

# VIVO S9 MIDI IMPLEMENTATION

## 1. Received data

### ■ Channel Voice Messages

#### ● Note off

Status	2nd byte	3rd byte
8nH	kkH	ccH

*n*= MIDI channel number: 0H~FH (Ch.1~16)  
*kk*= note number: 00H~7FH (0~127)  
*cc*= note off velocity: 00H~7FH (0~127)

#### ● Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

*n*= MIDI channel number: 0H~FH (Ch.1~16)  
*kk*= note number: 00H~7FH (0~127)  
*vv*= note off velocity: 00H~7FH (0~127)

- Not received when Rx.STATUS= OFF. (Initial value is ON)

### ■ Control Change

#### ● Bank Sound Select (Controller number 0, 32 )

Status	2nd byte	3rd byte
BnH	00H	mmH

*n*= MIDI channel number: 0H~FH (Ch.1~16)  
*mm*= Bank number MSB: 00H~7FH (Initial value= 00H)

#### ● Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

*n*= MIDI channel number: 0H~FH (Ch.1~16)  
*vv*= Modulation depth: 00H~7FH (0~127)

- Not received when Rx.MODULATION= OFF (Initial value is ON).

#### ● Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

*n*= MIDI channel number 0H~FH (Ch.1~16)  
*vv*= Volume: 00H~7FH (0~127),

- Not received when Rx.VOLUME= OFF (Initial value is ON).

#### ● Panpot (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

*n*= MIDI channel number: 0H~FH (Ch.1~16)  
*vv*= pan: 00H~40H~7FH (Left~Center~Right). Initial value= 40H (Center)

- Not received when "Panpot" RX is Off

#### ● Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH

*n*= MIDI channel number: 0H~FH (Ch.1~16)  
*vv*= Expression: 00H~7FH (0~127), Initial value= 7FH (127)

- Not received when "Expression" RX is Off.

#### ● Hold (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

*n*= MIDI channel number: 0H~FH (Ch.1~16)  
*vv*= Control value: 00H~7FH (0~127)

- Not received when "Hold" RX is Off.

#### ● Sostenuto (Controller number 66)

Status	2nd byte	3rd byte
BnH	42H	vvH

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

- Not received when "Sostenuto" RX is Off.

#### ● Soft (Controller number 67)

Status	2nd byte	3rd byte
BnH	43H	vvH

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

- Not received when "Soft" RX is Off.

#### ● Reverb Send Level (Controller number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH

*n*= MIDI channel number: 0H~FH (Ch.1~16)  
*vv*= Reverb Send Level: 00H~7FH (0~127)

- This message adjusts the Reverb Send Level of each Part.
- Not received when "Reverb" RX is Off.

#### ● Program Change

Status	2nd byte
CnH	ppH

*n*= MIDI channel number: 0H~FH (Ch.1~16)  
*pp*= Program number: 00H~7FH (prog.1~prog.128)

- Not received when "PG" RX is Off.

### ● Pitch Bend Change

Status            2nd byte            3rd byte

EnH                lIH                    mmH

*n= MIDI channel number: 0H~FH (Ch.1~16)*

*mm, ll= Pitch Bend value: 00 00H~40 00H~7F 7FH (-8192~0~+8191)*

- Not received when "PB" RX is Off.

### ● AFTERTOUC (Channel Pressure)

Status            2nd byte

DnH                vvH

*n= MIDI channel number: 0H~FH (Ch.1~16)*

*vv= value: 00H~7FH (0~127)*

- Not received when "Aftertouch" RX is Off.
- The Aftertouch will affect to all notes received in that channel.

## ■ Channel Mode Messages

### ● All Sounds Off (Controller number 120)

Status            2nd byte            3rd byte

BnH                78H                00H

*n= MIDI channel number: 0H~FH (Ch.1~16)*

*When the message is received, all notes currently sounding on the corresponding channel will be turned Off.*

### ● Reset All Controllers (Controller number 121)

Status

BnH

*n= MIDI channel number: 0H~FH (Ch.1~16)*

- When this message is received, the 2nd and 3rd bytes of their reset values. 79H            00H

*Controller Reset value: Pitch Bend Change +/-0 (center), Modulation 0 (off),*

*Expression 127 (max), Hold 1 0 (off), Sostenuto 0 (off), Soft 0 (off).*

### ● All Notes Off (Controller number 123)

Status

BnH

*n= MIDI channel number: 0H~FH (Ch.1~16)*

*When All Notes Off message is received, the 2nd and 3rd bytes*

*will be turned off. 7BH            00H*

*be continued until these are turned off.*

## ■ System Realtime Messages

### ● Active Sensing

Status

FEH

- This message is received at intervals of approximately 250 ms.

## ■ Memory RX

Midi Message	Value	Memory
CC00	0~8	BANK : 1~9
PG	0~8	NUMBER: 1~9

- Default MIDI channel is 15

Example:

- to receive Memory 1.1 send CC00=0, PG=0
- to receive Memory 4.2 send CC00=3, PG=1
- Not received when "Memory RX Status" is Off.

## ■ TONE WHEEL MIDI Messages

### ● MAIN TW 16' (Controller number 16)

Status            2nd byte            3rd byte

BnH                10H                vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### ● MAIN TW 5 1/3' (Controller number 17)

Status            2nd byte            3rd byte

BnH                11H                vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### ● MAIN TW 8' (Controller number 18)

Status            2nd byte            3rd byte

BnH                12H                vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### ● MAIN TW 4' (Controller number 19)

Status            2nd byte            3rd byte

BnH                13H                vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **MAIN TW 2 2/3' (Controller number 20)**

Status	2nd byte	3rd byte
BnH	14H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **MAIN TW 2' (Controller number 21)**

Status	2nd byte	3rd byte
BnH	15H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 2nd byte 3rd byte*

*0H = 0, 10H = 1, 2 15H*

*vvH*

- Not received when "Organ Control - Status" RX is Off.

● **MAIN TW 1 3/5' (Controller number 22)**

Status	2nd byte	3rd byte
BnH	16H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **MAIN TW 1 1/3' (Controller number 23)**

Status	2nd byte	3rd byte
BnH	17H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **MAIN TW 1' (Controller number 24)**

Status	2nd byte	3rd byte
BnH	18H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **LOWER TW 16' (Controller number 70)**

Status	2nd byte	3rd byte
BnH	46H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **LOWER TW 5 1/3'(Controller number 71)**

Status	2nd byte	3rd byte
BnH	47H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **LOWER TW 8' (Controller number 72)**

Status	2nd byte	3rd byte
BnH	48H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **LOWER TW 4'(Controller number 73)**

Status	2nd byte	3rd byte
BnH	49H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **LOWER TW 2 2/3' (Controller number 74)**

Status	2nd byte	3rd byte
BnH	4AH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **LOWER TW 2' (Controller number 75)**

Status	2nd byte	3rd byte
BnH	4BH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

● **LOWER TW 1 3/5' (Controller number 76)**

Status	2nd byte	3rd byte
BnH	4CH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### ● LOWER TW 1 1/3' (Controller number 77)

Status	2nd byte	3rd byte
BnH	4DH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### LOWER TW 1' (Controller number 78)

Status	2nd byte	3rd byte
BnH	4EH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### PEDAL TW 16' (Controller number 14)

Status	2nd byte	3rd byte
BnH	0EH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### PEDAL TW 5 1/3'(Controller number 15)

Status	2nd byte	3rd byte
BnH	0FH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### PEDAL TW 8' (Controller number 25)

Status	2nd byte	3rd byte
BnH	19H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### PEDAL TW 4'(Controller number 26)

Status	2nd byte	3rd byte
BnH	1AH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### ● PEDAL TW 2 2/3' (Controller number 27)

Status	2nd byte	3rd byte
BnH	1BH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### ● PEDAL TW 2' (Controller number 28)

Status	2nd byte	3rd byte
BnH	1CH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### ● PEDAL TW 1 3/5' (Controller number 29)

Status	2nd byte	3rd byte
BnH	1DH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### ● PEDAL TW 1 1/3' (Controller number 30)

Status	2nd byte	3rd byte
BnH	1EH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### ● PEDAL TW 1' (Controller number 31)

Status	2nd byte	3rd byte
BnH	1FH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not received when "Organ Control - Status" RX is Off.

### ● TW Percussion ON/OFF (Controller number 87)

Status	2nd byte	3rd byte
BnH	57H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = Off, 7FH = On*

- Not received when "Organ Control - Status" RX is Off.

● **TW Percussion NORMAL/SOFT (Controller number 88)**

Status	2nd byte	3rd byte
BnH	58H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = Normal, 7FH = Soft*

- Not received when "Organ Control - Status" RX is Off.

● **TW Percussion Time SLOW/FAST (Controller number 89)**

Status	2nd byte	3rd byte
BnH	59H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = Slow, 7FH = Fast*

- Not received when "Organ Control - Status" RX is Off.

● **TW Percussion Harmonic 2nd/3rd (Controller number 95)**

Status	2nd byte	3rd byte
BnH	5FH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not received when "Organ Control - Status" RX is Off.

● **TW Vibrato Mode (Controller number 84)**

Status	2nd byte	3rd byte
BnH	54H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not received when "Organ Control - Status" RX is Off.

● **TW Vibrato On/Off (Controller number 69)**

Status	2nd byte	3rd byte
BnH	45H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not received when "Organ Control - Status" RX is Off.

● **TW Rotary On/Off (Controller number 80)**

Status	2nd byte	3rd byte
BnH	50H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not received when "Organ Control - Status" RX is Off.

● **TW Rotary Brake On/Off (Controller number 81)**

Status	2nd byte	3rd byte
BnH	51H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not received when "Organ Control - Status" RX is Off.

**TW Rotary Slow/Fast (Controller number 82)**

Status	2nd byte	3rd byte
BnH	52H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not received when "Organ Control - Status" RX is Off.

● **TW Overdrive On/Off (Controller number 83)**

Status	2nd byte	3rd byte
BnH	53H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not received when "Organ Control - Status" RX is Off.

● **TW Overdrive Level (Controller number 90)**

Status	2nd byte	3rd byte
BnH	5AH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not received when "Organ Control - Status" RX is Off.

● **TW Overdrive Drive (Controller number 92)**

Status	2nd byte	3rd byte
BnH	5CH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not received when "Organ Control - Status" RX is Off.

● **TW Overdrive Tone (Controller number 94)**

Status	2nd byte	3rd byte
BnH	5EH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not received when "Organ Control - Status" RX is Off.

## 2. Transmitted data

### ■ Channel Voice Messages

#### ● Note off

Status	2nd byte	3rd byte
8nH	kkH	ccH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*kk* = note number: 00H~7FH (0~127)

*cc* = note off velocity: 00H~7FH (0~127)

#### ● Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*kk* = note number: 00H~7FH (0~127)

*vv* = note off velocity: 00H~7FH (0~127)

### ■ Control Change

#### ● Bank Select (Controller number 0, 32)

Status	2nd byte	3rd byte
BnH	00H	mmH
BnH	20H	llH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*mm* = Bank number MSB: 00H~7FH

*ll* = Bank number LSB: 00H~7FH

• Not transmitted when "PG" Tx is Off.

#### ● Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*vv* = Modulation depth: 00H~7FH (0~127)

• Not transmitted when "Modulation" TX is OFF.

#### ● Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

*n* = MIDI channel number 0H~FH (Ch.1~16)

*vv* = Volume: 00H~7FH (0~127), Initial value= 64H (100)

• Not transmitted when "Volume" TX is off.

#### ● Pan (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*vv* = pan: 00H~40H~7FH (Left~Center~Right),

• Not transmitted when "PanPot" TX is Off

#### ● Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*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.

• Not transmitted when "Expression" TX is Off.

#### ● Hold (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*vv* = Control value: 00H~7FH (0~127)

• Not transmitted when "Hold" TX is Off.

#### ● Sostenuto (Controller number 66)

Status	2nd byte	3rd byte
BnH	42H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*vv* = Control value: 00H~7FH (0~127) 0~63= OFF, 64~127= ON

• Not transmitted when "Sostenuto" TX is Off.

#### ● Soft (Controller number 67)

Status	2nd byte	3rd byte
BnH	43H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*vv* = Control value: 00H~7FH (0~127) 0~63= OFF, 64~127= ON

• Not transmitted when "Soft" TX is Off.

#### ● Reverb Send Level (Controller number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*vv* = Reverb Send Level: 00H~7FH (0~127)

• This message adjusts the Reverb Send Level of each Part.

• Not transmitted when "Reverb" TX is Off.

#### ● Program Change

Status	2nd byte
CnH	ppH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*pp* = Program number: 00H~7FH (prog.1~prog.128)

• Not transmitted when "PG" TX is Off.

### ● Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*mm, ll* = Pitch Bend value: 00 00H~40 00H~7F 7FH (-8192~0~+8191)

- Not received when "PB" RX is Off.

### ● AFTERTOUC (Channel Pressure)

Status	2nd byte
DnH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16)

*vv* = value: 00H~7FH (0~127)

- Not transmitted when "Aftertouch" TX is Off.
- The Aftertouch will affect to all notes playing in that channel.

## ■ TONE WHEEL MIDI Messages

### ● MAIN TW 16' (Controller number 16)

Status	2nd byte	3rd byte
BnH	10H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● MAIN TW 5 1/3' (Controller number 17)

Status	2nd byte	3rd byte
BnH	11H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● MAIN TW 8' (Controller number 18)

Status	2nd byte	3rd byte
BnH	12H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● MAIN TW 4' (Controller number 19)

Status	2nd byte	3rd byte
BnH	13H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● MAIN TW 2 2/3' (Controller number 20)

Status	2nd byte	3rd byte
BnH	14H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● MAIN TW 2' (Controller number 21)

Status	2nd byte	3rd byte
BnH	15H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● MAIN TW 1 3/5' (Controller number 22)

Status	2nd byte	3rd byte
BnH	16H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● MAIN TW 1 1/3' (Controller number 23)

Status	2nd byte	3rd byte
BnH	17H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● MAIN TW 1' (Controller number 24)

Status	2nd byte	3rd byte
BnH	18H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● LOWER TW 16' (Controller number 70)

Status	2nd byte	3rd byte
BnH	46H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

● **LOWER TW 5 1/3' (Controller number 71)**

Status	2nd byte	3rd byte
BnH	47H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **LOWER TW 8' (Controller number 72)**

Status	2nd byte	3rd byte
BnH	48H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **LOWER TW 4' (Controller number 73)**

Status	2nd byte	3rd byte
BnH	49H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **LOWER TW 2 2/3' (Controller number 74)**

Status	2nd byte	3rd byte
BnH	4AH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **LOWER TW 2' (Controller number 75)**

Status	2nd byte	3rd byte
BnH	4BH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **LOWER TW 1 3/5' (Controller number 76)**

Status	2nd byte	3rd byte
BnH	4CH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **LOWER TW 1 1/3' (Controller number 77)**

Status	2nd byte	3rd byte
BnH	4DH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **LOWER TW 1' (Controller number 78)**

Status	2nd byte	3rd byte
BnH	4EH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **PEDAL TW 16' (Controller number 14)**

Status	2nd byte	3rd byte
BnH	0EH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **PEDAL TW 5 1/3' (Controller number 15)**

Status	2nd byte	3rd byte
BnH	0FH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **PEDAL TW 8' (Controller number 25)**

Status	2nd byte	3rd byte
BnH	19H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.

● **PEDAL TW 4' (Controller number 26)**

Status	2nd byte	3rd byte
BnH	1AH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8*

- Not transmitted when "Organ Control - Status" TX is Off.



### ● PEDAL TW 2 2/3' (Controller number 27)

Status	2nd byte	3rd byte
BnH	1BH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● PEDAL TW 2' (Controller number 28)

Status	2nd byte	3rd byte
BnH	1CH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● PEDAL TW 1 3/5' (Controller number 29)

Status	2nd byte	3rd byte
BnH	1DH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● PEDAL TW 1 1/3' (Controller number 30)

Status	2nd byte	3rd byte
BnH	1EH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● PEDAL TW 1' (Controller number 31)

Status	2nd byte	3rd byte
BnH	1FH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

0H = 0, 10H = 1, 20H = 2, 30H = 3, 40H = 4, 50H = 5, 60H = 7, 70H = 7, 7FH = 8

- Not transmitted when "Organ Control - Status" TX is Off.

### ● TW Percussion ON/OFF (Controller number 87)

Status	2nd byte	3rd byte
BnH	57H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

00H = Off, 7FH = On

- Not received when "Organ Control - Status" RX is Off.

### ● TW Percussion NORMAL/SOFT (Controller number 88)

Status	2nd byte	3rd byte
BnH	58H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

00H = Normal, 7FH = Soft

- Not received when "Organ Control - Status" RX is Off.

### ● TW Percussion Time SLOW/FAST (Controller number 89)

Status	2nd byte	3rd byte
BnH	59H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

00H = Slow, 7FH = Fast

- Not received when "Organ Control - Status" RX is Off.

### ● TW Percussion Harmonic 2nd/3rd (Controller number 95)

Status	2nd byte	3rd byte
BnH	5FH	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

00H = 2nd, 7FH = 3rd

- Not transmitted when "Organ Control - Status" TX is Off.

### ● TW Rotary On/Off (Controller number 80)

Status	2nd byte	3rd byte
BnH	50H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

00H = 2nd, 7FH = 3rd

- Not transmitted when "Organ Control - Status" TX is Off.

### ● TW Rotary Slow/Fast (Controller number 82)

Status	2nd byte	3rd byte
BnH	52H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

00H = 2nd, 7FH = 3rd

- Not transmitted when "Organ Control - Status" TX is Off.

### ● TW Rotary Brake On/Off (Controller number 81)

Status	2nd byte	3rd byte
BnH	51H	vvH

*n* = MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14

*vv* = Control value: 00H~7FH (0~127)

00H = 2nd, 7FH = 3rd

- Not transmitted when "Organ Control - Status" TX is Off.

### ● TW Vibrato Mode (Controller number 84)

Status	2nd byte	3rd byte
BnH	54H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not transmitted when "Organ Control - Status" TX is Off.

### ● TW Vibrato On/Off (Controller number 69)

Status	2nd byte	3rd byte
BnH	45H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not transmitted when "Organ Control - Status" TX is Off.

### ● TW Overdrive On/Off (Controller number 83)

Status	2nd byte	3rd byte
BnH	53H	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not transmitted when "Organ Control - Status" TX is Off.

### ● TW Overdrive Drive (Controller number 92)

Status	2nd byte	3rd byte
BnH	5CH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not transmitted when "Organ Control - Status" TX is Off.

### ● TW Overdrive Level (Controller number 90)

Status	2nd byte	3rd byte
BnH	5AH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not transmitted when "Organ Control - Status" TX is Off.

### ● TW Overdrive Tone (Controller number 94)

Status	2nd byte	3rd byte
BnH	5EH	vvH

*n= MIDI channel number: 0H~FH (Ch.1~16); default midi ch.14*

*vv= Control value: 00H~7FH (0~127)*

*00H = 2nd, 7FH = 3rd*

- Not transmitted when "Organ Control - Status" TX is Off.

## ■ System Realtime Messages

### ● Active Sensing

Status

FEH

- This message is transmitted at intervals of approximately 250 ms.
- Not transmitted when "Active sensing" is Off.

## ■ Memory TX

Midi Message	Value	Memory
CC00	0~9	BANK : 1,2,3,4,5,6,7,8,9
PG	0~9	NUMBER: 1,2,3,4,5,6,7,8,9

- Default MIDI channel is 15
- Not transmitted when "Memory TX Status" is Off.

## ■ MIDI CONTROLLERS

### ● Midi Controllers S1~S9 (assignable from CC1 to CC127)

Status	2nd byte	3rd byte
BnH	01H~7FH	vvH

*n= MIDI channel number 0H~FH (Ch.1~16)*

*vv= Control Value: 00H~7FH (0~127),*

- Not transmitted when "Midi Control" button is off.
- Each midi controller is assignable from CC1 to CC127

### ● Midi Controllers C1~C6 (assignable from CC1 to CC127)

Status	2nd byte	3rd byte
BnH	01H~7FH	vvH

*n= MIDI channel number 0H~FH (Ch.1~16)*

*vv= Control Value: 00H~7FH (0~127),*

- Not transmitted when "C1~C6 to MIDI" button is off.
- Each midi controller is assignable from CC1 to CC127