74	00-03	Left Curve
00	00	0C	21	36	4B	60	75	00-03	Right Curve
00	00	0D	22	37	4C	61	76	00-07	Rate Scaling
00	00	0E	23	38	4D	62	77	00-03	AMS
00	00	0F	24	39	4E	63	78	00-07	Touch Sens
00	00	10	25	3A	4F	64	79	00-63	Total Level
00	00	11	26	3B	50	65	7A	00-01	Freq Mode
00	00	12	27	3C	51	66	7B	00-1F	Freq Course
00	00	13	28	3D	52	67	7C	00-63	Freq Fine
00	00	14	29	3E	53	68	7D	00-0E	Detune
00	00						7E	00-63	PEG Rate1
00	00						7F	00-63	PEG Rate2
00	01						00	00-63	PEG Rate3
00	01						01	00-63	PEG Rate4
00	01						02	00-63	PEG Level1
00	01						03	00-63	PEG Level2
00	01						04	00-63	PEG Level3
00	01						05	00-63	PEG Level4
00	01						06	00-1F	Algorithm 1~36
00	01						07	00-07	Feedback
00	01						08	00-01	OSC Sync
00	01						09	00-63	LFO Speed
00	01						0A	00-63	LFO Delay
00	01						0B	00-63	PMD
00	01						0C	00-63	AMD
00	01						0D	00-01	LFO Key Sync
00	01						0E	00-05	LFO Wave
00	01						0F	00-07	PMS
00	01						10	00-2F	Transpose
00	01						11	25-58	Voice Name
00	01						12	25-58	Voice Name
00	01						13	25-58	Voice Name
00	01						14	25-58	Voice Name
00	01						15	25-58	Voice Name
00	01						16	25-58	Voice Name
00	01						17	25-58	Voice Name
00	01						18	25-58	Voice Name
00	01						19	25-58	Voice Name
00	01						1A	25-58	Voice Name

DX Voice Additional Parameter - ACED format(Byte Count : 49 bytes)

Param Group#		Parameter#	Data	Description
g	h			
06	00	00		not used
06	00	01		not used
06	00	02		not used
06	00	03		not used
06	00	04		not used
06	00	05		not used
06	00	06	00-07	OP6 AMS
06	00	07	00-07	OP5 AMS
06	00	08	00-07	OP4 AMS
06	00	09	00-07	OP3 AMS
06	00	0A	00-07	OP2 AMS
06	00	0B	00-07	OP1 AMS
06	00	0C	00-03	PEG Range
06	00	0D		not used
06	00	0E	00-01	PEG Vel Switch
06	00	0F		not used
06	00	10		not used
06	00	11		not used
06	00	12		not used
06	00	13		not used
06	00	14		not used
06	00	15		not used
06	00	16		not used
06	00	17		not used
06	00	18		not used
06	00	19		not used
06	00	1A		not used
06	00	1B		not used
06	00	1C		not used
06	00	1D		not used
06	00	1E		not used
06	00	1F		not used
06	00	20		not used
06	00	21		not used
06	00	22		not used
06	00	23		not used
06	00	24		not used
06	00	25		not used
06	00	26	00-07	PEG Rate Scaling
06	00	40		not used
06	00	41		not used
06	00	42		not used
06	00	43		not used
06	00	44		not used
06	00	45		not used
06	00	46		not used
06	00	47		not used
06	00	48		not used
06	00	49		not used

YAMAHA [Tone Generator] / Date :16-JUL-1998
Model: FS1R MIDI Implementation Chart Version : 1.0

Function	Transmitted	Recognized	Remarks
Basic Default	×	1-16	Memorized
Channel Changed	×	1-16	
Mode Default	×	3, 4	Memorized
Messages	×	3, 4	
Altered	**********	×	
Note Number	×	0-127	
True Voice	**********		
Velocity Note ON	×	○ 9nH, v=1-127	
Note OFF	×	○ 9nH, v=0	
After Touch Key's	×	○ *1	
Ch's	×	○	
Pitch Bend	×	○ *2	
Control 0,32	×	○ *2	Bank Select
Change 1	×	○	Modulation Wheel
7, 10, 11, 64	×	○	Vol, Pan, Exp, Sus
5, 65	×	○	Portamento Ctrl
71, 74	×	○	Sound Control
72, 73	×	○	Release, Attack
91, 93	×	○	Rev, Var Send
16-19	○ *3	○ *3	Knob1-4 Control
2, 4,1 3, 20-22	×	○ *3	BC, FC, MC4, MC1-3
80, 81	○ *3	○ *3	Formant, FM Ctrl
6, 98-101	×	○	Data Entry
120	×	○	All Sound Off
121	×	○	Reset All Ctrls
Program Change	×	○ 0-127 *2	
True #	**********	○ 0-127	
System Exclusive	○	○ *2	
System Song Pos.	×	×	
Common Song Sel.	×	×	
Tune	×	×	
System Clock	×	○ *4	
Real Time Commands	×	×	
Aux Local ON/OFF	×	×	
Messages All Notes OFF	×	○	
Active Sense	×	○	
Reset	×	×	
Notes	*1 Ignore Note number. *2 Receive if switch is on. *3 Assignable to 1-31,33-95. *4 Receive if Fseq Speed is set to midi.		

Mode 1 : OMNI ON , POLY Mode 2 : OMNI ON , MONO ○ : YES
Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO × : NO

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