



Roland[®] *SOUND EXPANSION*



**64 VOICE
MODULE**

M-GS64

Owner's Manual

**64 VOICE
MODULE**

M-GS64

Owner's Manual

I Introduction

Thank you for purchasing the Roland M-GS64 64 Voice Module. The M-GS64 64 is a MIDI sound module that contains an enormous variety of high-quality sounds. In order to take full advantage of the M-GS64's capabilities, and enjoy long-lasting, trouble-free service, please take the time to read this manual carefully before you start out.

© 1995 ROLAND CORPORATION



All rights reserved. No part of this publication may be reproduced in any form without the written permission of Roland Corporation.

I Main Features

- The M-GS64 is a sound module compatible with the General MIDI system. It can be used to play back any song data (General MIDI scores) bearing the General MIDI logo. The M-GS64 is also compatible with the Roland GS format. It can be used to play back any song data bearing the GS logo.
- The M-GS64 is a 32-part, 64-voice multitimbral sound module. A single M-GS64 can produce the sounds of a large ensemble.
- The M-GS64 contains 654 high-quality sounds and 24 drum sound sets (including 2 sound effects sets).
- There are 256 user sounds and 2 user drum sets, allowing you to create your own sounds and drum sets.
- By editing sound parameters such as vibrato, filter and envelope, you can modify sounds to your taste.
- A wide variety of effects are provided, including 8 types of reverb, 8 types of chorus, 10 types of delay, and 2-band equalization.

I CONTENTS

IMPOTANT NOTES	3
Panel Descriptions	4
Quick Start	5
■ Connections and Power-Up	5
■ About the M-GS64's Modes	5
■ Try Out Sounds in the Patch Select Mode	5
Entering Patch Select Mode	5
Selecting a Part	5
Selecting a Patch or Rhythm Set	6
Muting a Part	6
Monitoring a Part	6
■ Changing Parameter Settings	6
How the M-GS64 Is Organized	8
■ Single Module Mode and Double Module Mode	8
■ About the Sound Map	8
■ Voices and Maximum Polyphony	8
■ Which MIDI IN Will Be Used by Each Part?	9
How the Parameters Work	10
■ Matrix 0 (Basic Menu)	10
■ Matrix 1 (Part Parameters)	11
Creating and Saving a Sound	13
■ Matrix 2 (Drum Set Parameters)	13
Saving a Drum Set That You Create	14
■ Matrix 3 (Effect Parameters)	15
■ Matrix 4 (Utility)	16
Handy Functions	20
■ Level Meter Function	20
■ Selecting a Patch in Edit Mode	20
■ Parameter Reverse Mode	20
■ The Preview Function	20
■ Move Part Function	20
■ Patch Only Mode	20
Using MIDI Messages to Control the M-GS64	21
APPENDIXES	23
■ Troubleshooting	23
■ Error Messages	24
■ Patch List	25
■ Drum Set List	31
■ MIDI Implementation	36
■ MIDI Implementation Chart	52
■ Parameter Matrix Table	53
■ Table of Parameter Value Ranges and Displays	54
■ INDEX	57
■ Specifications	58
■ Service Information	59

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
ATTENTION: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRI		
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.		



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS.

IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

WARNING - When using electric products, basic precautions should always be followed, including the following:

1. Read all the instructions before using the product.
2. Do not use this product near water — for example, near a bathtub, washbowl, kitchen sink, in a wet basement, or near a swimming pool, or the like.
3. This product should be used only with a cart or stand that is recommended by the manufacturer.
4. This product, either alone or in combination with an amplifier and headphones or speakers, may be capable of producing sound levels that could cause permanent hearing loss. Do not operate for a long period of time at a high volume level or at a level that is uncomfortable. If you experience any hearing loss or ringing in the ears, you should consult an audiologist.
5. The product should be located so that its location or position does not interfere with its proper ventilation.
6. The product should be located away from heat sources such as radiators, heat registers, or other products that produce heat.
7. The product should be connected to a power supply only of the type described in the operating instructions or as marked on the product.
8. The power-supply cord of the product should be unplugged from the outlet when left unused for a long period of time.
9. Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
10. The product should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled onto the product; or
 - C. The product has been exposed to rain; or
 - D. The product does not appear to operate normally or exhibits a marked change in performance; or
 - E. The product has been dropped, or the enclosure damaged.
11. Do not attempt to service the product beyond that described in the user-maintenance instructions. All other servicing should be referred to qualified service personnel.

For the USA

GROUNDING INSTRUCTIONS

This product must be grounded. If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock.

This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.


DANGER: Improper connection of the equipment-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or serviceman if you are in doubt as to whether the product is properly grounded. Do not modify the plug provided with the product — if it will not fit the outlet, have a proper outlet installed by a qualified electrician.

For the U.K.

WARNING: THIS APPARATUS MUST BE EARTHED

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.
 GREEN-AND-YELLOW: EARTH, BLUE: NEUTRAL, BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

The product which is equipped with a THREE WIRE GROUNDING TYPE LINE PLUG must be grounded.

IMPORTANT NOTES

In addition to the items listed under Safety Precautions inside the front cover, please read and observe the following:

Power Supply

- Before connecting this unit to other devices, turn off the power to all units; this will help prevent damage or malfunction.
- Do not use this unit on the same power circuit with any device that will generate line noise; an electric motor or variable lighting system for example.

Placement

- Using the unit near power amplifiers (or other equipment containing large power transformers) may induce hum.
- This device may interfere with radio and television reception. Do not use this device in the vicinity of such receivers.

Maintenance

- For everyday cleaning wipe the unit with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a mild, non-abrasive detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzene, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

Additional Precautions

- Protect the unit from strong impact.
- Never strike or apply strong pressure to the display.
- A small amount of heat will radiate from the unit during normal operation.
- Before using the unit in a foreign country, consult with qualified service personnel.


Memory Backup

- This unit contains a battery which powers the unit's memory circuits while the main (AC) power is off. The expected life of this battery is 5 years or more. However, to avoid the untimely loss of memory data, it is strongly recommended that you change the battery every 5 years. Please be aware that the actual life of the battery will depend upon the physical environment — especially the temperature — in which the unit is used. When it is time to change the battery, consult with qualified service personnel.
- When the battery becomes weak the following message will appear in the display. Please change the battery as soon as possible to avoid the loss of memory data.



btl

- Please be aware that the contents of memory may at times be lost; when the unit is sent for repairs or when by some chance a malfunction has occurred. Important data should be stored in another MIDI device (eg., a sequencer), or written down on paper (if possible). During repairs, due care is taken to avoid the loss of data. However, in certain cases (such as when circuitry related to memory itself is out of order), we regret that it may not be possible to restore the data.

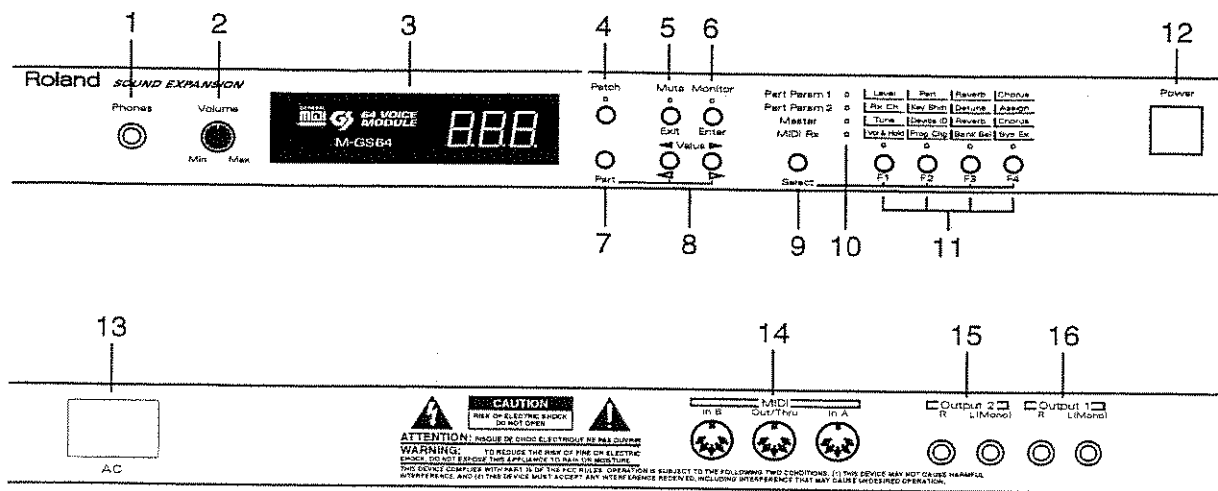
GENERAL MIDI System

The General MIDI system is a set of recommendations which seeks to provide a way to go beyond the limitations of proprietary designs, and standardize the MIDI capabilities of sound generating devices. Sound generating devices and music data that meets the General MIDI standard bears the General MIDI logo (). Music data bearing the General MIDI logo can be played back using any General MIDI sound generating unit to produce essentially the same musical performance.

GS format

The GS format is Roland's unified set of specifications for standardizing the MIDI capabilities of sound generating devices. Music data bearing the GS logo () can be played back using any GS sound generating unit. The M-GS64 supports both the General MIDI system and the GS format, and can be used to play back music data carrying either of these logos. The GS logo () is a trademark of Roland Corporation.

Panel Descriptions



1. Phones (headphones) Jack

This is for connecting headphones. Sound still comes out of the Output 1 L/R jacks even when headphones are plugged in.

2. Volume Knob

Use this knob to adjust the volume of the sound output to the Output 1 L/R jacks and the headphones jack.

* It is not possible to adjust the volume of the Output 2 L/R jacks.

3. Display

Shows the numbers assigned to Patches and the values of parameters. It also displays messages in the event of an error.

4. Patch Button

When this button is pressed, the indicator will light and the unit will be in Patch Select mode.

5. Mute Button

To stop a Part from sounding, press this button and the indicator for this button will light.

6. Monitor Button

Parts for which the indicator on this button is lit will sound — all other Parts will be silent.

7. Part Button

You can switch Parts by pressing the Value button while pressing this button.

Also, the currently selected Part will be displayed while this button is being pressed.

8. Value Buttons

These buttons are used to change various settings. You can reduce a value rapidly by holding down the ◀ Value button and pressing the ▶ button. In the same way, you can increase a value rapidly by holding down the ▶ Value button and pressing the ◀ button.

9. Select Button

10. Select Indicator

11. Function Buttons

Use these buttons to select the various parameters.

The Select indicators also function as the level meter of the M-GS64.

12. Power Switch

This is used to switch the power on and off.

13. AC Jack

Insert the power cord included with the unit into this jack, and plug the other end into an AC power outlet.

14. MIDI Connectors

MIDI In A, B:

Receives messages from external MIDI devices.

MIDI Out/Thru:

The Out/Thru Select setting will determine whether this connector functions as MIDI Out or as MIDI Thru. At the factory settings, it functions as MIDI Out. When MIDI Out is selected, this connector transmits M-GS64 settings to other devices. When MIDI Thru is selected, MIDI messages received at MIDI In A will be re-transmitted without change from this connector.

15. Output 1 L/R Jacks

These jacks output the stereo sound of each Part, including the effect sound. When listening in mono, connect the cable to the L jack.

In most situations, you will connect an amp to these jacks.

16. Output 2 L/R Jacks

These jacks output the direct sound without effects. (Output Assign p.10)

* At the factory settings, no sound will be sent from Output 2.

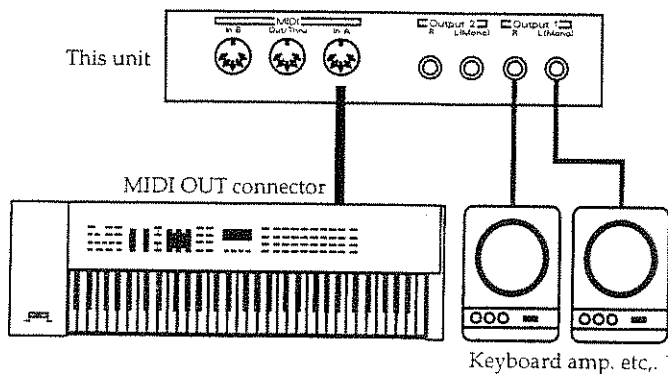
* It is not possible to adjust the volume of the OUTPUT 2 L/R jacks using the Volume Knob.

Quick Start

Connections and Power-Up

■ Making the Connections.....

First make sure that the power is switched off for this unit and for all other external devices. Then hook up the unit and the other equipment as shown below.



You can listen to the unit even if you have no keyboard amp or audio set. Just plug a set of headphones into the Phones jack.

■ Before Turning on the Power

Before you switch on the power, make sure that the unit's Volume knob is at "Min" and make sure that the volume knobs for the keyboard amp and any other external equipment are also at their lowest settings.

■ Turning on the Power

First switch on the power for the unit, and then turn on the keyboard amp or other connected equipment. After you've done that, adjust the unit's Volume knob and the volume controls on the other equipment to get the appropriate sound level.

When switching off the power, first turn off the keyboard amp or other equipment, and then switch off the unit.

* This unit is equipped with a protection circuit. A brief interval (a few seconds) after power up is required before the unit will operate normally.

About the M-GS64's Modes

The M-GS64 has two modes: Patch Select mode, which is what you will use normally for playing the unit; and Edit mode, which allows you to edit sounds or modify settings for the unit.

When you press the Patch button, the indicator will light to indicate that you are in Patch Select mode.

When you press either the Select button or a function button, you will enter Edit mode.

Try Out Sounds in the Patch Select Mode

The M-GS64 is able to produce 32 different sounds (timbres) at once. An electronic instrument such as the M-GS64 that can simultaneously play a multiple number of sounds is called a multitimbral sound generator. Being able to simultaneously play 32 sounds means that you can use 32 different instruments at once. In other words, you can create an orchestra-like ensemble of 32 musical parts. In the M-GS64, the sound selected for each Part is called a Patch. (Patch List, p.25) You can assign the sounds you want to each of the 32 Parts to create your own ensembles.

There are two types of Parts: Normal Parts and Drum Parts. The setting for "Part Mode" determines which type they will be. Normal Parts are used for playing melody or bass lines. Drum Parts are used for playing percussion instruments.

Here's how to select Patches and play various sounds.

* In order for sound to be produced, the MIDI receive channel specified for each Part must match the MIDI transmit channel of the MIDI keyboard that is connected. At the factory settings, the 32 Parts of the M-GS64 are set to the MIDI channel that corresponds to the Part number. (p.9)

In the following explanation, we will assume that the MIDI transmit channel of the MIDI keyboard is set to channel 1.

■ Entering Patch Select Mode

Press the Patch button, and the indicator will light to indicate that you are in Patch Select mode.

■ Selecting a Part.....

To move to a different Part, hold down the Part button and press ◀ or ▶.

The illustration below shows the display when Part A1 is selected. "A01" indicates Part A1, and "b01" indicates Part B1.

In this example, select Part A1.



At the factory settings, a Drum Part is selected for A10 and B10.

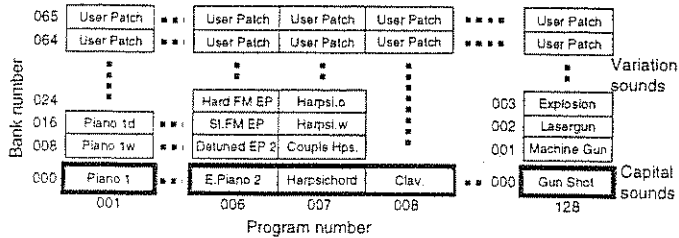


* If a Drum Part is selected, a "." will appear in the display.

■ Selecting a Patch or Drum Set

Each sound (Patch) of the M-GS64 has two numbers associated with it; the Program number and the Bank number. Sounds with a Bank number of 000 are called Capital sounds, and sounds with another Bank number are called Variation sounds.

In most displays, the Program number is shown. The display of the M-GS64 is able to show either the Program number or the Bank number — not both simultaneously.



● Selecting a Capital Sound

Press Value ◀ or ▶ to select the desired sound or drum set. The display will indicate the Program number.

● Selecting a Variation Sound

Simultaneously press both Value ◀ and ▶ to enter the mode for selecting Variation sounds. The display will show the Bank number and a "." (dot).

Press Value ◀ or ▶ to select the desired Variation sound.

To exit the Variation Select mode and return to the normal Program number display, simultaneously press both the Value ◀ and ▶ buttons.

* If the Part is a Drum Part, pressing the Variation button will not cause the Drum Set to change. This is because Drum Sets do not have variations.

* Some Bank numbers are discontinuous.

In modes where Patches are displayed, the following symbols will be displayed to tell you what type of sound is currently selected.



↑ Variation Sounds

■ Muting a Part

Parts for which the Mute button is pressed (the indicator lights) will remain silent.

■ Monitoring a Part

After pressing the Monitor button to light up the indicator, only one Part will be heard at a time, with all other Parts muted. During ensemble play with a sequencer, it can sometimes be hard to focus on listening to what individual Parts are playing. At such times, you can activate the Monitor button (turn on its indicator) and then switch through the Parts to listen to what is being played by each of them.

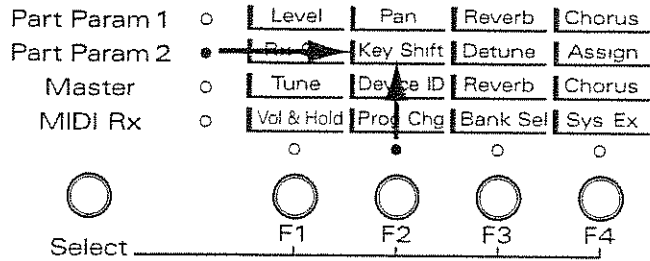
Changing Parameter Settings

■ Selecting a Parameter; Method 1

You can make changes to the various Parameters printed on the right-hand side of the unit's front panel.

Choose the Parameter using the Select button and the F1, F2, F3, or F4 button. The lit-up indicator shows you which Parameter has been selected.

In the example below, the Key Shift Parameter is selected.



View the value shown in the display while using the Value buttons to change the value.

■ Selecting a Parameter; Method 2

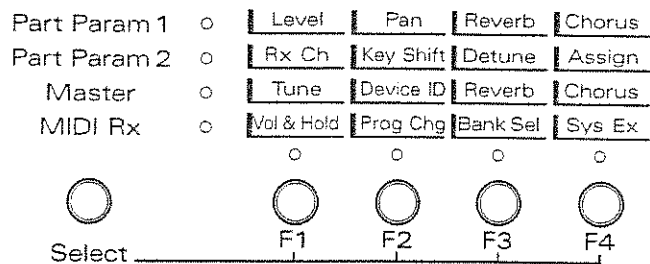
The M-GS64 has five parameter matrices, as shown in the diagram. You can select a parameter from a matrix and then modify its setting.

● Selecting a Parameter Matrix

While pressing the Select button, press a function button to select a parameter matrix.

The function button whose indicator is flashing shows which matrix is selected.

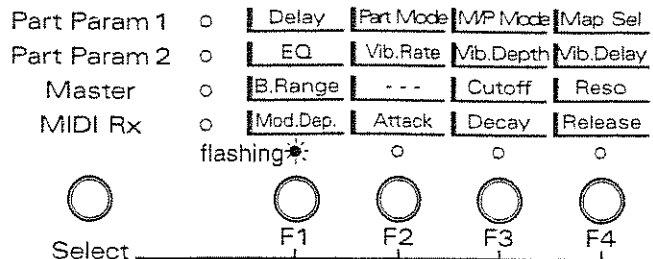
Matrix 0 (Basic Menu)



To select Matrix 1 (Part parameters)

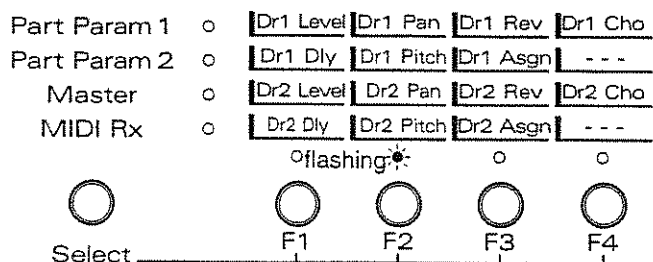
Hold down the Select button and press the F1 button.

The F1 indicator will blink.



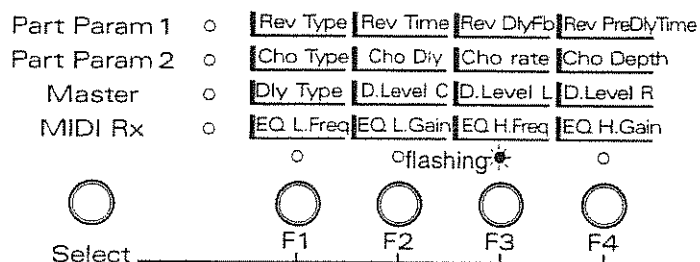
To select Matrix 2 (Drum setup parameters)

Hold down the Select button and press the F2 button.
The F2 indicator will blink.



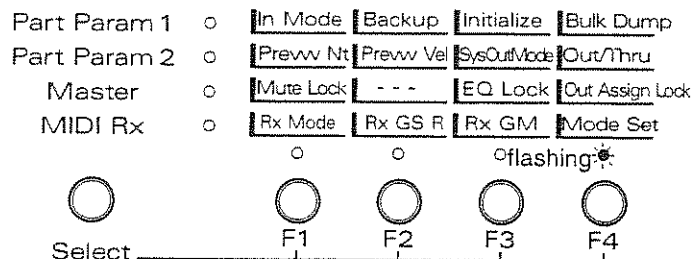
To select Matrix 3 (Effect parameters)

Hold down the Select button and press the F3 button.
The F3 indicator will blink.



To select Matrix 4 (Utility)

Hold down the Select button and press the F4 button.
The F4 indicator will blink.



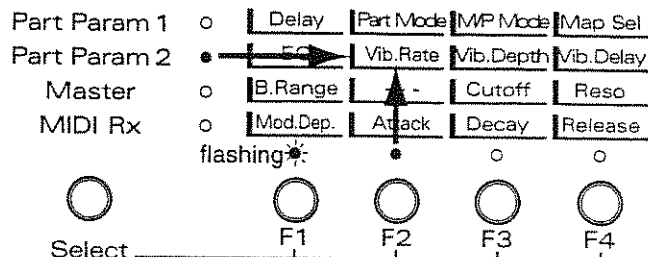
To select Matrix 0 (the basic menu), hold down the Select button and press the function button whose indicator is blinking.
If no indicator is blinking, Matrix 0 is already selected.

* To enter Edit mode, press either the Select button or a function button.

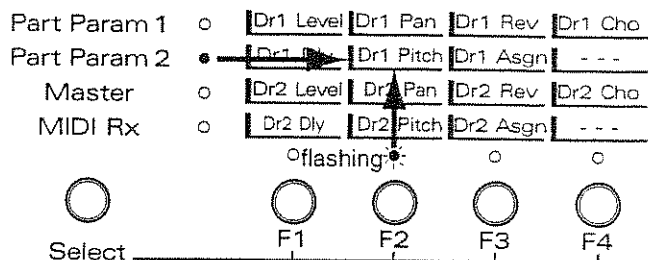
● Selecting a Parameter

After you have selected the desired parameter matrix, use the Select button and the F1/F2/F3/F4 buttons to select a parameter.
The indicator will light to show the parameter that is selected.

In this example, the Vib. Rate parameter is selected.



In this example, the Dr1 Pitch parameter is selected.



Watch the display, and use the Value buttons to modify the parameter value.

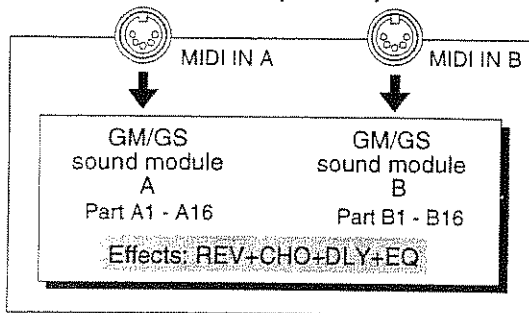
* To return to Patch Select mode, press the Patch button.

How the M-GS64 Is Organized

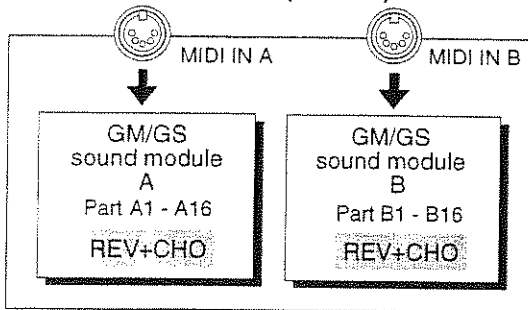
Single Module Mode and Double Module Mode

The M-GS64 has two modes of operation: Single Module Mode (Mode 1) and Double Module Mode (Mode 2). When Double Module Mode is selected, two types of effects can be used simultaneously. For example, you could use a reverb for Drum Parts that is different than that used for Normal Parts. Other parameters can also be set separately in two groups. Ordinarily, the M-GS64 is in Single Module Mode.

Single Module Mode (Mode 1)



Double Module Mode (Mode 2)



In both Single Module Mode and Double Module Mode, MIDI messages received at MIDI IN A are sent to Group A Parts, and MIDI messages received at MIDI IN B are sent to Group B Parts (p. 9). Be aware that the route by which data is passed between the two MIDI IN connectors and each Part is determined by the System parameter Input Mode. (p. 16) It is possible to specify the address for Exclusive messages so that an Exclusive message received at MIDI A will be passed to Group B Parts. (p. 22)

In Double Module Mode, two groups are provided for the following parameters.

- Master Tune (p. 10)
- Reverb Type (p. 15)
- Reverb Level (p. 11)
- Reverb Time (p. 15)
- Reverb Delay Feedback (p. 15)
- Chorus Type (p. 15)
- Chorus Level (p. 11)
- Chorus Delay (Chorus Delay Time) (p. 15)
- Chorus Rate (p. 15)
- Chorus Depth (p. 16)
- Mute Lock (p. 18)
- Rx GM On (General MIDI System On Receive Switch) (p. 19)
- Rx GS Reset (GS Reset Receive Switch) (p. 19)
- Device ID number (p. 10)

About the Sound Map

In addition to the basic sound map for normal use (Map 1), the M-GS64 also provides a sound map that is optimized for desktop music systems (Map 2).

The Map Select parameter (p. 12) lets you specify the sound map independently for each Part.

* At the factory settings, all Parts are set to use the basic sound map (Map 1).

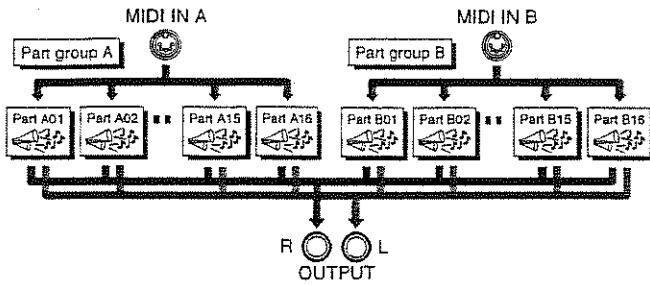
Voices and Maximum Polyphony

The sounds of the M-GS64 are produced by units called "Voices." There is a limit to how many of these voices can sound at once, and in the case of the M-GS64, up to 64 simultaneous voices can be used. Some sounds (Patches) use one voice and others use two voices (Patch List, p. 25). The main reason that some sounds use two voices is to allow different timbres to be sounded depending on changes in the velocity.

If more than 64 voices are used at once, later-sounded notes will be given priority, and notes sounded previously will be turned off starting from the oldest note. If you use only single-voice sound, you will be able to play 64 notes simultaneously, but if some of the sounds are two-voice ones, you will be able to play less than 64 simultaneous notes. Even if a MIDI Note Off message is received, voices will remain in use for as long as the sound is heard. Be aware of this especially in the case of sounds with a long release (p. 13).

* If song data created with 64-voice playback in mind is played back by a sound module with fewer voices, some notes will drop out, and the musical result will not be as it should.

Which MIDI IN Will Be Used by Each Part?



The M-GS64 has two MIDI IN connectors. This is because there are only 16 MIDI channels, so it is necessary to have two MIDI connectors in order to play 32 Parts.

Parts are classified into Group A (A01 - A16) and Group B (B01 - B16), with sixteen Parts in each group. The MIDI channel assigned to each Part is also displayed in two groups as A01 - A16 or B01 - B16. At the factory settings, groups A and B correspond to the M-GS64's two MIDI IN jacks A and B. In other words, MIDI messages received at MIDI IN A are sent to the group A Parts, and MIDI messages received at MIDI IN B are sent to the group B Parts. For example, a MIDI message on channel 5 received at MIDI IN B will sound Part B05 (when still set to the factory settings).

* Be aware that the way in which the data is sent from the two MIDI IN jacks to the various Parts will depend on the setting of the Matrix 4 parameter, "In Mode" (p. 16). Also, Exclusive messages received at MIDI IN A can be passed on to Parts of group B, depending on the specified address. (p. 22)

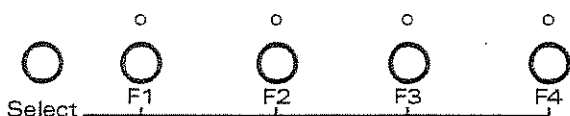
How The Parameters Work

This chapter explains each parameter that can be set on the M-GS64. Refer to the explanations as necessary.

Matrix 0 (Basic Menu)

■ Procedure

Level	Pan	Reverb	Chorus
Rx Ch	K Shift	Detune	Assign
Tune *	Dev ID *	Reverb *	Chorus *
Vol&Hold	Prog Chg	Bank sel	SysEx



To set a parameter for a Part, hold down the Part button and press ◀ or ▶ to select the Part for which you want to make settings.

* The "*" symbol indicates parameters which can be set independently for Part groups A and B. To move between A and B, hold down the Part button and press ◀ or ▶.

■ Basic Settings for Playing

● LEVEL (Part Level) : 0 - 127

Adjusts the volume of each Part. Higher settings result in a louder volume.

● PAN : Rnd, L63 - 0 - R63

Pan adjusts the stereo location of the sound when listening in stereo. For example, you might make settings so that drums and bass are heard from the center, guitar from the right, and keyboard from the left. To place a sound in the center, set this parameter to 0. Increasingly higher L values will move the sound toward the left, while higher R values move it toward the right. Selecting "rnd" (random) will produce a special effect in which the sound is placed randomly between left and right with each new note.

* Drum Sets allow you to set an independent pan position for each instrument. Modifying the Pan setting of a Drum Part will move the stereo location of the entire drum set.

* With some sounds, a slight amount of it may be heard from the opposite speaker even with a setting of full left (or right).

* If the audio connections are in mono, pan settings will have no effect.

● Reverb (Part Reverb Level) : 0-127

Adjusts the depth of the reverb effect for each Part.

● Chorus (Part Chorus Level) : 0-127

Adjusts the depth of the chorus effect for each Part. (Chorus is an effect that gives spaciousness to the sound.)

● Rx Ch (MIDI Receive Channel)

: A01 - A16, B01 - B16, Off

Sets the MIDI receive channel for each Part.

● Key Shift

: -24 - 0 - +24 (Semitone 2 Steps, 2 Octaves)

This transposes the Part. Increasing (decreasing) the value by 1 will raise (lower) the pitch by one semitone. A change of 12 corresponds to a pitch change of one octave. With a setting of 0, the Part will not be transposed.

● Detune : -100.0 - +100.0 Cents

Use this parameter when you wish to make fine adjustments to the pitch of each Part. Positive (+) settings will raise the pitch, and negative (-) settings will lower the pitch. By setting two or more Parts to use the same MIDI channel and sound, and setting them to slightly different Detune values, the Parts will play in unison, creating a richer sound.

* If you wish to adjust the pitch of all Parts, use the Tune parameter.

* If you wish to transpose all Parts, use the Key Shift parameter.

● Assign (Output Assign)

: OUT 1/OUT 2/OUT 2L/OUT 2R

Specify the output from which the sound of each Part will be sent.

OUT 1 (1) The sound (with effects) will be output in stereo from the Output 1 jacks.

OUT 2 (2) The direct sound (without effects) will be sent in stereo from the Output 2 jacks.

OUT 2L (2L) The direct sound (without effects) will be sent from the Output 2L jack. (Pan settings will be ignored.)

OUT 2R (2r) The direct sound (without effects) will be sent from the Output 2R jack. (Pan settings will be ignored.)

* The headphone jack outputs the sound of Output 1. This means that Parts which have been assigned to Output 2 will not be heard through the headphones.

* These settings are effective only when the System Output Mode parameter (p. 18) is set to "Selected." If this parameter is set to "Fixed," these settings will be ignored.

* At the factory settings, all Parts are assigned to OUT 1.

● Tune (Master Tune) : 415.3-466.2 Hz

This adjusts the pitch (middle A = A4) of the entire M-GS64. The display will show a value of 15.3—66.2, which corresponds to 415.3 Hz — 466.2 Hz.

● Device ID : 1-32

The Device ID number is an ID number used when transmitting and receiving Exclusive messages. The M-GS64 will receive Exclusive messages which have a Device ID number that matches its own Device ID setting. This means that when transmitting

data as Exclusive messages, you must make sure that both devices are set to the same Device ID number. The Device ID number can be set in the range of 1—32. The factory setting is 17.

* When playing Roland SMF music data, be sure to set the Device ID number to 17. If this is not done, playback will not be correct.

* It is not possible to set the Device ID number independently for each Part.

● **Reverb (Master Reverb Level) : 0 - 127**

This sets the depth of the reverb effect for the entire M-GS64.

● **Chorus (Master Chorus Level) : 0 - 127**

This sets the depth of the chorus effect for the entire M-GS64.

● **Vol&Hold (Volume Message and Hold Message Receive Switch) : Off, Vol, Hold, On**

This sets the reception status for volume messages and hold messages independently for each Part.

Off (oFF) Neither Volume messages nor Hold messages will be received.

Vol (voL) Volume messages will be received, but Hold messages will not be received.

Hold (hLd) Hold messages will be received, but Volume messages will not be received.

On (on) Both Volume messages and Hold messages will be received.

● **Prog Chg (Program Change Message Receive Switch)**

: On/Off

This parameter sets the reception status for Program Change messages independently for each Part. When this is turned "on," Program Change messages will be received. When this is turned "oFF," they will not be received.

● **Bank Sel (Bank Select Message Receive Switch) : On/Off**

Other MIDI devices can transmit MIDI Bank Select messages and Program Change messages to the M-GS64 to select sounds. If the Bank Sel parameter is "on," such MIDI messages will select Variation sounds and User sounds on the M-GS64. If this parameter is "oFF," Variation sounds and User sounds cannot be selected via MIDI messages. (However, Capital sounds can still be selected.)

For details on using messages to select sounds, refer to p. 21.

● **Sys Ex (System Exclusive Message Receive Switch) : On/Off**

This parameter sets the reception status for System Exclusive messages. When this parameter is turned "on," System Exclusive messages will be received. When turned "oFF" they will not be received.

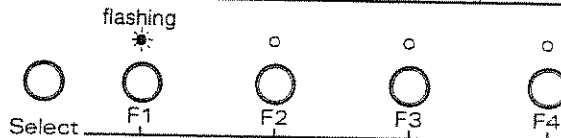
Bulk Dump messages are one kind of System Exclusive message.

Matrix 1 (Part Parameters)

■ **Procedure**.....

Hold down the Select button and press the F1 button. The F1 indicator will blink.

Delay	Part Mode	M/P Mode	Map Sel
EQ	Vib.Rate	Vib.Depth	Vib.Delay
Bend Range	---	Cutoff	Reso
Mod.Depth	Attack	Decay	Release



To select the Part you wish to set, hold the Part button and press ◀ or ▶.

■ **Settings Affecting the Sound**.....

● **Delay (Part Delay Level) : 0 - 127**

This sets the depth of the delay effect for each Part (an echo effect).

● **Part Mode : Norm/Drum 1/Drum 2**

For Parts which will play normal instrumental sounds, select Norm (Normal Part). For Parts which are to play drums or percussion, select Drum 1 or Drum 2. Drum Parts produce different sounds (instruments) for each MIDI note number, allowing a single Part to play many different sounds (Drum Set List, p. 31)

The Drum 1 and Drum 2 modes can each be set to up to two Parts. This allows you to simultaneously use pairs of identical drum sets. For example, if you have the Drum Parts set as shown below, changing the Part A10 drum set, STANDARD1, to TR-808/909 Set will cause Part A12 also to change to TR-808/909 Set since they both are set to the Drum 1 mode.

Part Name	(Part Mode)	Drum Set Name
Part A10	(Drum 1)	STANDARD1
Part A11	(Drum 2)	JAZZ
Part A12	(Drum 1)	STANDARD1

● **M/P Mode (Mono/Poly Mode) : Mono/Poly**

If Mono (mono mode) is selected, that Part will play only one note at a time. Mono mode is effective when used for Parts that will be playing monophonic instruments such as trumpet or sax. For Parts that need to play chords, select Poly (poly mode).

* Changing the M/P Mode for a Drum Part will not affect the way it sounds.

● Map Sel (Map Select) : Map 1/Map 2

This parameter selects the sound map for each Part.

- Map 1 The basic sound map (Map 1) will be used.
- Map 2 The desktop music sound map (Map 2) will be used.

* If Map 2 is selected, the following display will appear.



● EQ (Part EQ) : On/Off

When this parameter is turned "on," equalization will be applied to the sound of the Part. When turned "off" the equalizer will be off.

- * The Equalizer can be set on/off independently for each Part.
- * For details on equalizer settings, refer to p. 16.
- * At the factory settings, the equalizer gain is 0, so there will be no equalization even if [EQ] is [on].

● Vib. Rate (Vibrato Rate) : -64 - +63

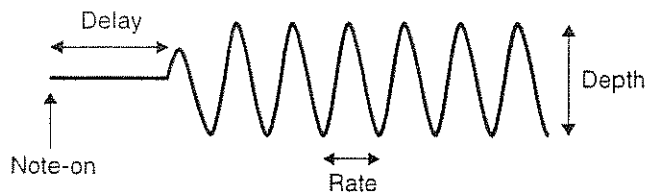
Adjusts the speed (frequency) at which the pitch is modulated. Increasingly positive (+) settings will cause faster vibrato, and increasingly negative (-) settings will cause slower vibrato.

● Vib. Depth (Vibrato Depth) : -64 - +63

Adjusts the depth at which the pitch is modulated. Increasingly positive (+) settings will cause more vibrato, and increasingly negative (-) settings will cause less vibrato.

● Vib. Delay (Vibrato Delay) : -64 - +63

Adjusts the time until the vibrato begins. Increasingly positive (+) settings will result in a longer time before vibrato begins, and increasingly negative settings will result in a shorter time.



● Bend. Range : 0 - 24

When you move the pitch bend lever or pitch wheel on a MIDI keyboard, Pitch Bend messages are transmitted, causing the pitch of the sound to change. This Bend Range parameter determines the maximum amount of pitch change that will take place in response to Pitch Bend messages. A setting of 12 allows a maximum pitch change of one octave, and a setting of 24 allows a maximum pitch change of two octaves. With a setting of 0, the pitch will not change.

● Cutoff (Cutoff Frequency) : -64 - +63

Positive (+) settings of the Cutoff parameter will raise the cutoff frequency. Negative (-) settings will lower the cutoff frequency. Increasingly positive settings will pass more of the overtones, resulting in a brighter (sharper) sound. Increasingly negative settings will cut more overtones, resulting in a darker (softer) sound.

* For some sounds, positive settings for Cutoff will not produce an audible difference.

● Reso (Resonance) : -64 - +63

As the Resonance value is increased, the overtones in the region of the cutoff frequency will be emphasized, adding a unique character to the sound.

* For some sounds, negative settings of Resonance will not cause an audible difference.

● Mod. Depth. (Modulation Depth) : 0 - 127

When you move the modulation lever or modulation wheel on a MIDI keyboard, Modulation messages are transmitted, causing vibrato to be applied to the sound (with the factory settings). Vibrato is an effect that modulates the pitch to add expressiveness to the sound. The Modulation Depth parameter sets the degree of the effect of receiving Modulation messages. Higher values will allow Modulation messages to apply deeper modulation. With a setting of 0, Modulation messages will not control the modulation depth.

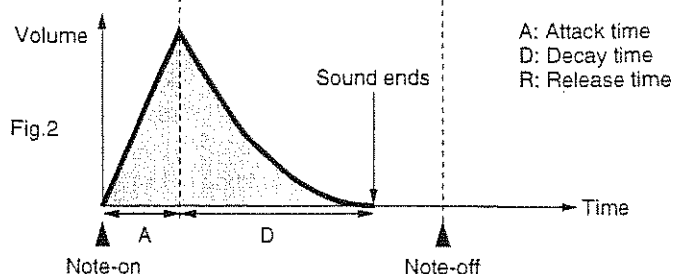
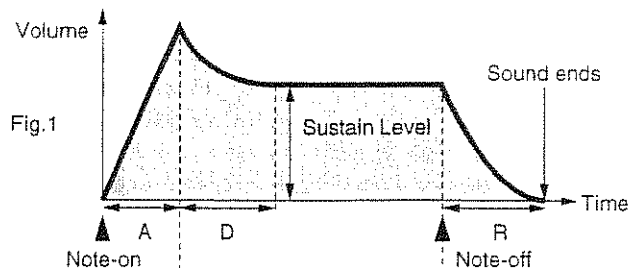
● Attack (Attack Time) : -64 - +63

Adjusts the sharpness of the sound's attack.

● Decay (Decay Time) : -64 - +63

Adjusts the time over which the sound decays down from the attack until it reaches the sustain level (figure 1).

* For some sounds, the sustain level is 0 (figure 2). Piano or guitar sounds are examples of such sounds.



● **Release (Release Time) : -64 - +63**

Adjusts the time from when you release the key (note-off) until the sound disappears. The cutoff frequency will also fall at the same rate.

* For some sounds, modifying the various time values of the envelope will cause no audible change.

■ **Creating and Saving a Sound.....**

The M-GS64 allows you to modify the values of sound parameters as you desire, and then store the result. Sounds you modify and store in this way are called User sounds. 256 User sounds can be stored, and banks 64 and 65 of Map 1 are provided for this purpose.

For each sound, you can adjust the following parameters;

- Vib. Rate Vib. Depth Vib. Delay
- Cutoff Reso
- Attack Decay Release

* Be aware that if you select a different drum set, the parameter values will be initialized. So, you should always save the parameter values first.

● **Saving a Sound**

Simultaneously press the F3 button and F4 button.

Press ◀ or ▶ to select the storage-destination Bank (64/65)

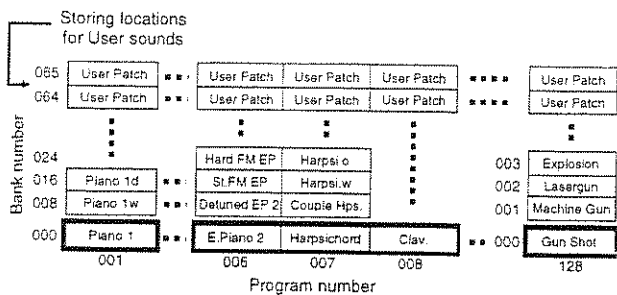
To finalize the bank number, press the Enter button.

To cancel the operation, press the Exit button.

Press ◀ or ▶ to select the storage-destination Program (1-128).

To store the sound, press the Enter button.

To cancel the operation, press the Exit button.

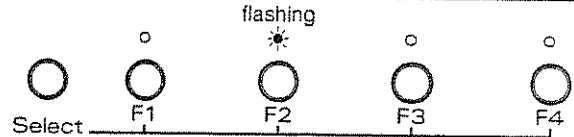


Matrix 2 (Drum Setup Parameters)

■ **Procedure.....**

While holding down the Select button, press the F2 button. The F2 indicator will blink.

Dr1 Level	Dr1 Pan	Dr1 Reverb	Dr1 Chorus
Dr1 Delay	Dr1 Pitch Coarse	Dr1 A.Group	---
Dr2 Level	Dr2 Pan	Dr2 Reverb	Dr2 Chorus
Dr2 Delay	Dr2 Pitch Coarse	Dr2 A.Group	---



The parameters of Matrix 2 are set independently for each drum instrument, so select the name of the instrument that you wish to edit. (Drum Set List p. 31)

To select a note name, hold down the Part button in Edit mode, and press ◀ or ▶.

By pressing just the Part button, you can check the currently selected note name.

* Note names can be selected in the range from C#1 to C8.

* The display will show a "." to indicate sharps (#).



■ **Drum Set Settings**

● **Dr1 Level (Drum 1 Level) : 0 - 127**

Sets the volume for each instrument of Drum 1.

● **Dr1 Pan (Drum 1 Pan) : Rnd, L63 - 0 - R63**

Sets the pan position for each instrument of Drum 1.

● **Dr1 Reverb (Drum 1 Reverb Level) : 0 - 127**

Sets the reverb send level for each instrument of Drum 1.

● **Dr1 Chorus (Drum 1 Chorus Level) : 0 - 127**

Sets the chorus send level for each instrument of Drum 1.

● **Dr1 Delay (Drum 1 Delay Level) : 0 - 127**

Sets the delay send level for each instrument of Drum 1.

● **Dr1 Pitch Coarse (Drum 1 Pitch Coarse) : 0 - 127**

Sets the pitch coarse setting for each instrument of Drum 1. (The pitch can be altered in steps of one semitone.)

● **Dr1 A Group (Drum 1 Assign Group) : Non, 1 - 127**

This parameter allows you to give a number to each instrument, so that instruments with identical numbers will be handled as part of an assign group. Instruments with the same assign group

number will not sound simultaneously. If the M-GS64 receives MIDI messages that would cause two or more instruments to be playing simultaneously, the first-played instrument will be turned off before the next-played instrument is sounded. For example, it is not possible on a real-world drum set for both open hi-hat and closed hi-hat sounds to occur simultaneously. Such sounds can be set to the assign group of the same number. The assign group can be set to Non or 1—127. When an instrument's assign group is set to "Non," that instrument will not be turned off as a result of another instrument playing. In other words, with a setting of "Non," assign group processing will not be done for that instrument.

* Be aware that if you select a different drum set, the parameter values will be initialized.

The Drum 2 setting parameters are given below. The setting method is identical to the Drum 1 parameters.

* If Part Mode is not set to Drum 2, the display will indicate "—".

- **Dr2 Level (Drum 2 Level) : 0 - 127**
- **Dr2 Pan (Drum 2 Pan) : Rnd, L63 - 0 - R63**
- **Dr2 Reverb (Drum 2 Reverb Level) : 0 - 127**
- **Dr2 Chorus (Drum 2 Chorus Level) : 0 - 127**
- **Dr2 Delay (Drum 2 Delay Level) : 0 - 127**
- **Dr2 Pitch Coarse (Drum 2 Pitch Coarse) : 0 - 127**
- **Dr2 A Group (Drum 2 Assign Group) : Non, 1 - 127**

■ **Saving a Drum Set That You Create.....**

You can modify the parameter values of drum sounds, and save your new settings as a Drum Set. Drum Sets created in this way are called User Drum Sets. Two such drum sets can be stored, but since each set contains 84 (*) instrumental sounds, this provides a total of 168 instrumental sounds (drum instruments). User drum sets can be stored in Map 1 drum set numbers 65 and 66.

(*) Each instrument in a drum set is assigned to a key (note) in the range of note numbers 25 to 108. (Drum set list p. 31)

● **Saving a Drum Instrument (Procedure 1)**

You can save an edited drum instrument for an individual note. To save a drum instrument, simultaneously press the F3 and F4 buttons.

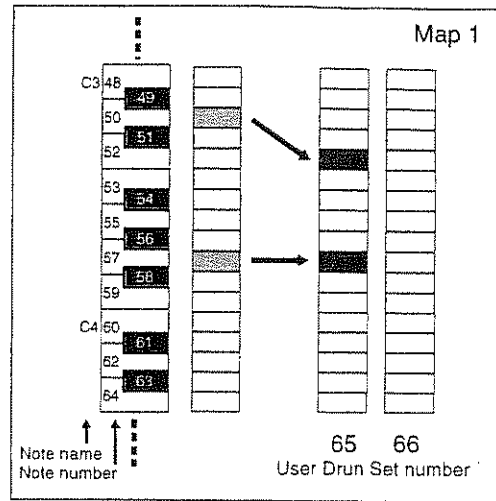
Press ◀ or ▶ to select the User Drum Set number (65/66).

To finalize the User Drum Set number, press the Enter button
To cancel, press the Exit button.

Press ◀ or ▶ to select the note name (C#1 - C8) of the storage destination.

To save the settings, press the Enter button.
To cancel the save operation, press the Exit button.

Procedure 1



● **Saving a Drum Instrument (Procedure 2)**

This procedure saves the edited drum instruments for the entire Drum Set that is currently selected.

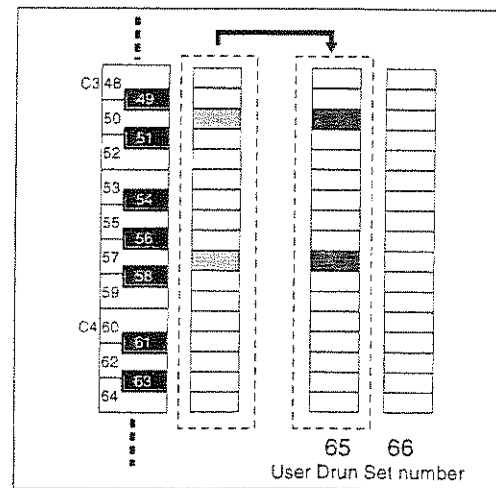
To save the entire Drum Set, simultaneously press the F1 and F2 buttons.

Press ◀ or ▶ to select the User Drum Set number (65/66) that is to become the storage destination.

To save, press the Enter button.

To cancel the save operation, press the Exit button.

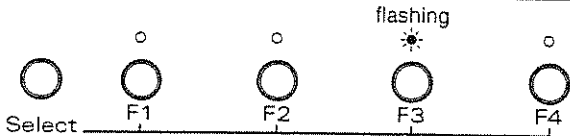
Procedure 2



Matrix 3 (Effect Parameters)

Procedure.....
 While holding the Select button, press the F3 button.
 The F3 indicator will blink.

Rev Type *	Rev Time *	Rev Dly Fback *	Rev PreDly Time
Cho Type *	Cho Delay *	Cho Rate *	Cho Depth *
Dly Type	Dly Level C	Dly Level L	Dly Level R
EQ Low Freq	EQ Low Gain	EQ High Freq	EQ High Gain



* The asterisk (*) indicates parameters which can be set independently for Part Groups A and B when Mode 2 is used. Hold down the Part button, and press ◀ or ▶ to move between A and B.

Effects Settings.....
 Here you can make overall effect settings for the entire M-GS64.

● Rev Type (Reverb Type)

Offers 8 selections for reverb.

Room 1 (r01), Room 2 (r02), Room 3 (r03)

These reverbs simulate the reverberation obtained in various rooms. They provide well-defined and spacious reverberation.

Hall 1 (hR1), Hall 2 (hR2)

These are reverbs which simulate the reverberation of a hall. They provide reverberation with a greater feeling of depth than the "Room" reverbs.

Plate (PLE)

This simulates a plate reverb unit (a mechanical reverb device that utilizes the vibration of a metal plate).

Delay (dLY)

This is a conventional delay, creating an echo effect.

Panning Delay (PdY)

This is a special delay in which the delay repeats alternate between left and right. It is effective when stereo connections are used.

When you change the reverb type, the values of the following parameters will change automatically. This is so the parameter values will be most suitable for the selected effect type. You are free to select parameters and modify their values to adjust the effect to your taste.

● Rev Time (Reverb Time) : 0 - 127

This sets the time over which reverberation continues. Higher values result in longer reverberation.

● Rev DlyFback (Reverb Delay Feedback)

: 0 - 127

This parameter is available only when the Reverb Type is set to Delay or Panning Delay. It determines the amount of delay repeats that will be heard. Higher values result in more repeats of the delayed portions.

● Rev PreDlyTime (Reverb Pre-Delay Time)

: 0 - 127 ms

This sets the amount of delay to occur before the reverberant sound begins to be heard. Higher settings will result in a longer pre-delay time, creating the impression of greater spaciousness.

* Reverb Pre-Delay Time is not available when Double Module mode (p. 8) is used.

● Cho Type (Chorus Type)

You can select from 8 types of chorus.

Chorus 1 (ch1), Chorus 2 (ch2)

Chorus 3 (ch3), Chorus 4 (ch4)

These are conventional chorus effects. They give spaciousness and depth to the sound.

Feedback Chorus (Fbc)

This is a chorus that produces an effect similar to a flanger. It softens the sound.

Flanger (FGr)

This creates an effect reminiscent of a jet airplane taking off and landing.

Short Delay (SdY)

This is a delay with a short delay time.

Short Delay (FB) (SdF)

This is a short delay with many repeats.

When you change the chorus type, the values of the following parameters will change automatically. This is so the parameter values will be optimized for the selected effect type. You are free to select parameters and modify their values to adjust the effect to your taste.

● Cho Delay (Chorus Delay Time) : 0 - 127

This sets the delay time of the chorus effect. With higher settings, the pitch of the chorus sound will become more skewed.

● Cho Rate (Chorus Rate) : 0 - 127

This sets the speed (frequency) of modulation for the chorus. Higher values will result in faster modulation.

● **Cho Depth (Chorus Depth) : 0 - 127**

This sets the depth of modulation for the chorus. Higher values will result in deeper modulation.

● **Dly Type (Delay Type)**

You can select from 10 types of delay.

Delay 1 (d 1), Delay 2 (d 2), Delay 3 (d 3)

These are conventional delays. 1, 2, and 3 have increasingly longer delay times.

Delay 4 (d 4)

This is a delay with a fairly short delay time.

Pan Delay 1 (Pd 1), Pan Delay 2 (Pd 2), Pan Delay 3 (Pd 3)

This is an effect in which the delay sound alternates between left and right, and is effective when stereo connections are used. 1, 2, and 3 have increasingly longer delay times.

Pan Delay 4 (Pd 4)

This is an effect with a fairly short delay time, in which the delay sound alternates between left and right, and is effective when stereo connections are used.

Dly ToRev (dTr)

With this effect, a reverberated delay alternates between left and right. It is effective when stereo connections are used.

PanRepeat (PrP)

In this effect the delayed portions alternate between left and right, but are positioned in a way that is different than the above effects. It is effective when stereo connections are used.

When you change the Delay Type, the values of the following parameters will change automatically. This is so the parameter values will be most suitable for the selected effect type. You are free to select parameters and modify their values to adjust the effect to your taste.

● **Dly Level C (Delay Level Center) : 0 - 127**

This sets the volume of the delay sound located in the center. Higher values will result in a louder delay sound in the center.

● **Dly Level L (Delay Level Left) : 0 - 127**

This sets the volume of the delay sound located at the left. Higher values will result in a louder delay sound at the left.

● **Dly Level R (Delay Level Right) : 0 - 127**

This sets the volume of the delay sound located at the right. Higher values will result in a louder delay sound at the right.

* Delay cannot be used when Double Module Mode (p. 8) is selected.

● **EQ Low Freq (Equalizer Low Frequency)**

: 200, 400 Hz

● **EQ High Freq (Equalizer High Frequency)**

: 3, 6 kHz

These parameters set the cutoff frequencies at which the equalizer will boost or cut signals. You can set the cutoff frequency for the high range (High) and for the low range (Low).

● **EQ Low Gain (Equalizer Low Gain)**

: -12 - 0 - +12 dB

● **EQ High Gain (Equalizer High Gain)**

: -12 - 0 - +12 dB

These parameters set the amount of boost or attenuation (alter the gain) for the high range and low range. Positive (+) settings boost the frequency range, and negative (-) settings attenuate it.

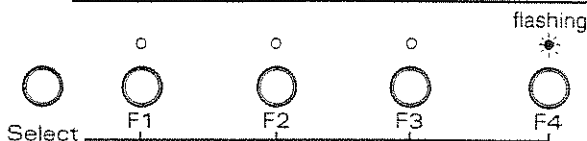
- * If the gain is set to 0, the equalizer will have no effect.
- * The equalizer cannot be used when Double Module Mode (p. 8) is selected.

Matrix 4 (Utility)

■ Procedure

While holding the Select button, press the F4 button. The F4 indicator will blink.

In Mode	Backup	Initialize *	Bulk Dump
Prevw Note	Prevw Velo	SysOutMode	Cut/Thru
Mute Lock *	- - -	EQ Lock	Out Asgn Lock
Rx Mode	Rx GS Reset *	Rx GM On *	Mode Set



* The asterisk (*) indicates parameters which can be set independently for Part Groups A and B when Mode 2 is used. Hold down the Part button, and press ◀ or ▶ to move between A and B.

■ Settings Affecting the Entire M-GS64

Here are the parameters which affect the entire M-GS64. These parameters are known as System parameters.

● **In Mode (Input Mode)**

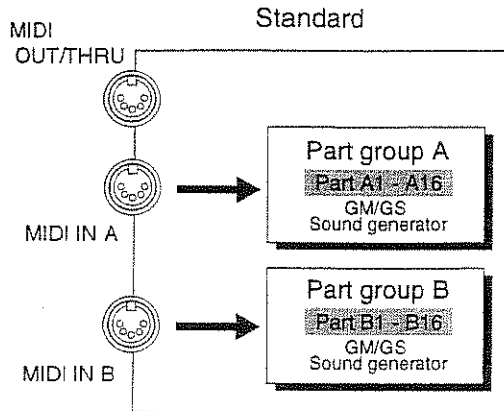
: Standard, Merge → A, Merge → B

This setting determines how data received at MIDI IN A and B will be passed to groups A and B.

At the factory settings, MIDI messages received at MIDI IN A will be passed to the Parts of Group A, and MIDI messages received at MIDI IN B will be passed to the Parts of Group B. For general use, there is no need to change this setting (Standard), but you also have the options described below.

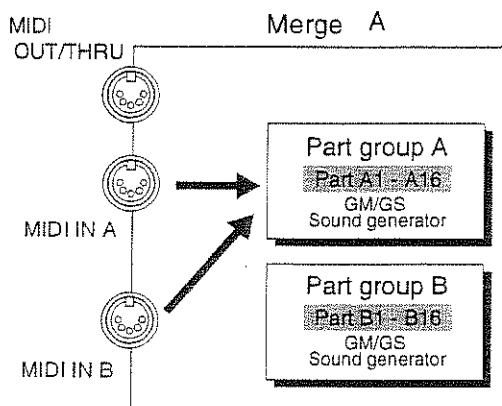
Standard (Std)

MIDI messages received at MIDI IN A will be passed to the Parts of Group A, and MIDI messages received at MIDI IN B will be passed to the Parts of Group B. This (Standard) is the factory setting.



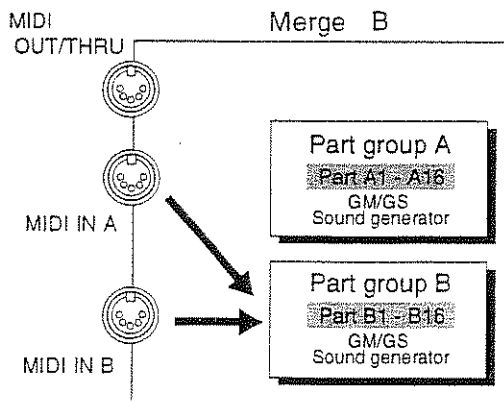
Merge → A (A)

MIDI messages received at MIDI IN A and MIDI IN B will be passed to the Parts of Group A. Since MIDI messages will not be passed to the Parts of Group B, they will not sound. You might select this setting when you wish to use both a MIDI keyboard and a MIDI sequencer to play the Parts of Group A.



Merge → B (b)

This setting is the same as Merge → A except that it uses B Parts instead of A Parts. MIDI messages received at MIDI IN A and MIDI IN B will be passed to the Parts of Group B. Since MIDI messages will not be passed to the Parts of Group A, they will not sound.



* When you change this setting, the display will blink. In order to make the new setting valid, you must turn the power on once again.

● Backup (Backup Switch) : On/Off

Even when the power is turned off, the M-GS64 remembers the settings that were made when it was on. If this Backup parameter is set "Off," the settings will not be remembered.

* The settings of the System Parameter will be remembered even if the backup switch is off.

● Initialize : All, GS, GM, CM (Mode 1)

: All, GSA, GSB, GMA, GMB, CMA, CMB (Mode 2)

All: All settings of the M-GS64 will be initialized to the factory settings. Be aware that when this initialization is performed, both System parameters and User Sounds (p. 13) will be initialized to the factory settings.

GS, GM: When this initialization is performed, the M-GS64 will be set to the GM/GS basic settings.

Song data bearing the GM/GS logo includes initialization data (General MIDI System On, GS Reset; p. 19) at the beginning of the song data. This means that if you are playing the song data from the beginning, initialization will be done automatically, so there is no need to perform the initialization from the M-GS64's front panel.

CM: The M-GS64 can be set to the same arrangement of sounds as the Roland CM-64 (multitimbral sound module). Perform this initialization when you wish to play back song data that was created for the CM-64.

* When you select this parameter, the Monitor indicator will blink. To execute the selected type of initialization, press the Enter button.

● Bulk Dump

The M-GS64 is able to transmit its settings as MIDI data. This allows you to use a sequencer or personal computer to save M-GS64 data. Another way to use this capability is to set all the parameters of two M-GS64 units to the identical settings. Data is transmitted as System Exclusive data. This procedure is known as Bulk Dump.

- All (All) Transmit all M-GS64 parameter settings (including User sounds).
- All-U (A-U) Transmit all parameter settings except for User sounds (User Patches, User Drum Sets).
- User Patch (UP) Transmit User Patch settings.
- User Drum (Ud) Transmit User Drum Set settings.
- GS A (G-A) Transmit the GS parameter settings of Part group A.
- GS B (G-b) Transmit the GS parameter settings of Part group B.

- * When you select this parameter, the Monitor indicator will blink. To execute the selected type of bulk dump, press the Enter button.
- * Since a large volume of data is transmitted, you should first check the memory capacity of the receiving MIDI device before you execute the bulk dump. If there is insufficient memory to receive the data, transmission will be interrupted. If all data is transmitted, the M-GS64 transmits a bulk dump of approximately 26 Kbytes.
- * Be aware that if MIDI OUT/THRU Select is set to THRU, the data will not be transmitted.

● **Prevw Note (Preview Note Name) : C-1 - G9**

This sets the note that will be sounded by the Preview function (p. 20). The 'A' note in the center of the keyboard is A4.

- * If the Key Shift parameter has been set, the pitch will be shifted.

● **Prevw Velo (Preview Velocity) : 0 - 127**

This sets the velocity value of the note that will be sounded by the Preview function. Normally, higher velocity values will result in a louder volume.

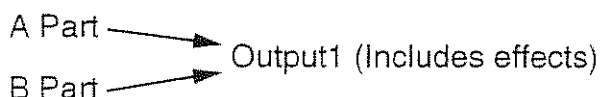
● **SysOutMode (System Output Mode) : Selected/Fixed**

This determines whether the Output Assign setting (p. 10) will be valid or not.

- Selected The sound of each Part will be output as specified by the Output Assign settings.
- Fixed The output of each Part will be fixed as follows, regardless of the Output Assign settings.

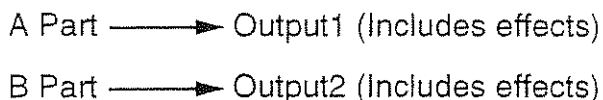
For Mode 1:

Both Parts A and B will be output in stereo with the effect sound from the Output 1 jacks.



For Mode 2:

The Parts of group A will be output in stereo with the effect sound from the Output 1 jacks, and the Parts of group B similarly from the Output 2 jacks.



In this case only, the Output 2 jacks will output sound that includes the effect sound.

- * The headphone jack will output the sound that is sent to Output 1. This means that the sound of the Parts assigned to Output 2 will not be heard in the headphones.
- * At the factory settings, this parameter is set to "Selected."

● **OUT/THRU (MIDI OUT/THRU Select) : OUT/THRU**

The "MIDI OUT/THRU" connector located on the back panel of the M-GS64 functions either as a MIDI OUT or a MIDI THRU. When the OUT/THRU Select parameter is set to OUT the connector functions as MIDI OUT, and when set to THRU it functions as MIDI THRU.

THRU: Data received at MIDI IN A is retransmitted from MIDI OUT/THRU without change. Data received at MIDI IN B will not be thru-ed even if THRU is selected. Also, regardless of the In Mode setting, MIDI IN B data will not be thru-ed.

OUT: Exclusive data can be transmitted from the MIDI OUT/THRU connector.

- * When you change this setting, the display will blink. In order to make the new setting valid, you must turn the power on once again.

● **Mute Lock : On/Off**

When you re-play song data that has already been played back, Mute settings (p. 6) that you made may sometimes be canceled. This happens because the beginning of the song contains data that resets the M-GS64 (General MIDI System On, GS Reset). If you turn Mute Lock on, the Mute settings will not be lost even if GS Reset or General MIDI System On messages are received, so you will not need to reset the Mute settings.

● **EQ Lock (Equalizer Lock) : On/Off**

When a GS Reset or General MIDI System On message is received, the equalizer settings will normally be reset to the factory settings. However if the EQ Lock is on, the equalizer settings will be preserved.

● **Out Asgn Lock (Output Assign Lock) : On/Off**

The Output Assign and System Output Mode settings will normally be reset to the factory settings when a GS Reset or GM System On messages are received. However if Out Assign Lock is on, these settings will not change.

● **Rx Mode (Rx Sys Mode: System Mode Receive Switch) : On/Off**

The selection of either Single Module Mode or Double Module Mode (p. 8) is referred to as the System Mode. The Rx Sys Mode parameter is the receive switch for MIDI messages (System Mode Set, p. 42) that switch the System Mode. If Rx Sys Mode is turned off, the mode will not change when a System Mode Set message is received. If it is turned on, the mode will change.

- **Rx GS Reset (GS Reset Receive Switch) : On/Off**
- **Rx GM On (General MIDI System On Receive Switch)
:On/Off**

General MIDI System On and GS Reset are MIDI Exclusive messages that are included at the beginning of song data bearing the General MIDI or GS logo. When the song data is played back from the beginning, these messages cause the sound generating unit to reset itself to its standard settings, ensuring that the song data will be played back correctly. This means that when playing back song data bearing the General MIDI or GS logo, you should leave this parameter On. If it is turned Off, General MIDI System On and GS Reset messages will be ignored.

● **Mode Set : Mode1/Mode 2**

Mode 1 (Md1) Single Module Mode will be selected.
Mode 2 (Md2) Double Module Mode will be selected.

- * When this parameter is selected, the Monitor indicator will blink. To finalize the selected setting, press the Enter button.
- * The selection for Single or Double module mode is remembered even when the power is turned off. Turning the power off and then on again will not affect the operating mode.
- * Be aware that when you change the operating mode, the settings of each Part will be initialized (GS Reset).

Handy Functions

Level Meter Function

When the indicator for a Patch button is lit, the Select indicator works like a level meter for the unit. It normally indicates the total level for all Patches together, but when you're monitoring a Part it indicates only the level for that Part.

Selecting a Patch in Edit Mode

Even while in Edit mode, you can select Patches by holding down the Select button and pressing the Value ◀ or ▶ buttons.

Parameter Reverse Mode

This function reverses the direction in which the Select button selects parameters.

Normally, pressing the Select button moves you through the parameters from top to bottom, but when this function is turned on, the movement will be from bottom to top.

While holding down the Part button, press the Select button to alternate between on and off.

The Preview Function

If you hold down the Patch button and press the Monitor button, the currently selected sound will be played. You can specify the pitch and volume of the sound (p. 18). This is a convenient way to check sounds or tuning when no keyboard is connected.

Move Part Function

This function lets you jump to Parts A01, A16, B01, or B16.

Hold down the Part button and press the F1 button: move to A01

Hold down the Part button and press the F2 button: move to A16

Hold down the Part button and press the F3 button: move to B01

Hold down the Part button and press the F4 button: move to B16

Patch Only Mode

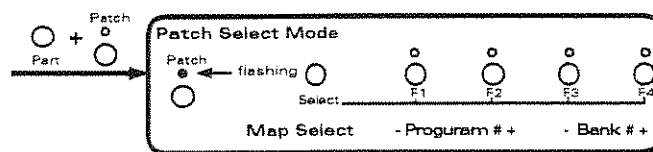
When this mode is selected, you can select Patches and Sound Maps more simply. If you will not be using Edit mode, operation will be more convenient if you select this mode.

● Procedure

While holding the Part button, press the Patch button and the Patch indicator will begin blinking to show that the M-GS64 is in Patch Only mode.

At this time, the buttons on the front panel will be assigned to the following functions.

- ◀ or ▶ : Select Parts
- F1, F2 : Select Program Numbers
- F3, F4 : Select Bank Numbers
- Select : Select Sound Maps



To return to normal Patch Select mode, press the Patch button.

Using MIDI Messages to Control the M-GS64

■ Using MIDI Messages to Select Sounds

You can use a MIDI keyboard or sequencer to select sounds or drum sets for each part, as explained below.

By sending MIDI messages from a MIDI keyboard or sequencer, you can remotely select the sound (Patch) for each Part. When you press a sound selection button on a MIDI keyboard, a MIDI message selecting a sound will be transmitted.

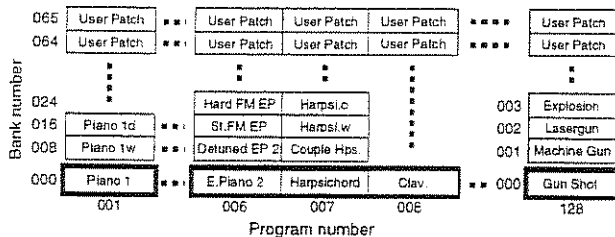
You can also use your sequencer to select M-GS64 sounds. You can specify sounds by inputting the Bank number and the Program number into your sequencer program, but be aware that the way in which numbers are displayed may differ depending on your software. On the M-GS64, Bank numbers begin with 0, and Program numbers begin with 1.

Bank numbers correspond to MIDI Bank numbers, and Program numbers correspond to MIDI Program numbers.

* MIDI Bank numbers have an upper (MSB) and lower (LSB) part. Each can specify a number from 0 to 127, allowing you to specify $128 \times 128 = 16384$ banks. The upper part of the Bank number corresponds to the M-GS64 Bank number. The lower part switches between Map 1 and Map 2 sounds. (MIDI Implementation, p. 36).

* For the correspondence between the sound names and program numbers of your MIDI keyboard, refer to the manual for your MIDI keyboard.

* If you specify a sound number that the M-GS64 does not have, the sound will not change. Refer to the Patch list on p. 25 when selecting sounds.



When creating MIDI messages on a sequencer or personal computer and transmitting them, use the following procedure.

1. The value of Control Change 0
MIDI Bank Number (upper) (the M-GS64 Bank number)
2. The value of Control Change 32
MIDI Bank Number (lower)
3. Program Change value
MIDI Program Number (M-GS64 Program number)

1 and 2 are the Bank Select message.

Bank Select messages are a type of Control Change message.

For example, if you wish to select the Patch "Piano3w" at Bank number 8, Program number 3, you would transmit the following data to the M-GS64.

[Expressed in decimal notation]

1. The value of Control Change 0: 8 (Bank number 8)
2. The value of Control Change 32: 0
3. Program Change value: 2 (Program number 3)

* Note that the data actually transmitted as the Program number will be one less than the Program number.

[The example above can be expressed in hexadecimal as follows]

1. BnH 00H 08H
2. BnH 20H 00H
3. CnH 02H

* H indicates that the value is expressed as a hexadecimal number. Decimal 32 is written as hexadecimal 20H.

* n indicates the MIDI channel.

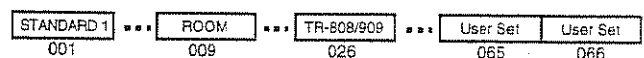
* Note that for MIDI channels and Program Change values, the number is one less than the channel or Program number. For example, if you wish to select a sound on the Part receiving MIDI channel 4, n would be 3. If you wish to select Program number 3, the value in step 3 would be 2.

■ Using MIDI Messages to Select Drum Sets

You can select Drum Sets by transmitting MIDI Program Change messages from a MIDI keyboard or sequencer, in the same way as when selecting Patches. When a Program Change message is received, the Drum Set will change. Transmit a Program Change message on the channel being received by the Drum Part. At the factory settings, Part 10 is the Drum Part (MIDI receive channel: 10). On the M-GS64, Drum Set numbers correspond to MIDI program numbers.

* Set the note numbers of the rhythm data being played back to match the note numbers of the M-GS64 Drum Set you are using (p. 31).

Drum Set name and Drum Set number (Program number)



■ Exclusive Data Addresses.....

● Receiving Exclusive Data

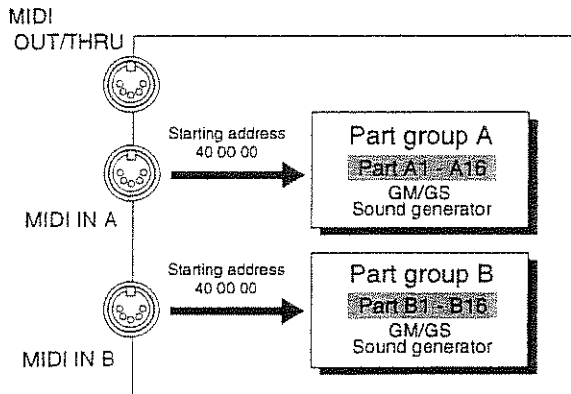
As listed in the "MIDI Implementation" (p. 36), the address of MIDI exclusive data (GS format) is defined in units of 16 Parts.

In other words, starting from address 40 00 00 are the parameters for 16 Parts.

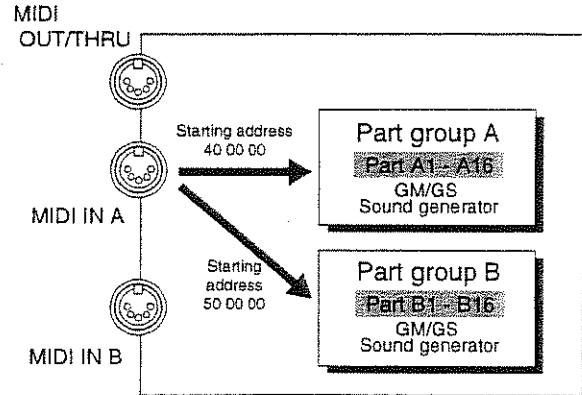
The M-GS64 has data for another 16 Parts, making a total of 32 Parts. For this reason, the M-GS64's MIDI exclusive data format extends the addressing, and places the remaining 16 Parts at starting address 50 00 00.

In the same way as with channel messages, exclusive data received at MIDI IN A is passed to Group A Parts, and exclusive data received at MIDI IN B is passed to Group B Parts.

In other words, exclusive data for the 32 Parts is received using two MIDI IN connectors. If this is done, each MIDI IN receives exclusive data for the relevant 16 Parts, so it is not necessary to split up the data into addresses 40 00 00 and 50 00 00.



However, it is also possible for the M-GS64 to receive exclusive data for all 32 Parts at a single MIDI IN. In this case it is necessary to use address 50 00 00. For example, the data at starting address 40 00 00 will be passed to Group A Parts, and the data at starting address 50 00 00 received at the same MIDI IN will be passed to Group B Parts. In other words, using starting address 50 00 00 means that the data will be passed to the Parts of the Group other than that which would normally be used for the MIDI IN at which the data was received.



Only in the case of Exclusive data, the System parameter Input Mode (p. 16) has no effect on the way in which data is passed from the two MIDI IN connectors to the Parts.

● Transmitting Exclusive Data

Since the M-GS64 has only one MIDI OUT, the exclusive data transmitted is sent using the two address areas of 40 00 00 and 50 00 00. User sound data is located at starting areas of 20 00 00.

* Be aware that exclusive data will be not transmitted from the MIDI OUT connector if the MIDI OUT/THRU select (p. 18) is set to THRU.

APPENDIXES

■ Troubleshooting

If the M-GS64 does not function in the way you expect, refer to the following for possible solutions.

- * If a message has appeared during operation, consult the following "Error Messages" section.
- * If performance is incorrect when playing back song data carrying the General MIDI/GS logo, check the following points:
 - That the Device ID is set to 17 (p. 10)
 - That the General MIDI System On/GS Reset Receive Switch (p.19) is turned on

The above settings were made when the M-GS64 was shipped from the factory.

Cannot turn the power on

Is the power cable correctly plugged into an outlet?

No sound

Is the power turned on for the other devices connected to the M-GS64?

Is the volume knob turned all the way down?

Have you incorrectly connected to the MIDI IN and OUT connectors? (p. 5)

Can you hear sound through headphones? (Try using the Preview function p. 20.) If you can hear sound through headphones, the problem may be that the audio cable transmitting the sound to the other devices is damaged or incorrectly connected, or that there is a problem with your mixer/amp/speaker system.

Has the Expression pedal etc. on a connected MIDI device turned the volume down?

A specific Part does not sound

Have you checked that relevant Parts are not being muted?

Is the volume level of the Part turned down? (p. 10)

Does the MIDI Receive channel of the Part match the MIDI Transmit channel of the connected MIDI device? (p. 10)

Cannot select the desired sound

Are you sending an incorrect Program number? (p. 21)

Sound is distorted

If a specific sound or Part is distorted, lower the volume level of that Part. (p. 10)

If all sounds are distorted, use the Volume knob to lower the volume level.

Pitch is incorrect

Is the pitch of a specific Part incorrect? (p. 10 Detune)

Is the pitch of a specific Part incorrect by a semitone or more? (p. 10 Key Shift)

Has a MIDI Pitch Bend message been received to change the pitch? Return the pitch bend lever or wheel to the central position. Or, transmit a Pitch Bend message with the central value (40 00H).

Sounds are interrupted

If you attempt to play more than 64 voices at once, sounds will be interrupted. (p. 8)

Is the same data being sent simultaneously to both MIDI IN A and MIDI IN B?

Able to play only from either MIDI IN A or MIDI IN B

Make sure that the In mode (Input mode) is set to Standard. (p. 16)

Exclusive messages are not received

Make sure the "Sys Ex" setting (a switch for enabling reception of System Exclusive messages) is not set at "OFF." (p. 11)

Does the Device ID number of the transmitted exclusive message match the Device ID number of the M-GS64? (p. 10)

The M-GS64 does not transmit MIDI data

When the MIDI OUT/THRU select switch is set to THRU, data received at MIDI IN A will be transmitted from MIDI OUT/THRU. (p. 18)

■ Error Messages

Whenever an operation is incorrect, or if data cannot be processed correctly, an error message will appear in the display. Consult the following list and take the appropriate action.

btl (MIDI Buffer Full)

Cause : The memory backup battery inside the M-GS64 has run down.

Action : Consult a nearby Roland Service Station.

cse (Check Sum Error)

Cause : The check sum of the received exclusive message is incorrect.

Action : Check the data which was transmitted to the M-GS64, and transmit it once again. Also make sure that the MIDI cable is not damaged.

bfl (MIDI Buffer Full)

Cause : An excessively large amount of MIDI data was received by the M-GS64 all at once, and correct processing could not be carried out.

Action : Avoid having large amounts of MIDI data be transmitted all at once.

ofl (MIDI Off Line)

Cause 1 : It is possible that the power has been turned off for the MIDI device connected to MIDI IN.

Action 1 : The problem is not with the M-GS64. Check the power of the connected MIDI device.

Cause 2 : A MIDI cable may have been pulled out, or has damaged internal elements.

Action 2 : Check the MIDI cables.

noP (No Patch)

Cause : A Patch which the M-GS64 does not have has been selected.

Action : Check the Bank number and Program number by which the sound (Patch) is selected.

nod (No Drum Set)

Cause : A Drum Set which the M-GS64 does not have was specified.

Action : Check the Program number by which the Drum Set is selected.

thr (Out/Thru: Thru)

Cause : Since the MIDI OUT/THRU connector is set to THRU, the Bulk Dump cannot be carried out.

Action : Set OUT/THRU Select (p. 18) to OUT.

■ Patch List MAP 1- (1)

MAP1

PC	CC00	Patch	No. of voices	Remark
Piano				
001	000	Piano 1	1	
	008	Piano 1w	1	
	016	Piano 1d	1	
002	000	Piano 2	1	
	008	Piano 2w	1	
003	000	Piano 3	1	
	001	EG+Rhodes 1	2	
	002	EG+Rhodes 2	2	
	008	Piano 3w	1	
004	000	Honky-tonk	2	
	008	Old Upright	2	
005	000	E.Piano 1	2	
	008	St.Soft EP	2	
	016	FM+SA EP	2	
	024	60's E.Piano	1	
	025	Hard Rhodes	2	
	026	MellowRhodes	2	
006	000	E.Piano 2	2	
	008	Detuned EP 2	2	
	016	St.FM EP	2	
	024	Hard FM EP	2	
007	000	Harpsichord	1	
	008	Coupled Hps.	2 *	
	016	Harpsi.w	1	
	024	Harpsi.o	2	
008	000	Clav.	1	
Chromatic percussion				
009	000	Celesta	1 *	
010	000	Glockenspiel	1	
011	000	Music Box	1	
012	000	Vibraphone	1	
	001	Hard Vibe	2	
	008	Vib.w	1 *	
013	000	Marimba	1	
	008	Marimba w	1	
	016	Barafon	1	
	017	Barafon 2	1	
	024	Log drum	1	
014	000	Xylophone	1	
015	000	Tubular-bell	1 *	
	008	Church Bell	1 *	
	009	Carillon	1 *	
016	000	Santur	1 *	
	001	Santur 2	2	
	008	Cimbalom	2	

PC	CC00	Patch	No. of voices	Remark
Organ				
017	000	Organ 1	1	
	001	Organ 101	2	
	008	Detuned Or.1	2	
	009	Organ 109	2	
	016	60's Organ 1	1	
	017	60's Organ 2	1	
	018	60's Organ 3	1	
	024	Cheese Organ	1	
	032	Organ 4	1	
	033	Even Bar	2	
	040	Organ Bass	1	
018	000	Organ 2	1	
	001	Organ 201	2	
	008	Detuned Or.2	2	
	032	Organ 5	2	
019	000	Organ 3	2 *	
	008	Rotary Org.	1	
	016	Rotary Org.S	1	
	024	Rotary Org.F	1	
020	000	Church Org.1	1	
	008	Church Org.2	2	
	016	Church Org.3	2	
	024	Organ Flute	1	
	032	Trem.Flute	2	
021	000	Reed Organ	1 *	
022	000	Accordion Fr	1	
	008	Accordion It	2	
023	000	Harmonica	1	
	001	Harmonica 2	2	
024	000	Bandoneon	1	
Guitar				
025	000	Nylon-str.Gt	1	
	008	Ukulele	1	
	016	Nylon Gt.o	2	
	024	Velo Harmnix	1	
	032	Nylon Gt.2	1	
	040	Lequint Gt.	1	
026	000	Steel-str.Gt	1	
	008	12-str.Gt	2	
	009	Nylon+Steel	2	
	016	Mandolin	2	
	032	Steel Gt.2	1	
027	000	Jazz Gt.	1 *	
	001	Mellow Gt.	2	
	008	Pedal Steel	1	

PC	CC00	Patch	No. of voices	Remark
028	000	Clean Gt.	1	
	008	Chorus Gt.	2	
029	000	Muted Gt.	1	
	001	Muted Dis.Gt	1	
	008	Funk Pop	1	
	016	Funk Gt.2	1	
030	000	Overdrive Gt	1	
031	000	DistortionGt	1	
	001	Dist. Gt2	2	
	002	Dazed Guitar	2	
	008	Feedback Gt.	2	
	009	Feedback Gt2	2	
	016	Power Guitar	2	
	017	Power Gt.2	2	
	018	5th Dist.	2	
	024	Rock Rhythm	2	
	025	Rock Rhythm2	2	
032	000	Gt.Harmonics	1 *	
	008	Gt. Feedback	1 *	
	016	Ac.Gt.Harmnx	1	
Bass				
033	000	Acoustic Bs.	2	
034	000	Fingered Bs.	1	
	001	Fingered Bs2	2	
	002	Jazz Bass	1	
035	000	Picked Bass	1	
	008	Mute PickBs.	1	
036	000	Fretless Bs.	1	
	001	Fretless Bs2	2	
	002	Fretless Bs3	2	
	003	Fretless Bs4	2	
	004	Syn Fretless	2	
	005	Mr.Smooth	2	
037	000	Slap Bass 1	1	
	008	Reso Slap	1	
038	000	Slap Bass 2	2	
039	000	Synth Bass 1	2	
	001	SynthBass101	1 *	
	008	Acid Bass	1	
	009	TB303 Bass	1	
	010	Tekno Bass	2	
	016	Reso SH Bass	1	

PC : program number
 CC00 : value of controller number 0 (Bank number)
 Patch : sound name
 No. of voices : number of voices used by the Patch
 Remark * : same sound as map2
 Remark ** : a percussive sound which cannot be played melodically. Use near C4 (note number 60).

MAP 1 - (2)

PC	CC00	Patch	No. of voices	Remark
040	000	Synth Bass 2	2	
	001	SynthBass201	2	
	002	Modular Bass	2	
	003	Seq Bass	2	
	008	Beef FM Bass	2	
	009	X Wire Bass	2	
	016	Rubber Bass 2	*	
	017	SH101 Bass 1	1	
	018	SH101 Bass 2	1	
	019	Smooth Bass	2	
Strings / orchestra				
041	000	Violin	1	
	008	Slow Violin	1	
042	000	Viola	1	
043	000	Cello	1	
044	000	Contrabass	1	
045	000	Tremolo Str	1	
	008	Slow Tremolo	1	
	009	Suspense Str	2	
046	000	PizzicatoStr	1	
047	000	Harp	1	
048	000	Timpani	1	
Ensemble				
049	000	Strings	1	
	001	Strings 2	1	
	008	Orchestra	2	
	009	Orchestra 2	2	
	010	Tremolo Orch	2	
	011	Choir Str.	2	
	016	St.Strings	2	
	024	Velo Strings	2	
050	000	Slow Strings	1	
	001	SlowStrings2	1	
	008	Legato Str.	2	
	009	Warm Strings	2	
	010	St.Slow Str.	2	
051	000	Syn.Strings1	2	
	001	OB Strings	2	
	008	Syn.Strings3	2	*
052	000	Syn.Strings2	2	*
053	000	Choir Aahs	1	
	008	St.Choir	2	
	009	Mello Choir	2	
	032	Choir Aahs 2	1	*
054	000	Voice Oohs	1	*
055	000	SynVox	1	*
	008	Syn.Voice	2	

PC	CC00	Patch	No. of voices	Remark
056	000	OrchestraHit	2	
	008	Impact Hit	2	
	009	Philly Hit	2	
	010	Double Hit	2	
	016	Lo Fi Rave	2	
Brass				
057	000	Trumpet	1	
	001	Trumpet 2	1	
	008	Flugel Horn	1	
	024	Bright Tp.	2	
	025	Warm Tp.	2	
058	000	Trombone	1	
	001	Trombone 2	2	*
059	000	Tuba	1	
	001	Tuba 2	1	
060	000	MutedTrumpet	1	
061	000	French Horns	1	
	001	Fr.Horn 2	2	*
	008	Fr.Horn Solo	1	
	016	Horn Orch	2	
062	000	Brass 1	1	*
	008	Brass 2	2	
	016	Brass Fall	1	
063	000	Synth Brass1	2	
	001	Poly Brass	2	
	008	Synth Brass3	2	*
	009	Quack Brass	2	
	016	Octave Brass	2	
064	000	Synth Brass2	2	*
	001	Soft Brass	2	
	008	Synth Brass4	1	*
	016	Velo Brass 1	2	
	017	Velo Brass 2	2	
Reed				
065	000	Soprano Sax	1	
066	000	Alto Sax	1	
	008	Hyper Alto	1	
067	000	Tenor Sax	2	
	008	BreathyTenor	1	
068	000	Baritone Sax	1	
069	000	Oboe	1	
070	000	English Horn	1	
071	000	Bassoon	1	
072	000	Clarinet	1	
	008	Bs Clarinet	1	

PC	CC00	Patch	No. of voices	Remark
Pipe				
073	000	Piccolo	1	
074	000	Flute	1	
075	000	Recorder	1	*
076	000	Pan Flute	2	
	008	Kawala	2	
077	000	Bottle Blow	2	
078	000	Shakuhachi	2	*
079	000	Whistle	1	*
080	000	Ocarina	1	*
Synth lead				
081	000	Square Wave	2	*
	001	Square	1	*
	002	Hollow Mini	1	
	003	Mellow FM	2	
	004	CC Solo	2	
	005	Shmoog	2	
	006	LM Square	2	
	008	Sine Wave	1	*
082	000	Saw Wave	2	*
	001	Saw	1	*
	002	Pulse Saw	2	
	003	Feline GR	2	
	004	Big Lead	2	
	005	Velo Lead	2	
	006	GR-300	2	
	007	LA Saw	1	
	008	Doctor Solo	2	*
	016	Waspy Synth	2	
083	000	Syn.Calliope	2	*
	001	Vent Synth	2	
	002	Pure PanLead	2	
084	000	Chiffer Lead	2	*
085	000	Charang	2	*
	008	Dist.Lead	2	
086	000	Solo Vox	2	*
087	000	5th Saw Wave	2	*
	001	Big Fives	2	
088	000	Bass & Lead	2	*
	001	Big & Raw	2	
	002	Fat & Perky	2	
Synth pad, etc.				
089	000	Fantasia	2	*
	001	Fantasia 2	2	
090	000	Warm Pad	1	*
	001	Thick Pad	2	
	002	Horn Pad	2	
	003	Rotary Strng	2	
	004	Soft Pad	2	

MAP 1 - (3)

PC	CC00	Patch	No. of voices	Remark
091	000	Polysynth	2	*
	001	80's PolySyn	2	
092	000	Space Voice	1	*
	001	Heaven II	2	
093	000	Bowed Glass	2	*
094	000	Metal Pad	2	*
	001	Tine Pad	2	
	002	Panner Pad	2	
095	000	Halo Pad	2	*
096	000	Sweep Pad	1	*
	001	Polar Pad	1	
	008	Converge	1	
	009	Shwimmer	2	
	010	Celestial Pd	2	
Synth SFX				
097	000	Ice Rain	2	*
	001	Harmo Rain	2	
	002	African wood	2	
	008	Clavi Pad	2	
098	000	Soundtrack	2	*
	001	Ancestral	2	
	002	Prologue	2	
	008	Rave	2	
099	000	Crystal	2	*
	001	Syn Mallet	1	*
	002	Soft Crystal	2	
	003	Round Glock	2	
	004	Loud Glock	2	
	005	GlockenChime	2	
	006	Clear Bells	2	
	007	ChristmasBel	2	
	008	Vibra Bells	2	
	009	Digi Bells	2	
	016	Choral Bells	2	
	017	Air Bells	2	
	018	Bell Harp	2	
	019	Gamelimba	2	
100	000	Atmosphere	2	*
	001	Warm Atmos	2	
	002	Nylon Harp	2	
	003	Harpvox	2	
	004	HollowReleas	2	
	005	Nylon+Rhodes	2	
	006	Ambient Pad	2	
101	000	Brightness	2	*
102	000	Goblin	2	*
	001	Goblinson	2	
	002	50's Sci-Fi	2	

PC	CC00	Patch	No. of voices	Remark
103	000	Echo Drops	1	*
	001	Echo Bell	2	*
	002	Echo Pan	2	*
	003	Echo Pan 2	2	
	004	Big Panner	2	
	005	Reso Panner	2	
	006	Water Piano	2	
104	000	Star Theme	2	*
	001	Star Theme 2	2	
Ethnic, etc.				
105	000	Sitar	1	*
	001	Sitar 2	2	*
	002	Detune Sitar	2	
	008	Tambra	1	
	016	Tamboura	2	
106	000	Banjo	1	
	001	Muted Banjo	1	
	008	Rabab	2	
	016	Gopichant	2	
	024	Oud	2	
107	000	Shamisen	1	*
	001	Tsugaru	2	
108	000	Koto	1	*
	008	Taisho Koto	1	
	016	Kanoon	2	
109	000	Kalimba	1	
110	000	Bagpipe	1	
111	000	Fiddle	1	*
112	000	Shanai	1	*
	001	Shanai 2	1	
	008	Pungi	1	
	016	Hichiriki	2	
Percussive				
113	000	Tinkle Bell	1	*
	008	Bonang	1	
	009	Gender	1	
	010	Gamelan Gong	1	
	011	St.Gamelan	2	
	016	RAMA Cymbal	1	
114	000	Agogo	1	
	008	Atarigane	1	
115	000	Steel Drums	1	*
116	000	Woodblock	1	* **
	008	Castanets	1	* **
117	000	Taiko	1	* **
	008	Concert BD	1	* **

PC	CC00	Patch	No. of voices	Remark
118	000	Melo. Tom 1	1	* **
	001	Real Tom	2	**
	008	Melo. Tom 2	1	* **
	009	Rock Tom	2	**
119	000	Synth Drum	1	* **
	008	808 Tom	2	**
	009	Elec Perc	1	* **
120	000	Reverse Cym.	1	* **
	001	Reverse Cym2	1	**
	008	Rev.Snare 1	1	**
	009	Rev.Snare 2	1	**
	016	Rev.Kick 1	1	**
	017	Rev.ConBD	1	**
	024	Rev.Tom 1	1	**
	025	Rev.Tom 2	1	**
SFX				
121	000	Gt.FretNoise	1	*
	001	Gt.Cut Noise	1	* **
	002	String Slap	1	* **
	003	Gt.CutNoise2	1	**
	004	Dist.CutNoiz	1	**
	005	Bass Slide	1	**
	006	Pick Scrape	1	**
122	000	Breath Noise	1	*
	001	Fl.Key Click	1	* **
123	000	Seashore	1	* **
	001	Rain	1	* **
	002	Thunder	1	* **
	003	Wind	1	* **
	004	Stream	2	* **
	005	Bubble	2	* **
124	000	Bird	2	* **
	001	Dog	1	* **
	002	Horse-Gallop	1	* **
	003	Bird 2	1	* **
	004	Kitty	1	**
	005	Growl	1	**
125	000	Telephone 1	1	* **
	001	Telephone 2	1	* **
	002	DoorCreaking	1	* **
	003	Door	1	* **
	004	Scratch	1	* **
	005	Wind Chimes	2	* **
	007	Scratch 2	1	**

PC : program number
 CC00 : value of controller number 0 (Bank number)
 Patch : sound name
 No. of voices : number of voices used by the Patch
 Remark * : same sound as map2
 Remark ** : a percussive sound which cannot be played melodically. Use near C4 (note number 60).

MAP 2 - (1)

PC	CC00	Patch	No. of voices	Remark
126	000	Helicopter	1	* **
	001	Car-Engine	1	* **
	002	Car-Stop	1	* **
	003	Car-Pass	1	* **
	004	Car-Crash	2	* **
	005	Siren	1	* **
	006	Train	1	* **
	007	Jetplane	2	* **
	008	Starship	2	* **
	009	Burst Noise	2	* **
127	000	Applause	2	* **
	001	Laughing	1	* **
	002	Screaming	1	* **
	003	Punch	1	* **
	004	Heart Beat	1	*
	005	Footsteps	1	* **
	006	Applause 2	2	**
128	000	Gun Shot	1	* **
	001	Machine Gun	1	* **
	002	Lasergun	1	* **
	003	Explosion	2	* **

MAP2

PC	CC00	Patch	No. of voices	Remark
Piano				
001	000	Piano 1	1	
	008	Piano 1w	1	
	016	Piano 1d	1	
002	000	Piano 2	1	
	008	Piano 2w	1	
003	000	Piano 3	1	
	008	Piano 3w	1	
004	000	Honky-tonk	2	
	008	HonkyTonk w	2	
005	000	E.Piano 1	1	
	008	Detuned EP1	2	
	016	E.Piano 1v	2	
	024	60s E.Piano	1	
006	000	E.Piano 2	1	
	008	Detuned EP2	2	
	016	E.Piano 2v	2	
007	000	Harpsichord	1	
	008	Coupled Hps	2	
	016	Harpsi.w	1	
	024	Harpsi.o	2	
008	000	Clav.	1	
Chromatic percussion				
009	000	Celesta	1	
010	000	Glockenspl	1	
011	000	Music Box	1	
012	000	Vibraphone	1	
	008	Vib.w	1	
013	000	Marimba	1	
	008	Marimba w	1	
014	000	Xylophone	1	
015	000	Tubularbell	1	
	008	Church Bell	1	
	009	Carillon	1	
016	000	Santur	1	
Organ				
017	000	Organ 1	1	
	008	Detuned Or1	2	
	016	60's Organ1	1	
	032	Organ 4	2	
018	000	Organ 2	1	
	008	Detuned Or2	2	
	032	Organ 5	2	
019	000	Organ 3	2	
020	000	Church Org1	1	
	008	Church Org2	2	
	016	Church Org3	2	

PC	CC00	Patch	No. of voices	Remark
021	000	Reed Organ	1	
022	000	Accordion F	2	
	008	Accordion I	2	
023	000	Harmonica	1	
024	000	Bandoneon	2	
Guitar				
025	000	Nylon Gt.	1	
	008	Ukulele	1	
	016	Nylon Gt.o	2	
	032	Nylon Gt.2	1	
026	000	Steel Gt.	1	
	008	12-str.Gt	2	
	016	Mandolin	1	
027	000	Jazz Gt.	1	
	008	Hawaiian Gt	1	
028	000	Clean Gt.	1	
	008	Chorus Gt.	2	
029	000	Muted Gt.	1	
	008	Funk Gt.	1	
	016	Funk Gt.2	1	
030	000	OverdriveGt	1	
031	000	Dist.Gt.	1	
	008	Feedback Gt	2	
032	000	Gt.Harmonix	1	
	008	Gt.Feedback	1	
Bass				
033	000	Acoustic Bs	1	
034	000	Fingered Bs	1	
035	000	Picked Bass	1	
036	000	Fretless Bs	1	
037	000	Slap Bass 1	1	
038	000	Slap Bass 2	1	
039	000	Syn.Bass 1	1	
	001	Syn.Bass101	1	
	008	Syn.Bass 3	1	
040	000	Syn.Bass 2	2	
	008	Syn.Bass 4	2	
	016	Rubber Bass	2	
Strings / orchestra				
041	000	Violin	1	
	008	Slow Violin	1	
042	000	Viola	1	
043	000	Cello	1	
044	000	Contrabass	1	
045	000	Tremolo Str	1	
046	000	Pizzicato	1	
047	000	Harp	1	
048	000	Timpani	1	

MAP 2 - (2)

PC	CC00	Patch	No. of voices	Remark
Ensemble				
049	000	Strings	1	
	008	Orchestra	2	
050	000	SlowStrings	1	
051	000	SynStrings1	1	
	008	SynStrings3	2	
052	000	SynStrings2	2	
053	000	Choir Aah	1	
	032	Choir Aahs2	1	
054	000	Voice Oohs	1	
055	000	SynVox	1	
056	000	Orchest.Hit	2	
Brass				
057	000	Trumpet	1	
058	000	Trombone	1	
	001	Trombone 2	2	
059	000	Tuba	1	
060	000	MuteTrumpet	1	
061	000	French Horn	2	
	001	Fr.Horn 2	2	
062	000	Brass 1	1	
	008	Brass 2	2	
063	000	Syn.Brass 1	2	
	008	Syn.Brass 3	2	
	016	Analog Brs1	2	
064	000	Syn.Brass 2	2	
	008	Syn.Brass 4	1	
	016	Analog Brs2	2	
Reed				
065	000	Soprano Sax	1	
066	000	Alto Sax	1	
067	000	Tenor Sax	1	
068	000	BaritoneSax	1	
069	000	Oboe	1	
070	000	EnglishHorn	1	
071	000	Bassoon	1	
072	000	Clarinet	1	
Pipe				
073	000	Piccolo	1	
074	000	Flute	1	
075	000	Recorder	1	
076	000	Pan Flute	1	
077	000	Bottle Blow	2	
078	000	Shakuhachi	2	
079	000	Whistle	1	
080	000	Ocarina	1	

PC	CC00	Patch	No. of voices	Remark
Synth lead				
081	000	Square Wave	2	
	001	Square	1	
	008	Sine Wave	1	
082	000	Saw Wave	2	
	001	Saw	1	
	008	Doctor Solo	2	
083	000	SynCalliope	2	
084	000	ChifferLead	2	
085	000	Charang	2	
086	000	Solo Vox	2	
087	000	5th Saw	2	
088	000	Bass & Lead	2	
Synth pad, etc.				
089	000	Fantasia	2	
090	000	Warm Pad	1	
091	000	Polysynth	2	
092	000	Space Voice	1	
093	000	Bowed Glass	2	
094	000	Metal Pad	2	
095	000	Halo Pad	2	
096	000	Sweep Pad	1	
Synth SFX				
097	000	Ice Rain	2	
098	000	Soundtrack	2	
099	000	Crystal	2	
	001	Syn Mallet	1	
100	000	Atmosphere	2	
101	000	Brightness	2	
102	000	Goblin	2	
103	000	Echo Drops	1	
	001	Echo Bell	2	
	002	Echo Pan	2	
104	000	Star Theme	2	
Ethnic, etc.				
105	000	Sitar	1	
	001	Sitar 2	2	
106	000	Banjo	1	
107	000	Shamisen	1	
108	000	Koto	1	
	008	Taisho Koto	2	
109	000	Kalimba	1	
110	000	Bagpipe	1	
111	000	Fiddle	1	
112	000	Shanai	1	

PC	CC00	Patch	No. of voices	Remark
Percussive				
113	000	Tinkle Bell	1	
114	000	Agogo	1	
115	000	Steel Drums	1	
116	000	Woodblock	1	**
	008	Castanets	1	**
117	000	Taiko	1	**
	008	Concert BD	1	**
118	000	Melo. Tom 1	1	**
	008	Melo. Tom 2	1	**
119	000	Synth Drum	1	**
	008	808 Tom	1	**
	009	Elec Perc	1	**
120	000	Reverse Cym	1	**
SFX				
121	000	Gt.FretNoiz	1	
	001	Gt.CutNoise	1	**
	002	String Slap	1	**
122	000	BreathNoise	1	
	001	Fl.KeyClick	1	**
123	000	Seashore	1	**
	001	Rain	1	**
	002	Thunder	1	**
	003	Wind	1	**
	004	Stream	2	**
	005	Bubble	2	**
124	000	Bird	2	**
	001	Dog	1	**
	002	HorseGallop	1	**
	003	Bird 2	1	**
125	000	Telephone 1	1	**
	001	Telephone 2	1	**
	002	Creaking	1	**
	003	Door	1	**
	004	Scratch	1	**
	005	Wind Chimes	2	**
126	000	Helicopter	1	**
	001	Car-Engine	1	**
	002	Car-Stop	1	**
	003	Car-Pass	1	**
	004	Car-Crash	2	**
	005	Siren	1	**
	006	Train	1	**
	007	Jetplane	2	**
	008	Starship	2	**
	009	Burst Noise	2	**
127	000	Applause	2	**
	001	Laughing	1	**
	002	Screaming	1	**
	003	Punch	1	**
	004	Heart Beat	1	**
	005	Footsteps	1	**
128	000	Gun Shot	1	**
	001	Machine Gun	1	**
	002	Lasergun	1	**
	003	Explosion	2	**

PC : program number
 CC00 : value of controller number 0 (Bank number)
 Patch : sound name
 No. of voices : number of voices used by the Patch
 Remark * : same sound as map2
 Remark ** : a percussive sound which cannot be played melodically. Use near C4 (note number 60).

CM-64

PC	CC00	Patch	No. of voices
001	126	Piano 2	1
002	126	Piano 2	1
003	126	Piano 2	1
004	126	Honky-tonk	2
005	126	Piano 1	1
006	126	Piano 2	1
007	126	Piano 2	1
008	126	E.Piano 1	1
009	126	Detuned EP1	2
010	126	E.Piano 2	1
011	126	Steel Gt.	1
012	126	Steel Gt.	1
013	126	12-str.Gt	2
014	126	Funk Gt.	1
015	126	Muted Gt.	1
016	126	Slap Bass 1	1
017	126	Slap Bass 1	1
018	126	Slap Bass 1	1
019	126	Slap Bass 1	1
020	126	Slap Bass 2	1
021	126	Slap Bass 2	1
022	126	Slap Bass 2	1
023	126	Slap Bass 2	1
024	126	Fingered Bs	1
025	126	Fingered Bs	1
026	126	Picked Bass	1
027	126	Picked Bass	1
028	126	Fretless Bs	1
029	126	Acoustic Bs	1
030	126	Choir Aahs	1
031	126	Choir Aahs	1
032	126	Choir Aahs	1
033	126	Choir Aahs	1
034	126	SlowStrings	1
035	126	Strings	1
036	126	SynStrings3	2
037	126	SynStrings3	2
038	126	Organ 1	1
039	126	Organ 1	1
040	126	Organ 1	1
041	126	Organ 2	1
042	126	Organ 1	1
043	126	Organ 1	1
044	126	Organ 2	1
045	126	Organ 2	1
046	126	Organ 2	1
047	126	Trumpet	1
048	126	Trumpet	1
049	126	Trombone	1
050	126	Trombone	1
051	126	Trombone	1
052	126	Trombone	1
053	126	Trombone	1
054	126	Trombone	1
055	126	Alto Sax	1
056	126	Tenor Sax	1
057	126	BaritoneSax	1
058	126	Alto Sax	1
059	126	Brass 1	1
060	126	Brass 1	1
061	126	Brass 2	2
062	126	Brass 2	2
063	126	Brass 1	1
064	126	Orchest.Hit	2

CM-64

PC	CC00	Patch	No. of voices
001	127	Acou Piano1	1
002	127	Acou Piano2	1
003	127	Acou Piano3	1
004	127	Elec Piano1	1
005	127	Elec Piano2	1
006	127	Elec Piano3	1
007	127	Elec Piano4	1
008	127	Honkytonk	2
009	127	Elec Org 1	1
010	127	Elec Org 2	2
011	127	Elec Org 3	1
012	127	Elec Org 4	1
013	127	Pipe Org 1	2
014	127	Pipe Org 2	2
015	127	Pipe Org 3	2
016	127	Accordion	2
017	127	Harpsi 1	1
018	127	Harpsi 2	2
019	127	Harpsi 3	1
020	127	Clavi 1	1
021	127	Clavi 2	1
022	127	Clavi 3	1
023	127	Celesta 1	1
024	127	Celesta 2	1
025	127	Syn Brass 1	2
026	127	Syn Brass 2	2
027	127	Syn Brass 3	2
028	127	Syn Brass 4	2
029	127	Syn Bass 1	1
030	127	Syn Bass 2	2
031	127	Syn Bass 3	2
032	127	Syn Bass 4	1
033	127	Fantasy	2
034	127	Harmo Pan	2
035	127	Chorale	1
036	127	Glasses	2
037	127	Soundtrack	2
038	127	Atmosphere	2
039	127	Warm Bell	2
040	127	Funny Vox	1
041	127	Echo Bell	2
042	127	Ice Rain	2
043	127	Oboe 2001	2
044	127	Echo Pan	2
045	127	Doctor Solo	2
046	127	School Daze	1
047	127	Bellsinger	1
048	127	Square Wave	2
049	127	Str Sect 1	1
050	127	Str Sect 2	1
051	127	Str Sect 3	1
052	127	Pizzicato	1
053	127	Violin 1	1
054	127	Violin 2	1
055	127	Cello 1	1
056	127	Cello 2	1
057	127	Contrabass	1
058	127	Harp 1	1
059	127	Harp 2	1
060	127	Guitar 1	1
061	127	Guitar 2	1
062	127	Elec Gtr 1	1
063	127	Elec Gtr 2	1
064	127	Sitar	2

CM-64

PC	CC00	Patch	No. of voices
065	127	Acou Bass 1	1
066	127	Acou Bass 2	1
067	127	Elec Bass 1	1
068	127	Elec Bass 2	1
069	127	Slap Bass 1	1
070	127	Slap Bass 2	1
071	127	Fretless 1	1
072	127	Fretless 2	1
073	127	Flute 1	1
074	127	Flute 2	1
075	127	Piccolo 1	1
076	127	Piccolo 2	2
077	127	Recorder	1
078	127	Pan Pipes	1
079	127	Sax 1	1
080	127	Sax 2	1
081	127	Sax 3	1
082	127	Sax 4	1
083	127	Clarinet 1	1
084	127	Clarinet 2	1
085	127	Oboe	1
086	127	Engl Horn	1
087	127	Bassoon	1
088	127	Harmonica	1
089	127	Trumpet 1	1
090	127	Trumpet 2	1
091	127	Trombone 1	2
092	127	Trombone 2	2
093	127	Fr Horn 1	2
094	127	Fr Horn 2	2
095	127	Tuba	1
096	127	Brs Sect 1	1
097	127	Brs Sect 2	2
098	127	Vibe 1	1
099	127	Vibe 2	1
100	127	Syn Mallet	1
101	127	Windbell	2
102	127	Glock	1
103	127	Tube Bell	1
104	127	Xylophone	1
105	127	Marimba	1
106	127	Koto	1
107	127	Sho	2
108	127	Shakuhachi	2
109	127	Whistle 1	2
110	127	Whistle 2	1
111	127	Bottleblow	2
112	127	Breathpipe	1
113	127	Timpani	1
114	127	Melodic Tom	1
115	127	Deep Snare	1 **
116	127	Elec Perc 1	1 **
117	127	Elec Perc 2	1 **
118	127	Taiko	1 **
119	127	Taiko Rim	1
120	127	Cymbal	1
121	127	Castanets	1 **
122	127	Triangle	1 **
123	127	Orche Hit	1
124	127	Telephone	1 **
125	127	Bird Tweet	1 **
126	127	OneNote Jam	1 **
127	127	Water Bell	2
128	127	Jungle Tune	2

Drum Set List MAP 1 Drum Set (1)

	PC 1 STANDARD Set1	PC 2 STANDARD Set2	PC 9 ROOM Set	PC 17 POWER Set	PC 25 ELECTRONIC Set
25	Snare Roll	←	←	←	←
26	Finger Snap	←	←	←	←
27	High O	←	←	←	←
28	Slap	←	←	←	←
29	Scratch Push [EXC7]	←	←	←	Scratch Push2 [EXC7]
30	Scratch Pull [EXC7]	←	←	←	Scratch Pull2 [EXC7]
31	Sticks	←	←	←	←
32	Square Click	←	←	←	←
33	Metronome Click	←	←	←	←
34	Metronome Bell	←	←	←	←
35	Standard 1 Kick 2	Standard 2 Kick 2	Room Kick 2	Power Kick 2	Electric Kick 2
C2 36	Standard 1 Kick 1	Standard 2 Kick 1	Room Kick 1	Power Kick 1	Electric Kick 1
37	Side Stick	←	←	←	←
38	Standard 1 Snare 1	Standard 2 Snare 1	Room Snare 1	Power Snare 1	Electric Snare 1
39	Hand Clap	←	←	←	←
40	Standard 1 Snare 2	Standard 2 Snare 2	Room Snare 2	Power Snare 2	Electric Snare 2
41	Low Tom2 *	←	Room Low Tom2 *	Power Low Tom2 *	Electric Low Tom2 *
42	Closed Hi-hat1 [EXC1]	Closed Hi-hat2 [EXC1]	Closed Hi-hat3 [EXC1]	Closed Hi-hat3 [EXC1]	Closed Hi-hat2 [EXC1]
43	Low Tom1 *	←	Room Low Tom1 *	Power Low Tom1 *	Electric Low Tom1 *
44	Pedal Hi-hat [EXC1]	←	←	←	←
45	Mid Tom2 *	←	Room Mid Tom2 *	Power Mid Tom2 *	Electric Mid Tom2 *
46	Open Hi-hat1 [EXC1]	Open Hi-hat2 [EXC1]	Open Hi-hat3 [EXC1]	Open Hi-hat3 [EXC1]	Open Hi-hat2 [EXC1]
47	Mid Tom1 *	←	Room Mid Tom1 *	Power Mid Tom1 *	Electric Mid Tom1 *
C3 48	High Tom2 *	←	Room Hi Tom2 *	Power Hi Tom2 *	Electric Hi Tom2 *
49	Crash Cymbal1	←	←	←	←
50	High Tom1 *	←	Room Hi Tom1 *	Power Hi Tom1 *	Electric Hi Tom1 *
51	Ride Cymbal1	←	←	←	←
52	Chinese Cymbal	←	←	←	Reverse Cymbal
53	Ride Bell	←	←	←	←
54	Tambourine	←	←	←	←
55	Splash Cymbal	←	←	←	←
56	Cowbell	←	←	←	←
57	Crash Cymbal2	←	←	←	←
58	Vibra-slap	←	←	←	←
59	Ride Cymbal2	←	←	←	←
C4 60	High Bongo	←	←	←	←
61	Low Bongo	←	←	←	←
62	Mute High Conga	←	←	←	←
63	Open High Conga	←	←	←	←
64	Low Conga	←	←	←	←
65	High Timbale	←	←	←	←
66	Low Timbale	←	←	←	←
67	High Agogo	←	←	←	←
68	Low Agogo	←	←	←	←
69	Cabasa	←	←	←	←
70	Maracas	←	←	←	←
71	Short Hi Whistle [EXC2]	←	←	←	←
C5 72	Long Low Whistle [EXC2]	←	←	←	←
73	Short Guiro [EXC3]	←	←	←	←
74	Long Guiro [EXC3]	←	←	←	←
75	Claves	←	←	←	←
76	High Wood Block	←	←	←	←
77	Low Wood Block	←	←	←	←
78	Mute Cuica [EXC4]	←	←	←	←
79	Open Cuica [EXC4]	←	←	←	←
80	Mute Triangle [EXC5]	←	←	←	←
81	Open Triangle [EXC5]	←	←	←	←
82	Shaker	←	←	←	←
83	Jingle Bell	←	←	←	←
C6 84	Bell Tree	Bar Chimes	←	←	←
85	Castanets	←	←	←	←
86	Mute Surdo [EXC6]	←	←	←	←
87	Open Surdo [EXC6]	←	←	←	←
88	----	----	----	----	----
89	----	----	----	----	----
90	----	----	----	----	----
91	----	----	----	----	----
92	----	----	----	----	----
93	----	----	----	----	----
94	----	----	----	----	----
95	----	----	----	----	----
C7 96	----	----	----	----	----
97	----	----	----	----	----
98	----	----	----	----	----
99	----	----	----	----	----

↑
Note Number

PC : Program Number (Drum Set Number)
 ---- : No sound
 * : Tones which are created using two voices
 ← : Same as the percussion sound of "STANDARD" (PC1)
 [EXC]: Percussion sound of the same number will not be heard at the same time

MAP 1 Drum Set (2)

	PC 26 TR-808/909 Set	PC 27 DANCE Set	PC 33 JAZZ Set	PC 41 BRUSH Set	PC 49 ORCHESTRA Set
25	←	←	←	←	←
26	←	←	←	←	←
27	←	←	←	←	←
28	←	←	←	←	Closed Hi-hat2 [EXC1]
29	Scratch Push2 [EXC7]	Scratch Push2 [EXC7]	←	←	Pedal Hi-hat [EXC1]
30	Scratch Pull2 [EXC7]	Scratch Pull2 [EXC7]	←	←	Open Hi-hat2 [EXC1]
31	←	←	←	←	Ride Cymbal1
32	←	←	←	←	←
33	←	←	←	←	←
34	←	←	←	←	←
35	909 Bass Drum	Dance Kick	Jazz Kick 2	Jazz Kick 2	Jazz Kick 1
C2 36	808 Bass Drum	Electric Kick 2	Jazz Kick 1	Jazz Kick 1	Concert BD1
37	808 Rim Shot	←	←	←	←
38	808 Snare 1	Dance Snare 1	Jazz Snare 1	Brush Tap1	Concert SD
39	←	←	Hand Clap2	Brush Slap1	Castanets
40	909 Snare 1	Dance Snare 2	Jazz Snare 2	Brush Swirl1	Concert SD
41	808 Low Tom2 *	Electric Low Tom2 *	←	Brush Low Tom2 *	Timpani F
42	808 CHH [EXC1]	CR-78 CHH [EXC1]	Closed Hi-hat2 [EXC1]	Brush Closed Hi-hat [EXC1]	Timpani F#
43	808 Low Tom1 *	Electric Low Tom1 *	←	Brush Low Tom1 *	Timpani G
44	808 CHH [EXC1]	808 CHH [EXC1]	←	←	Timpani G#
45	808 Mid Tom2 *	Electric Mid Tom2 *	←	Brush Mid Tom2 *	Timpani A
46	808 OHH [EXC1]	CR-78 OHH [EXC1]	Open Hi-hat2 [EXC1]	Brush Open Hi-hat [EXC1]	Timpani A#
47	808 Mid Tom1 *	Electric Mid Tom1 *	←	Brush Mid Tom1 *	Timpani B
C3 48	808 Hi Tom2 *	Electric High Tom2 *	←	Brush Hi Tom2 *	Timpani c
49	808 Cymbal	←	←	Brush Crash Cymbal	Timpani d#
50	808 Hi Tom1	Electric High Tom1 *	←	Brush Hi Tom1 *	Timpani d
51	←	←	←	Brush Ride Cymbal	Timpani d#
52	←	Reverse Cymbal	←	←	Timpani e
53	←	←	←	Brush Ride Bell	Timpani f
54	←	←	←	←	←
55	←	←	←	←	←
56	808 Cowbell	←	←	←	←
57	←	←	←	←	Concert Cymbal2
58	←	←	←	←	←
59	←	←	←	←	Concert Cymbal1
C4 60	←	←	←	←	←
61	←	←	←	←	←
62	808 High Conga	←	←	←	←
63	808 Mid Conga	←	←	←	←
64	808 Low Conga	←	←	←	←
65	←	←	←	←	←
66	←	←	←	←	←
67	←	←	←	←	←
68	←	←	←	←	←
69	←	←	←	←	←
70	808 Maracas	←	←	←	←
71	←	←	←	←	←
C5 72	←	←	←	←	←
73	←	←	←	←	←
74	←	←	←	←	←
75	808 Claves	←	←	←	←
76	←	←	←	←	←
77	←	High Hoo [EXC4]	←	←	←
79	←	Low Hoo [EXC4]	←	←	←
80	←	Electric Mute Triangle [EXC5]	←	←	←
81	←	Electric Open Triangle [EXC5]	←	←	←
82	←	←	←	←	←
83	←	←	←	←	←
C6 84	←	←	←	←	←
85	←	←	←	←	←
86	←	←	←	←	←
87	←	←	←	←	←
88	←	←	←	←	Applause *
89	←	←	←	←	←
90	←	←	←	←	←
91	←	←	←	←	←
92	←	←	←	←	←
93	←	←	←	←	←
94	←	←	←	←	←
95	←	←	←	←	←
C7 96	←	←	←	←	←
97	←	←	←	←	←
98	←	←	←	←	←
99	←	←	←	←	←

Note Number

PC : Program Number (Drum Set Number)
 --- : No sound
 * : Tones which are created using two voices

← : Same as the percussion sound of 'STANDARD' (PC1).
 [EXC] : Percussion sound of the same number will not be heard at the same time.

MAP 1 Drum Set (3)

	PC 50 ETHNIC Set	PC 51 KICK&SNARE Set	PC 57 SFX Set	PC 58 RHYTHM FX Set
25	Finger Snap	----	----	----
26	Tambourine	----	----	----
27	Castanets	----	----	----
28	Crash Cymbal1	----	----	----
29	Snare Roll	----	----	----
30	Concert Snare Drum	----	----	----
31	Concert Cymbal	----	Scratch Push2 [EXC1]	----
32	Concert BD1	----	Scratch Pull2 [EXC1]	----
33	Jingle Bell	----	Cutting Noise 2 Up	----
34	Bell Tree	----	Cutting Noise 2 Down	----
35	Bar Chimes	----	Distortion Guitar Cutting Noise Up	----
C2 36	Wadaiko	----	Distortion Guitar Cutting Noise Down	Reverse Kick 1
37	Wadaiko Rim	----	Bass Slide	Reverse Concert BD 1
38	Shime Taiko	----	Pick Scrape	Reverse Power Kick 1
39	Atarigane	----	High Q	Reverse Electric Kick 1
40	Hyoushugi	Standard 1 Kick 1	Slap	Reverse Snare 1
41	Ohkawa	Standard 1 Kick 2	Scratch Push [EXC7]	Reverse Snare 2
42	High Kotsuzumi	Standard 2 Kick 1	Scratch Pull [EXC7]	Reverse Standard set1 Snare 1
43	Low Kotsuzumi	Standard 2 Kick 2	Sticks	Reverse Tight Snare
44	Ban Gu	Kick 1	Square Click	Reverse Dance Snare
45	Big Gong	Kick 2	Metronome Click	Reverse 808 Snare
46	Small Gong	Soft Kick	Metronome Bell	Reverse Tom1
47	Bend Gong	Jazz Kick 1	Guitar Fret Noise	Reverse Tom2
C3 48	Thai Gong	Jazz Kick 2	Guitar Cutting Noise Up	Reverse Sticks
49	Rama Cymbal	Concert BD	GuitarCutting Noise Down	Reverse Slap
50	Gamelan Gong	Room Kick 1	String Slap of Double Bass	Reverse Cymbal1
51	Udo Short [EXC1]	Room Kick 2	Fl.Key Click	Reverse Cymbal2
52	Udo Long [EXC1]	Power Kick 1	Laughing	Reverse Open Hi-hat
53	Udo Slap	Power Kick 2	Scream	Reverse Ride Cymbal
54	Bendir	Electric Kick 2	Punch	Reverse CR-78 OHH
55	Req Dum	Electric Kick 1	Heart Beat	Reverse Closed Hi-hat
56	Req Tik	Electric Kick	Footsteps1	Reverse Gong
57	Tabla Te	808 Bass Drum	Footsteps2	Reverse Bell Tree
58	Tabla Na	909 Bass Drum	Applause	Reverse Guiro
59	Tabla Tun	Dance Kick	Door Creaking	Reverse Bendir
C4 60	Tabla Ge	Standard 1 Snare 1	Door	Reverse Gun Shot
61	Tabla Ge Hi	Standard 1 Snare 2	Scratch	Reverse Scratch
62	Talking Drum	Standard 2 Snare 1	Wind Chimes	Reverse Laser
63	Bend Talking Drum	Standard 2 Snare 2	Car-Engine	Key Click
64	Caxixi	Tight Snare	Car-Stop	Tekno Thip
65	Djembe	Concert Snare	Car-Pass	Pop Drop
66	Djembe Rim	Jazz Snare 1	Car-Crash	Woody Slap
67	Timbales Low	Jazz Snare 2	Siren	Distortion Kick
68	Timbales Paille	Room Snare 1	Train	Syn.Drop
69	Timbales High	Room Snare 2	Jetplane	Reverse High Q
70	Cowbell	Power Snare 1	Helicopter	Pipe
71	Hi Bongoc	Power Snare 2	Starship	Ice Block
C5 72	Low Bongoc	Gated Snare	Gun Shot	Digital Tambourine
73	Mute Hi Conga	Dance Snare 1	Machine Gun	Alias
74	Open Hi Conga	Dance Snare 2	Lasergun	Modulated Bell
75	Mute Low Conga	Disco Snare	Explosion	Spark
76	Conga Slap	Electric Snare2	Dog	Metalic Percussion
77	Open Low Conga	House Snare	Horse-Gallop	Velocity Noise FX
78	Conga Slide	Electric Snare 1	Birds	Stereo Noise Clap
79	Mute Pandiero	Electric Snare 3	Rain	Swish
80	Open Pandiero	808 Snare 1	Thunder	Sleppy
81	Open Surdo [EXC2]	808 Snare 2	Wind	Voice Ou
82	Mute Surdo [EXC2]	909 Snare 1	Seashore	Voice Au
83	Tamborim	909 Snare 2	Stream	Hoc
C6 84	High Agogo	Brush Tap1	Bubble	Tape Stop1
85	Low Agogo	Brush Tap2	Kitty	Tape Stop2
86	Shaker	Brush Slap1	Bird2	Missile
87	High Whistle [EXC3]	Brush Slap2	Growl	Space Bird
88	Low Whistle [EXC3]	Brush Slap3	Applause2	Flying Monster
89	Mute Cuica [EXC4]	Brush Swirl1	Telephone1	----
90	Open Cuica [EXC4]	Brush Swirl2	Telephone2	----
91	Mute Triangle [EXC5]	Brush Long Swirl	----	----
92	Open Triangle [EXC5]	----	----	----
93	Short Guiro [EXC6]	----	----	----
94	Long Guiro [EXC6]	----	----	----
95	Cabasa Up	----	----	----
C7 96	Cabasa Down	----	----	----
97	Claves	----	----	----
98	High Wood Block	----	----	----
99	Low Wood Block	----	----	----

↑
Note Number

PC : Program Number (Drum Set Number)
 ---- : No sound
 * : Tones which are created using two voices
 -- : Same as the percussion sound of "STANDARD" (PC1).
 [EXC] : Percussion sound of the same number will not be heard at the same time.

	PC 1 / PC 33 STANDARD Set / JAZZ Set	PC 9 ROOM Set	PC 17 POWER Set	PC 25 ELECTRONIC Set	PC 26 TR-808 Set	PC 41 BRUSH Set	PC 49 ORCHESTRA Set
25	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---
27	High O	←	←	←	←	←	Closed Hi-hat [EXC1]
28	Slap	←	←	←	←	←	Pedal Hi-hat [EXC1]
29	Scratch Push	←	←	←	←	←	Open Hi-hat [EXC1]
30	Scratch Pull	←	←	←	←	←	Ride Cymbal1
31	Sticks	←	←	←	←	←	←
32	Square Click	←	←	←	←	←	←
33	Metronome Click	←	←	←	←	←	←
34	Metronome Bell	←	←	←	←	←	←
35	Kick Drum2 / Jazz BD2	←	←	←	←	Jazz BD2	Concert BD2
C2 36	Kick Drum1 / Jazz BD1	←	MONDO Kick	Elec BD	808 Bass Drum	Jazz BD1	Concert BD1
37	Side Stick	←	←	←	808 Rim Shot	←	←
38	Snare Drum1	←	Gated SD	Elec SD	808 Snare Drum	Brush Tap	Concert SD
39	Hand Clap	←	←	←	←	Brush Slap	Castanets
40	Snare Drum2	←	←	Gated SD	←	Brush Swirl	Concert SD
41	Low Tom2	Room Low Tom2	Room Low Tom2	Elec Low Tom2	808 Low Tom2	←	Timpani F
42	Closed Hi-hat [EXC1]	←	←	←	808 CHH [EXC1]	←	Timpani F#
43	Low Tom1	Room Low Tom1	Room Low Tom1	Elec Low Tom1	808 Low Tom1	←	Timpani G
44	Pedal Hi-hat [EXC1]	←	←	←	808 CHH [EXC1]	←	Timpani G#
45	Mid Tom2	Room Mid Tom2	Room Mid Tom2	Elec Mid Tom2	808 Mid Tom2	←	Timpani A
46	Open Hi-hat [EXC1]	←	←	←	808 CHH [EXC1]	←	Timpani A#
47	Mid Tom1	Room Mid Tom1	Room Mid Tom1	Elec Mid Tom1	808 Mid Tom1	←	Timpani B
C3 48	High Tom2	Room Hi Tom2	Room Hi Tom2	Elec Hi Tom2	808 Hi Tom2	←	Timpani c
49	Crash Cymbal1	←	←	←	808 Cymbal1	←	Timpani c#
50	High Tom1	Room Hi Tom1	Room Hi Tom1	Elec Hi Tom1	808 Hi Tom1	←	Timpani d
51	Ride Cymbal1	←	←	←	←	←	Timpani d#
52	Chinese Cymbal	←	←	Reverse Cymbal	←	←	Timpani e
53	Ride Bell	←	←	←	←	←	Timpani f
54	Tambourine	←	←	←	←	←	←
55	Splash Cymbal	←	←	←	←	←	←
56	Cowbell	←	←	←	808 Cowbell	←	←
57	Crash Cymbal2	←	←	←	←	←	Concert Cymbal2
58	Vibra-slap	←	←	←	←	←	←
59	Ride Cymbal2	←	←	←	←	←	Concert Cymbal1
C4 60	High Bongo	←	←	←	←	←	←
61	Low Bongo	←	←	←	←	←	←
62	Mute High Conga	←	←	←	808 High Conga	←	←
63	Open High Conga	←	←	←	808 Mid Conga	←	←
64	Low Conga	←	←	←	808 Low Conga	←	←
65	High Timbale	←	←	←	←	←	←
66	Low Timbale	←	←	←	←	←	←
67	High Agogo	←	←	←	←	←	←
68	Low Agogo	←	←	←	←	←	←
69	Cabasa	←	←	←	←	←	←
70	Maracas	←	←	←	808 Maracas	←	←
71	Short Hi Whistle [EXC2]	←	←	←	←	←	←
C5 72	Long Low Whistle [EXC2]	←	←	←	←	←	←
73	Short Guiro	←	←	←	←	←	←
74	Long Guiro	←	←	←	←	←	←
75	Claves	←	←	←	808 Claves	←	←
76	High Wood Block	←	←	←	←	←	←
77	Low Wood Block	←	←	←	←	←	←
78	Mute Cuica [EXC4]	←	←	←	←	←	←
79	Open Cuica [EXC4]	←	←	←	←	←	←
80	Mute Triangle [EXC5]	←	←	←	←	←	←
81	Open Triangle [EXC5]	←	←	←	←	←	←
82	Shaker	←	←	←	←	←	←
83	Jingle Bell	←	←	←	←	←	←
C6 84	Bell Tree	←	←	←	←	←	←
85	Castanets	←	←	←	←	←	←
86	Mute Surdo [EXC6]	←	←	←	←	←	←
87	Open Surdo [EXC6]	←	←	←	←	←	←
88	---	---	---	---	---	---	Applause *
89	---	---	---	---	---	---	---
90	---	---	---	---	---	---	---
91	---	---	---	---	---	---	---
92	---	---	---	---	---	---	---
93	---	---	---	---	---	---	---
94	---	---	---	---	---	---	---
95	---	---	---	---	---	---	---
C7 96	---	---	---	---	---	---	---
97	---	---	---	---	---	---	---
98	---	---	---	---	---	---	---
99	---	---	---	---	---	---	---

↑
Note Number

PC : Program Number (Drum Set Number) ← : Same as the percussion sound of "STANDARD" (PC1).
 --- : No sound [EXC] : Percussion sound of the same number will not be heard at the same time.
 * : Tones which are created using two voices

MAP 2 Drum Set (2)

	PC 57	PC 128
	SFX Set	CM-64/32L Set
35	----	CM Kick Drum
C2 36	----	CM Kick Drum
	37	CM Rim Shot
38	----	CM Snare Drum
40	39 High Q	CM Hand Clap
	Slap	CM Electronic Snare Drum
41	Scratch Push [EXC7]	CM Acoustic Low Tom
	42 Scratch Pull [EXC7]	CM Closed High Hat [EXC1]
43	Sticks	CM Acoustic Low Tom
	44 Square Click	CM Open Hi-Hat2
45	Metronome Click	CM Acoustic Middle Tom
	46 Metronome Bell	CM Open Hi-Hat1 [EXC1]
47	Guitar Fret Noise	CM M.TomAcoustic Middle Tom
C3 48	Guitar cutting noise/up	CM Acoustic High Tom
	49 Guitar cutting noise/down	CM Crash Cymbal
50	String slap of double bass	CM Acoustic High Tom
	51 Fl.Key Click	CM Ride Cymbal
52	Laughing	----
	Scream	----
53	54 Punch	CM Tambourine
55	Heart Beat	----
	56 Footsteps1	CM Cowbell
57	Footsteps2	----
	58 Applause	----
59	Door Creaking	----
C4 60	Door	CM High Bongo
	61 Scratch	CM Low Bongo
62	Wind Chimes	CM Mute High Conga
	63 Car-Engine	CM High Conga
64	Car-Stop	CM Low Conga
	Car-Pass	CM High Timbale
65	66 Car-Crash	CM Low Timbale
67	Siren	CM High Agogo
	68 Train	CM Low Agogo
69	Jetplane	CM Cabasa
	70 Helicopter	CM Maracas
71	Starship	CM Short Whistle
C5 72	Gun Shot	CM Long Whistle
	73 Machine Gun	CM Vibrato Slap
74	Lasergun	----
	75 Explosion	CM Claves
76	Dog	Laughing
	Horse-Gallop	Scream
77	78 Birds	Punch
79	Rain	Heart Beat
	80 Thunder	Footsteps1
81	Wind	Footsteps2
	82 Seashore	Applause
83	Stream	Creaking
C6 84	Bubble	Door
	85	Scratch
86	----	Wind Chimes
	87	Car-Engine
88	----	Car-Stop
	Car-Pass	Car-Crash
89	90	Siren
91	----	Train
	92	Jetplane
93	----	Helicopter
	94	Starship
95	----	Gun Shot
C7 96	97	Machine Gun
	Lasergun	Explosion
98	99	Dog
100	----	Horse-Gallop
	102	Birds
103	----	Rain
	104	Thunder
105	----	Wind
	106	SeaShore
107	----	Stream
C8 108	----	Bubble

Switching between map1 and map2
 Press the front panel button, to switch between map1 and map2. (p.12)
 You can also use MIDI Bank Select messages to switch between map1 and map2. (p.36)

↑
 Note Number

PC : Program Number (Drum Set Number)
 ---- : No sound
 * : Tones which are created using two voices

← : Same as the percussion sound of "STANDARD" (PC1).
 [EXC]: Percussion sound of the same number will not be heard at the same time.

The M-GS64 has additional functions and parameters which were not found on previous GS format sound sources. These functions and parameters are marked as [M]. If MIDI messages marked as [M] are transmitted to a different GS format sound source, it is possible that these messages may not be received.

Section 1. Receive data

Channel voice messages

Note off

Status	2nd byte	3rd byte
BnH	kkH	vvH
9nH	kkH	00H

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

- * For Drum Parts, these messages are received when Rx.NOTE OFF = ON for each instrument.
- * The velocity values of Note Off messages are ignored.

Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 kk=note number : 00H - 7FH (0 - 127)
 vv=note on velocity : 01H - 7FH (1 - 127)

- * Not received when Rx.NOTE MESSAGE = OFF. (Initial value is ON)
- * For Drum Parts, not received when Rx.NOTE ON = OFF for each instrument.

Polyphonic Key Pressure

Status	2nd byte	3rd byte
AnH	kkH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 kk=note number : 00H - 7FH (0 - 127)
 vv=key pressure : 00H - 7FH (0 - 127)

- * Not received when Rx.POLY PRESSURE (PAF) = OFF. (Initial value is ON)
- * The resulting effect is determined by System Exclusive messages. With the initial settings, there will be no effect.

Control Change

- * When Rx.CONTROL CHANGE = OFF, all control change messages except for Channel Mode messages will be ignored.
- * The value specified by a Control Change message will not be reset even by a Program Change, etc.

Bank Select (Controller number 0,32)

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

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 mm=Bank number MSB : 00H - 7FH (GS Variation number 0 - 127)
 ll=Bank number LSB : 00H - 02H (MAP)

Initial value = 00H
 Initial value = 00H

- * Not received when Rx.BANK SELECT = OFF
- * When "GM System On" is received, Rx.BANK SELECT will be set OFF, and Bank Select will not be received.
- * When "GS Reset" is received, Rx.BANK SELECT will be set ON.
- * When Rx.BANK SELECT LSB = OFF, Bank number LSB will be handled as 00H regardless of the received value.
- * Bank Select processing will be suspended until a Program Change message is received.
- * The GS format "Variation number" is the value of the Bank Select MSB (Controller number 0) expressed in decimal.
- * The M-GS64 recognizes the Bank Select LSB (Controller number 32) as a flag for switching between the MAP1 and the MAP2. With a Bank Select LSB of 00H, the map selected by the front panel will be selected. With a LSB of 01H, the MAP2 will be selected. With a LSB of 02H, the MAP1 will be selected.
- * Some other GS devices do not recognize the Bank Select LSB (Controller number 32).

Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

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

- * Not received when Rx.MODULATION = OFF. (Initial value is ON)
- * The resulting effect is determined by System Exclusive messages. With the initial settings, this is Pitch Modulation Depth.

Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Portamento Time : 00H - 7FH (0 - 127) Initial value = 00H (0)

- * This adjusts the rate of pitch change when Portamento is on or when using the Portamento Control. A value of 0 results in the fastest change.

Data Entry (Controller number 6,38)

Status	2nd byte	3rd byte
BnH	06H	mmH
BnH	26H	llH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 mm,ll= the value of the parameter specified by RPN/NRPN

Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Volume : 00H - 7FH (0 - 127) Initial value = 64H (100)

- * Volume messages are used to adjust the volume balance of each Part.
- * Not received when Rx.VOLUME = OFF. (Initial value is ON)

Pan (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

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

- * For Rhythm Parts, this is a relative adjustment of each instrument's pan setting.
- * Not received when Rx.PANPOT = OFF. (Initial value is ON)

Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Expression : 00H - 7FH (0 - 127) Initial value = 7FH (127)

- * 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 received when Rx.EXPRESSION = OFF. (Initial value is ON)

Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

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

- * Not received when Rx.HOLD1 = OFF. (Initial value is ON)

Portamento (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH

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

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

Sostenuto (Controller number 66)

Status	2nd byte	3rd byte
BnH	42H	vvH

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

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

• **Soft** (Controller number 67)

Status	2nd byte	3rd byte
BnH	43H	vvH

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

* Not received when Rx.SOFT = OFF. (Initial value is ON)

Portamento control (Controller number 84)

Status	2nd byte	3rd byte
BnH	54H	kkH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 kk=source note number : 00H - 7FH (0 - 127)

* A Note-on received immediately after a Portamento Control message will change continuously in pitch, starting from the pitch of the Source Note Number.0

* If a voice is already sounding for a note number identical to the Source Note Number, this voice will continue sounding (i.e., legato) and will, when the next Note-on is received, smoothly change to the pitch of that Note-on.

* The rate of the pitch change caused by Portamento Control is determined by the Portamento Time value.

Example 1)

On MIDI	Description	Result
90 3C 40	Note on C4	C4 on
B0 54 3C	Portamento Control from C4	no change (C4 voice still sounding)
90 40 40	Note on E4	Glide from C4 to E4
B0 3C 40	Note off C4	no change
B0 40 40	Note off E4	E4 off

Example 2)

On MIDI	Description	Result
B0 54 3C	Portamento Control from C4	no change
90 40 40	Note on E4	E4 on with glide from C4
B0 40 40	Note off E4	E4 off

• **Effect 1 (Reverb Send Level)** (Controller number 91)

Status	2nd byte	3rd byte
BnH	5BH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) Initial value = 2BH (40)

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

• **Effect 3 (Chorus Send Level)** (Controller number 93)

Status	2nd byte	3rd byte
BnH	5DH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) Initial value = 00H (0)

* This message adjusts the Chorus Send Level of each Part.

• **Effect 4 (Delay Send Level)** (Controller number 94) [M]

Status	2nd byte	3rd byte
BnH	5EH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Control value : 00H - 7FH (0 - 127) Initial value = 00H (0)

* This message adjusts the Delay Send Level of each Part.

* Some other GS devices may not recognize this message.

* Delay cannot be used in MODE-2 (Double Module mode).

• **NRPN MSB/LSB** (Controller number 98,99)

Status	2nd byte	3rd byte
BnH	63H	mmH
BnH	62H	llH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 mm=upper byte of the parameter number specified by NRPN
 ll=lower byte of the parameter number specified by NRPN

* When "GM System On" is received, Rx.NRPN will be set OFF, and NRPN will not be received. When "GS Reset" or Rx.NRPN = ON is received, NRPN can be received.

* The value set by NRPN will not be reset even if Program Change or Reset All Controllers is received.

****NRPN****

The NRPN (Non Registered Parameter Number) message allows an extended range of control changes to be used. To use these messages, you must first use NRPN MSB and NRPN LSB messages to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an NRPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH/7Fh) when you have finished setting the value of the desired parameter. Refer to Section 5. Supplementary material "Examples of actual MIDI messages" <Example 4> (Page 50). On the M-GS64, Data entry LSB (llH) of NRPN is ignored, so it is no problem to send Data entry MSB (mmH) only (without Data entry LSB).

On the M-GS64, NRPN can be used to modify the following parameters.

NRPN MSB/LSB	Data entry MSB	Function and range
01H 08H	mmH	Vibrato Rate (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)
01H 09H	mmH	Vibrato Depth (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)
01H 0AH	mmH	Vibrato Delay (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)
01H 20H	mmH	TVF Cutoff Frequency (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)
01H 21H	mmH	TVF Resonance (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)
01H 63H	mmH	TVF&TVA Envelope Attack Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)
01H 64H	mmH	TVF&TVA Envelope Decay Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)
01H 66H	mmH	TVF&TVA Envelope Release Time (relative change) mm: 00H - 40H - 7FH (-64 - 0 - +63)
18H rrH	mmH	Drum Instrument Pitch Course (relative change) rr: Drum instrument note number mm: 00H - 40H - 7FH (-64 - 0 - +63 semitone)
1AH rrH	mmH	Drum Instrument TVA Level (absolute change) rr: Drum instrument note number mm: 00H - 7FH (0 - max)
1CH rrH	mmH	Drum Instrument Panpot (absolute change) rr: Drum instrument note number mm: 00H, 01H - 40H - 7FH (random, left-center-right)
1DH rrH	mmH	Drum Instrument Reverb Send Level (absolute change) rr: Drum instrument note number mm: 00H - 7FH (0 - max)
1EH rrH	mmH	Drum Instrument Chorus Send Level (absolute change) rr: Drum instrument note number mm: 00H - 7FH (0 - max)
1FH rrH	mmH	Drum Instrument Delay Send Level (absolute change) [M] rr: Drum instrument note number mm: 00H - 7FH (0 - max)

* Data entry LSB (llH) is ignored.

* Parameters marked "relative change" will change relative to the preset value (40H). Even among different GS devices, "relative change" parameters may sometimes differ in the way the sound changes or in the range of change.

* Parameters marked "absolute change" will be set to the absolute value of the parameter, regardless of the preset value.

* It is not possible to simultaneously use both Chorus Send Level and Delay Send Level on a single Drum Instrument.

RPN MSB/LSB

(Controller number 100,101)

Status	2nd byte	3rd byte
BnH	65H	mmH
BnH	64H	llH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 mm=upper byte of parameter number specified by RPN
 ll=lower byte of parameter number specified by RPN

- * This message is not received when Rx.RPN = OFF.
- * The value specified by RPN will not be reset even by messages such as Program Change or Reset All Controller.

****RPN****

The RPN (Registered Parameter Number) messages are expanded control changes, and each function of an RPN is described by the MIDI Standard.

To use these messages, you must first use RPN MSB and RPN LSB messages to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an RPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH/7Fh) when you have finished setting the value of the desired parameter. Refer to Section 5. "Examples of actual MIDI messages" <Example 4> (Page 50). On the M-GS64, RPN can be used to modify the following parameters.

RPN	Data entry	Explanation
MSB LSB	MSB LSB	
00H 00H	mmH —	Pitch Bend Sensitivity mm: 00H - 18H (0 - 24 semitones) Initial value = 02H (2 semitones) ll: ignored (processed as 00H) specify up to 2 octaves in semitone steps
00H 01H	mmH llH	Master Fine Tuning mm,ll: 00 00H - 40 00H - 7F 7FH (-100.0+99.99 cents) Refer to 5. Supplementary material, "About tuning".
00H 02H	mmH —	Master Coarse Tuning mm: 28H - 40H - 58H (-24 - 0 +24 semitones) ll: ignored (processed as 00H)
7FH 7FH	— —	RPN null set condition where RPN and NRPN are unspecified. The data entry messages after set RPN null will be ignored. (No Data entry messages are required after RPN null). Settings already made will not change. mm,ll: ignored

Program Change

Status	2nd byte
CnH	ppH

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

- * Not received when Rx.PROGRAM CHANGE = OFF. (Initial value is 0H)
- * After a Program Change message is received, the sound will change beginning with the next Note-on. Voices already sounding when the Program Change message was received will not be affected.
- * For Drum Parts, Program Change messages will not be received on bank numbers 129 - 16384 (the value of Control Number 0 is other than 0(00H)).

Channel Pressure

Status	2nd byte
DnH	vvH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 vv=Channel Pressure : 00H - 7FH (0 - 127)

- * Not received when Rx.CH PRESSURE (CA1) = OFF. (Initial value is 0H)
- * The resulting effect is determined by System Exclusive messages. With the initial settings there will be no effect.

Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 mm,ll=Pitch Bend value : 00 00H - 40 00H - 7F 7FH (-8192 - 0 +8191)

- * Not received when Rx.PITCH BEND = OFF. (Initial value is 0H)
- * The resulting effect is determined by System Exclusive messages. With the initial settings the effect is Pitch Bend.

Channel Mode Messages

All Sounds Off (Controller number 120)

Status	2nd byte	3rd byte
BnH	78H	00H

n=MIDI channel number : 0H - FH (ch.1 - ch.16)

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

Reset All Controllers (Controller number 121)

Status	2nd byte	3rd byte
BnH	79H	00H

n=MIDI channel number : 0H - FH (ch.1 - ch.16)

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

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

All Notes Off (Controller number 123)

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

n=MIDI channel number : 0H - FH (ch.1 - ch.16)

- * When All Notes Off is received, all notes on the corresponding channel will be turned off. However if Hold 1 or Sostenuto is ON, the sound will be continued until these are turned off.

OMNI OFF (Controller number 124)

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

n=MIDI channel number : 0H - FH (ch.1 - ch.16)

- * The same processing will be carried out as when All Notes Off is received.

OMNI ON (Controller number 125)

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

n=MIDI channel number : 0H - FH (ch.1 - ch.16)

- * OMNI ON is only recognized as "All notes off"; the Mode doesn't change (OMNI OFF remains).

MONO (Controller number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH

n=MIDI channel number : 0H - FH (ch.1 - ch.16)
 mm=mono number : 00H - 10H (0 - 16)

- * The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 4 (M=1) regardless of the value of "mono number".

POLY (Controller number 127)

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

n=MIDI channel number : 0H - FH (ch.1 - ch.16)

- * The same processing will be carried out as when All Sounds Off and All Notes Off is received, and the corresponding channel will be set to Mode 3.

System Realtime Messages

Active Sensing

Status
FEH

* When Active Sensing is received, the unit will begin monitoring the intervals of all further messages. While monitoring, if the interval between messages exceeds 420 ms, the same processing will be carried out as when All Sounds Off, All Notes Off and Reset All Controllers are received, and message interval monitoring will be halted.

System Exclusive Messages

Status	Data byte	Status
FOH	iiH, ddH,eeH	F7H

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

The System Exclusive Messages received by the M-GS64 are; messages related to mode settings, Universal Realtime System Exclusive messages, Data Requests (RQ1), and Data Set (DT1).

System exclusive messages related to mode settings

These messages are used to initialize a device to GS or General MIDI mode, or change the operating mode. When creating performance data, a "Turn General MIDI System On" message should be inserted at the beginning of a General MIDI score, a "GS Reset" message at the beginning of a GS music data, and a "System Mode Set" message at the beginning of data especially for the M-GS64. Each song should contain only one mode message as appropriate for the type of data. (Do not insert two or more mode setting messages in a single song.)
 "System Mode Set" and "GS Reset" use Roland system exclusive format "Data Set 1 (DT1)". "Turn General MIDI System On" use Universal Non-realtime Message format.

• Turn General MIDI System On

This is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System - Level 1). After receiving this message, M-GS64 will automatically be set to the proper condition for correctly playing a General MIDI score.

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

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

* When this message is received, Rx.BANK SELECT will be OFF and Rx.NRPN will be OFF.
 * This message will not be received when Rx.GM On = OFF (P.19).
 * There must be an interval of at least 50 ms between this message and the next message.

• GS Reset

GS Reset is a command message that resets the internal settings of a device to the GS initial state. This message appears at the beginning of GS music data, and a GS device that receives this message will automatically be set to the proper state to correctly playback GS music data. If the M-GS64 is in MODE-1 (single module mode) all 32 Parts will be initialized. If in MODE-2 (double module mode), only the corresponding 16 Parts will be initialized. In MODE-2 if the receiving MIDI connector for each Part has been changed, this may affect playback from the other MIDI connector. In this case, first perform initialization (page 17) before using this command.

Status	Data byte	Status
FOH	41H, dev, 42H, 12H, 40H, 00H, 7FH, 00H, 41H	F7H

Byte	Explanation
FOH	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 00H - 1FH (1 - 32) Initial value is 10H(17))
42H	Model ID (GS)
12H	Command ID (DT1)
40H	Address MSB
00H	Address
7FH	Address LSB
00H	Data (GS reset)
41H	Checksum
F7H	EOX (End Of Exclusive)

* When this message is received, Rx.NRPN will be ON.
 * This message will not be received if Rx.GS Reset = OFF (P.19).
 * There must be an interval of at least 50 ms between this message and the next.

• System Mode Set [M]

System Mode Set is a message that sets the M-GS64 operating mode to MODE-1 (single module mode) or MODE-2 (double module mode). When this message is received, the operating mode will be set, and at the same time all internal parameters (except for the map settings of each Part) will be reset to the initial state.

Status	Data byte	Status
FOH	41H, dev, 42H, 12H, 00H, 00H, 7FH, ddH, sumH	F7H

Byte	Explanation
FOH	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 00H - 1FH (1 - 32) Initial value is 10H(17))
42H	Model ID (GS)
12H	Command ID (DT1)
00H	Address MSB
00H	Address
7FH	Address LSB
ddH	Data 00H (MODE-1), 01H (MODE-2)
sumH	Checksum 01H (MODE-1), 00H (MODE-2)
F7H	EOX (End Of Exclusive)

* When this message is received, Rx.NRPN will be set ON.
 * This message will not be received when Rx.GS Reset = OFF (P.19) or Rx.Sys Mode = OFF (P.18).
 * There must be an interval of at least 50 ms between this message and the next.

Universal Realtime System Exclusive Messages

• Master volume

Status	Data byte	Status
FOH	7FH, 7FH, 04H, 01H, IH, mmH	F7H

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

* The lower byte (IH) of Master Volume will be handled as 00H.

Universal Non-realtime System Exclusive Messages

• Inquiry request

Status	Data byte	Status
FOH	7EH, dev, 06H, 01H	F7H

Byte	Explanation
FOH	Exclusive status
7EH	ID number (universal non-realtime message)
dev	Device ID (dev: 00H - 1FH (1 - 32) Initial value is 10H(17))
06H,01H	Inquiry request
F7H	EOX (End Of Exclusive)

* When Inquiry Request is received, Inquiry Reply message will be transmitted.

* Regarding the Inquiry Reply, please refer to page 40.

* Even if the Device ID is 7FH(Broadcast), Inquiry Reply message will be transmitted.

Data transmission

The M-GS64 can use Exclusive messages to transmit internal settings to other devices. There are two types of Exclusive data transmission; Individual Parameter Transmission (section 3) in which single parameters are transmitted one by one, and Bulk Dump Transmission (section 4) in which a large amount of data is transmitted at once.

The exclusive message used when transmitting GS format data has a model ID of 42H and a device ID of 10H. (The M-GS64 allows you to change the Device ID setting.)

Data request 1 RQ1 (11H)

This message requests the other device to send data. The Address and Size determine the type and amount of data to be sent. There are two types of request; Individual Parameter Request which requests data for an individual parameter, and Bulk Dump Request which requests a large amount of data at once. In either case, the "Data Request 1 (RQ1)" message format is used, and the Address and Size included in the message determine the type and amount of data that is desired.

For Individual Parameter Request, refer to "3. Individual Parameter Transmission" (p.41).

For Bulk Dump Request, refer to "4. Bulk Dump" (p.48).

When a Data Request message is received, if the device is ready to transmit data and if the address and size are appropriate, the requested data will be transmitted as a "Data Set 1 (DT1)" message. If not, nothing will be transmitted.

Status	Data byte	Status
FOH	41H, dev, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum	F7H
Byte	Explanation	
FOH	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H - 1FH Initial value is 10H(17))	
42H	Model ID (GS)	
11H	Command ID (RQ1)	
aaH	Address MSB : upper byte of the starting address of the requested data	
bbH	Address : middle byte of the starting address of the requested data	
ccH	Address LSB : lower byte of the starting address of the requested data	
ssH	Size MSB	
ttH	Size	
uuH	Size LSB	
sum	Checksum	
F7H	EOX (End Of Exclusive)	

* The amount of data that can be transmitted at once time will depend on the type of data, and data must be requested using a specific starting address and size. Refer to the Address and Size listed in Section 3 (p.41).

* Regarding the checksum please refer to Section 5(p.50).

Data set 1 DT1 (12H)

This is the message that actually performs data transmission, and is used when you wish to transmit the data.

Status	Data byte	Status
FOH	41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum	F7H
Byte	Explanation	
FOH	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H - 1FH Initial value is 10H(17))	
42H	Model ID (GS)	
12H	Command ID (DT1)	
aaH	Address MSB : upper byte of the starting address of the transmitted data	
bbH	Address : middle byte of the starting address of the transmitted data	
ccH	Address LSB : lower byte of the starting address of the transmitted data	
ddH	Data : the actual data to be transmitted. Multiple bytes of data are transmitted starting from the address.	
:	:	
eeH	Data	
sum	Checksum	
F7H	EOX (End Of Exclusive)	

* The amount of data that can be transmitted at one time depends on the type of data, and data can be received only from the specified starting address and size. Refer to the Address and Size given in Section 3 (p.41).

* Data larger than 128 bytes must be divided into packets of 128 bytes or less. If "Data Set 1" is transmitted successively, there must be an interval of at least 40 ms between packets.

* Regarding the checksum please refer to section 5 (p.50).

Section 2. Transmit data

System realtime messages

Active sensing

Status
FEH

* This will be transmitted constantly at intervals of approximately 250ms.

System exclusive messages

Data Set 1 (DT1) is the only System Exclusive messages transmitted by GS format sound sources. When an appropriate "Data Request 1 (RQ1)" message is received, the requested internal data will be transmitted.

Data set 1 DT1 (12H)

Status	Data byte	Status
FOH	41H, dev, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum	F7H
Byte	Explanation	
FOH	Exclusive status	
41H	ID number (Roland)	
dev	Device ID (dev: 00H - 1FH Initial value is 10H)	
42H	Model ID (GS)	
12H	Command ID (DT1)	
aaH	Address MSB : upper byte of the starting address of the data to be sent	
bbH	Address : middle byte of the starting address of the data to be sent	
ccH	Address LSB : lower byte of the starting address of the data to be sent.	
ddH	Data : the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.	
:	:	
eeH	Data	
sum	Checksum	
F7H	EOX (End Of Exclusive)	

* The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the Address and Size given in Section 3 (p.41).

* Data larger than 128 bytes will be divided into packets of 128 bytes or less, and each packet will be sent at an interval of about 40ms.

* Regarding the checksum please refer to section 5 (p.50)

There are two ways in which GS data is transmitted: Individual Parameter Transmission (Section 3 p.41) in which individual parameters are transmitted one by one, and Bulk Dump Transmission (Section 4 p.48) in which a large amount of data is transmitted at once.

Universal Non-realtime System Exclusive Messages

Inquiry reply

Status	Data byte	Status
FOH	7EH, dev, 06H, 02H, 41H, 42H, 00H, 00H, 02H, 02H, 00H, 00H, 00H	F7H
Byte	Explanation	
FOH	Exclusive status	
7EH	ID number (universal non-realtime message)	
dev	Device ID (dev: 00H - 1FH (1 - 32) Initial value is 10H(17))	
06H, 02H	Inquiry reply	
41H	ID number (Roland)	
42H, 00H	Device family code	
00H, 02H	Device family number code	
02H, 00H, 00H, 00H	software revision level	
F7H	EOX (End Of Exclusive)	

* When Inquiry Request is received, Inquiry Reply message will be transmitted.

* Regarding the Inquiry Request, please refer to page 39.

Section 3. Individual Parameter Transmission

(Model ID=42H)

Individual Parameter Transmission transmits data (or requests data) for one parameter as one exclusive message (one packet of "FD F7").

In Individual Parameter Transmission, you must use the Address and Size listed in the following "Parameter Address Map". Addresses marked at "#" cannot be used as starting addresses.

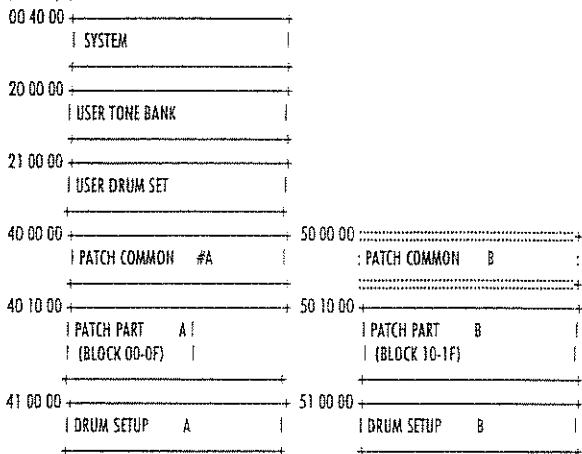
Address Block Map

The address map for Individual Parameter Transmission is as follows.

<Model ID = 42H>

ÄuPort-A

Address(H)Block

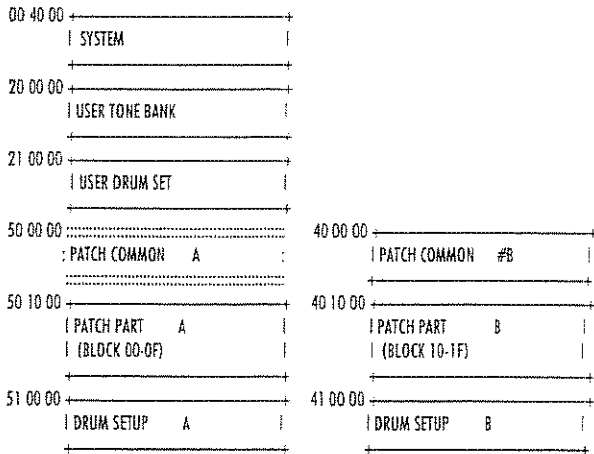


* Blocks delineated by dotted lines (: : :) cannot be accessed in Mode-1 (Single Module mode).

* Blocks listed as "#A" are parameter blocks which are common to the entire device in Mode-1, and valid only for Parts A01 - A16 in Mode-2 (Double Module mode).

Port-B

Address(H) Block



* Blocks delineated by dotted lines (: : :) cannot be accessed in Mode-1 (Single Module mode).

* Blocks listed as "#B" are parameter blocks which are common to the entire device in Mode-1, and valid only for Parts B01 - B16 in Mode-2 (Double Module mode).

Parameter address map

This map indicates address, size, Data (range), Parameter, Description, and Default Value of parameters which can be transferred using "Request data 1 (RQ1)" and "Data set 1 (DT1)".

All the numbers of address, size, Data, and Default Value are indicated in 7-bit Hexadecimal-form.

The MODEL ID = 42H parameters at address 5**** are not given in this map. The parameters for address 5**** are the same format as those at address 4****.

System parameters [M]

Parameters affecting the entire unit, such as how the two MIDI IN connectors will function, are called System Parameters. System parameters will not be reset even if "GS Reset" or "General MIDI System On" are received.

<MODEL ID = 42H>

Address(H)	Size(H)	Data(H)	Parameter	Description	Default(H)	Description
00 00 05	00 00 01	00 - 01	SYSTEM OUTPUT ASSIGN [M]	00:SELECTED 01:FIXED	00	SELECTED
00 00 7F	00 00 01	00 - 01	SYSTEM MODE SET [M] (Rx. only)	00: MODE-1 (Single module mode) 01: MODE-2 (Double module mode)	00	00 (MODE1)
* Refer to "System exclusive messages related to Mode settings" (p.39).						
00 01 00	00 00 01	00 - 01	CHANNEL MSG RX PORT [M] BLOCK00	PORT A - B	00	PORT A
:	:	:	:	:	:	:
00 01 0F	00 00 01	00 - 01	BLOCK0F	PORT A - B	00	PORT A
00 01 10	00 00 01	00 - 01	BLOCK10	PORT A - B	01	PORT B
:	:	:	:	:	:	:
00 01 1F	00 00 01	00 - 01	BLOCK1F	PORT A - B	01	PORT B

* You can modify the receiving MIDI port at which channel messages will be received for each BLOCK. We suggest that normally you use PORT A for BLOCK01-0F, and PORT B for BLOCK10-1F. (In this case there is no need to change the setting.)

* Refer to page 44 for details of each BLOCK.

Patch parameters

• Patch common parameters

In MODE-1 (Single module mode) the M-GS64 functions as a single sound source module with 32 Parts. In MODE-2 (Double module mode) it functions as two sound source modules with 16 Parts each. The parameters common to all Parts in each module are called Patch Common parameters.

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 00 00	00 00 04	0018 - 07E8	MASTER TUNE	-100.0 - +100.0 [cent] Use nibblized data.	00 04 00 00	0 [cent]
40 00 01#						
40 00 02#						
40 00 03#						
* Refer to section 5, Supplementary material, "About tuning" (p.51).						
40 00 04	00 00 01	00 - 7F	MASTER VOLUME (= F0 7F 7F 04 01 00 vv F7)	0 - 127	7F	127
40 00 05	00 00 01	28 - 58	MASTER KEY-SHIFT	-24 - +24 [semitones]	40	0 [semitones]
40 00 06	00 00 01	01 - 7F	MASTER PAN	-63 (LEFT) - +63 (RIGHT)	40	0 (CENTER)
40 00 7F	00 00 01	00	MODE SET (Rx. only)	00 = GS Reset		

* Refer to "System exclusive messages related to Mode settings" (p.39).

40 01 30	00 00 01	0 - 07	REVERB MACRO	00: Room 1 01: Room 2 02: Room 3 03: Hall 1 04: Hall 2 05: Plate 06: Delay 07: Panning Delay	04	Hall 2
40 01 31	00 00 01	00 - 07	REVERB CHARACTER	0 - 7	04	04
40 01 32	00 00 01	00 - 07	REVERB PRE-LPF	0 - 7	00	00
40 01 33	00 00 01	00 - 7F	REVERB LEVEL	0 - 127	40	64
40 01 34	00 00 01	00 - 7F	REVERB TIME	0 - 127	40	64
40 01 35	00 00 01	00 - 7F	REVERB DELAY FEEDBACK	0 - 127	00	00
40 01 37	00 00 01	00 - 7F	REVERB PREDELAY TIME [M]	0 - 127[ms]	00	00

* REVERB MACRO is a macro parameter that allows global setting of reverb parameters. When you select the reverb type with REVERB MACRO, each reverb parameter will be set to the most suitable value.

* REVERB CHARACTER is a parameter that changes the reverb algorithm. The value of REVERB CHARACTER corresponds to the REVERB MACRO of the same number.

* In MODE-2 (Double module mode), REVERB PREDELAY TIME cannot be used.

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 01 38	00 00 01	00 - 07	CHORUS MACRO	00: Chorus 1 01: Chorus 2 02: Chorus 3 03: Chorus 4 04: Feedback Chorus 05: Flanger 06: Short Delay 07: Short Delay(FB)	02	Chorus 3
40 01 39	00 00 01	00 - 07	CHORUS PRE-LPF	0-7	00	0
40 01 3A	00 00 01	00 - 7F	CHORUS LEVEL	0-127	40	64
40 01 3B	00 00 01	00 - 7F	CHORUS FEEDBACK	0-127	08	8
40 01 3C	00 00 01	00 - 7F	CHORUS DELAY	0-127	50	80
40 01 3D	00 00 01	00 - 7F	CHORUS RATE	0-127	03	3
40 01 3E	00 00 01	00 - 7F	CHORUS DEPTH	0-127	13	19
40 01 3F	00 00 01	00 - 7F	CHORUS SEND LEVEL TO REVERB	0-127	00	0
40 01 40	00 00 01	00 - 7F	CHORUS SEND LEVEL TO DELAY [M]	0-127	00	0

* CHORUS MACRO is a macro parameter that allows global setting of chorus parameters. When you use CHORUS MACRO to select the chorus type, each chorus parameter will be set to the most suitable value.
 * In MODE-2 (Double module mode), CHORUS SEND LEVEL TO DELAY cannot be used.

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 01 50	00 00 01	00 - 09	DELAY MACRO [M]	00: Delay 1 01: Delay 2 02: Delay 3 03: Delay 4 04: Pan Delay 1 05: Pan Delay 2 06: Pan Delay 3 07: Pan Delay 4 08: Delay to Reverb 09: Pan Repeat	00	Delay 1
40 01 51	00 00 01	00 - 07	DELAY PRE-LPF [M]	0-7	0	0
40 01 52	00 00 01	01 - 73	DELAY TIME CENTER [M]	0.1ms - 1sec	61	340
40 01 53	00 00 01	01 - 78	DELAY TIME RATIO LEFT [M]	4 - 500%	01	4
40 01 54	00 00 01	01 - 78	DELAY TIME RATIO RIGHT [M]	4 - 500%	01	4
40 01 55	00 00 01	00 - 7F	DELAY LEVEL CENTER [M]	0 - 127	7F	127
40 01 56	00 00 01	00 - 7F	DELAY LEVEL LEFT [M]	0 - 127	0	0
40 01 57	00 00 01	00 - 7F	DELAY LEVEL RIGHT [M]	0 - 127	0	0
40 01 58	00 00 01	00 - 7F	DELAY LEVEL [M]	0 - 127	40	64
40 01 59	00 00 01	00 - 7F	DELAY FEEDBACK [M]	-64 - +63	50	80
40 01 5A	00 00 01	00 - 7F	DELAY SENDLEVEL TO REVERB [M]	0 - 127	0	127

* DELAY MACRO is a macro parameter that allows global setting of delay parameters. When you use DELAY MACRO to select the delay type, each delay parameter will be set to the most suitable value.
 * The relation between the DELAY TIME CENTER value and the actual delay time is as follows.

DELAY TIME	Time Range[ms]	Resolution[ms]	DELAY TIME	Time Range[ms]	Resolution[ms]
01 - 14	0.1 - 2.0	0.1	46 - 50	50.0 - 100.0	5.0
14 - 23	2.0 - 5.0	0.2	50 - 5A	100.0 - 200.0	10.0
23 - 2D	5.0 - 10.0	0.5	5A - 69	200.0 - 500.0	20.0
2D - 37	10.0 - 20.0	1.0	69 - 73	500.0 - 1000.0	50.0
37 - 46	20.0 - 50.0	2.0			

* DELAY TIME RATIO LEFT and DELAY TIME RATIO RIGHT specify the ratio in relation to DELAY TIME CENTER. The resolution is 100/24(%).
 * In MODE-2 (Double module mode), Delay cannot be used.

40 02 00	00 00 01	00 - 01	EQ LOW FREQ. [M]	100Hz, 200Hz	01	200Hz
40 02 01	00 00 01	34 - 4C	EQ LOW GAIN [M]	-12 - +12dB	40	0
40 02 02	00 00 01	00 - 01	EQ HIGH FREQ. [M]	4kHz, 8kHz	01	8kHz
40 02 03	00 00 01	34 - 4C	EQ HIGH GAIN [M]	-12 - +12dB	40	0

* In MODE-2 (Double module mode), EQ (equalizer) cannot be used.

• Patch Part parameters

The M-GS64 has 16 Parts in Group A and 16 Parts in Group B. Parameters that can be set individually for each Part are called Patch Part parameters.

If you use exclusive messages to set Patch Part parameters, specify the address by Block number rather than Part Number (normally the same number as the MIDI channel). The Block number can be specified as one of 16 blocks, from 0(H) to F(H).

To specify a Part of group A, use the Block number corresponding to the Part and specify an address of 40 ** ** via PORT A (normally MIDI IN A).

To specify a Part of group B, use the Block number corresponding to the Part and specify an address of 40 ** ** via PORT B (normally MIDI IN B).

To specify a Part of either group A or B from a single PORT, specify an address of 40 ** ** for group A Parts or an address of 50 ** ** for group B Parts when using PORT A.

Conversely, to specify a Part of either group A or B from PORT B, specify an address of 50 ** ** for group A Parts or an address of 40 ** ** for group B Parts. In other words, when specifying Parts of the opposite side as the PORT being used, use addresses 50 ** **.

The relation between Part number and Block number is as follows.

* x...BLOCK NUMBER (0 - F),	Part 1 (default MIDIch = 1)	x=1
	Part 2 (default MIDIch = 2)	x=2
	:	:
	Part 9 (default MIDIch = 9)	x=9
	Part10 (default MIDIch =10)	x=0
	Part11 (default MIDIch =11)	x=A
	Part12 (default MIDIch =12)	x=B
	:	:
	Part16 (default MIDIch =16)	x=F

* n...MIDI channel (0 - F) of the BLOCK.

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 1x 00	00 00 02	00 - 7F	tone NUMBER	CC#00 VALUE 0 - 127	00	0
40 1x 01#		00 - 7F		P.C. VALUE 1 - 128	00	1
40 1x 02	00 00 01	00 - 10	Rx. CHANNEL	1 - 16, OFF		Same as the Part Number
40 1x 03	00 00 01	00 - 01	Rx. PITCH BEND	OFF / ON	01	ON
40 1x 04	00 00 01	00 - 01	Rx. CH PRESSURE(CAF)	OFF / ON	01	ON
40 1x 05	00 00 01	00 - 01	Rx. PROGRAM CHANGE	OFF / ON	01	ON
40 1x 06	00 00 01	00 - 01	Rx. CONTROL CHANGE	OFF / ON	01	ON
40 1x 07	00 00 01	00 - 01	Rx. POLY PRESSURE(PAF)	OFF / ON	01	ON
40 1x 08	00 00 01	00 - 01	Rx. NOTE MESSAGE	OFF / ON	01	ON
40 1x 09	00 00 01	00 - 01	Rx. RPN	OFF / ON	01	ON
40 1x 0A	00 00 01	00 - 01	Rx. NRPN	OFF / ON	00(01*)	OFF(ON*)

* When "General MIDI System On" is received, Rx. NRPN will be set OFF. When "GS Reset" is received, it will be set ON.

40 1x 0B	00 00 01	00 - 01	Rx. MODULATION	OFF / ON	01	ON
40 1x 0C	00 00 01	00 - 01	Rx. VOLUME	OFF / ON	01	ON
40 1x 0D	00 00 01	00 - 01	Rx. PANPOT	OFF / ON	01	ON
40 1x 0E	00 00 01	00 - 01	Rx. EXPRESSION	OFF / ON	01	ON
40 1x 0F	00 00 01	00 - 01	Rx. HOLD1	OFF / ON	01	ON
40 1x 10	00 00 01	00 - 01	Rx. PORTAMENTO	OFF / ON	01	ON
40 1x 11	00 00 01	00 - 01	Rx. SOSTENUTO	OFF / ON	01	ON
40 1x 12	00 00 01	00 - 01	Rx. SOFT	OFF / ON	01	ON
40 1x 13	00 00 01	00 - 01	MONO/POLY MODE	Mono / Poly (=CC#126 01 / CC#127 00)	01	Poly
40 1x 14	00 00 01	00 - 02	ASSIGN MODE	0 = SINGLE 1 = LIMITED-MULTI 2 = FULL-MULTI	MAP1 01 MAP2	LIMITED-MULTI
					00 at x=0 01 at x=/0	SINGLE (Drum Part) LIMITED-MULTI (Normal Part)

* ASSIGN MODE is the parameter that determines how voice assignment will be handled when sounds overlap on identical note numbers in the same channel (i.e., repeatedly struck notes). This is initialized to a mode suitable for each Part, so for general purposes there is no need to change this.

40 1x 15	00 00 01	00 - 02	USE FOR RHYTHM PART	0 = OFF 1 = MAP1 2 = MAP2	00 at x=/0 01 at x=0	OFF (Normal Part) MAP1 (Drum Part)
----------	----------	---------	---------------------	---------------------------------	-------------------------	---------------------------------------

* This parameter sets the Drum Map of the Part used as the Drum Part. The M-GS64 can simultaneously (in different Parts) use up to two Drum Maps (MAP1, MAP2). With the initial settings, Part10 (MIDI Ch=10, x=0) is set to MAP1 (1), and other Parts are set to normal instrumental Parts (OFF(0)).

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 1x 16	00 00 01	2B - 5B	PITCH KEY SHIFT-	24 - +24 [semitones]	40	0 [semitones]
40 1x 17	00 00 02	0B - FB	PITCH OFFSET FINE	-12.0 - +12.0 [Hz]	0B 00	0 [Hz]
40 1x 1B#				Use nibblized data.		

*PITCH OFFSET FINE allows you to alter, by a specified frequency amount, the pitch at which notes will sound. This parameter differs from the conventional Fine Tuning (RPN #1) parameter in that the amount of frequency alteration (in Hertz) will be identical no matter which note is played. When a multiple number of Parts, each of which has been given a different setting for PITCH OFFSET FINE, are sounded by means of an identical note number, you can obtain a Celeste effect.

40 1x 19	00 00 01	00 - 7F	PART LEVEL	0 - 127 (=CC# 7)	64	100
40 1x 1A	00 00 01	00 - 7F	VELOCITY SENSE DEPTH	0 - 127	40	64
40 1x 1B	00 00 01	00 - 7F	VELOCITY SENSE OFFSET	0 - 127	40	64
40 1x 1C	00 00 01	00 - 7F	PART PANPOT	-64(RANDOM), -63(LEFT) - +63(RIGHT) (=CC# 10, except RANDOM)	40	0 (CENTER)
40 1x 1D	00 00 01	00 - 7F	KEY RANGE LOW	(C-1) - (G9)	00	C-1
40 1x 1E	00 00 01	00 - 7F	KEY RANGE HIGH	(C-1) - (G9)	7F	G 9
40 1x 1F	00 00 01	00 - 5F	CC1 CONTROLLER NUMBER	0 - 95	10	16
40 1x 20	00 00 01	00 - 5F	CC2 CONTROLLER NUMBER	0 - 95	11	17
40 1x 21	00 00 01	00 - 7F	CHORUS SEND LEVEL	0-127 (=CC# 93)	00	0
40 1x 22	00 00 01	00 - 7F	REVERB SEND LEVEL	0 - 127 (=CC# 91)	2B	40
40 1x 23	00 00 01	00 - 01	Rx.BANK SELECT	OFF / ON	01(00*)	0N(OFF*)

* When "General MIDI System On" is received, Rx.BANK SELECT will be set OFF. When "GS Reset" or "System Mode Set" is received, it will be set ON.

40 1x 24	00 00 01	00 - 01	RX BANK SELECT LSB	[M]	OFF / ON	01	0N
----------	----------	---------	--------------------	-----	----------	----	----

* When RX BANK SELECT LSB = OFF, Bank Select LSB (Bn 20 11) will be treated as 00H regardless of its value.

40 1x 2A	00 00 02	00 00 - 40 00 - 7F 7F	PITCH FINE TUNE	[M]	-100 - 0 - +100 cent (= RPN#1)	40 00	0 [cent]
40 1x 2B#							
40 1x 2C	00 00 01	00 - 7F	DELAY SEND LEVEL	[M]	0-127 (=CC# 94)	00	0

* This cannot be used in MODE-2 (Double module mode).

40 1x 30	00 00 01	00 - 7F	TONE MODIFY1 [M]	Vibrato Rate	-64 - +63 (=NRP# 8)	40	0
40 1x 31	00 00 01	00 - 7F	TONE MODIFY2 [M]	Vibrato Depth	-64 - +63 (=NRP# 9)	40	0
40 1x 32	00 00 01	00 - 7F	TONE MODIFY3 [M]	TVF Cutoff Freq.	-64 - +63 (=NRP# 32)	40	0
40 1x 33	00 00 01	00 - 7F	TONE MODIFY4 [M]	TVF Resonance	-64 - +63 (=NRP# 33)	40	0
40 1x 34	00 00 01	00 - 7F	TONE MODIFY5 [M]	TVF&TVA Env.attack	-64 - +63 (=NRP# 99)	40	0
40 1x 35	00 00 01	00 - 7F	TONE MODIFY6 [M]	TVF&TVA Env.decay	-64 - +63 (=NRP# 100)	40	0
40 1x 36	00 00 01	00 - 7F	TONE MODIFY7 [M]	TVF&TVA Env.release	-64 - +63 (=NRP# 102)	40	0
40 1x 37	00 00 01	00 - 7F	TONE MODIFY8 [M]	Vibrato Delay	-64 - +63 (=NRP# 10)	40	0
40 1x 40	00 00 0C	00 - 7F	SCALE TUNING C	-64 - +63 [cent]	40	0 [cent]	
40 1x 41#	00 - 7F	SCALE TUNING C#	-64 - +63 [cent]	40	0 [cent]		
40 1x 42#	00 - 7F	SCALE TUNING D	-64 - +63 [cent]	40	0 [cent]		
40 1x 43#	00 - 7F	SCALE TUNING D#	-64 - +63 [cent]	40	0 [cent]		
40 1x 44#	00 - 7F	SCALE TUNING E	-64 - +63 [cent]	40	0 [cent]		
40 1x 45#	00 - 7F	SCALE TUNING F	-64 - +63 [cent]	40	0 [cent]		
40 1x 46#	00 - 7F	SCALE TUNING F#	-64 - +63 [cent]	40	0 [cent]		
40 1x 47#	00 - 7F	SCALE TUNING G	-64 - +63 [cent]	40	0 [cent]		
40 1x 48#	00 - 7F	SCALE TUNING G#	-64 - +63 [cent]	40	0 [cent]		
40 1x 49#	00 - 7F	SCALE TUNING A	-64 - +63 [cent]	40	0 [cent]		
40 1x 4A#	00 - 7F	SCALE TUNING A#	-64 - +63 [cent]	40	0 [cent]		
40 1x 4B#	00 - 7F	SCALE TUNING B	-64 - +63 [cent]	40	0 [cent]		

* SCALE TUNING is a function that allows fine adjustment to the pitch of each note in the octave. The pitch of each identically-named note in all octaves will change simultaneously. A setting of → 0 cent (40H) is equal temperament (p.51).

40 2x 00	00 00 01	2B - 5B	MOD PITCH CONTROL	-24 - +24 [semitones]	40	0 [semitones]
40 2x 01	00 00 01	00 - 7F	MOD TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 02	00 00 01	00 - 7F	MOD AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 03	00 00 01	00 - 7F	MOD LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 04	00 00 01	00 - 7F	MOD LFO1 PITCH DEPTH	0 - 600 [cent] 0A	47 [cent]	
40 2x 05	00 00 01	00 - 7F	MOD LFO1 TVF DEPTH	0 - 2400 [cent] 00	0 [cent]	
40 2x 06	00 00 01	00 - 7F	MOD LFO1 TVA DEPTH	0 - 100.0 [%] 00	0 [%]	
40 2x 07	00 00 01	00 - 7F	MOD LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 08	00 00 01	00 - 7F	MOD LFO2 PITCH DEPTH	0 - 600 [cent] 00	0 [cent]	
40 2x 09	00 00 01	00 - 7F	MOD LFO2 TVF DEPTH	0 - 2400 [cent] 00	0 [cent]	
40 2x 0A	00 00 01	00 - 7F	MOD LFO2 TVA DEPTH	0 - 100.0 [%] 00	0 [%]	

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 2x 10	00 00 01	00 - 5B	BEND PITCH CONTROL	0 - 24 [semitones]	42	2 [semitones]
40 2x 11	00 00 01	00 - 7F	BEND TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 12	00 00 01	00 - 7F	BEND AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 13	00 00 01	00 - 7F	BEND LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 14	00 00 01	00 - 7F	BEND LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 15	00 00 01	00 - 7F	BEND LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 16	00 00 01	00 - 7F	BEND LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 17	00 00 01	00 - 7F	BEND LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 18	00 00 01	00 - 7F	BEND LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 19	00 00 01	00 - 7F	BEND LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 1A	00 00 01	00 - 7F	BEND LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 20	00 00 01	28 - 5B	CAF PITCH CONTROL	-24 - +24 [semitones]	40	0 [semitones]
40 2x 21	00 00 01	00 - 7F	CAF TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 22	00 00 01	00 - 7F	CAF AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 23	00 00 01	00 - 7F	CAF LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 24	00 00 01	00 - 7F	CAF LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 25	00 00 01	00 - 7F	CAF LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 26	00 00 01	00 - 7F	CAF LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 27	00 00 01	00 - 7F	CAF LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 28	00 00 01	00 - 7F	CAF LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 29	00 00 01	00 - 7F	CAF LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 2A	00 00 01	00 - 7F	CAF LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 30	00 00 01	28 - 5B	PA1 PITCH CONTROL	-24 - +24 [semitones]	40	0 [semitones]
40 2x 31	00 00 01	00 - 7F	PA1 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 32	00 00 01	00 - 7F	PA1 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 33	00 00 01	00 - 7F	PA1 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 34	00 00 01	00 - 7F	PA1 LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 35	00 00 01	00 - 7F	PA1 LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 36	00 00 01	00 - 7F	PA1 LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 37	00 00 01	00 - 7F	PA1 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 38	00 00 01	00 - 7F	PA1 LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 39	00 00 01	00 - 7F	PA1 LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 3A	00 00 01	00 - 7F	PA1 LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 40	00 00 01	28 - 5B	CC1 PITCH CONTROL	-24 - +24 [semitones]	40	0 [semitones]
40 2x 41	00 00 01	00 - 7F	CC1 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 42	00 00 01	00 - 7F	CC1 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 43	00 00 01	00 - 7F	CC1 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 44	00 00 01	00 - 7F	CC1 LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 45	00 00 01	00 - 7F	CC1 LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 46	00 00 01	00 - 7F	CC1 LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 47	00 00 01	00 - 7F	CC1 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 48	00 00 01	00 - 7F	CC1 LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 49	00 00 01	00 - 7F	CC1 LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 4A	00 00 01	00 - 7F	CC1 LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 50	00 00 01	28 - 5B	CC2 PITCH CONTROL	-24 - +24 [semitones]	40	0 [semitones]
40 2x 51	00 00 01	00 - 7F	CC2 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 52	00 00 01	00 - 7F	CC2 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 53	00 00 01	00 - 7F	CC2 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 54	00 00 01	00 - 7F	CC2 LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 55	00 00 01	00 - 7F	CC2 LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 56	00 00 01	00 - 7F	CC2 LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 57	00 00 01	00 - 7F	CC2 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 58	00 00 01	00 - 7F	CC2 LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 59	00 00 01	00 - 7F	CC2 LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 5A	00 00 01	00 - 7F	CC2 LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 4x 00	00 00 01	00 - 02	TONE MAP NUMBER [M] (= CC#32): Bank number LSB	MAP 0 - 2 00: SELECTED 01: MAP2 02: MAP1	00	
*When "GS Reset" is received, this will be 00: SELECTED.						
40 4x 01	00 00 01	01 - 02	TONE MAP-0 NUMBER [M]	01: MAP2 02: MAP1	(02)	
* When TONE MAP NUMBER is 00, this specifies the MAP. This setting will not be reset when the power is turned on or when "GS Reset", "General MIDI System On" is received.						
40 4x 20	00 00 01	00 - 01	EQ ON/OFF [M]	OFF / ON	01	ON
* This turns the EQ (equalizer) on/off. In MODE-2 (Double module mode) it cannot be used.						
40 4x 21	00 00 01	00 - 03	OUTPUT ASSIGN [M]	00:OUTPUT1 (with Effect) 01:OUTPUT2 02:OUTPUT2-L 03:OUTPUT2-R	00	OUTPUT1

Drum setup parameters

* m: Map number (0 = MAP1, 1 = MAP2)

* rr: drum part note number (00H - 7FH)

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
41 m0 00	00 00 0C	20 - 7F	DRUM MAP NAME	ASCII Character		
			1 #			
41 m0 0B#						
41 m1 rr	00 00 01	00 - 7F	PLAY NOTE NUMBER	Pitch coarse		
41 m2 rr	00 00 01	00 - 7F	LEVEL	TVA level (=NRPN# 26)		
41 m3 rr	00 00 01	00 - 7F	ASSIGN GROUP NUMBER	Non, 1 - 127		
41 m4 rr	00 00 01	00 - 7F	PANPOT	-64(RANDOM), -63(LEFT) - +63(RIGHT) (=NRPN# 28, except RANDOM)		
41 m5 rr	00 00 01	00 - 7F	REVERB SEND LEVEL	0.0 - 1.0 Multiplicand of the part reverb level (=NRPN# 29)		
41 m6 rr	00 00 01	00 - 7F	CHORUS SEND LEVEL	0.0 - 1.0 Multiplicand of the part chorus level (=NRPN# 30)		
41 m7 rr	00 00 01	00 - 01	Rx. NOTE OFF	OFF / ON		
41 m8 rr	00 00 01	00 - 01	Rx. NOTE ON	OFF / ON		
41 m9 rr	00 00 01	00 - 7F	DELAY SEND LEVEL	0.0 - 1.0 Multiplicand of the part reverb level (=NRPN# 31)		

* When the Drum Set is changed, DRUM SETUP PARAMETER values will all be initialized.

* It is not possible to simultaneously use both Chorus Send Level and Delay Send Level for a single Drum Instrument.

User Patch

You can modify the parameters of an M-GS64 sound to your taste, and save your new settings in Variation numbers 64 or 65 of the MAP1 (p.13). A sound saved in this way is called a User Patch, and this procedure is called User Editing. You can save 256 different sounds in this way.

The parameters you can set are Vibrato, Filter and Envelope.

The other sound parameters will use the values specified for the Part (Part parameters, p.11).

* b: bank number (0H = GS Variation number 64, 1H = GS Variation number 65)

* pp: program number (00 - 7F: 1 - 128)

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
20 b0 pp	00 00 01	01 - 02	SOURCE TONE# (MAP)	[M] ---		
20 b1 pp	00 00 01	00 - 7F	(CG#00 : Bank number MSB)	[M] ---		
20 b2 pp	00 00 01	00 - 7F	(PG# : Program number)	[M] ---		
20 b3 pp	00 00 01	00 - 7F	USER PATCH MODIFY1-2	[M] -64 - +63	40	0
20 b4 pp	00 00 01	00 - 7F	Vibrato Rate			
20 b4 pp	00 00 01	00 - 7F	USERPATCH MODIFY2-2	[M] -64 - +63	40	0
			Vibrato Depth			
20 b5 pp	00 00 01	00 - 7F	USER PATCH MODIFY3-2	[M] -64 - +63	40	0
			TVF Cutoff Freq			
20 b6 pp	00 00 01	00 - 7F	USER PATCH MODIFY4-2	[M] -64 - +63	40	0
			TVF Resonance			
20 b7 pp	00 00 01	00 - 7F	USER PATCH MODIFY5-2	[M] -64 - +63	40	0
			TVF&TVA Env. attack			
20 b8 pp	00 00 01	00 - 7F	USER PATCH MODIFY6-2	[M] -64 - +63	40	0
			TVF&TVA Env. decay			
20 b9 pp	00 00 01	00 - 7F	USER PATCH MODIFY7-2	[M] -64 - +63	40	0
			TVF&TVA Env. release			
20 bA pp	00 00 01	00 - 7F	USER PATCH MODIFY8-2	[M] -64 - +63	40	0
			Vibrato Delay			

User Drum Set

You can modify drum sound parameters to your liking, and save this data as a Drum Set. A Drum Set saved in this way is called a User Drum Set. You can save up to two Drum Sets, and since each set contains 84 instrumental sounds, this provides a total of 168 instrumental sounds (Drum Instruments). User Drum Sets are stored in Drum Set numbers 65 and 66 of the MAP1.

* d: drum set number (0H = User drum set number 65, 1H = GS Variation number 66)

* rr: drum part note number (00 - 7F)

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
21 d0 00	00 00 0C	20 - 7F	USER DRUM SET NAME	[M] 32 - 127 (ASCII 12 characters)		
			:			
21 d0 0B#						
21 d1 rr	00 00 01	00 - 7F	PLAY NOTE	[M] 0 - 127		
21 d2 rr	00 00 01	00 - 7F	LEVEL	[M] 0 - 127		
21 d3 rr	00 00 01	00 - 7F	ASSIGN GROUP	[M] 0 - 127		
21 d4 rr	00 00 01	00 - 7F	PAN	[M] 0 - 127		
21 d5 rr	00 00 01	00 - 7F	REVERB SEND LEVEL	[M] 0 - 127		
21 d6 rr	00 00 01	00 - 7F	CHORUS SEND LEVEL	[M] 0 - 127		
21 d7 rr	00 00 01	00 - 01	RX NOTE OFF	[M] OFF / ON		
21 d8 rr	00 00 01	00 - 01	RX NOTE ON	[M] OFF / ON		
21 d9 rr	00 00 01	00 - 7F	DELAY SEND LEVEL	[M] 0 - 127		
21 dA rr	00 00 01	01 - 02	SOURCE DRUM SET# (MAP)	[M] 1 - 2		
21 dB rr	00 - 7F		(PG#)	[M] 0 - 127		
21 dC rr	00 00 01	00 - 7F	SOURCE NOTE NUMBER	[M] 0 - 127		

Section 4. Bulk Dump

Bulk Dump allows you to transmit a large amount of data at once, and is convenient for storing settings for the entire unit on a computer or sequencer.

To make the M-GS64 perform a Bulk Dump transmission, send it a "Bulk Dump Request" message. Bulk Dump Request uses the Data Request 1 (RQ1) format, but unlike when transmitting individual parameters, the "Size" specified by the request message refers not to the size of the data but rather specifies the contents of the data. For the data contents corresponding to each Size, refer to "Parameter Dump."

When the M-GS64 receives a Bulk Dump Request, it will transmit a Bulk Dump in the format given below.

The M-GS64 is also able to transmit a list of its internal sounds. This function can be used to display a list of sounds on a computer.

Parameter dump

• Parameter dump request (receive only) [M]

This is a command that requests a set of parameter data, and uses "Data Request 1 (RQ1)" format. The Size specifies the requested data contents.

Address:	0C 00 00	
Size:	00 00 00 : ALL	request a dump of all parameters
	00 00 01 : ALL 1	use this when not using USER TONE BANK or USER DRUM SET
	00 00 02 : ALL 2	use this when USER TONE BANK, USER DRUM SET and DRUM SETUP settings have not been modified
	00 00 10 : 16-part GS 1	use this when using only 16 Parts
	00 00 11 : 16-part GS 2	use this when using only 16 Parts, and DRUM SETUP settings have not been modified
	00 01 00 : USER TONE BANK (ALL)	request a dump of all USER TONE BANK data
	00 01 04 : USER TONE BANK #64	request a dump of USER TONE BANK #64 data (128 sounds)
	00 01 41 : USER TONE BANK #65	request a dump of USER TONE BANK #65 data (128 sounds)
	00 02 00 : USER DRUM SET (ALL)	request a dump of all USER DRUM SET data
	00 02 40 : USER DRUM SET #65	request a dump of USER DRUM SET #65 data
	00 02 41 : USER DRUM SET #66	request a dump of USER DRUM SET #66 data

Example) Dump request for all parameters: FO 41 DEY 42 11 0C 00 00 00 00 00 74 F7

Normally, using ALL (00 00 00) provides the greatest predictability, but the amount of data is very large, and transmission requires approximately 20 seconds. In order to reduce transmission time and data volume, we suggest that you request a dump only of the necessary data. Panel button operations allow you to transmit dumps of ALL, ALL 1, 16-part GS 1, USER TONE BANK (ALL), and USER DRUM SET (ALL).

• Parameter dump [M]

When a Parameter Dump Request is received, or when panel operations initiate a dump transmission, the following data will be transmitted in "Data Set 1" format.

Address	Description	packets	16-part						USER TONE BANK			USER DRUM SET				
			ALL	ALL 1	ALL 2	GS1	GS2	GS1	GS2	ALL	#64	#65	ALL	#65	#66	
0B 00 00 - 0B 00 7F	SETUP	1	Yes	Yes	Yes	Yes	Yes									
2B 00 00 - 2B 0A 7F	USER TONE BANK #64	11	Yes							Yes	Yes					
2B 10 00 - 2B 1A 7F	USER TONE BANK #65	11	Yes							Yes		Yes				
29 00 00 - 29 0B 0F	USER DRUM SET #65	12	Yes										Yes	Yes		
29 10 00 - 29 1B 0F	USER DRUM SET #66	12	Yes										Yes			Yes
4B 1D 10 - 4B 26 0F	PATCH EXTENSION A	9	Yes	Yes	Yes	Yes	Yes	Yes								
4B 00 00 - 4B 1D 0F	SYSTEM/PATCH A	30	Yes	Yes	Yes	Yes	Yes	Yes								
49 00 00 - 49 1F 7F	DRUM SETUP A	32	Yes	Yes		Yes										
5B 1D 10 - 5B 26 0F	PATCH EXTENSION B	9	Yes	Yes	Yes											
5B 00 00 - 5B 1D 0F	SYSTEM/PATCH B	30	Yes	Yes	Yes											
59 00 00 - 59 1F 7F	DRUM SETUP B	32	Yes	Yes												

This table lists the data contents that will be transmitted when panel buttons are used to request a dump, or when a Parameter Dump Request is received at MIDI IN A. When a Parameter Dump Request is received at MIDI IN B, A and B will be reversed for PATCH EXTENSION, SYSTEM/PATCH and DRUM SETUP.

- When data dumped by the M-GS64 is reloaded into the M-GS64, be aware that the data may not be set correctly if the transmission order of the packets is changed, if the time interval between packets is changed, or if other messages are inserted between packets.
- The Parameter Dump data of the M-GS64 includes data for GS format compatible devices, and this data is compatible in both directions. However, depending on the settings of parameters which are newly extended on the M-GS64, the musical result may differ.
- If the M-GS64 does not operate correctly with Bulk Dump data from another GS format compatible device, first initialize the M-GS64 (p.17) before retransmitting the data.
- When another GS format compatible device receives Parameter Dump data that was transmitted by the M-GS64, it may display a message such as "Address Error", but this is because the parameter addresses newly extended on the M-GS64 were not recognized by the other device. Parameters which could be recognized by that device have been correctly set.

Dumping a list of internal sounds

Patch list dump

• Patch list dump request (request only) [M]

This command requests a bulk dump of a list of the preset sounds (Patch) in internal memory, and uses "Data Request 1 (RQ1)" format. The Size specifies the contents of the requested data.

Address: 0C 00 01
 Size: 00 00 00 : ALL
 00 00 01 : MAP2
 00 00 02 : MAP1
 00 mm bb mm = MAP# 01 - 02 (01 = MAP2, 02 = MAP1)
 bb = BANK# 00 - 7F

• Patch list dump (transmit only) [M]

When Patch List Dump Request is received the sound names of the specified map will be transmitted continuously in the format given below, where 16 bytes are used for each sound name. The Address of the transmitted data is 0C 00 01 for all packets.

User bank sound names are not transmitted in a MAP1 Patch List dump.

DUMP FORMAT:

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
CC0 IMAP PC 00 TONE NAME(ASCII 12 characters)															

CC0 : Variation number
 IMAP : MAP number 01 = MAP2, 02 = MAP1
 PC : Program number

Drum set list dump

• Drum set list dump request (receive only) [M]

This command requests a bulk dump transmission of a list of Preset Drum Sets in internal memory, and uses "Data Request 1 (RQ1)" format. The Size specifies the desired data contents.

Address: 0C 00 02
 Size: 00 00 00 : ALL
 00 00 01 : MAP2
 00 00 02 : MAP1

Drum set list dump (transmit only) [M]

When a Drum Set Dump request is received the Drum Set names of the specified MAP will be transmitted successively in the format given below, where 16 bytes are used for each sound. The Address of the transmitted data will be 0C 00 02 for each packet.

DUMP FORMAT:

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
I 00 IMAP PC 00 DRUM TONE NAME(ASCII 12 characters)															

IMAP : MAP number 01 = MAP2, 02 = MAP1
 PC : Program number

Drum instrument list dump

• Drum instrument list dump request (receive only) [M]

This command requests a bulk dump transmission of the Instrument list of an internal Preset Drum Sets, and uses "Data Request 1 (RQ1)" format. The Size specifies the desired data contents.

Address: 0C 00 03
 Size: 00 mm pp mm = MAP# 01 - 02 (01 = MAP2, 02 = MAP1)
 pp = Drum set# 00 - 7F (same as PC#)

• Drum instrument list dump (transmit only) [M]

When a Drum Instrument Dump Request is received the Drum Instrument names of the specified Drum Set will be transmitted in the following format where 16 bytes are used for each Drum Instrument name. The address of the transmitted data will be 0C 00 03 for each packet.

DUMP FORMAT:

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
I 00 IMAP PC KEY DRUM TONE NAME(ASCII 12 characters)															

IMAP : MAP number 01 = MAP2, 02 = MAP1
 PC : Program number
 KEY : Note number

Section 5. Supplementary material

Decimal and Hexadecimal table

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

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

* Decimal values such as MIDI channel, bank select, and program change are listed as one greater than the values given in the above table.

* A 7-bit byte can express data in the range of 128 steps. For data where greater precision is required, we must use two or more bytes. For example, two hexadecimal numbers aa bbH expressing two 7-bit bytes would indicate a value of aa x 128 + bb.

* In the case of values which have a + sign, 00H = -64, 40H = +0, and 7FH = +63, so that the decimal expression would be 64 less than the value given in the above chart. In the case of two types, 00 00H = -8192, 40 00H = +0, and 7F 7FH = +8191. For example if aa bbH were expressed as decimal, this would be aa bbH - 40 00H = aa x 128 + bb - 64 x 128.

* Data marked "nibbled" is expressed in hexadecimal in 4-bit units. A value expressed as a 2-byte nibble 0a 0bH has the value of a x 16 + b.

<Example 1> What is the decimal expression of 5AH ?

From the preceding table, 5AH = 90

<Example 2> What is the decimal expression of the value 12 34H given as hexadecimal for each 7 bits?

From the preceding table, since 12H = 18 and 34H = 52
 18 x 128 + 52 = 2356

<Example 3> What is the decimal expression of the nibbled value 0A 03 09 0D ?

From the preceding table, since 0AH = 10, 03H = 3, 09H = 9, 0DH = 13
 ((10 x 16 + 3) x 16 + 9) x 16 + 13 = 41885

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

16) 1258
 16) 78 ... 10
 16) 4 ... 14
 0 ... 4

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

Examples of actual MIDI messages

<Example 1> 92 3E 5F

9n is the Note-on status, and n is the MIDI channel number. Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

<Example 2> CE 49

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

<Example 3> EA 00 2B

EA is the Pitch Bend Change status, and n is the MIDI channel number. The 2nd byte (00H=0) is the LSB and the 3rd byte (2BH=40) is the MSB, but Pitch Bend Value is a signed number in which 40 00H (= 64 x 128 + 0 = 8192) is 0, so this Pitch Bend Value is 2B 00H - 40 00H = 40 x 128 + 0 - 164 x 128 + 0 = 5120 - 8192 = -3072

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

<Example 4> B3 64 00 65 00 06 0C 26 00 64 7F 65 7F

BnH is the Control Change status, and n is the MIDI channel number. For Control Changes, the 2nd byte is the control number, and the 3rd byte is the value. In a case in which two or more messages consecutive messages have the same status, MIDI has a provision called "running status" which allows the status byte of the second and following messages to be omitted. Thus, the above messages have the following meaning.

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

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

RPN parameter number 00 00H is Pitch Bend Sensitivity, and the MSB of the value indicates semitone units, so a value of 0CH = 12 sets the maximum pitch bend range to +/- 2 semitones (1 octave). (On GS sound sources the LSB of Pitch Bend Sensitivity is ignored, but the LSB should be transmitted anyway (with a value of 0) so that operation will be correct on any device.

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

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

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

* TPQN : Ticks Per Quarter Note

Example of an Exclusive message and calculating a Checksum

Roland Exclusive messages (RQ1, DT1) are transmitted with a checksum at the end (before F7) to make sure that the message was correctly received. The value of the checksum is determined by the address and data (or size) of the transmitted exclusive message.

• How to calculate the checksum (hexadecimal numbers are indicated by 'H')
The checksum is a value derived by adding the address, size and checksum itself and inverting the lower 7 bits. Here's an example of how the checksum is calculated. We will assume that in the exclusive message we are transmitting, the address is aa bb ccH and the data or size is dd ee ffH.

aa + bb + cc + dd + ee + ff = sum
sum ÷ 128 = quotient ... remainder
128 - remainder = checksum

<Example 1> Setting REVERB MACRO to ROOM 3

According to the "Parameter Address Map", the REVERB MACRO Address is 40 01 30H, and ROOM 3 is a value of 02H. Thus,

F0	41	10	42	12	40 01 30	02	??	F7
(1)	(2)	(3)	(4)	(5)	address	data	checksum	(6)

(1) Exclusive Status	(2) ID (Roland)	(3) Device ID (17)
(4) Model ID (GS)	(5) Command ID (DT1)	(6) End of Exclusive

Next we calculate the checksum.

40H + 01H + 30H + 02H = 64 + 1 + 48 + 2 = 115(sum)
115(sum) ÷ 128 = 0(quotient) ... 115(remainder)
checksum = 128 - 115(remainder) = 13 = 0DH

This means that F0 41 10 42 12 40 01 30 02 0D F7 is the message we transmit.

<Example 2> Requesting transmission of the LEVEL for DRUM MAP 1 NOTE NUMBER 75 (D#5; Claves)

NOTE NUMBER 75(D#5) is 4BH in hexadecimal.

According to the "Parameter Address Map", LEVEL of NOTE NUMBER 75 (D#5; Claves) in DRUM MAP 1 has an Address of 41 02 4BH and a Size of 00 00 01H. Thus,

F0	41	10	42	11	41 02 4B	00 00 01	??	F7
(1)	(2)	(3)	(4)	(5)	address	size	checksum	(6)

(1) Exclusive Status	(2) ID (Roland)	(3) Device ID (17)
(4) Model ID (GS)	(5) Command ID (RD1)	(6) End of Exclusive

Next we calculate the checksum.

41H + 02H + 4BH + 00H + 00H + 01H = 65 + 2 + 75 + 0 + 0 + 1 = 143(sum)
143(sum) ÷ 128 = 1(quotient) ... 15(remainder)
checksum = 128 - 15(remainder) = 113 = 71H

This means that F0 41 10 42 11 41 02 4B 00 00 01 71 F7 is the message we transmit.

About tuning

In MIDI, individual Parts are tuned by sending RPN #1 (Master Fine Tuning) to the appropriate MIDI channel.

In MIDI, an entire device is tuned by either sending RPN #1 to all MIDI channels being used, or by sending a System Exclusive MASTER TUNE (address 40 00 00H).

RPN #1 allows tuning to be specified in steps of approximately 0.012 cents (to be precise, 100/8192 cent), and System Exclusive MASTER TUNE allows tuning in steps of 0.1 cent. One cent is 1/100th of a semitone.

The values of RPN #1 (Master Fine Tuning) and System Exclusive MASTER TUNE are added together to determine the actual pitch sounded by each Part.

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

Hz at A4	cent	RPN #1	Sys.Ex. 40 00 00
445.0	+19.56	4C 43 (+1603)	00 04 0C 04 (+196)
444.0	+15.67	4A 03 (+1283)	00 04 09 0D (+157)
443.0	+11.76	47 44 (+964)	00 04 07 06 (+118)
442.0	+7.85	45 03 (+643)	00 04 04 0F (+79)
441.0	+3.93	42 42 (+322)	00 04 02 07 (+39)
440.0	0	40 00 (0)	00 04 00 00 (0)
339.0	-3.94	3D 3D (-323)	00 03 0D 09 (-39)
338.0	-7.89	3A 7A (-646)	00 03 08 01 (-79)

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

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

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

The Scale Tune Feature (address : 40 1x 40)

The scale Tune feature allows you to finely adjust the individual pitch of the notes from C through B. Though the settings are made while working with one octave, the fine adjustments will affect all octaves. By making the appropriate Scale Tune settings, you can obtain a complete variety of tuning methods other than equal temperament. As examples, three possible types of scale setting are explained below.

• Equal Temperament

This method of tuning divides the octave into 12 equal parts. It is currently the most widely used form of tuning, especially in occidental music. On the M-GS64, the default settings for the Scale Tune feature produce equal temperament.

• Just Temperament (Keytone C)

The three main chords resound much more beautifully than with equal temperament, but this benefit can only be obtained in one key. If transposed, the chords tend to become ambiguous. The example given involves settings for a key in which C is the keynote.

• Arabian Scale

By altering the setting for Scale Tune, you can obtain a variety of other tunings suited for ethnic music. For example, the settings introduced below will set the unit to use the Arabian Scale.

Example Settings

Note name	Equal	Just Temperament (Keytone C)	Arabian Scale Temperament
C	0	0	-6
C#	0	-8	+45
D	0	+4	-2
D#	0	+16	-12
E	0	-14	-51
F	0	-2	-8
F#	0	-10	+43
G	0	+2	-4
G#	0	+14	+47
A	0	-16	0
A#	0	+14	-10
B	0	-12	-49

The values in the table are given in cents. Refer to the explanation of Scale Tuning on page 45 to convert these values to hexadecimal, and transmit them as exclusive data to the M-GS64.

For example, to set the tune (C-B) of the Part1 Arabian Scale, send the data as follows:

FO 41 10 42 12 40 11 40 3A 6D 3E 34 0D 38 6B 3C 6F 40 36 0F 76 F7

MIDI Implementation Chart

Function...	Transmitted	Recognized	Remarks
Basic Channel	Default Changed X X	1-16 1-16	Memorized
Mode	Default Message Altered X X *****	Mode 3 Mode 3, 4(M=1)	*2
Note Number	: True Voice X *****	0-127 0-127	
Velocity	Note ON Note OFF X X	O X	
After Touch	Key's Ch's X X	O *1 O *1	
Pitch Bend	X	O *1	
Control Change	0, 32 1 5 6, 38 7 10 11 64 65 66 67 84 91 93 94 98, 99 100, 101 X X X X X X X X X X X X X X X X X X X	O *1 X *1 O *1	Bank select Modulation Portamento time Data entry Volume Pan Expression Hold 1 Portamento Sostenuto Soft Portamento control Effect 1 (Reverb Send Level) Effect 3 (Chorus Send Level) Effect 4 (Delay Send Level) NRPN LSB,MSB RPN LSB,MSB
Program Change	: True # X *****	O *1 0-127	Program Number: 1-128
System Exclusive	O	O	
System Common	: Song Pos : Song Sel : Tune X X X	X X X	
System Real Time	: Clock : Commands X X	X X	
Aux Messages	: All Sounds OFF : Reset All Controllers : Local ON/OFF : All Notes OFF : Active Sensing : System Reset X X X X O X	O (120,126,127) O X O (123-127) O X	
Notes	*1 O X is selectable. *2 Recognize as M=-1 even if M ≠ 1		

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

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

O : Yes
X : No

Parameter Matrix Table

Matrix 0 (Basic Menu)

Level	Pan	Reverb	Chorus
Rx Ch	K Shift	Detune	Assign
Tune *	Dev ID *	Reverb *	Chorus *
Vol&Hold	Prog Chg	Bank sel	SysEx

LvL	PAn	rEv	cho
ch	Sft	dtN	out
Ntn	dId	rEv	cho
u-h	PC	bSL	SYS

Matrix 1 (Part Parameter)

Delay	Part Mode	M/P Mode	Map Sel
EQ	Vib.Rate	Vib.Depth	Vib.Delay
Bend Range	---	Cutoff	Reso
Mod.Depth	Attack	Decay	Release

dLY	PNd	N-P	NAP
EQ	u-r	u-d	u-y
bnd	---	F-C	F-r
Mod	E-A	E-d	E-r

Matrix 2 (Drum Setup Parameter)

Dr1 Level	Dr1 Pan	Dr1 Reverb	Dr1 Chorus
Dr1 Delay	Dr1 Pitch Coarse	Dr1 A.Group	---
Dr2 Level	Dr2 Pan	Dr2 Reverb	Dr2 Chorus
Dr2 Delay	Dr2 Pitch Coarse	Dr2 A.Group	---

d1L	d1P	d1r	d1c
d1d	d1h	d1A	---
d2L	d2P	d2r	d2c
d2d	d2h	d2A	---

Matrix 3 (Effect Parameter)

Rev Type *	Rev Time *	Rev Dly Fback *	Rev PreDly Time
Cho Type *	Cho Delay *	Cho Rate *	Cho Depth *
Dly Type	Dly Level C	Dly Level L	Dly Level R
EQ Low Freq	EQ Low Gain	EQ High Freq	EQ High Gain

rEv	rtN	rdF	rPd
cho	cdY	crE	cdP
dLY	dLC	dLL	dLR
ELF	ELG	EHF	EHG

Matrix 4 (Utility)

In Mode	Backup	Initialize *	Bulk Dump
Prevw Note	Prevw Velo	SysOutMode	Out/Thru
Mute Lock *	---	EQ Lock	Out Asgn Lock
Rx Mode	Rx GS Reset *	Rx GM On *	Mode Set

InN	bUP	InI	bd
P-n	P-u	SoT	o-t
NtL	---	EQL	oTL
rNd	rGS	rGN	NdS

* The asterisk (*) indicates parameters which can be set independently for Part Groups A and B when Mode 2 is used.

Table of Parameter Value Ranges and Displays

Matrix 0 (Basic Menu)

Parameter	Value	Display	
Level	0 - 100 - 127	LVL	0 - 100 - 127
Pan	Rnd, L63 - 0 - R63	PAN	rnd L63 - 0 - r63
Reverb	0 - 40 - 127	rEv	0 - 40 - 127
Chorus	0 - 127	cho	0 - 127
Rx Ch	A01-A16,A--,B01-B16,B--	ch	A01-A16,A--,b01-b16,b--
K Shift	-24 - 0 - +24	SFT	-24 - 0 - 24
Detune	-100 - 0 - 100	dtn	-100 - 0 - 100
Assign	OUT1, 2, 2L, 2R	out	1 2 2L 2r
Tune	415.3 - 440.0 - 466.2	ntn	15.3 - 40.0 - 66.2
Dev ID	1 - 17 - 32	did	01 - 17 - 32
Reverb	0 - 64 - 127	rEv	0 - 64 - 127
Chorus	0 - 64 - 127	cho	0 - 64 - 127
Vol&Hold	Off, Vol, Hold, On	u-h	off vol hld on
Prog Chg	Off, On	PC	off on
Bank sel	Off, On	BSL	off on
SysEx	Off, On	SYS	off on

Matrix 1 (Part Parameter)

Parameter	Value	Display	
Delay	0 - 127	dLY	0 - 127
Part Mode	Norm, Drum1, Drum2	Pnd	nor dr 1 dr 2
M/P Mode	Mono, Poly	n-p	non PLY
Map Sel	Map1, Map2	MAP	1 2
EQ	Off, On	EQ	off on
Vib. Rate	-64 - 0 - +63	u-r	-64 - 0 - 63
Vib. Depth	-64 - 0 - +63	u-d	-64 - 0 - 63
Vib. Delay	-64 - 0 - +63	u-y	-64 - 0 - 63
Bend Range	0 - 2 - 24	bnd	0 - 2 - 24
Cutoff	-64 - 0 - +63	F-C	-64 - 0 - 63
Reso	-64 - 0 - +63	F-r	-64 - 0 - 63
Mod. Depth	0 - 10 - 127	Mod	0 - 10 - 127
Attack	-64 - 0 - +63	E-A	-64 - 0 - 63
Decay	-64 - 0 - +63	E-d	-64 - 0 - 63
Release	-64 - 0 - +63	E-r	-64 - 0 - 63

Matrix 2 (Drum Setup Parameter)

Parameter	Value	Display
Dr1 Level	0 - 127	d1L 0 - 127
Dr1 Pan	Rnd, L63 - 0 - R63	d1P rnd L63 - 0 - r63
Dr1 Reverb	0 - 127	d1r 0 - 127
Dr1 Chorus	0 - 127	d1c 0 - 127
Dr1 Delay	0 - 127	d1d 0 - 127
Dr1 Pitch Coarse	0 - 127	d1h 0 - 127
Dr1 A.Group	non, 1 - 127	d1A non 1 - 127
Dr2 Level	0 - 127	d2L 0 - 127
Dr2 Pan	Rnd, L63 - 0 - R63	d2P rnd L63 - 0 - r63
Dr2 Reverb	0 - 127	d2r 0 - 127
Dr2 Chorus	0 - 127	d2c 0 - 127
Dr2 Delay	0 - 127	d2d 0 - 127
Dr2 Pitch Coarse	0 - 127	d2h 0 - 127
Dr2 A.Group	non, 1 - 127	d2A non 1 - 127

Matrix 3 (Effect Parameter)

Parameter	Value	Display
Rev Type	Room1, 2, 3, Hall1, 2, Plate, Delay, Panning Delay	rEv ro 1, 2, 3, hA 1, 2, PLt, dLy, PdY
Rev Time	0 - 64 - 127	rEt 0 - 64 - 127
Rev Dly Fback	0 - 127	rDf 0 - 127
Rev PreDly Time	0 - 127	rPd 0 - 127
Cho Type	Chorus1, 2, 3, 4, Feedback Chorus, Flanger, Short Delay, Short Delay (FB)	cho ch 1, 2, 3, 4, Fbc, FGr, SdY, SdF
Cho Delay	0 - 80 - 127	cdY 0 - 80 - 127
Cho Rate	0 - 3 - 127	crE 0 - 3 - 127
Cho Depth	0 - 19 - 127	cdP 0 - 19 - 127
Dly Type	Delay1, 2, 3, 4, Pan Delay1, 2, 3, 4, Dly ToRev, PanRepeat	dLY d 1, 2, 3, 4, Pd 1, 2, 3, 4, dtr, PrP
Dly Level C	0 - 127	dLC 0 - 127
Dly Level L	0 - 127	dLL 0 - 127
Dly Level R	0 - 127	dLR 0 - 127
EQ Low Freq	200, 400	ELF 200 400
EQ Low Gain	-12 - 0 - +12	ELG - 12 - 0 - 12
EQ High Freq	3K, 6K	EhF 3K 6K
EQ High Gain	-12 - 0 - +12	EhG - 12 - 0 - 12

Matrix 4 (Utility)

Parameter	Value	Display	
In Mode	Std, Merge->A, Merge->B	Inn	Std A b
Backup	Off, On	bUP	OFF on
Initialize	All, GS, GM, CM(Mode1)	In i	ALL GS GN CN
	All, GSA, GSB, GMA, GMB CMA, CMB(Mode2)		ALL GSA GSB GNA GNB CNA CNB
Bulk Dump	All, All-U, User Patch, User Drum GS-A, GS-B	bd	ALL A-U UP Ud G-A G-b
Prevw Note	C-1-A4-G9	P-n	C-1 - A4 - G9
Prevw Velo	0-100-127	P-u	0 - 100 - 127
SysOutMode	Selected, Fixed	Sot	SEL F.
Out/Thru	Out, Thru	o-t	out thr
Mute Lock	Off, On	ntL	OFF on
EQ Lock	Off, On	E9L	OFF on
Out Asgn Lock	Off, On	otL	OFF on
Rx Sys Mode	Off, On	rNd	OFF on
Rx GS Reset	Off, On	rGS	OFF on
Rx GM On	Off, On	rGN	OFF on
Mode Set	Mode1, Mode2	ndS	nd1 nd2

INDEX

[A]		[G]	
Assign Group.....	13	GM Initialize.....	17
Attack Time.....	12	General MIDI System.....	3
		GM System On.....	19
[B]		GS Format.....	3
Backup.....	17	GS Initialize.....	17
Bank Select.....	11	GS Reset.....	19
Battery.....	3		
Bend Range.....	12	[H]	
Bulk Dump.....	17	Headphones.....	4
		Hold.....	11
[C]			
Capital.....	6	[I]	
Channel.....	9	Initialization.....	17
Chorus Delay Time.....	15	In Modes.....	16
Chorus Depth.....	16		
Chorus Level.....	10,11	[K]	
Chorus Rate.....	15	Key Shift.....	10
Chorus Type.....	15		
CM-64.....	17	[L]	
Control Change.....	36	Level.....	10
Cutoff Frequency.....	12	Low Frequency.....	16
		Low Gain.....	16
[D]			
Data Entry.....	36	[M]	
Decay Time.....	12	Map Select.....	12
Delay.....	11	Maximum Polyphony.....	8
Delay Level.....	11	Mono/Poly Mode.....	11
Delay Level Center.....	16	MIDI Implementation.....	36
Delay Level Left.....	16	MIDI Implementation chart.....	52
Delay Level Right.....	16	MIDI Channel.....	10
Delay Type.....	16	MIDI Connector.....	4
Detune.....	10	Modulation.....	12
Device ID.....	10	Modulation Depth.....	12
Display Message.....	54	Monitor.....	6
Double Module Mode.....	8	Multi-Timbral Sound Module.....	5
Drum Edit.....	13	Mute.....	6
Drum Part.....	5,11	Mute Lock.....	18
Drum Set.....	6		
Dump Data.....	48	[N]	
		Normal Part.....	5,11
[E]			
Effect.....	15	[O]	
EQ.....	12	OUT/THRU Select.....	18
EQ Hi Frequency.....	16	Output Assign.....	10
EQ Hi Gain.....	16	Output Assign Lock.....	18
EQ Lock.....	18		
EQ Low Frequency.....	16	[P]	
EQ Low Gain.....	16	Pan.....	10
Error Message.....	24	Part.....	5
Exclusive Message.....	39	Part Mode.....	11
		Pitch Coarse.....	13
[F]		Poly.....	11
Factory Preset.....	17		

Preview Note Name.....	18
Preview Velocity	18
Program Change	21

[R]

Release Time	13
Resonance.....	12
Reverb Level	10,11
Reverb Time.....	15
Reverb Type.....	15
Rx.Bank sel.....	11
Rx.GM On.....	19
Rx.GS Reset.....	19
RX.SysMode.....	18
RX.Vol&Hold.....	11

[S]

Single Module Mode	8
System Exclusive Message.....	39
System Mode receive switch	18
System Output Mode.....	18
System Parameter.....	16

[T]

Troubleshooting	23
Tuning.....	10

[U]

User Patch Edit.....	13
User Drum Edit	14

[V]

Vibrato Delay.....	12
Vibrato Depth.....	12
Vibrato Rate	12
Voice.....	8
Volume	4
Variation.....	6

Specifications

Sound Expansion Series M-GS64:Multi-timbral sound module (General MIDI System / GS Format)

Number of parts

32

Maximum Polyphony

64 (voices)

Internal Memory

Sound Map:	2 (Map1,Map2)
Preset Sounds:	654
Drum Sound Set:	24 (include 2 SFX Set)
User sounds:	256
User drum sound set:	2

Effects

Reverb (8 type)
Chorus (8 type)
Delay (10 type)
2 band Equalizer

Display

7 segments,3 characters(LED)

Connectors

MIDI Connectors (IN A, IN B, OUT/THRU)
Output 1 Jacks(L, R)
Output 2 Jacks(L, R)
Headphones Jack(Stereo)

Power Supply

AC117V,AC230V or AC240V

Power Consumption

15W(AC117V,AC230V or AC240V)

Dimensions

482(W) x 165(D) x 44(H) mm
19(W) x 6-1/2(D) x 1-3/4(H) inches
(EIA-1U Rack Mount Type)

Weight

2.65kg
5lbs14oz

Accessories

M-GS64 Owner's Manual
AC Cord

Information

When you need repair service, call your local Roland Service Station or the authorized Roland distributor in your country as shown below.

U. S. A.

Roland Corporation U.S.
7200 Dominion Circle
Los Angeles, CA. 90040-
3696, U. S. A.
TEL: (213) 685 5141

CANADA

Roland Canada Music Ltd.
(Head Office)
5480 Parkwood Way
Richmond B. C., V6V 2M4
CANADA
TEL: (604) 270 6626

Roland Canada Music Ltd.
(Montreal Office)
9425 Transcanadienne
Service Rd. N., St Laurent,
Quebec H4S 1V3, CANADA
TEL: (514) 335 2009

Roland Canada Music Ltd.
(Toronto Office)
346 Watline Avenue,
Mississauga, Ontario L4Z
1X2, CANADA
TEL: (416) 890 6488

AUSTRALIA

Roland Corporation
Australia Pty. Ltd.
98 Campbell Avenue
Dee Why West. NSW 2099
AUSTRALIA
TEL: (02) 982 8266

NEW ZEALAND

Roland Corporation
(NZ) Ltd.
97 Mt. Eden Road, Mt. Eden,
Auckland 3, NEW
ZEALAND
TEL: (09) 3098 715

UNITED KINGDOM

Roland (U.K.) Ltd.
Rye Close Ancells Business
Park Fleet, Hampshire GU13
8UY, UNITED KINGDOM
TEL: (0252) 816181

Roland (U.K.) Ltd.,

Swansea Office
Atlantic Close, Swansea
Enterprise Park, Swansea,
West Glamorgan SA79FJ,
UNITED KINGDOM
TEL: (0792) 700 139

IRELAND

The Dublin Service
Centre Audio
Maintenance Limited
11 Brunswick Place Dublin 2
Republic of Ireland
TEL: (01) 677322

ITALY

Roland Italy S. p. A.
Viale delle Industrie 8 20020
ARESE MILANO ITALY
TEL: (02) 93581311

SPAIN

Roland Electronics
de España, S. A.
Calle Boirvia 239 08020
Barcelona, SPAIN
TEL: (93) 308 1000

GERMANY

Roland Elektronische
Musikinstrumente
Handelsgesellschaft mbH.
Oststrasse 96, 22844
Norderstedt, GERMANY
TEL: (040) 52 60090

FRANCE

Guillard Musiques Roland
ZAC de Rosarge Les Echets
01700
MIRIBEL FRANCE
TEL: (72) 26 5060

Guillard Musiques Roland

(Paris Office)
1923 rue Léon Geoffroy
94400 VITRY-SUR-SEINE
FRANCE
TEL: (1) 4680 86 62

BELGIUM/HOLLAND/ LUXEMBOURG

Roland Benelux N. V.
Houtstraat 1 B-2260 Oevel-
Westerlo BELGIUM
TEL: (014) 575811

DENMARK

Roland Scandinavia A/S
Langebrogade 6 Box 1937
DK-1023 Copenhagen K.
DENMARK
TEL: 31 95 31 11

SWEDEN

Roland Scandinavia A/S
Danvik Center 28 A, 2 tr.
S-131 30 Nacka SWEDEN
TEL: (08) 702 0020

NORWAY

Roland Scandinavia
Avd. Kontor Norge
Lilleakerveien 2 Postboks 95
Lilleaker N-0216 Oslo 2
NORWAY
TEL: (02) 73 0074

FINLAND

Fazer Musik Inc.
Länsituulentie POB 169,
SF-02101 Espoo FINLAND
TEL: (00) 43 5011

SWITZERLAND

Roland (Switzerland) AG
Musitronic AG
Gerberstrasse 5, CH-4410
Liestal, SWITZERLAND
TEL: (061) 921 1615

AUSTRIA

E. Dematte & Co.
Neu-Rum Siemens-Strasse 4
A-6040 Innsbruck P.O.Box
83
AUSTRIA
TEL: (0512) 26 44 260

GREECE

V. Dimitriadis & Co. Ltd.
20, Alexandras St. &
Bouboulinas 54 St. 106 82
Athens, GREECE
TEL: (01) 8232415

PORTUGAL

Caius - Tecnologias
Audio e Musica , Lda.
Rue de Catarina 131
4000 Porto, PORTUGAL
TEL: (02) 38 4456

HUNGARY

Intermusica Ltd.
Warehouse Area 'DEPO'
Pf.83 H-2046 Torokbalint,
Budapest HUNGARY
TEL: (1) 1868905

ISRAEL

D.J.A. International Ltd.
Twin Towers, 33 Jabntinsky St.
Room 211, Ramat Gan 52511
ISRAEL
TEL: (03) 751 8585

CYPRUS

Radex Sound
Equipment Ltd.
17 Diagorou St., P.O.Box
2046, Nicosia CYPRUS
TEL: (2) 453 426
(2) 466 423

U.A.E

Zak Electronics &
Musical Instruments Co.
P.O. Box 8050
DUBAI, U.A.E
TEL: 360715

KUWAIT

Easa Husain Al-Yousifi
P.O. Box 126 Safat 13002
KUWAIT
TEL: 5719499

LEBANON

A. Chahine & Fils
P.O. Box 16-5857
Beirut, LEBANON
TEL: (01) 335799

TURKEY

Barkat Sanayi ve Ticaret
Siraselviler Cad. 86/6
Taksim Istanbul, TURKEY
TEL: (0212) 2499324

EGYPT

Al Fanny Trading Office
9, Ebn Hagar Ai Askalany
Street, Ard El Golf,
Heliopolis, Cairo, 11341
EGYPT
TEL: (02) 4171828
(02) 4185531

QATAR

Badie Studio & Stores
P.O.Box 62,
DOHA Qatar
TEL: 423554

SYRIA

Technical Light &
Sound Center
Khaled Ebn Al Walid St.
P.O.Box 13520
Damascus - Syria
TEL: (11) 2235 384

BAHRAIN

Moon Stores
Bad Al Bahrain Road,
P.O.Box 20077
State of Bahrain
TEL: 211 005

REUNION

FO - YAM Marcel
25 Rue Jules Merman ZI
Chaudron - BP79 97491
Ste Clotilde REUNION
TEL: 262 28 29 16

BRAZIL

Roland Brasil Ltda.
R. Coronel Octaviano da
Silveira 203 05522-010
Sao Paulo BRAZIL
TEL: (11) 843 9377

MEXICO

Casa Veerkamp, s.a. de
c.v.
Mesones No. 21 Col. Centro
MEXICO D.F. 06080
TEL: (905) 709 3716

La Casa Wagner de
Guadalajara s.a. de c.v.
Av. Corona No. 202 5.J.
Guadalajara, Jalisco
MEXICO C.P.44100
TEL: (36) 13 1414

VENEZUELA

Musicland Digital C.A.
Av. Francisco de Miranda,
Centro Parque de Cristal,
Nival C2 Local 20 Caracas
VENEZUELA
TEL: (2) 285 9218

PANAMA

Productos Superiores,
S.A.
Apartado 655 - Panama 1
REP. DE PANAMA
TEL: 26 3322

ARGENTINA

Instrumentos Musicales
S.A.
Florida 638
(1005) Buenos Aires
ARGENTINA
TEL: (1) 394 4029

HONG KONG

Tom Lee Music Co., Ltd.
Service Division
22-32 Pun Shan Street, Tsuen
Wan, New Territories,
HONG KONG
TEL: 852 2 737 7688

KOREA

Cosmos Corporation
Service Station
261 2nd Floor Nak-Won
Arcade Jong-Ro ku, Seoul,
KOREA
TEL: (02) 742 8844

SINGAPORE

Swee Lee Company
BLOCK 231,
Bain Street #03-23
Bras Basah Complex,
Singapore 0718
TEL: 3367886

CRISTOFORI MUSIC PTE LTD

335, Joo Chiat Road
SINGAPORE 1542
REPUBLIC OF SINGAPORE
TEL: 3450435

PHILIPPINES

G.A. Yupangco & Co. Inc.
339 Gil J. Puyat Avenue
Makati, Metro Manila 1200,
PHILIPPINES
TEL: (02) 817 0013

THAILAND

Theera Music Co., Ltd.
330 Verng Nakorn Kasem,
Soi 2, Bangkok 10100,
THAILAND
TEL: (02) 2248821

MALAYSIA

Bentley Music SDN BHD
No.142, Jalan Bukit Bintang
55100 Kuala Lumpur,
MALAYSIA
TEL: (03) 2443333

INDONESIA

PT CITRARAMA
BELANTIKA
Kompleks Perkantoran Duta
Merlin Blok E No.6—7
Jl. Gajah Mada No.3—5,
Jakarta 10130,
INDONESIA
TEL: (021) 3850073

TAIWAN

Siruba Enterprise
(Taiwan) Co., LTD.
Room 5, 9th. No. 112 Chung
Shan N.Road Sec.2 Taipei,
TAIWAN, R.O.C.
TEL: (02) 571 5860

SOUTH AFRICA

That Other Music Shop
(PTY) Ltd.
11 Melle Street (Cnr Melle
and Juta Street)
Braamfontein 2001
Republic of South Africa
TEL: (011) 403 4105

Paul Bothner (PTY) Ltd.
17 Werdmuller Centre
Claremont 7700
Republic of South Africa
TEL: (021) 64 4030

As of Feb. 23, 1995

SOUND EXPANSION

Sound Expansion Series

Owner's Manual

Using This Manual...

This owner's manual is for use with all models in the Sound Expansion Series. It covers virtually all the available functions, and explains how to use them. However, each model in the Sound Expansion Series also provides its own unique features, designed to deliver a great deal more expressiveness and realism within the musical realism that the model is specialized for. Since each model also has its own individual owner's manual, please refer to that manual as well.

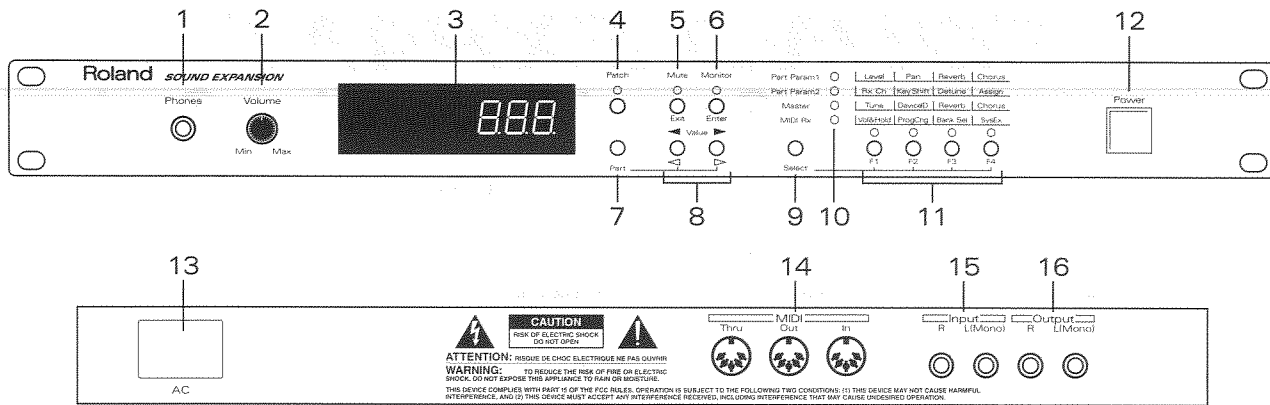
© 1995 ROLAND CORPORATION

All rights reserved. No part of this publication may be reproduced in any form without the written permission of Roland Corporation.

Contents

Part Names and Descriptions	2
Quick Start	3
■ Connections and Power-up	3
Making the Connections	3
Before Turning On the Power	3
Turning On the Power	3
■ About the Unit's Operation Modes	3
<About the Temporary Area>	3
■ Try Listening to Sounds in the Performance Mode	3
Switching to the Performance Mode	3
Choosing a Performance	4
Changing Performance Settings	4
About the Functions for the Parameters	4
Muting a Part	5
Monitoring a Part	5
■ Try Listening to Sounds in the Patch Mode	5
Switching to the Patch Mode	5
Setting Patches	5
■ Storing the Unit's Settings	6
<How to DO a Bulk Dump>	6
Saving Settings	6
Returning Saved Settings to the Unit	6
■ Returning Settings to Their Factory Defaults (Factory Preset)	6
■ NRPN Receive Switch	6
■ How to Listen to the Demo Songs	6
■ Other Handy Functions	7
Level Meter Function	7
MIDI Monitor Function	7
■ Error Messages	7
Using MIDI Messages to Control the Unit	8
Changing Patches	8
Changing Performances	8
Changing the Patch Table	8
Reference	9
■ Parameters	9
■ Troubleshooting	9
Roland Exclusive Messages	10
MIDI IMPLEMENTATION	12
MIDI Implementation Chart	20

Part Names and Descriptions



1. Phones (headphones) Jack

This is for connecting headphones. Sound still comes out of the Output L/R jacks even when headphones are plugged in.

2. Volume Knob

Used to adjust the volume of the sound output to the Output L/R jacks and the headphones jack.

3. Display

Shows the numbers assigned to Patches and the values of Parameters. It also displays messages in the event of an error.

4. Patch Button

Patches can be selected by using Value buttons when the indicator for this button is lit up or flashing.

5. Mute Button

To stop the part sounding, press this button and the indicator for this button is lit up.

6. Monitor Button

Parts for which the indicator on this button is lighted are played — all other Parts will be silent.

7. Part Button

To switch Parts, hold down the Part button while you press the Value button.

8. Value Buttons

These buttons are used to change various settings. You can reduce a value rapidly by holding down the ◀ Value button and pressing the ▶ button. In the same way, you can increase a value rapidly by holding down the ▶ Value button and pressing the ◀ button.

9. Select Button

10. Select Indicator

11. Function Buttons

These are used to change the settings for this sound module. They are also used to return values to their factory defaults (p. 6). The Select indicator also serves as a level meter for the unit (p. 7).

12. Power Switch

This is used to switch the power on and off. Press the button once to switch the power on, and press it again to return it to its original position and switch the power off.

13. AC Jack

Insert the power cord included with the unit into this jack, and plug the other end into an AC power outlet.

14. MIDI In/MIDI Out/MIDI Thru Connectors

MIDI In: Receives messages from external MIDI devices.

MIDI Out: Transmits messages from the unit to external MIDI devices (Bulk Dump: p. 6).

MIDI Thru: Provides duplicate of the complete MIDI message stream received via MIDI In, without change.

15. Input L/R Jacks

By connecting the output jacks of another sound module to these jacks, you can obtain the mixed output for the two sound modules from the Output L/R jacks and the Phones jack. If you want monaural input, connect the cable to the L jack.

The volume of the sound input to the Input L/R jacks remains constant regardless of the position of this unit's Volume knob.

16. Output L/R jacks

These jacks provide output of the audio signals. If you want monaural output, connect the audio cable to the L jack.

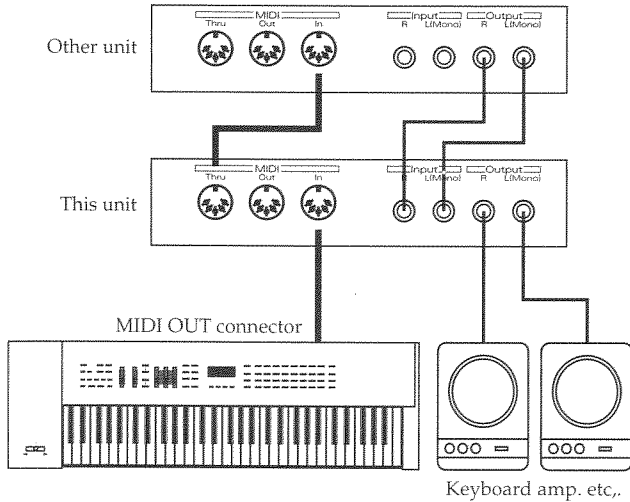
Quick Start

Connections and Power-up

■ Making the Connections

First make sure that the power off this unit, and on all other external devices is switched off. Then hook up the unit and the other equipment as shown below.

Use cables with 1/4" phone plugs to connect the unit's Output jacks to a keyboard amp; or to connect the unit's Input jacks with the output jacks on another device. Use MIDI cables to make connections between MIDI connectors.



If you connect the output jacks on another sound module to the unit's Input jacks, you can listen to the sounds output from the two sound modules without using a mixer.

You can listen to the unit even if you have no keyboard amp or audio set. Just plug in headphones to the Phones jack.

■ Before Turning On the Power.....

Before you switch on the power, make sure that the unit's Volume knob is at "Min," and make sure that the volume knobs for the keyboard amp and any other external equipment are also at their lowest settings.

■ Turning On the Power

First switch on the power for the unit, and then turn on the keyboard amp or other connected equipment. After you've done that, adjust the unit's Volume knob and the volume controls on the other equipment to get the appropriate sound level.

When switching off the power, first turn off the keyboard amp or other equipment, and then switch off the unit.

* This unit is equipped with a protection circuit. A brief interval (a few seconds) after power up is required before the unit will operate normally.

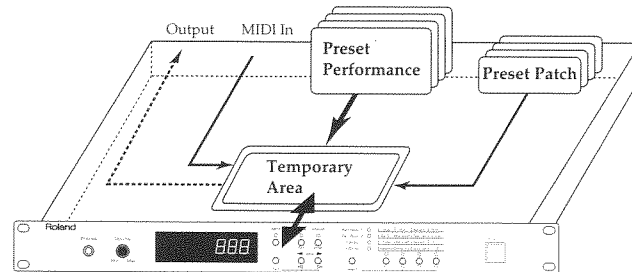
About the Unit's Operation Modes

This unit has a Performance mode and a Patch mode. In the Performance mode, it functions as a multi-timbral sound generator capable of playing eight Parts. In the Patch mode, it works as a sound generator which focuses on playing just a single Part.

The Performance mode can be used for ensemble play with a sequencer, and the Patch mode works well for live-stage performances with a MIDI keyboard hooked up.

About the Temporary Area

When a Performance or Patch is called up, the information for its settings is stored in a temporary area. The only Performances and Patches that you can play with MIDI messages from the MIDI In connector, or can manipulate with the buttons on the front panel are the Performances and Patches that have been read into the temporary area.



You can change the parameters for Performance or Patch that has been called up into the temporary area. You can also change parameters remotely using an external MIDI device connected to the MIDI in connector.

The data in the temporary area is preserved in memory even while the power is off.

Note, however, that if you select another Performance or Patch, settings data in the temporary area before that is discarded.

You can also output the setting values through the MIDI Out connector for storage on an external MIDI device (p. 6).

Try Listening to Sounds in the Performance Mode

This unit has a large number of built-in Performances. A "Performance" is a collection of many settings, including Patches assigned to Parts 1 to 7, Rhythm Set values assigned to Part 8, and the values for Level, Pan, and Effects for each of these Parts.

■ Switching to the Performance Mode.....

You can start up the unit in the Performance mode by switching on the power while holding down the Part button. This setting remains in memory even after the power is switched off.

* The unit is set to the Performance mode when shipped from the factory.

Quick Start

■ Choosing a Performance.....

Hold down the Select button and press the F1 button. "PF" appears on the display. Then the currently selected Performance number appears on the display, as shown below.



While in this state, you can use the Value buttons to choose a Performance. Pressing the Enter button makes it possible to start playing with the selected Performance. To cancel instead, press the Exit button.

For more information on the settings for each Performance, refer to the Performance Chart in the owner's manual for the particular model that you're using.

■ Changing Performance Settings

If the MIDI receive channels set for the various Parts don't match the MIDI send channels used by the connected MIDI keyboard, no sound is played.

Try changing the settings for the Patches and Effects assigned to the Parts to modify a Performance to suit your own style of play. Here's how to change these settings.

• Choosing a Part

To switch Parts, hold down the Part button while you press \leftarrow / \rightarrow . The display shows you which Part is selected — for example, "P-1" on the display indicates "Part 1"; and "P-2" means "Part2."

The figure below shows how the display looks when Part 1 has been selected.



• Changing the Patches and Rhythm Set

Press the Patch button to make the indicator light up, and then use the Value buttons to choose the desired Patches or Rhythm Set.

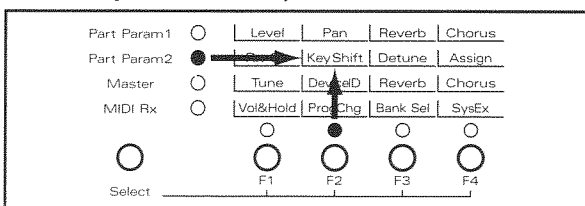
* A Rhythm Set can be assigned only to Part 8.

• Changing Parameter Settings

You can make changes to the various Parameters printed on the right-hand side of the unit's front panel.

Choose the Parameter Group with the Select button, and then use the F1, F2, F3, or F4 button to select the Parameter. The lit-up indicator shows you which Parameter has been selected.

In the example below, the Key Shift Parameter is selected.



View the value shown in the display while using the Value buttons to change the value.

■ About the Functions for the Parameters

The Parameters that make up Part Param 1, Part Param 2 and a part of MIDI Rx (Vol&Hold, Prog Chg) can be set independently for each Part. The Parameters contained in Master and a part of MIDI Rx (Bank Sel, SysEx) are set commonly for all Parts.

See the Parameter Chart on page 9 for a description of each Parameter's possible range and their default values.

• Part Param 1 (Part Parameter 1)

Level: This adjusts the volume level for each Part.

Pan: Allows you to localize the sound image for each Part. At "0," the sound is centered in the stereo field. Settings of "L1" to "L64" place the sound at positions toward the left, with a larger number indicating a further distance away from the center. In the same way, settings of "r1" to "r63" position the sound to the right, with a larger number indicating a further distance away from the center.

Reverb (Reverb Level): This sets the depth of the Reverb effect (reverberation effect) for each of the Parts.

Chorus (Chorus Level): This sets the depth of the Chorus effect (an effect that makes the sound "fatter") that is applied to each Part.

There are patches that are set the chorus output send to reverb. The chorus level is changed, and the reverb level changes when using the these patches.

• Part Param 2 (Part Parameters 2)

Rx Ch (MIDI Receive Channel): This sets the MIDI receive channel for each Part.

Key Shift: This alters, in half-steps, the pitch at which each Part is played. This pitch is raise (or lowered) by an octave for each setting of +12 (or -12).

This parameter is set to too high or low value, and this unit might not sound or make strange sound in key range.

Detune: This is used to make fine adjustments in the pitch for each Part. The pitch is raised (or lowered) by half a semitone for each setting of +50 (or -50).

Assign (Voice Assign): This assigns a minimum number of voices available for play by a Part. This unit can simultaneously play a maximum of 28 voices. If you are using a sequencer to play complex arrangements, the number of voices available may not be enough, and some notes could be dropped.

If this happens, you may want to assign a number of voices that are required for certain Parts to prevent voices for such important Parts from being stolen, even when the total number of simultaneous notes exceeds 28. Remember, however, that the total number of voices assigned to all Parts together cannot be greater than 28.

• **Master Parameters**

Tune: This adjusts the pitch that becomes the overall standard for the unit (middle A = A4). This display shows "27.4 Hz" to "52.6 Hz," which represents a value of from 427.4 Hz to 452.6 Hz.

Device ID: The same model ID may be held by other sound modules in this series, or by the JV-80, JV-90, JV-1000, or JV-880. The device ID is information that is used to individually distinguish each device when MIDI devices are used together. If you are using any of the above units at the same time, change the device ID when sending system exclusive (SysEx) messages to them.

Reverb (Reverb Switch): This toggles the reverb effect for the entire unit on or off.

Chorus (Chorus Switch): This toggles the chorus effect for the entire unit on or off.

• **MIDI Rx (MIDI Message Reception)**

Vol&Hold (Volume/Hold Message Reception Switch): Determines whether Volume and/or Hold messages are to be received or not. The meaning of the settings shown in the display is as follows:

- on* Volume messages and hold messages are both received.
- hLd* Hold messages are received, but volume messages are not.
- uoL* Volume messages are received, but hold messages are not.
- oFF* Neither volume messages nor hold messages are received.

Prog Chg (Program Change Message Receive Switch): Allows you to enable/disable reception of Program Change messages. Program Change messages are accepted when "on" is displayed, and ignored when "oFF" is selected.

Bank Sel (Bank Select Message Reception): This changes the unit's Patch, using a Bank Select message (Controller Number 0 or 32) in combination with a Program Change message. When shipped from the factory the Patch can be changed with a Controller Number 0 value of 80 or 81. The display reads "80" at this time. When the display shows "0," Patches can be switched with Controller Number 0 values of 0 and 1. Similarly, Patches can be switched with Controller Number 0 values of 10 and 11 when "10" is shown. You can set this value to any number from 0 to 126. When set to "oFF," no Bank Select messages are received. When the Patch Table set to "2," this parameter cannot be work.

SysEx (System Exclusive Message Receive Switch): This setting determines whether or not system exclusive messages are received. Bulk Dump data is also one type of system exclusive message.

- on* System Exclusive message is received.
- PAr* System Exclusive message other than "GS Reset," "Exit GS," "GM System On," or "GM System Off" is received.
- oFF* System Exclusive message is not received.

■ **Muting a Part**
Parts for which the Mute button is pressed (the indicator lights) will remain silent.

■ **Monitoring a Part**
After pressing the Monitor button to light up the indicator, only one Part will be heard at a time, with all other Parts muted out. During ensemble play with a sequencer, it can sometimes be hard to tell how each Part is being played. At such times, you can activate the Monitor button (get its indicator to light) and then switch through the Parts to listen to how each is played.

■ **Try Listening to Sounds in the Patch Mode**

In the Patch mode, the unit functions as a sound generator for just one Part. Reverb and Chorus can be selected for each Patch in this mode, which can give you powerful sounds for live performances.

■ **Switch to the Patch Mode**
The Patch mode is enabled by switching on the power while holding down the Patch button. This setting remains in memory even after the power is switched off. The indicator for the Patch button flashes when in the Patch mode.

■ **Setting Patches**
In the same way as for the Performance mode, you can make changes to the various Parameters printed on the right-hand side of the unit's front panel. The functions of the Parameters are no different from the Performance mode — check out "Changing Parameter Settings" (p. 4) for more information. However, Key Shift, Detune and Assign parameter of the Part Param 2 and Vol&Hold, Prog Chg parameter of the MIDI Rx doesn't work in the Patch mode. When these parameters are selected, "--" appears on the display as shown below.



Storing the Unit's Settings

You can transmit the information for the unit's settings from the MIDI Out connector. This function is called a "Bulk Dump." This sends the unit's data to a sequencer or some other MIDI device in real-time for storage on the other device. You can also use this function to return settings stored on another device to the unit.

How to Do a Bulk Dump

Hold down the select button and press the F2 button. "bd" appears on the display. Then use the Value buttons to select the information that you want to send.

- ALL* Sends all of the data as well as the Parameter settings for Master and MIDI Rx that can be adjusted from the front panel.
- PF* Sends Performance settings and the Parameter settings for Part Param 1 and Part Param 2 that can be adjusted from the front panel.
- PBL* Sends the information for Patches assigned to Parts 1 to 7.
- rhy* Sends the settings for the Rhythm Set assigned to Part 8.

* The display and operation shown above explain the usage when in the Performance mode. In the Patch mode, the selections "PF" and "rhy" are not available. Also, selecting "Pat" causes the information for only one Patch to be sent.

After starting recording on the sequencer, press the unit's Enter button. The Bulk Dump is executed when you press this button. If you want to cancel the Bulk Dump, press the Exit button.

■ Saving Settings.....

To save the unit's setting data, connect its MIDI Out connector to the MIDI In connector on a sequencer (or some other MIDI device), and then set the unit's Device ID number (p. 5). When you've done this, start recording on the sequencer and execute a Bulk Dump. After the Bulk Dump has finished, stop recording on the sequencer.

■ Returning Saved Settings to the Unit

To load settings data back into the unit, connect the MIDI Out connector on the sequencer to the unit's MIDI In connector. Make sure that the unit's Device ID number (p. 5) is set to the same number that was used when the settings were save. Also check to make sure that the System Exclusive Message Receive Switch (p. 5) is set to "on."

After you have checked these, send the settings data stored on the sequencer to the unit.

If you record Bulk Dump data at the start of a batch of music data, you can set up the unit simply by sending the song data to the unit.

Returning Settings to Their Factory Defaults (Factory Preset)

This returns all of the unit's settings to the data in effect when the unit was shipped from the factory.

Hold down the Select button and press F3. When the message "FP" flashes on the display, confirm that you want to go ahead by pressing the Enter button. Press the Exit button instead if you change your mind.

NRPN Receive Switch

If you hold down the Select button and press F4, "nrP" flashes on the display. After this disappears, you can use the Value button to select "on" or "off." When set to "on," you can use an NRPN (non-registered parameter number) to edit the unit's Patches and Rhythm Sets. This is automatically set to "on" when a GS Reset or GM System On message is received.

When at "off," a Patch or Rhythm Set cannot be edited even when an NRPN is received. The setting is always at "off" when the power is switched on.

* No GS Reset or GM System On messages are received when the SysEx parameter is set to "off" or "PAR."

How to Listen to the Demo Songs

Holding down the Select button as you switch on the power makes it possible to listen to the demo songs. Use the Value buttons to choose a song number. The Demo song is played back when you press the Enter button. Pressing the Exit button stops playback.

Press the Exit button once more, you can play this unit it was. For more information on the Demo songs, see the owner's manual for the particular model that you're using.

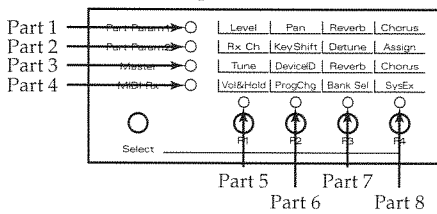
Other Handy Functions

■ Level Meter Function

When the indicator for a Patch button is lit up or flashing, the Select indicator works like a level meter for the unit. It normally indicates the total level for all Patches taken together, but when you're monitoring a Part it indicates only the level for that Part.

■ MIDI Monitor Function.....

You can display the status of receiving MIDI messages for each Part (Note messages only). If you hold down the Part button, the Select indicator and the indicators for the F1 to F4 buttons will light up while the Part button is held down. The following figure shows the relationship between the Part and the indicators.



Error Messages

nOP (No Patch)

Patch not found in the Bank specified by means of Program Change and/or Controller No. 0 & 32 messages.

bEL (Battery Low)

The battery required for preserving parameter settings is nearly depleted. Consult with the nearest Roland Service Station.

oFL (MIDI Off Line)

MIDI communications have been disrupted. Consider if the cable connected to MIDI In is faulty, or if there could be a problem with the external device. (The error will appear if the external device has been switched off.)

bFL (MIDI Buffer Full)

Data could not be processed successfully because too much was received within a short period of time.

cSE (MIDI Checksum Error)

A checksum contended in System Exclusive messages received by the unit was found to be in error.

* Should an error other than those explained above (such as Er1, Er2, etc.) appear, you should consult with the nearest Roland Service Center or other authorized service personnel.

Using MIDI Messages to Control the Unit

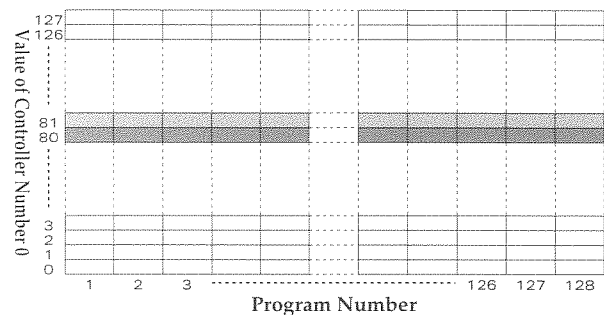
This unit can send and receive the MIDI messages indicated by "O" in the MIDI Implementation Chart on page 20. You can use these MIDI message external device. For details, see "MIDI Implementation" (p. 12). Read on for an explanation of some typical functions that you can use.

■ Changing Patches

This unit has more than 128 built-in Patches, so it's not possible to select every Patch with just Program Change messages. For this reason, Patches can be switched by using Program Change messages together with Bank Select messages.

A Bank Select message is a combination of Controller Number 0 and Controller Number 32, but this unit always treats the value of Controller Number 32 as "0" (zero).

When the unit is shipped from the factory, you can select Patches from 1 to 128 with a value of 80 for Controller Number 0 and with the Program Number. You can select Patches from 129 to 255 with a value of 81 for Controller Number 0 and with the Program Number. This is shown in the following figure.



To change a Patch, send MIDI messages from the external device in the sequence shown below.

- Controller Number 0
 - Value: 80 (Patches 1 to 128)
 - Value: 81 (Patches 129 to 256)
- Controller Number 32
 - Value: 0
- Program Number
 - Value: 1 to 128

The Patch is changed when the MIDI messages are received in this sequence. If you sent only a Program Number without sending Controller Number 0, the previously sent value for Controller Number 0 and the Program Number just sent are used to choose the Patch.

- * When shipped from the factory, the unit is set up for switching patches with a value of 80 or 81 for Controller Number 0, but you can modify the Bank Sel parameter (p. 5) to change the value for Controller Number 0 that is used to switch Patches.
- * The number of Patches varies from one model to another.
- * If you specify a Bank in which a Patch is not assigned, the message "no P" (no Patch) appears on the display and no sound is played. Press the Value button to return to the previous display. Refer to the owner's manual for the particular model you are using for descriptions of the Patches assigned to the different Banks.

■ Changing Performances

You can also use Program Change messages to change the Performance. When shipped from the factory, however, the unit was set so this feature is disabled. See "MIDI Implementation" (p. 16: Control channel) for more details.

■ Changing the Patch Table

This unit has two Patch Tables. Patch Table 1 (details of which can be found in the owner's manuals for the particular model that you're using) is enabled when the unit's power is switched on, but changes to Patch Table 2 when a General MIDI System On or GS Reset message is received. You can switch back to Patch Table 1 by sending a General MIDI System Off or Exit GS message to the unit; or by switching the power off, then on again.

See the owner's manual for the particular model that you're using for information on the Patch Table 2.

- * This unit receives GS reset or GM system on message when it is set to Patch mode, automatically change to Performance mode.
- * If SysEx parameter (p.5) set to "oFF" or "PAR," this unit doesn't change to Patch Table 2 because of this unit doesn't receive GM system on and GS reset message.

Important!

When Patch Table 2 has been selected, a dot appears in the lower left corner of the display, as shown below.



Reference

Parameters

• Part Param 1

Parameter	Value
Level	0 — 127
Pan	L64 — 0 — r63
Reverb	0 — 127
Chorus	0 — 127

• Part Param 2

Parameter	Value
Rx Ch	1 — 16
Key Shift	-48 — 0 — +48
Detune	-50 — 0 — +50
Assign	0 — 28

• Master

Parameter	Value
Tune (*)	427.4 — 452.6 Hz
Device ID	1 — 32
Reverb	oFF, on
Chorus	oFF, on

• MIDI Rx Sw

Parameter	Value
Vol&Hold	oFF, voL, hLd, on
Prog Chg	oFF, on
Bank Sel	oFF, 0 — 126
Sys Ex	oFF, PAr, on

(*) The hundreds digit (always 4) is not displayed.

Troubleshooting

If your unit is not providing the expected response, check through the following for a ready solution.

• Power Doesn't Come On

Make sure the power cord is connected properly (both the plug going to this unit and the one at the outlet).

• Sound Not Produced

Recheck that power is indeed switched on — on this unit as well as any other devices (keyboard amp, mixer, etc.).

Could the volume be turned down too low on this unit, or on your keyboard amp, mixer, or other device?

Are all your cable connected properly?

Could any of the cables possibly be faulty?

Check settings for "Level" (p. 4) to make sure they are not at "0."

Could the volume possibly have been lowered by MIDI messages sent to the unit by another device (such as Controller Number 7 or 11)?

Have you checked to make sure that the channel number being used by the keyboard or sequencer for transmission is the same as what this unit is set to be receiving on?

Could you futility be trying to play while a Demo is playing?

Have you checked that relevant Parts are not set to be muted?
Could you be sending an invalid Bank Select message?

• Reverb/Chorus Not Obtained

Could the Master setting for Reverb or Chorus be set to "oFF"?

Are you sure that the Part Param 1 settings for Reverb or Chorus are not set to a value that is too low?

• Distortion or Other Noise Is Heard

Is the volume at a suitable level on this unit, or on your keyboard amp, mixer, or other device?

Could you possibly be using an excessively high level for this unit's Level (p. 4) and Master Level? (These settings are alterable only through System Exclusive messages.)

Have the Output or Phones jacks gotten very dirty?

• Pitch Is Strange

Are the settings for Key Shift (p. 4) and Tune (p. 5) appropriate?

Are Pitch Bend messages being constantly sent to the unit?

• Sound Doesn't Change

Could you have Prog Chg or Bank Sel (p. 5) switched off?

If sending Bank Select messages and/or Program Change message, make sure you are sending them in the correct order.

• Multiple Sounds Heard at the Same Time

Check the channels you have assigned to Parts. The same channel could be assigned to more than one Part.

• Notes Get Dropped

The maximum polyphony of the unit is 28 notes. Not all notes can be played if you attempt to sound more than this at the same time. To avoid having voices stolen from your most important Parts, use the (Voice) Assign setting to reserve a minimum number of voices for those Parts you want to sound.

• Patch Table 2 Not Obtained With GM System On or GS Reset

Make sure the "Sys Ex" setting (a switch for enabling reception of System Exclusive messages) is not set at "oFF."

Roland Exclusive Messages

1. Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all Exclusive messages (type IV):

Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
CMD	Command ID
[BODY]	Main data
F7H	End of exclusive

•MIDI status: F0H, F7H

An Exclusive message must be flanked by a pair of status codes, starting with a Manufacturer ID immediately after F0H (MIDI version 1.0).

•Manufacturer ID: 41H

The Manufacturer ID identifies the manufacturer of a MIDI instrument that sends an Exclusive message. Value 41H represents Roland's Manufacturer ID.

•Device ID: DEV

The Device ID contains a unique value that identifies individual devices in the implementation of several MIDI instruments. It is usually set to 00H-0FH, a value smaller by one than that of a basic channel, but value 00H-1FH may be used for a device with several basic channels.

•Model ID: MDL

The Model ID contains a value that identifies one model from another. Different models, however, may share an identical Model ID if they handle similar data.

The Model ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model IDs, each representing a unique model:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

•Command ID: CMD

The Command ID indicates the function of an Exclusive message. The Command ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command IDs, each representing a unique function:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

•Main data: BODY

This field contains a message to be exchanged across an interface. The exact data size and content will vary with the Model ID and Command ID.

2. Address-mapped Data Transfer

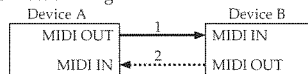
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory-resident records—waveform and tone data, switch status, and parameters, for example, to specific locations in a machine-dependent address space, thereby allowing access to data residing at the address a message specifies.

Address-mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures: one-way transfer and handshake transfer.

•One-way transfer procedure (See Section 3 for details.)

This procedure is suited to the transfer of a small amount of data. It sends out an Exclusive message completely independent of the receiving device's status.

Connection Diagram

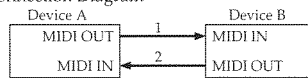


Connection at point 2 is essential for "Request data" procedures. (See Section 3.)

•Handshake-transfer procedure (This device does not use this procedure)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

Connection Diagram



Connection at points 1 and 2 is essential.

Notes on the above procedures

* There are separate Command IDs for different transfer procedures.

* Devices A and B cannot exchange data unless they use the same transfer procedure, share identical Device ID and Model ID, and are ready for communication.

3. One-way Transfer Procedure

This procedure sends out data until it has all been sent and is used when the messages are so short that answerbacks need not be checked.

For longer messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts 20 milliseconds intervals.

Types of Messages

Message	Command ID
Request data 1	RQ1 (11H)
Data set 1	DT1 (12H)

•Request data #1: RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.

If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device won't send out anything.

Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
11H	Command ID
aaH	Address MSB
	LSB
ssH	Size MSB
	LSB
sum	Check sum
F7H	End of exclusive

- * The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
- * Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- * The same number of bytes comprises address and size data, which, however, vary with the Model ID.
- * The error-checking process uses a checksum that provides a bit pattern where the last 7 bits are zero when values for an address, size, and that checksum are summed.

•Data set 1: DT1 (12H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more bits of data as well as a series of data formatted in an address-dependent order.

The MIDI standards inhibit non real-time messages from interrupting an Exclusive one. This fact is inconvenient for devices that support a "soft-thru" function. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate 'segments'.

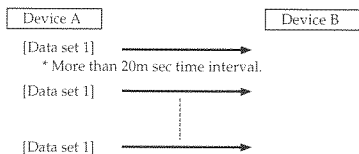
Byte	Description
F0H	Exclusive Status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
	LSB
ddH	Data MSB
	LSB
sum	Check sum
F7H	End of exclusive

- * A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
- * Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
- * The number of bytes comprising address data varies from one Model ID to another.
- * The error-checking process uses a checksum that provides a bit pattern where the last 7 bits are zero when values for an address, size, and that checksum are summed.

•Example of Message Transactions

•Device A sending data to Device B

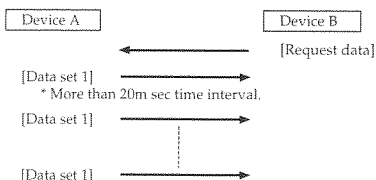
Transfer of a DT1 message is all that takes place.



•Device B requesting data from Device A

Device B sends an RQ1 message to Device A.

Checking the message, Device A sends a DT1 message back to Device B.



1. RECEIVE DATA

Channel Voice Message

• Note Off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

kk = Note number: 00H — 7FH (0 — 127)

vv = velocity: 00H — 7FH (0 — 127)

In the performance mode, ignored when the "MIDI receive switch" is OFF for each part.

In the rhythm part (part 8), ignored when "ENV mode" is at "NO-SUSTAIN" for each rhythm tone.

• Note On

Status	Second	Third
9nH	kkH	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

kk = Note number: 00H — 7FH (0 — 127)

vv = velocity: 01H — 7FH (1 — 127)

In the performance mode, ignored when the "MIDI receive switch" is OFF for each part.

Control change

• Bank select

Status	Second	Third
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

mm = MSB of the bank number: 50H — 57H (80 — 87)

"mm" is adjustable from 0, 1 to 126, 127.

ll = LSB of the bank number: 0H (0)

The Bank Select is suspended until receiving a program change.

This message is ignored when "Program bank sel" of the system common is OFF.

If the part which MIDI receive channel is set the same as the control channel, the performance is changed when receive the bank select message.

The bank number specified as following.

Bank select		Program change	Media (Patch number)
MSB	LSB	1 — 128	Preset A (#1 — #128)
80	0	1 — 127	Preset B (#129 — #255)

When the module receives bank select LSB, it will always count as 0.

• Modulation

Status	Second	Third
BnH	01H	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

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

The effect of the modulation depends on the value of "Mod1 — 4" of the patch tone.

This message is ignored when "Receive Modulation" of the system common is OFF.

• Portamento time

Status	Second	Third
BnH	05H	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

vv = Portamento time: 00H — 7FH (0 — 127)

You can adjust the portamento time of the patch common.

This message is ignored when "Receive Control change" of the system common is OFF.

• Volume

Status	Second	Third
BnH	07H	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

vv = Volume: 00H — 7FH (0 — 127)

You can adjust the volume of specified channel.

This message is ignored when "Receive volume" of the system common is OFF.

In the performance mode, ignored when the "Receive volume switch" is OFF for each part.

This message is ignored when "Volume switch" of the patch tone is OFF.

• Pan

Status	Second	Third
BnH	0AH	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

vv = Pan: 00H — 7FH (0 — 127)

0 represents the left end, 64 the center, and 127 the right end.

This message is ignored when "Receive Control Change" of the system common is OFF.

• Expression

Status	Second	Third
BnH	0BH	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

vv = Expression: 00H — 7FH (0 — 127)

The effect of the expression depends on the value of "Exp1 — 4" of the patch tone.

This message is ignored when "Receive Control Change" of the system common is OFF.

• Hold 1

Status	Second	Third
BnH	40H	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

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

Note played can be sustained for as long as the time that elapses between turning hold on and off.

This message is ignored when "Receive Control Change" of the system common is OFF.

In the performance mode, ignored when the "hold1 receive switch" is OFF for each part.

In the rhythm part (part 8), ignored when "ENV mode" is at "NO-SUSTAIN" for each rhythm tone.

This message is ignored when "Hold-1 switch" of patch tone is OFF.

• Portamento

Status	Second	Third
BnH	41H	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

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

Switches over "Portamento sw" of patch common.

This message is ignored when "Receive control change" of the system common is OFF.

• Sostenuo

Status	Second	Third
BnH	42H	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

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

• Soft

Status	Second	Third
BnH	43H	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

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

The value is changed, and the "Soft" effect change.

• Effect 1 depth (Reverb send level)

Status	Second	Third
BnH	5BH	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

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

You can adjust the Reverb send level of specified channel.

This message is ignored when "Receive control change" of the system common is OFF.

• Effect 3 depth (Chorus send level)

Status	Second	Third
BnH	5DH	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

vv = control value: 00H — 7FH (0 — 127)

MIDI IMPLEMENTATION

You can adjust the Chorus send level of specified channel.

This message is ignored when "Receive control change" of the system common is OFF.

• NRPN MSB/LSB

Status	Second	Third
BnH	63H	mmH
BnH	62H	llH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

mm = MSB of the specified parameter by NRPN

ll = LSB of the specified parameter by NRPN

When the power is turned on, or "General MIDI System On" is received, Rx.NRPN will be set OFF, and NRPN will not be received.

When "GS reset" or Rx.NRPN = ON is received, NRPN can be received.

The value set by NRPN will not be reset even if Program change or Reset all controller is received.

** NRPN **

The NRPN (Non Registered Parameter number) message allows an extended range of control changes to be used, letting you use control messages which are not part of the MIDI Specification and may be unique to an individual model. To use these messages, you must first use NRPN MSB and NRPN LSB message to specify the parameter to be controlled, and then use Data Entry messages to specify the value of the specified parameter. Once an NRPN parameter has been specified, all Data Entry messages received on that channel will modify the value of that parameter. To prevent accidents, it is recommended that you set RPN Null (RPN Number = 7FH/7FH) when you have finished setting the value of the desired parameter.

On This module, the following NRPN can be received.

NRPN	Data entry	Function and range
MSB LSB	MSB	
01H 08H	mmH	Vibrato Rate (relative change) mm: 0EH — 40H — 72H (-50 — 0 — +50)
01H 09H	mmH	Vibrato Depth (relative change) mm: 0EH — 40H — 72H (-50 — 0 — +50)
01H 0AH	mmH	Vibrato Delay (relative change) mm: 0EH — 40H — 72H (-50 — 0 — +50)
01H 20H	mmH	TVF Cutoff Frequency (relative change) mm: 0EH — 40H — 72H (-50 — 0 — +50)
01H 21H	mmH	TVF Resonance (relative change) mm: 0EH — 40H — 72H (-50 — 0 — +50)
01H 63H	mmH	TVF&TVA Envelope Attack Time (relative change) mm: 0EH — 40H — 72H (-50 — 0 — +50)
01H 64H	mmH	TVF&TVA Envelope Decay Time (relative change) mm: 0EH — 40H — 72H (-50 — 0 — +50)
01H 66H	mmH	TVF&TVA Envelope release Time (relative change) mm: 0EH — 40H — 72H (-50 — 0 — +50)
18H rrH	mmH	Rhythm Instrument Pitch Coarse (relative change) rr: Rhythm Instrument note number mm: 00H — 40H — 7FH (-64 — 0 — +63 semitone)
1AH rrH	mmH	Rhythm Instrument TVA level (absolute change) rr: Rhythm Instrument note number mm: 00H — 7FH (0 — max)
1CH rrH	mmH	Rhythm Instrument Panpot (absolute change) rr: Rhythm Instrument note number mm: 00H, 01H — 40H — 7FH (random, left-center-right)
1DH rrH	mmH	Rhythm instrument Reverb Send Level (absolute change) rr: Rhythm Instrument note number mm: 00H — 7FH (0 — max)
1EH rrH	mmH	Rhythm Instrument Chorus Send Level (absolute change) rr: Rhythm Instrument note number mm: 00H — 7FH (0 — max)

Data entry LSB (llH) is ignored

Parameters marked "relative change" change relative to the preset value (40H). Even among different GS devices, "relative change" parameters may sometimes differ in the way the sound changes or in the range of change.

Parameters marked "absolute change" will be set to the absolute value of the parameter, regardless of the preset value.

• RPN MSB/LSB

Status	Second	Third
BnH	65H	mmH
BnH	64H	llH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

mm = MSB of the specified parameter by RPN

ll = LSB of the specified parameter by RPN

** RPN **

RPN (registered parameter number) is a parameter number of tone color or musical expression defined in MIDI specification.

With the Sound Expansion Series as the receiver, RPN#0 (pitch bend sensitivity), RPN#1 (fine tuning) and RPN#2 (coarse tuning) are effective. when sending an RPN to the Sound Expansion Series, first specify the MSB and LSB of the RPN to be used to control a parameter and then set the value in the data entry field.

RPN	Data entry	Description
MSB LSB	MSB LSB	
00H 00H	mmH —	Pitch bend sensitivity mm: 00H — 0CH (0 — 12 semitone) ll: Ignored Up to 1 octave You can adjust "BENDER — RANGE DOWN" and "BENDER — RANGE UP" at same time. In the rhythm part (part8), this message is not recognized.
00H 01H	mmH llH	Fine tuning mm, ll: 20H, 00H — 40H, 00H — 60H, 00H (-8192 x 50 / 8192 — 0 — +8192 x 50 / 8192 cent) In the patch mode, the master tune is adjusted. In the performance mode, fine tune at each part is adjusted. In the performance mode, when received as specified control channel, the master tune is adjusted.
00H 02H	mmH —	Coarse tuning mm: 10H — 40H — 70H (-48 — 0 — +48 semitone) ll: Ignored In the patch mode, this message is not recognized. In the performance mode, coarse tune for each part is adjusted.
7FH 7FH	— —	RPN reset mm, ll: Ignored It returns to the state where no RPN parameters are specified. Current setting value is no change.

• Data entry MSB/LSB

Status	Second	Third
BnH	06H	mmH
BnH	26H	llH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

mm = MSB of the value of the parameter specified with RPN

ll = LSB of the value of the parameter specified with RPN

This message is ignored when "Receive control change" of the system common is OFF.

• Program Change

Status	Second
CnH	ppH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

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

This message is ignored when "Receive program change" of the system common is OFF.

If the part which MIDI receive channel is set the same as the control channel, the performance is changed when receive the program change message.

• Channel pressure

Status	Second
DnH	vvH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

vv = value: 00H — 7FH (0 — 127)

The effect of the Channel pressure depends on the value of "After 1 — 4" of the patch tone.

This message is ignored when "Receive Channel pressure" of the System common is OFF.

• Pitch bend change

Status	Second	Third
EnH	llH	mmH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

mm, ll = value: 00H, 00H — 7FH, 7FH (-8192 — +8191)

This message is ignored when "Receive Pitch bend" of the system common is OFF.

MIDI IMPLEMENTATION

Channel Mode Message

• All Sound Off

Status	Second	Third
BnH	78H	00H

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

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

This message is ignored when the "MIDI receive switch" is OFF for each part.

• Reset All Controllers

Status	Second	Third
BnH	79H	00H

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

If this message is received, the values of following controllers will be changed.

Controller	Value
Modulation	0 (off)
Volume	127 (maximum)
Panpot	64 (center)
Expression	0 (off)
Hold 1	0 (off)
Channel pressure	0 (off)
Pitch bend change	0 (center)
RPN	No specified parameter, no value is changed.
NRPN	No specified parameter, no value is changed.

• All note off

Status	Second	Third
BnH	7BH	00H

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

When this message is recognized, all the note which have been turned on by "MIDI note on" message are turned off. However if Hold 1 or Sostenuuto is on, the sound will be continued until these are turned off.

• OMNI Off

Status	Second	Third
BnH	7CH	00H

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

Recognized as "All note off".

• OMNI On

Status	Second	Third
BnH	7DH	00H

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

This message is recognized as "All note off". (Sound Expansion Series doesn't recognize OMNI on.)

• MONO

Status	Second	Third
BnH	7EH	mmH

n = MIDI channel number: 0H — FH (ch.1 — ch.16)

mm = number of mono: 00H — 10H (0 — 16)

"Assign mode" of patch common is Switched to "SOLO."

Recognize as "All notes off", and sets each patch MODE4 (M = 1).

• POLY

Status	Second	Third
BnH	7FH	00H

n = MIDI channel number :0H — FH (ch.1 — ch.16)

Switched over "Assign mode" of patch common.

Recognized all notes off, and set MODE3 at each patch.

System Realtime message

• Active sensing

Status
FEH

When Sound Expansion Series receives an "Active sensing," it measures time intervals between incoming messages. If the subsequent message does not come within 350 ms after the previous one, Sound Expansion Series will turn off all MIDI - on notes as if it received "Reset all controllers," stop measuring message interval.

• System Exclusive message

status	data bytes
FOH	iiH, ddH, ..., eeH
F7H	

FOH System exclusive

ii = manufacturer ID :41H (65)

dd, ..., ee = data: 00H — 7FH (0 — 127)

F7H: EOX (End of Exclusive/System common)

System exclusive message is ignored when "Receive Exclusive" of the system common is OFF.

Refer to section 3.4

System Exclusive Message for setting the Modes

"Data set 1 (DT1)", the Roland's Exclusive format, is used for "GS reset" and "Exit GS Mode." The "Universal non-realtime message" format is used for "General MIDI system on" and "General MIDI system off."

• General MIDI system on

This model will be in an operational mode of "Patch Table 2" when receiving this message.

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

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

When this message is received, Rx.BANK SELECT will be OFF and Rx.NRPN will be OFF.

This message will not be received when "Exclusive" parameter of "MIDI Rx Sw" group = OFF.

Make an interval of 50ms or more, before receiving the next message.

• General MIDI system off

This model will be in an operational mode of "Patch Table 1" when receiving this message.

Status	Data byte	Status
FOH	7EH, 7FH, 09H, 02H	F7H

Byte	Description
FOH	Exclusive status
7EH	ID number (Universal Non-realtime Message)
7FH	Device ID (Broadcast)
09H	Sub ID#1 (General MIDI Message)
02H	Sub ID#2 (General MIDI On)
F7H	EOX (End Of Exclusive)

This message will not be received when "SysEx" parameter of "MIDI Rx Sw" group = OFF.

Make an interval of 50ms or more, before receiving the next message.

• GS reset

This model will be in an operational mode of "Patch Table 2" when receiving this message.

Status	Data byte	Status
FOH	41H, dev, 42H, 12H, 40H, 00H, 7FH, 00H, 41H	F7H

Byte	Description
FOH	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 00H — 1FH (1 — 32), Initial value is 10H (17))
42H	Model ID (GS)
12H	Command ID (DT1)
40H	address MSB
00H	address
7FH	address LSB
00H	data (GS reset)
41H	Check sum
F7H	EOX (End Of Exclusive)

MIDI IMPLEMENTATION

When this message is received, Rx.NRPN will set ON.
 This message will not be received when "SysEx" parameter of "MIDI Rx Sw" group = OFF.
 Make an interval of 50ms or more, before receiving the next message.

• Exit GS mode

This model will be in an operational mode of "Patch Table 1" when receiving this message.

Status	Data byte	Status
FOH	41H, dev, 42H, 12H, 40H, 00H, 7FH, 7FH, 42H	F7H

Byte	Description
FOH	Exclusive status
41H	ID number (Roland)
dev	Device ID (dev: 00H — 1FH (1 — 32), Initial value is 10H (17))
42H	Model ID (GS)
12H	Command ID (DT1)
40H	Address MSB
00H	Address
7FH	Address LSB
7FH	Data (Exit GS mode)
42H	Check sum
F7H	EOX (End Of Exclusive)

This message will not be received when "Exclusive" parameter of "MIDI Rx Sw" group = OFF.
 Make an interval of 50ms or more, before receiving the next message.

2. TRANSMIT DATA

System realtime

• Active sensing

status
FEH

This message is transmitted with 250 milli seconds interval.

• System exclusive message

status	data bytes
FOH	iiH, ddH, ..., eeH
F7H	

FOH: System exclusive
 ii = manufacturer ID: 41H (65)
 dd, ..., ee = Data: 00H — 7FH (0 — 127)
 F7H: EOX (End of Exclusive/System common)

Refer to section 3.4.

3. Exclusive communications

The Sound Expansion Series can send and receive patch parameter, etc using the system exclusive message.
 The model ID code of the Sound Expansion Series is 46H. The device ID code is to be determined by the "Device ID" setting of Master.

The Sound Expansion Series ignores GS exclusive message other than "GS reset," "Exit GS mode" and "Scale tune parameter," General MIDI system on, General MIDI system off, GS reset and Exit GS.
 The model ID of the GS is 42H.

One way communication.

• Request data 1 RQ1 (11H)

Bytes	Description
FOH	Exclusive status
41H	Manufacturer ID (Roland)
Dev	Device ID
46H	Model ID (Sound Expansion Series)
11H	Command ID (RQ 1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
ssH	Size MSB
ttH	Size
uuH	Size
vvH	Size LSB
sum	Check sum
F7H	EOX (End of exclusive)

Receive only: the Sound Expansion Series does not send this message.

Data set 1 DT1 (12H)

• 1. Sound Expansion Series (MODEL ID = 46H)

Bytes	Description
FOH	Exclusive status
41H	Manufacturer ID (Roland)
Dev	Device ID
46H	Model ID
12H	Command ID (DT 1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
eeH	Data
:	:
ffH	Data
sum	Check sum
F7H	EOX (End of exclusive)

2. GS (MODEL ID = 42H)

Bytes	Description
FOH	Exclusive status
41H	Manufacturer ID (Roland)
Dev	Device ID
42H	Model ID (GS)
12H	Command ID (DT1)
aaH	Address MSB
bbH	Address
ccH	Address
eeH	Data
:	:
ffH	Data
sum	Check sum
F7H	EOX (End of Exclusive)

Note: When the device ID is 7FH, Sound Expansion Series can receive the exclusive message even if the unit number is anything.

• Parameter address map

Address and size are configured in 7 bits, hexadecimal notation.

Address	MSB	LSB
Binary	0aaa aaaa	0bbb bbbb 0ccc cccc 0ddd dddd
7-bits hex	AA	BB CC DD

Size	MSB	LSB
Binary	0sss ssss 0ttt tttt 0uuu uuuu 0vvv vvvv	
7-bits hex	SS TT UU VV	

• Parameter base address

- 1) A pair of two addresses preceded by the symbol # represents a divided — by -two data. e.g. the data ABH (hex) is divided into 0AH and 0BH and sent in that order.
- 2) Parameter associated with address following the symbol % are for Sound Expansion Series

• Example of exclusive data

Data Set 1 (1 byte data)
 To Select Pan-Delay for the Reverb Type.
 FO 41 10 46 12 00 00 10 0D 07 5C F7

Note that the 5th byte value is 12H in order to "Set" the data.
 Send the data (07 for Pan-Delay) with the address (00 00 01 0D for reverb type) of the "Performance common" parameter.

Data set 1 (2 byte data)
 To Select Wave Number 141 for Patch Tone 1 in Part 1.
 FO 41 10 46 12 00 00 28 01 08 0C 43 F7

The Address for Patch Tone 1 in Part 1 is 00 00 28 01.
 If you want to send 140 as a data, first you need to change it to hex-decimal notation which is 8C.
 Then divide this in 2 byte, which is called "nibblizing", and send 08 0C as data.

Request Data
 Make the module to send the chorus level.
 FO 41 10 46 11 00 00 10 12 00 00 00 01 5D F7

Note that the 5th byte value is 11H, in order to "Request" the data.
 Send 00 00 10 12 as an Address for Chorus Level and 00 00 00 01 as "Size of the data" for it, which is 1 byte.
 When the module receives this data, it will automatically send back the following data from MIDI OUT.
 FO 41 10 46 12 00 00 10 12 3C 22 F7

MIDI IMPLEMENTATION

You will notice that the Chorus Level is 3C (60).

Check sum

The error checking process uses a checksum and provides a bit pattern where the last significant 7 bits are zero, when values for an address, data (or size) and the checksum are summed.

< Example >

FO 41 10 46 12 00 00 10 00 06 5D F7

$[80H - \{(00H + 00H + 10H + 00H + 06H) \& 7FH\}] \& 7F = 5DH$

Address data

1. Sound Expansion Series <MODEL ID = 46H>

* 1 - 1 System Common

Address	Description
00 00 00 00	0000 000a Panel mode 0 — 1 (PERFORMANCE, PATCH)
00 00 00 01	0aaa 000a Master tune 1 — 127 (427.4 — 452.6)
%00 00 00 02	0aaa 000a Key transpose 28 — 100
%00 00 00 03	0000 000a Transpose Switch 0 — 1
00 00 00 04	0000 000a Reverb switch 0 — 1 (OFF, ON)
00 00 00 05	0000 000a Chorus switch 0 — 1 (OFF, ON)
%00 00 00 06	0000 000a Hold polarity 0 — 1
%00 00 00 07	0000 000a Pedal 1 polarity 0 — 1
%00 00 00 08	0000 000a Pedal 1 mode 0 — 3
%00 00 00 09	0aaa 000a Pedal 1 assign 0 — 100
%00 00 00 0A	0000 000a Pedal 2 polarity 0 — 1
%00 00 00 0B	0000 000a Pedal 2 mode 0 — 3
%00 00 00 0C	0aaa 000a Pedal 2 assign 0 — 100
%00 00 00 0D	0000 000a C1 mode 0 — 3
%00 00 00 0E	0aaa 000a C1 assign 0 — 100
%00 00 00 0F	0aaa 000a Aftertouch threshold 0 — 127
MIDI receive switch	
00 00 00 10	0000 000a Volume 0 — 1 (OFF, ON)
00 00 00 11	0000 000a Control change 0 — 1 (OFF, ON)
00 00 00 12	0000 000a Channel pressure 0 — 1 (OFF, ON)
00 00 00 13	0000 000a Modulation 0 — 1 (OFF, ON)
00 00 00 14	0000 000a Pitch bend 0 — 1 (OFF, ON)
00 00 00 15	0000 000a Program change 0 — 1 (OFF, ON)
00 00 00 16	0000 000a Bank select 0 — 1 (OFF, ON)
MIDI transmit switch	
%00 00 00 17	0000 000a Volume 0 — 1
%00 00 00 18	0000 000a Control change 0 — 1
%00 00 00 19	0000 000a Channel pressure 0 — 1
%00 00 00 1A	0000 000a Modulation 0 — 1
%00 00 00 1B	0000 000a Bender 0 — 1
%00 00 00 1C	0000 000a Program change 0 — 1
%00 00 00 1D	0000 000a Bank select 0 — 1
00 00 00 1E	0000 000a Patch receive channel 0 — 15 (1 — 16)
%00 00 00 1F	000a 000a Patch transmit channel 0 — 17
00 00 00 20	000a 000a Control channel 0 — 16 (1 — 16, OFF)
%00 00 00 21	0000 000a Output mode 0 — 1 (OUT2, OUT4)
%00 00 00 22	0000 000a Rhythm edit key 0 — 1 (INT&MIDI, INT)
00 00 00 23	0000 000a Scale tune switch 0 — 1 (OFF, ON)
00 00 00 24	0aaa 000a Scale Tune Part1 C 0 — 127 (-64 — +63)
00 00 00 25	: : C#
00 00 00 26	: : D
00 00 00 27	: : D#
00 00 00 28	: : E
00 00 00 29	: : F
00 00 00 2A	: : F#
00 00 00 2B	: : G
00 00 00 2C	: : G#
00 00 00 2D	: : A
00 00 00 2E	: : A#
00 00 00 2F	: : B
00 00 00 30	0aaa 000a Scale Tune Part2 C 0 — 127 (-64 — +63)
: :	: :
00 00 00 38	: : B
00 00 00 3C	0aaa 000a Scale Tune Part3 C 0 — 127 (-64 — +63)
: :	: :
00 00 00 47	: : B

00 00 00 48	0aaa 000a Scale Tune Part4 C 0 — 127 (-64 — +63)
: :	: :
00 00 00 53	: : B
00 00 00 54	0aaa 000a Scale Tune Part5 C 0 — 127 (-64 — +63)
: :	: :
00 00 00 5F	: : B
00 00 00 60	0aaa 000a Scale Tune Part6 C 0 — 127 (-64 — +63)
: :	: :
00 00 00 6B	: : B
00 00 00 6C	0aaa 000a Scale Tune Part7 C 0 — 127 (-64 — +63)
: :	: :
00 00 00 77	: : B
00 00 00 78	0aaa 000a Scale Tune Part8 C 0 — 127 (-64 — +63)
: :	: :
00 00 01 03	: : B
00 00 01 04	0aaa 000a Scale Tune Patch C 0 — 127 (-64 — +63)
: :	: :
00 00 01 0F	: : B
00 00 01 10	0 — (Dummy)
00 00 01 11	0aaa 000a Master volume 0 — 127
Total Size	00 00 01 12

1-2 Performance

1-2-1 Performance Common

Address	Description
00 00 10 00	0aaa 000a Performance name 1 32 — 127
00 00 10 01	0aaa 000a Performance name 2 32 — 127
00 00 10 0B	0aaa 000a Performance name 12 32 — 127
00 00 10 0D	0000 0aaa Reverb type 0 — 7 (ROOM1, ROOM2, STAGE1, STAGE2, HALL1, HALL2, DELAY, PAN-DLY)
00 00 10 0E	0aaa 000a Reverb level 0 — 127
00 00 10 0F	0aaa 000a Reverb time 0 — 127
00 00 10 10	0aaa 000a Reverb feedback 0 — 127
00 00 10 11	0000 00aa Chorus type 0 — 2 (CHORUS1, CHORUS2, CHORUS3)
00 00 10 12	0aaa 000a Chorus level 0 — 127
00 00 10 13	0aaa 000a Chorus depth 0 — 127
00 00 10 14	0aaa 000a Chorus rate 0 — 127
00 00 10 15	0aaa 000a Chorus feedback 0 — 127
00 00 10 16	0000 000a Chorus output 0 — 1 (OUTPUT, REV) If this parameter set to "OUTPUT," chorus signal send to "Output." If this parameter set to "REV," chorus signal send to reverb.
00 00 10 17	000a 000a Part 1 Voice assign 0 — 28
00 00 10 18	000a 000a Part 2 Voice assign 0 — 28
00 00 10 1E	000a 000a Part 8 Voice assign 0 — 28
Total Size	00 00 00 1F

Note: The sum of Voice reserves must be less than or equal to 28

1-2-2 Performance Part

00 00 1x dd

x = 08H — 0FH (Part1 — part8), dd = Description

Address	Description
%00 00 1x 00	0000 000a Transmit switch 0 — 1
%00 00 1x 01	0000 000a Transmit channel 0 — 15
%00 00 1x 02	0000 000a Transmit program change 0 — 128
0000 bbbb	
%00 00 1x 04	0000 000a Transmit volume 0 — 128
0000 bbbb	
%00 00 1x 06	0000 000a Transmit pan 0 — 128
0000 bbbb	
%00 00 1x 08	0aaa 000a Transmit key range lower 0 — 127
%00 00 1x 09	0aaa 000a Transmit key range upper 0 — 127
%00 00 1x 0A	0aaa 000a Transmit key transpose 28 — 100
%00 00 1x 0B	0aaa 000a Transmit velocity sense 1 — 127
%00 00 1x 0C	0aaa 000a Transmit velocity max 0 — 127
%00 00 1x 0D	0000 00aa Transmit velocity curve 0 — 6
%00 00 1x 0E	0000 000a Internal switch 0 — 1
%00 00 1x 0F	0aaa 000a Internal key range lower 0 — 127
%00 00 1x 10	0aaa 000a Internal key range upper 0 — 127
%00 00 1x 11	0aaa 000a Internal key transpose 28 — 100
%00 00 1x 12	0aaa 000a Internal velocity sense 1 — 127
%00 00 1x 13	0aaa 000a Internal velocity max 0 — 127

MIDI IMPLEMENTATION

%00 00 1x 14	0000 00aa	Internal velocity curve	0 — 6
00 00 1x 15	0000 000a	Receive switch	0 — 1 (OFF, ON)
00 00 1x 16	0000 0aaa	Receive channel	0 — 15 (1 — 16)
#00 00 1x 17	0000 0aaa 0000 bbbb	Patch number	0 — 254
00 00 1x 19	0aaa 0aaa	Part level	0 — 127
00 00 1x 1A	0aaa 0aaa	Part pan	0 — 127 (L64 — 63R)
00 00 1x 1B	0aaa 0aaa	Part coarse tune	16 — 112 (-48 — +48)
00 00 1x 1C	0aaa 0aaa	Part fine tune	14 — 114 (-50 — +50)
00 00 1x 1D	0000 000a	Reverb switch	0 — 1 (OFF, ON)
00 00 1x 1E	0000 000a	Chorus switch	0 — 1 (OFF, ON)
00 00 1x 1F	0000 000a	Receive program change	0 — 1 (OFF, ON)
00 00 1x 20	0000 000a	Receive volume	0 — 1 (OFF, ON)
00 00 1x 21	0000 000a	Receive hold-1	0 — 1 (OFF, ON)
%00 00 1x 22	0000 00aa	Output select	0 — 2 (MN, SB, PAT)
%00 00 1x 23	0000 00aa	Patch media	2 (EXP)
%00 00 1x 24	0000 000a	Sequencer switch	0 — 1 (ON, OFF)
Total Size	00 00 00 25		

Note: The value of the Transmit key range upper must be greater than or equal to the Transmit key range lower.
 Note: The value of the Internal key range upper must be greater than or equal to the Internal key range lower.

* 1-3 Patch

00 0s 2y dd
 0s = 00H — 06H (Performance Mode Temporary patch)
 08H (Patch Mode Temporary patch)
 dd = Description

* 1-3-1 Patch Common

Address	Description
00 0s 20 00	0aaa 0aaa Patch name 1 32 — 127
00 0s 20 01	0aaa 0aaa Patch name 2 32 — 127
00 0s 20 0B	0aaa 0aaa Patch name 12 32 — 127
00 0s 20 0C	0000 000a Velocity switch 0 — 1 (OFF, ON)
00 0s 20 0D	0000 00aa Reverb type 0 — 7 (ROOM1, ROOM2, STAGE1, STAGE2, HALL1, HALL2, DELAY, PAN-DLY)
00 0s 20 0E	0aaa 0aaa Reverb level 0 — 127
00 0s 20 0F	0aaa 0aaa Reverb time 0 — 127
00 0s 20 10	0aaa 0aaa Delay feedback 0 — 127
00 0s 20 11	0000 00aa Chorus type 0 — 2 (CHORUS1, CHORUS2, CHORUS3)
00 0s 20 12	0aaa 0aaa Chorus level 0 — 127
00 0s 20 13	0aaa 0aaa Chorus depth 0 — 127
00 0s 20 14	0aaa 0aaa Chorus rate 0 — 127
00 0s 20 15	0aaa 0aaa Chorus feedback 0 — 127
00 0s 20 16	0000 000a Chorus output 0 — 1 (OUTPUT, REV) If this parameter set to "OUTPUT," chorus signal send to "Output." If this parameter set to "REV," chorus signal send to reverb.
00 0s 20 17	0aaa 0aaa Analog feel 0 — 127
00 0s 20 18	0aaa 0aaa Patch level 0 — 127
00 0s 20 19	0aaa 0aaa Patch pan 0 — 127 (L64 — 63R)
00 0s 20 1A	0aaa 0aaa Bender range down 16 — 64 (-48 — 0)
00 0s 20 1B	0000 0aaa Bender range up 0 — 12
00 0s 20 1C	0000 000a Key assign 0 — 1 (POLY, SOLO)
00 0s 20 1D	0000 000a Solo legato 0 — 1 (OFF, ON)
00 0s 20 1E	0000 000a Portamento switch 0 — 1 (OFF, ON)
00 0s 20 1F	0000 000a Portamento mode 0 — 1 (LEGATO, NORMAL)
00 0s 20 20	0000 000a Portamento type 0 — 1 (TIME, RATE)
00 0s 20 21	0aaa 0aaa Portamento time 0 — 127
Total Size	00 00 00 22

* 1-3-2 Patch Tone

y = 08H — 0BH (Patch Tone 1 — Patch Tone 4)

Address	Description
%00 0s 2y 00	0000 00aa Wave group 1 (EXP)
#00 0s 2y 01	0000 0aaa Wave number 0 — 254 0000 bbbb (1 — 255)
00 0s 2y 03	0000 000a Tone switch 0 — 1 (OFF, ON)
00 0s 2y 04	0000 000a FXM switch 0 — 1 (OFF, ON)
00 0s 2y 05	0000 0aaa FXM depth 0 — 15 (1 — 16)
00 0s 2y 06	0aaa 0aaa Velocity range lower 0 — 127
00 0s 2y 07	0aaa 0aaa Velocity range upper 0 — 127 (Turn "On" the Velocity switch of the Patch common parameters to make "Velocity Range" work.)
00 0s 2y 08	0000 000a Volume switch 0 — 1 (OFF, ON)
00 0s 2y 09	0000 000a Hold-1 switch 0 — 1 (OFF, ON)
00 0s 2y 0A	0000 0aaa Modulation 1 destination 0 — 12 (*1)
00 0s 2y 0B	0aaa 0aaa Modulation 1 depth 1 — 127 (-63 — +63)
00 0s 2y 0C	0000 0aaa Modulation 2 destination 0 — 12 (*1)
00 0s 2y 0D	0aaa 0aaa Modulation 2 depth 1 — 127 (-63 — +63)

00 0s 2y 0E	0000 0aaa Modulation 3 destination 0 — 12 (*1)
00 0s 2y 0F	0aaa 0aaa Modulation 3 depth 1 — 127 (-63 — +63)
00 0s 2y 10	0000 0aaa Modulation 4 destination 0 — 12 (*1)
00 0s 2y 11	0aaa 0aaa Modulation 4 depth 1 — 127 (-63 — +63)
00 0s 2y 12	0000 0aaa Aftertouch 1 destination 0 — 12 (*1)
00 0s 2y 13	0aaa 0aaa Aftertouch 1 depth 1 — 127 (-63 — +63)
00 0s 2y 14	0000 0aaa Aftertouch 2 destination 0 — 12 (*1)
00 0s 2y 15	0aaa 0aaa Aftertouch 2 depth 1 — 127 (-63 — +63)
00 0s 2y 16	0000 0aaa Aftertouch 3 destination 0 — 12 (*1)
00 0s 2y 17	0aaa 0aaa Aftertouch 3 depth 1 — 127 (-63 — +63)
00 0s 2y 18	0000 0aaa Aftertouch 4 destination 0 — 12 (*1)
00 0s 2y 19	0aaa 0aaa Aftertouch 4 depth 1 — 127 (-63 — +63)
00 0s 2y 1A	0000 0aaa Expression 1 destination 0 — 12 (*1)
00 0s 2y 1B	0aaa 0aaa Expression 1 depth 1 — 127 (-63 — +63)
00 0s 2y 1C	0000 0aaa Expression 2 destination 0 — 12 (*1)
00 0s 2y 1D	0aaa 0aaa Expression 2 depth 1 — 127 (-63 — +63)
00 0s 2y 1E	0000 0aaa Expression 3 destination 0 — 12 (*1)
00 0s 2y 1F	0aaa 0aaa Expression 3 depth 1 — 127 (-63 — +63)
00 0s 2y 20	0000 0aaa Expression 4 destination 0 — 12 (*1)
00 0s 2y 21	0aaa 0aaa Expression 4 depth 1 — 127 (-63 — +63)

(1) 0 to 12 of (1) refer to the followings

(OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)

00 0s 2y 22	0000 00aa LFO-1 form 0 — 5 (TRI, SIN, SAW, SQR, RND1, RND2)
00 0s 2y 23	0000 00aa LFO-1 offset 0 — 4 (-100, -50, 0, +50, +100)
00 0s 2y 24	0000 000a LFO-1 synchro 0 — 1 (OFF, ON)
00 0s 2y 25	0aaa 0aaa LFO-1 rate 0 — 127
#00 0s 2y 26	0000 0aaa LFO-1 delay 0 — 128 0000 bbbb (0 — 127, KEY-OFF)
00 0s 2y 28	0000 000a LFO-1 fade polarity 0 — 1 (IN, OUT)
00 0s 2y 29	0aaa 0aaa LFO-1 fade time 0 — 127
00 0s 2y 2A	0aaa 0aaa LFO-1 pitch depth 1 — 127 (-63 — +63)
00 0s 2y 2B	0aaa 0aaa LFO-1 TVF depth 1 — 127 (-63 — +63)
00 0s 2y 2C	0aaa 0aaa LFO-1 TVA depth 1 — 127 (-63 — +63)
00 0s 2y 2D	0000 00aa LFO-2 form 0 — 5 (TRI, SIN, SAW, SQR, RND1, RND2)
00 0s 2y 2E	0000 00aa LFO-2 offset 0 — 4 (-100, -50, 0, +50, +100)
00 0s 2y 2F	0000 000a LFO-2 synchro 0 — 1 (OFF, ON)
00 0s 2y 30	0aaa 0aaa LFO-2 rate 0 — 127
#00 0s 2y 31	0000 0aaa LFO-2 delay 0 — 128 0000 bbbb (0 — 127, KEY-OFF)
00 0s 2y 33	0000 000a LFO-2 fade polarity 0 — 1 (IN, OUT)
00 0s 2y 34	0aaa 0aaa LFO-2 fade time 0 — 127
00 0s 2y 35	0aaa 0aaa LFO-2 pitch depth 1 — 127 (-63 — +63)
00 0s 2y 36	0aaa 0aaa LFO-2 TVF depth 1 — 127 (-63 — +63)
00 0s 2y 37	0aaa 0aaa LFO-2 TVA depth 1 — 127 (-63 — +63)
00 0s 2y 38	0aaa 0aaa Pitch coarse 16 — 112 (-48 — +48)
00 0s 2y 39	0aaa 0aaa Pitch fine 14 — 114 (-50 — +50)
00 0s 2y 3A	0000 0aaa Random pitch 0 — 15 (0, 5, 10, 20, 30, 40, 50, 70, 100, 200, 300, 400, 500, 600, 800, 1200)
00 0s 2y 3B	0000 0aaa Pitch key follow 0 — 15 (-100, -70, -50, -30, -10, 0, +10, +20, +30, +40, +50, +70, +100, +120, +150, +200)
00 0s 2y 3C	0aaa 0aaa P-ENV velocity sense 1 — 127 (-63 — +63)
00 0s 2y 3D	0000 0aaa P-ENV T1 velocity 0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 0s 2y 3E	0000 0aaa P-ENV T4 velocity 0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 0s 2y 3F	0000 0aaa P-ENV time key follow 0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 0s 2y 40	0aaa 0aaa P-ENV depth 52 — 76 (-12 — +12)
00 0s 2y 41	0aaa 0aaa P-ENV time 1 0 — 127
00 0s 2y 42	0aaa 0aaa P-ENV level 1 1 — 127 (-63 — +63)
00 0s 2y 43	0aaa 0aaa P-ENV time 2 0 — 127
00 0s 2y 44	0aaa 0aaa P-ENV level 2 1 — 127 (-63 — +63)
00 0s 2y 45	0aaa 0aaa P-ENV time 3 0 — 127
00 0s 2y 46	0aaa 0aaa P-ENV level 3 1 — 127 (-63 — +63)
00 0s 2y 47	0aaa 0aaa P-ENV time 4 0 — 127
00 0s 2y 48	0aaa 0aaa P-ENV level 4 1 — 127 (-63 — +63)
00 0s 2y 49	0000 00aa TVF mode 0 — 2 (OFF, LPF, HPF)
00 0s 2y 4A	0aaa 0aaa Cutoff frequency 0 — 127
00 0s 2y 4B	0aaa 0aaa Resonance 0 — 127
00 0s 2y 4C	0000 000a Resonance mode 0 — 1 (SOFT, HARD)
00 0s 2y 4D	0000 0aaa TVF key follow 0 — 15 (-100, -70, -50, -30, -10, 0, +10, +20, +30, +40, +50, +70, +100, +120, +150, +200)
00 0s 2y 4E	0000 00aa TVF-ENV velocity curve 0 — 6 (1 — 7)
00 0s 2y 4F	0aaa 0aaa TVF-ENV velocity sense 1 — 127 (-63 — +63)
00 0s 2y 50	0000 0aaa TVF-ENV T1 velocity 0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 0s 2y 51	0000 0aaa TVF-ENV T4 velocity 0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)

MIDI IMPLEMENTATION

00 0s 2y 52	0000 aaaa	TVF-ENV time key follow	0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 0s 2y 53	0aaa aaaa	TVF-ENV depth	1 — 127 (-63 — +63)
00 0s 2y 54	0aaa aaaa	TVF-ENV time 1	0 — 127
00 0s 2y 55	0aaa aaaa	TVF-ENV level 1	0 — 127
00 0s 2y 56	0aaa aaaa	TVF-ENV time 2	0 — 127
00 0s 2y 57	0aaa aaaa	TVF-ENV level 2	0 — 127
00 0s 2y 58	0aaa aaaa	TVF-ENV time 3	0 — 127
00 0s 2y 59	0aaa aaaa	TVF-ENV level 3	0 — 127
00 0s 2y 5A	0aaa aaaa	TVF-ENV time 4	0 — 127
00 0s 2y 5B	0aaa aaaa	TVF-ENV level 4	0 — 127
00 0s 2y 5C	0aaa aaaa	Level	0 — 127
00 0s 2y 5D	0000 aaaa	TVA key follow	0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
#00 0s 2y 5E	0000 aaaa	Pan	0 — 128
	0000 bbbb		(L64 — 63R, RND)
00 0s 2y 60	0000 aaaa	Panning key follow	0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 0s 2y 61	0000 00aa	TVA delay mode	0 — 2 (NORMAL, HOLD, PLAY-MATE)
#00 0s 2y 62	0000 aaaa	TVA delay time	0 — 128
	0000 bbbb		(0 — 127, KEY-OFF)
00 0s 2y 64	0000 0aaa	TVA-ENV velocity curve	0 — 6 (1 — 7)
00 0s 2y 65	0aaa aaaa	TVA-ENV velocity sense	1 — 127 (-63 — +63)
00 0s 2y 66	0000 aaaa	TVA-ENV T1 velocity	0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 0s 2y 67	0000 aaaa	TVA-ENV T4 velocity	0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 0s 2y 68	0000 aaaa	TVA-ENV time key follow	0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 0s 2y 69	0aaa aaaa	TVA-ENV time 1	0 — 127
00 0s 2y 6A	0aaa aaaa	TVA-ENV level 1	0 — 127
00 0s 2y 6B	0aaa aaaa	TVA-ENV time 2	0 — 127
00 0s 2y 6C	0aaa aaaa	TVA-ENV level 2	0 — 127
00 0s 2y 6D	0aaa aaaa	TVA-ENV time 3	0 — 127
00 0s 2y 6E	0aaa aaaa	TVA-ENV level 3	0 — 127
00 0s 2y 6F	0aaa aaaa	TVA-ENV time 4	0 — 127
00 0s 2y 70	0aaa aaaa	Dry level	0 — 127
00 0s 2y 71	0aaa aaaa	Reverb send level	0 — 127
00 0s 2y 72	0aaa aaaa	Chorus send level	0 — 127
%00 0s 2y 73	0000 000a	Output select	0 — 1 (MAIN, SUB)
00 0s 2y 74	0000 000a	Redamper switch	0 — 1 (OFF, ON)
Total Size	00 00 00 75		

The values of the Velocity Range Upper must be greater than or equal to the values of Velocity Range Lower.

* 1-4 Rhythm Setup 1

00 mm rr cc
mm = 07
rr = 40H — 7CH (Note #36 — Note #96)
cc = Description

* 1-4-1 Rhythm Note 1

Address	Description
00 mm rr 00	0000 00aa Wave group 1 (EXP)
#00 mm rr 01	0000 aaaa Wave number 0 — 254
0000 bbbb	(1 — 255)
00 mm rr 03	0000 000a Tone switch 0 — 1 (OFF, ON)
00 mm rr 04	0aaa aaaa Coarse tune 0 — 127 (C-1 — G9)
00 mm rr 05	000a aaaa Mute group 0 — 31 (OFF, 1 — 31)
00 mm rr 06	0000 000a Envelope mode 0 — 1 (NO-SUSTAIN, SUSTAIN)
00 mm rr 07	0aaa aaaa Pitch fine 14 — 114 (-50 — +50)
00 mm rr 08	0000 aaaa Random pitch 0 — 15 (0, 5, 10, 20, 30, 40, 50, 70, 100, 200, 300, 400, 500, 600, 800, 1200)
00 mm rr 09	0000 aaaa Bender range 0 — 12
00 mm rr 0A	0aaa aaaa P-ENV velocity sense 1 — 127 (-63 — +63)
00 mm rr 0B	0000 aaaa P-ENV time velocity sense 0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 mm rr 0C	0aaa aaaa P-ENV depth 52 — 76 (-12 — +12)
00 mm rr 0D	0aaa aaaa P-ENV time 1 0 — 127
00 mm rr 0E	0aaa aaaa P-ENV level 1 1 — 127 (-63 — +63)
00 mm rr 0F	0aaa aaaa P-ENV time 2 0 — 127
00 mm rr 10	0aaa aaaa P-ENV level 2 1 — 127 (-63 — +63)
00 mm rr 11	0aaa aaaa P-ENV time 3 0 — 127
00 mm rr 12	0aaa aaaa P-ENV level 3 1 — 127 (-63 — +63)
00 mm rr 13	0aaa aaaa P-ENV time 4 0 — 127
00 mm rr 14	0aaa aaaa P-ENV level 4 1 — 127 (-63 — +63)
00 mm rr 15	0000 00aa TVF mode 0 — 2 (OFF, LPF, HPF)
00 mm rr 16	0aaa aaaa Cutoff frequency 0 — 127
00 mm rr 17	0aaa aaaa Resonance 0 — 127

00 mm rr 18	0000 000a	Resonance mode	0 — 1 (SOFT, HARD)
00 mm rr 19	0aaa aaaa	TVF-ENV velocity sense	1 — 127 (-63 — +63)
00 mm rr 1A	0000 aaaa	TVF-ENV time velocity sense	0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 mm rr 1B	0aaa aaaa	TVF-ENV depth	1 — 127 (-63 — +63)
00 mm rr 1C	0aaa aaaa	TVF-ENV time 1	0 — 127
00 mm rr 1D	0aaa aaaa	TVF-ENV level 1	0 — 127
00 mm rr 1E	0aaa aaaa	TVF-ENV time 2	0 — 127
00 mm rr 1F	0aaa aaaa	TVF-ENV level 2	0 — 127
00 mm rr 20	0aaa aaaa	TVF-ENV time 3	0 — 127
00 mm rr 21	0aaa aaaa	TVF-ENV level 3	0 — 127
00 mm rr 22	0aaa aaaa	TVF-ENV time 4	0 — 127
00 mm rr 23	0aaa aaaa	TVF-ENV level 4	0 — 127
00 mm rr 24	0aaa aaaa	Level	0 — 127
#00 mm rr 25	0000 aaaa	Pan	0 — 128
	0000 bbbb		(L64 — 63R, RND)
00 mm rr 27	0aaa aaaa	TVA-ENV velocity sense	1 — 127 (-63 — +63)
00 mm rr 28	0000 aaaa	TVA-ENV time velocity sense	0 — 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
00 mm rr 29	0aaa aaaa	TVA-ENV time 1	0 — 127
00 mm rr 2A	0aaa aaaa	TVA-ENV level 1	0 — 127
00 mm rr 2B	0aaa aaaa	TVA-ENV time 2	0 — 127
00 mm rr 2C	0aaa aaaa	TVA-ENV level 2	0 — 127
00 mm rr 2D	0aaa aaaa	TVA-ENV time 3	0 — 127
00 mm rr 2E	0aaa aaaa	TVA-ENV level 3	0 — 127
00 mm rr 2F	0aaa aaaa	TVA-ENV time 4	0 — 127
00 mm rr 30	0aaa aaaa	Dry level	0 — 127
00 mm rr 31	0aaa aaaa	Reverb send level	0 — 127
00 mm rr 32	0aaa aaaa	Chorus send level	0 — 127
%00 mm rr 33	0000 000a	Output select	0 — 1 (MAIN, SUB)
Total Size	00 00 00 34		

* 1-5 Rhythm Setup 2

00 mm rr cc
mm = 20
rr = 38H — 3FH (Note #28 — Note #35)
= 40H — 46H (Note #97 — Note #103)
cc = Description

* 1-5-1 Rhythm Note 2

Same as 1-4-1.

2 GS

< MODEL ID = 42H >

2-1 Scale Tune

w = 0 — 7 (Scale tune Part8, 1, 2, ..., 7)

Address	Description
40 1w 40	0aaa aaaa Scale Tune C 00 — 127 (-64 — +63)
40 1w 41	: : C#
40 1w 42	: : D
40 1w 43	: : D#
40 1w 44	: : E
40 1w 45	: : F
40 1w 46	: : F#
40 1w 47	: : G
40 1w 48	: : G#
40 1w 49	: : A
40 1w 4A	: : A#
40 1w 4B	: : B
Total Size	00 00 0C

Note: If you send the Scale Tune data, must send from "C" to "B" (1 oct) per packet.

MIDI IMPLEMENTATION

/ Example of DT1 application /

To set the tune (C — B) of the performance part 1 Arabia, send the data as follow:
FOH 41H 10H 42H 12H 40H 11H 40H 3AH 6DH 3EH 34H 0DH 38H 6BH 3CH 6FH 40H 36H 0FH 50H 5FH

Table A-1: Decimal to Hexadecimal

The MIDI message are expressed in hexadecimal configured in 7 bits.
This table is useful when you read or write MIDI messages.

(D) = decimal
(H) = Hexadecimal

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

The decimal value of MIDI channel, Program change, etc is the decimal number in the table plus 1.
In the hexadecimal notation in configured 7 bits, the maximum data of 1 byte is 128. If the data is more than 128, used plural bytes.
The signed value is 00H = -64, 40H = 0, 7FH = +63. In decimal notation, the value is the decimal number in the table minus 64.
The signed value of dual bytes is 00 00H = -8192, 40 40H = 0, 7F 7FH = 8191. For example, converted aaH bbH (hex) to decimal to the following: aa bbH = aa x 128 + bb - 64 x 128

Table A-2: ASCII code

Patch Name and Performance Name of MIDI data are described the ASCII code in the table below.

(H) = hexadecimal

Character	(H)	Character	(H)	Character	(H)	Character	(H)
(Space)	20H						
A	41H	Q	51H	j	6AH	1	31H
B	42H	R	52H	k	6BH	2	32H
C	43H	S	53H	l	6CH	3	33H
D	44H	T	54H	m	6DH	4	34H
E	45H	U	55H	n	6EH	5	35H
F	46H	V	56H	o	6FH	6	36H
G	47H	W	57H	p	70H	7	37H
H	48H	Y	59H	q	71H	8	38H
I	49H	Z	5AH	r	72H	9	39H
J	4AH	a	61H	s	73H	0	30H
K	4BH	b	62H	t	74H	+	2BH
L	4CH	c	63H	u	75H	-	2DH
M	4DH	d	64H	v	76H	*	2AH
N	4EH	e	65H	w	77H	/	2FH
O	4FH	f	66H	x	78H	#	23H
P	50H	g	67H	y	79H	!	21H
		h	68H	z	7AH	,	2CH
				i	69H	.	2EH

MIDI Implementation Chart

Function...	Transmitted	Recognized	Remarks
Basic Channel Default Changed	X X	1 — 16 1 — 16	Memorized
Mode Default Messages Altered	X X *****	Mode 3 Mode 3, 4 (M = 1)	
Note Number : True Voice	X *****	0 — 127 0 — 127	
Velocity Note ON Note OFF	X X	O O	
After Touch Key's Ch's	X X	X O	
Pitch Bend	X	O	Resolution: 9 bits
Control Change 0, 32 1 5 6, 38 7 10 11 64 65 66 67 91 93 98, 99 100, 101	X X X X X X X X X X X X X X X X X	O *1 O *2 O *2 O *2 O *1 O *2 O *2 O *1 O *2 O *2 O *2 O *2 O *2 O *2 O *2 O *1 O *2 O *1 O *2	Bank select Modulation Portamento time Data entry Volume Panpot Expression Hold 1 Portamento Sostenuto Soft Reverb Chorus NRPN LSB, MSB RPN LSB, MSB
Prog Change : True #	X *****	O *1 0 — 127	
System Exclusive	O	O	
System Common : Song Pos : Song Sel : Tune	X X X	X X X	
System Real Time : Clock : Commands	X X	X X	
Aux Message : All Sound Off : Reset All Controllers : Local ON/OFF : All Notes Off : Active Sense : Reset	X X X X O X	O O X O (123 — 127) O X	
Notes	* 1 O X is selectable * 2 O X is selectable using external MIDI device		

Mode 1 : OMNI ON, POLY

Mode 2 : OMNI ON, MONO

O : Yes

Mode 3 : OMNI OFF, POLY

Mode 4 : OMNI OFF, MONO

X : No

 Roland®

11259

UPC 11259



12561

 Roland®