

# piagggero

**NP-31 NP-11**

## **MIDI Reference**

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# 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.

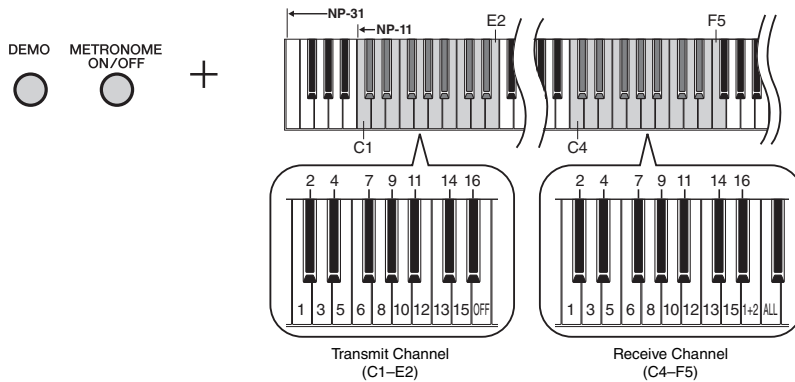
This parameter enables you to specify the channel on which the instrument transmits or receives MIDI data.

### Setting the Transmit Channel

While holding down the [DEMO] button, press and hold the [METRONOME ON/OFF] button, then press one of the C1–E2 keys.

### Setting the Receive Channel

While holding down the [DEMO] button, press and hold the [METRONOME ON/OFF] button, then press one of the C4–F5 keys.



**NOTE**

In Dual, 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 music computer or sequencer.

**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 music computer or sequencer.

**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.

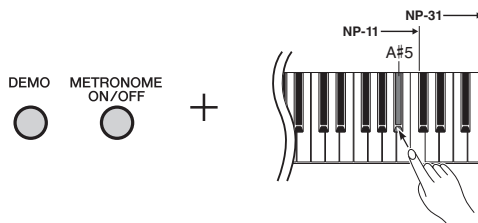
**NOTE**

Data for the demo song and piano 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 MIDI OUT terminal when notes are played on the keyboard. At the same time, the internal tone generator responds to MIDI information received via the MIDI IN terminal.

While holding down the [DEMO] button, press and hold the [METRONOME ON/OFF] button, then press one of the A#5 key. Pressing the A#5 key repeatedly toggles between Local Control On and Off.



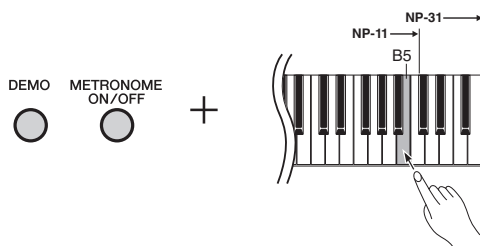
**NOTE**

**Default setting:** ON

## Program Change ON/OFF

Normally the instrument will respond to MIDI program change numbers received from an external keyboard or other MIDI device, 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 external MIDI device if the device 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 external MIDI device.

While holding down the [DEMO] button, press and hold the [METRONOME ON/OFF] button, then press one of the B5 key. Pressing the B5 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 4.

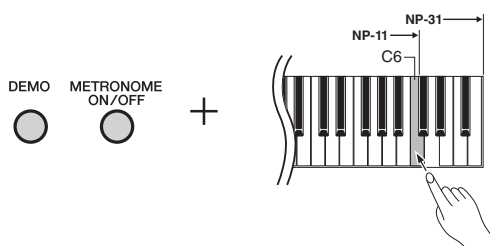
**NOTE**

**Default setting:** ON

## Control Change ON/OFF

Normally the instrument will respond to MIDI control change data received from an external MIDI device or keyboard, 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 an external MIDI device.

While holding down the [DEMO] button, press and hold the [METRONOME ON/OFF] button, then press one of the C6 key. Pressing the C6 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

If you're already very familiar with MIDI, or are using a computer to control your music hardware with computer-generated MIDI messages, the data provided in this section can help you to control the NP-31 NP-11.

## 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) Main Volume

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

### (3) Expression (reception only)

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

### (4) Sustain

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

### (5) Sostenuto (reception only)

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

### (6) Soft Pedal (reception only)

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

### (7) Effect1 Depth (Reverb Send Level)

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

Adjusts the reverb send level.

### (8) Effect4 Depth (Variation Effect Send Level)

ccH	Parameter	Data Range (vvH)
5EH	Effect4 Depth	00H...7FH

### (9) 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 = Mode Message number  
 vv = Data Range

### (1) All Sound Off

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

### (2) Reset All Controllers

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

Resets controllers as follows.

Controller	Value
Expression	127 (max)
Sustain Pedal	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

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

NP-31 NP-11	MSB	LSB	P.C.#
Grand Piano 1	0	122	1
Grand Piano 2	0	112	1
E. Piano 1	0	122	6
E. Piano 2	0	122	5
Pipe Organ 1	0	123	20
Pipe Organ 2	0	122	20
Strings	0	122	49
Vibraphone	0	122	12
Harpisichord 1	0	122	7
Harpisichord 2	0	123	7

- 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] -> [IiH] -> [mmH] -> [F7H]

#### MIDI Master Volume

- 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  
 //H = 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  
 //H = 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] -> [//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

//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] -> [//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

//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 NP-31 NP-11 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] -> [01H] -> [nnH] -> [F7H]

F0H = Exclusive status

43H = Yamaha ID

73H = Digital Piano ID

01H = Product ID (digital piano common)

nnH = Substatus

02H Internal MIDI clock

03H External MIDI clock

F7H = End of Exclusive

**10. SYSTEM EXCLUSIVE MESSAGES (Special Control)**

Data format: [F0H] -> [43H] -> [73H] -> [7FH] -> [4BH] -> [11H] -> [0nH] -> [ccH] -> [vvH] -> [F7H]

F0H = Exclusive status  
 43H = Yamaha ID  
 73H = Digital Piano ID  
 7FH = Extended Product ID  
 4BH = Product ID (NP-11 : 4BH, NP-31/31S : 4BH)  
 11H = Special control  
 0nH = Control MIDI change (n=channel number)  
 cc = Control number  
 vv = Value  
 F7H = End of Exclusive

Control	Channel	ccH	vvH
Channel Detune ch:	00H-0FH	43H	(Sets the Detune value for each channel) 00H-7FH
Voice Reserve ch:	00H-0FH	45H	00H : Reserve off 7FH : on*

\* When Volume, Expression is received for Reserve On, they will be effective from the next Key On. Reserve Off is normal.

**11. SYSTEM EXCLUSIVE MESSAGES (Others)**

Data format: [F0H] -> [43H] -> [1nH] -> [27H] -> [30H] -> [00H] -> [00H] -> [mmH] -> [//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 = Model ID of TG100  
 30H = Sub ID  
 00H =  
 00H =  
 mmH = Master Tune MSB  
 //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	-50-+50[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	
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 -50 cents. Values higher than 05F4H select +50 cents.

**<Table 2>****MIDI Parameter Change table (EFFECT 1)**

Refer to the "Effect MIDI Map" for a complete list of Reverb, Chorus and Variation 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
02 01 40	2	00-7F	VARIATION TYPE MSB	Refer to Effect MIDI Map	00 (=Effect off)
		00-7F	VARIATION TYPE LSB	00 : basic type	00

• "VARIATION" refers to the EFFECT on the panel.

**• Effect MIDI Map****REVERB**

	MSB	LSB
ROOM	02H	10H
HALL 1	01H	10H
HALL 2	01H	11H
STAGE	03H	10H
OFF	00H	00H

**EFFECT**

	MSB	LSB
CHORUS	42H	10H
PHASER	48H	10H
TREMOLO	46H	10H
ROTARY SP	47H	10H
OFF	00H	00H

# MIDI Implementation Chart

YAMAHA [ Digital Keyboard ]  
Model NP-31 NP-11 MIDI Implementation Chart

Date : 11, Nov 2010  
Version : 1.0

Function	Transmitted	Recognized	Remarks
Basic Channel Default Changed	1 1 - 16	1 - 16 1 - 16	
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	o 9nH, v=1-127 x	
After Touch Key's Ch's	x x	x x	
Pitch Bend	x	o 0 - 24 semi	
Control Change 0,32 1 7 10 11 6,38 64 66,67 84 91,94 96-97 100-101	o x o x o x o x o x o x	o o o o o o o o o o o	Bank Select Modulation Main Volume Panpot Expression Data Entry Sustain  Portamento 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	o o x o o x	o (120,126,127) o (121) o (122) o (123-125) o x	
Notes:			

Mode 1 : OMNI ON , POLY  
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON , MONO  
Mode 4 : OMNI OFF, MONO

o : Yes  
x : No