# 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 on 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 | 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.*

### ● AFTERTOUCH (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 mess* | 2nd byte | 3rd byte |
|---|---|---|
| *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 O* | 2nd byte | 3rd byte |
|---|---|---|
| *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=V1, 08H=C1, 23H=V2, 3DH=C2, 58H=V3, 72H=C3*

*• 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 = Off, 7FH = On*

*• 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 = Off, 7FH = On*

*• 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 = Off, 7FH = On*

*• 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 = Slow, 7FH = Fast*

*• 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 = Off, 7FH = On*

*• 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 = 00, 7FH = 100*

*• 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 = 00, 7FH = 100*

*• 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 = 00, 7FH = 100*

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

## 2.Trasmitted 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 on 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 trasmitted when "PB " TX is Off.*

● **AFTERTOUCH (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 = Off, 7FH = On*

*• 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 = Slow, 7FH = Fast*

*• 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 = Off, 7FH = On*

*• 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=V1, 08H=C1, 23H=V2, 3DH=C2, 58H=V3, 72H=C3*

*• 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 = Off, 7FH = On*

*• 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 = Off, 7FH = On*

*• 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 = 00, 7FH = 100*

*• 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 = 00, 7FH = 100*

*• 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 = 00, 7FH = 100*

*• 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*