



SOUND CANVAS PC CARD

SCP-55

OWNER'S MANUAL

For Germany

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

SOUND Canvas PC Card SCP-55

(Gerät, Typ, Bezeichnung)

in Übereinstimmung mit den Bestimmungen der BMPT-A
AmtsblVfg 243/1991, 46/1992 funk-entstört ist.
Der vorschriftsmäßige Betrieb mancher Geräte (z. B.
Meßsender) kann allerdings gewissen Einschränkungen
unterliegen. Beachten Sie deshalb die Hinweise in der
Bedienungsanleitung.

Dem Zentralamt für Zulassungen im Fernmeldewesen
wurde das Inverkehrbringen dieses Gerätes angezeigt und
die Berechtigung zur Überprüfung der Serie auf die
Einhaltung der Bestimmungen eingeräumt.

Roland Corporation

4-16 Dojimahama 1-Chome Kita-ku Osaka 530 Japan

(Name und Anschrift des Herstellers/Importeurs)

For the USA

FEDERAL COMMUNICATIONS COMMISSION RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.
This equipment requires shielded interface cables in order to meet FCC class B Limit.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

For Canada

CLASS B

NOTICE

This digital apparatus does not exceed the Class B limits for radio noise emissions set out in the Radio Interference Regulations of the Canadian Department of Communications.

CLASSE B

AVIS

Cet appareil numérique ne dépasse pas les limites de la classe B au niveau des émissions de bruits radioélectriques fixés dans le Règlement des signaux parasites par le ministère canadien des Communications.

SOUND CANVAS PC CARD

SCP-55

Owner's Manual


We'd like to take a moment to thank you for purchasing the SCP-55 Sound Canvas PC Card. The SCP-55 is a PCMCIA card containing high-quality sounds compatible with the General MIDI System and GS Format.

In order to gain a thorough understanding of the SCP-55's many features, please take the time to read this manual carefully.

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FEATURES

PCMCIA Type II Sound Card

The SCP-55 can be used with a notebook computer equipped with PCMCIA Type II card slot complying with PCMCIA 2.1 specifications.

Plug and Play

Since the SCP-55 is designed to be a Plug & Play device, you do not need to be concerned about setting the interrupt level (IRQ) and I/O address for the SCP-55. And, you can install or remove the SCP-55 even while the computer's power is on.

Compatible with General MIDI System Level 1 and GS Format

While fully supporting General MIDI System Level 1, the SCP-55 also offers all the enhancements afforded by Roland's system of standardization for sound generation—GS Format.

16-part Multi-Timbral Sound Generator

The SCP-55 is a 16-part multi-timbral (including the drum part) sound generator. It can play up to 28 notes simultaneously, making possible ensembles of up to 16 parts.

Playing/Recording Sound Files

The SCP-55 can play sound files. And if you hook up the MCB-3 connector box (sold separately), you can record sound files.

IMPORTANT NOTES

[Placement]

- Do not subject the unit to temperature extremes (e.g. direct sunlight in an enclosed vehicle). Avoid using or storing the unit in dusty or humid areas, or areas that are subject to high levels of vibration.
- 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.
- Do not expose the unit to temperature extremes or install it near devices that radiate heat. Direct sunlight in an enclosed vehicle can deform or discolor the unit.

[Maintenance]

- Never use benzene, thinners, alcohol or solvents of any kind, to avoid the possibility of discoloration and/or deformation.

- 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.

[Additional Precautions]

- Protect the unit from strong impact.
- Do not allow objects or liquids of any kind to penetrate the unit. In the event of such an occurrence, discontinue use immediately. Contact qualified service personnel as soon as possible.
- A small amount of heat will radiate from the unit during normal operation.
- Should a malfunction occur, or if you suspect there is a problem, discontinue use immediately. Contact qualified service personnel as soon as possible.
- To avoid the risk of electric shock, do not open the unit.



General MIDI System

The General MIDI System is a set of recommendations which seek to provide a way for going beyond the limitations of proprietary designs, and standardize the MIDI capabilities provided by sound generating devices.

If you use a sound generating unit which carries the General MIDI logo, you will be able to faithfully reproduce any song data which also carries the General MIDI logo.



GS Format

The GS Format is Roland's universal set of specifications which were formulated in the interest of standardizing the way in which sound generating devices will operate when MIDI is used for the performance of music. If you use a sound generating unit which carries the GS logo, you will be able to faithfully reproduce any commercially available song data which also carries the GS logo.

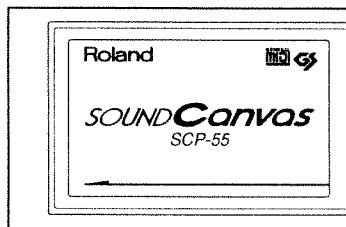
This product supports both General MIDI and GS.

Song data which carries either of these logos can be accurately reproduced.

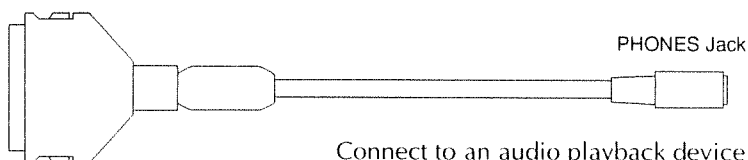
1. INSTALLING THE SCP-55

Package Contents

•SCP-55 SOUND CANVAS PC CARD



•Audio Output Connector



Connect to an audio playback device or headphones.

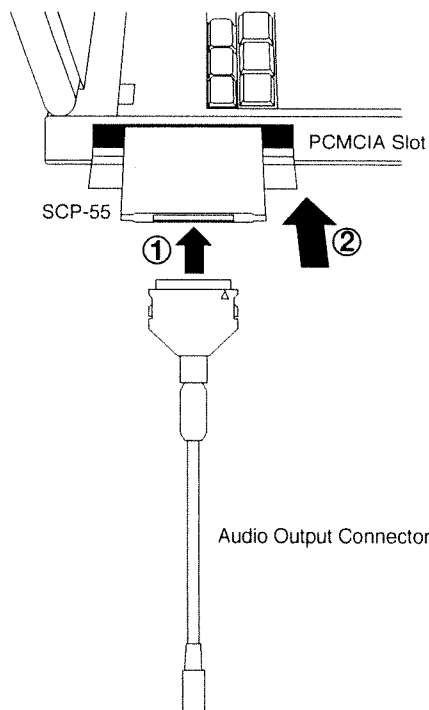
Installing the SCP-55

For instructions on how to install or remove the PCMCIA card, see the owner's manual for your computer.

1. Connect the audio output connector to the SCP-55 so that the **s** mark faces the SOUND Canvas logo on the SCP-55.

** Avoid touching the connecting part.*

2. Insert the SCP-55 into the PCMCIA slot.



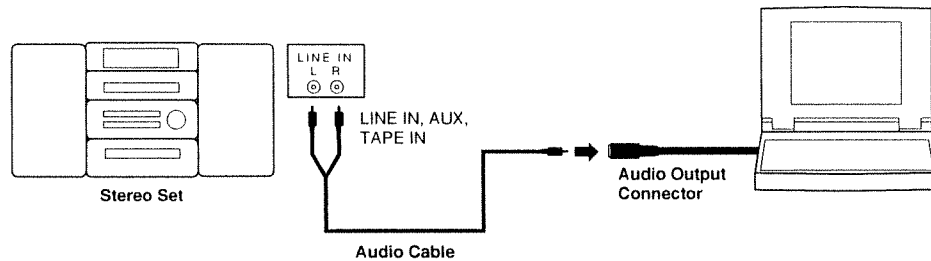
** You can also connect the audio output connector to the SCP-55 after inserting the SCP-55 into the PCMCIA slot. Connect the audio output connector with the ▲ mark facing upwards.*

Connecting to the Audio Playback Device

Use an audio cable to connect the PHONES jack on the audio output connector to the INPUT jacks on a keyboard amp, home stereo, radio-cassette player, or other audio equipment.

Use audio cable which has a stereo miniature type plug for the PHONES jack on the audio output connector.

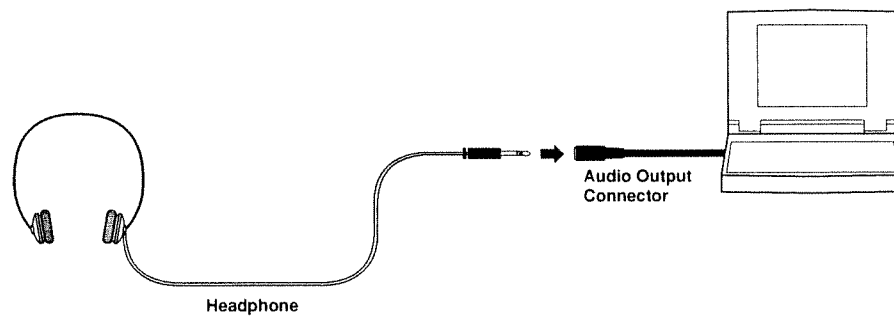
- * Set the volume of the audio playback device to the lowest level when turning ON/OFF the power of the computer, or connecting or disconnecting the audio cable or the SCP-55.
- * Be sure to use audio cable which does not contain a resistor. If using audio cable containing a resistor, the volume may be reduced to much.



Connecting Headphones

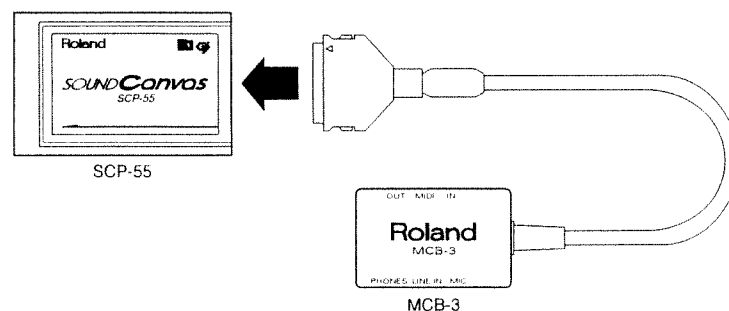
Connect the headphones plug to the PHONES jack on the audio output connector.

Be sure to use headphones with an impedance of more than 16 ohms, and which have a stereo miniature type plug.



Connecting the MCB-3

The MCB-3 (sold separately) is a Connector Box for connecting external devices. By connecting the MCB-3, you can connect a microphone and audio device and record audio signals. And, you can also connect external MIDI devices such as a MIDI keyboard.



2. THE GENERAL MIDI SYSTEM AND GS FORMAT

General MIDI System



The General MIDI System is a universal set of specifications for sound generating devices. These specifications seek to allow for the creation of music data which is not limited to equipment by a particular manufacturer or to specific models. The General MIDI System defines things such as the minimum number of voices that should be supported, the MIDI messages that should be recognized, which sounds correspond to which Program Change numbers, and the layout of rhythm sounds on the keyboard. Thanks to these specifications, any device that is equipped with sound sources supporting the General MIDI System will be able to accurately reproduce General MIDI Scores (music data created for the General MIDI System), regardless of the manufacturer or model.

GS Format



The GS Format is a standardized set of specifications for Roland's sound generators which defines the manner in which multi-timbral sound generating units will respond to MIDI messages. The GS Format also complies with the General MIDI System. The GS Format also defines a number of other details. These include unique specifications for sounds and the functions available for Tone editing and effects (chorus and reverb), and other specifications concerning the manner in which sound sources will respond to MIDI messages. Any device that is equipped with GS Format sound sources can faithfully reproduce GS Music Data (music data created under the GS Format).

This product supports both General MIDI and GS.
Song data which carries either of these logos can be accurately reproduced.

3. STRUCTURE AND FUNCTION OF THE SCP-55

(1) Parts

The SCP-55 provides 16 Parts, and thus allows for a maximum of 16 different performance parts to be played at the same time. Part 10 is for playing percussive instrument.

A Part is something like an orchestral part; think of it as a group of musicians all playing a particular instrument. The big difference compared with a regular orchestra is that you are completely free to decide what kind of instrument they will be playing. In addition, you can change that instrument midway through a song (as many times as you want) for every different part. You could think of this group as being made up of incredible multi-instrumentalists who can play any instrument you give them.

Each part plays by following the instructions in the performance data on its own channel, and pays no attention to the data on other channels intended for other parts. So thanks to this MIDI channel scheme, you can play each Part completely independently of the others, like on a multitrack recorder.

* As to MIDI, refer to "ABOUT MIDI." (p. 10)

(2) Voices and Polyphony

The SCP-55 contains 28 internal components (Voices), each of which is capable of generating sound. All 28 Voices can operate simultaneously. However, some sounds require 2 Voices to produce one note. For this reason, the number of notes actually available can be 28 or less. For example, if every sound you are using consists of 2 Voices, the maximum number of notes you could play at once would be 14.

To determine how many Voices the SCP-55 is using, add up the number of Voices used by all the Parts. Note that it is possible to have all 28 Voices working to produce the sound of only one Part.

For information on the number of Voices used by particular sounds, refer to the "TONE TABLE" (p. 16).

(3) Maximum Polyphony

When the number of Voices being used exceeds 28, some of the notes that should be played could be left out. To avoid 'loosing' important notes, there are two features you can use to insure that a particular Part plays all the notes it is supposed to. The settings for the parameters which control these features are made using Exclusive messages (p. 27).

Part Priority

When the SCP-55 receives performance data which request it to produce more than the 28 Voices available, priority is given to producing the most recently received note messages. Those that have been sounding for a while will be cut, in order, starting with the oldest ones, and the ones that are assigned to the Parts with the lowest priority.

Part Priority Ordering:

10 > 1 > 2 > 3 > 4 > 5 > 6 > 7 > 8 > 9 > 11 > 12 > 13 > 14 > 15 > 16

For this reason, consider a Part's importance (bass, chords, melody, etc.) carefully when assigning it to a Part on the SCP-55.

Voice Reserve

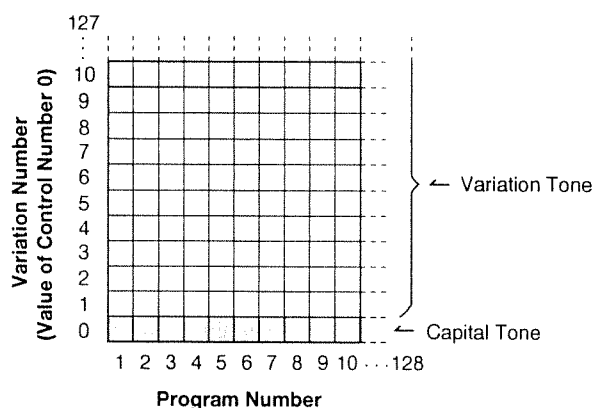
The Voice Reserve function allows you to specify a minimum number of Voices that will always be reserved and made available for certain Parts. This becomes effective in instances when the total number of Voices that have been requested exceeds the capacity of the unit.

When shipped, the following settings were made for Voice Reserve:

Part 1:	6
Parts 2–10:	2
Parts 11–16:	0

As Voice Reserve for Part 1 is set to "6," Part 1 will always have at least 6 Voices—even when all Parts combined are requesting more than 28 Voices. In other words, with Part 1 set this way, all the notes that it should play will be played faithfully (as long as the sounds assigned to it do not use more than 6 Voices).

(4) How to Change Tones



The SCP-55 has 128 basic sounds ("Capital Tones") that you can select using Program Change messages. Each Capital Tone also has "Variations," selectable using Bank Select messages.

Bank Select messages combine the use of two controllers—0 and 32—sent in succession. By supplying the two values for both parts of the Bank Select message, the Variation number is specified. A third message, the Program Change, specifies the actual Tone of the Variation. Thus these three consecutive MIDI messages need to be sent (in the order listed) to select a different Variation Tone:

Controller number 0: Variation number
 (The value of this message forms the upper byte of the Bank Select message.)
 Controller number 32: 0
 (The value of this message forms the lower byte of the Bank Select message.)
 Program Number

* Remember that the Program Number must be included. No change in the sound occurs if you send only a Bank Select message.

For example, "Piano3W" (Variation#8, Prog.#3) would be selected by sending these values:

Controller number 0 value: 8
 Controller number 32 value: 0
 Program Number: 3

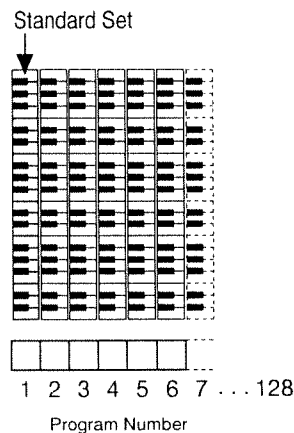
* There are some Variations that do not have a sound assigned to them. Check the TONE TABLE (p. 16) to make sure there is in fact a Tone at the location you are selecting with a Bank Select message (or else you will get no sound at all).

* The arrangement of the Capital Tones is the same as that for the 128 types of sounds in the General MIDI System.

(5) Changing Between Drum Sets

Part 10 is exclusively for percussion, using the Drum Set sounds. Drum Set sounds differ from regular sounds in that a different instrument is assigned to each key. Say you have a violin Tone selected: no matter what key you press, you get a violin sound. It may be a different pitch but it's still a violin sound. However, in a Drum Set, one key plays the kick, one plays the snare, one the hi-hat, and so on. Percussion instruments don't generally carry the melody and don't need the pitch range of a violin, so we can arrange them one-per-key and handle them all in one channel.

Drum Sets can be switched using Program Change messages.



* Although Program Numbers range from 1 to 128, there are nowhere near that many different Drum Sets on the SCP-55. If you try to select a Drum Set that doesn't exist, you'll get no sound when you try to play. Check the DRUM SET TABLE (p. 21) to make sure that the Program Change message you are sending corresponds to an actual Drum Set.

* The percussion instruments for Note Numbers 35-81 in the Standard Set (Program Number 1) all have the same key assignments as the 47 percussion instrument types in the General MIDI System.

(6) Chorus and Reverb

Every Part in the SCP-55 can have chorus and reverb effects added to it, and the depth of effects can be controlled in real time using Control Change messages.

4. PCM SECTION OF THE SCP-55

Using the SCP-55, you can record and play back stereo sound files.

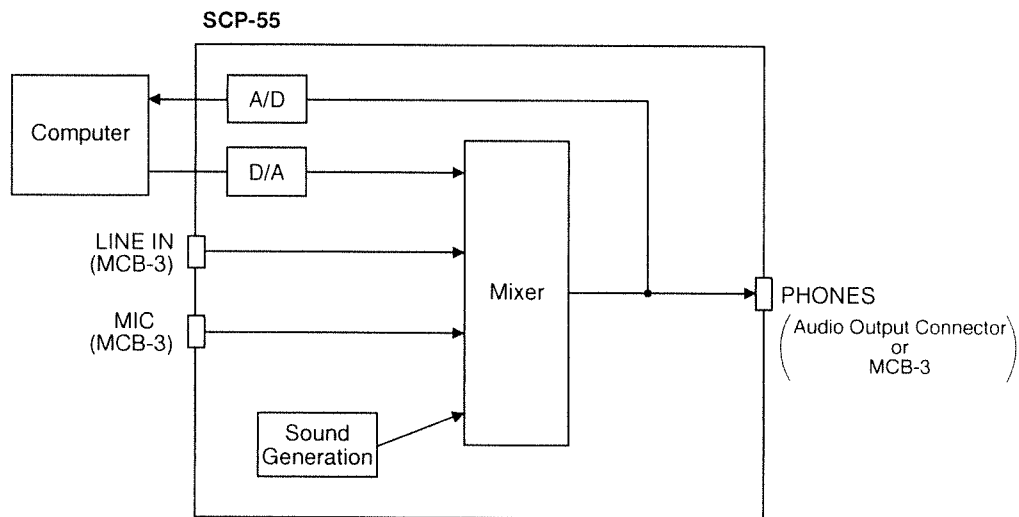
You can play WAVE files or recorded data using "Sound Recorder" or "Media Player," provided with Windows.

* *If you want to record audio signals, you'll need the MCB-3 (sold separately).*

When recording sound files, you can select stereo/mono, the sampling rate (44.1 kHz, 22.05 kHz or 11.025 kHz), and the sampling resolution (16-bit linear or 8-bit linear) using software.

* *The sound production capabilities of the SCP-55 can vary considerably depending on the performance (e.g., CPU and clock speed) of your computer. If your computer's performance is inadequate, you may need to use a lower sampling rate when recording or playing WAVE files.*

Block Diagram



5. ABOUT MIDI

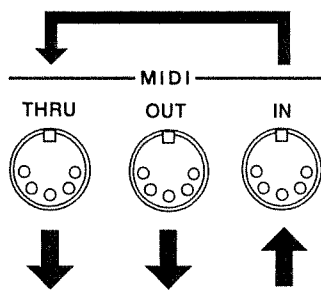
MIDI stands for Musical Instrument Digital Interface. MIDI is a worldwide standard that allows musical instruments and computers to exchange musical data. Most electronic musical instruments sold today are MIDI compatible. MIDI compatible devices have MIDI connectors which are used to physically link instruments (using special cables). MIDI does not transmit the sound of an instrument, but rather "messages" in digital form that tell the receiving instrument to "do something." These are known as MIDI messages.

(1) MIDI Message Exchange

How the exchange of MIDI messages is carried out is explained in the following.

MIDI Connectors

In carrying out the exchange of MIDI messages, three connectors are used. MIDI cables are connected to these connectors in various ways depending on the desired result:



MIDI IN Connector:

This connector receives incoming MIDI messages.

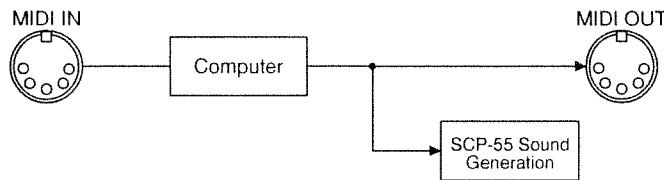
MIDI OUT Connector:

This connector transmits outgoing MIDI messages to other devices.

MIDI THRU Connector:

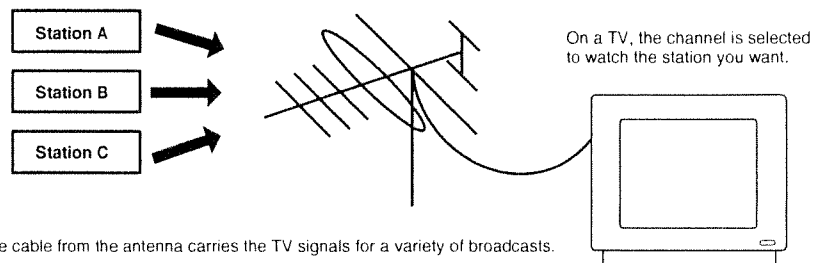
MIDI messages received at MIDI IN are re-transmitted by the MIDI THRU connector. (This connector does not transmit messages that originate inside the unit itself.)

The MIDI connectors of an MCB-3 connected to the SCP-55 route MIDI messages as follows.



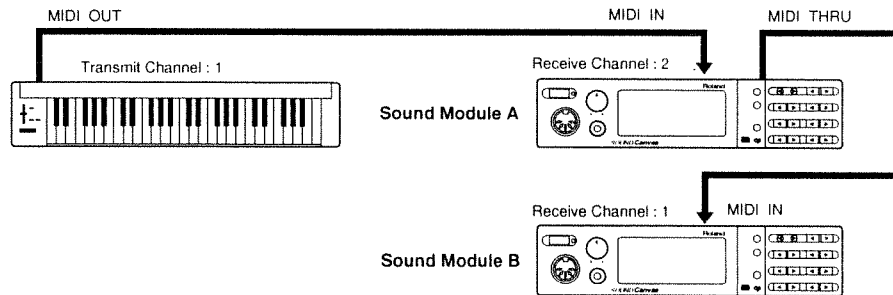
MIDI Channels and Multi-Timbral Capabilities

With MIDI, a single cable can be used for carrying differing sets of performance information, for a number of MIDI devices. This is possible thanks to the concept of MIDI channels. MIDI channels are easy to understand if we use the analogy of television broadcasting. Many television programs are broadcast from many TV stations and your TV antenna receives them all. By setting your television to a specific channel, you can watch only the desired program. The same idea applies to MIDI channels. The master device is somewhat like the broadcast station, and the slave device is like a television receiver. The MIDI messages carried by the MIDI cable are like the programs that are transmitted from the broadcast stations.



The cable from the antenna carries the TV signals for a variety of broadcasts.

MIDI provides sixteen channels (1–16). When the channel which the sending device (the master) is using to transmit on matches the channel which the receiving device (the slave) is using to receive on, the performance data is conveyed. When the MIDI channels are set as illustrated below and you play the keyboard, sound will be produced only by sound module B. Sound module A will not sound. This is because only sound module B is set to receive on the same channel that the keyboard is using to transmit on. Sound module A's channel doesn't match, so it won't sound.



The SCP-55 is capable of simultaneously recognizing the MIDI messages on all 16 channels. In other words, it is capable of playing 16 different Parts at the same time. Of these, the Part which is set to receive on MIDI channel 10 is known as the Drum Part. This Part provides a collection of percussive instrument sounds, with a different sound for each Note Number (p. 21). The other Parts, those having a MIDI receive channel from 1–9 or 11–16, are known as Standard Parts, and are used for melody or bass, chords, etc. Sound modules such as the SCP-55 are multi-timbral, which means they can simultaneously receive data on a multiple number of MIDI channels, and can play the musical data for a number of Parts simultaneously.

(2) About the MIDI Implementation Chart

MIDI has made it possible for a wide variety of devices to exchange information, but it is not always true that all types of MIDI messages can be exchanged between all types of devices. For example, if you use a synthesizer as a master device to control a digital piano, the pitch bender (the lever or wheel that modifies the pitch) of the synthesizer will have no effect on the sound of the piano.

The important thing to keep in mind when using MIDI is that the slave device must be able to 'understand' what the master is 'saying.' In other words, the MIDI messages must be common to both master and slave.

To help you quickly determine what types of MIDI messages can be exchanged between master and slave, the Owner's Manual for every MIDI device includes a MIDI Implementation chart. By looking at this chart, you can quickly see what messages the device is able to transmit and receive. The left side of the chart lists the names of a variety of MIDI messages, and the Transmission and Reception columns use "o" and "x" marks to indicate whether or not each of these messages can be transmitted or received. This means that a specific MIDI message can be exchanged only if there is an "o" in both the Transmission column of the master and the Reception column of the slave device. MIDI implementation charts are standardized, so you can place the charts from two manuals side-by-side and see at a glance how the two devices will communicate.

A detailed explanation concerning the data format used for Exclusive messages, and the implementation of MIDI used on the SCP-55 can be found starting on page 23.

(3) MIDI Messages Handled by the SCP-55

Various types of MIDI messages are used to convey a musical performance.

Channel messages are used to convey musical actions, such as “how hard a key was struck” (converted into a data format called a MIDI message). The action the device takes (how to produce the sound, etc.) when each MIDI message is received will depend on the specifications of the device. If the function requested by a message is not included in the device, the desired effect may not be achieved.

* MIDI messages required for responding to General MIDI System Level 1 specifications are marked with a ☆.

Note Messages ☆

These messages convey what is played on a keyboard or other instrument. The types of Note messages are as follows:

Note Number:	A number representing the position of a key on a keyboard.
Note On:	Indicates that a key has been pressed.
Note Off:	Indicates that a key has been released.
Note On Velocity:	The strength with which a key has been pressed.

Note Numbers range from 0–127 and correspond with the positions of keys on a keyboard. Middle C (C4) is number 60. In the Drum Part, a different percussive instrument sound is assigned to each Note Number.

Pitch Bend Change Message ☆

This message conveys the operation of the pitch bend lever (or pitch bend wheel) that is found on many synthesizers. The pitch will change when this message is received.

Bank Select Messages (Controller Number: 0, 32)

Program Change Messages ☆

These messages are generally used to change tones. The tones are selected with Program Numbers 1 to 128. In the SCP-55, the Tone can be changed using Program Change messages. If a Bank Select (Control Change message) is used with a Program Change, more Variations can be selected.

Control Change Messages

These messages control the modulation and pan, etc. Each function is classified with a Control Change number.

• Modulation (Controller Number: 1) ☆

A vibrato effect is applied when this message is received.

• Volume (Controller Number: 7) ☆

This message conveys the volume level of the part. The part’s volume will change when this message is received.

• Panpot (Controller Number: 10) ☆

This message provides adjustment for the sound location in the stereo field (L/R). Effective only when a stereo output is used.

Orientation	Left	Center	Right
Pan	0	64	127

- **Expression (Controller Number: 11)** ☆

This message conveys the change in volume. This is used to lower or raise the volume during a song.

- * *The part volume will change with either the volume message (Controller Number: 7) or expression message (Controller Number: 11). Note that if a 0 value is received with either of the messages, the part volume will be 0, and the part's volume will not increase even with the other message.*

- **Hold 1 (Controller Number: 64)** ☆

This message conveys the pressing and releasing of the damper (sustain) pedal. Notes will be held when "hold on" is received. Sounds which decay naturally (such as pianos) will decay more slowly when "hold on" is received. Sustaining sounds (such as organs) will be held until "hold off" is received.

- **Sostenuto (Controller Number: 66)**

The pedal that sustains notes only when it is stepped on is called the sostenuto pedal. This message conveys the action of pressing and releasing this pedal. When 'sostenuto on' is received, only notes played at the same time will be sustained. Sounds which decay naturally (such as pianos) will decay more slowly when 'sostenuto on' is received. Sustaining sounds (such as organs) will be held until 'sostenuto off' is received.

- **Soft (Controller Number: 67)**

The pedal that softens the sound of notes played is called the soft pedal. This message conveys the action of pressing and releasing this pedal. When 'soft on' is received, the cut off frequency is lowered, and a soft sound is achieved. When 'sostenuto off' is received, the original sound is restored.

- **Effect 1 depth (Controller Number: 91)**

This message applies 'Reverb Send Level' to a Part.

- **Effect 3 depth (Controller Number: 93)**

This message applies 'Chorus Send Level' to a Part.

- **Portamento (Controller Number: 65)**

- **Portamento Time (Controller Number: 5)**

- **Portamento Control (Controller Number: 84)**

The portamento function smoothly changes the pitch from the last key pressed to the key currently being pressed. When portamento is received, the portamento effect is turned on or off. The speed of the pitch change is set with the portamento time. When portamento control is received, the Source Note number (key pressed last) is specified.

- **NRPN LSB, MSB (Controller Number: 98, 99)**

- **Data Entry (Controller Number: 6, 38)**

The device's characteristic variation parameters can be changed with the NRPN (Non-Registered Parameter Number). The parameter to be changed is specified in the NRPN MSB and NRPN LSB, and the parameter value is set with the following data entry.

Common NRPN are set in the GS Format, and the variation parameter can be changed using application software, etc., that is GS Format compatible. The vibrato, cut-off frequency, resonance, and envelope values can be changed with NRPN.

- * *The values changed with NRPN will not be initialized even if the tone is changed with a Program Change, etc.*

- * *The specifications for NRPNs differ depending on the manufacturer. If an NRPN included in song data does not conform to the GS Format, the data will not be played as expected. To play song data from a different manufacturer, set the "NRPN Reception Switch" to OFF. When the SCP-55 receives a "Turn General MIDI System ON," it will automatically turn the "NRPN Reception Switch" off.*

- **RPN LSB, RPN MSB (Controller Number: 100, 101)** ☆
- **Data Entry (Controller Number: 6, 38)** ☆

RPN (Registered Parameter Number) functions are defined within the MIDI standards and can be used with different devices.

The parameter to be changed is specified with RPN MSB and RPN LSB, and the parameter value is set with the following data entry. The pitch bend sensitivity, master coarse tune and master fine tune values can be changed with RPN.

** The values changed with RPN will not be initialized even if the tone is changed with a Program Change, etc.*

Aftertouch Messages (Channel Pressure ☆)

Aftertouch refers to additional pressure put on a key after playing a note. The variation in aftertouch pressure can create changes in the sound produced. There are two types of aftertouch messages: Channel and Polyphonic. Channel aftertouch affects all note numbers on the same MIDI channel. Polyphonic aftertouch affects only individual keys (note numbers) that are pressed with relatively more force than others.

** Notes will not be affected when an aftertouch message is received while at the factory settings. Turn aftertouch message reception on with an Exclusive message, and specify what function aftertouch will control.*

All Sounds Off

This message turns off all sounds which are currently playing. The sounds in the corresponding channel will be turned off.

All Notes Off ☆

This message turns all 'note on' messages to 'note off' messages. However, if hold 1 or sostenuto is turned on, the sound will not stop until these are turned off.

Reset All Controllers ☆

When this message is received, the controllers will be set as follows:

Pitch bend change	+/-0 (center)
Polyphonic key pressure	0 (min.)
Channel pressure	0 (min.)
Modulation	0 (min.)
Expression	127 (max.)
Hold 1	0 (off)
Portamento	0 (off)
Soft	0 (off)
Sostenuto	0 (off)
RPN	No number selected; no change in internal data
NRPN	No number selected; no change in internal data

** Parameter values set with RPN and NRPN will not change even if a Reset All Controllers is received.*

Active Sensing Messages

These messages monitor the integrity of MIDI connections. When the MIDI IN connector receives Active Sensing messages, it will enter the 'Active Sensing' mode. If Active Sensing messages (or other MIDI messages) are not received at 420 millisecond intervals, the device will judge that a cable is disconnected or there is a damaged connection. All sounds will be cut off, and a Reset All Controllers message will be processed. Monitoring for Active Sensing messages is terminated.

System Exclusive Messages

Exclusive messages are used to control a characteristic operation of the device. Universal System Exclusive messages can be used for all devices—regardless of the manufacturer. General Exclusive messages, however, cannot convey data between different models.

Roland's Exclusive messages have a unique manufacturer ID, device ID, and model ID so that the type of data can be determined.

- **Turn General MIDI System On (Universal Non-Realtime System Exclusive) ☆**

When the 'Turn General MIDI System On' message is received, the unit will be set to correspond with the General MIDI basic settings. Reception of NRPNs will no longer be allowed after a 'Turn General MIDI System On' has been received.

The 'Turn General MIDI System On' message is included at the beginning of song data that carries the General MIDI logo. When the song data is played from the beginning, the device will be automatically initialized to the basic settings.

- **GS Reset (GS Format Common System Exclusive)**

When the 'GS Reset' message is received, all the GS basic settings are restored on the unit. When a GS reset is received, the NRPNs specified with the GS Format can be received.

The 'GS Reset' message is included at the beginning of song data that carries the GS logo. When the song data is played from the beginning, the device will automatically be initialized to the basic settings.

- **Master Volume (Universal Realtime System Exclusive)**

This is a common universal Exclusive message for controlling the master volume of all parts.

- **Other Exclusive Messages**

The SCP-55 responds to GS Universal System Exclusive messages (as specified by the GS Format) so its settings can be controlled by software or external controllers that also conform to the GS Format.

(4) Default Settings

Part Settings

MIDI Channel/Part	1–9, 11–16	10 (Drum Part)
Tone	Piano 1 (#1)	Standard Set
Part Volume	100	100
Pan	64	64
Reverb Send Level	40	40
Chorus Send Level	0	0
Pitch Bend Sens.	2	2

Overall Part Settings

Master Volume	Reverb			Chorus						Key Shift
	Type	Level	Time	Type	Level	Feedback	Delay	Rate	Depth	
127	Hall2	64	64	Chorus3	64	8	80	3	19	0

6. TONE TABLE

	PC#	CC0	Tone name	V
Piano	1	0	Piano 1	1
		8	Piano 1w	2
		16	Piano 1d	1
	2	0	Piano 2	1
		8	Piano 2w	2
	3	0	Piano 3	1
		8	Piano 3w	2
	4	0	Honky-tonk	2
		8	Honky-tonk w	2
	5	0	E.Piano 1	1
		8	Detuned EP 1	2
		16	E.Piano 1v	2
		24	60's E.Piano	1
	6	0	E.Piano 2	1
		8	Detuned EP 2	2
		16	E.Piano 2v	2
7	0	Harpsichord	1	
	8	Coupled Hps.	2	
	16	Harpsi.w	2	
	24	Harpsi.o	2	
8	0	Clav.	1	
Chromatic Percussion	9	0	Celesta	1
	10	0	Glockenspiel	1
	11	0	Music Box	1
	12	0	Vibraphone	1
		8	Vib.w	2
	13	0	Marimba	1
		8	Marimba w	2
	14	0	Xylophone	1
	15	0	Tubular-bell	1
		8	Church Bell	1
9		Carillon	1	
16	0	Santur	1	
Organ	17	0	Organ 1	1
		8	Detuned Or.1	2
		16	60's Organ 1	1
		32	Organ 4	2
	18	0	Organ 2	1
		8	Detuned Or.2	2
		32	Organ 5	2
19	0	Organ 3	2	

	PC#	CC0	Tone name	V
Organ	20	0	Church Org.1	1
		8	Church Org.2	2
		16	Church Org.3	2
	21	0	Reed Organ	1
	22	0	Accordion Fr	2
		8	Accordion It	2
	23	0	Harmonica	1
	24	0	Bandoneon	2
Guitar	25	0	Nylon-str. Gt.	1
		8	Ukulele	1
		16	Nylon Gt.0	2
		32	Nylon Gt.2	1
	26	0	Steel-str. Gt.	1
		8	12-str. Gt.	2
		16	Mandolin	1
	27	0	Jazz Gt.	1
		8	Hawaiian Gt.	1
	28	0	Clean Gt.	1
		8	Chorus Gt.	2
	29	0	Muted Gt.	1
		8	Funk Gt.	1
		16	Funk Gt.2	1
	30	0	Overdrive Gt.	1
	31	0	Distortion Gt.	1
		8	Feedback Gt.	2
32	0	Gt. Harmonics	1	
	8	Gt. Feedback	1	
Bass	33	0	Acoustic Bs.	1
		0	Fingered Bs.	1
		0	Picked Bs.	1
	34	0	Fretless Bs.	1
		0	Slap Bass 1	1
	35	0	Slap Bass 2	1
		0	Synth Bass 1	1
	36	1	Synth Bass 101	1
		8	Synth Bass 3	1
		0	Synth Bass 2	2
37	8	Synth Bass 4	2	
	16	Rubber Bass	2	

PC# : Program number
 CC0 : Value of controller number 0 (Variation number)
 V : Number of Voices

	PC#	CC0	Tone name	V
Strings / orchestra	41	0	Violin	1
		8	Slow Violin	1
	42	0	Viola	1
	43	0	Cello	1
	44	0	Contrabass	1
	45	0	Tremolo Str	1
	46	0	PizzicatoStr	1
	47	0	Harp	1
Ensemble	49	0	Strings	1
		8	Orchestra	2
	50	0	Slow Strings	1
	51	0	Syn. Strings1	1
		8	Syn. Strings3	2
	52	0	Syn. Strings2	2
	53	0	Choir Aahs	1
		32	Choir Aahs 2	1
54	0	Voice Oohs	1	
55	0	SynVox	1	
56	0	OrchestraHit	2	
Brass	57	0	Trumpet	1
		0	Trombone	1
	58	1	Trombone 2	2
		59	0	Tuba
	60	0	MutedTrumpet	1
	61	0	French Horn	2
		1	French Horn 2	2
	62	0	Brass 1	1
		8	Brass 2	2
	63	0	Synth Brass1	2
		8	Synth Brass3	2
		16	AnalogBrass1	2
64	0	Synth Brass2	2	
	8	Synth Brass4	1	
	16	AnalogBrass2	2	

	PC#	CC0	Tone name	V
Reed	65	0	Soprano Sax	1
	66	0	Alto Sax	1
	67	0	Tenor Sax	1
	68	0	Baritone Sax	1
	69	0	Oboe	1
	70	0	English Horn	1
	71	0	Bassoon	1
	72	0	Clarinet	1
Pipe	73	0	Piccolo	1
	74	0	Flute	1
	75	0	Recorder	1
	76	0	Pan Flute	1
	77	0	Bottle Blow	2
	78	0	Shakuhachi	2
	79	0	Whistle	1
	80	0	Ocarina	1
Synth lead	81	0	Square Wave	2
		1	Square	1
		8	Sine Wave	1
	82	0	Saw Wave	2
		1	Saw	1
	8	Doctor Solo	2	
	83	0	Syn. Calliope	2
	84	0	Chiffer Lead	2
85	0	Charang	2	
86	0	Solo Vox	2	
87	0	5th Saw Wave	2	
88	0	Bass & Lead	2	
Synth pad etc.	89	0	Fantasia	2
	90	0	Warm Pad	1
	91	0	Polysynth	2
	92	0	Space Voice	1
	93	0	Bowed Glass	2
	94	0	Metal Pad	2
	95	0	Halo Pad	2
	96	0	Sweep Pad	1

PC# : Program number
 CC0 : Value of controller number 0 (Variation number)
 V : Number of Voices

	PC#	CC0	Tone name	V
Synth SFX	97	0	Ice Rain	2
	98	0	Soundtrack	2
	99	0	Crystal	2
		1	Syn Mallet	1
	100	0	Atmosphere	2
	101	0	Brightness	2
	102	0	Goblin	2
	103	0	Echo Drops	1
		1	Echo Bell	2
		2	Echo Pan	2
104	0	Star Theme	2	
Ethnic	105	0	Sitar	1
		1	Sitar 2	2
	106	0	Banjo	1
	107	0	Shamisen	1
	108	0	Koto	1
		8	Taisho Koto	2
	109	0	Kalimba	1
	110	0	Bag Pipe	1
	111	0	Fiddle	1
	112	0	Shanai	1
Percussive	113	0	Tinkle Bell	1
	114	0	Agogo	1
	115	0	Steel Drums	1
	116	0	Woodblock	* 1
		8	Castanets	* 1
	117	0	Taiko	* 1
		8	Concert BD	* 1
	118	0	Melo. Tom 1	* 1
		8	Melo. Tom 2	* 1
	119	0	Synth Drum	* 1
8		808 Tom	* 1	
9		Elec Perc	* 1	
120	0	Reverse Cym.	* 1	

	PC#	CC0	Tone name	V
SFX	121	0	Gt. FretNoise	* 1
		1	Gt. Cut Noise	* 1
		2	String Slap	* 1
	122	0	Breath Noise	* 1
		1	Fl. Key Click	* 1
	123	0	Seashore	* 1
		1	Rain	* 1
		2	Thunder	* 1
		3	Wind	* 1
		4	Stream	* 2
	124	5	Bubble	* 2
		0	Bird	* 2
		1	Dog	* 1
		2	Horse-Gallop	* 1
	125	3	Bird 2	* 1
		0	Telephone 1	* 1
		1	Telephone 2	* 1
		2	Door Creaking	* 1
		3	Door	* 1
	126	4	Scratch	* 1
		5	Windchime	* 2
		0	Helicopter	* 1
		1	Car-Engine	* 1
		2	Car-Stop	* 1
		3	Car-Pass	* 1
		4	Car-Crash	* 2
		5	Siren	* 1
		6	Train	* 1
	7	Jetplane	* 2	
	127	8	Starship	* 2
9		Burst Noise	* 2	
0		Applause	* 2	
1		Laughing	* 1	
2		Screaming	* 1	
3		Punch	* 1	
4		Heart Beat	* 1	
5		Footsteps	* 1	
0		Gun Shot	* 1	
128	1	Machine Gun	* 1	
	2	Lasergun	* 1	
	3	Explosion	* 2	

PC# : Program number
 CC0 : Value of controller number 0 (Variation number)
 V : Number of Voices
 * : All tones marked by an * have an unreliable pitch.
 Please use a key around C4 (Note number 60).
 The unmarked tones use temperament and pitch
 of A4 (Note number 69) is tuned to be the same
 as the Master Tune.

CM-32P set (Variation : 126)

PC#	Tone name	V
1	A. Piano 1	1
2	A. Piano 2	1
3	A. Piano 3	1
4	A. Piano 4	2
5	A. Piano 5	1
6	A. Piano 7	1
7	A. Piano 9	1
8	E. Piano 1	1
9	E. Piano 3	2
10	E. Piano 5	1
11	A. Guitar 1	1
12	A. Guitar 3	1
13	A. Guitar 4	2
14	E. Guitar 1	1
15	E. Guitar 2	1
16	Slap 3	1
17	Slap 4	1
18	Slap 5	1
19	Slap 6	1
20	Slap 9	1
21	Slap 10	1
22	Slap 11	1
23	Slap 12	1
24	Fingered 1	1
25	Fingered 2	1
26	Picked 1	1
27	Picked 2	1
28	Fretless 1	1
29	AC. Bass 1	1
30	Choir 1	1
31	Choir 2	1
32	Choir 3	1

PC#	Tone name	V
33	Choir 4	1
34	Strings 1	1
35	Strings 2	1
36	Strings 3	2
37	Strings 4	2
38	E. Organ 2	1
39	E. Organ 4	1
40	E. Organ 6	1
41	E. Organ 8	1
42	E. Organ 9	1
43	E. Organ 10	1
44	E. Organ 11	1
45	E. Organ 12	1
46	E. Organ 13	1
47	Soft TP 1	1
48	Soft TP 3	1
49	TP/TRB 1	1
50	TP/TRB 2	1
51	TP/TRB 3	1
52	TP/TRB 4	1
53	TP/TRB 5	1
54	TP/TRB 6	1
55	Sax 1	1
56	Sax 2	1
57	Sax 3	1
58	Sax 5	1
59	Brass 1	1
60	Brass 2	1
61	Brass 3	2
62	Brass 4	2
63	Brass 5	1
64	Orche Hit	2

PC# : Program number
V : Number of Voices

* Variation 126 is set to the same sound arrangement of the CM-32P (Roland PCM Sound Module). The settings for the pitch bend range, modulation depth, etc., however, are different from that of CM-32P. Pan orientations are reversed compared with an actual CM-32P.

* If Exclusive messages for the CM-32P are received by the SCP-55, the settings of the latter will not be changed.

MT-32 set (Variation : 127)

PC#	Tone name	V	PC#	Tone name	V	PC#	Tone name	V	PC#	Tone name	V
1	Acou Piano 1	1	33	Fantasy	2	65	Acou Bass 1	1	97	Brs Sect 2	2
2	Acou Piano 2	1	34	Harmo Pan	2	66	Acou Bass 2	1	98	Vibe 1	1
3	Acou Piano 3	1	35	Chorale	1	67	Elec Bass 1	1	99	Vibe 2	1
4	Elec Piano 1	1	36	Glasses	2	68	Elec Bass 2	1	100	Syn Mallet	1
5	Elec Piano 2	1	37	Soundtrack	2	69	Slap Bass 1	1	101	Windbell	2
6	Elec Piano 3	1	38	Atmosphere	2	70	Slap Bass 2	1	102	Glock	1
7	Elec Piano 4	1	39	Warm Bell	2	71	Fretless 1	1	103	Tube Bell	1
8	Honkytonk	2	40	Funny Vox	1	72	Fretless 2	1	104	Xylophone	1
9	Elec Org 1	1	41	Echo Bell	2	73	Flute 1	1	105	Marimba	1
10	Elec Org 2	2	42	Ice Rain	2	74	Flute 2	1	106	Koto	1
11	Elec Org 3	1	43	Oboe 2001	2	75	Piccolo 1	1	107	Sho	2
12	Elec Org 4	1	44	Echo Pan	2	76	Piccolo 2	2	108	Shakuhachi	2
13	Pipe Org 1	2	45	Doctor Solo	2	77	Recorder	1	109	Whistle 1	2
14	Pipe Org 2	2	46	School Daze	1	78	Pan Pipes	1	110	Whistle 2	1
15	Pipe Org 3	2	47	Bellsinger	1	79	Sax 1	1	111	Bottleblow	2
16	Accordion	2	48	Square Wave	2	80	Sax 2	1	112	Breathpipe	1
17	Harpsi 1	1	49	Str Sect 1	1	81	Sax 3	1	113	Timpani	1
18	Harpsi 2	2	50	Str Sect 2	1	82	Sax 4	1	114	Melodic Tom	1
19	Harpsi 3	1	51	Str Sect 3	1	83	Clarinet 1	1	115	Deep Snare	1
20	Clavi 1	1	52	Pizzicato	1	84	Clarinet 2	1	116	Elec Perc 1	1
21	Clavi 2	1	53	Violin 1	1	85	Oboe	1	117	Elec Perc 2	1
22	Clavi 3	1	54	Violin 2	1	86	Engl Horn	1	118	Taiko	1
23	Celesta 1	1	55	Cello 1	1	87	Bassoon	1	119	Taiko Rim	1
24	Celesta 2	1	56	Cello 2	1	88	Harmonica	1	120	Cymbal	1
25	Syn Brass 1	2	57	Contrabass	1	89	Trumpet 1	1	121	Castanets	1
26	Syn Brass 2	2	58	Harp 1	1	90	Trumpet 2	1	122	Triangle	1
27	Syn Brass 3	2	59	Harp 2	1	91	Trombone 1	2	123	Orche Hit	1
28	Syn Brass 4	2	60	Guitar 1	1	92	Trombone 2	2	124	Telephone	1
29	Syn Bass 1	1	61	Guitar 2	1	93	Fr Horn 1	2	125	Bird Tweet	1
30	Syn Bass 2	2	62	Elec Gtr 1	1	94	Fr Horn 2	2	126	One Note Jam	1
31	Syn Bass 3	2	63	Elec Gtr 2	1	95	Tuba	1	127	Water Bell	2
32	Syn Bass 4	1	64	Sitar	2	96	Brs Sect 1	1	128	Jungle Tune	2

PC# : Program number
V : Number of Voices

* Variation 127 is set to the same sound arrangement of the MT-32 (Roland Multi-Timbral Sound Module). The settings for the pitch bend range, modulation depth, etc., however, are different from that of MT-32. Pan orientations are reversed compared with an actual MT-32.

* If Exclusive messages for the MT-32 are received by the SCP-55, the settings of the latter will not be changed.

7. DRUM SET TABLE

Note Number	PC#1: STANDARD Set (61 tones)	PC#9: ROOM Set (61 tones)	PC#17: POWER Set (61 tones)	PC#25: ELECTRONIC Set (61 tones)	PC#26: TR-808 Set (61 tones)	PC#33: JAZZ Set (61 tones)	PC#41: BRUSH Set (61 tones)	PC#49: ORCHESTRA Set (62 tones)
28	High Q							Closed HH [E1]
	Slap							Pedal HH [E1]
29	Scratch Push [E7]							Open HH [E1]
30	Scratch Pull [E7]							Ride Cymbal
31	Sticks							
32	Square Click							
33	Metronome Click							
34	Metronome Bell							
35	Kick Drum 2					Jazz BD 2	JAZZ BD 2	Concert BD 2
36	Kick Drum 1		MONDO Kick	Elec BD	808 Bass Drum	Jazz BD 1	JAZZ BD 1	Concert BD 1
37	Side Stick				808 Rim Shot			
38	Snare Drum 1		Gated SD	Elec SD	808 Snare Drum		Brush Tap	Concert SD
39	Hand Clap						Brush Slap	Castanets
40	Snare Drum 2			Gated SD			Brush Swirl	Concert SD
41	Low Tom 2	Room Low Tom 2	Room Low Tom 2	Elec Low Tom 2	808 Low Tom 2	Jazz Low Tom 2	Jazz Low Tom 2	Timpani F
42	Closed Hi-Hat [E1]				808 CHH [E1]			Timpani F#
43	Low Tom 1	Room Low Tom 1	Room Low Tom 1	Elec Low Tom 1	808 Low Tom 1	Jazz Low Tom 1	Jazz Low Tom 1	Timpani G
44	Pedal Hi-Hat [E1]				808 CHH [E1]			Timpani G#
45	Mid Tom 2	Room Mid Tom 2	Room Mid Tom 2	Elec Mid Tom 2	808 Mid Tom 2	Jazz Mid Tom 2	Jazz Mid Tom 2	Timpani A
46	Open Hi-Hat [E1]				808 OHH [E1]			Timpani A#
47	Mid Tom 1	Room Mid Tom 1	Room Mid Tom 1	Elec Mid Tom 1	808 Mid Tom 1	Jazz Mid Tom 1	Jazz Mid Tom 1	Timpani B
48	High Tom 2	Room Hi Tom 2	Room Hi Tom 2	Elec Hi Tom 2	808 Hi Tom 2	Jazz Hi Tom 2	Jazz Hi Tom 2	Timpani c
49	Crash Cymbal 1				808 Cymbal			Timpani c#
50	High Tom 1	Room Hi Tom 1	Room Hi Tom 1	Elec Hi Tom 1	808 Hi Tom 1	Jazz Hi Tom 1	Jazz Hi Tom 1	Timpani d
51	Ride Cymbal 1							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 Cymbal 2							Concert Cymbal2
58	Vibra-slap							
59	Ride Cymbal 2							Concert Cymbal1
60	High Bongo							
61	Low Bongo							
62	Mute High Conga				808 Hi 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 [E2]							
72	Long Low Whistle [E2]							
73	Short Guiro [E3]							
74	Long Guiro [E3]							
75	Claves				808 Claves			
76	High Wood Block							
77	Low Wood Block							
78	Mute Cuica [E4]							
79	Open Cuica [E4]							
80	Mute Triangle [E5]							
81	Open Triangle [E5]							
82	Shaker							
83	Jingle Bell							
84	Belltire							
85	Castanets							
86	Mute Surdo [E6]							
87	Open Surdo [E6]							
88	-----	-----	-----	-----	-----	-----	-----	Applause *

PC# : Program number
 * : Tones which are created by using two Voices.
 (All other tones are created by one Voice.)

Blank : Same as the percussion sound of "STANDARD"
 ----- : No Sound
 [E#] : Percussion sound of the same number will not be heard at the same time.

SFX set (Program number: 57)

Note Number	PC#57:SFX Set (46 tones)
40	39 High Q
	Slap
41	Scratch Push [E7]
42	Scratch Pull [E7]
43	Sticks
44	Square Click
45	Metronome Click
46	Metronome Bell
47	Guitar sliding finger
48	Guitar cutting noise (down)
49	Guitar cutting noise (up)
50	String slap of double bass
51	Flute Key click
52	Laughing
53	Screaming
54	Punch
55	Heartbeat
56	Footsteps 1
57	Footsteps 2
58	Applause *
59	Door Creaking
60	Door
61	Scratch
62	Windchime *
63	Car-Engine
64	Car-Stop
65	Car-Pass
66	Car-Crash *
67	Siren
68	Train
69	Jetplane *
70	Helicopter
71	Starship *
72	Gunshot
73	Machine Gun
74	Lasergun
75	Explosion *
76	Dog
77	Horse-Gallop
78	Birds *
79	Rain *
80	Thunder
81	Wind
82	Seashore
83	Stream *
84	Bubble *

- * : Tones which are created by using two Voices.
(All other tones are created by one Voice.)
- : No sound
- [E#] : Percussion sounds of the same number cannot be heard at the same time.

* The CM-64/32L set is the MT-32 drum set with SFX sounds added to it.

CM-64/32L set (Program number: 128)

Note Number	PC#128:CM-64/32L Set (67 tones)
35	34 -----
	Acoustic Bass Drum
36	Acoustic Bass Drum
37	Rim Shot
38	Acoustic Snare Drum
39	Hand Clap
40	Electronic Snare Drum
41	Acoustic Low Tom
42	Closed High Hat [E1]
43	Acoustic Low Tom
44	Open High Hat 2
45	Acoustic Middle Tom
46	Open High Hat 1 [E1]
47	Acoustic Middle Tom
48	Acoustic High Tom
49	Crash Cymbal
50	Acoustic High Tom
51	Ride Cymbal
52	-----
53	-----
54	Tambourine
55	-----
56	Cowbell
57	-----
58	-----
59	-----
60	High Bongo
61	Low Bongo
62	Mute High Conga
63	High Conga
64	Low Conga
65	High Timbale
66	Low Timbale
67	High Agogo
68	Low Agogo
69	Cabasa
70	Maracas
71	Short Whistle
72	Long Whistle
73	Quijada
74	-----
75	Claves
76	Laughing
77	Screaming
78	Punch
79	Heartbeat
80	Footsteps 1
81	Footsteps 2
82	Applause *
83	Creaking
84	Door
85	Scratch
86	Windchime *
87	Engine
88	Car-stop
89	Car-pass
90	Crash *
91	Siren
92	Train
93	Jet *
94	Helicopter
95	Starship *
96	Pistol
97	Machinegun
98	Lasergun
99	Explosion *
100	Dog
101	Horse
102	Birds *
103	Rain *
104	Thunder
105	Wind
106	Waves
107	Stream *
108	Bubble *

MIDI IMPLEMENTATION

1. RECEIVE DATA

* MIDI messages required for responding to General MIDI System Level 1 specifications are marked with a ☆.

[Channel Voice Messages]

<1> NOTE OFF

Status	2nd byte	3rd byte
8nH	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.

<2> 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.

<3> 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.

<4> 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.

(1) 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,ll=Bank number : 00H,00H - 7FH,7FH (bank.1 - bank.16384)
Initial Value = 00 00H (bank.1)

* Not received when Rx.BANK SELECT = OFF. "Rx.BANK SELECT" is set to OFF by "Turn General MIDI System On", and set to ON by "GS RESET". (Power-on default value is ON.)
* Bank number LSB will be handled as 00H regardless of the received value. However, when sending Bank Select messages, you have to send both the MSB (mmH) and LSB (llH, the value should be 00H) together.
* 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.

(2) 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.

(3) 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.

(4) 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

(5) 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)

(6) 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)

(7) 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)

(8) 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)

(9) 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)

(10) 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)

(11) 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)

(12) 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.
- * 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
80 3C 40	Note off C4	no change
80 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 is played with glide from C4 to E4
80 40 40	Note off E4	E4 off

(13) 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 = 28H (40)

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

(14) 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.

(15) 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

- * NRPN can be received when Rx.NRPN = ON. "Rx.NRPN" is set to OFF by power-on reset or by receiving "Turn General MIDI System On", and it is set to ON by "GS RESET".
- * 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 3. Supplementary material "Examples of actual MIDI messages" <Example 4> (Page 31). On the GS devices,

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 SCP-55, NRPN can be used to modify the following parameters.

NRPN	Data entry	Description
01H 08H	mmH	Vibrato rate (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 09H	mmH	Vibrato depth (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 0AH	mmH	Vibrato delay (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 20H	mmH	TVF cutoff frequency (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 21H	mmH	TVF resonance (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 63H	mmH	TVF&TVA Env. Attack time (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 64H	mmH	TVF&TVA Env. Decay time (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
01H 66H	mmH	TVF&TVA Env. Release time (relative change on specified channel) mm: 0EH - 40H - 72H (-50 - 0 - +50)
18H rrH	mmH	Pitch coarse of drum instrument (relative change on specified drum instrument) rr: key number of drum instrument mm: 00H - 40H - 7FH (-64 - 0 - +63 semitone)
1AH rrH	mmH	TVA level of drum instrument (absolute change on specified drum instrument) rr: key number of drum instrument mm: 00H - 7FH (zero - maximum)
1CH rrH	mmH	Panpot of drum instrument (absolute change on specified drum instrument) rr: key number of drum instrument mm: 00H, 01H - 40H - 7FH (Random, Left-Center-Right)
1DH rrH	mmH	Reverb send level of drum instrument (absolute change on specified drum instrument) rr: key number of drum instrument mm: 00H - 7FH (zero - maximum)
1EH rrH	mmH	Chorus send level of drum instrument (absolute change on specified drum instrument) rr: key number of drum instrument mm: 00H - 7FH (zero - maximum)

* Parameters marked "relative change" will change relative to the preset value.

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

(16) 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

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

* 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 3. "Examples of actual MIDI messages" <Example 4> (Page 31).

On the SCP-55, RPN can be used to modify the following parameters.

RPN	Data entry	Explanation
MSB LSB MSB LSB	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 - +99.99cents) Initial value = 40 00H (0 cent) Refer to 3. Supplementary material, "About tuning" (P.31).
00H 02H	mmH —	Master Coarse Tuning mm: 28H - 40H - 58H (-24 - 0 - +24 semitones) Initial value = 40H (0 semitone) 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

<5> 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 ON)
- * 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)).

<6> 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 (CA) = OFF. (Initial value is ON)
- * The resulting effect is determined by System Exclusive messages. With the initial settings there will be no effect.

<7> 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 ON)
- * The resulting effect is determined by System Exclusive messages. With the initial settings the effect is Pitch Bend.

[Channel Mode Messages]

<1> 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.

<2> 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

<3> 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.

<4> 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.

<5> 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).

<6> 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".

<7> 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 Message]

<1> 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 Message]

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 SCP-55 are; messages related to mode settings, Universal Realtime System Exclusive messages 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. When creating performance data, a "Turn General MIDI System On" message should be inserted at the beginning of a General MIDI score, and a "GS Reset" message at the beginning of a GS music data. 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.) "Turn General MIDI System On" uses Universal Non-realtime Message format. "GS Reset" uses Roland system exclusive format "Data Set 1 (DT1)".

(1) 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, the SCP-55 will automatically be set to the proper condition for correctly playing a General MIDI score.

Status	Data byte	Status
F0H	7EH, 7FH, 09H, 01H	F7H

Byte	Explanation
F0H	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.
- * There must be an interval of at least 50 ms between this message and the next message.

(2) GS Reset

GS Reset is a command message that resets the internal settings of a device to the GS initial state. This message will appear 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.

Status	Data byte	Status
F0H	41H, 10H, 42H, 12H, 40H, 00H, 7FH, 00H, 41H	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID
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.
- * There must be an interval of at least 50 ms between this message and the next.

<2> UNIVERSAL REALTIME SYSTEM EXCLUSIVE MESSAGES

(1) Master Volume

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 01H, 11H, mmH	F7H

Byte	Explanation
F0H	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)
11H	Master volume lower byte
mmH	Master volume upper byte
F7H	EOX (End Of Exclusive)

- * The lower byte (11H) of Master Volume will be handled as 00H.

<3> DATA TRANSMISSION

The SCP-55 can receive the various parameters using System Exclusive messages.

The exclusive message of GS format data has a model ID of 42H and a device ID of 10H (17), and it is common to all the GS devices.

(1) Data set 1 DT1

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

Status	Data byte	Status
F0H	41H, 10H, 42H, 12H, aaH, bbH, ccH, ddH, ... eeH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID
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 2.
- * 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 3 (P. 31).

2. PARAMETER ADDRESS MAP (Model ID=42H)

This map indicates address, size, Data (range), Parameter, Description, and Default Value of parameters which can be transferred using "Data set 1 (DT1)". All the numbers of address, size, Data, and Default Value are indicated in 7-bit Hexadecimal-form.

[ADDRESS BLOCK MAP]

An outlined address map of the Exclusive Communication is as follows;

Address (H)	Block	
40 00 00	SYSTEM PARAMETERS	Individual
40 01 3F		
40 1x 00	PART PARAMETERS (x = 0 - F)	Individual
40 2x 5A		
41 m0 00	DRUM SETUP PARAMETERS (m = 0 - 1)	Individual
41 m8 7F		

[INDIVIDUAL PARAMETERS]

Individual Parameter Transmission transmits data for one parameter as one exclusive message (one packet of "F0 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.

<1> SYSTEM PARAMETERS

Parameters related to the system of the device are called System 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]	00 04 00 00	0 [cent]
40 00 01#				Use nibblized data.		
40 00 02#						
40 00 03#						
* Refer to section 3, Supplementary material, "About tuning" (P. 31).						
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. 26).						
40 01 10	00 00 10	00 - 1C	VOICE RESERVE	Part 10 (Drum Part)	02	2
40 01 11#				Part 1	06	6
40 01 12#				Part 2	02	2
40 01 13#				Part 3	02	2
40 01 14#				Part 4	02	2
40 01 15#				Part 5	02	2
40 01 16#				Part 6	02	2
40 01 17#				Part 7	02	2
40 01 18#				Part 8	02	2
40 01 19#				Part 9	02	2
40 01 1A#				Part 11	00	0
40 01 :#				:		
40 01 1F#				Part 16	00	0
* The sum total of voices in the voice reserve function must be equal to or less than the number of the maximum polyphony. The maximum polyphony of the SCP-55 is 28. For compatibility with other GS models, it is recommended that the maximum polyphony be equal or less than 24.						
40 01 30	00 00 01	00 - 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	4
40 01 32	00 00 01	00 - 07	REVERB PRE-LPF	0 - 7	00	0
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	0
40 01 36	00 00 01	00 - 7F	REVERB SEND LEVEL TO CHORUS	0 - 127	00	0
* 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.						
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

* 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.

[PART PARAMETERS]

The SCP-55 has 16 parts. Parameters that can be set individually for each Part are called Part parameters.

If you use exclusive messages to set 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).

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

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

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(CA)	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(PA)	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*)

* Rx. NRPN is set to OFF by power-on or by receiving "Turn General MIDI System On", and it will be set ON when "GS RESET" is received.

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	00 at x=0 01 at x≠0	SINGLE at x=0 LIMITED-MULTI at x≠0

* 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 at x≠0 MAP1 at x=0
----------	----------	---------	---------------------	---------------------------------	------------------------	---------------------------

* This parameter sets the Drum Map of the Part used as the Drum Part. The SCP-55 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)).

40 1x 16	00 00 01	28 - 58	PITCH KEY SHIFT	-24 - +24 [semitones]	40	0 [semitones]
40 1x 17	00 00 02	08 - F8	PITCH OFFSET FINE	-12.0 - +12.0 [Hz]	08 00	0 [Hz]
40 1x 18#				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)	28	40
40 1x 23	00 00 01	00 - 01	Rx. BANK SELECT	OFF / ON	01 (00*)	ON (OFF*)

* Rx. BANK SELECT is set to ON by power-on or by receiving "GS RESET", and will be set OFF when "Turn General MIDI System On" is received.

40 1x 30	00 00 01	0E - 72	TONE MODIFY 1 Vibrato rate	-50 - +50 (=NRPN# 8)	40	0
40 1x 31	00 00 01	0E - 72	TONE MODIFY 2 Vibrato depth	-50 - +50 (=NRPN# 9)	40	0

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 1x 32	00 00 01	0E - 72	TONE MODIFY 3	-50 - +50	40	0
			TVF cutoff frequency	(=NRPN# 32)		
40 1x 33	00 00 01	0E - 72	TONE MODIFY 4	-50 - +50	40	0
			TVF resonance	(=NRPN# 33)		
40 1x 34	00 00 01	0E - 72	TONE MODIFY 5	-50 - +50	40	0
			TVF&TVA Env.attack	(=NRPN# 99)		
40 1x 35	00 00 01	0E - 72	TONE MODIFY 6	-50 - +50	40	0
			TVF&TVA Env.decay	(=NRPN# 100)		
40 1x 36	00 00 01	0E - 72	TONE MODIFY 7	-50 - +50	40	0
			TVF&TVA Env.release	(=NRPN# 102)		
40 1x 37	00 00 01	0E - 72	TONE MODIFY 8	-50 - +50	40	0
			Vibrato delay	(=NRPN# 10)		
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. Refer to section 3. Supplementary material, "The Scale Tune Feature".

40 2x 00	00 00 01	28 - 58	MOD PITCH CONTROL	-24 - +24 [semitone]	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 [%]
40 2x 10	00 00 01	40 - 58	BEND PITCH CONTROL	0 - 24 [semitone]	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 - 58	CA1 PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 21	00 00 01	00 - 7F	CA1 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 22	00 00 01	00 - 7F	CA1 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 23	00 00 01	00 - 7F	CA1 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 24	00 00 01	00 - 7F	CA1 LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 25	00 00 01	00 - 7F	CA1 LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 26	00 00 01	00 - 7F	CA1 LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 27	00 00 01	00 - 7F	CA1 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 28	00 00 01	00 - 7F	CA1 LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 29	00 00 01	00 - 7F	CA1 LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 2A	00 00 01	00 - 7F	CA1 LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 30	00 00 01	28 - 58	PA1 PITCH CONTROL	-24 - +24 [semitone]	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 - 58	CC1 PITCH CONTROL	-24 - +24 [semitone]	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 [%]

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 2x 50	00 00 01	28 - 58	CC2 PITCH CONTROL	-24 - +24 [semitone]	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 [%]

[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
41 m1 rr	00 00 01	00 - 7F	PLAY NOTE NUMBER	Pitch coarse
41 m2 rr	00 00 01	00 - 7F	LEVEL	TVA level (=NRP# 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) (=NRP# 28, except RANDOM)
41 m5 rr	00 00 01	00 - 7F	REVERB SEND LEVEL	0.0 - 1.0 Multiplicand of the part reverb depth (=NRP# 29)
41 m6 rr	00 00 01	00 - 7F	CHORUS SEND LEVEL	0.0 - 1.0 Multiplicand of the part chorus depth (=NRP# 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

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

3. 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.

Decimal	Hexa-decimal	Decimal	Hexa-decimal	Decimal	Hexa-decimal	Decimal	Hexa-decimal
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(1) 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
   78 ... 10
   ---
   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

CnH 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 28

EnH 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 (28H=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
28 00H - 40 00H = 40 x 128 + 0 - (64 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 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 parameter value : 0CH
 (B3) 26 00 (MIDI ch.4) lower byte of parameter 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 +- 12 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 rewind 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 (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 ?? E7
 (1) (2) (3) (4) (5) address data checksum (6)

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

• 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	0.00	40 00 (0)	00 04 00 00 (0)
439.0	- 3.94	3D 3D (-323)	00 03 0D 09 (-39)
438.0	- 7.89	3A 7A (-646)	00 03 0B 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 parameter value :45H
 (B2) 26 03 (MIDI ch.3) lower byte of parameter 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 SCP-55, 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 keytone.

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 Temperament	Just Temperament (Keytone C)	Arabian Scale
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 29 to convert these values to hexadecimal, and transmit them as exclusive data.

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

F0 41 10 42 12 40 11 40 3A 6D 3E 34 0D 38 6B 3C 6F 40 36 0F 50 F7

SPECIFICATIONS

SCP-55 : SOUND CANVAS PC CARD

[Sound Generation Section]

Compatible with General MIDI System Level 1
Compatible with Roland's GS Format

- **Tones**
354 tones (includes 41 SFX tones)
- **Drum Sets**
9 Drum Sets and 1 SFX Set (total 184 tones)
(Standard, Room, Power, Electronic, TR-808, Jazz, Brush, Orchestra, CM-64/32L and SFX Set)
- **Maximum Polyphony**
28 voices
- **Parts**
16 parts
- **Effects**
Reverb : 8 types with 6 parameters
Chorus : 8 types with 7 parameters

[PCM Section]

- **Sampling Rate**
44.1 kHz, 22.05 kHz and 11.025 kHz
- **Data Format**
16 bit linear or 8 bit linear, stereo
- **Signal Processing**
AD Conversion : 16 bit
DA Conversion : 16 bit
- **Frequency Response**
MIC Input : 24 Hz to 17 kHz -3/+3 dB
LINE Input : 15 Hz to 20 kHz -3/+3 dB
- **Nominal Input Level**
MIC Input : -30 dBm
LINE Input : -10 dBm
- **Input Impedance**
MIC Input : 10 k Ω
LINE Input : 10 k Ω
- **Nominal Output Level**
-10 dBm (10 k Ω Load Impedance)
- **Output Impedance**
16 Ω
- **Recommended Load Impedance**
200 Ω or greater

[MIDI Interface]

MPU-401 UART compatible

[Connectors]

PHONES Jack (stereo miniature phone)
(on the Audio Output Connector)

[Power Supply]

Supplied from the computer slot

[Power Consumption]

Static : 300 mA
Dynamic : 360 mA
Conservation Mode : 100 mA

[Dimensions]

53.5 (W) x 85.0 (D) x 5.0 (H) mm
2-1/8 (W) x 3-3/8 (D) x 1/4 (H) inches
PCMCIA Type II

[Weight]

32 g / 2 oz

[Accessories]

Audio Output Connector
Owner's Manual

[Options]

Connector Box : MCB-3

** In the interest of product development, the specifications and/or appearance of this unit are subject to change without prior notice.*

MIDI Implementation Chart

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

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.
38 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 Bolivia 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

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Neu-Rum Siemens-Strasse 4
A-6040 Innsbruck P.O.Box
83
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V. Dimitriadis & Co. Ltd.
20, Alexandras St. &
Bouboulinas 54 St. 106 82
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Rue de Catarina 131
4000 Porto, PORTUGAL
TEL: (02) 38 4456

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P.f.83 H-2046 Torokbalint,
Budapest HUNGARY
TEL: (1) 1868905

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D.J.A. International Ltd.
Twin Towers, 33 Jabtinsky 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

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

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EGYPT
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(02) 4185531

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Badie Studio & Stores
P.O.Box 62,
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P.O.Box 13520
Damascus - Syria
TEL: (11) 2235 384

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Moon Stores
Bad Al Bahrain Road,
P.O.Box 20077
State of Bahrain
TEL: 211 005

REUNION

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25 Rue Jules MermanZL
Chaudron - BP79 97491
Ste Clotilde REUNION
TEL: 262 28 29 16

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Roland Brasil Ltda.
R. Coronel Octaviano da
Silveira 203 05522-010
Sao Paulo BRAZIL
TEL: (11) 843 9377

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Casa Veerkamp, s.a. de c.v.
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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

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Musiland Digital C.A.
Av. Francisco de Miranda,
Centro Parque de Cristal,
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Florida 638
(1005) Buenos Aires
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TEL: (1) 394 4029

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Tom Lee Music Co., Ltd. Service Division
22-32 Pun Shan Street, Tsuen
Wan, New Territories,
HONG KONG
TEL: 852 2 737 7688

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Cosmos Corporation Service Station
261 2nd Floor Nak-Won
Arcade Jong-Ro ku, Seoul,
KOREA
TEL: (02) 742 8844

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BLOCK 231,
Bain Street #03-23
Bras Basah Complex,
Singapore 0718
TEL: 3367886

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335, Joo Chiat Road
SINGAPORE 1542
REPUBLIC OF SINGAPORE
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G.A. Yupangco & Co. Inc.
339 Gil J. Puyat Avenue
Makati, Metro Manila 1200,
PHILIPPINES
TEL: (02) 817 0013

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Theera Music Co., Ltd.
330 Verng Nakorn Kasem,
Soi 2, Bangkok 10100,
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TEL: (02) 2248821

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Bentley Music SDN BHD
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55100 Kuala Lumpur,
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Merlin Blok E No.6--7
Jl. Gajah Mada No.3--5,
Jakarta 10130,
INDONESIA
TEL: (021) 3850073

TAIWAN

Siruba Enterprise (Taiwan) Co., LTD.
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