YAMAHA

DIGITAL PIANO

P-115

MIDI Reference

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EN

MIDI Functions

You can make detailed adjustments to MIDI settings.

MIDI Transmit/Receive Channel Selection

In any MIDI control setup, the MIDI channels of the transmitting and receiving devices must be matched for proper data transfer.

This parameter enables you to specify the channel on which the instrument transmits or receives MIDI data.

Setting the Transmit Channel

While holding down the [METRONOME/RHYTHM] button, press and hold the [PIANIST STYLE] button, then press one of the E0–G♯1 keys.

Setting the Receive Channel

While holding down the [METRONOME/RHYTHM] button, press and hold the [PIANIST STYLE] button, then press one of the A♯1–D♯3 keys.
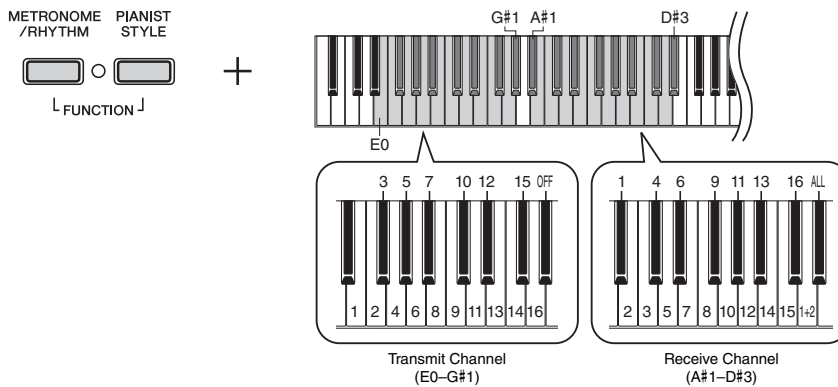
> *NOTE*
> In Dual, Split or Duo, Voice 1 data is transmitted on its specified channel and Voice 2 data is transmitted on the next greater channel number relative to the specified channel. In this case, no data is transmitted if the transmit channel is set to "OFF."

> *NOTE*
> **ALL:**
> "Multi-timbre" Receive. This allows simultaneous reception of different parts on all 16 MIDI channels, enabling the instrument to play multi-channel song data received from a computer.
> **1+2:**
> "1+2" Receive. This allows simultaneous reception on channels 1 and 2 only, enabling the instrument to play 1 and 2 channel song data received from a computer.

> *NOTE*
> Program change and other like channel messages received will not affect the panel settings of the instrument or the notes you play on the keyboard.
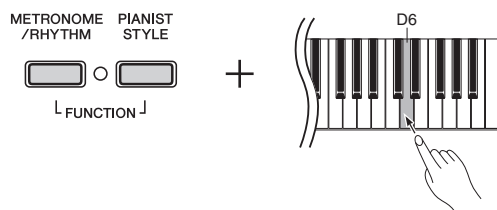
> *NOTE*
> Data for the Demo Songs and Preset Songs cannot be transmitted via MIDI.

Local Control ON/OFF

"Local Control" refers to the fact that, normally, the keyboard of the instrument controls its internal tone generator, allowing the internal voices to be played directly from the keyboard. This situation is "Local Control On," since the internal tone generator is controlled locally by its own keyboard. Local control can be turned OFF, however, so that the the keyboard of the instrument does not play the internal voices, but the appropriate MIDI information is still transmitted via the [USB TO HOST] terminal when notes are played on the keyboard. At the same time, the internal tone generator responds to MIDI information received via the [USB TO HOST] terminal.

While holding down the [METRONOME/RHYTHM] button, press and hold the [PIANIST STYLE] button, then press the D6 key. Pressing the D6 key repeatedly toggles between Local Control On and Off.
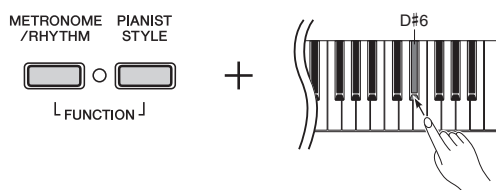
> *NOTE*
> **Default setting:** ON

Program Change ON/OFF

Normally the instrument will respond to MIDI program change numbers received from a computer, causing the same numbered voice to be selected on the corresponding channel (the keyboard voice does not change). The instrument will normally also send a MIDI program change number whenever one of its voices is selected, causing the same numbered voice or program to be selected on the computer if the computer is set up to receive and respond to MIDI program change numbers. This function makes it possible to cancel program change number reception and transmission so that voices can be selected on the instrument without affecting the computer.

While holding down the [METRONOME/RHYTHM] button, press and hold the [PIANIST STYLE] button, then press the D♯6 key. Pressing the D♯6 key repeatedly toggles between Program Change On and Off.

NOTE
For information on program change numbers for each of the Voices of the instrument, refer to page 5.

NOTE
Default setting: ON

Control Change ON/OFF

Normally the instrument will respond to MIDI control change data received from a computer, causing the voice on the corresponding channel to be affected by pedal and other "control" settings received from the controlling device (the keyboard voice is not affected). The instrument also transmits MIDI control change information when the pedal or other appropriate controls are operated. This function makes it possible to cancel control change data reception and transmission so that, for example, the pedal of the instrument and other controls can be operated without affecting a computer.

While holding down the [METRONOME/RHYTHM] button, press and hold the [PIANIST STYLE] button, then press the E6 key. Pressing the E6 key repeatedly toggles between Control Change On and Off.
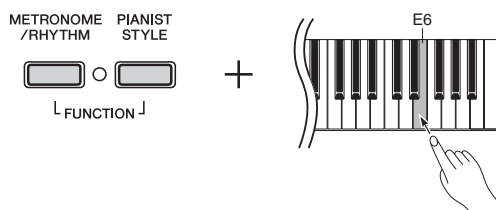
NOTE
For information on control changes that can be used with the instrument, refer to page 4.

NOTE
Default setting: ON

MIDI Data Format

1. NOTE ON/OFF

Data format: [9nH] -> [kk] -> [vv]
- 9nH = Note ON/OFF event (n = channel number)
- kk = Note number (Transmit: 09H–78H = A-2–C8 / Receive: 00H–7FH = C-2–G8)
- vv = Velocity (Key ON = 01H–7FH, Key OFF = 00H)

Data format: [8nH] -> [kk] -> [vv] (reception only)
- 8nH = Note OFF event (n = channel number)
- kk = Note number: 00H–7FH = C-2–G8
- vv = Velocity

2. CONTROL CHANGE

Data format: [BnH] -> [cc] -> [vv]
- BnH = Control change (n = channel number)
- cc = Control number
- vv = Data Range

(1) Bank Select

ccH	Parameter	Data Range (vvH)
00H	Bank Select MSB	00H:Normal
20H	Bank Select LSB	00H...7FH

Bank selection processing does not occur until receipt of next Program Change message.

(2) Modulation (reception only)

ccH	Parameter	Data Range (vvH)
01H	Modulation	00H...7FH

(3) Main Volume

ccH	Parameter	Data Range (vvH)
07H	Volume MSB	00H...7FH

(4) Panpot (reception only)

ccH	Parameter	Data Range (vvH)
0AH	Panpot	00H...7FH

(5) Expression

ccH	Parameter	Data Range (vvH)
0BH	Expression MSB	00H...7FH

(6) Damper Pedal/Sustain

ccH	Parameter	Data Range (vvH)
40H	Sustain MSB	00H...7FH

(7) Sostenuto

ccH	Parameter	Data Range (vvH)
42H	Sostenuto	00H...3FH:off, 40H...7FH:on

(8) Soft Pedal

ccH	Parameter	Data Range (vvH)
43H	Soft Pedal	00H...3FH:off, 40H...7FH:on

(9) Harmonic Content (reception only)

ccH	Parameter	Data Range (vvH)
47H	Harmonic Content	00H...7FH

(10) Release Time (reception only)

ccH	Parameter	Data Range (vvH)
48H	Release Time	00H...7FH

(11) Attack Time (reception only)

ccH	Parameter	Data Range (vvH)
49H	Attack Time	00H...7FH

(12) Brightness (reception only)

ccH	Parameter	Data Range (vvH)
4AH	Brightness	00H...7FH

(13) Portamento Control (reception only)

ccH	Parameter	Data Range (vvH)
54H	Portamento	00H...7FH

(14) Effect1 Depth (Reverb Send Level)

ccH	Parameter	Data Range (vvH)
5BH	Effect1 Depth	00H...7FH

Adjusts the reverb send level.

(15) Effect3 Depth (Chorus Send Level)

ccH	Parameter	Data Range (vvH)
5DH	Effect3 Depth	00H...7FH

(16) RPN

65H	RPN	MSB
64H	RPN	LSB
06H	Data Entry	MSB
26H	Data Entry	LSB
60H	Data	Increment
61H	Data	Decrement

* Parameters that are controllable with RPN:
- Coarse Tune
- Fine Tune
- Pitch Bend Range

3. MODE MESSAGES

Data format: [BnH] -> [cc] -> [vv]
- BnH = Control event (n = channel number)
- cc = Control number
- vv = Data Range

(1) All Sound Off (reception only)

ccH	Parameter	Data Range (vvH)
78H	All Sound Off	00H

(2) Reset All Controllers (reception only)

ccH	Parameter	Data Range (vvH)
79H	Reset All Controllers	00H

Resets controllers as follows.

Controller	Value
Expression	127 (max)
Sustain	0 (off)
Sostenuto	0 (off)
Soft Pedal	0 (off)

(3) Local Control (reception only)

ccH	Parameter	Data Range (vvH)
7AH	Local Control	00H (off), 7FH (on)

(4) All Notes Off (reception only)

ccH	Parameter	Data Range (vvH)
7BH	All Notes Off	00H

Switches OFF all the notes that are currently ON on the specified channel. Any notes being held by the sustain or sostenuto pedal will continue to sound until the pedal is released.

(5) Omni Off (reception only)

ccH	Parameter	Data Range (vvH)
7CH	Omni Off	00H

Same processing as for All Notes Off.

(6) Omni On (reception only)

ccH	Parameter	Data Range (vvH)
7DH	Omni On	00H

Same processing as for All Notes Off.

(7) Mono (reception only)

ccH	Parameter	Data Range (vvH)
7EH	Mono	00H

Same processing as for All Sound Off.

(8) Poly (reception only)

ccH	Parameter	Data Range (vvH)
7FH	Poly	00H

Same processing as for All Sound Off.

- When Control Change is turned OFF, Control Change messages will not be transmitted or received.
- Local on/off, OMNI on/off are not transmitted. (The appropriate note off number is supplied with "All Note Off" transmission).
- When a voice bank MSB/LSB is received, the number is stored in the internal buffer regardless of the received order, then the stored value is used to select the appropriate voice when a program change message is received.
- Poly mode is always active. This mode will not change when the instrument receives a MONO/POLY mode message.

4. PROGRAM CHANGE

Data format: [CnH] -> [ppH]
  CnH = Program event (n = channel number)
  ppH = Program change number

P.C.#=Program Change number

Voice Name	MSB	LSB	P.C.#
GRAND PIANO	0	122	1
BRIGHT GRAND	0	112	1
MELLOW GRAND	0	122	6
DX E.PIANO	0	123	6
STAGE E.PIANO	0	122	5
VINTAGE E.PIANO	0	123	5
JAZZ ORGAN	0	122	17
PIPE ORGAN	0	123	20
ROCK ORGAN	0	122	19
VIBRAPHONE	0	122	12
STRINGS	0	122	49
HARPSICHORD	0	122	7
WOOD BASS	0	122	33
E. BASS	0	122	34

- When program change reception is turned OFF, no program change data is transmitted or received.
- When you specify a program change as a number in the range of 0–127, specify a number that is one less than the program change number listed above. For example, to specify program change number 1, you would specify a value of 0.

5. Pitch Bend Change (reception only)

[EnH] -> [ccH] -> [ddH]
ccH = LSB
ddH = MSB

6. SYSTEM REALTIME MESSAGES

[rrH]
F8H: Timing clock
FAH: Start
FCH: Stop
FEH: Active sensing

Data	Transmission	Reception
F8H	Transmitted every 96 clocks	Received as 96-clock tempo timing when MIDI clock is set to External.
FAH	Song start	Song start. Not received when the MIDI clock is set to Internal.
FCH	Song stop	Song stop. Not received when the MIDI clock is set to Internal.
FEH	Transmitted every 200 milliseconds	If a signal is not received via MIDI for more than 400 milliseconds, the same processing will take place for All Sound Off, All Notes Off and Reset All Controllers as when those signals are received.

- If an error occurs during MIDI reception, the Sustain, Sostenuto, and Soft effects for all channels are turned off and an All Note Off occurs.

7. SYSTEM EXCLUSIVE MESSAGES (Universal System Exclusive)

(1) Universal Realtime Message

Data format: [F0H] -> [7FH] -> [XnH] -> [04H] -> [01H] -> [llH] -> [mmH] -> [F7H]

MIDI Master Volume (reception only)
- Simultaneously changes the volume of all channels.
- When a MIDI master volume message is received, the volume only has affect on the MIDI receive channel, not the panel master volume.

  F0H = Exclusive status
  7FH = Universal Realtime
  7FH = ID of target device
  04H = Sub-ID #1=Device Control Message
  01H = Sub-ID #2=Master Volume
  llH = Volume LSB
  mmH = Volume MSB
  F7H = End of Exclusive
      or
  F0H = Exclusive status
  7FH = Universal Realtime
  XnH = When received, n=0–F.
      X = irrelevant
  04H = Sub-ID #1=Device Control Message
  01H = Sub-ID #2=Master Volume
  llH = Volume LSB
  mmH = Volume MSB
  F7H = End of Exclusive

(2) Universal Non-Realtime Message (GM On)
General MIDI Mode On

Data format: [F0H] -> [7EH] -> [XnH] -> [09H] -> [01H] -> [F7H]

  F0H = Exclusive status
  7EH = Universal Non-Realtime
  7FH = ID of target device
  09H = Sub-ID #1=General MIDI Message
  01H = Sub-ID #2=General MIDI On
  F7H = End of Exclusive
      or
  F0H = Exclusive status
  7EH = Universal Non-Realtime
  XnH = When received, n=0–F.
      X = irrelevant
  09H = Sub-ID #1=General MIDI Message
  01H = Sub-ID #2=General MIDI On
  F7H = End of Exclusive

When the General MIDI mode ON message is received, the MIDI system will be reset to its default settings.
This message requires approximately 50ms to execute, so sufficient time should be allowed before the next message is sent.

8. SYSTEM EXCLUSIVE MESSAGES (XG Standard)

(1) XG Native Parameter Change

Data format: [F0H] -> [43H] -> [1nH] -> [4CH] -> [hhH] -> [mmH] ->
                [*l*H] -> [ddH] -> [F7H]

    F0H = Exclusive status
    43H = YAMAHA ID
    1nH = When received, n=0–F.
           When transmitted, n=0.
    4CH = Model ID of XG
    hhH = Address High
    mmH = Address Mid
    *l*H =   Address Low
    ddH = Data
        |
    F7H = End of Exclusive

Data size must match parameter size (2 or 4 bytes).
When the XG System On message is received, the MIDI system will be reset to its default settings.
The message requires approximately 50ms to execute, so sufficient time should be allowed before the next message is sent.

(2) XG Native Bulk Data (reception only)

Data format: [F0H] -> [43H] -> [0nH] -> [4CH] -> [aaH] -> [bbH] ->
                [hhH] -> [mmH] -> [*l*H] ->[ddH] ->...-> [ccH] -> [F7H]

    F0H = Exclusive status
    43H = YAMAHA ID
    0nH = When received, n=0–F.
           When transmitted, n=0.
    4CH = Model ID of XG
    aaH = ByteCount
    bbH = ByteCount
    hhH = Address High
    mmH = Address Mid
    *l*H =   Address Low
    ddH = Data
        | |
        | |
    ccH = Check sum
    F7H = End of Exclusive

- Receipt of the XG SYSTEM ON message causes reinitialization of relevant parameters and Control Change values. Allow sufficient time for processing to execute (about 50 msec) before sending the instrument another message.
- XG Native Parameter Change message may contain two or four bytes of parameter data (depending on the parameter size).
- For information about the Address and Byte Count values, refer to Table 1 below. Note that the table's Total Size value gives the size of a bulk block. Only the top address of the block (00H, 00H, 00H) is valid as a bulk data address.

9. SYSTEM EXCLUSIVE MESSAGES (Digital Piano MIDI Format)

Data format: [F0H] -> [43H] -> [73H] -> [xxH] -> [nnH] -> [F7H]

    F0H = Exclusive status
    43H = Yamaha ID
    73H = Digital Piano ID
    01H = Product ID (digital piano common)
    xxH = Substatus
       nn   control
       02H   Internal MIDI clock
       03H   External MIDI clock
    F7H = End of Exclusive

10. SYSTEM EXCLUSIVE MESSAGES (Others)

Data format: [F0H] -> [43H] -> [1nH] -> [27H] -> [30H] -> [00H] ->
                [00H] -> [mmH] -> [*l*H] -> [ccH] -> [F7H]

Master Tuning (XG and last message priority) simultaneously changes the pitch of all channels.

    F0H = Exclusive Status
    43H = Yamaha ID
    1nH = When received, n=0–F.
           When transmitted, n=0.
    27H =
    30H = Sub ID
    00H =
    00H =
    mmH = Master Tune MSB
    *l*H =   Master Tune LSB
    ccH = irrelevant (under 7FH)
    F7H = End of Exclusive

<Table 1>

MIDI Parameter Change table (SYSTEM)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00 00	4	020C–05F4(*1)	MASTER TUNE	-102.4–+102.3[cent]	00 04 00 00
01				1st bit 3–0 → bit 15–12	400
02				2nd bit 3–0 → bit 11–8	
03				3rd bit 3–0 → bit 7–4	
				4th bit 3–0 → bit 3–0	
04	1	00–7F	MASTER VOLUME	0–127	7F
7E		00	XG SYSTEM ON	00=XG sytem ON	
7F		00	RESET ALL PARAMETERS	00=ON (receive only)	

TOTAL SIZE 07

*1: Values lower than 020CH select -102.4 cents. Values higher than 05F4H select +102.3 cents.

<Table 2>

MIDI Parameter Change table (EFFECT 1)

Refer to the "Effect MIDI Map" for a complete list of Reverb and Chorus type numbers.

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
02 01 00	2	00–7F	REVERB TYPE MSB	Refer to Effect MIDI Map	01 (=HALL1)
		00–7F	REVERB TYPE LSB	00 : basic type	00
20	2	00–7F	CHORUS TYPE MSB	Refer to Effect MIDI Map	41 (=CHORUS1)
		00–7F	CHORUS TYPE LSB	00 : basic type	00
22	1	00–7F	CHORUS PARAMETER 1		
24	1	00–7F	CHORUS PARAMETER 3		

<Table 3>

MIDI Parameter Change table (MULTI PART)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
08 nn 11	1	00–7F	DRY LEVEL	0–127	7F
0C	1	00–7F	VELOCITY SENSE DEPTH	0–127	40
0D	1	00–7F	VELOCITY SENSE OFFSET	0–127	40

nn = Part Number

• Effect MIDI Map

REVERB

	MSB	LSB
RECITAL HALL	01H	18H
CONCERT HALL	01H	04H
CHAMBER	02H	18H
CLUB	03H	18H
ROOM	02H	10H
HALL 1	01H	10H
HALL 2	01H	11H
STAGE	03H	10H
OFF	00H	00H

EFFECT

	MSB	LSB
CHORUS	41H	08H
PHASER	48H	11H
TREMOLO	77H	00H
ROTARY SP	42H	12H
OFF	00H	00H

MIDI Implementation Chart

YAMAHA   [Digital Piano]   Date :5-MAR-2014
          Model P-115 MIDI Implementation Chart   Version : 1.0

Function...		Transmitted	Recognized	Remarks
Basic Default Channel Changed		1 - 16 o	1 - 16 o	
Mode Default Messages Altered		3 x **************	3 x x	
Note Number : True voice		0 - 127 **************	0 - 127 0 - 127	
Velocity Note ON Note OFF		o 9nH,v=1-127 x 9nH,v=0	o 9nH,v=1-127 x	
After Key's Touch Ch's		x x	x x	
Pitch Bend		x *1	o 0 - 24 semi	
Control Change	0,32 1 7 10 11 6,38 64,66,67 71-74 84 91,93,94 96-97 100-101	o x o x o o o x *1 x o x o	o o o o o o o o o o o o	Bank Select Modulation Main Volume Panpot Expression Data Entry Pedal Portament Control Effect Depth RPN Inc,Dec RPN LSB,MSB
Prog Change : True #		o 0 - 127 **************	o 0 - 127	
System Exclusive		o	o	

Common   : Song Pos.
          : Song Sel.
          : Tune
		x
		x
		x
			x
			x
			x	

System : Clock Real Time : Commands		o o	o o	

Aux   : All Sound Off
         : Reset All Cntrls
         : Local ON/OFF
Mes-   : All Notes OFF
sages: : Active Sense
         : Reset
		x
		x
		x
		x
		o
		x
			o (120,126,127)
			o (121)
			o (122)
			o (123-125)
			o
			x	

Notes: *1 These function are not transmitted by panel operation.
        It may be transmitted during a Song performance.

Mode 1 : OMNI ON , POLY   Mode 2 : OMNI ON ,MONO   o : Yes
Mode 3 : OMNI OFF, POLY   Mode 4 : OMNI OFF,MONO   x : No