MIDI Implementation

Model : FP-30X
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Version : 1.00

1.Receive Data

■Channel Voice Messages

●Note Off
Status 2nd byte 3rd byte
8nH kkH vvH
9nH kkH 00H
n = MIDI channel number: 0H-FH (ch.1-ch.16)
kk = note number: 00H-7FH (0-127)
vv = note off velocity: 00H-7FH (0-127)
* For the drum part, this message is not received by certain instruments.

●Note On
Status 2nd byte 3rd byte
9nH kkH vvH
n = MIDI channel number: 0H-FH (ch.1-ch.16)
kk = note number: 00H-7FH (0-127)
vv = note on velocity: 01H-7FH (1-127)

●Control Change
* The value specified by a Control Change message will not be reset even by a Program Change, etc.

○Bank Select (Controller Number 0, 32)
Status 2nd byte 3rd byte
BnH 00H mmH
BnH 20H llH
n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm, ll = Bank number: 00H, 00H-7FH, 7FH (bank.1-bank.16384),
Initial Value = 00 00H (bank.1)
* If “GM1 System On” is received, Bank Select is not received.
* Bank Select is transmitted at power-on and when “GM2 System On” is received.
* Bank Select processing will be suspended until a Program Change message is received.

○Modulation (Controller Number 1)
Status 2nd byte 3rd byte
BnH 01H vvH
n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Modulation depth: 00H-7FH (0-127)
* The resulting effect is determined by System Exclusive messages. With the initial settings, this is Pitch Modulation Depth.

○Portamento Time (Controller Number 5)
Status 2nd byte 3rd byte
BnH 05H vvH
n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Portamento Time: 00H-7FH (0-127), Initial value = 00H (0)
* This adjusts the rate of pitch change when Portamento is ON or when using the Portamento Control. A value of 0 results in the fastest change.

○Data Entry (Controller Number 6, 38)
Status 2nd byte 3rd byte
BnH 06H mmH
BnH 26H llH
n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm, ll = the value of the parameter specified by RPN
mm = MSB, ll = LSB

○Volume (Controller Number 7)
Status 2nd byte 3rd byte
BnH 07H vvH
n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Volume: 00H-7FH (0-127), Initial Value = 64H (100)
* Volume messages are used to adjust the volume balance of each Part.

○Pan (Controller Number 10)
Status 2nd byte 3rd byte
BnH 0AH vvH
n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = pan: 00H-40H-7FH (Left-Center-Right),
Initial Value = 40H (Center)
* For Rhythm Parts, this is a relative adjustment of each Instrument’s pan setting.
* Some Tones might not be capable of being panned all the way to the left or right, or might not be able to respond to this message.

○Expression (Controller Number 11)
Status 2nd byte 3rd byte
BnH 0BH vvH
n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Expression: 00H-7FH (0-127), Initial Value = 7FH (127)
* This adjusts the volume of a Part. It can be used independently from Volume messages. Expression messages are used for musical expression within a performance; e.g., expression pedal movements, crescendo and decrescendo.

○Hold 1 (Controller Number 64)
Status 2nd byte 3rd byte
BnH 40H vvH
n = MIDI channel number: 0H-FH (ch.1-ch.16)
vv = Control value: 00H-7FH (0-127)

○Portamento (Controller Number 65)
Status 2nd byte 3rd byte
BnH 41H vvH

n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Control value:　　00H-7FH (0-127)
　　0-63 = OFF, 64-127 = ON

○Sostenuto (Controller Number 66)
Status　　2nd byte　　3rd byte
BnH　　42H　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Control value:　　00H-7FH (0-127)
　　0-63 = OFF, 64-127 = ON

○Soft (Controller Number 67)
Status　　2nd byte　　3rd byte
BnH　　43H　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Control value:　　00H-7FH (0-127)
* Some Tones will not exhibit any change.

○Resonance (Controller Number 71)
Status　　2nd byte　　3rd byte
BnH　　47H　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv= Resonance value (relative change):　00H-7FH(-64-0-+63),
　　Initial value = 40H (no change)
* Some Tones will not exhibit any change.

○Release Time (Controller Number 72)
Status　　2nd byte　　3rd byte
BnH　　48H　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Release Time value (relative change): 00H-7FH(-64-0-+63),
　　Initial value = 40H (no change)
* Some Tones will not exhibit any change.

○Attack Time (Controller Number 73)
Status　　2nd byte　　3rd byte
BnH　　49H　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Attack time value (relative change): 00H-7FH(-64-0-+63),
　　Initial value=40H (no change)
* Some Tones will not exhibit any change.

○Cutoff (Controller Number 74)
Status　　2nd byte　　3rd byte
BnH　　4AH　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Cutoff value (relative change):　　00H-7FH(-64-0-+63),
　　Initial value = 40H (no change)
* Some Tones will not exhibit any change.

○Decay Time (Controller Number 75)
Status　　2nd byte　　3rd byte
BnH　　4BH　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Decay Time value (relative change): 00H-7FH(-64-0-+63),
　　Initial value = 40H (no change)
* Some Tones will not exhibit any change.

○Vibrato Rate (Controller Number 76)
Status　　2nd byte　　3rd byte
BnH　　4CH　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Vibrato Rate value (relative change): 00H-7FH(-64-0-+63),
　　Initial value = 40H (no change)
* Some Tones will not exhibit any change.

○Vibrato Depth (Controller Number 77)
Status　　2nd byte　　3rd byte
BnH　　4DH　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Vibrato Depth Value (relative change): 00H-7FH(-64-0-+63),
　　Initial Value = 40H (no change)
* Some Tones will not exhibit any change.

○Vibrato Delay (Controller Number 78)
Status　　2nd byte　　3rd byte
BnH　　4EH　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Vibrato Delay value (relative change): 00H-7FH(-64-0-+63),
　　Initial value=40H (no change)
* Some Tones will not exhibit any change.

○Effect 1 (Reverb Send Level) (Controller Number 91)
Status　　2nd byte　　3rd byte
BnH　　5BH　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Control value:　　00H-7FH (0-127), Initial Value = 28H (40)
* This message adjusts the Reverb Send Level of each Part.

○Effect 3 (Chorus Send Level) (Controller Number 93)
Status　　2nd byte　　3rd byte
BnH　　5DH　　vvH
n = MIDI channel number:　　0H-FH (ch.1-ch.16)
vv = Control value:　　00H-7FH (0-127), Initial Value = 00H (0)
* This message adjusts the Chorus Send Level of each Part.

○RPN MSB/LSB (Controller Number 100, 101)

Status	2nd byte	3rd byte
BnH	65H	mmH
BnH	64H	llH
n = MIDI channel number:		0H-FH (ch.1-ch.16)

mm = upper byte (MSB) of parameter number specified by RPN
ll = lower byte (LSB) of parameter number specified by RPN
* The value specified by RPN will not be reset even by messages such as Program Change or Reset All Controller.

RPN
The RPN (Registered Parameter Number) messages are expanded control changes, and each function of an RPN is described by the MIDI Standard.
To use these messages, you must first use RPN MSB and RPN LSB messages to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an RPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH 7FH) when you have finished setting the value of the desired parameter. Refer to Section 4. “Examples of actual MIDI messages” <Example 4>

On this instrument, RPN can be used to modify the following parameters.

RPN MSB LSB	Data entry MSB LSB	Explanation
00H 00H	mmH ---	Pitch Bend Sensitivity mm: 00H-18H (0-24 semitones), Initial Value = 02H (2 semitones) ll: ignored (processed as 00h) specify up to 2 octaves in semitone steps
00H 01H	mmH llH	Master Fine Tuning mm, ll: 00 00H-40 00H-7F 7FH (-100-0-+99.99 cents), Refer to 4. Supplementary Material, “About Tuning”
00H 02H	mmH ---	Master Coarse Tuning mm: 00H-40H-7FH (-64-0-+63 semitones), ll: ignored (processed as 00h)
00H 05H	mmH llH	Modulation Depth Range mm: 00H-04H (0-4 semitones) ll: 00H-7FH (0-100 cents) 100/128 Cent/Value
7FH 7FH	--- ---	RPN null Set a condition in which RPN is not specified. The data entry messages after set RPN null will be ignored. (No Data entry messages are required after RPN null). Settings already made will not change. mm, ll: ignored

●Program Change

Status	2nd byte	
CnH	ppH	
n = MIDI channel number:		0H-FH (ch.1-ch.16)
pp = Program number:		00H-7FH (prog.1-prog.128)

* The sound will change beginning with the next note-on after the Program Change is received.

●Channel Pressure

Status	2nd byte	
DnH	vvH	
n = MIDI channel number:		0H-FH (ch.1-ch.16)
vv = Channel Pressure:		00H-7FH (0-127)

* The resulting effect is determined by System Exclusive messages. With the initial settings there will be no effect.

●Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH
n = MIDI channel number:		0H-FH (ch.1-ch.16)
mm, ll = Pitch Bend value:		00 00H-40 00H-7F 7FH (-8192-0-+8191)

* The resulting effect is determined by System Exclusive messages. With the initial settings the effect is Pitch Bend.

■Channel Mode Messages

●All Sounds Off (Controller Number 120)

Status	2nd byte	3rd byte
BnH	78H	00H
n = MIDI channel number:		0H-FH (ch.1-ch.16)

* When this message is received, all currently-sounding notes on the corresponding channel will be turned off immediately.

●Reset All Controllers (Controller Number 121)

Status	2nd byte	3rd byte
BnH	79H	00H
n = MIDI channel number:		0H-FH (ch.1-ch.16)

* When this message is received, the following controllers will be set to their reset values.

Controller	Reset value
Pitch Bend Change	±0 (Center)
Channel Pressure	0 (off)
Modulation	0 (off)
Expression	127 (max)
Hold 1	0 (off)
Portamento	0 (off)
Sostenuto	0 (off)
Soft	0 (off)
RPN	unset; previously set data will not change

●All Notes Off (Controller Number 123)

Status	2nd byte	3rd byte
BnH	7BH	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)
* When All Notes Off is received, all notes on the corresponding channel will be turned off.
  However if Hold 1 or Sostenuto is ON, the sound will be continued until these are turned off.

●OMNI OFF (Controller Number 124)

Status	2nd byte	3rd byte
BnH	7CH	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)
* The same processing will be carried out as when All Notes Off is received.

●OMNI ON (Controller Number 125)

Status	2nd byte	3rd byte
BnH	7DH	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)
* OMNI ON is only recognized as "All notes off"; the Mode doesn't change (OMNI OFF remains).

●MONO (Controller Number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH

n = MIDI channel number: 0H-FH (ch.1-ch.16)
mm = mono number: 01H (1)
* The same processing will be carried out as when All Notes Off is received, and the corresponding channel will be set to Mode 4 (M=1). Only M=1 is supported.

●POLY (Controller Number 127)

Status	2nd byte	3rd byte
BnH	7FH	00H

n = MIDI channel number: 0H-FH (ch.1-ch.16)
* The same processing will be carried out as when All Notes Off is received, and the corresponding channel will be set to Mode 3.

■System Exclusive Message

Status	Data byte	Status
F0H	iiH, ddH, ..., eeH	F7H

F0H: System Exclusive Message status
ii = ID number: An ID number (manufacturer ID) to indicate the manufacturer whose Exclusive message this is. Roland's manufacturer ID is 41H. ID numbers 7EH and 7FH are extensions of the MIDI standard; Universal Non-realtime Messages (7EH) and Universal Realtime Messages (7FH).
dd,...,ee = data: 00H-7FH (0-127)
F7H: EOX (End Of Exclusive)

The System Exclusive Messages received by this instrument are; messages related to mode settings, Universal Realtime System Exclusive messages, and Universal Non-realtime System Exclusive messages.

●System Exclusive Messages Related to Mode Settings
These messages are used to initialize a device to GM mode.
When creating performance data, you should insert "GM1 System On" at the beginning of a GM1 score, or "GM2 System On" at the beginning of a GM2 score. However, each song should contain only the single mode message that is appropriate for that song. (Do not insert multiple mode setting messages in the same song.)
"GM System On" uses Universal Non-realtime Message format.

○GM1 System On
This is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System-Level 1). After receiving this message, this instrument will automatically be set to the proper condition for correctly playing a GM1 score.

Status	Data byte	Status
F0H	7EH, 7FH, 09H, 01H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI Message)
01H	Sub ID#2 (General MIDI 1 On)
F7H	EOX (End Of Exclusive)

* Once this message is received, Bank Select is no longer received.
* There must be an interval of at least 50 ms between this message and the next.

○GM2 System On
This is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System-Level 2). After receiving this message, this instrument will automatically be set to the proper condition for correctly playing a GM2 score.

Status	Data byte	Status
F0H	7EH 7FH 09H 03H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI Message)
03H	Sub ID#2 (General MIDI 2 On)
F7H	EOX (End Of Exclusive)

* When this message is received, this instrument will be able to receive the messages specified by General MIDI 2, and use the General MIDI 2 soundmap.
* There must be an interval of at least 50 ms between this message and the next.

●Universal Realtime System Exclusive Messages

○Master Volume

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 01H, llH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (universal realtime message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control messages)
01H	Sub ID#2 (Master Volume)
llH	Master volume lower byte
mmH	Master volume upper byte
F7H	EOX (End Of Exclusive)

llH: ignored (processed as 00H)
mmH: 00H-7FH 0-127
* The lower byte (llH) of Master Volume will be handled as 00H.

○Master Fine Tuning

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 03H, llH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (Universal Realtime Message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
03H	Sub ID#2 (Master Fine Tuning)
llH	Master Fine Tuning LSB
mmH	Master Fine Tuning MSB
F7H	EOX (End Of Exclusive)

llH, mmH: 00 00H-40 00H-7F 7FH (-100-0-+99.9 [cents])

○Master Coarse Tuning

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 04H, llH, mmH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (Universal Realtime Message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
04H	Sub ID#2 (Master Coarse Tuning)
llH	Master Coarse Tuning LSB
mmH	Master Coarse Tuning MSB
F7H	EOX (End Of Exclusive)

llH:	ignored (processed as 00H)
mmH:	28H-40H-58H (-24-0-+24 [semitones])

●Global Parameter Control
Parameters of the Global Parameter Control are newly provided for the General MIDI 2.

○Reverb Parameters

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 05H, 01H, 01H, 01H, 01H, 01H, ppH, vvH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (Universal Realtime Message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
05H	Sub ID#2 (Global Parameter Control)
01H	Slot path length
01H	Parameter ID width
01H	Value width
01H	Slot path MSB
01H	Slot path LSB (Effect 0101: Reverb)
ppH	Parameter to be controlled.
vvH	Value for the parameter.
F7H	EOX (End Of Exclusive)

pp=0	Reverb Type	
	vv = 00H	Small Room (Room1)
	vv = 01H	Medium Room (Room2)
	vv = 02H	Large Room (Room3)
	vv = 03H	Medium Hall (Hall1)
	vv = 04H	Large Hall (Hall2)
	vv = 08H	Plate (Plate)

pp=1	Reverb Time	
	vv = 00H-7FH	0-127

○Chorus Parameters

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 05H, 01H, 01H, 01H, 01H, 02H, ppH, vvH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (Universal Realtime Message)
7FH	Device ID (Broadcast)
04H	Sub ID#1 (Device Control)
05H	Sub ID#2 (Global Parameter Control)
01H	Slot path length
01H	Parameter ID width

01H	Value width
01H	Slot path MSB
02H	Slot path LSB (Effect 0102: Chorus)
ppH	Parameter to be controlled.
vvH	Value for the parameter.
F7H	EOX (End Of Exclusive)

pp=0	Chorus Type
	vv = 00H	Chorus1
	vv = 01H	Chorus2
	vv = 02H	Chorus3
	vv = 03H	Chorus4
	vv = 04H	FB Chorus
	vv = 05H	Flanger

pp=1	Mod Rate
	vv = 00H-7FH	0-127
pp=2	Mod Depth
	vv = 00H-7FH	0-127
pp=3	Feedback
	vv = 00H-7FH	0-127
pp=4	Send To Reverb
	vv = 00H-7FH	0-127

○Channel Pressure

Status	Data byte	Status
F0H	7FH, 7FH, 09H, 01H, 0nH, ppH, rrH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (Universal Realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (Controller Destination Setting)
01H	Sub ID#2 (Channel Pressure)
0nH	MIDI Channel (00H-0FH)
ppH	Controlled parameter
rrH	Controlled range
F7H	EOX (End Of Exclusive)

pp=0	Pitch Control
	rr = 28H-58H	-24-+24 [semitones]
pp=1	Filter Cutoff Control
	rr = 00H-7FH	-9600-+9450 [cents]
pp=2	Amplitude Control
	rr = 00H-7FH	0-200 [%]
pp=3	LFO Pitch Depth
	rr = 00H-7FH	0-600 [cents]
pp=4	LFO Filter Depth
	rr = 00H-7FH	0-2400 [cents]
pp=5	LFO Amplitude Depth
	rr = 00H-7FH	0-100 [%]

○Controller

Status	Data byte	Status
F0H	7FH, 7FH, 09H, 03H, 0nH, ccH, ppH, rrH	F7H

Byte	Explanation
F0H	Exclusive status
7FH	ID number (Universal Realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (Controller Destination Setting)
03H	Sub ID#2 (Control Change)
0nH	MIDI Channel (00H-0FH)
ccH	Controller number (00-1FH, 40-5FH)
ppH	Controlled parameter
rrH	Controlled range
F7H	EOX (End Of Exclusive)

pp=0	Pitch Control
	rr = 28H-58H	-24-+24 [semitones]
pp=1	Filter Cutoff Control
	rr = 00H-7FH	-9600-+9450 [cents]
pp=2	Amplitude Control
	rr = 00H-7FH	0-200 [%]
pp=3	LFO Pitch Depth
	rr = 00H-7FH	0-600 [cents]
pp=4	LFO Filter Depth
	rr = 00H-7FH	0-2400 [cents]
pp=5	LFO Amplitude Depth
	rr = 00H-7FH	0-100 [%]

○Scale/Octave Tuning Adjust

Status	Data byte	Status
F0H	7EH, 7FH, 08H, 08H, ffH, ggH, hhH, ssH...	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
08H	Sub ID#1 (MIDI Tuning Standard)
08H	Sub ID#2 (scale/octave tuning 1-byte form)
ffH	Channel/Option byte1
	bits 0 to 1 = channel 15 to 16
	bits 2 to 6 = Undefined
ggH	Channel byte2

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                bits 0 to 6 = channel 8 to 14
hhH             Channel byte3
                bits 0 to 6 = channel 1 to 7
ssH             12 byte tuning offset of 12 semitones from C to B
                00H = -64 [cents]
                40H = 0 [cents] (equal temperament)
                7FH = +63 [cents]
F7H             EOX (End Of Exclusive)

○Key-Based Instrument Controllers
Status          Data byte                               Status
F0H             7FH, 7FH, 0AH, 01H, 0nH,                F7H
                kkH, nnH, vvH...

Byte            Explanation
F0H             Exclusive status
7FH             ID number (Universal Realtime Message)
7FH             Device ID (Broadcast)
0AH             Sub ID#1 (Key-Based Instrument Control)
01H             Sub ID#2 (Controller)
0nH             MIDI Channel (00-0FH)
kkH             Key Number
nnH             Controller Number
vvH             Value
F7H             EOX (End Of Exclusive)

nn=07H          Level
                vv = 00H-7FH    0-200 [%] (Relative)
nn=0AH          Pan
                vv = 00H-7FH    Left-Right (Absolute)
nn=5BH          Reverb Send
                vv = 00H-7FH    0-127 (Absolute)
nn=5DH          Chorus Send
                vv = 00H-7FH    0-127 (Absolute)
* This parameter effects drum instruments only.

●Universal Non-realtime System Exclusive Messages

○Identity Request Message
Status          Data byte                                       Status
F0H             7EH, 10H, 06H, 01H                              F7H

Byte            Explanation
F0H             Exclusive status
7EH             ID number (Universal Non-realtime Message)
10H             Device ID
06H             Sub ID#1 (General Information)
01H             Sub ID#2 (Identity Request)
F7H             EOX (End Of Exclusive)
* Device ID = 10H or 7FH



2.Transmit Data

■Channel Voice Messages

●Note Off
Status              2nd byte            3rd byte
8nH                 kkH                 vvH
n = MIDI channel number:                OH-FH (ch.1-ch.16)
kk = note number:                       00H-7FH (0-127)
vv = note off velocity:                 00H-7FH (0-127)

●Note On
Status              2nd byte            3rd byte
9nH                 kkH                 vvH
n = MIDI channel number:                OH-FH (ch.1-ch.16)
kk = note number:                       00H-7FH (0-127)
vv = note on velocity:                  01H-7FH (1-127)

●Control Change

○Bank Select (Controller Number 0, 32)
Status              2nd byte            3rd byte
BnH                 00H                 mmH
BnH                 20H                 llH
n = MIDI channel number:                OH-FH (ch.1-ch.16)
mm, ll = Bank number:                   00H, 00H-7FH, 7FH (bank.1-bank.16384)

○Volume (Controller Number 7)
Status              2nd byte            3rd byte
BnH                 07H                 vvH
n = MIDI channel number:                OH-FH (ch.1-ch.16)
vv = Volume:                            00H-7FH (0-127), Initial Value = 64H (100)

○Expression (Controller Number 11)
Status              2nd byte            3rd byte
BnH                 0BH                 vvH
n = MIDI channel number:                OH-FH (ch.1-ch.16)
vv = Expression:                        00H-7FH (0-127), Initial Value = 7FH (127)

○Hold 1 (Controller Number 64)
Status              2nd byte            3rd byte
BnH                 40H                 vvH
n = MIDI channel number:                OH-FH (ch.1-ch.16)
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vv = Control value: 00H-7FH (0-127)

○Sostenuto (Controller Number 66)

Status	2nd byte	3rd byte
BnH	42H	vvH
n = MIDI channel number:		0H-FH (ch.1-ch.16)
vv = Control value:		00H-7FH (0-127) 0 = OFF, 127 = ON

○Soft (Controller Number 67)

Status	2nd byte	3rd byte
BnH	43H	vvH
n = MIDI channel number:		0H-FH (ch.1-ch.16)
vv = Control value:		00H-7FH (0-127)

○Effect 1 (Reverb Send Level) (Controller Number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH
n = MIDI channel number:		0H-FH (ch.1-ch.16)
vv = Control value:		00H-7FH (0-127)

●Program Change

Status	2nd byte	
CnH	ppH	
n = MIDI channel number:		0H-FH (ch.1-ch.16)
pp = Program number:		00H-7FH (prog.1-prog.128)

■System Exclusive Messages

○Identity Reply

Status	Data byte	Status
F0H	7EH, 10H, 06H, 02H, 41H, 19H, 03H, 00H, 00H, 1CH, 01H, 00H, 00H	F7H

Byte	Explanation
F0H	Exclusive status
7EH	ID number (Universal Non-realtime Message)
10H	Device ID
06H	Sub ID#1 (General Information)
02H	Sub ID#2 (Identity Reply)
41H	ID number (Roland)
19H	Device family code (LSB)
03H	Device family code (MSB)
00H	Device family number code (LSB)
00H	Device family number code (MSB)
1CH	Software revision level
01H	Software revision level
00H	Software revision level
00H	Software revision level
F7H	EOX (End of Exclusive)

3.Supplementary Material

●Decimal and Hexadecimal Table

In MIDI documentation, data values and addresses/sizes of exclusive messages etc. are expressed as hexadecimal values for each 7 bits.
The following table shows how these correspond to decimal numbers.

D	H	D	H	D	H	D	H
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

+------+------++------+------++------+------++------+------+
D: decimal
H: hexadecimal

* Decimal values such as MIDI channel, bank select, and program change are listed as one (1) greater than the values given in the above table.
* A 7-bits byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bits bytes would indicate a value of aa x 128 + bb.
* In the case of values which have a ± sign, 00H = -64, 40H = ±0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = ±0, and 7F 7FH = +8191. For example if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128 + bb - 64 x 128.
* Data marked "nibbled" is expressed in hexadecimal in 4-bits units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16 + b.

<Example 1>
What is the decimal expression of 5AH?
>From the preceding table, 5AH = 90

<Example 2>
What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?
>From the preceding table, since 12H = 18 and 34H = 52
18 x 128 + 52 = 2356

<Example 3>
What is the decimal expression of the nibbled value 0A 03 09 0D?
>From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13
((10 x 16 + 3) x 16 + 9) x 16 + 13 = 41885

<Example 4>
What is the nibbled expression of the decimal value 1258?

16) 1258
16) 78... 10
16)   4... 14

      0... 4

Since from the preceding table, 0 = 00H, 4 = 04H, 14 = 0EH, 10 = 0AH, the answer is 00 04 0E 0AH.

●Examples of Actual MIDI Messages
<Example 1> 92 3E 5F
9n is the Note-on status, and n is the MIDI channel number. Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

<Example 2> CE 49
CnH is the Program Change status, and n is the MIDI channel number. Since EH = 14 and 49H = 73, this is a Program Change message with MIDI CH = 15, program number 74 (Flute in GS).

<Example 3> EA 00 28
EnH is the Pitch Bend Change status, and n is the MIDI channel number. The 2nd byte (00H = 0) is the LSB and the 3rd byte (28H = 40) is the MSB, but Pitch Bend Value is a signed number in which 40 00H (= 64 x 128 + 0 = 8192) is 0, so this Pitch Bend Value is 28 00H - 40 00H = 40 x 128 + 0 - (64 x 128 + 0) = 5120 - 8192 = -3072

If the Pitch Bend Sensitivity is set to 2 semitones, -8192 (00 00H) will cause the pitch to change 200 cents, so in this case -200 x (-3072) / (-8192) = -75 cents of Pitch Bend is being applied to MIDI channel 11.

<Example 4> B3 64 00 65 00 06 0C 26 00 64 7F 65 7F
BnH is the Control Change status, and n is the MIDI channel number. For Control Changes, the 2nd byte is the controller number, and the 3rd byte is the value. In a case in which two or more messages consecutive messages have the same status, MIDI has a provision called "running status" which allows the status byte of the second and following messages to be omitted. Thus, the above messages have the following meaning.

 B3   64 00   MIDI ch.4, lower byte of RPN parameter number: 00H
(B3) 65 00   (MIDI ch.4) upper byte of RPN parameter number: 00H
(B3) 06 0C   (MIDI ch.4) upper byte of parameter value: 0CH
(B3) 26 00   (MIDI ch.4) lower byte of parameter value: 00H
(B3) 64 7F   (MIDI ch.4) lower byte of RPN parameter number: 7FH
(B3) 65 7F   (MIDI ch.4) upper byte of RPN parameter number: 7FH

In other words, the above messages specify a value of 0C 00H for RPN parameter number 00 00H on MIDI channel 4, and then set the RPN parameter number to 7F 7FH.

RPN parameter number 00 00H is Pitch Bend Sensitivity, and the MSB of the value indicates semitone units, so a value of 0CH = 12 sets the maximum pitch bend range to +/- 12 semitones (1 octave). (On GS sound sources the LSB of Pitch Bend Sensitivity is ignored, but the LSB should be transmitted anyway (with a value of 0) so that operation will be correct on any device.)

Once the parameter number has been specified for RPN, all Data Entry messages transmitted on that same channel will be valid, so after the desired value has been transmitted, it is a good idea to set the parameter number to 7F 7FH to prevent accidents. This is the reason for the (B3) 64 7F (B3) 65 7F at the end.

It is not desirable for performance data (such as Standard MIDI File data) to contain many events with running status as given in <Example 4>. This is because if playback is halted during the song and then rewound or fast-forwarded, the sequencer may not be able to transmit the correct status, and the sound source will then misinterpret the data. Take care to give each event its own status.

It is also necessary that the RPN parameter number setting and the value setting be done in the proper order. On some sequencers, events occurring in the same (or consecutive) clock may be transmitted in an order different than the order in which they were received. For this reason it is a good idea to slightly skew the time of each event (about 1 tick for TPQN = 96, and about 5 ticks for TPQN = 480).

* TPQN: Ticks Per Quarter Note

●About Tuning
In MIDI, individual Parts are tuned by sending RPN #1 (Master Fine Tuning) to the appropriate MIDI channel.
In MIDI, all parts can be tuned by sending RPN#1 to each of the MIDI channels that you are using.
RPN#1 allows you to specify the tuning with an accuracy of approximately 0.012 cents (to be precise, 100/8192 cents).
One cent is 1/100th of a semitone.

Frequently used tuning values are given in the following table for your reference. Values are in hexadecimal (decimal in parentheses).

Hz in A4	cent	RPN #1
445.0	+19.56	4C 43 (+1603)
444.0	+15.67	4A 03 (+1283)
443.0	+11.76	47 44 (+ 964)
442.0	+7.85	45 03 (+ 643)
441.0	+3.93	42 42 (+ 322)
440.0	0.00	40 00 (0)
439.0	-3.94	3D 3D (- 323)
438.0	-7.89	3A 7A (- 646)

<Example> Set the tuning of MIDI channel 3 to A4 = 442.0 Hz

Send RPN#1 to MIDI channel 3. From the above table, the value is 45 03H.

```
 B2   64 01    MIDI ch.3, lower byte of RPN parameter number:   01H
(B2)  65 00   (MIDI ch.3) upper byte of RPN parameter number:   00H
(B2)  06 45   (MIDI ch.3) upper byte of parameter value:   45H
(B2)  26 03   (MIDI ch.3) lower byte of parameter value:   03H
(B2)  64 7F   (MIDI ch.3) lower byte of RPN parameter number:   7FH
(B2)  65 7F   (MIDI ch.3) upper byte of RPN parameter number:   7FH
```

4.Tone List

Piano

No.	Name	MSB	LSB	PC
1	Concert Piano	0	68	1
2	Ballad Piano	16	67	1
3	Mellow Piano	4	64	1
4	Bright Piano	8	66	2
5	Upright Piano	16	64	1
6	Mellow Upright	1	65	1
7	Bright Upright	1	66	1
8	Rock Piano	8	64	3
9	Ragtime Piano	0	64	4
10	Magical Piano	47	65	3
11	Harpsichord	0	67	7
12	Harpsi 8'+4'	8	67	7

E.Piano

No.	Name	MSB	LSB	PC
1	1976SuitCase	8	71	5
2	Wurly 200	25	64	5
3	Phase EP Mix	8	68	5
4	80's FM EP	0	68	6
5	Clav.	121	0	8
6	Vibraphone	121	0	12
7	Celesta	121	0	9
8	B.Organ Slow	1	65	19
9	Combo Jz.Org	0	70	19
10	Ballad Organ	0	69	19
11	Gospel Spin	0	71	17
12	Full Stops	0	69	17
13	Mellow Bars	32	68	17
14	Lower Organ	0	66	17
15	Light Organ	32	69	17
16	Pipe Organ	8	70	20
17	Nason Flt 8'	16	66	20
18	ChurchOrgan1	0	66	20
19	ChurchOrgan2	8	69	20
20	Accordion	121	0	22

Other

No.	Name	MSB	LSB	PC
1	Epic Strings	1	67	49
2	Rich Strings	0	71	50
3	SymphonicStr1	1	67	50
4	SymphonicStr2	1	65	50
5	Orchestra	8	66	49
6	String Trio	0	64	41
7	Harpiness	0	70	47
8	OrchestraBrs	1	66	61
9	Super SynPad	1	71	90
10	Choir Aahs 1	8	71	53
11	Choir Aahs 2	8	72	53
12	D50 StackPad	1	64	89
13	JP8 Strings	0	68	51
14	Soft Pad	0	64	90
15	Solina	0	66	51
16	Super Saw	8	67	82
17	Trancy Synth	1	65	91
18	Flip Pad	1	64	91
19	Jazz Scat	0	65	55
20	Comp'd JBass	0	66	34
21	Nylon-str.Gt	121	0	25
22	Steel-str.Gt	121	0	26

23	AcousticBass	121	0	33
24	A.Bass+Cymbl	0	66	33

Drums

No.	Name	MSB	LSB	PC
1	Standard Set	120	0	1
2	Room Set	120	0	9
3	Power Set	120	0	17
4	Electric Set	120	0	25
5	Analog Set	120	0	26
6	Jazz Set	120	0	33
7	Brush Set	120	0	41
8	Orchestra Set	120	0	49
9	SFX Set	120	0	57

GM2

No.	Name	MSB	LSB	PC
1	Piano 1	121	0	1
2	Piano 1w	121	1	1
3	Piano 1d	121	2	1
4	Piano 2	121	0	2
5	Piano 2w	121	1	2
6	Piano 3	121	0	3
7	Piano 3w	121	1	3
8	Honky-tonk	121	0	4
9	Honky-tonk w	121	1	4
10	E.Piano 1	121	0	5
11	Detuned EP 1	121	1	5
12	Vintage EP	121	2	5
13	60's E.Piano	121	3	5
14	E.Piano 2	121	0	6
15	Detuned EP 2	121	1	6
16	St.FM EP	121	2	6
17	EP Legend	121	3	6
18	EP Phaser	121	4	6
19	Harpsi.	121	0	7
20	Coupled Hps.	121	1	7
21	Harpsi.w	121	2	7
22	Harpsi.o	121	3	7
23	Clav.	121	0	8
24	Pulse Clav.	121	1	8
25	Celesta	121	0	9
26	Glockenspiel	121	0	10
27	Music Box	121	0	11
28	Vibraphone	121	0	12
29	Vibraphone w	121	1	12
30	Marimba	121	0	13
31	Marimba w	121	1	13
32	Xylophone	121	0	14
33	TubularBells	121	0	15
34	Church Bell	121	1	15
35	Carillon	121	2	15
36	Santur	121	0	16
37	Organ 1	121	0	17
38	TremoloOrgan	121	1	17
39	60's Organ	121	2	17
40	Organ 2	121	3	17
41	Perc.Organ 1	121	0	18
42	Chorus Organ	121	1	18
43	Perc.Organ 2	121	2	18
44	Rock Organ	121	0	19
45	Church Org.1	121	0	20
46	Church Org.2	121	1	20
47	Church Org.3	121	2	20
48	Reed Organ	121	0	21
49	Puff Organ	121	1	21
50	Accordion 1	121	0	22
51	Accordion 2	121	1	22
52	Harmonica	121	0	23
53	Bandoneon	121	0	24
54	Nylon-str.Gt	121	0	25
55	Ukulele	121	1	25
56	Nylon Gt o	121	2	25
57	Nylon Gt 2	121	3	25
58	Steel-str.Gt	121	0	26
59	12-str.Gt	121	1	26
60	Mandolin	121	2	26
61	Steel+Body	121	3	26
62	Jazz Guitar	121	0	27
63	Hawaiian Gt	121	1	27
64	Clean Guitar	121	0	28
65	Chorus Gt 1	121	1	28
66	Mid Tone Gt	121	2	28
67	Muted Guitar	121	0	29
68	Funk Guitar1	121	1	29
69	Funk Guitar2	121	2	29
70	Chorus Gt 2	121	3	29
71	Overdrive Gt	121	0	30
72	Guitar Pinch	121	1	30
73	DistortionGt	121	0	31
74	Gt Feedback1	121	1	31
75	Dist.Rhy Gt	121	2	31
76	Gt Harmonics	121	0	32
77	Gt Feedback2	121	1	32
78	AcousticBass	121	0	33

79	FingeredBass	121	0	34
80	Finger Slap	121	1	34
81	Picked Bass	121	0	35
82	FretlessBass	121	0	36
83	Slap Bass 1	121	0	37
84	Slap Bass 2	121	0	38
85	Synth Bass 1	121	0	39
86	WarmSyn.Bass	121	1	39
87	Synth Bass 3	121	2	39
88	Clav.Bass	121	3	39
89	Hammer Bass	121	4	39
90	Synth Bass 2	121	0	40
91	Synth Bass 4	121	1	40
92	RubberSyn.Bs	121	2	40
93	Attack Pulse	121	3	40
94	Violin	121	0	41
95	Slow Violin	121	1	41
96	Viola	121	0	42
97	Cello	121	0	43
98	Contrabass	121	0	44
99	Tremolo Str.	121	0	45
100	PizzicatoStr	121	0	46
101	Harp	121	0	47
102	Yang Qin	121	1	47
103	Timpani	121	0	48
104	Strings	121	0	49
105	Orchestra	121	1	49
106	60's Strings	121	2	49
107	Slow Strings	121	0	50
108	Syn.Strings1	121	0	51
109	Syn.Strings3	121	1	51
110	Syn.Strings2	121	0	52
111	Choir 1	121	0	53
112	Choir 2	121	1	53
113	Voice	121	0	54
114	Humming	121	1	54
115	Synth Voice	121	0	55
116	Analog Voice	121	1	55
117	OrchestraHit	121	0	56
118	Bass Hit	121	1	56
119	6th Hit	121	2	56
120	Euro Hit	121	3	56
121	Trumpet	121	0	57
122	Dark Trumpet	121	1	57
123	Trombone 1	121	0	58
124	Trombone 2	121	1	58
125	Bright Tb	121	2	58
126	Tuba	121	0	59
127	MuteTrumpet1	121	0	60
128	MuteTrumpet2	121	1	60
129	French Horn1	121	0	61
130	French Horn2	121	1	61
131	Brass 1	121	0	62
132	Brass 2	121	1	62
133	Synth Brass1	121	0	63
134	Synth Brass3	121	1	63
135	AnalogBrass1	121	2	63
136	Jump Brass	121	3	63
137	Synth Brass2	121	0	64
138	Synth Brass4	121	1	64
139	AnalogBrass2	121	2	64
140	Soprano Sax	121	0	65
141	Alto Sax	121	0	66
142	Tenor Sax	121	0	67
143	Baritone Sax	121	0	68
144	Oboe	121	0	69
145	English Horn	121	0	70
146	Bassoon	121	0	71
147	Clarinet	121	0	72
148	Piccolo	121	0	73
149	Flute	121	0	74
150	Recorder	121	0	75
151	Pan Flute	121	0	76
152	Bottle Blow	121	0	77
153	Shakuhachi	121	0	78
154	Whistle	121	0	79
155	Ocarina	121	0	80
156	Square Lead1	121	0	81
157	Square Lead2	121	1	81
158	Sine Lead	121	2	81
159	Saw Lead 1	121	0	82
160	Saw Lead 2	121	1	82
161	Doctor Solo	121	2	82
162	Natural Lead	121	3	82
163	SequencedSaw	121	4	82
164	Syn.Calliope	121	0	83
165	Chiffer Lead	121	0	84
166	Charang	121	0	85
167	Wire Lead	121	1	85
168	Solo Vox	121	0	86
169	5th Saw Lead	121	0	87
170	Bass+Lead	121	0	88
171	Delayed Lead	121	1	88
172	Fantasia	121	0	89
173	Warm Pad	121	0	90
174	Sine Pad	121	1	90
175	Polysynth	121	0	91

176	Space Voice	121	0	92
177	Itopia	121	1	92
178	Bowed Glass	121	0	93
179	Metallic Pad	121	0	94
180	Halo Pad	121	0	95
181	Sweep Pad	121	0	96
182	Ice Rain	121	0	97
183	Soundtrack	121	0	98
184	Crystal	121	0	99
185	Synth Mallet	121	1	99
186	Atmosphere	121	0	100
187	Brightness	121	0	101
188	Goblins	121	0	102
189	Echo Drops	121	0	103
190	Echo Bell	121	1	103
191	Echo Pan	121	2	103
192	Star Theme	121	0	104
193	Sitar 1	121	0	105
194	Sitar 2	121	1	105
195	Banjo	121	0	106
196	Shamisen	121	0	107
197	Koto	121	0	108
198	Taisho Koto	121	1	108
199	Kalimba	121	0	109
200	Bagpipe	121	0	110
201	Fiddle	121	0	111
202	Shanai	121	0	112
203	Tinkle Bell	121	0	113
204	Agogo	121	0	114
205	Steel Drums	121	0	115
206	Woodblock	121	0	116
207	Castanets	121	1	116
208	Taiko	121	0	117
209	Concert BD	121	1	117
210	Melodic Tom1	121	0	118
211	Melodic Tom2	121	1	118
212	Synth Drum	121	0	119
213	TR-808 Tom	121	1	119
214	Elec.Perc.	121	2	119
215	Reverse Cym.	121	0	120
216	Gt FretNoise	121	0	121
217	Gt Cut Noise	121	1	121
218	BsStringSlap	121	2	121
219	Breath Noise	121	0	122
220	Fl.Key Click	121	1	122
221	Seashore	121	0	123
222	Rain	121	1	123
223	Thunder	121	2	123
224	Wind	121	3	123
225	Stream	121	4	123
226	Bubble	121	5	123
227	Bird 1	121	0	124
228	Dog	121	1	124
229	Horse Gallop	121	2	124
230	Bird 2	121	3	124
231	Telephone 1	121	0	125
232	Telephone 2	121	1	125
233	DoorCreaking	121	2	125
234	Door	121	3	125
235	Scratch	121	4	125
236	Wind Chimes	121	5	125
237	Helicopter	121	0	126
238	Car Engine	121	1	126
239	Car Stop	121	2	126
240	Car Pass	121	3	126
241	Car Crash	121	4	126
242	Siren	121	5	126
243	Train	121	6	126
244	Jetplane	121	7	126
245	Starship	121	8	126
246	Burst Noise	121	9	126
247	Applause	121	0	127
248	Laughing	121	1	127
249	Screaming	121	2	127
250	Punch	121	3	127
251	Heart Beat	121	4	127
252	Footsteps	121	5	127
253	Gun Shot	121	0	128
254	Machine Gun	121	1	128
255	Laser Gun	121	2	128
256	Explosion	121	3	128

5.Rhythm Set List

		Standard Set	Room Set	Power Set	Electric Set
A0	21	TR-808 Kick 1aP	TR-808 Kick 1aP	TR-808 Kick 1aP	TR-808 Kick 1aP
A#0	22	Pop Kick 2	Pop Kick 2	Pop Kick 2	Pop Kick 2
B0	23	Pop Kick 1	Pop Kick 1	Pop Kick 1	Pop Kick 1
C1	24	Lo-Bit Kick 1 P	Lo-Bit Kick 1 P	Lo-Bit Kick 1 P	Lo-Bit Kick 1 P
C#1	25	TM-2 Kick	TM-2 Kick	TM-2 Kick	TM-2 Kick
D1	26	TR-909 Kick 4	TR-909 Kick 4	TR-909 Kick 4	TR-909 Kick 4
D#1	27	High Q	High Q	High Q	High Q

E1	28	Elec Slap	Elec Slap	Elec Slap	Elec Slap
F1	29	Scratch Push	Scratch Push	Scratch Push	Scratch Push
F#1	30	Scratch Pull	Scratch Pull	Scratch Pull	Scratch Pull
G1	31	Side Stick 2	Side Stick 2	Side Stick 2	Side Stick 2
G#1	32	Square Click	Square Click	Square Click	Square Click
A1	33	Metronome Click	Metronome Click	Metronome Click	Metronome Click
A#1	34	Metronome Bell	Metronome Bell	Metronome Bell	Metronome Bell
B1	35	Kick Drum 1	Kick Drum 4	Kick Drum 5	Kick Drum 8
C2	36	Kick Drum 2	Kick Drum 3	Kick Drum 9	Elec.Kick
C#2	37	Side Stick 1	Side Stick 1	Side Stick 1	Side Stick 1
D2	38	Reg.Snr 1	Room Snr 1	Elec Snr 4	Elec Snr 2
D#2	39	TR-808 Clap 1	TR-808 Clap 1	TR-808 Clap 1	TR-808 Clap 1
E2	40	Reg.Snr 3	Room Snr 3	Elec Snr 5	Elec Snr 3
F2	41	Low Tom 1	Room LowTom 2	PowerLowTom 1	Deep Tom 2
F#2	42	Closed Hi-hat 1	Closed Hi-hat 1	Closed Hi-hat 1	Closed Hi-hat 1
G2	43	Low Tom 4	Room LowTom 1	PowerLowTom 2	Deep Tom 1
G#2	44	Pedal Hi-hat 1	Pedal Hi-hat 1	Pedal Hi-hat 1	Pedal Hi-hat 1
A2	45	Mid Tom 1	Room MidTom 1	PowerMidTom 1	Deep Tom 3
A#2	46	Open Hi-hat 1	Open Hi-hat 1	Open Hi-hat 1	Open Hi-hat 1
B2	47	Mid Tom 5	Room MidTom 2	PowerMidTom 3	Deep Tom 4
C3	48	High Tom 1	Room Hi Tom 1	Power HiTom 1	Deep Tom 6
C#3	49	Crash Cym 1	Crash Cym 1	Crash Cym 1	Crash Cym 1
D3	50	High Tom 5	Room Hi Tom 2	Power HiTom 2	Deep Tom 5
D#3	51	Ride Cymbal 2	Ride Cymbal 2	Ride Cymbal 2	Ride Cymbal 2
E3	52	China Cym 1	China Cym 1	China Cym 1	Reverse Cym
F3	53	Ride Bell	Ride Bell	Ride Bell	Ride Bell
F#3	54	Tamborine 3	Tamborine 3	Tamborine 3	Tamborine 3
G3	55	SplashCymbal 1	SplashCymbal 1	SplashCymbal 1	SplashCymbal 1
G#3	56	Cowbell 2	Cowbell 2	Cowbell 2	Cowbell 2
A3	57	Crash Cym 3	Crash Cym 3	Crash Cym 3	Crash Cym 3
A#3	58	Vibra-slap	Vibra-slap	Vibra-slap	Vibra-slap
B3	59	Ride Cymbal 3	Ride Cymbal 3	Ride Cymbal 3	Ride Cymbal 3
C4	60	High Bongo	High Bongo	High Bongo	High Bongo
C#4	61	Low Bongo	Low Bongo	Low Bongo	Low Bongo
D4	62	Conga Hi Mt 1	Conga Hi Mt 1	Conga Hi Mt 1	Conga Hi Mt 1
D#4	63	Conga Hi Op 2	Conga Hi Op 2	Conga Hi Op 2	Conga Hi Op 2
E4	64	Conga Lo Op 2	Conga Lo Op 2	Conga Lo Op 2	Conga Lo Op 2
F4	65	High Timbale 2	High Timbale 2	High Timbale 2	High Timbale 2
F#4	66	Low Timbale 2	Low Timbale 2	Low Timbale 2	Low Timbale 2
G4	67	Agogo Hi	Agogo Hi	Agogo Hi	Agogo Hi
G#4	68	Agogo Lo	Agogo Lo	Agogo Lo	Agogo Lo
A4	69	Cabasa 1	Cabasa 1	Cabasa 1	Cabasa 1
A#4	70	Maracas 1	Maracas 1	Maracas 1	Maracas 1
B4	71	Short Whistle	Short Whistle	Short Whistle	Short Whistle
C5	72	Long Whistle	Long Whistle	Long Whistle	Long Whistle
C#5	73	Guiro 1	Guiro 1	Guiro 1	Guiro 1
D5	74	Guiro 2	Guiro 2	Guiro 2	Guiro 2
D#5	75	Claves 2	Claves 2	Claves 2	Claves 2
E5	76	Wood Block Hi	Wood Block Hi	Wood Block Hi	Wood Block Hi
F5	77	Wood Block Lo	Wood Block Lo	Wood Block Lo	Wood Block Lo
F#5	78	Cuica Hi	Cuica Hi	Cuica Hi	Cuica Hi
G5	79	Cuica Lo	Cuica Lo	Cuica Lo	Cuica Lo
G#5	80	Triangle Mt 1	Triangle Mt 1	Triangle Mt 1	Triangle Mt 1
A5	81	Triangle Op	Triangle Op	Triangle Op	Triangle Op
A#5	82	Shaker 1	Shaker 1	Shaker 1	Shaker 1
B5	83	Jingle Bell 1	Jingle Bell 1	Jingle Bell 1	Jingle Bell 1
C6	84	Bell Tree	Bell Tree	Bell Tree	Bell Tree
C#6	85	Castanets 1	Castanets 1	Castanets 1	Castanets 1
D6	86	Mute Surdo	Mute Surdo	Mute Surdo	Mute Surdo
D#6	87	Open Surdo	Open Surdo	Open Surdo	Open Surdo
E6	88	Applause	Applause	Applause	Applause
F6	89	Studio Clap	Studio Clap	Studio Clap	Studio Clap
F#6	90	Real Clap	Real Clap	Real Clap	Real Clap
G6	91	R8 Clap 2	R8 Clap 2	R8 Clap 2	R8 Clap 2
G#6	92	Club FinSnap w	Club FinSnap w	Club FinSnap w	Club FinSnap w
A6	93	El.Bass Nz 1 w	El.Bass Nz 1 w	El.Bass Nz 1 w	El.Bass Nz 1 w
A#6	94	El.Bass Nz 1 wRv	El.Bass Nz 1 wRv	El.Bass Nz 1 wRv	El.Bass Nz 1 wRv
B6	95	El.Bass Nz 2 w	El.Bass Nz 2 w	El.Bass Nz 2 w	El.Bass Nz 2 w
C7	96	El.Bass Nz 2 wRv	El.Bass Nz 2 wRv	El.Bass Nz 2 wRv	El.Bass Nz 2 wRv
C#7	97	SteelGtrNz 5 w	SteelGtrNz 5 w	SteelGtrNz 5 w	SteelGtrNz 5 w
D7	98	Jingle Bell 2	Jingle Bell 2	Jingle Bell 2	Jingle Bell 2
D#7	99	TR-626 Shaker w	TR-626 Shaker w	TR-626 Shaker w	TR-626 Shaker w
E7	100	Shaker w	Shaker w	Shaker w	Shaker w
F7	101	Pop Nz 1	Pop Nz 1	Pop Nz 1	Pop Nz 1
F#7	102	Pop Nz 3	Pop Nz 3	Pop Nz 3	Pop Nz 3
G7	103	Pop Nz 6	Pop Nz 6	Pop Nz 6	Pop Nz 6
G#7	104	MG Nz Rev Cym	MG Nz Rev Cym	MG Nz Rev Cym	MG Nz Rev Cym
A7	105	TR-909 Ride Rev2	TR-909 Ride Rev2	TR-909 Ride Rev2	TR-909 Ride Rev2
A#7	106	White Nz 3	White Nz 3	White Nz 3	White Nz 3
B7	107	White Nz 2	White Nz 2	White Nz 2	White Nz 2
C8	108	White Nz 4	White Nz 4	White Nz 4	White Nz 4

		Analog Set	Jazz Set	Brush Set	Orchestra Set
A0	21	TR-808 Kick 1aP	TR-808 Kick 1aP	TR-808 Kick 1aP	TR-808 Kick 1aP
A#0	22	Pop Kick 2	Pop Kick 2	Pop Kick 2	Pop Kick 2
B0	23	Pop Kick 1	Pop Kick 1	Pop Kick 1	Pop Kick 1
C1	24	Lo-Bit Kick 1 P	Lo-Bit Kick 1 P	Lo-Bit Kick 1 P	Lo-Bit Kick 1 P

C#1	25	TM-2 Kick	TM-2 Kick	TM-2 Kick	TM-2 Kick
D1	26	TR-909 Kick 4	TR-909 Kick 4	TR-909 Kick 4	TR-909 Kick 4
D#1	27	High Q	High Q	High Q	Closed Hi-hat 1
E1	28	Elec Slap	Elec Slap	Elec Slap	Pedal Hi-hat 1
F1	29	Scratch Push	Scratch Push	Scratch Push	Open Hi-hat 1
F#1	30	Scratch Pull	Scratch Pull	Scratch Pull	Ride Cymbal 2
G1	31	Side Stick 2	Side Stick 2	Side Stick 2	Side Stick 2
G#1	32	Square Click	Square Click	Square Click	Square Click
A1	33	Metronome Click	Metronome Click	Metronome Click	Metronome Click
A#1	34	Metronome Bell	Metronome Bell	Metronome Bell	Metronome Bell
B1	35	Kick Drum 11	Kick Drum 6	Kick Drum 7	Concert BD 2
C2	36	Kick Drum 10	Jazz Kick 1	Jazz Kick 2	Concert BD 1
C#2	37	Elec Stick 5	Side Stick 1	Side Stick 1	Side Stick 1
D2	38	Elec Snr 1	Jazz Snr 2	Brush Swish	Concert SD 1
D#2	39	TR-808 Clap 1	TR-808 Clap 1	Brush Tap	Castanets 2
E2	40	Elec Snr 6	Jazz Snr 1	Swish&Turn	Concert SD 2
F2	41	Elec Tom 1	Low Tom 2	Low Tom 3	Timpani F
F#2	42	TR-808 ClHH 4	Closed Hi-hat 1	Closed Hi-hat 2	Timpani F#
G2	43	Elec Tom 2	Low Tom 4	Low Tom 5	Timpani G
G#2	44	Elec PHH 2	Pedal Hi-hat 1	Pedal Hi-hat 1	Timpani G#
A2	45	Elec Tom 3	Mid Tom 2	Mid Tom 3	Timpani A
A#2	46	Elec OpHH 2	Open Hi-hat 1	Open Hi-hat 2	Timpani A#
B2	47	Elec Tom 4	Mid Tom 5	Mid Tom 6	Timpani B
C3	48	Elec Tom 5	High Tom 3	High Tom 4	Timpani c
C#3	49	TR-808 Cymbal 7	Crash Cym 1	Crash Cym 2	Timpani c#
D3	50	Elec Tom 6	High Tom 7	High Tom 8	Timpani d
D#3	51	Ride Cymbal 2	Ride Cymbal 2	Ride Cymbal 4	Timpani d#
E3	52	China Cym 1	China Cym 1	China Cym 2	Timpani e
F3	53	Ride Bell	Ride Bell	Ride Cymbal 6	Timpani f
F#3	54	Tamborine 3	Tamborine 3	Tamborine 3	Tamborine 3
G3	55	SplashCymbal 1	SplashCymbal 1	SplashCymbal 2	SplashCymbal 3
G#3	56	TR-808 Cowbell 2	Cowbell 2	Cowbell 2	Cowbell 2
A3	57	Crash Cym 3	Crash Cym 3	Crash Cym 4	Concert Cym2
A#3	58	Vibra-slap	Vibra-slap	Vibra-slap	Vibra-slap
B3	59	Ride Cymbal 3	Ride Cymbal 3	Ride Cymbal 5	Concert Cym1
C4	60	High Bongo	High Bongo	High Bongo	High Bongo
C#4	61	Low Bongo	Low Bongo	Low Bongo	Low Bongo
D4	62	Elec Conga 3	Conga Hi Mt 1	Conga Hi Mt 1	Conga Hi Mt 1
D#4	63	Elec Conga 2	Conga Hi Op 2	Conga Hi Op 2	Conga Hi Op 2
E4	64	Elec Conga 1	Conga Lo Op 2	Conga Lo Op 2	Conga Lo Op 2
F4	65	High Timbale 2	High Timbale 2	High Timbale 2	High Timbale 2
F#4	66	Low Timbale 2	Low Timbale 2	Low Timbale 2	Low Timbale 2
G4	67	Agogo Hi	Agogo Hi	Agogo Hi	Agogo Hi
G#4	68	Agogo Lo	Agogo Lo	Agogo Lo	Agogo Lo
A4	69	Cabasa 1	Cabasa 1	Cabasa 1	Cabasa 1
A#4	70	Maracas 2	Maracas 1	Maracas 1	Maracas 1
B4	71	Short Whistle	Short Whistle	Short Whistle	Short Whistle
C5	72	Long Whistle	Long Whistle	Long Whistle	Long Whistle
C#5	73	Guiro 1	Guiro 1	Guiro 1	Guiro 1
D5	74	Guiro 2	Guiro 2	Guiro 2	Guiro 2
D#5	75	Claves 1	Claves 2	Claves 2	Claves 2
E5	76	Wood Block Hi	Wood Block Hi	Wood Block Hi	Wood Block Hi
F5	77	Wood Block Lo	Wood Block Lo	Wood Block Lo	Wood Block Lo
F#5	78	Cuica Hi	Cuica Hi	Cuica Hi	Cuica Hi
G5	79	Cuica Lo	Cuica Lo	Cuica Lo	Cuica Lo
G#5	80	Triangle Mt 1	Triangle Mt 1	Triangle Mt 1	Triangle Mt 1
A5	81	Triangle Op	Triangle Op	Triangle Op	Triangle Op
A#5	82	Shaker 1	Shaker 1	Shaker 1	Shaker 1
B5	83	Jingle Bell 1	Jingle Bell 1	Jingle Bell 1	Jingle Bell 1
C6	84	Bell Tree	Bell Tree	Bell Tree	Bell Tree
C#6	85	Castanets 1	Castanets 1	Castanets 1	Castanets 1
D6	86	Mute Surdo	Mute Surdo	Mute Surdo	Mute Surdo
D#6	87	Open Surdo	Open Surdo	Open Surdo	Open Surdo
E6	88	Applause	Applause	Applause	Applause
F6	89	Studio Clap	Studio Clap	Studio Clap	Studio Clap
F#6	90	Real Clap	Real Clap	Real Clap	Real Clap
G6	91	R8 Clap 2	R8 Clap 2	R8 Clap 2	R8 Clap 2
G#6	92	Club FinSnap w	Club FinSnap w	Club FinSnap w	Club FinSnap w
A6	93	El.Bass Nz 1 w	El.Bass Nz 1 w	El.Bass Nz 1 w	El.Bass Nz 1 w
A#6	94	El.Bass Nz 1 wRv	El.Bass Nz 1 wRv	El.Bass Nz 1 wRv	El.Bass Nz 1 wRv
B6	95	El.Bass Nz 2 w	El.Bass Nz 2 w	El.Bass Nz 2 w	El.Bass Nz 2 w
C7	96	El.Bass Nz 2 wRv	El.Bass Nz 2 wRv	El.Bass Nz 2 wRv	El.Bass Nz 2 wRv
C#7	97	SteelGtrNz 5 w	SteelGtrNz 5 w	SteelGtrNz 5 w	SteelGtrNz 5 w
D7	98	Jingle Bell 2	Jingle Bell 2	Jingle Bell 2	Jingle Bell 2
D#7	99	TR-626 Shaker w	TR-626 Shaker w	TR-626 Shaker w	TR-626 Shaker w
E7	100	Shaker w	Shaker w	Shaker w	Shaker w
F7	101	Pop Nz 1	Pop Nz 1	Pop Nz 1	Pop Nz 1
F#7	102	Pop Nz 3	Pop Nz 3	Pop Nz 3	Pop Nz 3
G7	103	Pop Nz 6	Pop Nz 6	Pop Nz 6	Pop Nz 6
G#7	104	MG Nz Rev Cym	MG Nz Rev Cym	MG Nz Rev Cym	MG Nz Rev Cym
A7	105	TR-909 Ride Rev2	TR-909 Ride Rev2	TR-909 Ride Rev2	TR-909 Ride Rev2
A#7	106	White Nz 3	White Nz 3	White Nz 3	White Nz 3
B7	107	White Nz 2	White Nz 2	White Nz 2	White Nz 2
C8	108	White Nz 4	White Nz 4	White Nz 4	White Nz 4

* -----: No sound.

	SFX Set

A0	21	-----
A#0	22	-----
B0	23	-----
C1	24	-----
C#1	25	-----
D1	26	-----
D#1	27	-----
E1	28	-----
F1	29	-----
F#1	30	-----
G1	31	-----
G#1	32	-----
A1	33	-----
A#1	34	-----
B1	35	-----
C2	36	-----
C#2	37	-----
D2	38	-----
D#2	39	High Q
E2	40	Elec Slap
F2	41	Scratch Push
F#2	42	Scratch Pull
G2	43	Side Stick 2
G#2	44	Square Click
A2	45	Metronome Click
A#2	46	Metronome Bell
B2	47	GtFret Noise
C3	48	Cut Noise Up
C#3	49	Cut Noise Dw
D3	50	Slap St.Bass
D#3	51	Fl.Key Click
E3	52	Laughing
F3	53	Scream
F#3	54	Punch
G3	55	Heart Beat
G#3	56	Footsteps 1
A3	57	Footsteps 2
A#3	58	Applause
B3	59	Door Creak
C4	60	Door
C#4	61	Scratch 1
D4	62	Wind Chimes
D#4	63	Car Engine
E4	64	Car Stop
F4	65	Car Pass
F#4	66	Car Crash
G4	67	Siren
G#4	68	Train
A4	69	Jetplane
A#4	70	Helicopter
B4	71	Starship
C5	72	Gun Shot
C#5	73	Machine Gun
D5	74	Lasergun
D#5	75	Explosion
E5	76	Dog
F5	77	Horse Gallop
F#5	78	Birds
G5	79	Rain
G#5	80	Thunder
A5	81	Wind
A#5	82	Seashore
B5	83	Stream
C6	84	Bubble
C#6	85	-----
D6	86	-----
D#6	87	-----
E6	88	-----
F6	89	-----
F#6	90	-----
G6	91	-----
G#6	92	-----
A6	93	-----
A#6	94	-----
B6	95	-----
C7	96	-----
C#7	97	-----
D7	98	-----
D#7	99	-----
E7	100	-----
F7	101	-----
F#7	102	-----
G7	103	-----
G#7	104	-----
A7	105	-----
A#7	106	-----
B7	107	-----
C8	108	-----

Digital Piano　　MIDI Implementation Chart　　Date: Aug. 1. 2021
Model : FP-30X　　Version : 1.00

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	1	1-16	
	Changed	1-16	1-16	
Mode	Default	Mode 3	Mode 3	*1
	Messages	X	Mode 3,4 (M = 1)	
	Altered	**********		
Note Number :		15-113	0-127	
	True Voice	**********	0-127	
Velocity	Note On	0	0	
	Note Off	0	0	
After Touch	Key's	X	X	
	Channel's	X	0	
Pitch Bend		X	0	
Control Change	0,32	0	0	Bank select
	1	X	0	Modulation
	5	X	0	Portamento time
	6,38	X	0	Data entry
	7	X	0	Volume
	10	X	0	Panpot
	11	X	0	Expression
	64	0	0	Hold 1
	65	X	0	Portamento
	66	0	0	Sostenuto
	67	0	0	Soft
	71	X	0	Resonance
	72	X	0	Release time
	73	X	0	Attack time
	74	X	0	Cutoff
	75	X	0	Decay time
	76	X	0	Vibrato rate
	77	X	0	Vibrato depth
	78	X	0	Vibrato delay
	84	X	0	Portamento control
	91	0	0 (Reverb)	General purpose effects 1 depth
	93	X	0 (Chorus)	General purpose effects 3 depth
	100,101	X	0	RPN LSB, MSB
Program Change		0	0	
	: True Number	**********	0-127	Program No. 1-128
System Exclusive		0	0	
System Common	: Song Position	X	X	
	: Song Select	X	X	
	: Tune Request	X	X	
System Real Time	: Clock	X	X	
	: Commands	X	X	
Aux Messages	: All Sound Off	X	0	
	: Reset All Controllers	X	0	
	: Local On/Off	0	X	
	: All Notes Off	X	0 (123-127)	
	: Active Sensing	X	X	
	: System Reset	X	X	
Notes		*1 Only M=1 is supported		

Mode 1 : OMNI ON, POLY　　Mode 2 : OMNI ON, MONO　　O : Yes
Mode 3 : OMNI OFF, POLY　　Mode 4 : OMNI OFF, MONO　　X : No