Roland®

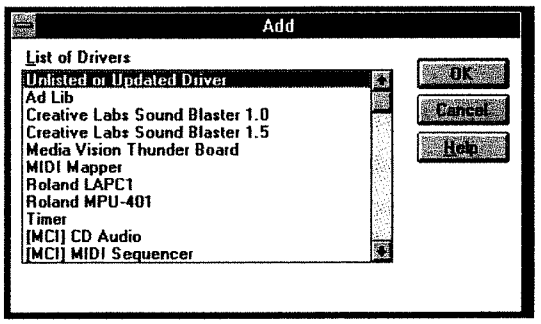
OWNER'S MANUAL

SOUND Canvas

MIDI SOUND GENERATOR SC-55ST

GENERAL MIDI GS

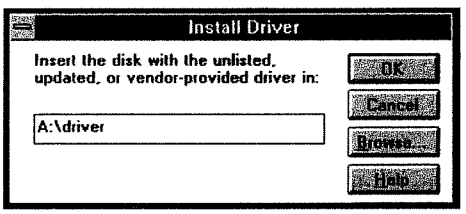
6. Select "Unlisted or Updated Driver" and click the "OK" button.



The "Install Driver" dialog box appears.

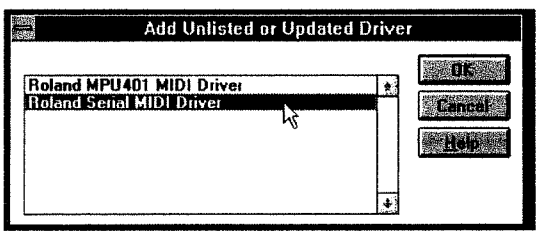
7. Insert "Windows Driver & GS Song Data" disk into drive A.

8. In the "Install Driver" dialog box, type "A:\driver" into the text box, and click the "OK" button.

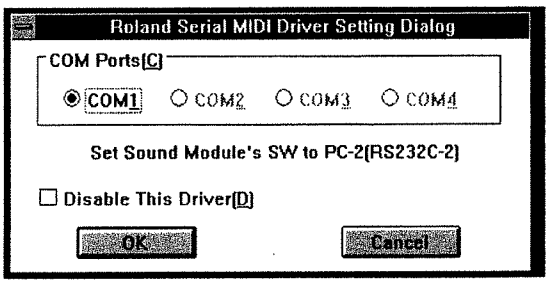


The "Add Unlisted or Updated Driver" dialog box appears.

9. Select "Roland Serial MIDI Driver" and click the "OK" button.

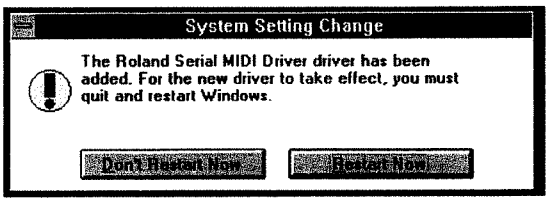


10. In the "Roland Serial MIDI Driver Setting Dialog" dialog box, select the port that the sound module is connected to, and click the "OK" button.



The "System Setting Change" dialog box appears.

11. To enable the driver you've just installed, click the "Restart Now" button to start up Windows again.



The Serial MIDI driver is now installed.

* Windows is a registered trademark of Microsoft Corporation.

How to use the included floppy disk

The included floppy disk contains the Windows serial MIDI driver and GS song data (SMF:Standard MIDI File format). For details on how to convert the data (SMF Import) and play back the demo songs, refer to the operating instructions for your software or MIDI device.

Contents

- driver
  - rdmpu401.drv
  - rdsmidi.drv
  - rdvcbd.386
  - oemsetup.inf

  Windows serial MIDI driver and Roland MPU401 MIDI driver
- gs_songs
  - gslist.txt ····· List of GS song data
  - annie.mid
  - :
  - :

  GS song files

  These songs can be played back using any GS sound generating unit.
- sc88song
  - y4003_03.mid
  - y4003_04.mid

  Song data for SC-88 (SC-88VL)

  These songs are created with 64-voice playback in mind. If these songs are played back on a sound source with fewer voices, some notes will drop out, and the musical result will not be as it should.

Installing the Serial MIDI Driver

1. Turn on the computer.

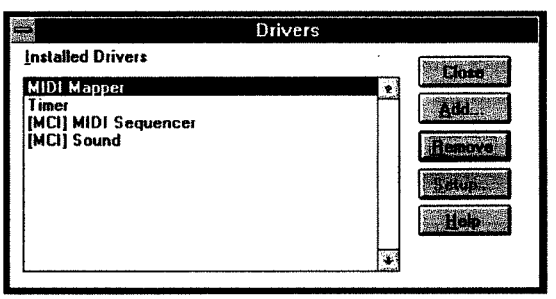
2. Start up Windows.

3. Double-click the "Control Panel" icon in the "Main" group in the Program Manager.

4. Double-click the "Drivers" icon in the "Control Panel" window.

The "Drivers" dialog box appears.

5. In the "Drivers" dialog box, click the "Add" button.



Thank you for purchasing the ROLAND SC-55ST SOUND Canvas Sound Module.The SOUND Canvas is a MIDI sound module that contains a wide variety of high quality sounds.In order to take full advantage of the SC-55ST's capabilities,and to enjoy long and trouble-free service,please read this manual carefully before use.

Main Features

- The SC-55ST is a multi-timbral sound module compatible with the General MIDI system.It can be used to playback any song data(General MIDI system scores)bearing the General MIDI system mark.The SC-55ST is also compatible with the Roland GS format.It can be used to playback any song data bearing the GS mark.
- The SC-55ST contains 354 sounds and 10 types of drum sound set (including an SFX set).
- The SC-55ST can function as a complete 16-part multi-timbral sound module.The SC-55ST can play up to 28 notes simultaneously,and is thus appropriate as a sound module for sequencers and computer.
- By using the internal reverb and chorus effects,it is easy to reproduce the acoustic ambience of a concert hall.
- Optionally available COMPUTER Cables allow you to connect your SC-55ST directly to your Apple Macintosh or IBM PC/AT computer - without the need for an external MIDI interface.

General MIDI system

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

GS format

The GS format is Roland's unified set of specifications to standardize the MIDI capabilities of sound generating devices. Music data bearing the GS logo (GS) can be played back using any GS sound generating unit.

The SC-55ST supports both the General MIDI system and the GS format, and can be used to play back music data carrying either of these logos.

Contents

Before Using the SC-55ST

Important Notes

Power Supply

- Be sure to use only the AC adaptor supplied with the unit. Use of any other AC adaptor could result in damage, malfunction, or electric shock.
- Before connecting this unit to other devices, turn off the power to all units; this will help prevent damage or malfunction.
- Do not use this unit on the same power circuit with any device that will generate line noise; an electric motor or variable lighting system for example.
- The power requirement for this unit is indicated on its nameplate (rear panel). Ensure that the voltage in your installation meets this requirement.
- Avoid damaging the power cord: do not step on it, place heavy objects on it, etc.
- When disconnecting the AC adaptor from the power outlet, grasp the plug itself; never pull on the cord.
- If the unit is to remain unused for an extended period of time, unplug the power cord.

Placement

- Do not subject the unit to temperature extremes (eg., 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

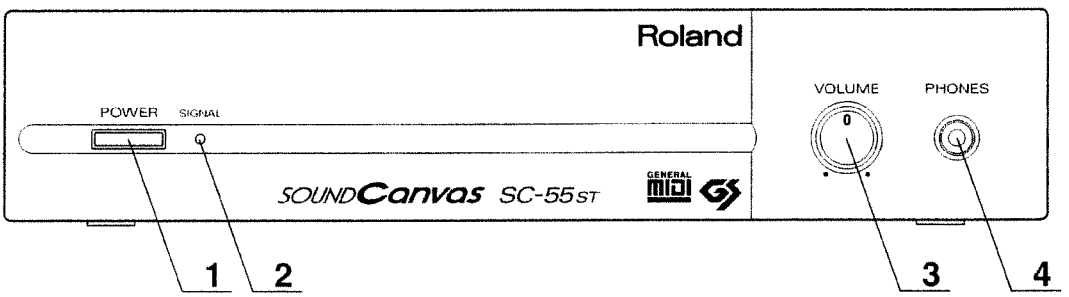
- For everyday cleaning wipe the unit with a soft, dry cloth or one that has been slightly dampened with water. To remove stubborn dirt, use a mild, non-abrasive detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzene, thinners, alcohol or solvents of any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

Additional Precautions

- Protect the unit from strong impact.
- 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.
- 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 or its AC adaptor.

Panel Descriptions

Front Panel



1. POWER (Power Switch)

   Turns the power ON/OFF.

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

2. SIGNAL (Signal Indicator)

   Lights when the power is turned ON. Also allows you to monitor the notes as they are produced by the SC-55ST.

3. VOLUME (Volume Knob)

   Allows you to adjust the overall volume level that is output from the OUTPUT jacks and PHONES jack.

   **The volume balance for each Part can be adjusted by means of MIDI Volume messages (Control Changes).*

4. PHONES (Headphone Jack)

   Accepts connection of stereo headphones. Even with headphones connected, sound will still be output from the OUTPUT jacks.

About the Indicator

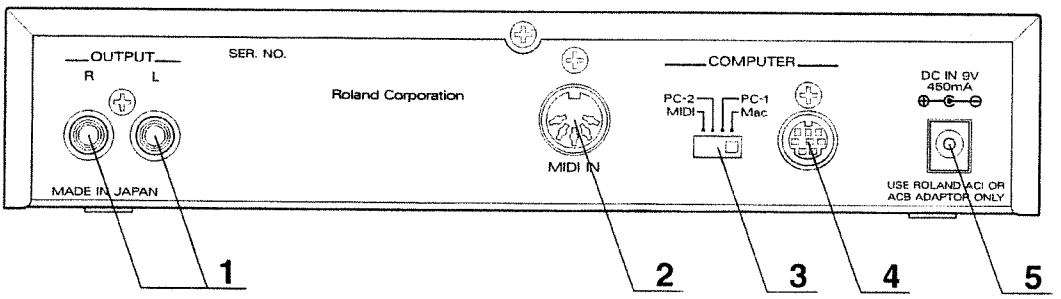
[Lit]

☼ Power is ON, and no notes are being produced. (No 'Note -On' messages have been received.)

[Flashing]

☼ ⟷ ○ When notes are being produced, the indicator will flash. This indicates that the SC-55ST is performing properly.

Rear Panel



1. OUTPUT (Audio Output Jacks)

   Provides stereo output of the SC-55ST's sounds.

2. MIDI IN (MIDI Connector)

   Provides for connection to other MIDI devices. Incoming MIDI messages are received via this connector. For details, see "About MIDI" (P. 16).

3. Mac/PC-1/PC-2/MIDI (COMPUTER Switch)

   This switch is used to select the operating mode. The SC-55ST can operate with either a computer (via its COMPUTER Connector), or with other MIDI devices (via its MIDI Connector).

4. COMPUTER (COMPUTER Connector)

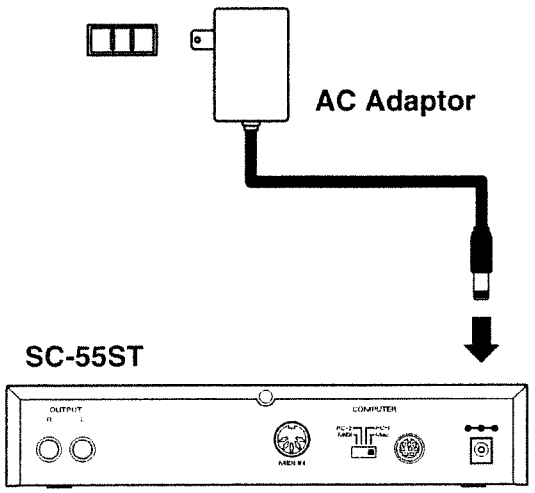
   This is where you connect a special COMPUTER Cable. The type of cable you require depends on the type of computer you are using. For details, refer to "Setup" (P. 8).

5. DC IN (AC Adaptor Jack)

   This is where you connect the supplied AC adaptor.

Setup

Connecting the AC Adaptor

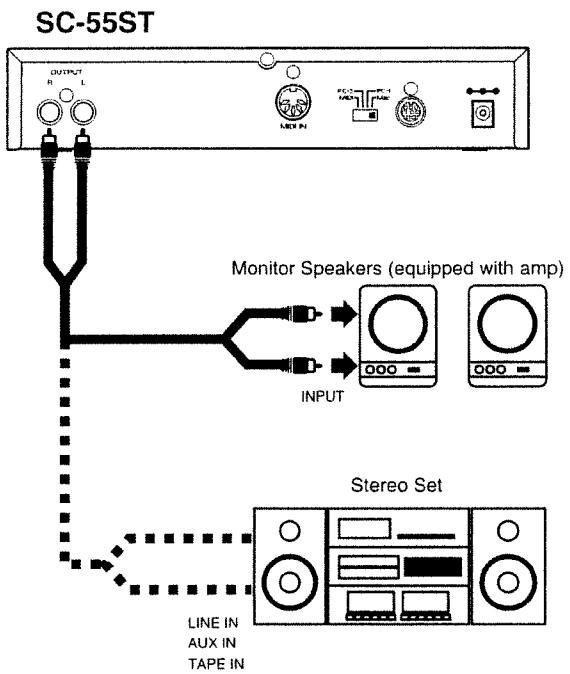


1. Connect the AC adaptor to DC IN.
2. Plug the AC adaptor into an outlet.

** Use only the supplied adaptor. Using other AC adaptors can result in malfunction or electric shock.*

Connecting Audio Cables

Using audio cables, the OUTPUT jacks on the SC-55ST can be connected to a keyboard amp, home stereo, radio-cassette player, or other audio equipment:



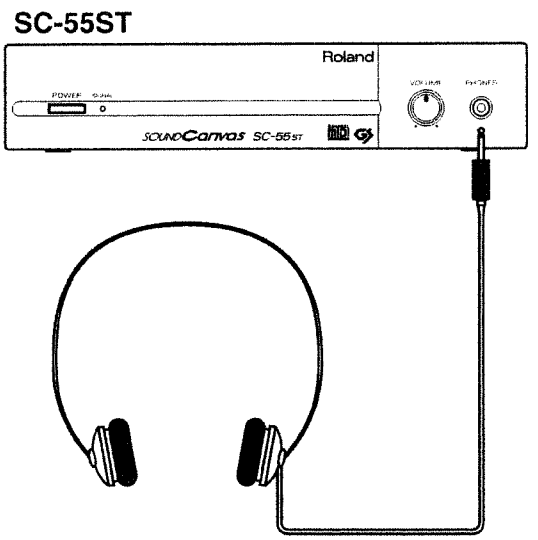
1. Connect audio cables to the OUTPUT jacks on the SC-55ST.
2. Connect the other ends of the cables to the INPUT jacks on your audio equipment.

Connect the cables to the LINE IN, AUX IN, or other appropriate input jacks on your audio equipment.

** Never send the SC-55ST's output to the MIC IN, PHONO IN, or other mic-level inputs on your audio equipment. You risk damaging the equipment or speakers if you do.*

Using Headphones

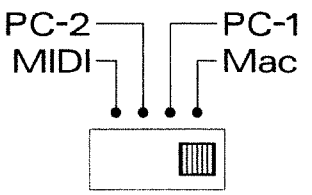
Be sure to use headphones of 8 to 150 ohms impedance. Even with headphones connected, sound will still be output from the OUTPUT jacks.



Connecting an Apple Macintosh Computer

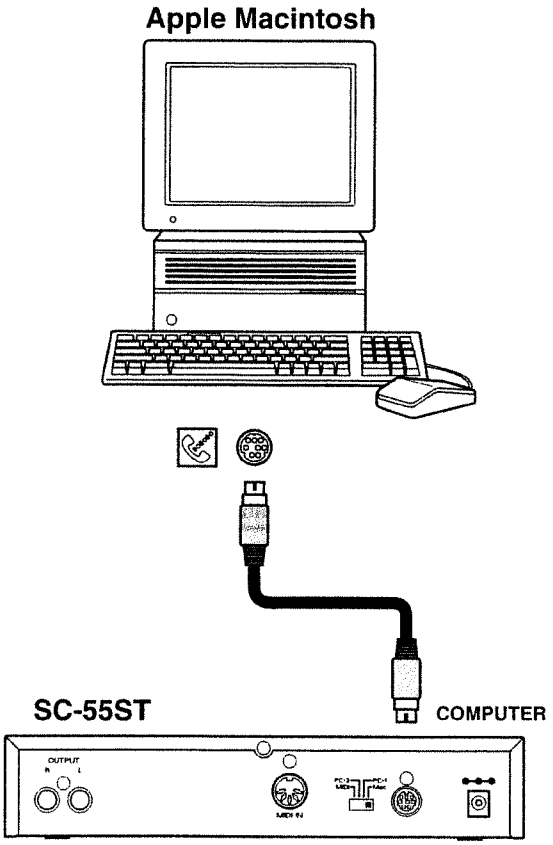
Connection to a computer in the Macintosh family is made using a COMPUTER Cable (designed for the Apple Macintosh series).

1. Move the COMPUTER Switch on the SC-55ST to the Mac position.



** Turn the power off before changing the position of the COMPUTER Switch.*

2. Connect the COMPUTER Cable to the modem/printer port on the rear of the Macintosh.
3. Connect the other end of the cable to the COMPUTER Connector on the SC-55ST.

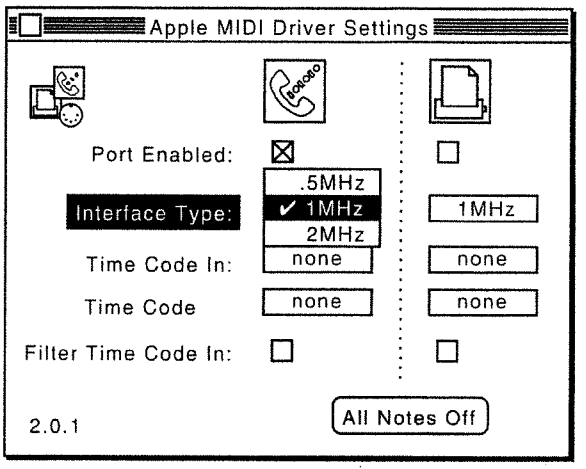


When Using MIDI Applications

You should have no problem using any MIDI application designed to be used with the Macintosh's serial ports. Before using the SC-55ST, however, check the MIDI interface and be sure it is set as explained below.

The port which is enabled should be the modem/printer port (the one to which the SC-55ST is connected).

Be sure that the Interface Type (clock speed of the MIDI interface) is set to 1 MHz.

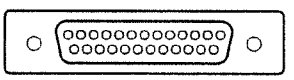


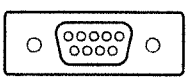
**The above screen (Settings) is accessed from the Apple MIDI Driver, and is used for making the MIDI interface settings.*

Connecting an IBM PC/AT Computer

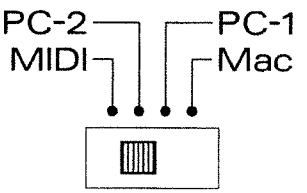
The connection between a PC/AT (or compatible) computer and the SC-55ST is made using a COMPUTER Cable (designed for IBM PC/ATs and compatibles).

The serial port on a PC/AT can be one of two types; a 25-pin D-sub, or a 9-pin D-sub. Check which type your computer uses and then purchase the appropriate cable.





1. Move the COMPUTER Switch on the SC-55ST to the PC-2 position.

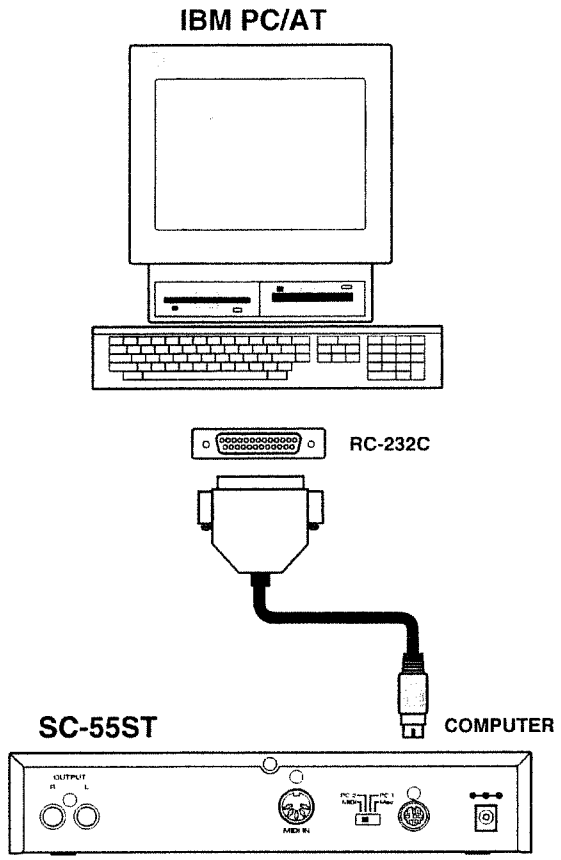


**Turn the power off before changing the position of the COMPUTER Switch.*

**A baud rate of 38. 4 K (bps) will be used when set to the PC-2 position. If you use a MIDI application which uses a baud rate of 31. 25 K (bps), set the switch to the PC-1 position.*

2. Connect the COMPUTER Cable to the RS-232C connector on the rear of the PC/AT.

3. Connect the other end of the cable to the COMPUTER Connector on the SC-55ST.



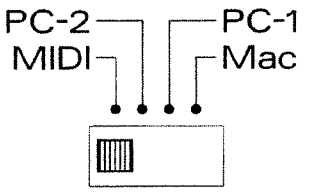
When Using MIDI Applications

You should have no problem using any MIDI application designed to use the RS-232C MIDI interface. Before using the SC-55ST, however, be sure the computer's RS port is set appropriately.

Connecting other MIDI Devices

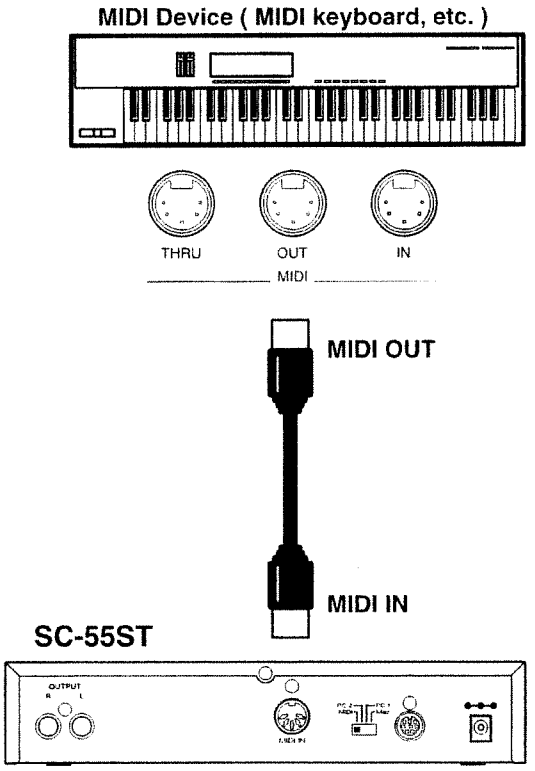
The SC-55ST can also be played by connecting a MIDI keyboard (or other MIDI device) to its MIDI IN connector:

1. Move the COMPUTER Switch on the SC-55ST to the MIDI position.

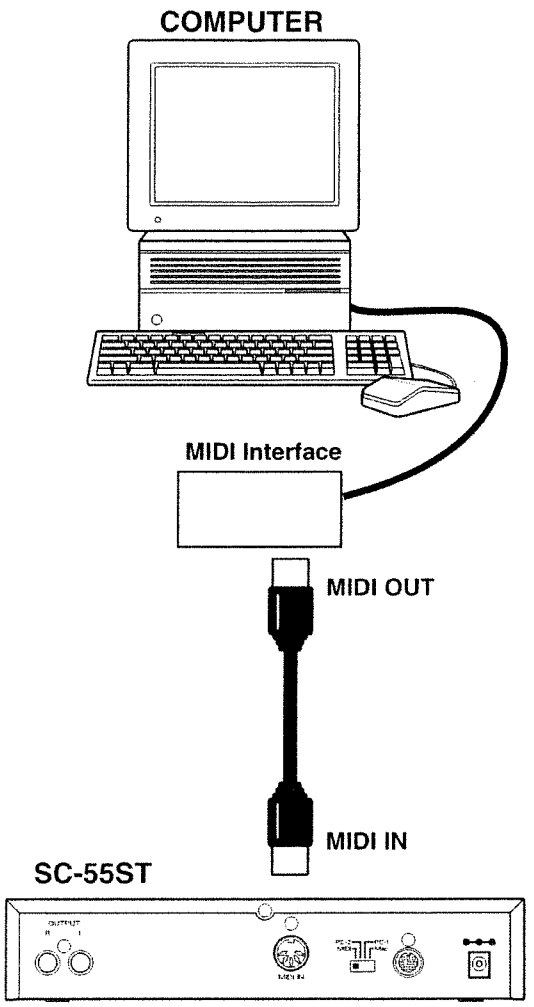


**Turn the power off before changing the position of the COMPUTER Switch.*

2. Connect a MIDI cable to the MIDI OUT connector on the external MIDI device.
3. Connect the other end of the MIDI cable to the MIDI IN connector on the SC-55ST.



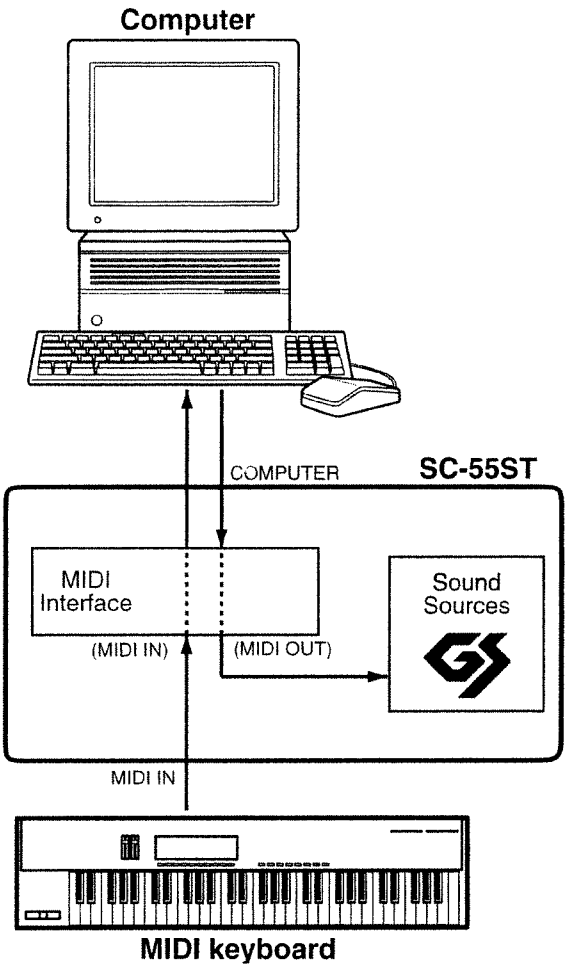
In addition, if you already have a MIDI interface, you can connect the SC-55ST directly to it. When connected in this way, the SC-55ST can be operated just like any other MIDI sound module.



How the MIDI interface works

When a serial configuration is used to connect the SC-55ST to a computer (Macintosh or PC/AT), the SC-55ST functions as a combined MIDI interface and MIDI sound module.

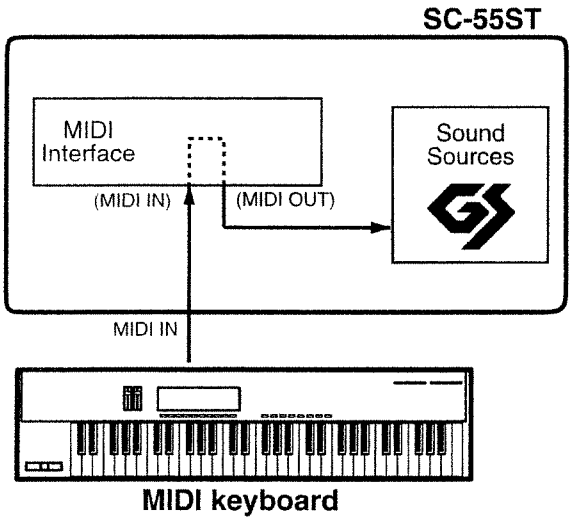
The MIDI IN on the SC-55ST is equivalent to the MIDI IN on a MIDI interface. Therefore, all the MIDI messages that are sent to the MIDI IN by a connected keyboard will be relayed to the computer. Thus, by connecting a MIDI keyboard to the SC-55ST's MIDI IN, you will be able to record everything you play, and have it played by the SC-55ST.



When connected to a computer by means of a COMPUTER Cable, the MIDI IN connector on the SC-55ST becomes the computer's (MIDI interface's) MIDI IN. For this reason, you will not be able to play the SC-55ST's sounds if left this way. In order to have a MIDI keyboard play the SC-55ST's sounds, you must turn on the Soft Thru function within your MIDI application. (Soft Thru is a feature which will cause all MIDI messages that arrive at MIDI IN to be retransmitted from MIDI OUT.)

* *For information on how to make the setting for Soft Thru (or equivalent feature), please refer to your MIDI application manual.*

When the COMPUTER Switch on the SC-55ST is set to the MIDI position, all MIDI messages that arrive at MIDI IN will be sent directly to the SC-55ST's internal sound sources. Therefore, the SC-55ST will immediately respond to input from a connected MIDI keyboard.



Powering Up

1. Check the following before turning on the SC-55ST:

- *Are the AC adaptor and audio cables connected properly?*
- *Do you have the volume on your amplifier turned down?*

(When connected to a computer)

- Is the COMPUTER Cable connected properly?

(When connected to a MIDI device)

- Is the MIDI cable connected properly?

2. Turn the power on, and set the volume on your amplifier to an appropriate level.

   * *To avoid damaging your speakers, set volume levels carefully. Keep in mind that consumer audio equipment is not designed to withstand the rigors of professional applications.*

   * *When powering down, first turn down the volume on your amplifier, then turn off the SC-55ST.*

Default Settings (Settings in effect at power up)

<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	40	40
Chorus Send	0	0
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

** Any setting changes that are made will be retained until the SC-55ST is turned off.*

Structure and Function of the SC-55ST

Parts

The SC-55ST 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.

There are many different kinds of performance data in MIDI, but probably the most basic is the note message determining which key to play, how hard, for how long, and when to start. Every part has its own MIDI channel over which it receives performance data and, unless you reset it for some reason, the channel number is the same as the part number.

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. 16)*

Parts and Voices

Voices and Polyphony

The SC-55ST 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 SC-55ST 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 "Instrument list" (P. 22).*

Maximum Polyphony

When the number of Voices being used exceeds 28, some of the notes that should be played could be cut. To avoid 'loosing' important notes, there are two features you can use to insure that a particular Part has all the notes it is supposed to. The settings for the parameters which control these features are made using Exclusive messages (P. 33).

Part Priority

When the SC-55ST 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 SC-55ST.*

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.

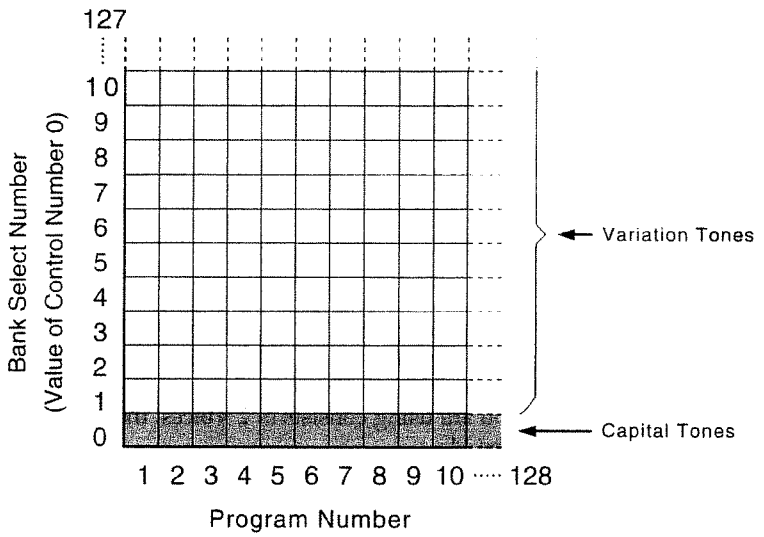
When shipped, the following settings were made for Voice Reserve:

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).

How to Change Tones

The SC-55ST 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.



** There are some Variations that do not have a sound assigned to them. Check the Instrument list (P. 22) 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.*

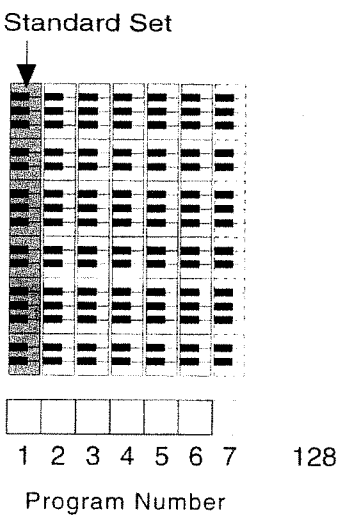
Chorus and Reverb

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

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 SC-55ST. If you try to select a Drum Set that doesn't exist, you'll get the previously selected Drum Set sounds. Check the Drum set list (P. 25) 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.*

Appendix

Troubleshooting

Whenever you suspect that the unit is not operating as it should, check the items below. If you are unable to restore normal operation, contact your retailer or the nearest Roland Service Center.

No sound is produced

- Are all the units in your system turned ON?
- Could you possibly be using the wrong type of input for your audio equipment?
- Are you sure you don't have the volume set too low on your audio equipment?
- Are you sure you don't have the software volume set too low (or at "0")?

If volume settings have been made within the performance data itself, you'll have to make appropriate settings.

- Does the COMPUTER Switch position match your configuration?

The sound seems strange

- Have you changed the MIDI connections?

If you change the MIDI connections while music is playing, the data will no longer be played properly.

MIDI sounds drop out.

The SC-55ST can play up to 28 sounds simultaneously. When the sum of the sounds exceeds 28,the SC-55ST gives priority to the new sounds and "steals" sound generators from lower priority parts.

To reduce sound drop out

- Select tones that use only one voice.(See Instrument list,P. 22)
- Reduce the number of sounds being played.
- Give important parts a higher priority.(See Parts and Voices, P. 13)
- Increase the voice reserve for the priority part to guarantee the minimum number of voices for the part.(See MIDI Implementation, P. 33)

About MIDI

MIDI stands for Musical Instrument Digital Interface. MIDI devices can transmit musically related data such as performance data or data to select sounds. Since MIDI is a world-wide standard, musical data can be sent and received between devices even if they are of different types and were made by different manufacturers. In the MIDI standard, data describing a musical performance such as "play a note" or "press the pedal" are transmitted as MIDI messages.

As long as you are using the SC-55ST to simply play commercially available music data or to provide sound for game software, it is not necessary to know about MIDI. Simply follow the instructions in the manual for your music data playback device (MIDI player) or your software.

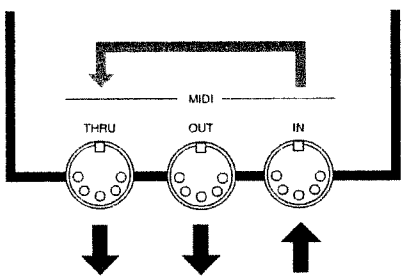
The explanation that follows will help you use MIDI to control the SC-55ST in greater detail.

How MIDI messages are transmitted and received

First we will briefly explain how MIDI messages are transmitted and received.

MIDI connectors

MIDI messages are transmitted and received using three types of connector. Connect MIDI cables to these connectors as appropriate for your setup.



to another MIDI device from another MIDI device

MIDI IN : This connector receives incoming MIDI messages.

MIDI OUT : This connector transmits outgoing MIDI messages to other devices.

MIDI THRU: 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.)

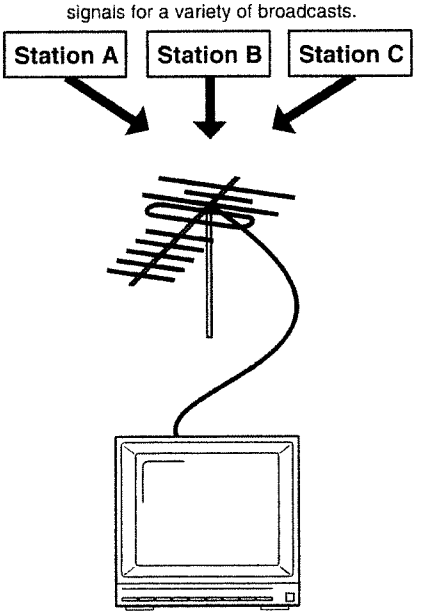
** The SC-55ST is not equipped with MIDI OUT or MIDI THRU connectors.Insted,the data output by the SC-55ST can be received by a computer by means of a serial port connection.*

** It is possible to use MIDI THRU to connect two or more MIDI devices, but in practice the limit is 5 units. This is because as the signal path becomes longer, the signal deteriorates and the messages can no longer be received correctly.*

MIDI channels and multi-timbral sound modules

MIDI transmits a wide variety of performance data over a single MIDI cable. This is made possible by MIDI channels. MIDI channels allow specific data to be selected out of a large amount of data. The concept is similar to the idea of TV channels. By changing the channel of a TV receiver you can view the programs of different stations. By setting the channel of the receiver to match the channel of the transmitter, you can receive only the program you wish to watch. In the same way, MIDI allows you to receive data only when the channel of the receiver matches the channel of the transmitter.

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



On a TV, the channel is selected to watch the station you want.

MIDI uses sixteen channels, numbered 1 - 16. Music data is received when the transmit channel of the transmitting device matches the receive channel of the receiving device. If you make MIDI channel settings as follows, only sound source B will sound when you play the keyboard, and sound source A will not sound. This is because sound source B matches the transmit channel of the keyboard, but sound source A's channel does not match (Fig.1).

Conversely, if you set the transmit channel of the keyboard to match sound source A, sound source A will sound (Fig.2).

Fig.1

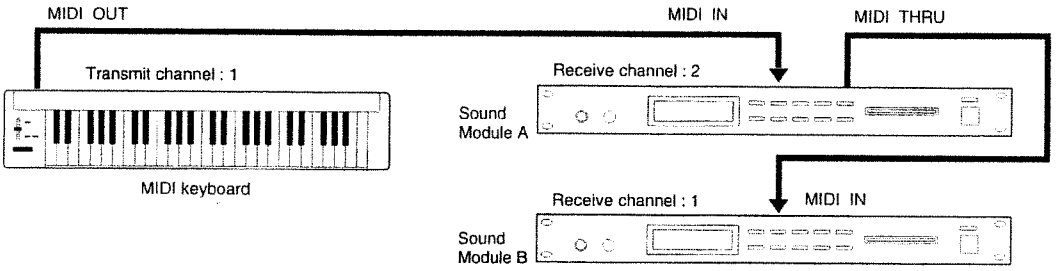
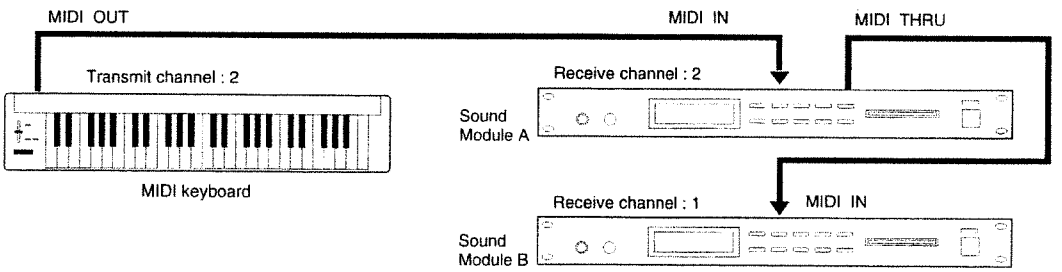


Fig.2



SC-55ST can receive a total of 16 channels simultaneously. By using 16 channels you can play ensembles of 16 Parts. Sound sources such as the SC-55ST which are able to simultaneously play many parts are called multi-timbral sound modules. Timbre is a word meaning sound.

MIDI Messages Handled by the SC-55ST

MIDI uses many different types of message to transmit musical performance data, and there are many types of MIDI message. For example, information indicating "which key was played how strongly" is transmitted as a Note message.

The way that a device responds when it receives each type of MIDI message (i.e., how it produces sound, etc.) will depend on the specifications of that device. This means that if the receiving device is not able to perform the function requested by the incoming message, the musical result will not be what you expected.

The main types of MIDI message received by the SC-55ST are as follows.

* *MIDI messages for which reception capability is required by the GM system (level 1) are marked by a ☆ sign.*

Note messages ☆

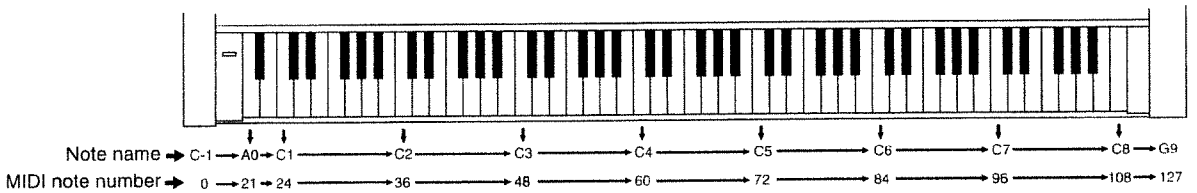
These messages convey notes played on the keyboard. They include the following information.

Note number :	a number indicating the note (key) that was pressed or released
Note on :	data indicating that the note (key) was pressed
Note off :	data indicating that the note (key) was released
Velocity :	a number indicating how strongly the note (key) was pressed

Note numbers are a number from 0 - 127 which indicate the keyboard key position, with middle C (C4) as note number 60.

Correspondence between note numbers and note names

Correspondence between note numbers and note names



Pitch bend ☆

This is used to transmit message about the operation of the pitch bend wheel (or lever) usually found on synthesizers. Pitch benders can continuously change the pitch of a note over a wide range.

Program Change ☆

These messages are used to select sounds. Sounds are selected by a Program numbers 1 - 128. On the SC-55ST, these messages will select sounds (Instruments). By using Bank Select messages (which are a type of Control Change message), an even wider variety of sounds can be selected.

Control Change

These messages control parameters such as modulation and pan. The function of the message is determined by its Control Change number.

Bank Select (control change number 0/32)

The tone is changed when used with a Program Change message.The tone is selected with a Program Change message after selecting the bank with a Bank Select message.

The tone will not change when only Bank Select message is received.

** A Program Bank Select function (Tone switching by a combination of Control number 0/32 value and Program number) was added to the MIDI standard in 1990. This function significantly increases the number of selectable Tones on the SC-55ST.(However,you can't use Program Bank Select messages to switch between Drum Sets on channel 10.)*

** This is a problem for some sequencers that send message from smallest to largest Control numbers.If you have this kind of sequencer,find out how to advance Bank Select so that it is sent before the Program Change number.*

Modulation (control change number 1) ☆

This message controls vibrato.

Volume (control change number 7) ☆

This message controls the volume of a Part. When this message is received the volume of a Part will change.

Expression (control change number 11) ☆

This message conveys volume changes. It can be used to add expression during a song.

** The volume of a Part will be affected both by Volume messages (control change 7) and by Expression messages (control change 11). If a value of 0 is received for either of these messages, the Part volume will be 0 and will not rise even if the other message is sent with a higher value. Be aware of this.*

Pan (control change number 10) ☆

This adjusts the stereo position of the output (the apparent location of the sound between the left and right speakers).

Pan is continuously variable.

Position	Left		Right
Pan	0	←——→	127

Hold (1) (control change number 64) ☆

This message conveys the up/down movements of the damper pedal, causing the currently sounding notes to be sustained. When a message of Hold On is received, notes will be sustained. In the case of decay-type instruments such as a piano, the sound will decay gradually until a Hold Off message is received. In the case of sustain-type instruments such as an organ, the sound will continue sustaining until a Hold Off message is received.

Sostenuto (control change number 66)

The sostenuto pedal on a piano sustains only the notes which were already sounding at the moment the pedal was pressed. The Sostenuto message conveys the movement of this pedal. When Sostenuto On is received, only the notes which were already on at that moment will be sustained. In the case of decay-type instruments such as a piano, the sound will decay gradually until a Sostenuto Off message is received. In the case of sustain-type instruments such as an organ, the sound will continue sustaining until a Sostenuto Off message is received.

Soft (control change number 67)

The soft pedal on a piano softens the tone during the time the pedal is pressed. The Soft message conveys the movement of this pedal. When Soft On is received, the cutoff frequency will be lowered, causing a softer sound. When Soft Off is received, the previous sound will return.

Effect 1 Depth (control change number 91)

This adjusts reverb parameters individually for each part.

Effect 3 Depth (control change number 93)

This adjusts chorus parameters individually for each part.

Portamento (control change number 65)
Portamento Time (control change number 5)
Portamento Control (control change number 84)

Portamento is an effect that creates a smooth change in pitch between the previously played note and the newly played note. When a Portamento message is received, the portamento effect will be turned on or off. Portamento Time controls the speed of the pitch change. Portamento Control specifies the Source Note number (the previously played note).

RPN LSB, MSB (control change number 100/101) ☆
Data Entry (control change number 6/38) ☆

Since the function of the RPN (Registered Parameter Number) is defined in the MIDI specification, this message can be used between devices of different types. The RPN MSB and LSB messages specify the parameter which is to be modified, and then Data Entry messages can be used to modify the value of that parameter. RPN can be used to adjust Pitch Bend Sensitivity, Master Coarse Tune, and Master Fine Tune.

** The values modified using RPN messages will not be initialized even if Program Change messages etc. are received to select other sounds.*

NRPN LSB, MSB (control change number 98/99) Data Entry (control change number 6/38)

NRPN (Non-registered Parameter Number) messages can be used to modify the values of sound parameters unique to a particular device. The NRPN MSB and LSB messages specify the parameter which is to be modified, and then Data Entry messages can be used to modify the value of that parameter.

Since the GS format defines the function of several NRPN messages, GS compatible application programs can use NRPN messages to modify sound data parameters for Vibrato, Cutoff Frequency, Resonance, and Envelope values.

* *The values modified using NRPN messages will not be initialized even if Program Change messages etc. are received to select other sounds.*

* *With the default settings, the SC-55ST will ignore NRPN messages. After a GS Reset message is received, NRPN messages will be received. You can also turn Rx.NRPN on by using exclusive messages, so that NRPN messages will be received.*

Aftertouch (Channel Pressure only ☆)

Aftertouch is a message which conveys the pressure applied to the keyboard after playing a note, so that this information can be used to control various aspects of the sound. There are two types of aftertouch message; Polyphonic Key Pressure which is transmitted separately for each note, and Channel Key Pressure which is transmitted as one value that affects all notes on the specified MIDI channel.

* *With the default settings, Aftertouch messages will have no effect when received by the SC-55ST. In order for Aftertouch messages to do something, you need to set Aftertouch-related parameters.*

All Sounds Off

This message completely turns off the sound of all currently-sounding notes. The sound of the specified channel will be forcibly turned off.

All Notes Off ☆

This message causes a Note Off to be sent to each note of the specified channel that is currently on. However if Hold 1 or Sostenuto are on, the sound will continue until these are turned off.

Reset All Controllers ☆

This message returns controller values to their initial settings. The following controller values for the specified channel will be reset to their initial values.

Controller	Initial value
Pitch Bend	0 (center)
Polyphonic Key Pressure	0 (minimum)
Channel Pressure	0 (minimum)
Modulation	0 (minimum)
Expression	127 (maximum)
Hold	0 (off)
Portamento	0 (off)
Soft	0 (off)
Sostenuto	0 (off)
RPN	number unset
NRPN	number unset

* *Parameter values that were modified using RPN or NRPN will not change even when a Reset All Controllers message is received.*

Active Sensing

This message is used to check for broken MIDI connections, such as MIDI connectors that have been pulled out or MIDI cables that have been broken. Once an Active Sensing message is received at MIDI IN, Active Sensing monitoring will begin, and if an Active Sensing message fails to arrive for more than 420 msec, it is assumed that the cable has been disconnected. If this happens, all currently sounding notes will be turned off, the same procedure will be executed as if a Reset All Controllers message was received, and Active Sensing monitoring will stop.

System Exclusive messages

Exclusive messages are used to control functions which are unique to specific devices. Although Universal System Exclusive messages can be used even between devices of different manufacturers, most exclusive messages cannot be used between devices of different types or different manufacturers.

In order to recognize the device for which the data is intended, Roland exclusive messages contain a manufacturer ID, device ID and model ID.

The SC-55ST exclusive messages use two model IDs; 42H for GS format, and 45H for SC-55 (155). The two numbers are used depending on the parameter you wish to modify. Be aware that if the appropriate ID number is not used, data will not be transferred.

GM System On ☆ (Universal System Exclusive)

When GM System On is received, the unit will be set to the basic GM settings. Also, NRPN and Bank Select messages will no longer be received after GM System On is received. The beginning of song data bearing the GM logo contains a GM System On message. This means that if you playback the data from the beginning, the sound generator device will be automatically initialized to the basic settings.

GS Reset (GS Format System Exclusive)

When GS Reset is received, the unit will be set to the basic GS settings. Also, NRPN messages specified in the GS format can be received after GS Reset is received. The beginning of song data bearing the GS logo contains a GS System Reset message. This means that if you playback the data from the beginning, the sound generator device will be automatically initialized to the basic settings.

Master Volume (Universal System Exclusive)

This is an exclusive message common to all MIDI devices that controls the master volume of all Parts.

Other exclusive messages

The SC-55ST can receive GS format exclusive messages (model ID 42H) that are common to all GS sound generators. The SC-55ST can also use exclusive messages (model ID 45H) that are especially for the SC-55 (155). Exclusive messages can be used to store SC-55ST settings or to make fine adjustments to parameters.

For details of the exclusive message transmitted and received by the SC-55ST, refer to the explanation on P. 28 and following.

About MIDI implementation charts

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 Operation Manual of each 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 fold the charts from two manuals together to 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 SC-55ST, can be found starting on P. 28.

The General MIDI System and GS Format

What is the 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.

What is the GS Format?

The GS Format is a standardized set of specifications for Roland's sound sources 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).

Instrument list

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

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

PC	CC00	Instrument	No. of voices	Remark
Ensemble				
049	000	Strings	1	
	008	Orchestra	2	
050	000	SlowStrings	1	
051	000	Syn. Strings1	1	
	008	Syn. Strings3	2	
052	000	Syn. Strings2	2	
053	000	Choir Aah	1	
	032	Choir Aahs2	1	
054	000	Voice Oohs	1	
055	000	SynVox	1	
056	000	Orchestra Hit	2	
Brass				
057	000	Trumpet	1	
058	000	Trombone	1	
	001	Trombone 2	2	
059	000	Tuba	1	
060	000	Muted Trumpet	1	
061	000	French Horn	2	
	001	Fr.Horn 2	2	
062	000	Brass 1	1	
	008	Brass 2	2	
063	000	Synth Brass 1	2	
	008	Synth Brass 3	2	
	016	Analog Brass1	2	
064	000	Synth Brass 2	2	
	008	Synth Brass 4	1	
	016	Analog Brass2	2	
Reed				
065	000	Soprano Sax	1	
066	000	Alto Sax	1	
067	000	Tenor Sax	1	
068	000	BaritoneSax	1	
069	000	Oboe	1	
070	000	EnglishHorn	1	
071	000	Bassoon	1	
072	000	Clarinet	1	
Pipe				
073	000	Piccolo	1	
074	000	Flute	1	
075	000	Recorder	1	
076	000	Pan Flute	1	
077	000	Bottle Blow	2	
078	000	Shakuhachi	2	
079	000	Whistle	1	
080	000	Ocarina	1	

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

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

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

MT-32 set

PC	CC00	Instrument	No. of voices
001	127	Acou Piano1	1
002	127	Acou Piano2	1
003	127	Acou Piano3	1
004	127	Elec Piano1	1
005	127	Elec Piano2	1
006	127	Elec Piano3	1
007	127	Elec Piano4	1
008	127	Honkytonk	2
009	127	Elec Org 1	1
010	127	Elec Org 2	2
011	127	Elec Org 3	1
012	127	Elec Org 4	1
013	127	Pipe Org 1	2
014	127	Pipe Org 2	2
015	127	Pipe Org 3	2
016	127	Accordion	2
017	127	Harpsi 1	1
018	127	Harpsi 2	2
019	127	Harpsi 3	1
020	127	Clavi 1	1
021	127	Clavi 2	1
022	127	Clavi 3	1
023	127	Celesta 1	1
024	127	Celesta 2	1
025	127	Syn Brass 1	2
026	127	Syn Brass 2	2
027	127	Syn Brass 3	2
028	127	Syn Brass 4	2
029	127	Syn Bass 1	1
030	127	Syn Bass 2	2
031	127	Syn Bass 3	2
032	127	Syn Bass 4	1
033	127	Fantasy	2
034	127	Harmo Pan	2
035	127	Chorale	1
036	127	Glasses	2
037	127	Soundtrack	2
038	127	Atmosphere	2
039	127	Warm Bell	2
040	127	Funny Vox	1
041	127	Echo Bell	2
042	127	Ice Rain	2
043	127	Oboe 2001	2
044	127	Echo Pan	2
045	127	Doctor Solo	2
046	127	School Daze	1
047	127	Bellsinger	1
048	127	Square Wave	2
049	127	Str Sect 1	1
050	127	Str Sect 2	1
051	127	Str Sect 3	1
052	127	Pizzicato	1
053	127	Violin 1	1
054	127	Violin 2	1
055	127	Cello 1	1
056	127	Cello 2	1
057	127	Contrabass	1
058	127	Harp 1	1
059	127	Harp 2	1
060	127	Guitar 1	1
061	127	Guitar 2	1
062	127	Elec Gtr 1	1
063	127	Elec Gtr 2	1
064	127	Sitar	2
065	127	Acou Bass 1	1
066	127	Acou Bass 2	1
067	127	Elec Bass 1	1
068	127	Elec Bass 2	1
069	127	Slap Bass 1	1
070	127	Slap Bass 2	1
071	127	Fretless 1	1
072	127	Fretless 2	1
073	127	Flute 1	1
074	127	Flute 2	1
075	127	Piccolo 1	1
076	127	Piccolo 2	2
077	127	Recorder	1
078	127	Pan Pipes	1
079	127	Sax 1	1
080	127	Sax 2	1
081	127	Sax 3	1
082	127	Sax 4	1
083	127	Clarinet 1	1
084	127	Clarinet 2	1
085	127	Oboe	1
086	127	Engl Horn	1
087	127	Bassoon	1
088	127	Harmonica	1
089	127	Trumpet 1	1
090	127	Trumpet 2	1
091	127	Trombone 1	2
092	127	Trombone 2	2
093	127	Fr Horn 1	2
094	127	Fr Horn 2	2
095	127	Tuba	1
096	127	Brs Sect 1	1
097	127	Brs Sect 2	2
098	127	Vibe 1	1
099	127	Vibe 2	1
100	127	Syn Mallet	1
101	127	Windbell	2
102	127	Glock	1
103	127	Tube Bell	1
104	127	Xylophone	1
105	127	Marimba	1
106	127	Koto	1
107	127	Sho	2
108	127	Shakuhachi	2
109	127	Whistle 1	2
110	127	Whistle 2	1
111	127	Bottleblow	2
112	127	Breathpipe	1
113	127	Timpani	1
114	127	Melodic Tom	1
115	127	Deep Snare	1 **
116	127	Elec Perc 1	1 **
117	127	Elec Perc 2	1 **
118	127	Taiko	1 **
119	127	Taiko Rim	1
120	127	Cymbal	1
121	127	Castanets	1 **
122	127	Triangle	1 **
123	127	Orche Hit	1
124	127	Telephone	1 **
125	127	Bird Tweet	1 **
126	127	OneNote Jam	1 **
127	127	Water Bell	2
128	127	Jungle Tune	2

Drum set list

Note Number	PC 1 / PC 33 STANDARD Set / JAZZ Set	PC 9 ROOM Set	PC 17 POWER Set	PC 25 ELECTRONIC Set	PC 26 TR-808 Set	PC 41 BRUSH Set	PC 49 ORCHESTRA Set
25	--- ----	----	----	----	----	----	
26							
27	---- ----	----	----	----	----	----	
28	High Q	←	←	←	←	←	Closed Hi-hat [EXC1]
29	Slap	←	←	←	←	←	Pedal Hi-hat [EXC1]
30	Scratch Push [EXC7]	←	←	←	←	←	Open Hi-hat [EXC1]
31	Scratch Pull [EXC7]	←	←	←	←	←	Ride Cymbal1
32	Sticks	←	←	←	←	←	←
33	Square Click	←	←	←	←	←	←
34	Metronome Click	←	←	←	←	←	←
35	Metronome Bell	←	←	←	←	←	←
C2 36	Kick Drum2 / Jazz BD2	←	←	←	←	Jazz BD2	Concert BD2
37	Kick Drum1 / Jazz BD1	←	MONDO Kick	Elec BD	808 Bass Drum	Jazz BD1	Concert BD1
38	Side Stick	←	←	←	808 Rim Shot	←	←
39	Snare Drum1	←	Gated SD	Elec SD	808 Snare Drum	Brush Tap	Concert SD
40	Hand Clap	←	←	←	←	Brush Slap	Castanets
41	Snare Drum2	←	←	Gated SD	←	Brash Swirl	Concert SD
42	Low Tom2	Room Low Tom2	Room Low Tom2	Elec Low Tom2	808 Low Tom2	←	Timpani F
43	Closed Hi-hat [EXC1]	←	←	←	808 CHH [EXC1]	←	Timpani F#
44	Low Tom1	Room Low Tom1	Room Low Tom1	Elec Low Tom1	808 Low Tom1	←	Timpani G
45	Pedal Hi-hat [EXC1]	←	←	←	808 CHH [EXC1]	←	Timpani G#
46	Mid Tom2	Room Mid Tom2	Room Mid Tom2	Elec Mid Tom2	808 Mid Tom2	←	Timpani A
47	Open Hi-hat [EXC1]	←	←	←	808 OHH [EXC1]	←	Timpani A#
C3 48	Mid Tom1	Room Mid Tom1	Room Mid Tom1	Elec Mid Tom1	808 Mid Tom1	←	Timpani B
49	High Tom2	Room Hi Tom2	Room Hi Tom2	Elec Hi Tom2	808 Hi Tom2	←	Timpani c
50	Crash Cymbal1	←	←	←	808 Cymbal	←	Timpani c#
51	High Tom1	Room Hi Tom1	Room Hi Tom1	Elec Hi Tom1	808 Hi Tom1	←	Timpani d
52	Ride Cymbal1	←	←	←	←	←	Timpani d#
53	Chinese Cymbal	←	←	Reverse Cymbal	←	←	Timpani e
54	Ride Bell	←	←	←	←	←	Timpani f
55	Tambourine	←	←	←	←	←	←
56	Splash Cymbal	←	←	←	←	←	←
57	Cowbell	←	←	←	808 Cowbell	←	←
58	Crash Cymbal2	←	←	←	←	←	Concert Cymbal2
59	Vibra-slap	←	←	←	←	←	←
C4 60	Ride Cymbal2	←	←	←	←	←	Concert Cymbal1
61	High Bongo	←	←	←	←	←	←
62	Low Bongo	←	←	←	←	←	←
63	Mute High Conga	←	←	←	808 High Conga	←	←
64	Open High Conga	←	←	←	808 Mid Conga	←	←
65	Low Conga	←	←	←	808 Low Conga	←	←
66	High Timbale	←	←	←	←	←	←
67	Low Timbale	←	←	←	←	←	←
68	High Agogo	←	←	←	←	←	←
69	Low Agogo	←	←	←	←	←	←
70	Cabasa	←	←	←	←	←	←
71	Maracas	←	←	←	808 Maracas	←	←
C5 72	Short Hi Whistle [EXC2]	←	←	←	←	←	←
73	Long Low Whistle [EXC2]	←	←	←	←	←	←
74	Short Guiro [EXC3]	←	←	←	←	←	←
75	Long Guiro [EXC3]	←	←	←	←	←	←
76	Claves	←	←	←	808 Claves	←	←
77	High Wood Block	←	←	←	←	←	←
78	Low Wood Block	←	←	←	←	←	←
79	Mute Cuica [EXC4]	←	←	←	←	←	←
80	Open Cuica [EXC4]	←	←	←	←	←	←
81	Mute Triangle [EXC5]	←	←	←	←	←	←
82	Open Triangle [EXC5]	←	←	←	←	←	←
83	Shaker	←	←	←	←	←	←
C6 84	Jingle Bell	←	←	←	←	←	←
85	Bell Tree	←	←	←	←	←	←
86	Castanets	←	←	←	←	←	←
87	Mute Surdo [EXC6]	←	←	←	←	←	←
88	Open Surdo [EXC6]	←	←	←	←	←	←
89	----	----	----	----	----	----	Applause
90	----	----	----	----	----	----	----
91	----	----	----	----	----	----	----
92	----	----	----	----	----	----	----
93	----	----	----	----	----	----	----
94	----	----	----	----	----	----	----
95	----	----	----	----	----	----	----
C7 96	----	----	----	----	----	----	----
97	----	----	----	----	----	----	----
98	----	----	----	----	----	----	----
99	----	----	----	----	----	----	----
	----	----	----	----	----	----	----

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

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

SFX set CM-64/32L Drum set list

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

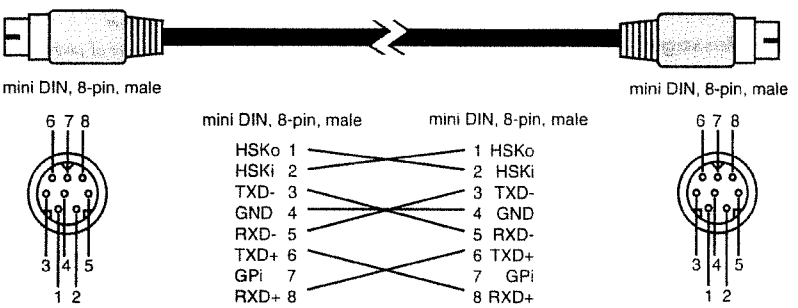
Note Number

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

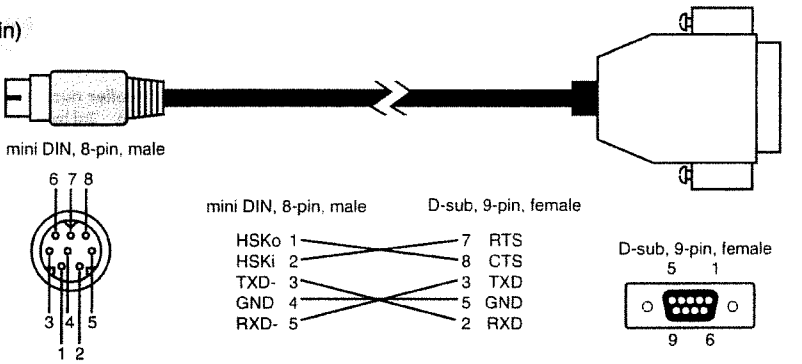
[EXC] : Precussion sound of the same number will not be heard at the same time.

COMPUTER Cable wiring diagrams

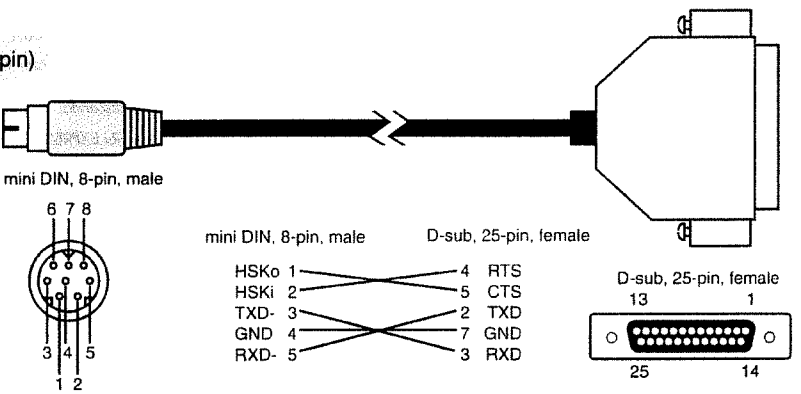
For Apple Macintosh



For IBM PC/AT (9-pin)



For IBM PC/AT (25-pin)



SC-55ST MIDI IMPLEMENTATION Version 1.00 '95.3.

Section 1. Receive data

Channel Voice Messages

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.

Note on

Status	2nd byte	3rd byte
9nH	kkH	vvH

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

Not received when Rx.NOTE MESSAGE = OFF. (Initial value is ON)

For Drum Parts, not received when Rx.NOTE ON = OFF for each Instrument.

Polyphonic Key Pressure

Status	2nd byte	3rd byte
AnH	kkH	vvH

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

Not received when Rx.POLY PRESSURE (PAf) = OFF. (Initial value is ON)

The resulting effect is determined by System Exclusive messages. With the initial settings, there will be no effect.

Control Change

When Rx.CONTROL CHANGE = OFF, all control change messages except for Channel Mode messages will be ignored.

The value specified by a Control Change message will not be reset even by a Program Change, etc.

Bank Select (Controller number 0,32)

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

n = MIDI channel number 0H — FH (ch.1 — ch.16)
mm, 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.

Modulation (Controller number 1)

Status	2nd byte	3rd byte
BnH	01H	vvH

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

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

The resulting effect is determined by System Exclusive messages. With the initial settings, this is Pitch Modulation Depth.

Portamento Time (Controller number 5)

Status	2nd byte	3rd byte
BnH	05H	vvH

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

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

Data Entry (Controller number 6,38)

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

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

Volume (Controller number 7)

Status	2nd byte	3rd byte
BnH	07H	vvH

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

Volume messages are used to adjust the volume balance of each Part.

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

Pan (Controller number 10)

Status	2nd byte	3rd byte
BnH	0AH	vvH

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

For Rhythm Parts, this is a relative adjustment of each Instrument's pan setting.

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

Expression (Controller number 11)

Status	2nd byte	3rd byte
BnH	0BH	vvH

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

It can be used independently from Volume messages. Expression messages are used for musical expression within a performance; e.g., expression pedal movements, crescendo and decrescendo.

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

Hold 1 (Controller number 64)

Status	2nd byte	3rd byte
BnH	40H	vvH

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

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

Portamento (Controller number 65)

Status	2nd byte	3rd byte
BnH	41H	vvH

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

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

Sostenuto (Controller number 66)

Status	2nd byte	3rd byte
BnH	42H	vvH

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

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

Soft (Controller number 67)

Status	2nd byte	3rd byte
BnH	43H	vvH

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

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

Portamento control (Controller number 84)

Status	2nd byte	3rd byte
BnH	54H	kkH

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

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

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

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.

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.

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 4. Supplementary material "Examples of actual MIDI messages" <Example 4> (Page 38). 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 SC-55ST, NRPN can be used to modify the following parameters.

NRPN	Data entry	
MSB LSB	MSB	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.

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 Controllers.

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 4. "Examples of actual MIDI messages" <Example 4> (Page 38).

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

RPN	Data entry	
MSB LSB	MSB LSB	Explanation
00H 00H	mmH ----	Pitch Bend Sensitivity mm: 00H - 18H (0 - 24 semitones) Initial value = 02H (2 semitones) ll: ignored (processed as 00H) specify up to 2 octaves in semitone steps
00H 01H	mmH llH	Master Fine Tuning mm, ll: 00 00H — 40 00H — 7F 7FH (-100 — 0 — +99.99 cents) Initial value = 40 00H (±0 cent)

Refer to 4. Supplementary material, "About tuning"(Page 38).

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

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.

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 (CAf) = OFF. (Initial value is ON)

The resulting effect is determined by System Exclusive messages. With the initial settings there will be no effect.

Pitch Bend Change

Status	2nd byte	3rd byte
EnH	llH	mmH

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

Not received when Rx.PITCH BEND = OFF. (Initial value is ON)

The resulting effect is determined by System Exclusive messages. With the initial settings the effect is Pitch Bend.

Channel Mode Messages

All Sounds Off (Controller number 120)

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

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

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

Reset All Controllers (Controller number 121)

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

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

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

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

All Notes Off (Controller number 123)

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

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

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

OMNI OFF (Controller number 124)

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

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

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

OMNI ON (Controller number 125)

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

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

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

MONO (Controller number 126)

Status	2nd byte	3rd byte
BnH	7EH	mmH

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

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

POLY (Controller number 127)

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

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

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

System Realtime Message

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
F0H	iiH, ddH, ...,eeH	F7H

F0H 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 SC-55ST are; messages related to mode settings, Universal Realtime System Exclusive messages, Data Requests (RQ1), and Data Set (DT1).

System exclusive messages related to mode settings

These messages are used to initialize a device to GS or General MIDI mode. 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.)
"GS Reset" use Roland system exclusive format "Data Set 1 (DT1)". "Turn General MIDI System On" use Universal Non-realtime Message format.

Turn General MIDI System On

This is a command message that resets the internal settings of the unit to the General MIDI initial state (General MIDI System - Level 1). After receiving this message, SC-55ST 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.

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.

Universal Realtime System Exclusive Messages
Master volume

Status	Data byte	Status
F0H	7FH, 7FH, 04H, 01H, llH, 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)
llH	Master volume lower byte
mmH	Master volume upper byte
F7H	EOX (End Of Exclusive)

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

Data transmission

SC-55ST can transmit and 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.

Request data 1 RQ1

This message requests the other device to send data. The Address and Size determine the type and amount of data to be sent.
When a Data Request message is received, if the device is ready to transmit data and if the address and size are appropriate, the requested data will be transmitted as a "Data Set 1 (DT1)" message. If not, nothing will be transmitted.

Status	Data byte	Status
F0H	41H, 10H, 42H, 11H, aaH, bbH, ccH, ssH, ttH, uuH, sum	F7H

Byte	Explanation
F0H	Exclusive status
41H	ID number (Roland)
10H	Device ID
42H	Model ID (GS)
11H	Command ID (RQ1)
aaH	Address MSB : upper byte of the starting address of the requested data
bbH	Address : middle byte of the starting address of the requested data
ccH	Address LSB : lower byte of the starting address of the requested data
ssH	Size MSB
ttH	Size
uuH	Size LSB
sum	Checksum
F7H	EOX (End Of Exclusive)

The amount of data that can be transmitted at once time will depend on the type of data, and data must be requested using a specific starting address and size. Refer to the Address and Size listed in Section 3.(Page 32)

Regarding the checksum please refer to Section 4.(Page 38)

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),45H
12H	Command ID (DT1)	
aaH	Address MSB : upper byte of the starting address of the transmitted data	
bbH	Address : middle byte of the starting address of the transmitted data	
ccH	Address LSB : lower byte of the starting address of the transmitted data	
ddH	Data : the actual data to be transmitted. Multiple bytes of data are transmitted starting from the address.	
:	:	
eeH	Data	
sum	Checksum	
F7H	EOX (End Of Exclusive)	

The amount of data that can be transmitted at one time depends on the type of data, and data can be received only from the specified starting address and size. Refer to the Address and Size given in Section 3.(Page 32)

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 4.(Page 38)

Section 2. Transmit data

System exclusive messages

Data Set 1 (DT1) is the only System Exclusive messages transmitted by SC-55ST. When an appropriate "Data Request 1 (RQ1)" message is received, the requested internal data will be transmitted.

Data set 1 DT1

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 data to be sent
bbH	Address :	middle byte of the starting address of the data to be sent
ccH	Address LSB :	lower byte of the starting address of the data to be sent.
ddH	Data :	the actual data to be sent. Multiple bytes of data are transmitted in order starting from the address.
:	:	
eeH	Data	
sum	Checksum	
F7H	EOX (End Of Exclusive)	

The amount of data that can be transmitted at one time depends on the type of data, and data will be transmitted from the specified starting address and size. Refer to the Address and Size given in Section 3.(Page 32)

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

Regarding the checksum please refer to section 4.(Page 38)

Section 3. Parameter Address Map (Model ID=45H or 42H)

This map indicates address, size, Data (range), Parameter, Description, and Default Value of parameters which can be transferred using "Request data 1 (RQ1)" and "Data set 1 (DT1)".
All the numbers of address, size, Data, and Default Value are indicated in 7-bit Hexadecimal-form.

Address Block map

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

<Model ID=45H>

Address (H)	Block	
10 10 00	FUNCTION CONTROL PARAMETER	Individual (DT1 only)

<Model ID=42H>

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		
48 00 00	SYSTEM PARAMETERS	Bulk
48 01 10	PART PARAMETERS	Bulk
48 1D 0F		
49 m0 00	DRUM SETUP PARAMETERS (m = 0-1)	Bulk
49 mE 17		

There are two ways in which GS data is transmitted: Individual Parameter Transmission in which individual parameters are transmitted one by one, and Bulk Dump Transmission in which a large amount of data is transmitted at once.

Individual Parameters

Individual Parameter Transmission transmits data (or requests 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.

<Model ID=45H>
Function Control Parameter

If you use exclusive messages to set Function Control 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 (default MIDIch = 1)	x=1
Part 2 (default MIDIch = 2)	x=2
:	:
Part 9 (default MIDIch = 9)	x=9
Part10 (default MIDIch =10)	x=0
Part11 (default MIDIch =11)	x=A
Part12 (default MIDIch =12)	x=B
:	:
Part16 (default MIDIch =16)	x=F

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
10 10 00	00 00 01	00 - 10	SELECT BLOCK(PART SELECT)	00 : PART10 01 : PART 1 02 : PART 2 : : 0F : PART16 10 : ALL	01	PART 1
10 10 02	00 00 01	00 - 01	SOLO(PART MONITOR)	OFF / ON	00	OFF
10 11 00	00 00 01	00 - 01	ALL MUTE	OFF / ON	00	OFF
10 11 1x	00 00 01	00 - 01	BLOCK x MUTE(PART MUTE)	OFF / ON	00	OFF

<Model ID=42H>
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 40 00 01# 40 00 02# 40 00 03#	00 00 04	0018 - 07E8	MASTER TUNE Use nibblized data.	-100.0 - +100.0 [cent]	00 04 00 00	0 [cent]

Refer to section 4. Supplementary material, "About tuning"(Page 38).

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"(Page 30).

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 SC-55ST 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

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
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

SC-55ST 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 (default MIDIch = 1)	x=1
	Part 2 (default MIDIch = 2)	x=2
	:	:
	Part 9 (default MIDIch = 9)	x=9
	Part10 (default MIDIch =10)	x=0
	Part11 (default MIDIch =11)	x=A
	Part12 (default MIDIch =12)	x=B
	:	:
	Part16 (default MIDIch =16)	x=F

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

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

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 (=CC# 126 01 / CC# 127 00)	Mono / Poly	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. SC-55ST 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]

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 1x 17 40 1x 18#	00 00 02	08 - F8	PITCH OFFSET FINE	-12.0 - +12.0 [Hz] Use nibblized data.	08 00	0 [Hz]

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 (=CC# 7)	0 - 127	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 (=CC# 10, except RANDOM)	-64(RANDOM), -63(LEFT) - +63(RIGHT)	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 (=CC# 93)	0 - 127	00	0
40 1x 22	00 00 01	00 - 7F	REVERB SEND LEVEL (=CC# 91)	0 - 127	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
40 1x 32	00 00 01	0E - 72	TONE MODIFY 3 TVF cutoff freq.	-50 - +50 (=NRPN# 32)	40	0
40 1x 33	00 00 01	0E - 72	TONE MODIFY 4 TVF resonance	-50 - +50 (=NRPN# 33)	40	0
40 1x 34	00 00 01	0E - 72	TONE MODIFY 5 TVF&TVA Env.attack	-50 - +50 (=NRPN# 99)	40	0
40 1x 35	00 00 01	0E - 72	TONE MODIFY 6 TVF&TVA Env.decay	-50 - +50 (=NRPN# 100)	40	0
40 1x 36	00 00 01	0E - 72	TONE MODIFY 7 TVF&TVA Env.release	-50 - +50 (=NRPN# 102)	40	0
40 1x 37	00 00 01	0E - 72	TONE MODIFY 8 Vibrato delay	-50 - +50 (=NRPN# 10)	40	0
40 1x 40	00 00 0C	00 - 7F	SCALE TUNING C	-64 - +63 [cent]	40	0 [cent]
40 1x 41#		00 - 7F	SCALE TUNING C#	-64 - +63 [cent]	40	0 [cent]
40 1x 42#		00 - 7F	SCALE TUNING D	-64 - +63 [cent]	40	0 [cent]
40 1x 43#		00 - 7F	SCALE TUNING D#	-64 - +63 [cent]	40	0 [cent]
40 1x 44#		00 - 7F	SCALE TUNING E	-64 - +63 [cent]	40	0 [cent]
40 1x 45#		00 - 7F	SCALE TUNING F	-64 - +63 [cent]	40	0 [cent]
40 1x 46#		00 - 7F	SCALE TUNING F#	-64 - +63 [cent]	40	0 [cent]
40 1x 47#		00 - 7F	SCALE TUNING G	-64 - +63 [cent]	40	0 [cent]
40 1x 48#		00 - 7F	SCALE TUNING G#	-64 - +63 [cent]	40	0 [cent]
40 1x 49#		00 - 7F	SCALE TUNING A	-64 - +63 [cent]	40	0 [cent]
40 1x 4A#		00 - 7F	SCALE TUNING A#	-64 - +63 [cent]	40	0 [cent]
40 1x 4B#		00 - 7F	SCALE TUNING B	-64 - +63 [cent]	40	0 [cent]

SCALE TUNING is a function that allows fine adjustment to the pitch of each note in the octave. The pitch of each identically-named note in all octaves will change simultaneously. A setting of +/- 0 cent (40H) is equal temperament. Refer to section 4. Supplementary material, "The Scale Tune Feature"(Page 39).

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 [%]

Address(H)	Size(H)	Data(H)	Parameter	Description	Default Value (H)	Description
40 2x 20	00 00 01	28 - 58	CAf PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 21	00 00 01	00 - 7F	CAf TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 22	00 00 01	00 - 7F	CAf AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 23	00 00 01	00 - 7F	CAf LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 24	00 00 01	00 - 7F	CAf LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 25	00 00 01	00 - 7F	CAf LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 26	00 00 01	00 - 7F	CAf LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 27	00 00 01	00 - 7F	CAf LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 28	00 00 01	00 - 7F	CAf LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 29	00 00 01	00 - 7F	CAf LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 2A	00 00 01	00 - 7F	CAf LFO2 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 30	00 00 01	28 - 58	PAf PITCH CONTROL	-24 - +24 [semitone]	40	0 [semitones]
40 2x 31	00 00 01	00 - 7F	PAf TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40	0 [cent]
40 2x 32	00 00 01	00 - 7F	PAf AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40	0 [%]
40 2x 33	00 00 01	00 - 7F	PAf LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 34	00 00 01	00 - 7F	PAf LFO1 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 35	00 00 01	00 - 7F	PAf LFO1 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 36	00 00 01	00 - 7F	PAf LFO1 TVA DEPTH	0 - 100.0 [%]	00	0 [%]
40 2x 37	00 00 01	00 - 7F	PAf LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40	0 [Hz]
40 2x 38	00 00 01	00 - 7F	PAf LFO2 PITCH DEPTH	0 - 600 [cent]	00	0 [cent]
40 2x 39	00 00 01	00 - 7F	PAf LFO2 TVF DEPTH	0 - 2400 [cent]	00	0 [cent]
40 2x 3A	00 00 01	00 - 7F	PAf 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 [%]
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 : 0 - 127)

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 (=NRPN# 26)	TVA level
41 m3 rr	00 00 01	00 - 7F	ASSIGN GROUP NUMBER	Non, 1 - 127
41 m4 rr	00 00 01	00 - 7F	PANPOT (=NRPN# 28, except RANDOM)	-64(RANDOM), -63(LEFT) - +63(RIGHT)
41 m5 rr	00 00 01	00 - 7F	REVERB SEND LEVEL Multiplicand of the part reverb depth (=NRPN# 29)	0.0 - 1.0
41 m6 rr	00 00 01	00 - 7F	CHORUS SEND LEVEL Multiplicand of the part chorus depth (=NRPN# 30)	0.0 - 1.0
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.

Bulk Dump

Bulk Dump allows you to transmit a large amount of data at once, and is convenient for storing settings for the entire unit on a computer or sequencer.
To make SC-55ST a Bulk Dump transmission, send it a "Bulk Dump Request" message. For Bulk Dump Request, you must use the Address and Size listed in the following "Parameter Map". Addresses marked at "#" cannot be used as starting addresses.
Bulk Dump data which include large amount of data (more than 128 bytes) will sent out in separate packets at an interval of about 40ms. In this case, the subsequent packets may contain the address marked "#."
To send several packets of large DT1 messages at a time, insert intervals of at least 40ms. in between those packets.

System and Part Parameters

Address(H)	Size(H)	Description	Number of packets
48 00 00 | # 48 1D 0F#	00 1D 10	ALL (All of the System parameters and Part parameters can be sent sequentially.)	30 packets
48 00 00 | # 48 00 0F#	00 00 10	SYSTEM 1	1 packet
48 00 10 | # 48 01 0F#	00 01 00	SYSTEM 2	1 packet
48 01 10 | # 48 02 6F#	00 01 60	BLOCK 0	2 packets
48 02 70 | # 48 04 4F#	00 01 60	BLOCK 1	2 packets
48 04 50 | # 48 06 2F#	00 01 60	BLOCK 2	2 packets
48 06 30 | # 48 08 0F#	00 01 60	BLOCK 3	2 packets
48 08 10 | # 48 09 6F#	00 01 60	BLOCK 4	2 packets
48 09 70 | # 48 0B 4F#	00 01 60	BLOCK 5	2 packets
48 0B 50 | # 48 0D 2F#	00 01 60	BLOCK 6	2 packets
48 0D 30 | # 48 0F 0F#	00 01 60	BLOCK 7	2 packets
48 0F 10 | # 48 10 6F#	00 01 60	BLOCK 8	2 packets
48 10 70 | # 48 12 4F#	00 01 60	BLOCK 9	2 packets
48 12 50 | # 48 14 2F#	00 01 60	BLOCK A	2 packets
48 14 30 | # 48 16 0F#	00 01 60	BLOCK B	2 packets
48 16 10 | # 48 17 6F#	00 01 60	BLOCK C	2 packets
48 17 70 | # 48 19 4F#	00 01 60	BLOCK D	2 packets
48 19 50 | # 48 1B 2F#	00 01 60	BLOCK E	2 packets
48 1B 30 | # 48 1D 0F#	00 01 60	BLOCK F	2 packets

DRUM SETUP PARAMETERS

m: map number (0 = MAP1, 1 = MAP2)

Address(H)	Size(H)	Description	Number of packets
49 m0 00 | # 49 m1 7F #	00 02 00	PLAY NOTE NUMBER	2 packets
49 m2 00 | # 49 m3 7F #	00 02 00	LEVEL	2 packets
49 m4 00 | # 49 m5 7F #	00 02 00	ASSIGN GROUP NUMBER	2 packets
49 m6 00 | # 49 m7 7F #	00 02 00	PANPOT	2 packets
49 m8 00 | # 49 m9 7F #	00 02 00	REVERB SEND LEVEL	2 packets
49 mA 00 | # 49 mB 7F #	00 02 00	CHORUS SEND LEVEL	2 packets
49 mC 00 | # 49 MD 7F#	00 02 00	Rx. NOTE ON/OFF	2 packets

Section 4. Supplementary material

Decimal and Hexadecimal table

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

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

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

Examples of actual MIDI messages

<Example 1> 92 3E 5F
9n is the Note-on status, and n is the MIDI channel number. Since 2H = 2, 3EH = 62, and 5FH = 95, this is a Note-on message with MIDI CH = 3, note number 62 (note name is D4), and velocity 95.

<Example 2> CE 49
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 messages consecutive messages have the same status, MIDI has a provision called "running status" which allows the status byte of the second and following messages to be omitted. Thus, the above messages have the following meaning.

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

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

RPN parameter number 00 00H is Pitch Bend Sensitivity, and the MSB of the value indicates semitone units, so a value of 0CH = 12 sets the maximum pitch bend range to +- 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 rewound or fast-forwarded, the sequencer may not be able to transmit the correct status, and the sound source will then misinterpret the data. Take care to give each event its own status.

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

TPQN : Ticks Per Quarter Note

Example of an Exclusive message and calculating a Checksum

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

How to calculate the checksum (hexadecimal numbers are indicated by 'H')

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

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

<Example 1> Setting REVERB MACRO to ROOM 3

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

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

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

Next we calculate the checksum.

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

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

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

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

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

(1)Exclusive Status (2)ID (Roland) (3)Device ID (17)
(4)Model ID (GS) (5)Command ID (RQ1) (6)End of Exclusive

Next we calculate the checksum.

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

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

About tuning

In MIDI, individual Parts are tuned by sending RPN #1 (Master Fine Tuning) to the appropriate MIDI channel.
In MIDI, an entire device is tuned by either sending RPN #1 to all MIDI channels being used, or by sending a System Exclusive MASTER TUNE (address 40 00 00H).
RPN #1 allows tuning to be specified in steps of approximately 0.012 cents (to be precise, 100/8192 cent), and System Exclusive MASTER TUNE allows tuning in steps of 0.1 cent. One cent is 1/100th of a semitone.
The values of RPN #1 (Master Fine Tuning) and System Exclusive MASTER TUNE are added together to determine the actual pitch sounded by each Part.

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

Hz at A4	cent	RPN #1	Sys.Ex. 40 00 00
445.0	+19.56	4C 43 (+1603)	00 04 0C 04 (+196)
444.0	+15.67	4A 03 (+1283)	00 04 09 0D (+157)
443.0	+11.76	47 44 (+ 964)	00 04 07 06 (+118)
442.0	+ 7.85	45 03 (+ 643)	00 04 04 0F (+ 79)
441.0	+ 3.93	42 42 (+ 322)	00 04 02 07 (+ 39)
440.0	0	40 00 (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 value	:45H

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

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

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

Equal Temperament

This method of tuning divides the octave into 12 equal parts. It is currently the most widely used form of tuning,
especially in occidental music. On SC-55ST, the default settings for the Scale Tune feature produce equal temperament.

Just Temperament (Keytone C)

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

Arabian Scale

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

Example Settings

Note name	Equal	Just Temperament	Arabian Scale
Temperament	(Keytone C)		
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 35 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

MIDI SOUND GENERATOR
Model SC-55ST

MIDI Implementation Chart

Date : '95.3.
Version : 1.00

Function ...		Transmitted	Recognized	Remarks
Basic	Default	x	1 - 16	
Channel	Changed	x	1 - 16	
Mode	Default	x	Mode 3	
	Message	x	Mode 3, 4 (M=1) *2	
	Altered	**********		
Note		x	0 - 127	
Number :	True Voice	**********	0 - 127	
Velocity	Note ON	x	o	
	Note OFF	x	x	
After	Key's	x	o *1	
Touch	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	Effect1 depth
	93	x	o (Chorus) *1	Effect3 depth
	98, 99	x	x *1	NRPN LSB, MSB
	100, 101	x	o *1	RPN LSB, MSB
Program		x	o *1	
Change :	True #	**********	0 - 127	Prog. 1-128
System Exclusive		x	o	
System	: Song Pos	x	x	
Common	: Song Sel	x	x	
	: Tune	x	x	
System	: Clock	x	x	
Real Time	: Commands	x	x	
Aux	: All Sounds OFF	x	o (120, 126, 127)	
	: Reset All Controllers	x	o	
Messages	: 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 Recognize as M=1 even if M≠1		

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO

o : Yes
x : No

Specifications

SC-55ST : (Conforms to General MIDI System and GS Format)

- Number of parts

  16 (Two parts can be set as drum parts)

- Maximum Polyphony

  28 (voices)

- Internal Memory

  Preset Sounds : 354

  Drum Sound Sets : 10 (include 1 SFX Set)

- Effects

  Reverb (8 type)

  Chorus (8 type)

- Connectors

  MIDI Connector (IN)

  Audio Output Jack x 2 (L, R)

  Headphone Jack

  COMPUTER Connector

- Power Supply

  DC 9V (AC Adaptor)

- Current Draw

  450 mA

- Dimensions

  218 (W) x 250 (D) x 46 (H) mm

  8-5/8 (W) x 9-7/8 (D) x 1-13/16 (H) inches

- Weight

  1.2 kg, 2 lbs 10 oz (Excluding AC Adaptor)

- Accessories

  Owner's Manual

  AC Adaptor

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

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

AUSTRIA

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

GREECE

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

PORTUGAL

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

HUNGARY

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

ISRAEL

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

CYPRUS

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

U.A.E

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

KUWAIT

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

LEBANON

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

TURKEY

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

EGYPT

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

QATAR

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

SYRIA

Technical Light & Sound Center
Khaled Ebn Al Walid St.
P.O.Box 13520
Damascus - Syria
TEL: (11) 2235 384

BAHRAIN

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

REUNION

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

BRAZIL

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

MEXICO

Casa Veerkamp, s.a. de c.v.
Mesones No. 21 Col. Centro
MEXICO D.F. 06080
TEL: (905) 709 3716

La Casa Wagner de Guadalajara s.a. de c.v.
Av. Corona No. 202 S.J.
Guadalajara, Jalisco
MEXICO C.P.44100
TEL: (36) 13 1414

VENEZUELA

Musicland Digital C.A.
Av. Francisco de Miranda,
Centro Parque de Cristal,
Nivel C2 Local 20 Caracas
VENEZUELA
TEL: (2) 285 9218

PANAMA

Productos Superiores, S.A.
Apartado 655 - Panama 1
REP. DE PANAMA
TEL: 26 3322

ARGENTINA

Instrumentos Musicales S.A.
Florida 638
(1005) Buenos Aires
ARGENTINA
TEL: (1) 394 4029

HONG KONG

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

KOREA

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

SINGAPORE

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

CRISTOFORI MUSIC PTE LTD
335,Joo Chiat Road
SINGAPORE 1542
REPUBLIC OF SINGAPORE
TEL: 3450435

PHILIPPINES

G.A. Yupangco & Co. Inc.
339 Gil J. Puyat Avenue
Makati, Metro Manila 1200,
PHILIPPINES
TEL: (02) 817 0013

THAILAND

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

MALAYSIA

Bentley Music SDN BHD
No.142, Jalan Bukit Bintang
55100 Kuala Lumpur,
MALAYSIA
TEL: (03) 2443333

INDONESIA

PT CITRARAMA BELANTIKA
Kompleks Perkantoran Duta Merlin Blok E No.6—7
Jl. Gajah Mada No.3—5,
Jakarta 10130,
INDONESIA
TEL: (021) 3850073

TAIWAN

Siruba Enterprise (Taiwan) Co., LTD.
Room. 5, 9fl. No. 112 Chung Shan N.Road Sec.2 Taipei,
TAIWAN, R.O.C.
TEL: (02) 571 5860

SOUTH AFRICA

That Other Music Shop (PTY) Ltd.
11 Melle Street (Cnr Melle and Juta Street)
Braamfontein 2001
Republic of South Africa
TEL: (011) 403 4105

Paul Bothner (PTY) Ltd.
17 Werdmuller Centre
Claremont 7700
Republic of South Africa
TEL: (021) 64 4030

As of Feb. 23. 1995

For the U.K.

IMPORTANT: THE WIRES IN THIS MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE.

BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.
Under no circumstances must either of the above wires be connected to the earth terminal of a three pin plug.

For Germany

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

Sound Canvas SC-55ST

(Gerät, Typ, Bezeichnung)

in Übereinstimmung mit den Bestimmungen der BMPT-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.

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.

Roland®

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UPC 70564745

Roland Corporation

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