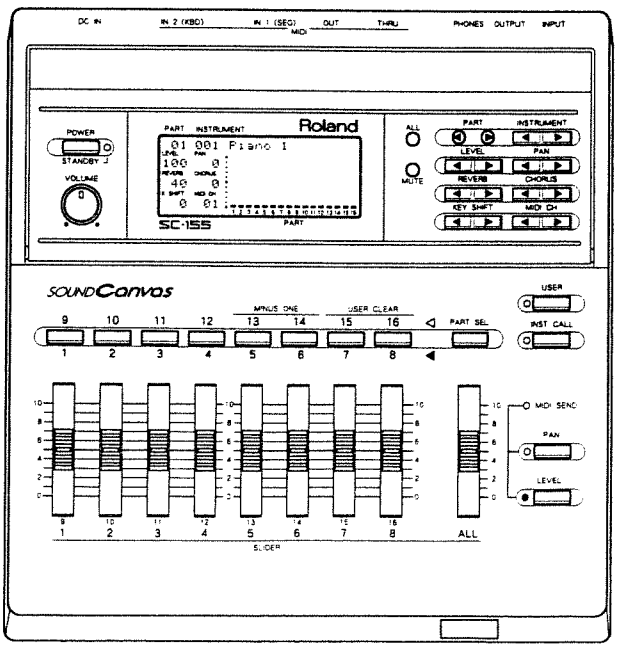
OWNER'S MANUAL

SOUND Canvas

MIDI SOUND GENERATOR SC-155



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As of Jan 8. 1992

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SPECIFICATIONS

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☐ Introduction

Thank you for purchasing the Roland SC-155 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-155's capabilities, and to enjoy long and trouble-free service, please read this manual carefully before use.

☐ Main Features

- The Sound Canvas is a GS format sound source. GS is a format created in an attempt to standardize the way in which sound sources are used. Devices that conform to the GS format bear the GS logo.
  If the song data was created using a GS sound source, it can be played on any other device with a GS format sound source.
- The Sound Canvas contains a variety of high quality musical instrument sounds and complete drum sets.
- The Sound Canvas can function as a complete 16 part multi-timbral sound module.
- By using the internal reverb and chorus effects, it is easy to reproduce the acoustic ambience of a concert hall.
- The Sound Canvas has sliders that allow you to adjust the volume level and pan setting of each individual part, as well as for the entire unit (ALL). Thanks to the sliders, settings can be changed easily and intuitively.
- A variety of system information can be displayed in the large display screen, including the volume level of each instrument. The large panel buttons allow for easy operation.
- The Sound Canvas comes complete with a remote control unit.
- An Audio Input jack is provided allowing you to mix the output of other sound modules with that of the Sound Canvas. The signal of both units will be output from the Audio Output jacks.



This unit is equipped with a GS Format sound source.



The GS Format conforms to General MIDI System specifications.

—General MIDI System—

The sound source in the Sound Canvas conforms to General MIDI System specifications. Current recommended practice calls for conformity with the General MIDI System, since it aims at bridging the gap between manufactures through standadization of the specifications for the MIDI functions provided by all sound sources. In fact, the Roland GS Format includes all rules set down in the General MIDI System specifications.

IMPORTANT NOTES

Be sure to use only the adaptor supplied with the unit. Use of any other power adaptor could result in damage, malfunction, or electric shock.

Power Supply

- When making any connections with other devices, always turn off the power to all equipment first; 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, such as a motor or variable lighting system.
- The power supply required for this unit is shown on its nameplate. Ensure that the line voltage of 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 outlet, grasp the plug itself; never pull on the cord.
- If the unit is to remain unused for a long 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 vibration levels.
- Using the unit near power amplifiers (or other equipment containing large transformers) may induce hum.
- This unit may interfere with radio and television reception. Do not use this unit in the vicinity of such receivers.
- Do not expose this unit to temperature extremes (eg. direct sunlight in an enclosed vehicle can deform or discolor the unit) or install it near devices that radiate heat.

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, neutral detergent. Afterwards, be sure to wipe the unit thoroughly with a soft, dry cloth.
- Never use benzine, thinners, alcohol or solvents of any kind, to avoid the risk 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.
- Never strike or apply strong pressure to the display.
- A small amount of heat will radiate from the unit, and thus should be considered normal.
- Before using the unit in a foreign country, consult with qualified service personnel.
- Should a malfunction occur (or if you suspect there is a problem) discontinue use immediately. Contact qualified service personnel as soon as possible.
- To prevent the risk of electric shock, do not open the unit or its AC adaptor.

Memory Backup

- The unit contains a battery which maintains the contents of memory while the main power is off. The expected life of this battery is 5 years or more. However, to avoid the unexpected loss of memory data, it is strongly recommended that you change the battery every 5 years.
  Please be aware that the actual life of the battery will depend on the physical environment (especially temperature) in which the unit is used. When it is time to change the battery, consult with qualified service personnel.
- When the battery becomes weak the following message will appear in the display: "Battery Low! ". Please change the battery as soon as possible to avoid the loss of memory data.
- Please be aware that the contents of memory may at times be lost; when the unit is sent for repairs or when by some chance a malfunction has occurred. Important data should be stored in another MIDI device (eg. a sequencer), or written down on paper. During repairs, due care is taken to avoid the loss of data. However, in certain cases, (such as when circuitry related to memory itself is out of order) we regret that it may be impossible to restore the data.

■FRONT AND REAR PANELS

●Front Panel

●Volume control knob
This knob controls the volume of the output jacks and the headphone (PHONES) jack.

●POWER switch
Press this button to turn the power on or off (standby).

●Standby indicator
This indicator shows that the AC adaptor is connected, and the Sound Canvas is in standby mode (power is off).

●Display
(with bar display)

●LEVEL buttons

●ALL button

●MUTE button

●REVERB buttons

●KEY SHIFT buttons

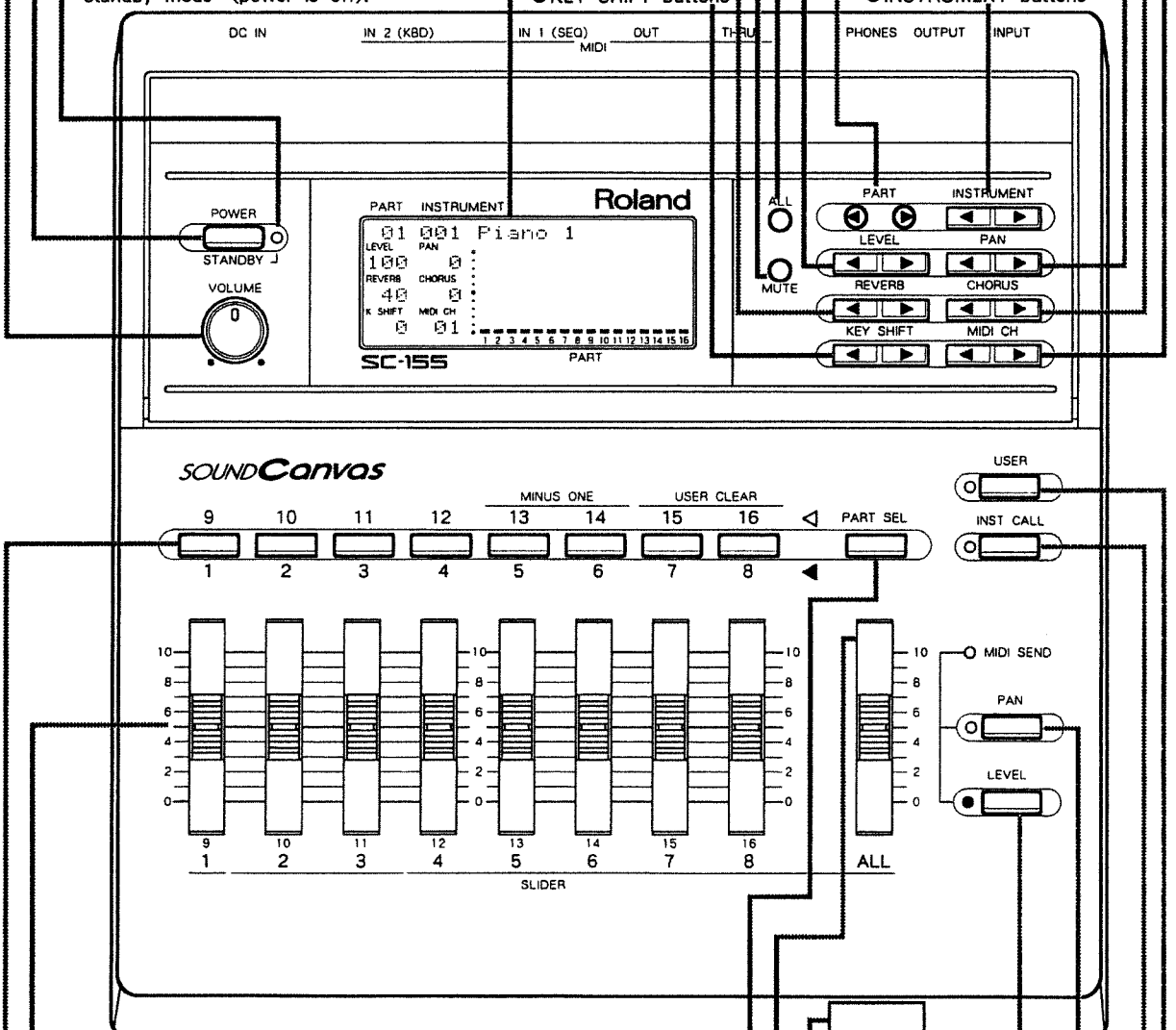
●PART buttons

●MIDI Channel buttons

●CHORUS buttons

●PAN buttons

●INSTRUMENT buttons



●PART sliders

●PART/INST buttons
The PART/INST buttons are generally used to select Parts. However when the INST CALL indicator is lit, they are used to select instrument.

●Remote sensor
The Sound Canvas receives signals from the Remote Control unit through this sensor.

●PART SELECT button
This is for switching between assigning Parts 1—8 or Parts 9—16 to the PART/INST buttons.

●ALL sliders

●LEVEL button
(Slider Select)
This switches the slider to control volume level.

●PAN button
(Slider Select)
This switches the slider to control pan.

●INST CALL button
The PART/INST buttons select Parts. However, the INST CALL button is used to switch to INSTRUMENT selection.

●USER button

● Rear Panel

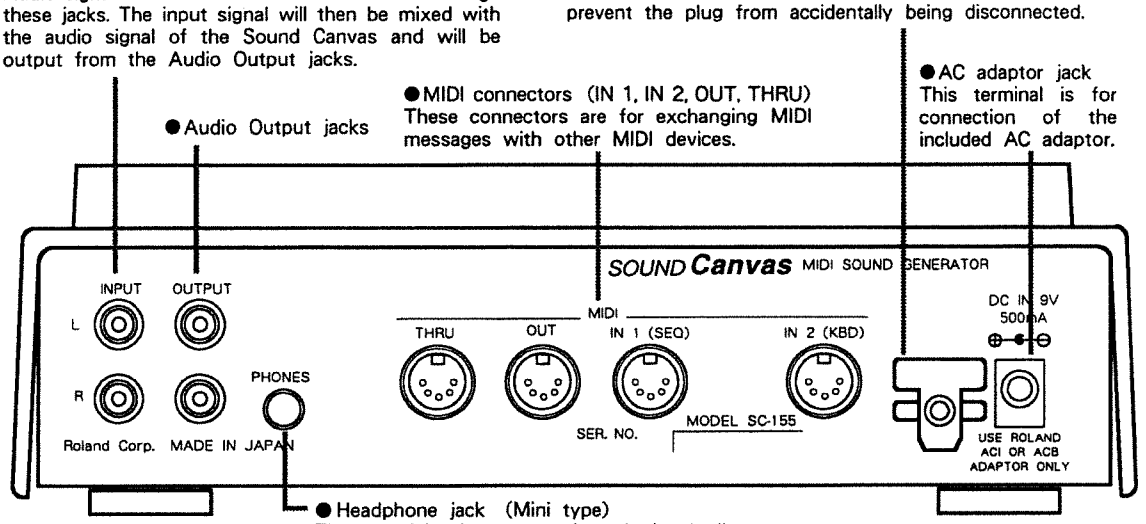
● Audio Input jacks
Audio signals from other devices are received through these jacks. The input signal will then be mixed with the audio signal of the Sound Canvas and will be output from the Audio Output jacks.

● Cable hook
By hooking the AC adaptor cable around the cable hook, you can prevent the plug from accidentally being disconnected.

● Audio Output jacks

● MIDI connectors (IN 1, IN 2, OUT, THRU)
These connectors are for exchanging MIDI messages with other MIDI devices.

● AC adaptor jack
This terminal is for connection of the included AC adaptor.



● Headphone jack (Mini type)
The sound is also output through the Audio Input jacks when using headphones.

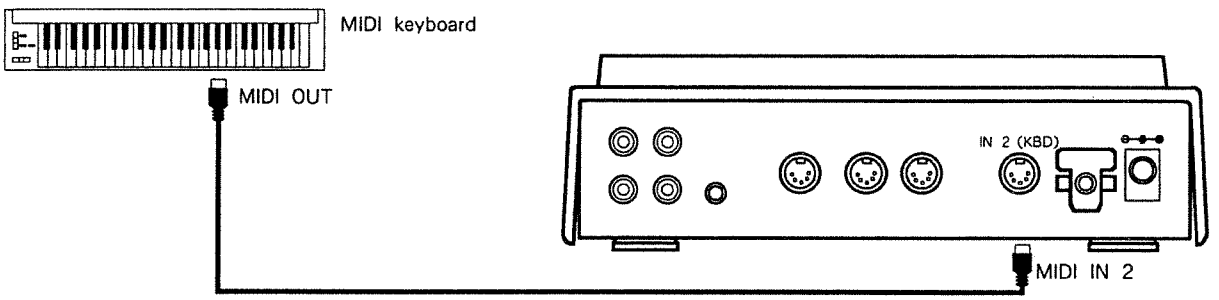
*MIDI messages from the MIDI IN 2 connector cannot be output from the MIDI THRU connector.

■ CONNECTIONS

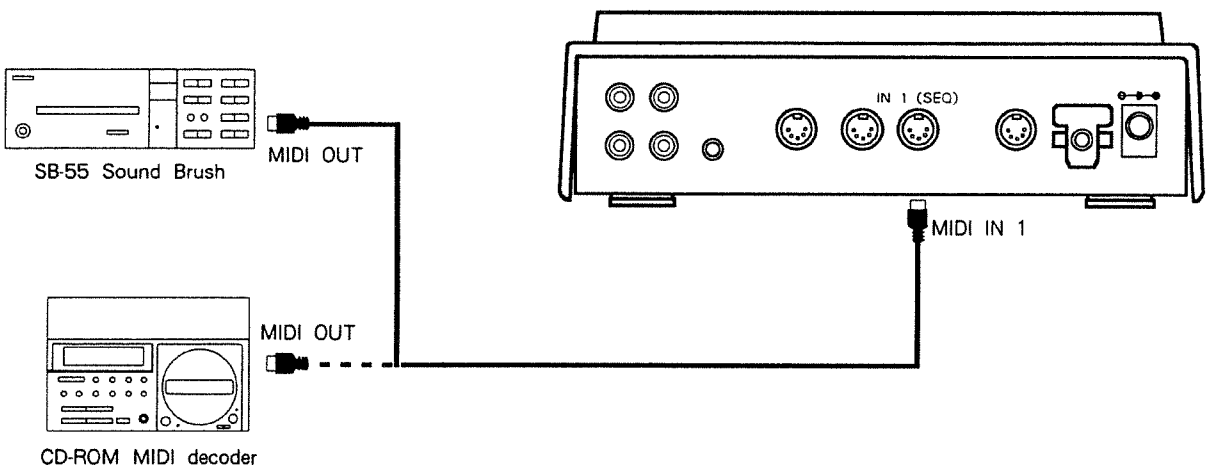
● About the MIDI connectors

Different MIDI devices can be connected to the two MIDI IN connectors. MIDI data coming through each of the MIDI IN connectors is merged. For normal use, connect a sequencer (eg. the SB-55 Sound Brush) to the MIDI IN 1 connector.

When using this unit with a MIDI keyboard



When using this unit with an SB-55 Sound Brush (sequencer) or a CD-ROM MIDI decoder

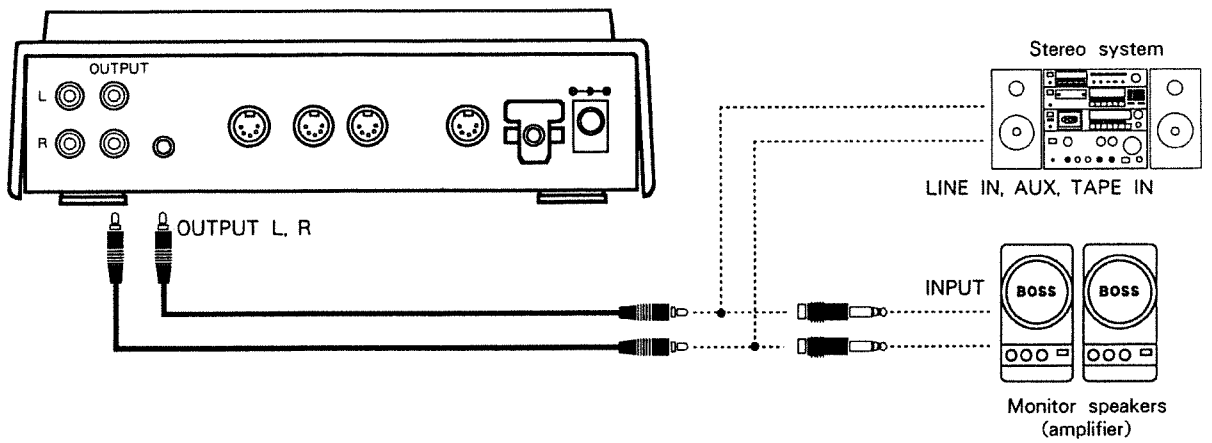


⇨The SB-55 Sound Brush is a MIDI sequencer which can record and play standard MIDI song files. This means that it can not only play song data recorded with the Sound Brush, but also the data recorded with other devices. This allows you to enjoy playing back music much as you would with a compact disc player.

⇨CD-ROM is a data storage media in which digital data is recorded on a disk the size of a compact disk. CD-ROM software (MIDI world™), in which performance data of audio signals and MIDI signals is recorded, can be played back on a special CD-ROM MIDI decoder (Hyper Audio System™: CDR-M10).

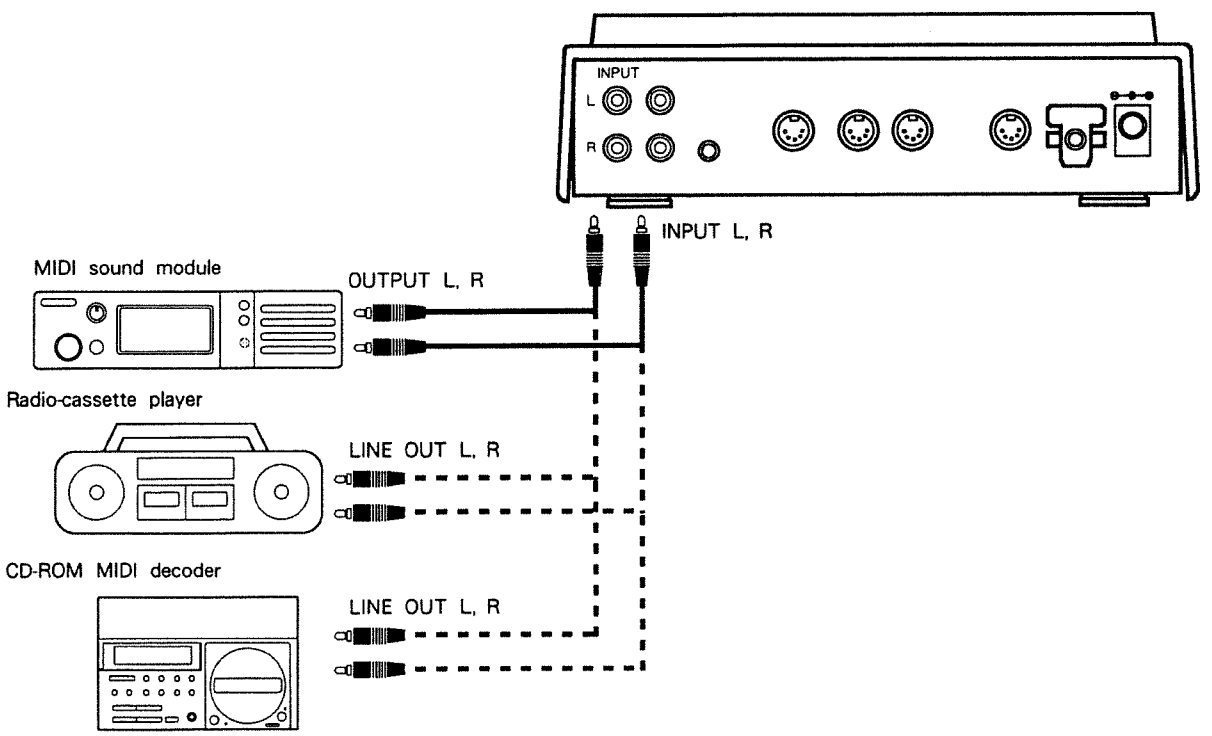
* MIDIworld and Hyper Audio System are trademarks of Rittor Music and MIDIworld USA.

●Audio Output connections

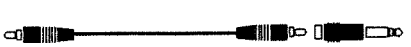


●Audio Input connections

The audio signals received through the Audio Input jacks will be mixed with the audio signals of the Sound Canvas and output from the Audio Output jacks. This function is convenient when using another MIDI sound module or a radio-cassette recorder.

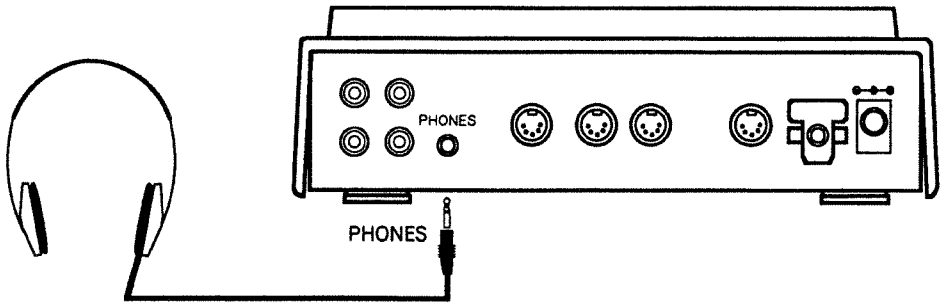


⇨The included audio cable is equipped with a 1/4″ (Phono) plug adaptor on one end and a standard RCA audio plug on the other end. If you remove the 1/4″ (Phono) plug adaptor, both ends will have standard RCA audio plugs.

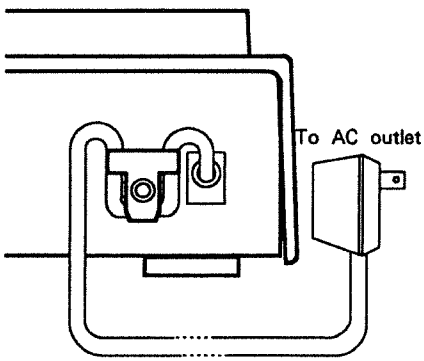


●Using headphones

Connect stereo headphones to the PHONES jack. For optimum performance, use headphones of an impedance from 8 to 150 ohms. Even when headphones are being used, sound will be output from the Audio Output jacks.



●Connecting the AC adaptor



Connect the included AC adaptor to the Sound Canvas, and then plug it into an AC outlet. By looping the AC adaptor cable around the cable hook, you can prevent the plug from accidentally being disconnected.

Note: Please use only the included AC adaptor. Using other AC adaptors can result in malfunctions or electric shock.

⇨When the AC adaptor is connected to the Sound Canvas, the power will be on.

■TURN THE POWER ON

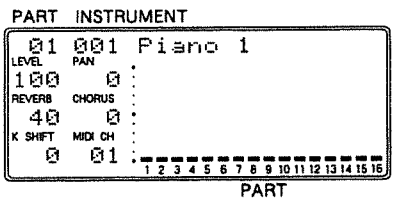
① Before you turn the power on, check the following points:

Is the Sound Canvas correctly connected to the external devices?

Is the volume of the amplifier or sound system turned down?

② Turn the external devices and the Sound Canvas on.

The STANDBY indicator of the Sound Canvas will be off and the display will show the following:



＊The STANDBY indicator will be lit when the power is off. (when the AC adaptor is connected)

③ Turn on the power to your external audio equipment.

Adjust the volume of the amplifier or stereo system to the appropriate level.

Caution: High volume levels can damage speakers.

Ordinary audio speakers, as in a stereo system, are more sensitive than musical instrument amplification speakers. Take care when using ordinary audio speakers, sudden loud signals may damage them.

＊Depending on the unit's location or the lighting conditions, the Sound Canvas's display may not always be clearly visible. If such is the case, adjust the LCD contrast. (☞P.41).

< How to turn the power off >

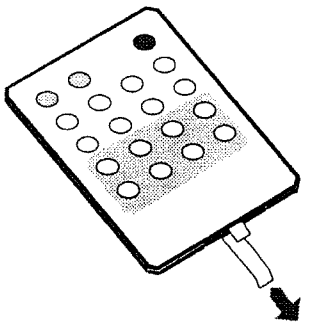
① Before turning the power off, make sure that the volume of the amplifier is turned down.

② Turn the power of each device off in the following order.
Audio device → Sound Canvas and MIDI device

＊ Refer to P.48 for information about returning to the factory preset.

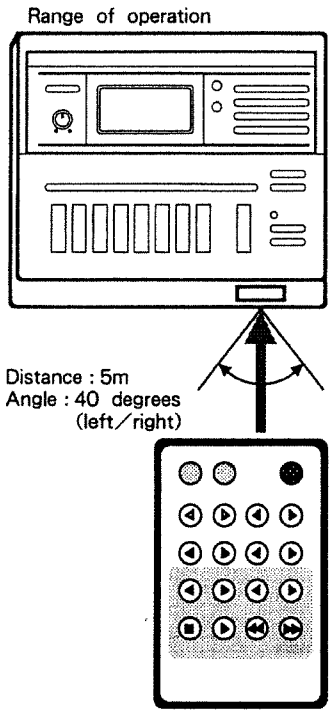
■HOW TO USE THE REMOTE CONTROL

●Before using



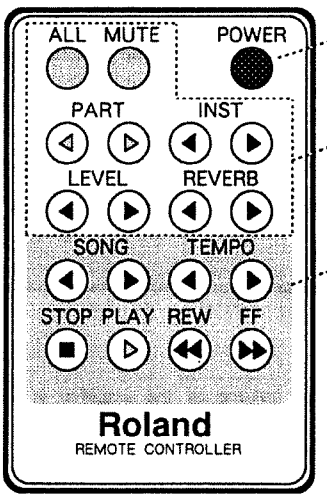
The remote control unit contains a lithium battery. An insulation sheet is inserted to keep the battery from discharging. You must remove this insulation sheet before using the remote control. Grasp the tab and pull the sheet out.

●How to use the remote control



When using the remote control do not exceed the specified range of operation (5m). Always aim it towards the Remote Sensor on the front of the Sound Canvas. The remote control can also be used to control the SB-55 (Sound Brush MIDI sequencer, sold separately).

Each button on the remote control has the following function:



Power Button :
This button simultaneously controls the power for the Sound Canvas and the Sound Brush.

Sound Canvas Buttons :
These buttons duplicate the functions of the Sound Canvas's front panel buttons.

Sound Brush Buttons :
These buttons various functions of the Sound Brush.

Note: The remote control is able to transmit only one button operation at a time.

* The remote control may not operate even within the range of operation if there is an obstacle between it and the main unit.
* Using the remote control near other equipment that uses remote control systems may result in operational errors.
* The life of the lithium battery depends on the amount and conditions of use. If after a while the operational range of the remote control decreases, change the lithium battery.
* If you will not be using the remote control for a long period of time, remove the lithium battery.

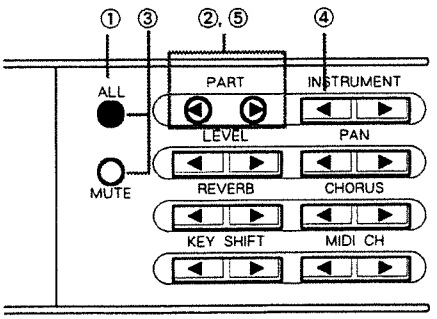
< Using the Sound Canvas together with the Sound Brush Sequencer >

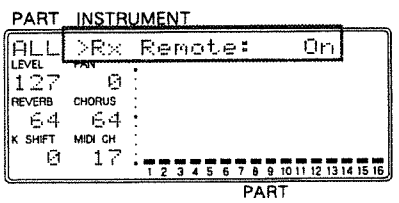
When you use the Sound Canvas together with the Sound Brush sequencer, the remote control of the Sound Canvas can turn the power to both units ON and OFF simultaneously. When you use the remote control with both units, be sure they are placed within the range of operation.

When you want to control only one of the units, turn off the remote control receiving switch of the unit that you do not want to control.

* When using the remote control to operate both units, be sure that both units are ON or OFF. If only one unit is ON when you begin, one units will always be ON while the other is OFF.

●When you don't want to use the Card Remote Control (Setting the remote control receiving switch)





① Press [ALL] to turn the indicator light on.
If the button is already on, there is no need to press the button.

② Press the PART buttons ([◀] and [▶]) simultaneously.

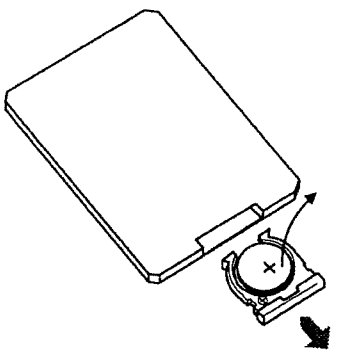
③ Select "Rx Remote" with the [ALL] and [MUTE] buttons.

④ Press INSTRUMENT [◀] to turn the remote control receiving switch off.
Press INSTRUMENT [▶] to turn it back on.

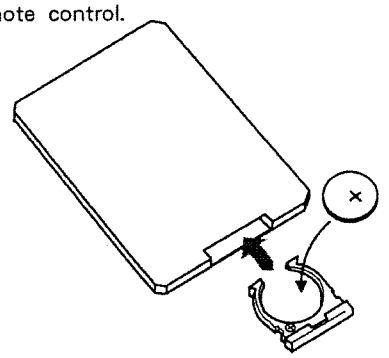
⑤ After setting, press the PART buttons ([◀] and [▶]) simultaneously to finalize the setting.

●How to change the lithium battery.

①Insert a fingernail into the groove on the back of the remote control and pull out the battery holder.



②Put the new lithium battery into the battery holder (positive "+" side up) and insert the battery holder back into the remote control.

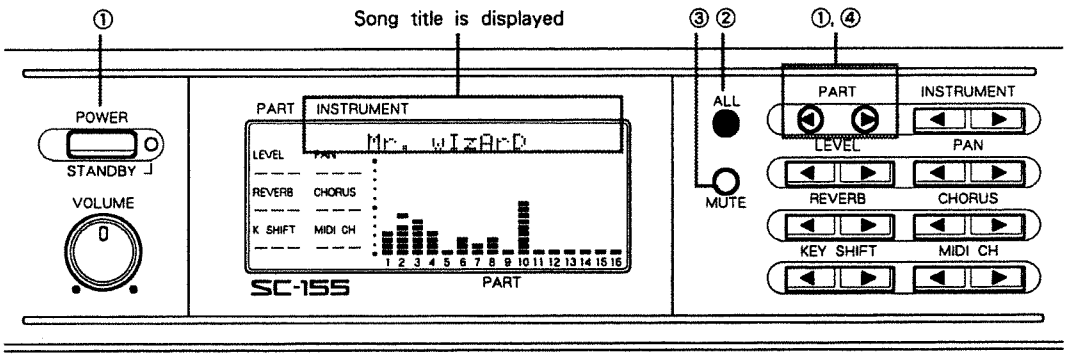


Note: Improper use of the lithium battery may cause leakage or explosion. Observe the following precautions:

- Use only the specified lithium battery (CR 2025).
- Ensure the polarity is correctly set (positive "+" side up).
- Do not short circuit the battery, attempt to dismantle it, or throw into an fire.

■ LISTENING TO THE ROM PLAY

Demo song which makes the best use of the internal sounds is stored within the Sound Canvas. The process of playing this demo song is called ROM play.



① While holding PART◀ and ▶, turn the power on.

Mr. wIzArD	Music by Marvin Sanders Copyright ©1991, Marvin Sanders

② Press ALL to start Domo song playback.

The volume level of each instrument will be shown on the bar graph display.

③ Press MUTE to stop playback.

④ Press PART◀ and ▶ simultaneously to return to normal playing status.

*Performance data of the ROM demos is not output through the MIDI OUT connectors. Messages from MIDI IN are not received while the ROM performance data is being played back.

< ROM Performance Composer Profile >

Marvin Sanders

A composer/keyboardist active in the Los Angeles music scene, Marvin Sanders is an expert in sequencer and computer music. He is highly sought after as a composer and music director for theater, TV and films, and is renowned for his studio session work and live performances. As a Roland product specialist, He is currently in charge of demo performances and also conducts clinics for musicians. The ROM performance song "Cityslicker" for the D-5 is one of his creations. He also participates in producing style cards for the TN series.

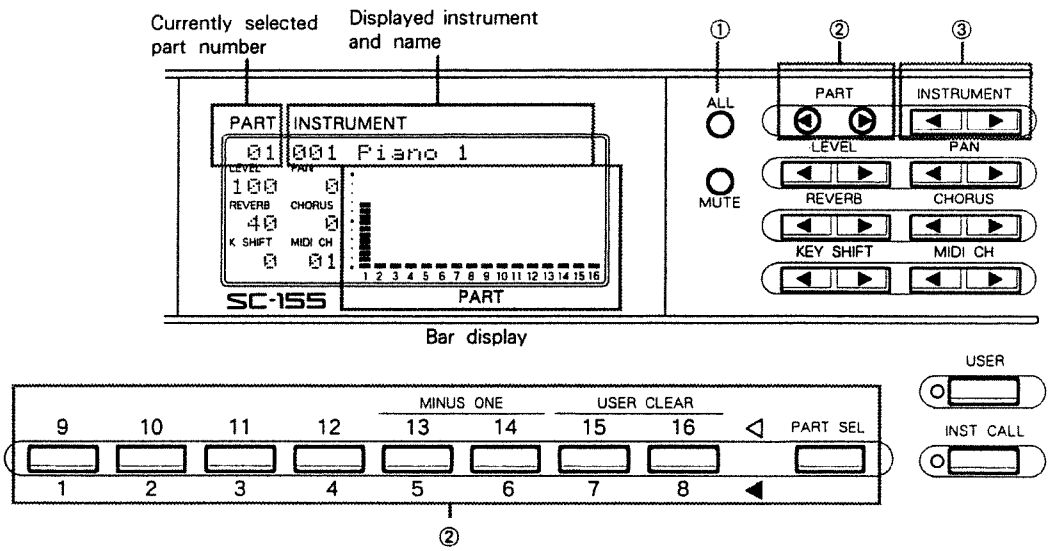
■PLAYING THE VARIOUS INSTRUMENTS

The Sound Canvas contains various special effect sounds such as warble, and telephone, as well as many musical instrument sounds such as organ, piano, guitar, etc. Using these sounds, the Sound Canvas can reproduce to the performances of many types of music ranging from classical to rock to jazz. This manual refers to these sounds as "Instruments". If the Sound Canvas is connected to a MIDI keyboard, you can try out the sound of each instrument.

⇨Refer to the "Instrument Table" (☞P.Ap.-15) for the various kinds of instruments.

⇨The Sound Canvas also contains a drum set with various percussion instrument sounds. For more details, refer to "Drum set Table" (☞P.Ap.-19).

●How to change the instruments



When you play your MIDI keyboard, the display will show the volume level of the instrument that is being heard.

① Before changing instruments, press [ALL] to turn the button indicator off.

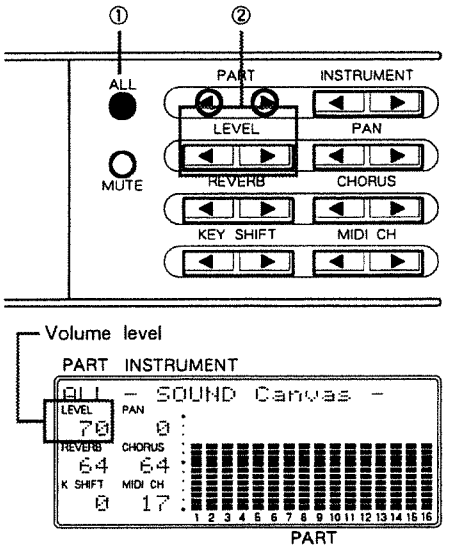
② Play the sound, and using the [PART SEL] and PART/INST buttons or the PART[◀][▶] buttons, select the part number that corresponds to the number on the bar display showing a volume level.

③ Change instruments by using the INSTRUMENT[◀][▶] buttons.

■CHANGING THE VOLUME LEVEL/PAN

How to set the correct volume level and make the necessary pan settings.

●Changing the volume level of ALL (0—127)



① Press [ALL] to turn the button indicator light on.

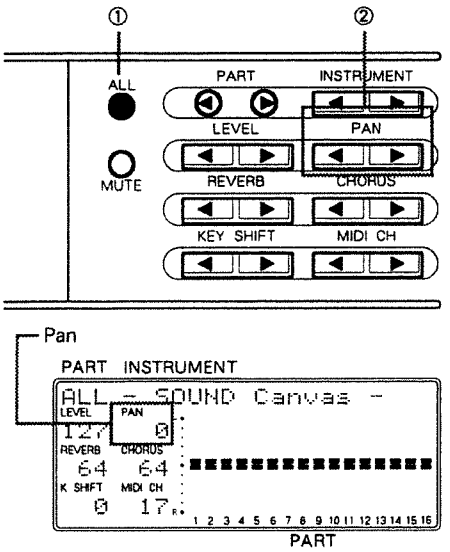
② Use the LEVEL [◀][▶] buttons to adjust the volume level.

Higher values indicate higher volume levels.

⇨When you press LEVEL [◀] and [▶] simultaneously, the current setting will be shown on the Bar display.
Press LEVEL [◀] and [▶] again to return to the previous display.

⇨You can adjust the overall volume level by using the volume control knob. However, if the volume control knob is turned all the way down, no sound will be heard, regardless of the adjustments made using the above procedure.

●Changing the pan level of ALL (L63—0—R63)



ALL pan adjusts the stereo location of all sounds.

① Press [ALL] to turn the button indicator on.

② Use the PAN [◀][▶] buttons to adjust the pan level.

"0" indicates that sounds will be heard equally from the left and right speakers. Higher "L" values indicate that more sound will be heard from the left speaker. Higher "R" values indicate that more sound will be heard from the right speaker.

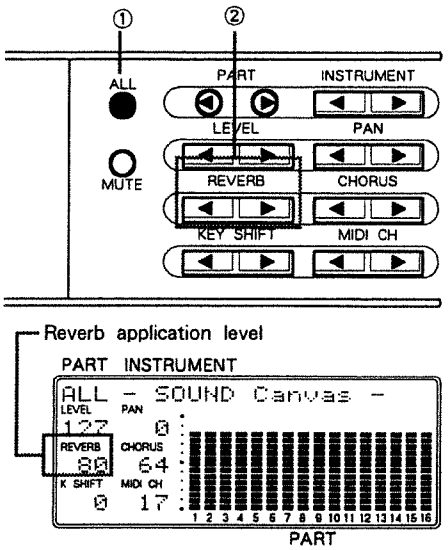
⇨When you press PAN [◀] and [▶] simultaneously, the current setting will be shown on the Bar display.
Press PAN [◀] and [▶] again to return to the previous display.

* According to the instrument, even if you position pan to all the way left (or right) a small amount of sound might leak from the other speaker.
* When the Sound Canvas is connected to a monaural audio system, some effects cannot be properly attained.

■HOW TO ADJUST REVERB/CHORUS

By adding Reverb and Chorus effects, instrument sounds will be enhanced. Use and adjust them according to your taste.

●How to adjust the Reverb level (0—127)



Reverb adds a spacious quality to the instrument sound. Listening to a sound containing Reverb is similar to listening in a concert hall. This adjustment determines how reverb is applied.

① Press [ALL] to turn the button indicator on.

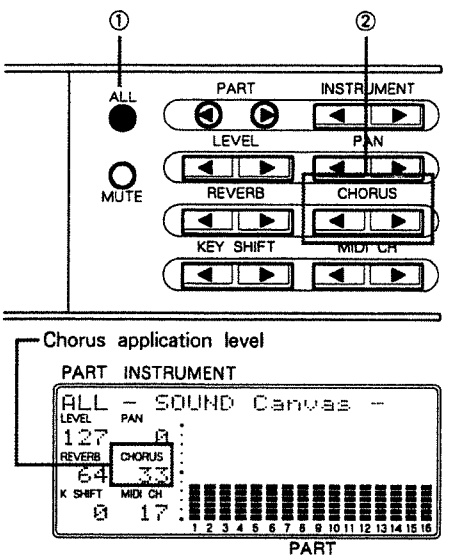
② Use the REVERB [◀][▶] buttons to adjust the reverb application.

Higher values indicate higher levels of Reverb.

⇨When you press REVERB [◀] and [▶] simultaneously, the current setting will be shown on the Bar display.

Press REVERB [◀] and [▶] again to return to the previous display.

●How to adjust the Chorus level (0—127)



Chorus adds depth and warmth to the sound. This adjustment determines how Chorus is applied. Chorus is especially effective when used with instrument sounds such as organ, strings, etc.

① Press [ALL] to turn the button indicator on.

② Adjust the applied Chorus level by using the CHORUS [◀][▶] buttons.

Higher values indicate higher levels of Chorus.

⇨When you press CHORUS [◀] and [▶] simultaneously, the current setting will be shown on the Bar display.

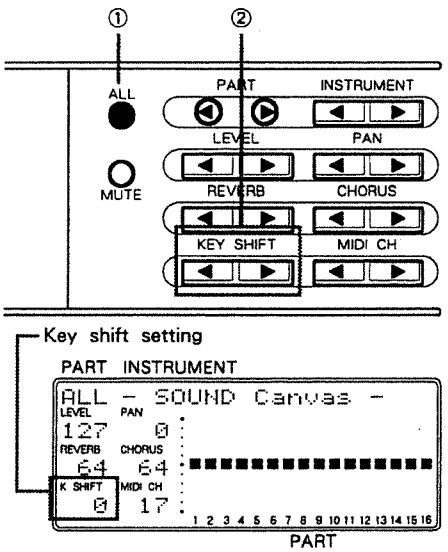
Press CHORUS [◀] and [▶] again to return to the previous display.

■HOW TO TRANSPOSE ALL (KEY SHIFT)

Key shift is a function that changes the pitch of notes in semitone steps. For example: When using a sequencer to play the Sound Canvas, you can transpose to a different pitch without changing the settings of the sequencer.

* Changing pitch using the Key shift function will not affect the pitch of the drum set.

●How to Key shift (−24—0—+24 : in semitone steps, ±2 octaves)



① Press [ALL] to turn the button indicator light on.

② Change Key shift values by using the KEY SHIFT [◀][▶] buttons.

As the value goes up (down) by 1, the pitch goes up (down) by one semitone. As the value goes up (down) by 12, the pitch goes up (down) by one octave. A setting of "0" indicates standard pitch.

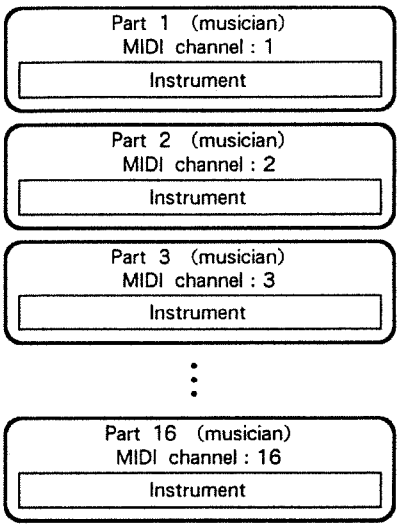
⇨When you press KEY SHIFT [◀] and [▶] simultaneously, the current setting will be shown on the Bar display.

Press KEY SHIFT [◀] and [▶] again to return to the previous display.

■ SELECTING INSTRUMENTS

How to select an instrument for each part.

● Part and Instrument



The following section briefly explains, the relationship between Part and Instrument.

The Sound Canvas has 16 parts, and a different instrument can be assigned to each. You can think of a Part as being a musician playing an instrument, and in this way, the Sound Canvas can be thought of as 16 musicians playing many different instruments together.
A sound module such as the Sound Canvas is generally called a Multi-timbral sound module.

In an external MIDI device, MIDI channels 1—16 correspond to parts 1—16 of the Sound Canvas. When the Sound Canvas left the factory, it was preset so that part 1 corresponds to MIDI channel 1, part 2 corresponds to MIDI channel 2 and so on. When you want to hear the instrument of a particular part, set the MIDI transmit channel of the external device (i.e. MIDI keyboard) to match the number of the part that you want to hear.
Most MIDI keyboards have only one or two MIDI transmit channels so there is a limit to the number of parts you can use at once. To make the best use of the Sound Canvas's functions, combine it with a device that was designed to transmit many channels of MIDI data, such as a sequencer.

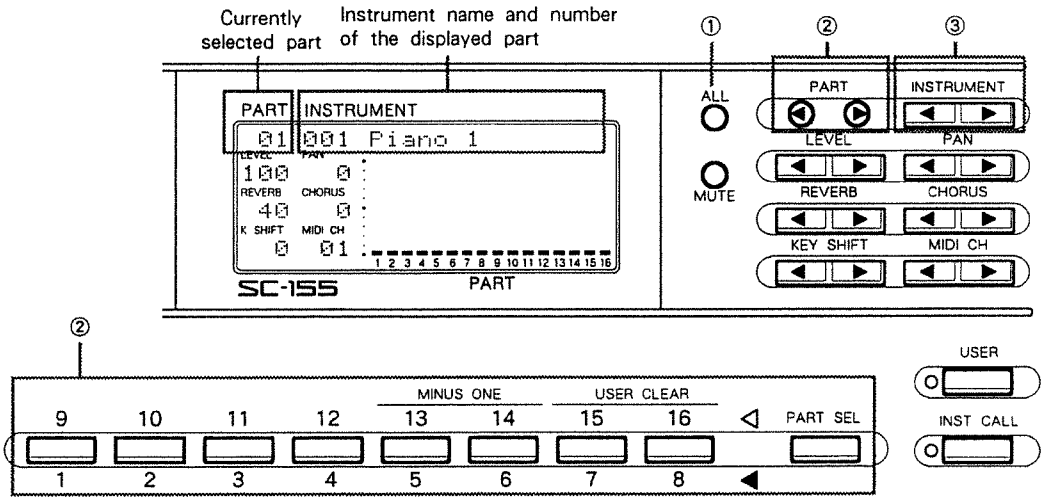
⇨For more details about MIDI refer to "About MIDI" (☞P.Ap.-4).

⇨When you want to change the MIDI channel of a part, refer to "Changing the MIDI receive channel" (☞P.49).

< About the playable range of some instruments >

There are some notes that cannot be heard above or below a certain point depending on the particular instrument. This is because the instruments of the Sound Canvas are created based on the actual playable range of each acoustic instrument. Please consider the individuality of each instrument carefully before using it in a composition.

●How to change instruments



① Before changing instruments, press [ALL] to turn the button indicator off.

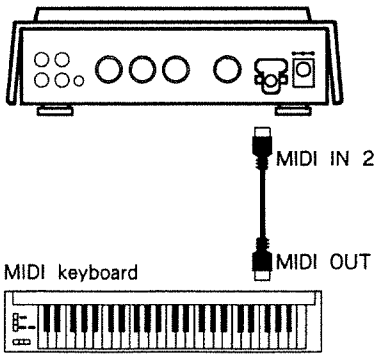
② Select the part number using the PART/INST buttons or the PART[◀][▶] buttons.
The name of the current instrument will be shown in the display.

③ Press INSTRUMENT[◀][▶] to select an instrument.

⇨Part number 10 is preset for the drum part and its various percussion sounds. For further details about the drum part, refer to the next page.

●How to change instruments using an external MIDI device

Part 1 (MIDI receive channel 1) will be changed to the instrument of program number 1.



Transmitting program number 1 (MIDI transmit channel 1)

When you change instruments using a MIDI keyboard, the change information (program change message) will be transmitted from the MIDI OUT connector. When the message is received by the Sound Canvas, the instrument of the specified part (the same MIDI channel) will be changed.

The program number of the program change message determines which instrument will be selected. For example, if you select program number 1 on the MIDI keyboard, the Sound Canvas will also be changed to the instrument of program number 1. Please check how the program numbers of the two MIDI devices correspond.

⇨In the Sound Canvas, the instrument number corresponds to the program number.

⇨Refer to the owners manual of your MIDI keyboard for information concerning its program numbers and sounds.

⇨If you don't want to change instruments from the external MIDI device, turn the instrument receiving switch of the Sound Canvas off (☞P.61).

■HOW TO SELECT THE DRUM SET

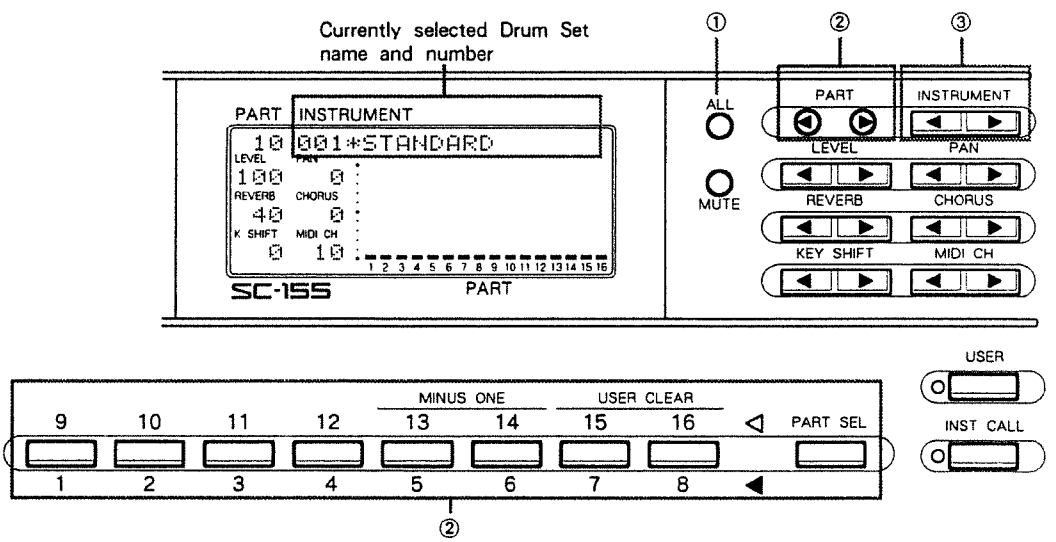
Try out the sounds of the various percussion instruments.

●Drum Set and drum part

The Sound Canvas contains a Drum Set with various percussion sounds. There are ten different combinations of percussion sounds to choose from.
When you use the Drum Set, a part must be set for the drum part. Part 10 (MIDI receive channel 10) is the factory preset for the Drum Set. When you use part 10 for the Drum Set, set the MIDI transmit channel of the external MIDI device to 10. If you want the Drum Set to be heard without changing the MIDI transmit channel of the external MIDI device, set the same MIDI receive channel to the drum part.

⇨When using a sequencer, adjust the note number setting of the sequencer beforehand to the percussion sound note number of the drum set that you are using.

●How to change the Drum Set



① Press [ALL] to turn the button indicator light off.

② Select part 10 using the PART/INST buttons or the PART[◀][▶] buttons.

③ Select Drum Set by using the INSTRUMENT[◀][▶] buttons.

④ If your MIDI keyboard is connected now, you can hear the various percussion instrument sounds by pressing the keys. (There are some keys that cannot be heard.)

⇨Refer to the "Drum Set Table" (☞P.Ap.-19) for a list of each Drum Set's percussion instruments.

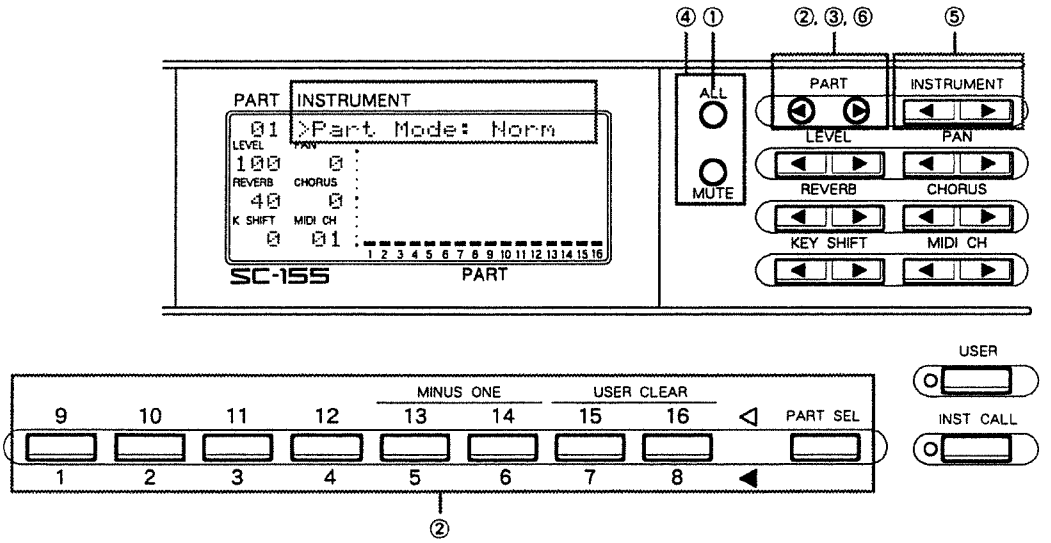
⇨When you select the drum part, a "✻" mark will appear before the Drum Set name. This will enable you to quickly check which part is set to the drum part.

●How to change the Drum Set using an external MIDI device

You can change the Drum Set, as well as the instrument, with an external MIDI device. The Drum Set number corresponds to the program number (☞P.Ap.-5).

⇨If you don't want to change the Drum Set from the external device, turn the instrument receiving switch of the Sound Canvas off (☞P.61).

●When you want to change the drum part number



① Press [ALL] to turn the button indicator off.

② Select the part number that you want to assign the drum part to by using the PART/INST buttons or the PART [◀][▶] buttons.

③ Press PART [◀] and [▶] simultaneously.

④ Use [ALL] and [MUTE] buttons to select "Part Mode".

⑤ Select "Drum 1" or "Drum 2" by using INSTRUMENT [◀][▶] buttons.
Select "Norm" to return to the regular part.

⑥ After setting, press PART [◀] and [▶] simultaneously to finalize.

＊Numerous parts can be set in the drum part however the two Drum Set types, "Drum 1" and "Drum 2" can be used simultaneously. For instance for setting the drum parts as shown below, when you change the part 1 Drum Set, the part 3 Drum Set is also changed.

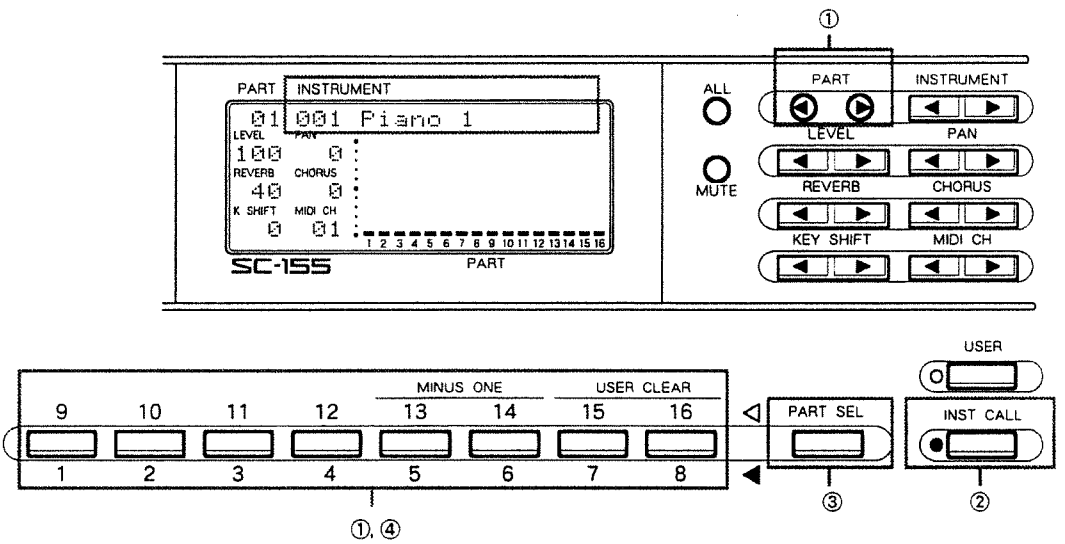
Part 1 (Drum 1) : STANDARD
Part 2 (Drum 2) : JAZZ
Part 3 (Drum 1) : STANDARD

■INSTANT ONE-TOUCH SELECTION OF INSTRUMENTS

In addition to the use of the INSTRUMENT [◀][▶] buttons for changing instruments, the Sound Canvas allows you to select up to 16 instruments instantly by using the 8 PART/INST buttons. This lets you change instruments to hear, for example, how the melody sounds when played by a different instrument. When the drum part is selected, the drum sets are switched.

Instruments have already been assigned to each button as presets; however, you can assign instruments of your choice.

● Selecting an instrument



① Select the Part of the instrument to be selected using the PART/INST buttons or the PART [◀][▶] buttons.

The selected instrument is shown in the display.

② Press [INST CALL] to turn the button indicator on.

⇨The [PART SEL] and the PART/INST buttons are generally used (when the INST CALL indicator is off) to select Parts; however, when the INST CALL indicator is lit they are used to select instruments.

③ First select the area of the Part 1—8 or 9—16 by using the [PART SEL] button.

The area whose indicator is lit is the one currently selected.

④ Call up the instrument by selecting from the PART/INST buttons.

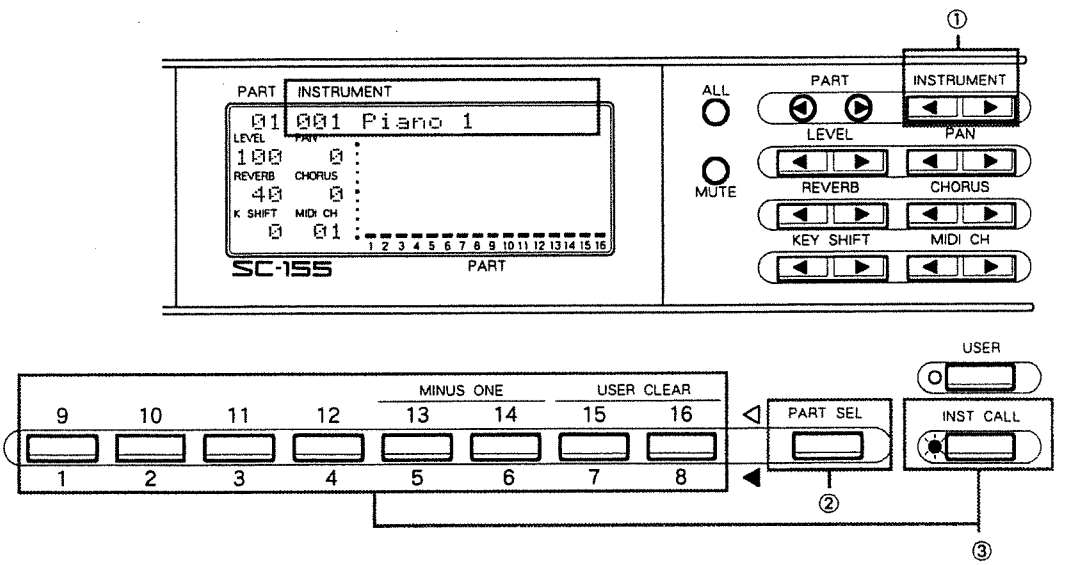
The sound of the selected Part is switched to that of the instrument that is called up.

Factory preset

	Normal Part		Drum Part	
	PC	Instrument	PC	Drum Set
1	001	Piano 1	001	STANDARD
2	012	Vibraphone	009	ROOM
3	017	Organ 1	017	POWER
4	026	Steel – str.Gt	025	ELECTRONIC
5	067	Tenor Sax	033	JAZZ
6	074	Flute	041	BRUSH
7	081	Square Wave	026	TR – 808
8	054	Voice Oohs	057	SFX
9	005	E.Piano 1	001	STANDARD
10	013	Marimba	009	ROOM
11	018	Organ 2	017	POWER
12	031	Distortion Gt	025	ELECTRONIC
13	057	Trumpet	033	JAZZ
14	078	Shakuhachi	041	BRUSH
15	082	Saw Wave	049	ORCHESTRA
16	053	Choir Aahs	057	SFX

● Storing instruments in the PART/INST buttons

Up to 16 desired instruments (or drum sets) can be stored in positions the PART/INST buttons.



① Select the instrument to be stored with the INSTRUMENT [◀][▶] buttons.

② Select the area (1—8 or 9—16) where the instrument is to be stored with the [PART SEL] button.

③ Press one of the PART/INST buttons while holding down [INST CALL]. (The indicator flashes.)

The selected instrument is stored in the number of the button that is pressed.

An "Inst Memorized." message is displayed when the instrument has been stored.

⇨When the ALL indicator is lit, the INST CALL indicator is also lit; however, the MEMORY/CALL UP function cannot be executed.

* Instrument assignments will be retained even after the power is turned off.

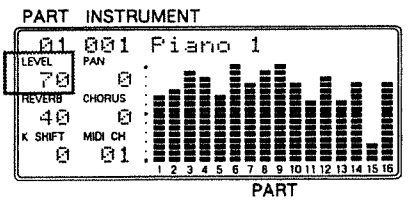
* A drum set cannot be selected when the selected part is a conventional Part (Normal Part). Likewise, when a drum part has been selected, instruments of a Normal Part cannot be selected.

■SETTING THE PART

You can set the volume level, pan, reverb, chorus and key shift for each part. You should make these settings with regard to the balance of each part.

□The performance of each function

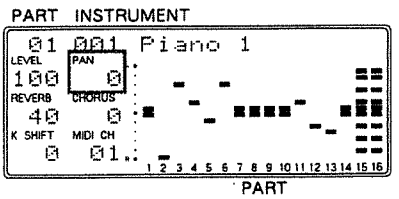
●LEVEL (volume level) : 0—127



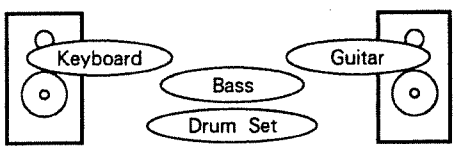
Adjusting the volume level of each part.

Use the LEVEL[◀][▶] buttons to adjust the volume level.
Higher values indicate higher volume levels.

●PAN : Rnd, L63—0—R63



The pan setting of each part determines the stereo location of each instrument. One example of pan setting is shown in the illustration. The bass and Drum Set are in the center while the keyboard is on the left side and the guitar is on the right side.



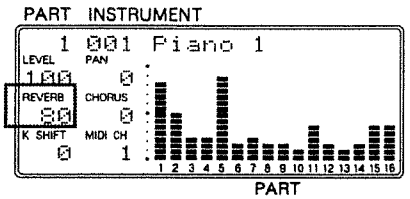
Use the PAN[◀][▶] buttons to set pan levels.
"0" indicates a central stereo location. Higher "L" values indicate that more sound will be heard from the left speaker. Higher "R" values indicate that more sound will be heard from the right speaker. When "Rnd (random)" is selected, the sound will be moved to a different stereo location every time the instrument is heard. This random panning creates a unique effect.

⇨The Drum Set has a preset stereo location for each percussion sound. If you change the pan level of the drum part, the stereo location of the entire Drum Set will be moved.

* According to the instrument, even if you position pan to all the way left (or right) a small amount of sound might leak from the other speaker.

* When the Sound Canvas is connected to a monaural audio system, some effects cannot be properly attained.

● REVERB : 0—127

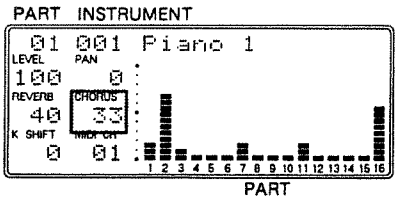


Use the REVERB◀▶ buttons to adjust the reverb application.

Higher values indicate higher levels of reverb.

* If the reverb level (☞P.18) of all parts is small, the effect will not be greatly noticeable.

● CHORUS : 0—127

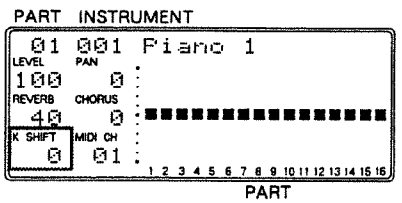


Use the CHORUS◀▶ buttons to adjust the chorus application.

Higher values indicate higher levels of chorus.

* If the chorus level (☞P.18) of all parts is small, the effect will not be greatly noticeable.

● KEY SHIFT : −24—0—+24 in semitones steps, ±2 octaves

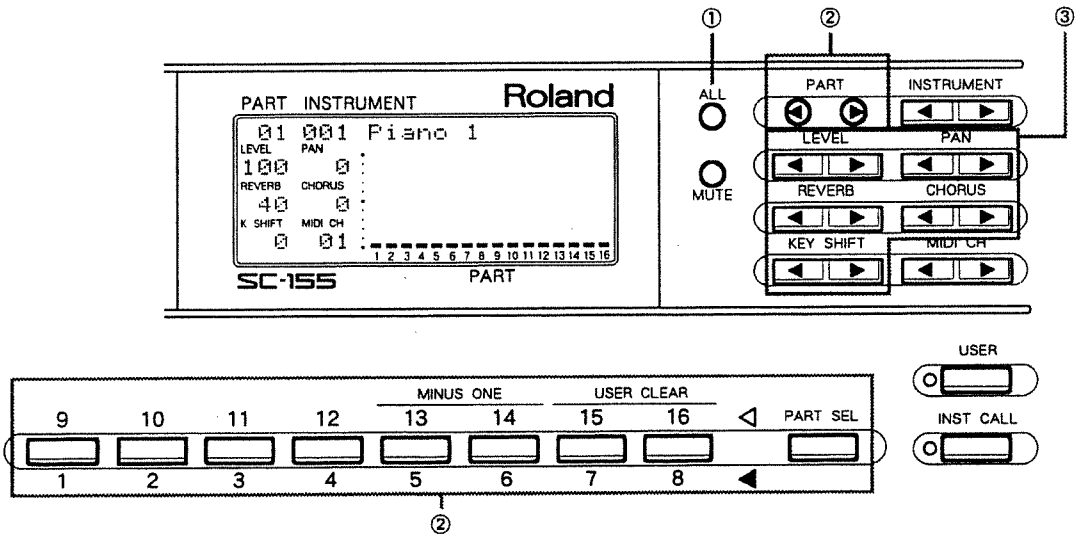


Set the key shift of a part when you want to transpose only a specified instrument.

Use the KEY SHIFT◀▶ buttons to set the amount of key shift.

As the value goes up (down) by 1, the pitch goes up (down) by one semitone. As the value goes up (down) by 12, the pitch goes up (down) by one octave. A setting of "0" indicates standard pitch.

☐How to set



① Make sure that the [ALL] indicator is off. If the indicator is on, press the button to turn it off.

② Use the PART/INST buttons or the PART[◀][▶] buttons to select the part that you want to set each function.

Each setting of the current part will be shown on the display.

③ Use the following buttons to set each function:

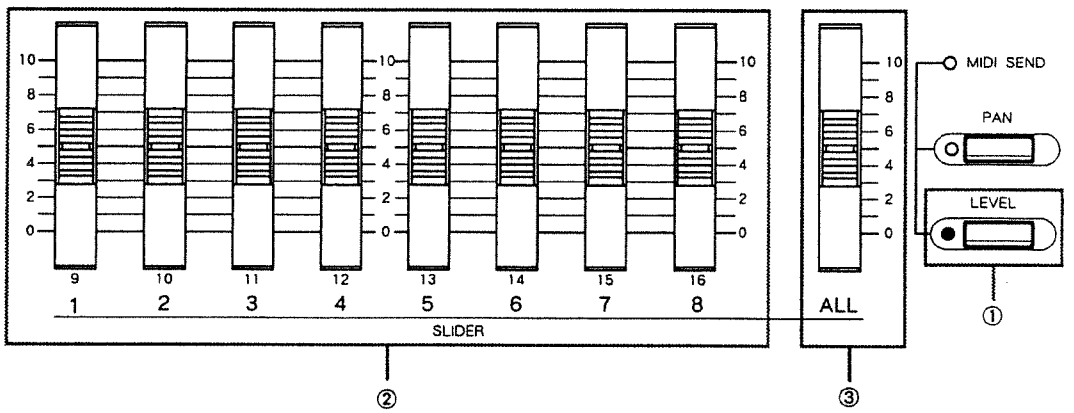
LEVEL[◀][▶] : Volume level
PAN[◀][▶] : Pan
REVERB[◀][▶] : Reverb
CHORUS[◀][▶] : Chorus
KEY SHIFT[◀][▶] : Key shift

⇨When you press [◀] and [▶] of a specified function simultaneously, the setting of each part will be shown on the bar display. Press [◀] and [▶] of the specified function simultaneously again to return to the previous display.

■USING THE SLIDERS

The Sound Canvas has eight Part sliders and one global slider. Instead of pressing buttons to change values, you can use these sliders to adjust the volume level and pan setting of each Part and of the entire unit (ALL). This makes for highly intuitive control over the sound, just like on a mixer.

●Changing the volume level of each Part and the entire unit (ALL)



① Press [LEVEL] to turn the indicator light on.

② Adjust the volume level of each Part using the Part sliders.

The volume becomes higher when you move the slider up, and becomes lower when you move it down.

⇨Switch between Parts 1—8 and 9—16 using the [PART SEL] button.

⇨The Part which is assigned to the slider is indicated in the display when the corresponding Part slider is adjusted.

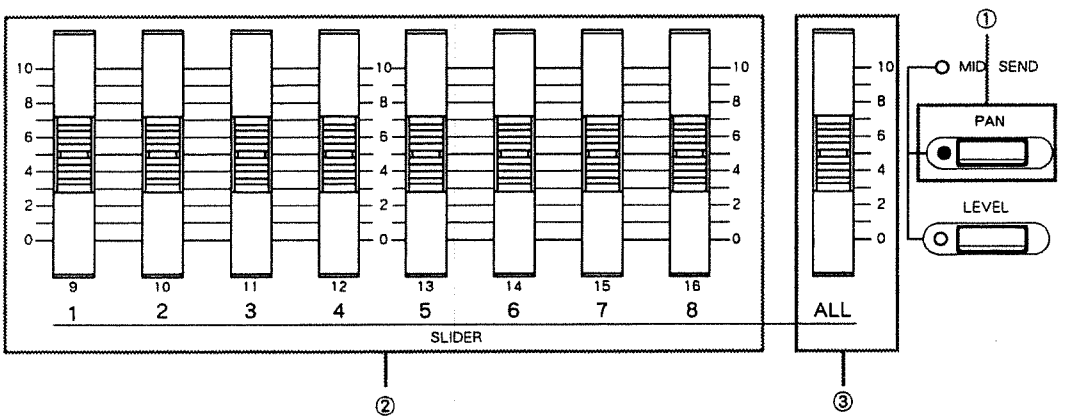
③ Adjust the global (overall) volume level with the ALL slider.

⇨The ALL display is shown when the All slider is adjusted.

* Sliders do not function when the [LEVEL] indicator is off.

* The indicated display can be switched by the [ALL] button as well. When the [ALL] indicator is lit, the ALL display is shown, and when it is off, the PART display is shown.

●Changing the pan setting (stereo position) of each Part or the entire instrument



① Press [PAN] to turn the indicator light on.

② Adjust the pan setting of each Part using the Part sliders.

The farther up the slider is moved, the farther to the left the stereo position of the sound becomes. The farther down the slider is moved, the farther to the right the stereo position of the sound becomes.

⇨The Part which is assigned to the slider is indicated in the display when the corresponding Part slider is adjusted.

③ Adjust the global pan setting with the ALL slider.

⇨The ALL display is shown when the All slider is adjusted.

* Sliders do not function when the PAN indicator is off.

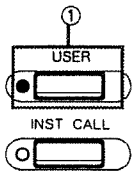
* The indicated display can be switched by the [ALL] button as well. When the [ALL] indicator is lit, the ALL display is shown, and when it is off, the PART display is shown.

* When adjusted with the buttons, the operative range of the Part pan setting is Rnd and L63—0—R63. However, with the sliders, the range is L63—0—R63.

■THE USER FUNCTION

The Sound Canvas has a function that lets you store the settings of instruments, volume levels, and pan positions for each Part, which are changed while playing back song data. While listening to the playback of song data, you can compare the original data to that for which the settings have been changed.

●Changing the instrument, volume level and pan settings of each Part



① Press [USER] to turn the indicator light on.

When USER is set to on, the bar display is shown in reverse display. For example, Type 5 is displayed when Type 1 is selected as the display method (P.42) and Type 6 when Type 2 is selected. It returns to the normal display condition when USER is set to OFF.

② Set the instrument, volume level and pan values of each Part.

Playback changes according to the settings made. The original performance data can be heard by pressing [USER] to turn the indicator off. Change playback to the newly edited settings by pressing [USER] again.

⇨The settings made will not be affected by those of MIDI messages from external MIDI devices.

⇨In addition to the method explained above, it is possible to switch USER on and off by pressing the LEVEL [▶] and REVERB [▶] buttons simultaneously.

* Global settings of volume level and pan are not stored within this function.

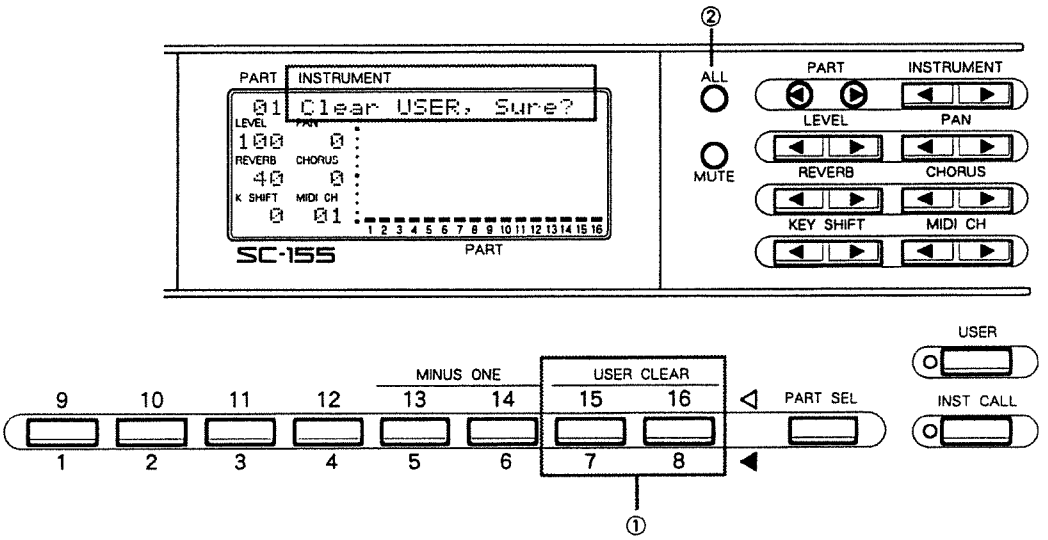
* When USER is set to ON, you can turn USER off by turning MIDI SEND on. USER cannot be turned on when MIDI SEND is on. (☞P.71)

* The user function is initialized (regardless of the ON/OFF setting of USER) when executing these functions: "Init GS", "Init MT-32" and "Init All". (☞P.45, 47, 48)

* USER is automatically set to OFF when the power is turned on.

● Rewriting the settings of the user function

The settings of the user function differ from those of song data. When using the user function with different song data, it is convenient to change the settings after making the condition of the user function the same as that of the song data.



① Press PART/INST buttons [7 (15)] and [8 (16)] simultaneously.
"Clear USER, Sure?" will be shown in the display.

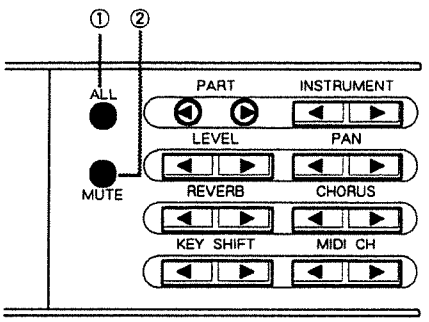
② When [ALL] is pressed, the settings of the user function is rewritten to the same condition as that of the song data. (To stop the procedure, press [MUTE].)

⇨In addition to the method explained above, it is also possible to call up the condition for rewriting the settings of the user function by pressing the PAN [◀] and CHORUS [◀] buttons simultaneously.

■MUTE

Mute is a function that temporarily mutes the sound of a part. "ALL mute" temporarily mutes the sound of all parts and "PART mute" temporarily mutes the sound of a specified part. The Mute function is used when you don't want sound (ALL or PART) to be heard for a moment.

●Mute all parts (ALL mute)



① Press [ALL] to turn the button indicator on.

② Press [MUTE] to turn "ALL mute" ON.

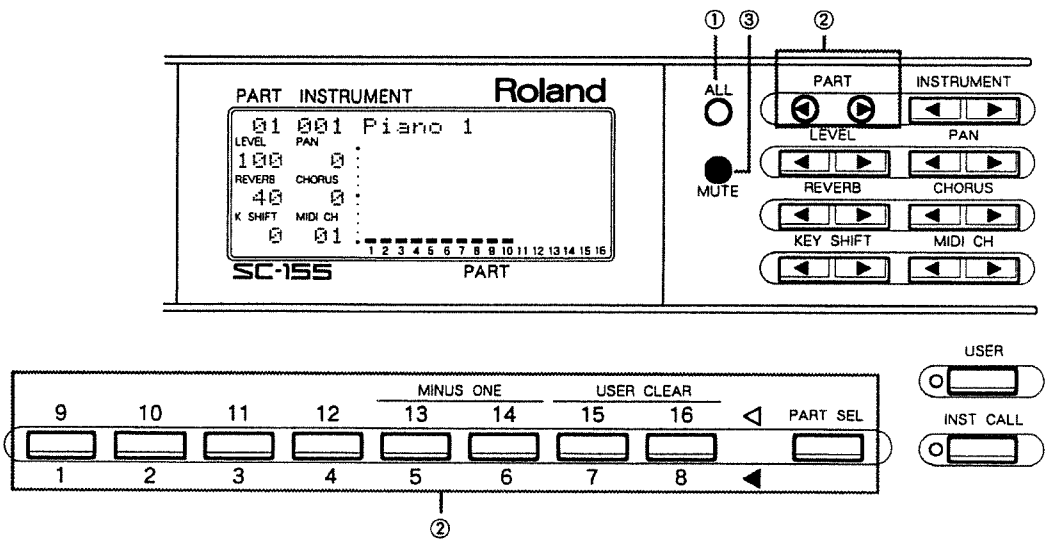
When ALL mute is ON, the button indicator will be lit.

Press the button again to turn the ALL mute OFF.

⇨You can make sure that the mute of each part is ON/OFF by means of the segment at the bottom of the bar display.

When ALL mute is ON, all part segments will be off.

●Mute a specified part (PART mute)



① Press [ALL] to turn the button indicator off.

② Use the PART/INST buttons or the PART [◀][▶] buttons to select the part that you want to mute.

③ Press [MUTE] to turn "PART mute" ON.

When PART mute is ON, the button indicator will be lit.

Press the button again to turn PART mute OFF.

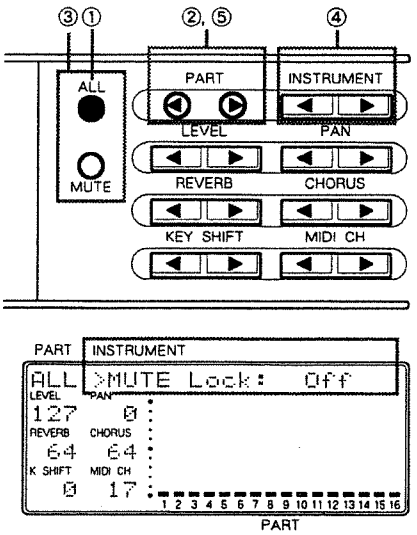
⇨The [MUTE] indicator will be lit only when the muted part is selected.

⇨You can make sure that the mute of each part is ON/OFF by means of the segment at the bottom of the bar display.
The segment of a part that is muted will be OFF.

＊When "ALL mute" is ON, the segments at the bottom of the bar display will all be off, whether "PART mute" is on or off.

●Avoiding cancellation of the mute setting even when the GS reset message is received

Mute setting you have made while playing back may be only effective for the current playback of song data. This is because of a message recorded at the beginning of the song which resets the sound source to the basic settings of GS (GS reset).
There may be occasions, however, when you wish to cancel this reset message. This would make it unnecessary to reset the mute every time you play the song data from the beginning. For example, this would be convenient for repeating the song many times to confirm playback settings of a specific Part while all other Parts are muted.



① Press [ALL] to turn the indicator on.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Use the [ALL] and [MUTE] buttons to select "MUTE Lock".

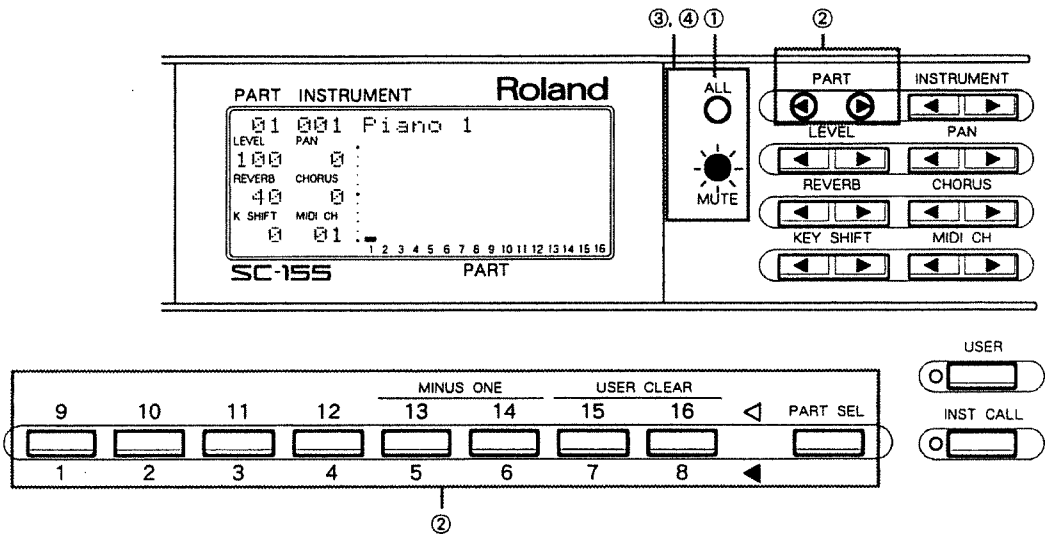
④ Turn it ON by pressing the INSTRUMENT [▶] button.
Press the INSTRUMENT [◀] button to turn it OFF.

⑤ After the setting is done, complete the operation by pressing the PART buttons ([◀] and [▶]) simultaneously.

■ MONITORING THE SOUND OF A PART

The monitor function has a Part Monitor that monitors the sound of one specified part, and All Monitor that monitors the sound of all parts regardless of the setting of Part Mute.
When you use ensemble performance with a sequencer, etc., Part Monitor is used to monitor the performance of one part. When some parts are muted by Part Mute, All Monitor is used to monitor the sound of all parts for a short while.

● Monitoring the sound of a part (Part Monitor)



① Press [ALL] to turn the button indicator off.

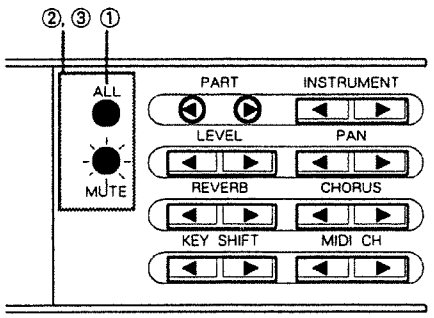
② Use the PART/INST buttons or PART [◀] and [▶] to select the part that you want to monitor.

③ Press [ALL] and [MUTE] simultaneously.
[MUTE] indicator will blink. Only the current part can be monitored in this status.

⇨If you change parts in the monitor status, the sound of the part that you selected can be monitored (even if you select the part that is muted by Part Mute).

④ Press [ALL] and [MUTE] simultaneously again to return to the previous status.

● Monitoring the sound of all parts (All Monitor)



① Press [ALL] to turn the button indicator on.

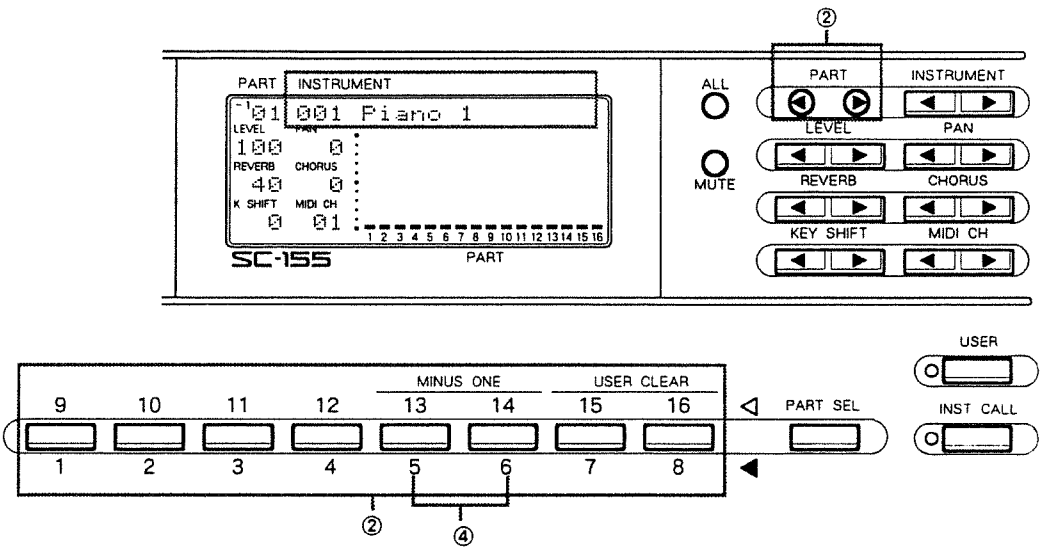
② Press [ALL] and [MUTE] simultaneously.
[MUTE] indicator will blink. The sound of all parts can be monitored in this status regardless of the setting of Part Mute.

③ Press [ALL] and [MUTE] simultaneously again to return to the previous status.

■ USING MINUS-ONE PLAY

Try playing a Part in real time from a MIDI keyboard while having the sequencer playback the song data with that one Part muted. Muting a Part and playing it by yourself is called "Minus-one Play".

● How to use Minus-one Play



① Connect the MIDI OUT of the sequencer to the MIDI IN 1 of the Sound Canvas. Also connect the MIDI OUT of the MIDI keyboard to the MIDI IN 2 of the Sound Canvas.

② Indicate the Part to be muted in the song data using the PART/INST buttons or the PART [◀][▶] buttons.

③ Start the sequencer playback.

④ Press PART/INST buttons [5 (13)] and [6 (14)] simultaneously.
The displayed Part and the Parts set to the same receive channel as the displayed Part are muted from the play data received from the sequencer. You can now play the missing Parts on a connected MIDI keyboard.
Press [5 (13)] and [6 (14)] simultaneously to cancel the function.

⇨The Minus-one setting can also be changed by simultaneously pressing the LEVEL [◀] and REVERB [◀] buttons.

＊" – 1" is shown at the left of the PART number in the display when the Minus-one function is active. Note data received from the MIDI IN 1 connector is muted or filtered out; however, note data received from the MIDI IN 2 connector is heard.

＊The Minus-one function can sound the displayed PART regardless of the transmission channel settings of the MIDI keyboard.

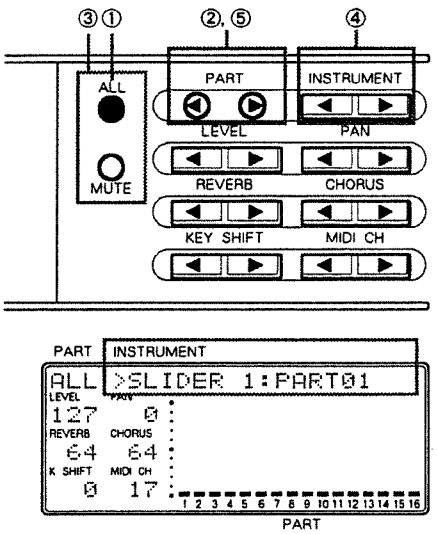
＊Minus-one settings must be made from the PART display page.

■CHANGING THE PARTS TO BE ASSIGNED TO THE SLIDERS

The eight sliders of the Sound Canvas can be used to control the 16 Parts by switching between Parts 1—8 and 9—16 using the Part select button. The Part whose number is written under each slider is assigned at the factory, but this assignment can be changed as you wish.

For example, the drum Part of the song data is normally assigned to Part 10. If Part 10 is assigned to a Part slider from Part 1—8 that is not currently in use, settings of the volume level and pan can be changed by the slider without having to switch using [PART SEL].

● How to set the Part to be assigned to the slider



① Press [ALL] to turn the indicator light on.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Select the slider to be set by [ALL] and [MUTE].

④ Set the Part to be assigned using the INSTRUMENT [◀][▶] buttons.

For example, in order to assign Part 10 to Slider 8, select "SLIDER 8: PART08" using [ALL][MUTE], then set to "SLIDER 8: PART10" with the INSTRUMENT [◀][▶] buttons.

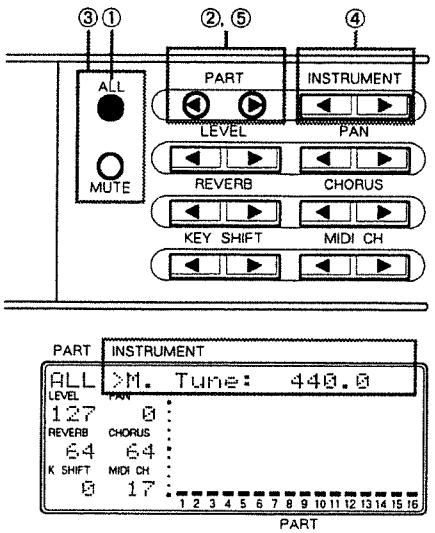
⑤ After the setting is done, complete the operation by pressing the PART buttons ([◀] and [▶]) simultaneously.

Slider 8 can now control Part 10.

■TUNING TO THE PITCH OF ANOTHER INSTRUMENT

Adjust Master Tune when you want to adjust the Sound Canvas's pitch to match that of another instrument. Use Fine Tune when you want to adjust the pitch of each part while playing back the song data.

● Master Tune : 415.3—466.2Hz



① Press [ALL] to turn the button indicator on.

② Press the PART buttons ([◀] and [▶]) simultaneously.

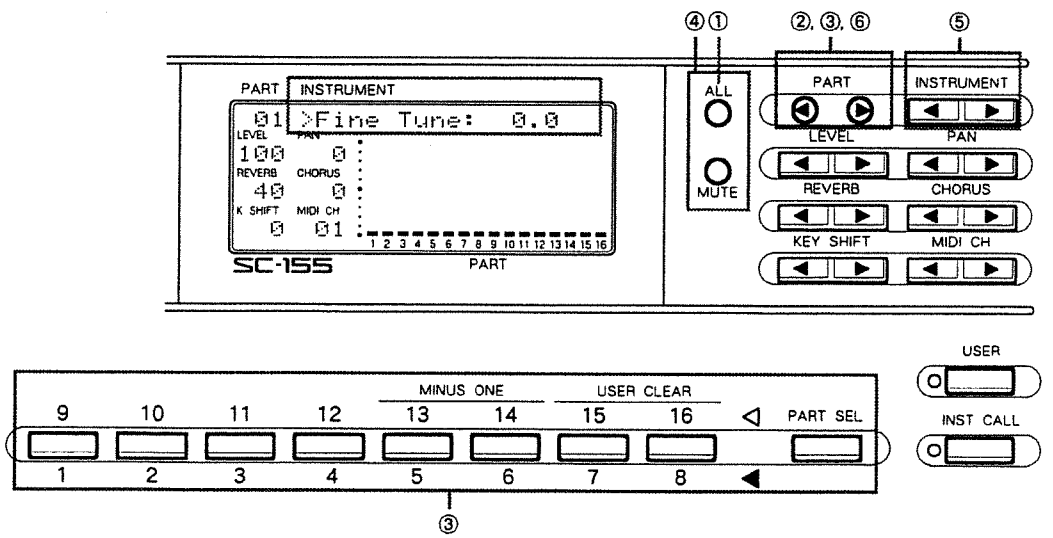
③ Use the [ALL] and [MUTE] buttons to select "M.Tune".

④ Use the INSTRUMENT [◀][▶] buttons to adjust the pitch.

The displayed value (440.0) is the frequency of A4 on a keyboard.

⑤ After tuning, complete the operation by pressing the PART buttons ([◀] and [▶]) simultaneously.

● Fine Tune : – 12.0~+ 12.0Hz



① Press [ALL] to turn the button indicator off.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Select the Part to be tuned using the PART/INST buttons or the PART [◀] [▶] buttons.

④ Use the [ALL] and [MUTE] buttons to select "Fine Tune".

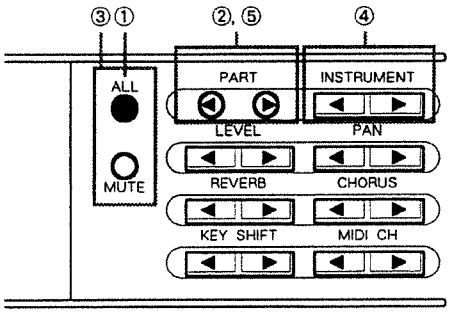
⑤ Use the INSTRUMENT [◀][▶] buttons to adjust the pitch.
The value shown indicates the difference from the master tune setting.

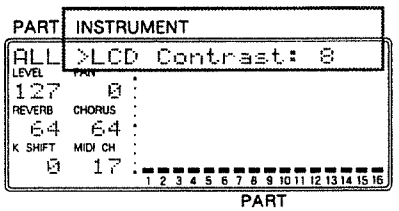
⑥ After tuning, complete the operation by pressing the PART buttons ([◀] and [▶]) simultaneously.

■ADJUSTING THE CONTRAST OF THE DISPLAY

In some cases, depending on placement or lighting conditions, the display screen may not be seen clearly. In such a case, adjust the contrast of the display screen.

●LCD Contrast : 1—16





① Press [ALL] to turn the button indicator on.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Use the [ALL] and [MUTE] buttons to select "LCD Contrast".

④ Use the INSTRUMENT[◀][▶] buttons to adjust the contrast.

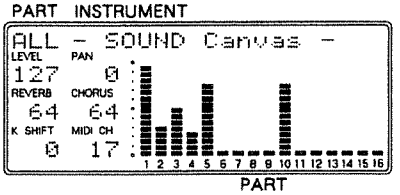
⑤ After adjusting, press the PART buttons ([◀] and [▶]) simultaneously to finalize the adjustment.

■ HOW TO SET THE BAR DISPLAY
(Bar display/Peak hold)

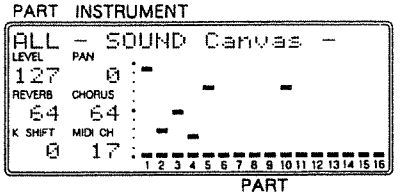
< Bar display >

You can select which type of display will be used to indicate the volume level. There are eight display types to choose from:

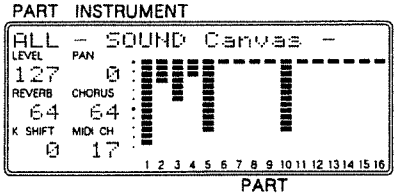
Type 1 : Bar display (normal)



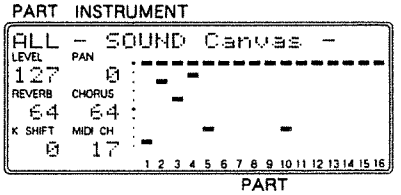
Type 2 : Single segment display



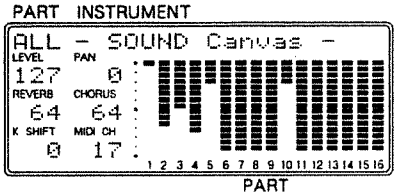
Type 3 : Top to bottom Bar display



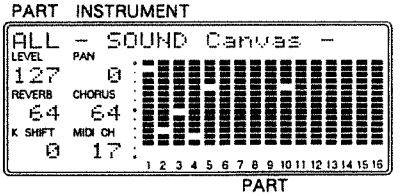
Type 4 : Top to bottom Single segment display



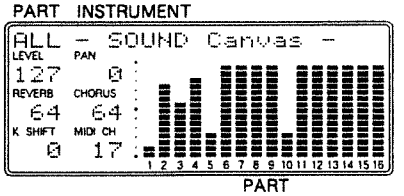
Type 5 : Reverse 1



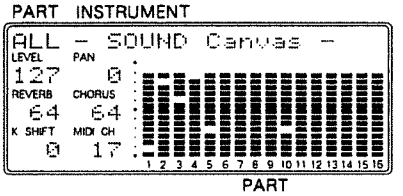
Type 6 : Reverse 2



Type 7 : Reverse 3



Type 8 : Reverse 4



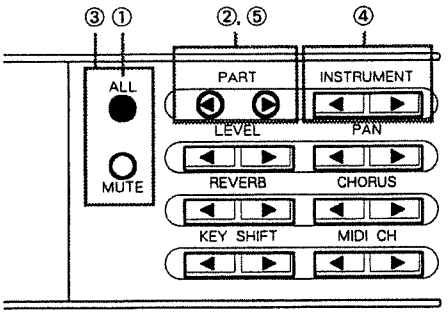
< Peak hold >

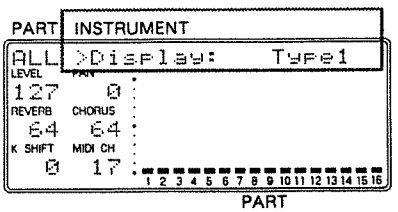
The Bar display holds the peak level segment for a few moments even if the volume level goes down. This will allow you to easily check the peak level (maximum value). You can select one of the four following types of peak level display:

Off : Peak level hold is not in effect.
Type 1 : The peak level segment goes down after holding the peak level (normal)
Type 2 : The peak level segment goes off after holding the peak level
Type 3 : The peak level segment goes up after holding the peak level

* When Type 1 or Type 3 is selected for Bar Display types 3, 4, 7, and 8, the Peak Level dot will be inverted.

●Setting instructions





① Press [ALL] to turn the button indicator on.

② Press the PART button ([◀] and [▶]) simultaneously.

③ Use the [ALL] and [MUTE] buttons to select the display function you want to set.

"Display" : Bar display type

"Peak Hold" : Peak hold type

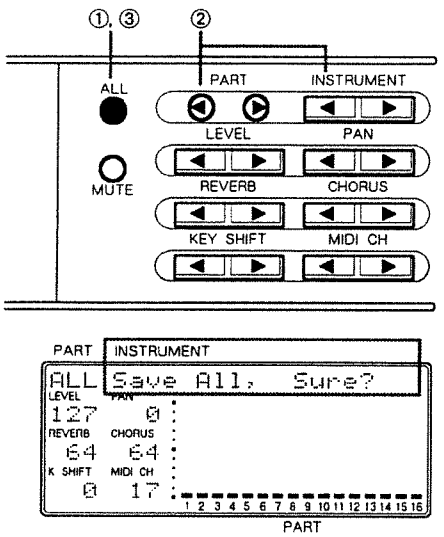
④ Use the INSTRUMENT[◀][▶] buttons to set the display types.

⑤ After setting, press the PART button ([◀] and [▶]) simultaneously to finalize the selection.

■ STORING/RECALLING THE SOUND SOURCE SETTINGS

It is possible for the Sound Canvas to store all the settings of the parameters of the sound source (instrument, volume level, pan, etc. in each part) in its internal memory for future recall.
Storing the existing parameter settings for each part enables you to recover the settings even after you have changed them.

● How to store



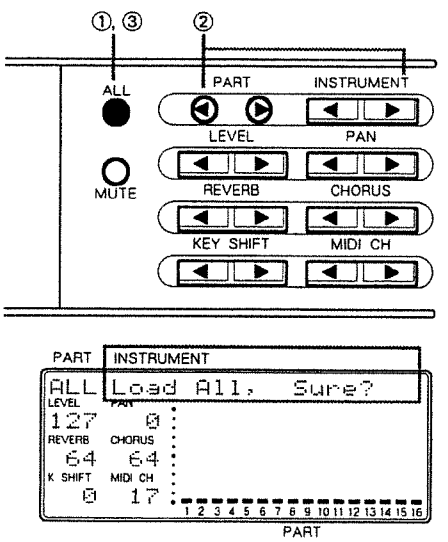
① Press [ALL] to turn the indicator light on.

② Press INSTRUMENT [◀] while holding down PART [◀].
"Save All, Sure?" will be shown in the display.

③ The settings are stored when [ALL] is pressed. (To stop the procedure, press [MUTE].)

* Storing new settings will overwrite any existing data in memory.

● How to call



① Press [ALL] to turn the indicator light on.

② Press INSTRUMENT [▶] while holding down PART [◀].
"Load All, Sure?" will be shown in the display.

③ The settings are called when [ALL] is pressed. (To stop the procedure, press [MUTE].)

* The settings are retained even when the power is turned off. However, they are initialized when the "Init All" function is executed.

■ SETTING THE SOUND CANVAS TO THE SOUND ARRANGEMENT OF THE MT-32

The Sound Canvas can be set to the sound arrangement of the MT-32 (Multi-Timbral Sound Module) which is a standard sound producing device for computer music applications. If you want to hear song data that was created for the MT-32, set the Sound Canvas according to the instructions below.

● Initial settings

When you set the Sound Canvas to the sound arrangement of the MT-32, The Sound Canvas settings will become identical to the power on settings of the MT-32. The following illustration shows these settings.

< Part settings >

Part	MIDI Receive channel	Instrument (Instrument number)	Volume level	Pan	Reverb	Chorus	Key Shift
1	1	Acou Piano 1 (1)	100	0	64	0	0
2	2	Slap Bass 1 (69)	100	L10	64	0	0
3	3	Str Sect 1 (49)	100	L10	64	0	0
4	4	Brs Sect 1 (96)	100	L10	64	0	0
5	5	Sax 1 (79)	100	L10	64	0	0
6	6	Ice Rain (42)	100	L46	64	0	0
7	7	Elec Piano 1 (4)	100	R27	64	0	0
8	8	Bottle Blow (111)	100	L63	64	0	0
9	9	Orche Hit (123)	100	R63	64	0	0
10 (Drum)	10	CM-64/32L Set (128)	100	0	64	0	0

＊Parts11—16 are factory presets.

< Setting of all parts >

Volume level	Pan	Reverb	Chorus	Key Shift
127	0	64	64	0

● Differences of the MT-32

If you set the Sound Canvas to the sound arrangement of the MT-32, you will be able to play in the same manner as if you were playing the MT-32, however, since the sound module of the MT-32 is organized differently from the Sound Canvas, you will not be able to perfectly duplicate the operations of the MT-32. Please consider the following differences:

< Changing the sound >

When you change the sound of an instrument using velocity, modulation, aftertouch, etc., delicate changes in the sound will appear differently than those of the MT-32.

< Exclusive messages >

The Sound Canvas and the MT-32 cannot exchange exclusive messages. Therefore if exclusive messages of the MT-32 are received by the Sound Canvas, the settings of the latter will not be changed. For example, if the sound data of the MT-32 (exclusive message) is stored to song data, the same data cannot be perfectly reproduced when using the Sound Canvas.

< Pan >

Pan movement is opposite from an actual MT-32. To rectify this, connect the L/R of the Audio Output jacks conversely.

< Maximum simultaneous notes >

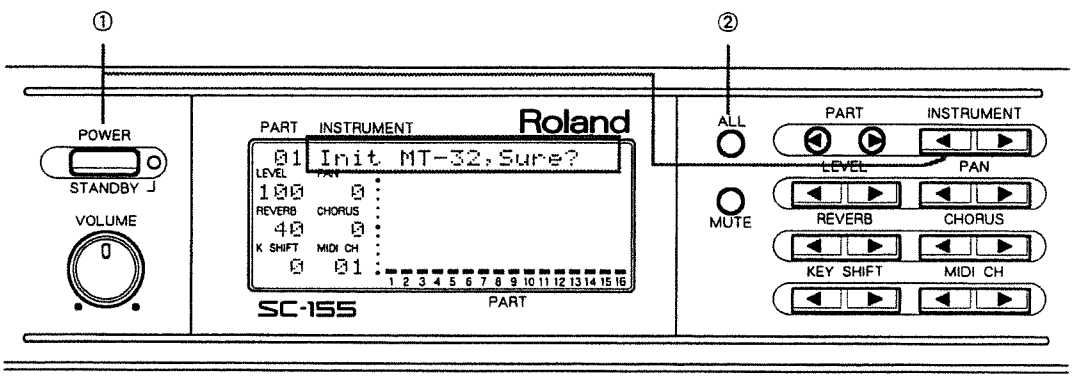
The MT-32 has a higher number of maximum simultaneous notes (MT-32: 32 tones, Sound Canvas: 24 tones) but the Sound Canvas uses a lower number of voices to create instrument sounds. So in actuality, the Sound Canvas makes better use of note number.

Note: When you set the Sound Canvas to the sound arrangement of the MT-32, all prior settings will be lost.

⇨The maximum number of simultaneous notes will differ depending on the number of voices being used. For more details, refer to P.55.

⇨When you want to return to the sound arrangement of the Sound Canvas after setting it to the MT-32 arrangement, refer to "Making the Basic GS Format" on the next page.

●Setting the sound arrangement of the MT-32



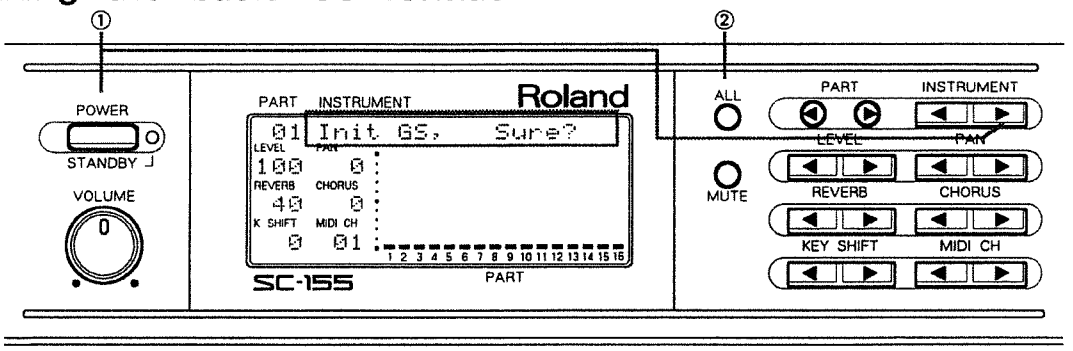
① INSTRUMENT [◀], turn the power on.
"Init MT-32,Sure?" will be shown in the display.

② Press [ALL] to execute. (Press [MUTE] to stop the operation)

■MAKING THE BASIC GS FORMAT

When you want to play song data that is conformed to GS format, format the unit to the basic setting of GS format. When you format to the basic setting of GS, all settings of the Sound Canvas will be returned to the factory preset except the system functions (☞P.Ap.-10).

●Making the basic GS format



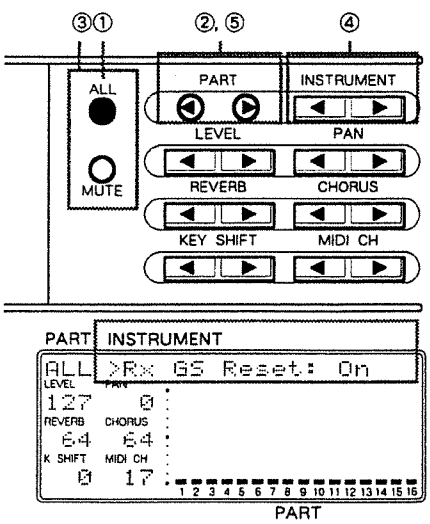
① While holding INSTRUMENT [▶], turn the power on.
"Init GS, Sure?" will be shown in the display.

② Press [ALL] to execute. (Press [MUTE] to stop the operation)

Note: Setting the unit to the basic GS format.
The above procedure will set the Sound Canvas to the GS format even if the backup switch (☞P.48) is on.

< GS Reset Switch On/Off >

If the Sound Canvas receives a GS Reset message or a General MIDI System On message, it will return to the basic setting of GS format. (A "GS Reset" message is stored to the demo song of the separately sold Sound Brush sequencer.) If you don't want the Sound Canvas making the GS setting when receiving a GS Reset message or a General MIDI System On message, turn the GS Reset switch off (when the factory settings are on.).



① Press [ALL] to turn the button indicator light on.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Use the [ALL] and [MUTE] buttons to select "Rx GS Reset".

④ Press INSTRUMENT [◀] to turn the switch "Off".
When you want to turn the switch "On", press INSTRUMENT [▶].

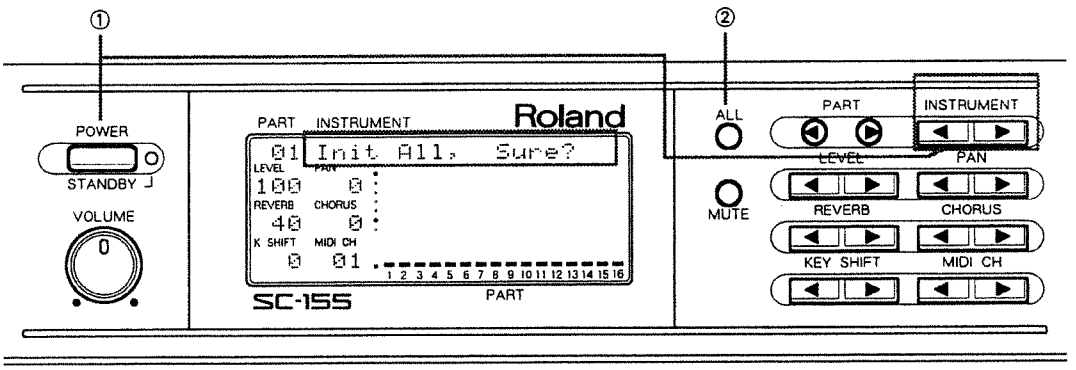
⑤ After setting, press the PART buttons ([◀] and [▶]) simultaneously to finalize.

* When you set the Exclusive Receiving switch to OFF, the GS Reset message or a General MIDI System On message will not be received even with the GS Reset switch set to ON.

■ RETURNING TO FACTORY PRESETS (INITIALIZATION)

To return all the Sound Canvas's original factory settings (initialization), follow this procedure. Please note that this operation will erase any settings or modifications you have made.

● Returning to factory preset

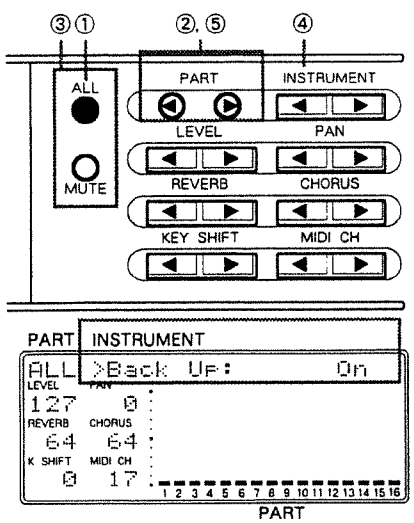


① Set the power to ON while pushing INSTRUMENT [◀] and [▶].
"Init All, Sure?" will be displayed.

② Press [ALL]. (Press [MUTE] to stop the operation.)

< Backup Switch On/Off >

There is a backup switch contained in the Sound Canvas for storing previous settings even after the power is turned off. Usually, this switch is set to on, but when you want to turn the power back on or if you want to reset the Sound Canvas to the basic setting of GS, turn the backup switch off using the following procedure.



* The System function setting will be stored regardless of the on/off setting of the Backup switch.

① Press [ALL] to turn the button indicator light on.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Use the [ALL] and [MUTE] buttons to select "Back Up".

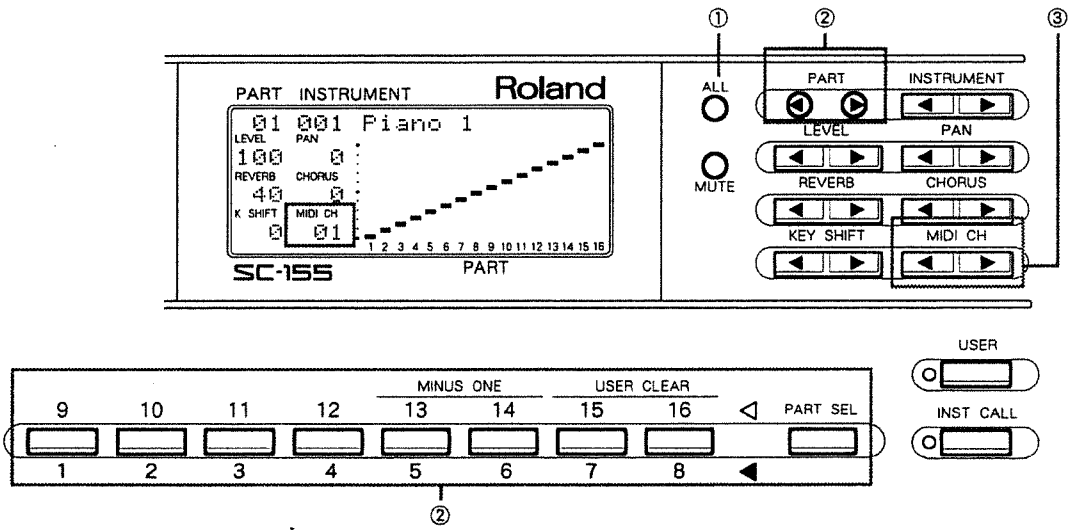
④ Press INSTRUMENT [◀] to turn the switch "Off".
When you want to turn the switch "On", press INSTRUMENT [▶].

⑤ After settings, Press the PART buttons ([◀] and [▶]) simultaneously to finalize.

■ CHANGING THE MIDI RECEIVE CHANNEL (PART)

Use the following procedure to change the MIDI receive channel of each part.

● Changing the MIDI receive channel (Part) : 1—16, Off



① Press [ALL] to turn the button indicator off.

② Use the PART/INST buttons or the PART[◀][▶] buttons to select the part.
The MIDI receive channel of the selected part will be shown in the display.

③ Use the MIDI CH[◀][▶] buttons to change the MIDI receive channel.

⇨If you press MIDI CH[◀] and [▶] simultaneously, the MIDI receive channel setting of each part will be shown on the Bar Display. Press MIDI CH[◀] and [▶] again to return to the previous display.

■CHANGING THE TYPE OF REVERB AND CHORUS

You can select one of eight types of both Reverb and Chorus effects. Make these selections according to your preference. The effect that is chosen will be applied to all parts, therefore when changing the type, please consider how the effect will affect each part. (☞P.28)

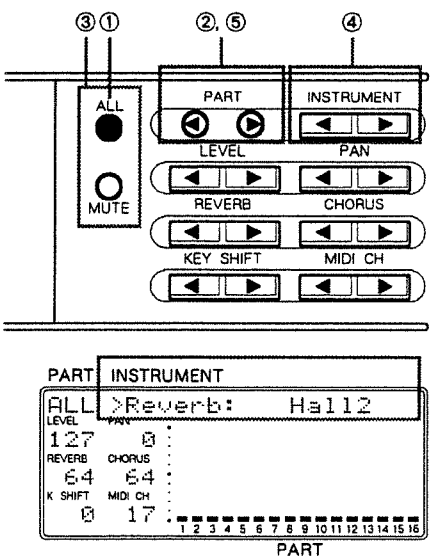
< Reverb type >

Type	Effect
Room 1—3	Reverb that simulates the natural echo of a room. Sharply-defined reverb with a broad spread.
Hall 1—2	Reverb that simulates the natural echo of a hall. Smooth reverb, with greater depth than room.
Plate	This effect simulates Plate Echo (a type of reverb that uses the vibration of metal plates to produce a metallic echo).
Delay	Standard delay effect.
Panning Delay	Delay repetitions pan to left and right. This effect can be used if the unit is connected to a stereo audio device. It is effective when the Sound Canvas is connected to a stereo system.

< Chorus type >

Type	Effect
Chorus 1—4	Standard chorus effect.
Feedback Chorus	Chorus effect that simulates a flanger with soft sound.
Flanger	An effect that is sometimes used to simulate the takeoff and landing of a jet.
Short Delay	A delay repeated in a short time.
Short Delay (FB)	A short delay repeated many times.

●How to change the Reverb and Chorus type



① Press [ALL] to turn the button indicator light on.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Use [ALL] and [MUTE] buttons to select the function that you want to set.

Reverb

Chorus

④ Use the INSTRUMENT [◀][▶] buttons to select the type.

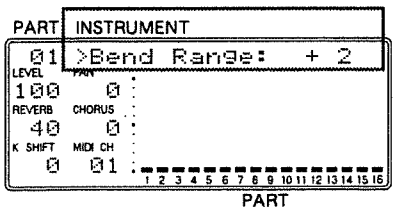
⑤ After setting, press the PART buttons ([◀] and [▶]) simultaneously.

■CHANGING THE WAY THE SOUND IS OUTPUT

Bend Range, Modulation Depth, Key Range, Velocity sens Depth, Velocity sens Offset, M/P mode, Portamento, Portamento time, Modulation and Expression functions can be set according to your own taste. These functions affect the way the sound of each part is output.

□The operation of each function

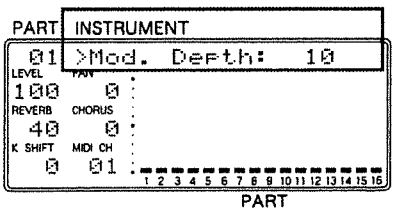
●Bend Range : −24—+24 (semitone steps, ±2 octaves)



Bend Range determines the range over which the pitch can change by using the pitch bend lever or wheel (pitch bend message) on a MIDI keyboard.

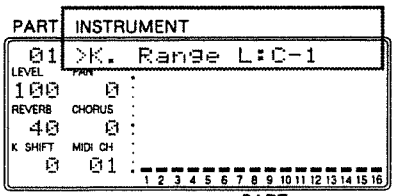
⇨The pitch bend lever (wheel) is often used to create vibrato effects and to emulate the sound of a violin or the bending of strings on an electric guitar.

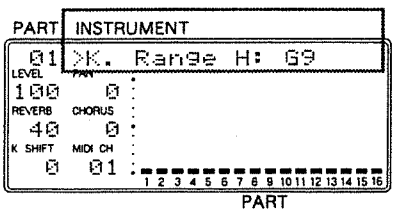
●Modulation Depth : 0—127



The Modulation Depth value determines the depth of the modulation (vibrato effect etc.) which is applied using the modulation lever or wheel (modulation message).

●Key Range : C-1—G-9

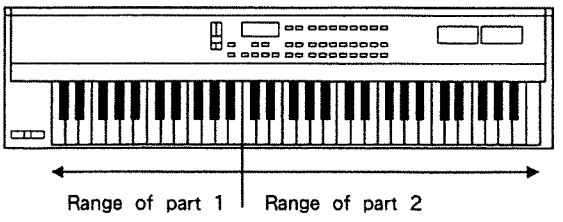




Key Range is a function that determines the range over which a particular sound will be heard. This range is determind by the settings of Key Range L (the lowest note) and Key Range H (the highest note). The value is displayed using the name of the note that shows the position of the key. Middle C is C4. You can set this function within the range of C1 — G9.

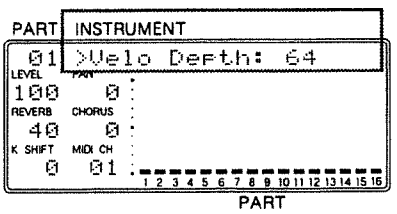
Set Key Range when you are using a MIDI keyboard to play the Sound Canvas.

For example: Set parts 1 and 2 to the same MIDI receive channel. Then set the Key Range of part 1 to C-1 — B3, and the Key Range of part 2 to C4 — G9. Then, by assigning a different instrument to parts 1 and 2, you can play two different instruments on one MIDI keyboard with C-4 as the dividing point.



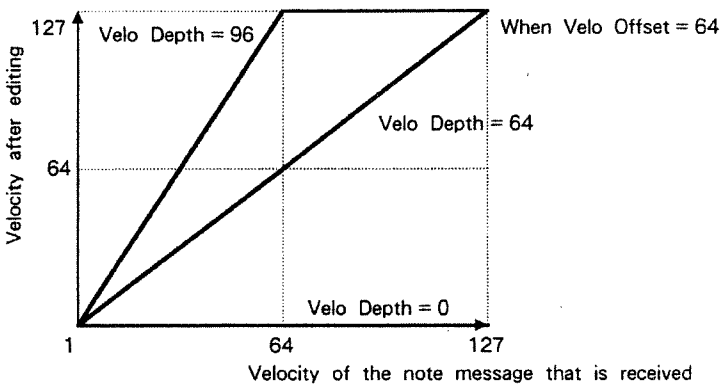
● Velocity Sens Depth : 0—127
● Velocity Sens Offset : 0—127

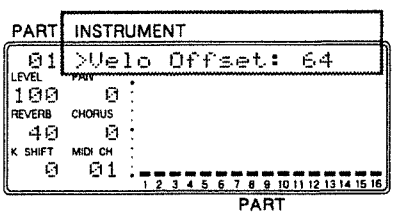
Changing the velocity value of the note message that is received by the Sound Canvas will determine how the volume will be changed.



< Depth >

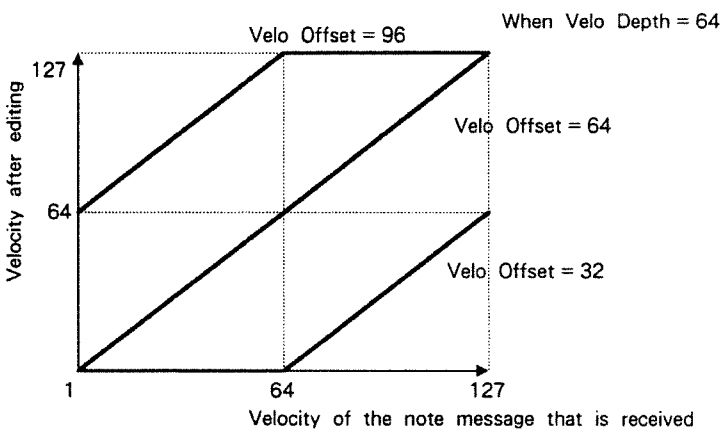
Higher Velocity Sens Depth values result in larger inclination of volume change. When you set the value to "0", the volume will not change regardless of how strongly you play the keyboard.



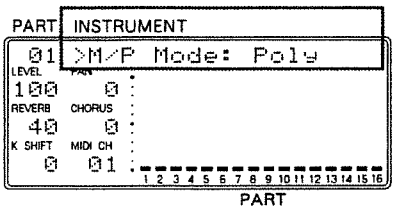


< Offset >

Velocity Sens Offset determines at what point volume will be changed according to keyboard dynamics. If the value is set to 64 or higher, the volume can be changed by playing the keyboard softly. If the value is set below 64, the volume can be changed by playing the keyboard more strongly.



● M/P mode : Poly, Mono

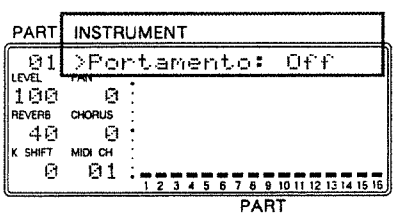


Select the mode of sound output.

Poly : Many notes can be played or heard at once. This is the usual setting.
Mono : Only one note can be played or heard at once. Use this setting for solo instruments such as brass, trumpet.

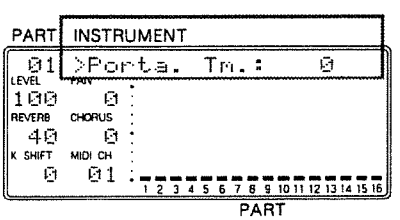
* Modifying the setting of M/P mode will not affect the sound that is set to the drum part.

● Portamento : On/Off



When Portamento is set to ON, the pitch between successively played keys changes in a smooth and continuous fashion.

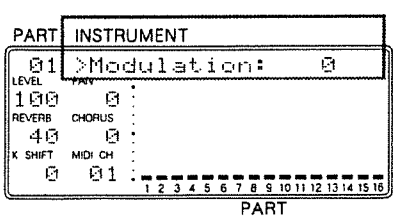
● Porta. Tm. (Portamento Time) : 0—127



This determines the time over which the pitch changes when Portamento is set to ON.

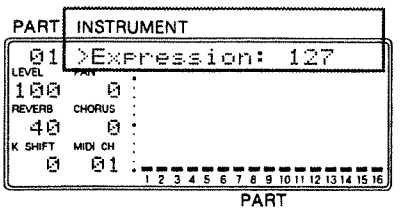
* The Portamento Time is set to 0 at the factory and it also becomes 0 when a GS reset message is received. Set the Portamento Time as desired when applying portamento.

● Modulation : 0—127



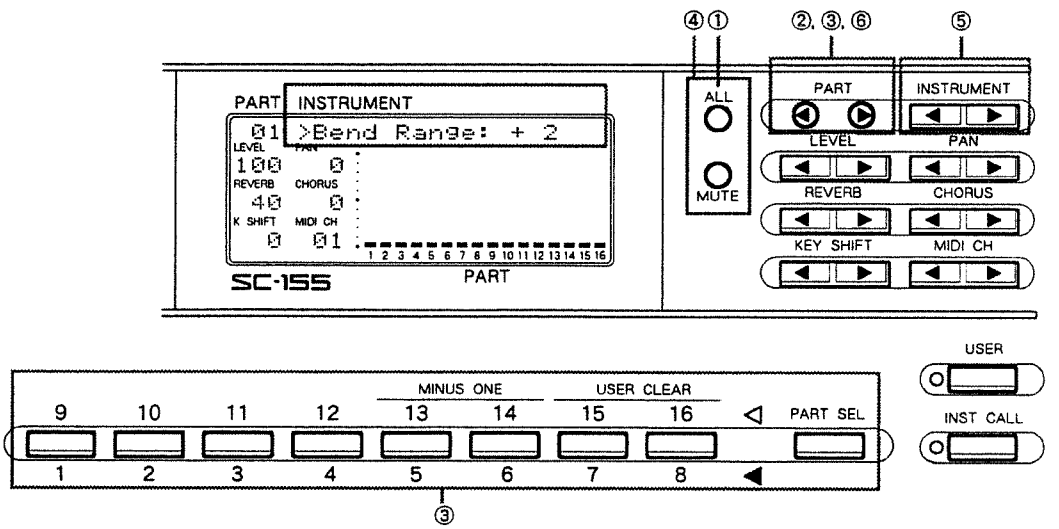
This determines the degree of modulation applied according to the modulation depth setting.

● Expression : 0—127



This determines the degree of the expression function for each Part. Changes in expression are the same as volume level changes; however, no sound is output when the expression is set to 0, even if the volume level is set to 127. The expression is set to 127 at the factory and it also becomes 127 when a GS reset message is received; therefore, the sound volume can be changed by operating the volume level.
Expression data may sometimes be included in song data for playback with GS-compatible devices. This may result in the sound volume being low even though the volume level is increased when playing a MIDI keyboard during playback.

☐ Setting instructions



① Make sure that the [ALL] button indicator is off. If the indicator is on, press the button to turn it off.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Use the PART/INST buttons or the PART [◀][▶] buttons to select the part.

④ Use the [ALL] and [MUTE] buttons to select the function that you want to set.
Bend Range
Modulation Depth
Key Range L
Key Range H
Velocity Depth
Velocity Offset
M/P Mode
Portamento
Portamento Time
Modulation
Expression

⑤ Use the INSTRUMENT [◀][▶] buttons to set the values.

⑥ After setting, press the PART buttons ([◀] and [▶]) simultaneously to finalize the settings.

■ HOW TO USE PARTS FOR ENSEMBLE PERFORMANCES (Voice reserve)

The Sound Canvas has a limited number of notes that can be played or heard simultaneously (the Maximum polyphony). When using a sequencer for ensemble performance (using many instruments at once) the maximum polyphony may be exceeded. The following section will explain how to resolve this problem.

● About the maximum polyphony

The Sound Canvas can play up to 24 notes simultaneously. The number of notes that will actually be heard depends upon the instrument that is selected.

Some instruments are created by combining two types of voices (parts of a sound) to get a more realistic sound. When you want to hear or play an instrument such as this, you must use two voices. Therefore, the maximum polyphony will be 12. When using many instruments at once (ensemble playing) to create song data, you should consider the number of voices in each part and the maximum number of notes that will actually be heard.

● When exceeding the maximum polyphony

When using a sequencer to create song data, the song data should be written with the maximum polyphony of the Sound Canvas in mind. If the song data should happen to temporarily exceed the limit, it is possible that some important notes will be cut, making the song sound unnatural. The Sound Canvas provides a Note Sounding Priority and Voice Reserve function to minimize such occurences.

Note Sounding Priority order of part

Note Sounding Priority order	Part number
1	10 (Drum part)
2	1
3	2
4	3
5	4
6	5
7	6
8	7
9	8
10	9
11	11
12	12
13	13
14	14
15	15
16	16

When the number of notes exceeds 24 voices, that have been sounding the longest notes will be turned off in order. The Note Sounding Priority order determines the priority with which to turn off the notes. In short, the part having the lowest priority will be turned off first, the next to lowest will be turned off second, and so on.

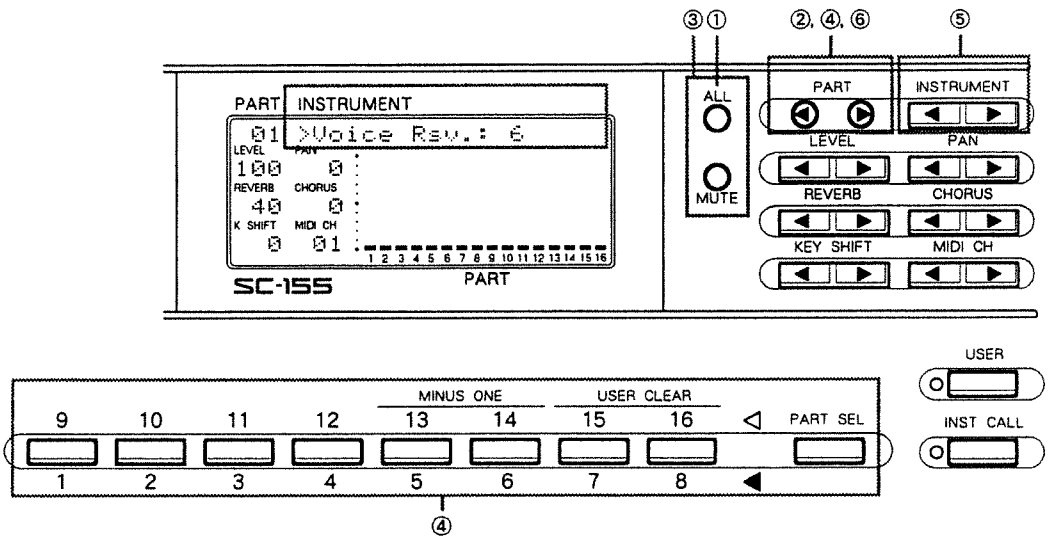
The part's Note Sounding Priority order is shown in the chart on the left. When you make a song, consider the priority order carefully when you specify each Sound Canvas part.

< Voice Reserve >

The part's Note Sounding Priority only determines the priority order. It does not secure the number of notes that will be heard. Therefore, it is possible that a part will be cut off even if it has a high priority. Voice Reserve is an effective function for resolving this problem.

Voice Reserve is a function that reserves a minimum number of voices for each part, in case the total number of voices exceeds 24. For example, if you set the Voice Reserve of a particular part to 10, ten notes will be reserved for that part regardless of Note Sounding Priority order. If the instrument consists of one voice, ten notes will be secured for that instrument. Furthermore, the Sound Canvas can play up to 24 notes (voices) simultaneously, so the total number of voices that can be secured is 24.

● Voice Reserve : 0—24



① Make sure that the [ALL] button indicator is off. If the indicator is on, press the button to turn it off.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Use the [ALL] and [MUTE] buttons to select "Voice Rsv".

④ Use the PART/INST buttons or the PART[◀][▶] buttons to select the part.

⑤ Use the INSTRUMENT[◀][▶] buttons to set the voice number.

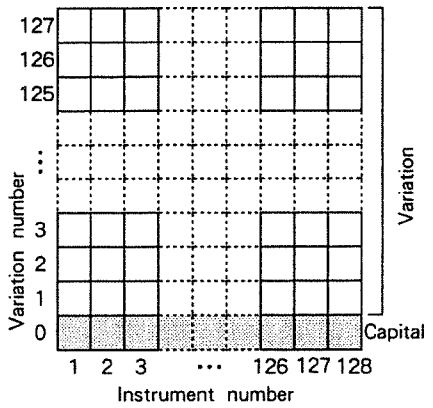
⑥ After setting, press the PART buttons ([◀] and [▶]) simultaneously to finalize the setting.

* The total number of voices that you can reserve for all parts is 24. If the number doesn't get any higher at the time of setting, make the voice reserve number of the other parts lower.

■SELECTING INSTRUMENT VARIATIONS

Some instruments have a variation that adds a different nuance to its sound.
The following section will explain how to use Instrument Variation.

● Instrument Variation

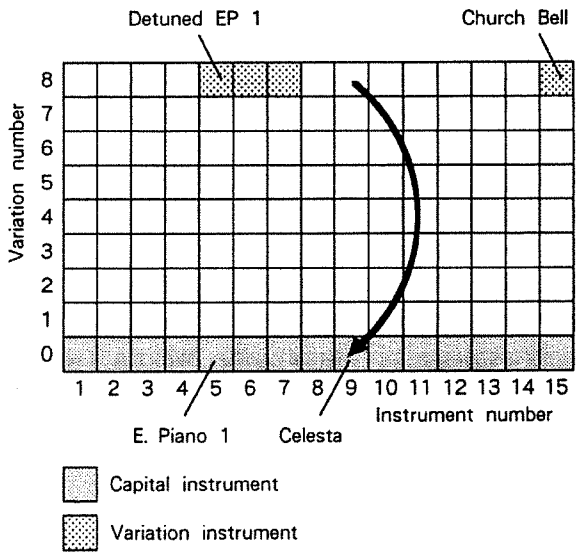


Using the Sound Canvas instruments that you have used until now as a foundation, the basic instrument is called "Capital", and the instrument that has a different nuance added to its sound is called "Variation".
The relationship between the Instrument number and the Variation number can be seen in the illustration on the left.

⇨Refer to "Instrument Table"(☞ P.Ap.-15) to see which instrument has which kind of variation.

⇨Instruments that have the same sound arrangement as the MT-32 (or CM-32L) are set to variation number 127.

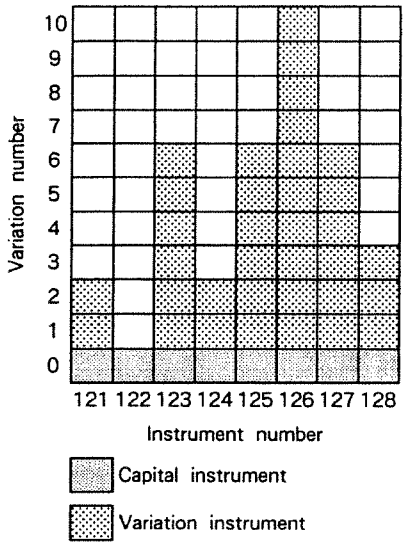
< Variation of Instrument number 1—120 >



If you select an instrument for a part after altering the variation of the part, the instrument which is on the same line as the altered variation number will be selected. However, if you select an instrument that does not have a variation, the instrument capital will be substituted.
For example, if the current instrument is "E. Piano 1" (instrument number: 5) for part 1 and you change to variation number 8, "Detuned EP 1" of variation number 8 will be selected. Then if you change to instrument number 15, "Church Bell" will be selected. If you change to instrument number 9, since it has no variation, "Celesta" capital will be substituted.

⇨ When you specify variation number 63 and up, and the instrument is not assigned to its variation number, the capital instrument will not be substituted and no sound will be heard.

< Variation of Special Effect sounds (Instrument number 121—127) >

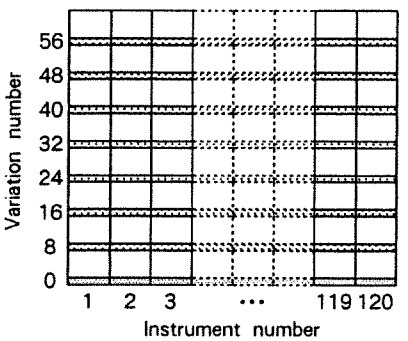


The operation of Special Effect sounds is different from other types of instruments.

Special Effect sounds such as "Falling rain" or "Laughter" are classified by instrument numbers according to their type. Capital is considered to be the foundation for other types of instruments, but Capital is considered to be one of the variations of Special Effect sounds. Therefore, when an instrument is not assigned to the variation number that you specified, the Capital instrument will not be substituted and no sound will be heard.

For example, if you change to instrument number 121 after changing to variation number 8 using another instrument, no sound will be heard because instrument number 121 is not assigned to variation number 8.

< Sub Capital >

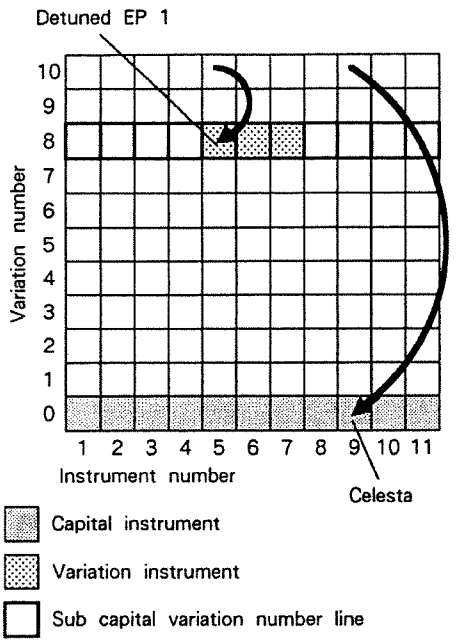


Each variation number of 8, 16 and 24... (that is every 8th number as shown in the illustration on the left) is specified as Sub Capital.

It, like Capital, substitutes an instrument for a variation when the instrument is not assigned to the variation number that you specified.

⇨Sub Capital (or Capital) is substituted only to instrument numbers 1—120/ variation numbers 1—63.

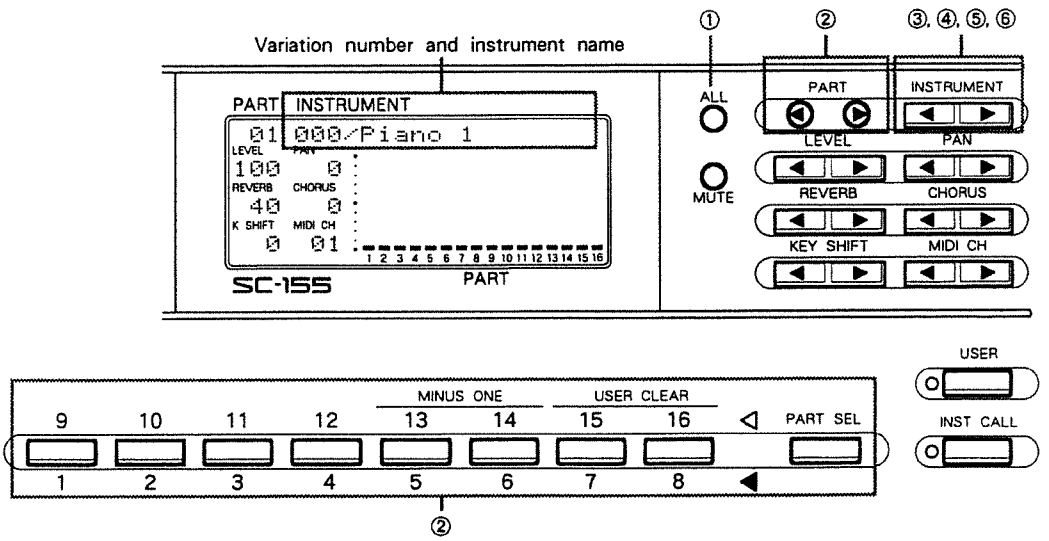
If you change to another instrument number after selecting a variation number other than Sub Capital, Sub Capital or Capital will be substituted if the instrument is not assigned to its variation number. Which will be substituted is determined by the variation of the instrument number that you specified.



For example, when variation number 10 is selected and you change to instrument number 5, Sub Capital "Detuned EP-1" (contained in the specified variation number) will be substituted. Furthermore, if you change to instrument number 9, the instrument is not assigned to the Sub Capital which is contained in the specified variation number. Therefore, Capital "Celesta" will be substituted.

The instrument that is substituted will be different, depending on whether or not the instrument is assigned to the sub capital which is contained in the specified variation number.

●How to change the variation



① Make sure that the [ALL] button indicator is off. If the indicator is on, press the button to turn it off.

② Use the PART/INST buttons or the PART[◀][▶] buttons to select the part.

③ Use the INSTRUMENT[◀][▶] buttons to change to an instrument containing a variation.

④ Press the INSTRUMENT buttons ([◀] and [▶]) simultaneously.
As soon as the displayed instrument number is changed to variation number, a "/" mark will be displayed in front of the instrument name and the variation can then be changed.

⑤ Use the INSTRUMENT [◀][▶] buttons to change the variation.

⑥ Press the INSTRUMENT buttons ([◀] and [▶]) simultaneously to finalize.

⇨When you want to return to the status in which instrument numbers can be changed, a mark will be displayed in front of the instrument name indicating what type of instrument has been selected.

Space: Capital

\+ : variation number 1 — 126

: variation number 127 (MT-32 set)

⇨An instrument number and variation number that has no instrument assigned to it, or Capital/Sub-capital is substituted cannot be selected.

●How to change the variation using an external MIDI device

The instrument is changed by a program change message and a control change message (control number 0 and 32).

To change the instrument, transmit in the following order.

①Control number 0/value (variation number)

②Control number 32/value (0)

③Program number (instrument number)

⇨Refer to the owner's manual of your MIDI device for information about transmitting program change messages/control change messages.

⇨A mark will be displayed in front of the instrument name indicating what type of instrument has been selected.

Spece: Capital (variation number 0)

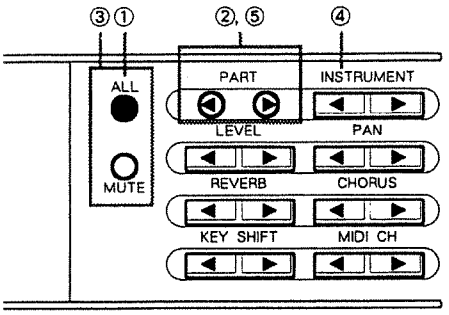
\+ : Variation number 1 — 126

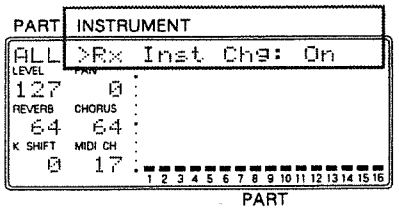
: Variation number 127 (MT-32 set)

⇨When Capital/Sub Capital is substituted, the instrument name that is substituted will be shown in the display.

⇨If you specify a number to which Capital/Sub Capital is not substituted, no sound will be heard (the instrument name will not be display).

● When you don't want to change the instrument from the external MIDI device





① Press [ALL] to turn the button indicator on.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Use the [ALL] and [MUTE] buttons to select "Rx Inst Chg" (Instrument receiving switch).

④ Use the INSTRUMENT [◀] button to select "Off".
Press INSTRUMENT [▶] to reselect to "On".

⑤ After setting, press the PART buttons ([◀] and [▶]) simultaneously to finalize the settings.

⇨When the instrument receiving switch is turned off, the instruments/drum set of all parts cannot be changed from an external MIDI device.

■ALTERING THE SOUND

The sound of an instrument can be altered according to your taste.

□Before altering the sound

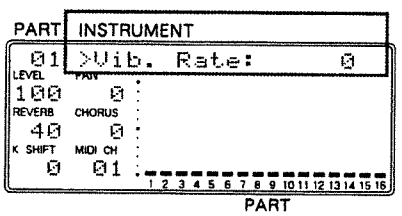
The Sound Canvas contains parameters (elements) that are used to alter the sound. Altering the sound means editing the basic settings of each instrument. Therefore, even if the value of a parameter is the same, the effect may be different depending on the instrument that is selected.
Sound parameters are also set for each part. Therefore, if you change to another instrument after changing the value of a parameter, that instrument's sound will be changed. The normal method of operation is to change the value of the parameter for the part in which only one specified instrument is used.

□The function of each parameter

●Vibrato

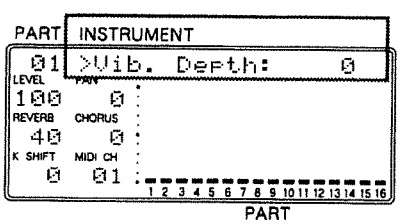
Vibrato adds a pitch-fluctuation effect to the sound.

Vibrato Rate : − 50— + 50



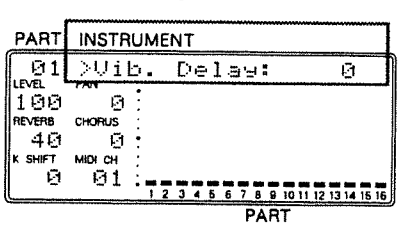
This determines the speed with which the pitch will fluctuate.
+ Values : Pitch fluctuations will be faster
− Values : Pitch fluctuations will be slower

Vibrato Depth : − 50— + 50



This determines the depth of the pitch fluctuations.
+ Values : Pitch fluctuations will be deeper
− Values : Pitch fluctuations will be shallower

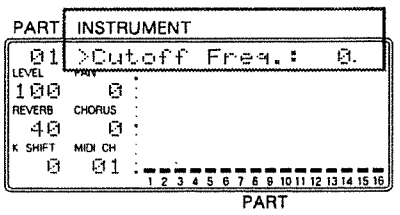
Vibrato Delay : − 50— + 50



This adjusts the time delay after which the vibrato will begin.
+ Values : the time delay will be longer
− Values : the time delay will be shorter

●Nuances of the sound

Cutoff Freq. (Cutoff Frequency) : – 50—+ 16

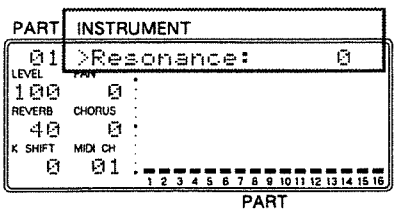


This parameter determines the frequency at which the overtone element of the sound is cut. The change may be completely different depending on the instrument that is selected.

Generally speaking, negative (–) values usually result in a softer sound.

⇨Most instrument sounds are created without a large cut in the overtone element. Raising the Cutoff Frequency of these instruments will not change the sound greatly.

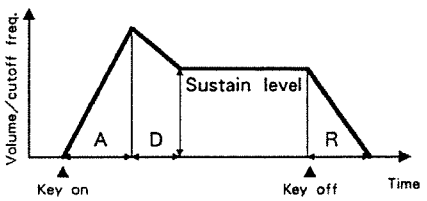
Resonance : – 50—+ 50



This parameter determines how much the overtone element which is cut by the Cutoff Freq. will be emphasized.

Generally speaking, higher values will result in a more peculiar synth-type sound.

●Envelope



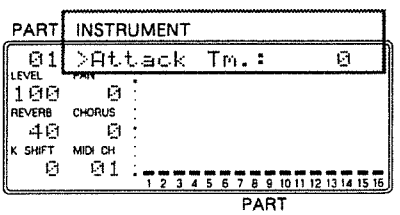
These settings create changes in volume and Cutoff Frequency over time.

A : Attack time

D : Decay time

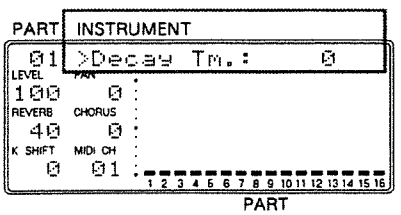
R : Release time

Attack time : – 50—+ 50



This setting determines the time at which the sound begins.

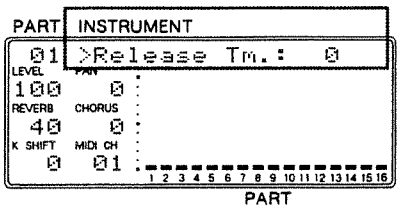
Decay time : – 50—+ 50



This setting determines the time at which the sustain level is reached.

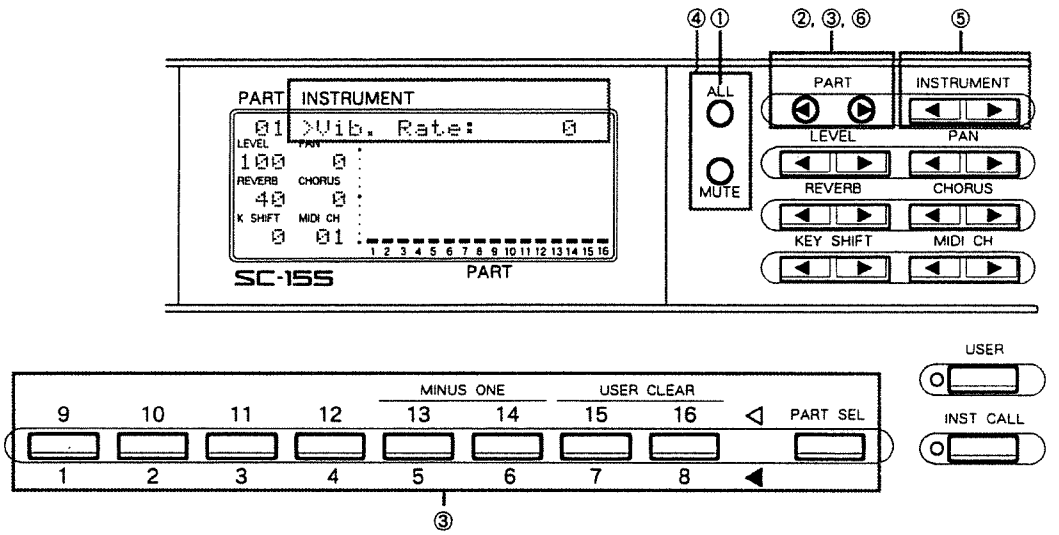
* Use Release time to adjust the volume decrease on instruments that have a natural decay (such as piano and guitar).

● Release time : – 50—+ 50



This setting determines the time at which the sound is released.

□ Setting instructions



① Make sure that the [ALL] button indicator is off. If the indicator is on, press the button to turn it off.

② Press the PART bottons ([◀] and [▶]) simultaneously.

③ Use the PART/INST buttons or the PART[◀][▶] buttons to select the part for setting.

④ Use the [ALL] and [MUTE] buttons to select the sound parameter.

Vib. Rate
Vib. Depth
Vib. Delay
Cutoff Freq.
Resonance
Attack Time
Decay Time
Release Time

⑤ Use the INSTRUMENT[◀][▶] buttons to set the value.

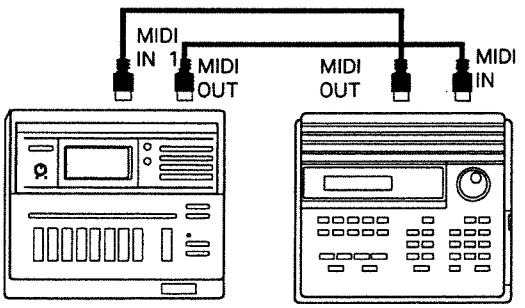
⑥ After setting, press the PART buttons ([◀] and [▶]) simultaneously to finalize the settings.

■STORING THE BASIC SETTINGS IN A SEQUENCER

The Sound Canvas can transmit the settings of basic parameters and the mute on/off setting as the MIDI messages. You can store this messages as initial settings when creating music.

Connections

Set the "soft thru" function of the connected sequencer to ON. When soft thru is set to ON, the messages received via MIDI IN output through the MIDI OUT connector as if it were MIDI THRU messages. See the owner's manual of your sequencer for details.



SC-155 Sound Canvas　　Sequencer (MC-50)

● SETUP SEND

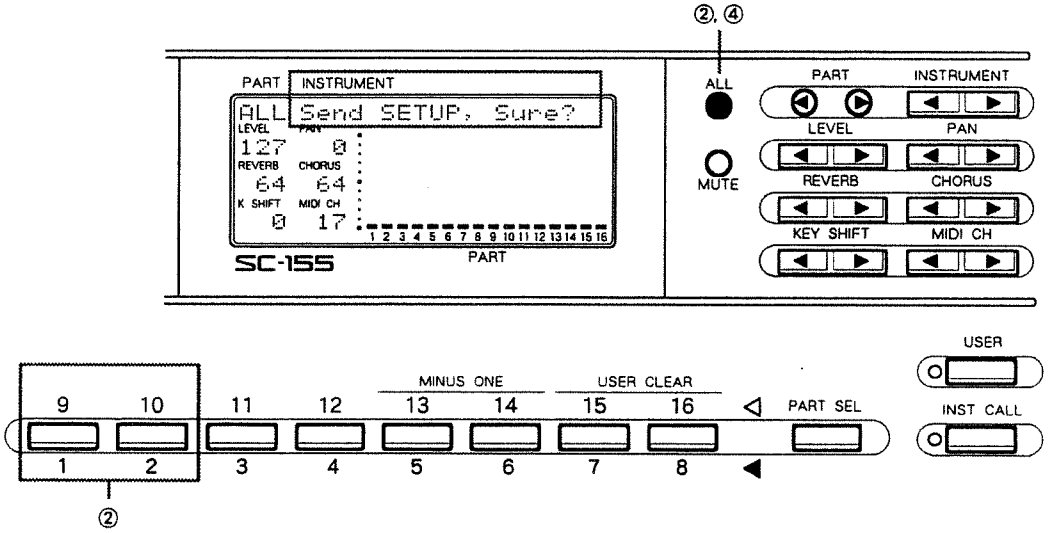
This function is used when recording the settings of the parameters.
The following parameters can be transmitted as MIDI messages for the SETUP SEND.

Instrument (Variation)
Volume level
Pan
Reverb
Chorus
Part mode

See the MIDI implementation for details (☞P.Ap.-23).

⇨All parts settings are transmitted as exclusive messages.

☐How to transmit (all parts and specified part settings)



① After turning the [ALL] button indicator off, mute the part that you do not want to transmit (☞P.34).

② After turning the [ALL] button indicator on, press the PART/INST buttons [1 (9)] and [2 (10)] simultaneously.
"Send SETUP, Sure?" will be shown in the display, and the Sound Canvas will be ready to transmit.

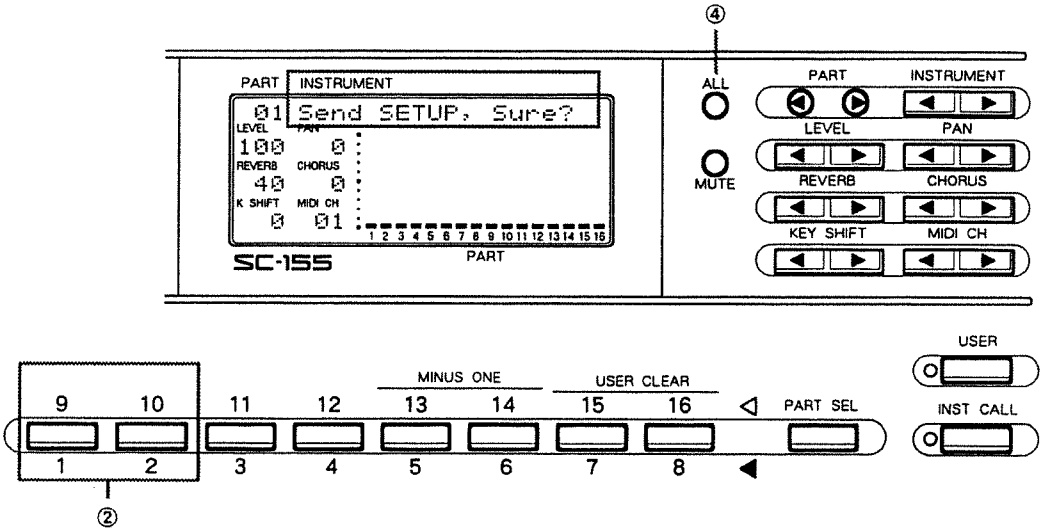
⇨It is also possible to transmit by pressing PART [▶] and INSTRUMENT [◀] buttons simultaneously.

③ Start sequencer recording (Realtime recording).

④ Press [ALL] to transmit. (To stop the procedure, press [MUTE].)

⑤ Stop sequencer recording.

□How to transmit (the settings of a specified part)



① After turning the [ALL] button indicator off, mute the part that you do not want to transmit (☞P.34).

② Press the PART/INST buttons [1 (9)] and [2 (10)] simultaneously.
"Send SETUP, Sure?" will be shown in the display, and the Sound Canvas will be ready to transmit.

⇨It is also possible to transmit by pressing PART [▶] and INSTRUMENT [◀] buttons simultaneously.

③ Start sequencer recording (Realtime recording).

④ Press [ALL] to transmit. (To stop the procedure, press [MUTE].)

⑤ Stop sequencer recording.

*The Pan setting of the Part can be transmitted by Exclusive only when it is set to "Rnd".

●LEVEL/PAN SEND

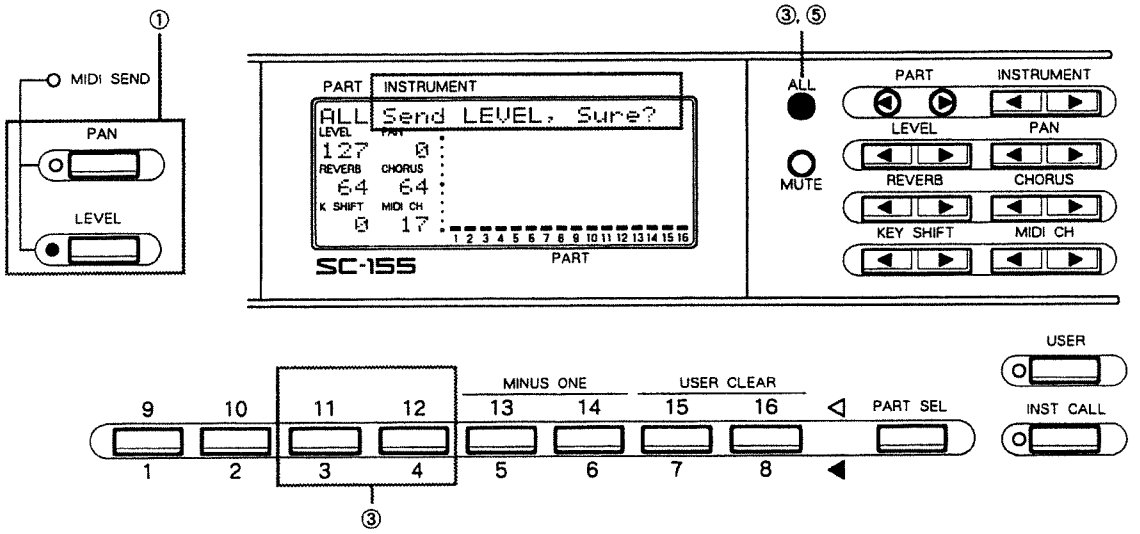
The settings of the volume level and pan can be transmitted as MIDI messages for LEVEL/PAN SEND.

Volume level
Pan

See the MIDI implementation for details (☞P.Ap.-23).

⇨All parts settings are transmitted as exclusive messages.

□How to transmit (all parts and specified part settings)



① Make sure that the indicator of [LEVEL] is lit when transmitting the volume level setting, and that the indicator of [PAN] is lit when transmitting the pan setting.

② After turning the [ALL] button indicator off, mute the part that you do not want to transmit (☞P.34).

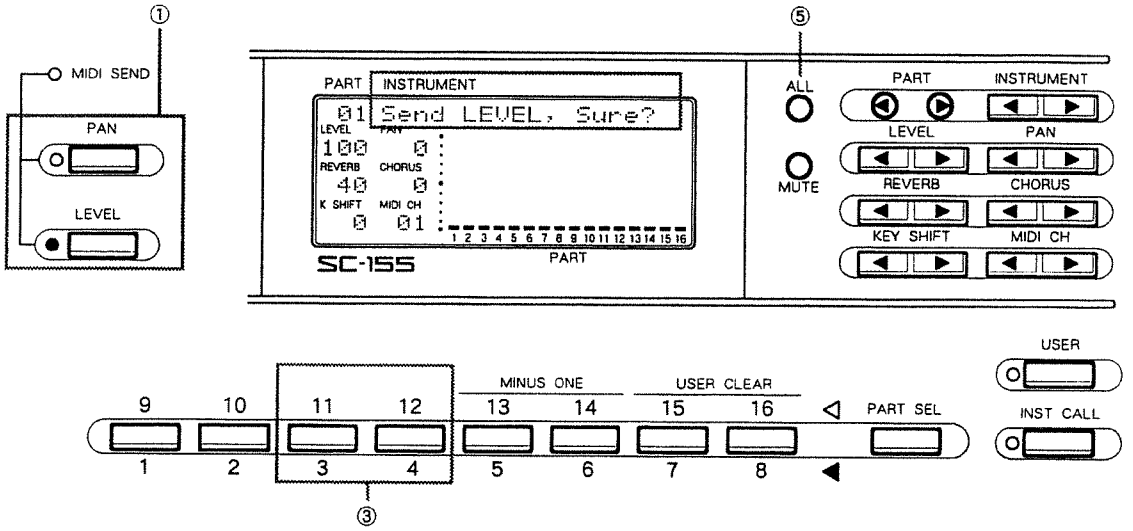
③ After turning the [ALL] button indicator on, press the PART/INST buttons [3(11)] and [4(12)] simultaneously.
"Send LEVEL, Sure?" or "Send PAN, Sure?" will be shown in the display, and the Sound Canvas will be ready to transmit.

④ Start sequencer recording (Realtime recording).

⑤ Press [ALL] to transmit. (To stop the procedure, press [MUTE].)

⑥ Stop sequencer recording.

☐How to transmit (the settings of a specified part)



① Make sure that the indicator of [LEVEL] is lit when transmitting the volume level setting, and that the indicator of [PAN] is lit when transmitting the pan setting.

② After turning the [ALL] button indicator off, mute the part that you do not want to transmit (☞P.34).

③ Press the PART/INST buttons [3(11)] and [4(12)] simultaneously.
"Send LEVEL, Sure?" or "Send PAN, Sure?" will be shown in the display, and the Sound Canvas will be ready to transmit.

④ Start sequencer recording (Realtime recording).

⑤ Press [ALL] to transmit. (To stop the procedure, press [MUTE].)

⑥ Stop sequencer recording.

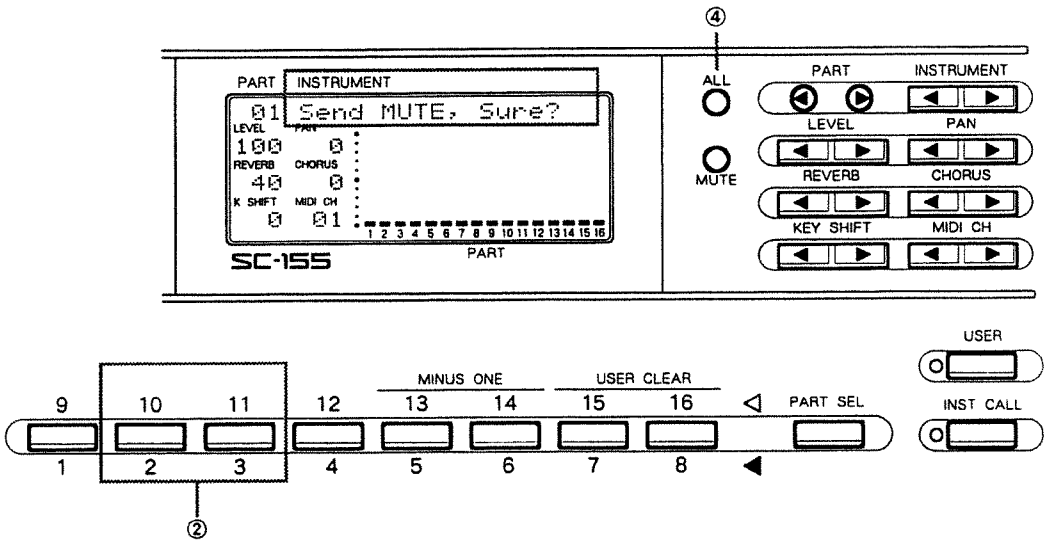
* The Pan setting of the Part can be transmitted by Exclusive only when it is set to "Rnd".

● MUTE SEND

The settings of the mute can be transmitted as MIDI messages (exclusive messages) for MUTE SEND.

See the MIDI implementation for details (☞P.Ap.-23).

☐How to transmit



① After turning the [ALL] button indicator off, select the parts that you want to mute (☞P.34).

② Press the PART/INST buttons [2 (10)] and [3 (11)] simultaneously.
"Send MUTE, Sure?" will be shown in the display, and the Sound Canvas will be ready to transmit.

③ Start sequencer recording (Realtime recording).

④ Press [ALL] to transmit. (To stop the procedure, press [MUTE].)

⑤ Stop sequencer recording.

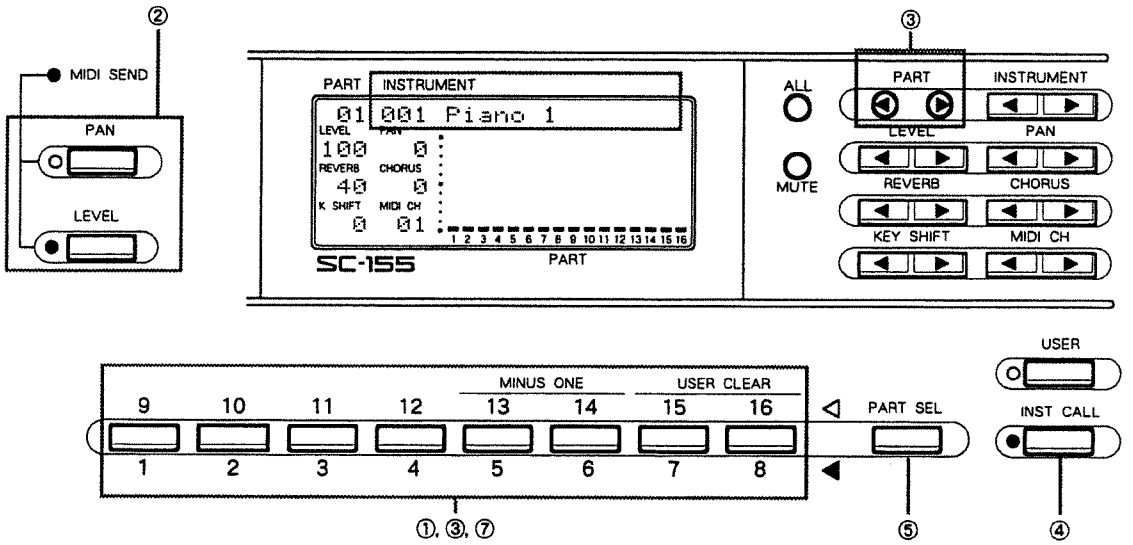
■STORING DATA CREATED BY USING THE SOUND CANVAS' FUNCTIONS IN A SEQUENCER (MIDI SEND)

Use of [INST CALL] and the sliders usually directly affect the internal sound source. However, Using [INST CALL] and the sliders when MIDI SEND is set to ON, selection of the instrument and changes in volume and pan data can be transmitted as MIDI messages. For example, you can record this data to a sequencer and change the level balance of each Part of the song to create fade-in and fade-out effects.

See the MIDI implementation for details (☞P.Ap.-23).

⇨All parts settings are transmitted as exclusive messages.

☐How to transmit (Instrument)



① Store the instrument to be transmitted in the PART/INST buttons. (☞P.25)

② Press [LEVEL] and [PAN] simultaneously to light up the MIDI SEND indicator.

③ Select the Part whose instrument is to be transmitted using the PART/INST buttons or the PART [◀][▶] buttons.

④ Press [INST CALL] to light up the indicator.

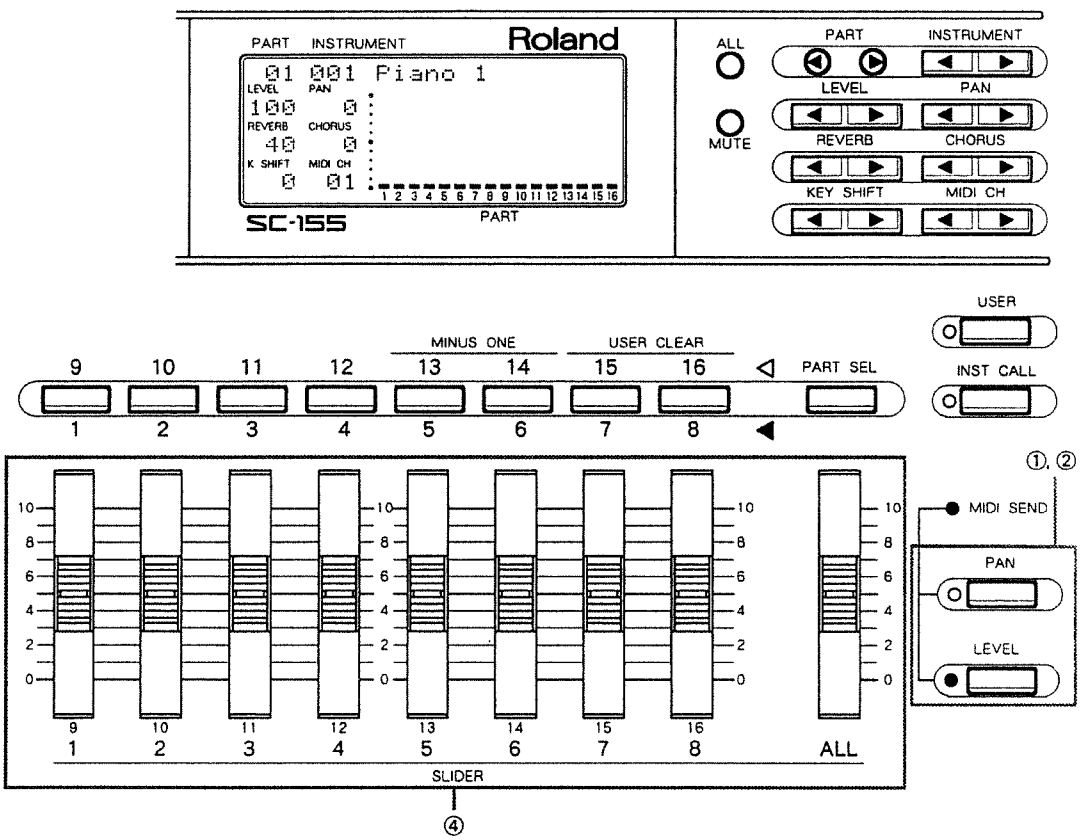
⑤ Select the area (1—8 or 9—16) using [PART SEL].

⑥ Start recording (realtime recording) from the place that you want to transmit the instrument.

⑦ Transmit the instrument by pressing the PART/INST buttons to which the instrument has been assigned.

⑧ Stop the recording of sequencer.

☐How to transmit (Volume level or Pan)



① Make sure that the indicator of [LEVEL] is lit when transmitting the volume level setting, and that the indicator of [PAN] is lit when transmitting the pan setting.

② Press [LEVEL] and [PAN] simultaneously to light up the SEND indicator.

③ Start recording (realtime recording) from the place where you want to adjust the volume level or pan.

④ If you move the sliders, each changed value will be transmitted.

⑤ Stop sequencer recording.

* When the slider are operated, only the data (volume level or pan) shown by the indicator is transmitted.

* The range of the Pan setting of the Part that can be transmitted for MIDI SEND is L63—0—R63.

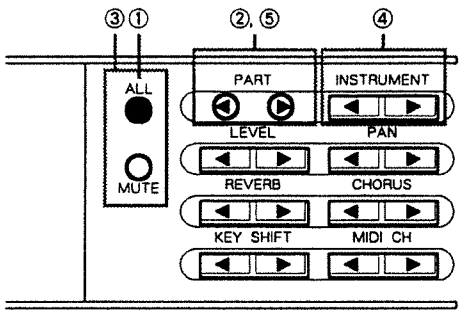
<Sending various messages>

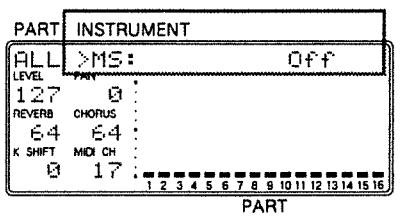
The following parameters are set by slider and sent as MIDI messages.

Modulation	Vib. Depth
Portamento Time	Vib. Delay
Volume	Cutoff Freq.
Pan	Resonance
Expression	Attack Time
Reverb	Decay Time
Chorus	Release Time
Vib. Rate	

To find the contents of MIDI messages see the "MIDI Implementation" (P.Ap.-23). (Transition mode is set to "OFF" as a factory default.)

How to set





① Press [ALL] to turn the button indicator on.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Use the [ALL] and [MUTE] buttons to select "MS".

④ Select the parameters you wish to send with INSTRUMENT [◀] and [▶]. Select "OFF" if nothing is to be sent.

⑤ After the setting is done, complete the operation by pressing the PART buttons ([◀] and [▶]) simultaneously.

How to transmit

① Turn off the indicator lights of both [LEVEL] and [PAN].

② Press [LEVEL] and [PAN] simultaneously (the MIDI SEND indicator will light).

③ The new value is transmitted by moving the slider.

■STORING ALL THE SETTINGS IN A SEQUENCER

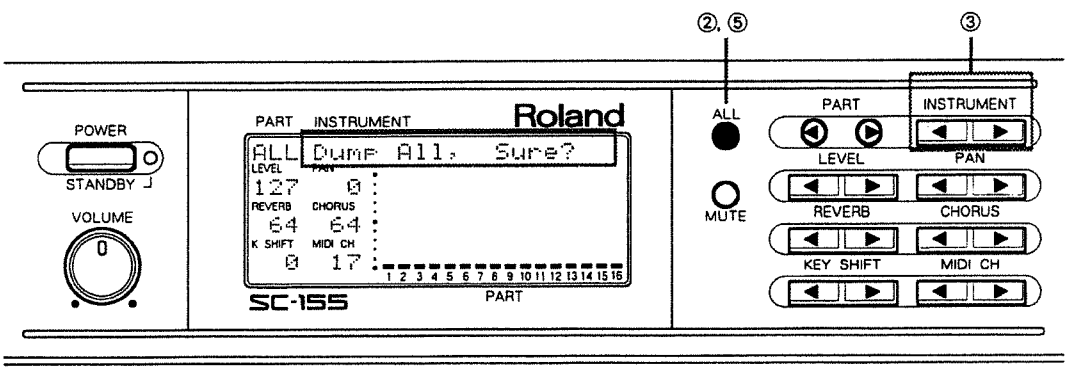
You can transmit all the settings as MIDI messages (exclusive messages) from the Sound Canvas. The chart below shows the examples you can transmit. Use this function when you want to save the Sound Canvas's settings in a sequencer or other device. You can also store the settings to the beginning of the song data. Then whenever you load the song data to be played, it can be played in the same condition.

Overall part settings
Volume level of all parts
Pan of all parts
Reverb level of all parts
Chorus level of all parts
Key shift of all parts
Master tune
Reverb type
Chorus type

Part settings	
Instrument selection	Part Mode
Drum part setting	Bend range
Reverb	Partial reserve
Chorus	Key range low
Pan	Key range high
Volume level	Velocity sens depth
Key shift	Velocity sens offset
MIDI channel	M./P mode
	Vibrato rate
	Vibrato depth
	Vibrato delay
	Cutoff frequency
	Resonance
	Attack time
	Decay time
	Release time

* Whether or not exclusive messages can be transmitted and received correctly depends on the type of sequencer.
* For more details, refer to the MIDI implementation (☞P.Ap.-23).
* If you are using more than one Sound Canvas, transmit after changing the Device ID number of each unit (☞P.78). The factory preset is 17.
* The setting of the voice reserve for each part will be transmitted as the setting for all parts.

●How to transmit (All Sound Canvas settings)



① Using a MIDI cable, connect MIDI OUT of the Sound Canvas to MIDI IN of the sequencer.

② Press [ALL] to turn the button indicator light on.

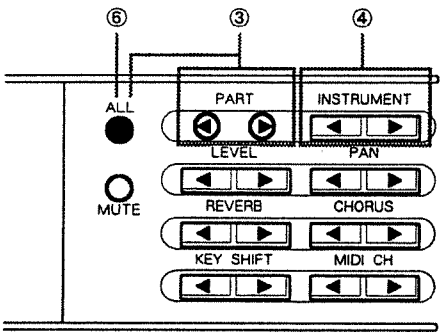
③ Press the INSTRUMENT buttons ([◀] and [▶]) simultaneously.
"Dump All, Sure?" will be shown in the display, and the Sound Canvas will be ready to transmit.

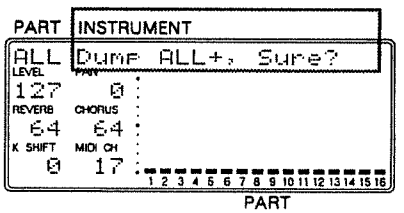
④ Start sequencer recording (Realtime recording).

⑤ Press [ALL] to transmit. (To stop the procedure, press [MUTE].)

⑥ Stop sequencer recording.

● How to transmit (all parts and specified part settings)





① Using a MIDI cable, connect MIDI OUT of the Sound Canvas to MIDI IN of the sequencer.

② After turning the [ALL] button indicator off, mute the part that you do not want to transmit (☞P.34).

③ After turning the [ALL] button indicator on, press the PART buttons ([◀] and [▶]) simultaneously.

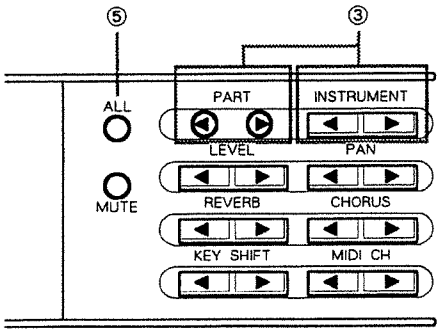
④ Press the INSTRUMENT buttons ([◀] and [▶]) simultaneously.
"Dump ALL+, Sure?" will be shown in the display, and the Sound Canvas will be ready to transmit.

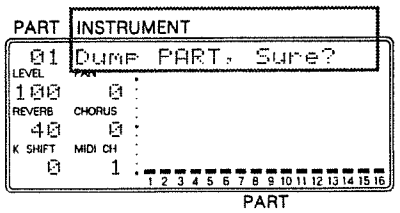
⑤ Start sequencer recording (Realtime recording).

⑥ Press [ALL] to transmit. (To stop the procedure, press [MUTE].)

⑦ Stop sequencer recording.

●How to transmit (the settings of a specified part)





① Using a MIDI cable, connect MIDI OUT of the Sound Canvas to MIDI IN of the sequencer.

② After turning the [ALL] button indicator off, mute the part that you do not want to transmit (☞P.34).

③ After pressing the PART buttons ([◀] and [▶]) simultaneously, press the INSTRUMENT buttons ([◀] and [▶]) simultaneously.
"Dump PART, Sure?" will be shown in the display, and the Sound Canvas will be ready to transmit.

④ Start sequencer recording (Realtime recording).

⑤ Press [ALL] to transmit. (To stop the procedure, press [MUTE].)

⑥ Stop sequencer recording.

●How to receive

① Using a MIDI cable, connect MIDI IN of the Sound Canvas to MIDI OUT of the sequencer.

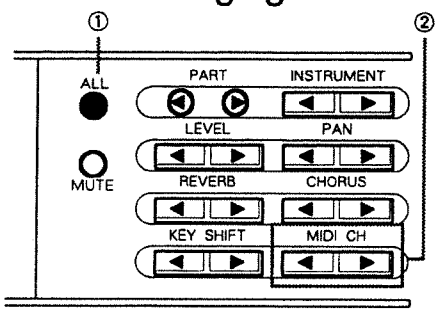
② It is not necessary to set the Sound Canvas to any special receiving status. Simply transmit the exclusive messages from the sequencer.

⇨When you do not want to receive exclusive messages, turn the exclusive receiving switch off (☞P.78).

⇨If the Device ID number of the exclusive message that is transmitted does not match the Device ID number of the Sound Canvas (☞P.78), the exclusive message cannot be received correctly.

Exclusive messages (☞P.Ap.-21) have what is called a device ID number (sometimes called "unit number") to distinguish each device when many devices are being used. Device ID numbers are given the numbers 1—32 (factory preset 17). When only one Sound Canvas is used, it is not necessary to change the Device ID number.
When you do not want to receive exclusive messages, turn the exclusive receiving switch off (factory preset on).

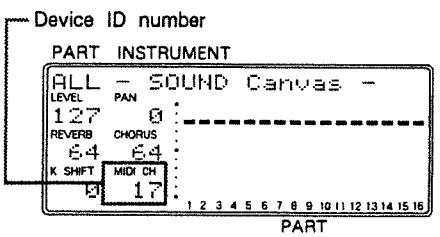
< When changing the Device ID number >



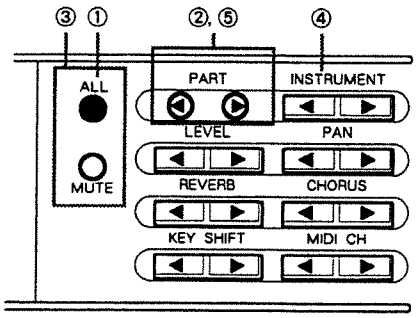
① Press [ALL] to turn the button indicator on.

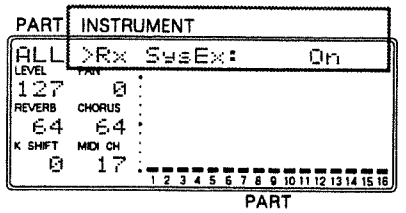
② Use the MIDI CH [◀][▶] buttons to change the Device ID number.

⇨ If you press MIDI CH [◀] and [▶] simultaneously, the current setting will be shown on the bar display. Press MIDI CH [◀] and [▶] again to return to the previous display.



< When you do not want to receive exclusive messages >





① Press [ALL] to turn the button indicator light on.

② Press the PART buttons ([◀] and [▶]) simultaneously.

③ Use the [ALL] and [MUTE] buttons to select "Rx SysEx" (Exclusive receiving switch).

④ Press INSTRUMENT [◀] to turn the switch "Off". (To turn the switch "on", press INSTRUMENT [▶].)

⑤ After setting, press the PART buttons ([◀] and [▶]) simultaneously to finalize the setting.

Appendix

■ TROUBLESHOOTING

If the Sound Canvas does not perform as expect, please check the following points. If you can not solve the problem, discontinue use immediately, contact your Roland dealer or a nearby Roland service station as soon as possible.

⇨If an error message appears in the display during operation, refer to the error message table on the following page.

⇨If you are using the song data designed for playback with GS-compatible devices and playback isn't executed as expected, check that the GS reset receiving switch (P.47) is set to ON. If playback still seems to be working improperly the switch on, then check the following points.

● Cannot turn the power on

Be sure to use only the included AC adaptor.

● No sound

Is the power to the connected devices turned on?
Is the volume control knob turned all the way down?
Can you hear the sound in the headphones? If you can, the problem is probably in an audio cable connection, or an amp or mixer.
Are all the segments at the bottom of the bar display off? If all parts are off, the mute is ON. Turn the mute off (☞P.34).
Is the volume level of all parts too low (☞P.17)?
Is an external device using an expression pedal which is turned down?

● A specified part cannot be heard

Are the segments at the bottom of the bar display off? The mute is ON for the parts that are not lit. Turn the mute off (☞P.34).
Is the volume level of the part too low (☞P.27)?
Does the part's MIDI receive channel match the MIDI transmit channel of the external device?

● Notes within a specified range cannot be heard

Has the Key Range been set (☞P.51)?

● Distorted sound

When the sound of a specified instrument distorts, decrease the volume level of that part (☞P.27).
When the overall sound distorts, decrease the volume level of all parts (☞P.17), or turn the volume control knob on the front panel down.

● The pitch is wrong

Is the Master Tune setting correct (☞P.39)?
Does the pitch of all parts differ by more than one semitone (☞P.19)?
Is the pitch of the specified part off by more than one semitone (☞P.28)?
Has pitch bend data been received, leaving the pitch "hanging" at some non-zero value? Return the bender to the center position or transmit the center value (63) of the pitch bend message.

● The instrument cannot be changed

Is the instrument receiving switch turned off (☞P.61)?
Check that USER is not set to ON (☞P.32).

● The instruments sound strange

Have you changed to another instrument after editing the sound? Set all sound parameter values to 0 (☞P.51, 62).

● Notes of an important part are cut off

Change the voice reserve settings (☞P.56).

● Exclusive messages cannot be received

Is the exclusive message receiving switch turned off (☞P.78)?
Does the Device ID number of the exclusive message that you are sending match the Device ID number of the Sound Canvas? (☞P.78)

■ERROR MESSAGES

If you attempt to execute an incorrect operation or if some unexpected condition occurs, one of the following error messages will appear in the display (in the area that normally displays the instrument name and number).
Refer to this list, and take the appropriate action.

Battery Low!

Reason : The internal memory backup battery is low.
Action : Consult the nearest Roland service station.

Address Error!
Reason : The address of the exclusive message that is being received is incorrect.

DT1 Data Error!
Reason : DT I (Data set 1) data that is being received is incorrect.

RQ1 Size Error!
Reason : The size of RQ I (Request data 1) data that is being received is incorrect.

Check Sum Error!
Reason : The Check Sum that is being received is incorrect.
Action : Check the data that is being transmitted and try the operation again. Also, make sure the MIDI cable isn't unplugged, broken, or shorted.

MIDI Buff. Full!
Reason : A large amount of MIDI data was received in a short time and could not be processed.
Action : Check that the transmitting device is not transmitting excessive amounts of MIDI data.

MIDI Off Line!
Reason 1 : The MIDI device connected to MIDI IN has been turned off.
Action 1 : This is not a malfunction.
Reason 2 : It is possible that the MIDI cable connected to MIDI IN has been pulled out, or damaged.
Action 2 : Check the MIDI cable connections.

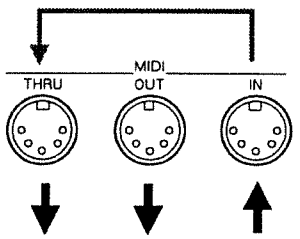
■ABOUT MIDI

MIDI (Musical Instrument Digital Interface) is a world-wide standard that provides a way for electronic musical instruments to communicate. Instruments that have MIDI connectors can be connected to any other MIDI device, regardless of the manufacturer or model, and exchange musical data as "MIDI messages".

□How MIDI messages are transmitted and received

●MIDI connectors

Three types of connectors are used to transmit and receive MIDI messages.
Depending on your setup, you can use MIDI cables to connect your equipment in various ways.

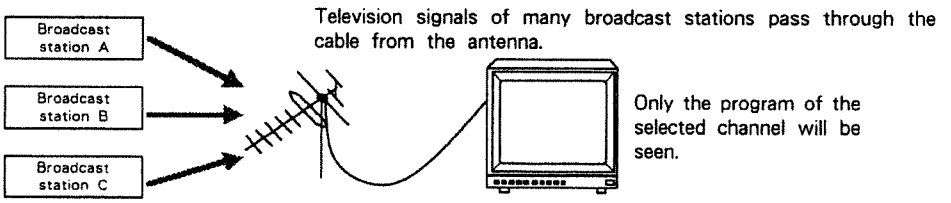


MIDI IN : This connector receives messages from another MIDI device itself.
MIDI OUT : This connector transmits messages from the device itself.
MIDI THRU: This connector re-transmits the messages from MIDI IN, exactly as they were received.

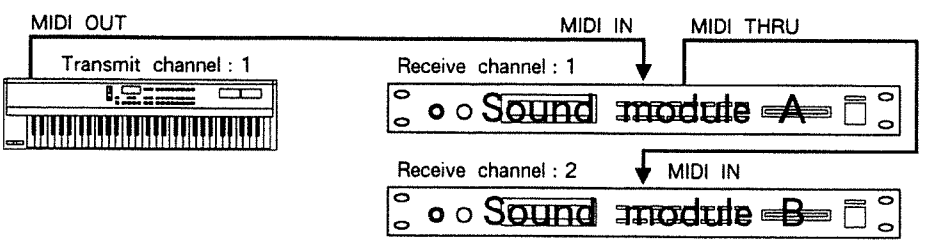
* MIDI THRU connectors can be used to "daisy-chain" any number of MIDI devices. However in practice, four or five units is the limit. When the MIDI signal is passed through many THRU connectors, it may become unreadable.

●MIDI channels

MIDI uses "channels" to independently control many devices through a single cable. You may think of MIDI channels as being similar to television channels. Electrical signals come into a television set from the antenna on many different channels at once, but only the channel to which the TV is tuned will be received.



MIDI provides sixteen channels (1—16) on which messages can be sent. Messages will be received only by instruments which are set to receive the matching channel. For example, with the MIDI channel settings in the following illustration, playing the keyboard will play only sound module B.



□MIDI messages used by the Sound Canvas

The various types of data transmitted and received via MIDI are called MIDI messages. MIDI messages can be broadly divided into two types; messages that are transmitted on a specific channel (Channel messages), and messages that carry information which applies to an entire MIDI system (System messages).

●Channel messages

Channel messages are used to convey musical actions, such as notes you play and controllers you move. Most MIDI messages fall into this category. The settings of the sound source will determine how it will produce sound in response to these messages.

Note messages

Note messages are transmitted when you play the keyboard. Each message contains information indicating which key was pressed (the note number) and how strongly it was pressed (the velocity). When you release a key, a similar message is sent indicating which key was released.

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

Notes are numbered from 0—127, with middle C (C4) as 60. A different note number is assigned to each percussion sound in the drum part. Each note number will play a different percussion sound.

Pitch Bend messages

Pitch Bend messages are transmitted when you move the pitch bend lever (wheel) found on most synthesizers.

Aftertouch messages

Aftertouch messages are transmitted when you press down on the keyboard (of a synthesizer that is able to transmit aftertouch messages) after playing a note. There are two types of aftertouch; Channel aftertouch (Channel pressure) and Polyphonic aftertouch (Polyphonic key pressure).
Channel aftertouch is transmitted as a single value for the entire keyboard, and applies to an entire MIDI channel. All notes received on that MIDI channel will respond in the same way, regardless of which key you apply pressure to.
Polyphonic aftertouch is transmitted independently for each key (note). Even on the same MIDI channel, only the note to which you apply pressure will be affected.

Reception of channel aftertouch and polyphonic aftertouch on the Sound Canvas is disabled in the default factory setting or when receiving a GS reset message. When you wish to use these functions, set them by transmitting exclusive message from external MIDI device. (They can also be set by using the method explained on P.Ap.-34.) See the MIDI implementation chart for more details.

Program Change messages

Program change messages are used to change instruments. Instruments using program numbers 1 — 128 will be changed by program change messages. The Sound Canvas also uses control change messages to change the variation of an instrument.

Control Change messages

Control Change messages control musical expression (such as vibrato, hold, volume, and pan). Each function is designated by a control number (0—127), and controllable functions will be different depending on the MIDI device. The Sound Canvas uses control number 0 to change the variation of an instrument.

< MIDI messages for Minus-one play >

When set to Minus-one play, the note messages of the displayed part from MIDI IN 1 are ignored, however, the note messages received MIDI IN 2 are heard. At this time, the play messages received at the MIDI IN 2 are sounded in the displayed Part and the Parts set to the same receive channel as the displayed Part regardless of the keyboard transmission. The pitch bend valve becomes 0 (center), modulation becomes 0, expression becomes 127 and soft is turned OFF. The messages received at MIDI IN 1 are stored in internal memory and will be played back when Minus-one play is cancelled. The Hold messages received at MIDI IN 1 are ignored.

●System messages

This category of message includes Exclusive messages, various types of messages used in synchronization, and messages to keep the MIDI system running properly. System messages are transmitted regardless of the MIDI channel number. The Sound Canvas usually uses Exclusive messages.

Exclusive messages

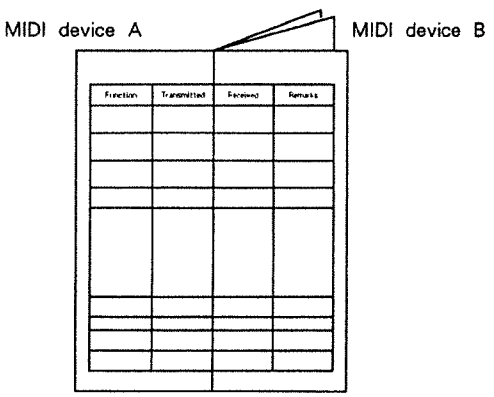
Exclusive messages contain data that is unique to a specific family of devices made by a manufacturer, and are used to transfer sound data, etc. The Sound Canvas uses these messages to save system functions and part settings to a sequencer.

< About MIDI implementation charts >

MIDI allows a wide variety of devices to exchange information, but it is not necessarily the case that all types of messages can be transmitted or received by every device.

For example if a keyboard that is able to transmit Aftertouch messages is connected to a sound module that is not able to receive Aftertouch messages, the Aftertouch messages transmitted by the keyboard will have no effect. For MIDI messages to be meaningful, they must be transmitted by one device and received by the other.

For this reason, a "MIDI Implementation Chart" (P.Ap.-35) is included with every MIDI device, usually in the operating manual. By comparing the charts of two devices, you can determine how messages will be exchanged between the two devices. Since the charts are a standard size, you can fold the charts of the two devices together as shown below.



■ABOUT GS

GS was created in an attempt to standardize the way in which sound module are controlled by MIDI. This section will give you a simple overview of GS.

□What is GS

Until now, concerning the correspondence of instruments, how the sound was produced and various controller operations were different, depending on the MIDI sound module devices. Therefore, the user had to have a clear understanding of the operation of each device and how they corresponded when connected.

Sometimes, song data that was created by using one particular MIDI sound module could not be reproduced as expected on another MIDI sound module. The transmission and reception of MIDI messages has been standardized by "MIDI Standard" but operations that affect the way sound is heard were not always compatible between units.

To solve this problem, Roland introduces GS format which was created to standardize the way in which sound module are controlled by MIDI.

If a device contains a sound module that conforms to GS format, it is possible to reproduce the performance that was created on another GS format device. GS format was designed with careful consideration of future development, and GS format will be incorporated into many devices from now on.

Devices that contain sound module that conform to GS format will have the GS mark on their panel.

□The main features of GS

● 16 part multi-timbral sound module

GS format devices contain a 16-part multi-timbral sound module that utilizes full MIDI channel support. You can assign a different instrument to each part and therefore enjoy ensemble performance by using the instruments of each part.

● An abundance of internally stored instrument sounds and instrument specification exchangeability (☞P.57, Ap.-15).

GS format contains standard instruments (Capital) that can be used to reproduce many various styles of music, such as: classical, jazz, rock, popular, and ethnic, as well as instrument variations that make use of device features and future expansion.

There is exchangeability to specify instruments even to the device that has a different correspondence of variation.

GS format also contains many drum set types that incorporate various percussion sounds thus making it possible to choose the drum set that is most suitable for a particular song.

● 24 guaranteed simultaneous notes (☞P.55)

GS format does not prescribe to any one specified sound module method so there is no limit to the maximum simultaneous notes that can be played.

However, GS Standard does guarantee that at least 24 notes can be played simultaneously.

Also, most acoustic sounds consist of only one voice and were created with careful consideration as to how they can be used with each part most effectively thus surpassing earlier sound module methods.

● Completion of MIDI control functions

GS format corresponds to various MIDI messages that are indispensable for playing expression such as Mono mode and Portamento. It is also possible to control most MIDI messages that are necessary for performance without using exclusive messages.

□ General functions of GS

Number of parts	: 16
Maximum polyphony	: 24 (voice) and up
Instrument specification	: GS format makes the specification of instruments possible by combining previously developed program change messages with control change messages (bank select) thus increasing the type of instruments that can be changed by an external device. This instrument specification exchangeability is possible even if there is a difference in the variation of other devices.
Drum Set	: The drum set can be changed with the program change message.
Effects	: GS format contains adjustable Reverb and Chorus effects.

■TABLE OF OPERATIONS

●All parts and System function settings (When the [ALL] indicator is on)

All parts	Volume Level	0—**127**	LEVEL◀▶	P.17
	Pan	L63—**0**—R63	PAN◀▶	P.17
	Reverb	0—**64**—127	REVERB◀▶	P.18
	Chorus	0—**64**—127	CHORUS◀▶	P.18
	Key Shift	−24—**0**—+24	KEY SHIFT◀▶	P.19
	All Mute	**Off**, On	[MUTE]	P.34
	Master Tune	415.3—**440.0**—466.2Hz		P.39
	Reverb Type	Room1, 2, 3 Hall1, **2** Plate Delay Panning Delay		P.50
	Chorus Type	Chorus1, 2, **3**, 4 Feedback Chorus Flanger Short Delay Short Delay (FB)		P.50
System function	Rx. Inst Chg	Off, **On**		P.61
	Rx. SysEx	Off, **On**		P.78
	Rx GS Reset	Off, **On**		P.47
	Display	Type**1**—8		P.42
	Peak Hold	Off, Type**1**—3		P.42
	LCD Contrast	1—**8**—16		P.41
	Back Up	Off, **On**	PART◀ * Part▶➡	P.48
	Rx Remote	Off, **On**	⟨[ALL][MUTE]: Function selection➡	P.13
	Mute Lock	**Off**, On	INSTRUMENT◀▶: Set⟩➡	P.35
	SLIDER1 (Part of slider 1)	**1**—16	PART◀ * Part▶: Complete	P.38
	SLIDER2 (Part of slider 2)	1—**2**—16		P.38
	SLIDER3 (Part of slider 3)	1—**3**—16		P.38
	SLIDER4 (Part of slider 4)	1—**4**—16		P.38
	SLIDER5 (Part of slider 5)	1—**5**—16		P.38
	SLIDER6 (Part of slider 6)	1—**6**—16		P.38
	SLIDER7 (Part of slider 7)	1—**7**—16		P.38
	SLIDER8 (Part of slider 8)	1—**8**—16		P.38
	SLIDER9 (Part of slider 9)	1—**9**—16		P.38
	SLIDER10 (Part of slider 10)	1—**10**—16		P.38
	SLIDER11 (Part of slider 11)	1—**11**—16		P.38
	SLIDER12 (Part of slider 12)	1—**12**—16		P.38
	SLIDER13 (Part of slider 13)	1—**13**—16		P.38
	SLIDER14 (Part of slider 14)	1—**14**—16		P.38
	SLIDER15 (Part of slider 15)	1—**15**—16		P.38
	SLIDER16 (Part of slider 16)	1—**16**		P.38

	MS (MIDI Slider)	**Off** Modulation Portamento Time Volume Pan Expression Reverb Chorus Vib. Rate Vib. Depth Vib. Delay Cutoff Freq. Resonance Attack Time Decay Time Release Time	PART◀ * Part▶➡ 《ALL MUTE: Function selection➡ INSTRUMENT◀▶: Set》➡ PART◀ * Part▶: Complete	P.74
	Device ID number	1—**17**—32	MIDI CH◀▶	P.78

➡ : Proceed to the next instruction

A * B : Press A and B simultaneously.

《 》 : Repeat the operation.

* Bold-faced values are the factory presets.

●Settings for each part (When the [ALL] indicator is off)

Instrument Selection	1—128	Part selection [INST CALL]: indicator on [PART SEL] ➡ PART/INST buttons or INSTRUMENT [◀][▶]	P.20 P.24
Drum Set Selection	– – –	Drum part selection ➡ INSTRUMENT [◀][▶]	P.22
Volume Level	0—**100**—127	Part selection ➡ LEVEL [◀][▶]	P.27
Pan	Rnd, L63—**0**—R63	Part selection ➡ PAN [◀][▶]	P.27
Reverb	0—**40**—127	Part selection ➡ REVERB [◀][▶]	P.28
Chorus	**0**—127	Part selection ➡ CHORUS [◀][▶]	P.28
Key Shift	– 24—**0**— + 24	Part selection ➡ KEY SHIFT [◀][▶]	P.28
MIDI Receive Channel	1—16, Off	Part selection ➡ MIDI CH [◀][▶]	P.49
Part Mute	**Off**, On	[MUTE]	P.34
Part Mode	Norm, Drum1, Drum2		P.23
Bend Range	– 24—**+2**— + 24		P.51
Modulation Depth	0—**10**—127		P.51
Key Range L	**C-1**—G9		P.51
Key Range H	C-1—**G9**		P.51
Velocity Sens Depth	0—**64**—127		P.52
Velocity Sens Offset	0—**64**—127		P.52
Voice Reserve	0—24		P.55
M/P Mode	**Poly**, Mono		P.53
Vib. Rate	– 50—**0**— + 50	PART [◀] * PART [▶] ➡	P.62
Vib. Depth	– 50—**0**— + 50	Part selection ➡	P.62
Vib. Delay	– 50—**0**— + 50	〈[ALL][MUTE]: Function selection ➡	P.62
Cutoff Freq.	– 50—**0**— + 16	INSTRUMENT [◀][▶]: Set〉➡	P.63
Resonance	– 50—**0**— + 50	PART [◀] * PART [▶]: Complete	P.63
Attack Time	– 50—**0**— + 50		P.63
Decay Time	– 50—**0**— + 50		P.63
Release Time	– 50—**0**— + 50		P.64
Fine Tune	– 12.0—**0.0**— + 12.0		P.39
Portamento	**Off**, On		P.53
Portamento Time	**0**—127		P.53
Modulation	**0**—127		P.53
Expression	0—**127**		P.54

➡ : Proceed to the next instruction

[A]+[B] : While holding [A], press [B].

[A]*[B] : Press [A] and [B] simultaneously.

〈〉 : Repeat the operation.

Part selection : [PART SEL] ⇨ PART/INST buttons or PART [◀][▶].

* Bold-faced values are the factory presets that are common for each part.

●Other functions

ROM play	Set to ROM play status	PART◀ * PART▶ + power on	P.15
	Play start	ALL	
	Play stop	MUTE	
	Cancel ROM play status	PART◀ * PART▶	
USER function	Set USER status	USER or LEVEL▶ * REVERB▶: indicator on	P.32
	Clear the setting	7 (15) * 8 (16) or PAN◀ * CHORUS◀➡ ALL: execute	P.33
Minus-one Play		5 (13) * 6 (14) or LEVEL◀ * REVERB◀	P.37
Storing／calling up the settings of the sound source	Store	ALL: indicator on➡ PART◀ * INSTRUMENT◀➡ ALL: execute	P.44
	Call	ALL: indicator on➡ PART◀ * INSTRUMENT▶➡ ALL: execute	P.44
Sound arrangement of MT-32		INSTRUMENT◀ + Turn the power on➡ ALL	P.45
Making the GS setting		INSTRUMENT▶ + Turn the power on➡ ALL	P.47
Returning to factory preset	All Sound Canvas settings	INSTRUMENT◀ * INSTRUMENT▶ + Turn the power on ALL: execute	P.48
Selection of variation		ALL: Indicator light off➡ select the part that you want to change➡ INSTRUMENT◀▶: change to an instrument that has variation➡ INSTRUMENT◀ * ▶➡ INSTRUMENT◀▶: Select variation➡ INSTRUMENT◀ * ▶	P.57
SETUP SEND	All parts and settings of the specified part	ALL: indicator off 《select the part that you do not transmit➡ MUTE: Mute on》➡ ALL: indicator on 1 (9) * 2 (10) or PART▶ * INSTRUMENT◀➡ ALL: execute	P.66
	Specified part settings	ALL: indicator off 《select the part that you do not transmit➡ MUTE: Mute on》➡ 1 (9) * 2 (10) or PART▶ * INSTRUMENT◀➡ ALL: execute	P.67
LEVEL／PAN SEND	All parts and settings of the specified part	LEVEL or PAN: indicator on ALL: indicator off 《select the part that you do not transmit➡ MUTE: Mute on》➡ ALL: indicator on 3 (11) * 4 (12)➡ ALL: execute	P.68
	Specified part settings	LEVEL or PAN: indicator on ALL: indicator off 《select the part that you do not transmit➡ MUTE: Mute on》➡ 3 (11) * 4 (12)➡ ALL: execute	P.69

MUTE SEND		[ALL]: indicator off 《select the parts that you want to mute ➡ [MUTE]: Mute on》➡ [2 (10)] * [3 (11)] ➡ [ALL]: execute	P.69
MIDI SEND	Instrument settings	[LEVEL] * [PAN]: MIDI SEND indicator on ➡ Part selection ➡ [INST CALL]: indicator on ➡ [PART SELL] ➡ PART/INST buttons	P.71
	Volume level or Pan settings	[LEVEL] or [PAN]: indicator on [LEVEL] * [PAN]: MIDI SEND indicator on	P.72
Transmit Sound Canvas settings	All settings of the Sound Canvas	[ALL]: indicator on ➡ INSTRUMENT [◀] * INSTRUMENT [▶] ➡ [ALL]: execute	P.75
	All parts and settings of the specified part	[ALL]: indicator off ➡ 《select the part that you do not transmit ➡ [MUTE]: Mute on》➡ [ALL]: indicator on ➡ PART [◀] * PART [▶] ➡ INSTRUMENT [◀] * INSTRUMENT [▶] ➡ [ALL]: execute	P.76
	Specified part settings	[ALL]: indicator light off ➡ 《select the part that you do not transmit ➡ [MUTE]: Mute on》➡ PART [◀] * PART [▶] ➡ INSTRUMENT [◀] * INSTRUMENT [▶] ➡ [ALL]: execute	P.77

➡	: Proceed to the next instruction
[A] + [B]	: While holding [A], press [B]
[A] * [B]	: Press [A] and [B] simultaneously
[A] * [B] + power on	: While holding [A] and [B] simultaneously, turn the power on.
《》	: Repeat this operation
[A] or [B]	: Press either [A] or [B].
Part selection	: [PART SEL] ⇨ PART/INST buttons or PART [◀] [▶]

■INSTRUMENT TABLE

	PC #	CC0 #	Instrument name	V	Recommended sound range
Piano	1	0	Piano 1	1	A0 (21) — C8 (108)
	2	0	Piano 2	1	
	3	0	Piano 3	1	
	4	0	Honky-tonk	2	
	5	0	E. Piano 1	1	E1 (28) — G7 (103)
		8	Detuned EP 1	2	
	6	0	E. Piano 2	1	
		8	Detuned EP 2	2	
	7	0	Harpsichord	1	F2 (41) — F6 (89)
		8	Coupled Hps.	2	
	8	0	Clav.	1	C2 (36) — C7 (96)
Chromatic Percussion	9	0	Celesta	1	C4 (60) — C8 (108)
	10	0	Glockenspiel	1	C5 (72) — C8 (108)
	11	0	Music Box	1	C4 (60) — C6 (84)
	12	0	Vibraphone	1	F3 (53) — F6 (89)
	13	0	Marimba	1	C3 (48) — C6 (84)
	14	0	Xylophone	1	F4 (65) — C7 (96)
	15	0	Tubular-bell	1	C4 (60) — F5 (77)
		8	Church Bell	1	
	16	0	Santur	1	C4 (60) — C6 (84)
Organ	17	0	Organ 1	1	C2 (36) — C7 (96)
		8	Detuned Or. 1	2	
	18	0	Organ 2	1	
		8	Detuned Or. 2	2	
	19	0	Organ 3	2	
	20	0	Church Org. 1	1	A0 (21) — C8 (108)
		8	Church Org. 2	2	
	21	0	Reed Organ	1	C2 (36) — C7 (96)
	22	0	Accordion Fr	2	F3 (53) — F6 (89)
		8	Accordion It	2	
	23	0	Harmonica	1	C4 (60) — C6 (84)
	24	0	Bandneon	2	F3 (53) — F6 (89)

	PC #	CC0 #	Instrument name	V	Recommended sound range
Guitar	25	0	Nylon-str. Gt.	1	E2 (40) — C6 (84)
		8	Ukulele	1	A3 (57) — B5 (83)
	26	0	Steel-str. Gt.	1	E2 (40) — C6 (84)
		8	12-str. Gt.	2	
		16	Mandolin	1	G3 (55) — E6 (88)
	27	0	Jazz Gt.	1	E2 (40) — D6 (86)
		8	Hawaiian Gt.	1	
	28	0	Clean Gt.	1	
		8	Chorus Gt.	2	
	29	0	Muted Gt.	1	
		8	Funk Gt.	1	
	30	0	Overdrive Gt.	1	
	31	0	Distortion Gt.	1	
		8	Feedback Gt.	2	
	32	0	Gt. Harmonics	1	
		8	Gt. Feedback	1	
Bass	33	0	Acoustic Bs.	1	E1 (28) — G3 (55)
	34	0	Fingered Bs.	1	
	35	0	Picked Bs.	1	
	36	0	Fretless Bs.	1	
	37	0	Slap Bass 1	1	
	38	0	Slap Bass 2	1	
	39	0	Synth Bass 1	1	
		8	Synth Bass 3	1	
	40	0	Synth Bass 2	2	
		8	Synth Bass 4	2	

PC # : Program number (instrument number)
CC0 # : Value of control number 0 (Variation number)
V : Number of voices
Recommended sound range : The recommended sound range does not indicate the limit of sound production. The actual playable range extends beyond the recommended sound range.

■INSTRUMENT TABLE

	PC #	CC0 #	Instrument name	V	Recommended sound range
Strings/orchestra	41	0	Violin	1	G3 (55) — C7 (96)
	42	0	Viola	1	G3 (48) — C6 (84)
	43	0	Cello	1	C2 (36) — C5 (72)
	44	0	Contrabass	1	E1 (28) — G3 (55)
	45	0	Tremolo Str	1	E1 (28) — C7 (96)
	46	0	PizzicatoStr	1	
	47	0	Harp	1	B0 (23) — G7 (103)
	48	0	Timpani	1	C2 (36) — A3 (57)
Ensemble	49	0	Strings	1	E1 (28) — C7 (96)
		8	Orchestra	2	C1 (24) — C7 (96)
	50	0	Slow Strings	1	E1 (28) — C7 (96)
	51	0	Syn. Strings1	1	C2 (36) — C7 (96)
		8	Syn. Strings3	2	C1 (24) — C7 (96)
	52	0	Syn. Strings2	2	C2 (36) — C7 (96)
	53	0	Choir Aahs	1	C3 (48) — G5 (79)
	54	0	Voice Oohs	1	
	55	0	SynVox	1	C3 (48) — C6 (84)
	56	0	OrchestraHit	2	C3 (48) — C5 (72)
Brass	57	0	Trumpet	1	A # 3 (58) — A # 6 (94)
	58	0	Trombone	1	A # 1 (34) — D # 5 (75)
	59	0	Tuba	1	F1 (29) — G3 (55)
	60	0	MutedTrumpet	1	A # 3 (58) — A # 5 (82)
	61	0	French Horn	2	F2 (41) — F5 (77)
	62	0	Brass 1	1	C2 (36) — C7 (96)
		8	Brass 2	2	
	63	0	Synth Brass1	2	
		8	Synth Brass3	2	
	64	0	Synth Brass2	2	
		8	Synth Brass4	1	

	PC #	CC0 #	Instrument name	V	Recommended sound range
Reed	65	0	Soprano Sax	1	F # 3 (54) — D # 6 (87)
	66	0	Alto Sax	1	C # 3 (49) — G # 5 (80)
	67	0	Tenor Sax	1	F # 2 (42) — D # 5 (75)
	68	0	Baritone Sax	1	C # 2 (37) — G # 4 (68)
	69	0	Oboe	1	A # 3 (58) — G6 (91)
	70	0	English Horn	1	E3 (52) — A5 (81)
	71	0	Bassoon	1	A # 1 (34) — C5 (72)
	72	0	Clarinet	1	D3 (50) — G6 (91)
Pipe	73	0	Piccolo	1	D5 (74) — C8 (108)
	74	0	Flute	1	C4 (60) — C7 (96)
	75	0	Recorder	1	
	76	0	Pan Flute	1	
	77	0	Bottle Blow	2	
	78	0	Shakuhachi	2	
	79	0	Whistle	1	
	80	0	Ocarina	1	
Synth lead	81	0	Square Wave	2	
		8	Sine Wave	1	
	82	0	Saw Wave	2	
	83	0	Syn. Calliope	2	
	84	0	Chiffer Lead	2	
	85	0	Charang	2	
	86	0	Solo Vox	2	
	87	0	5th Saw Wave	2	
	88	0	Bass&Lead	2	
Synth pad etc.	89	0	Fantasia	2	
	90	0	Warm Pad	1	
	91	0	Polysynth	2	
	92	0	Space Voice	1	
	93	0	Bowed Glass	2	
	94	0	Metal Pad	2	
	95	0	Halo Pad	2	
	96	0	Sweep Pad	1	

PC # : Program number (instrument number)
CC0 # : Value of control number 0 (Variation number)
V : Number of voices
Recommended sound range : The recommended sound range does not indicate the limit of sound production. The actual playable range extends beyond the recommended sound range.

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

PC # : Program number (instrument number)
CC0 # : Value of control number 0 (Variation number)
V : Number of voices
* : All tones marked by an * have an unreliable pitch. Please use a key around C4 (Key # 60). The unmarked tones use temperament and pitch of A4 (Key # 59) is 440Hz.

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

● MT-32 set (variation : 127)

PC #	Instrument name	V
1	Acou Piano 1	1
2	Acou Piano 2	1
3	Acou Piano 3	1
4	Elec Piano 1	1
5	Elec Piano 2	1
6	Elec Piano 3	1
7	Elec Piano 4	1
8	Honkytonk	2
9	Elec Org 1	1
10	Elec Org 2	2
11	Elec Org 3	1
12	Elec Org 4	1
13	Pipe Org 1	2
14	Pipe Org 2	2
15	Pipe Org 3	2
16	Accordion	2
17	Harpsi 1	1
18	Harpsi 2	2
19	Harpsi 3	1
20	Clavi 1	1
21	Clavi 2	1
22	Clavi 3	1
23	Celesta 1	1
24	Celesta 2	1
25	Syn Brass 1	2
26	Syn Brass 2	2
27	Syn Brass 3	2
28	Syn Brass 4	2
29	Syn Bass 1	1
30	Syn Bass 2	2
31	Syn Bass 3	2
32	Syn Bass 4	1

PC #	Instrument name	V
33	Fantasy	2
34	Harmo Pan	2
35	Chorale	1
36	Glasses	2
37	Soundtrack	2
38	Atmosphere	2
39	Warm Bell	2
40	Funny Vox	1
41	Echo Bell	2
42	Ice Rain	2
43	Oboe 2001	2
44	Echo Pan	2
45	Doctor Solo	2
46	Schooldaze	1
47	Bellsinger	1
48	Square Wave	2
49	Str Sect 1	1
50	Str Sect 2	1
51	Str Sect 3	1
52	Pizzicato	1
53	Violin 1	1
54	Violin 2	1
55	Cello 1	1
56	Cello 2	1
57	Contrabass	1
58	Harp 1	1
59	Harp 2	1
60	Guitar 1	1
61	Guitar 2	1
62	Elec Gtr 1	1
63	Elec Gtr 2	1
64	Sitar	2

PC #	Instrument name	V
65	Acou Bass 1	1
66	Acou Bass 2	1
67	Elec Bass 1	1
68	Elec Bass 2	1
69	Slap Bass 1	1
70	Slap Bass 2	1
71	Fretless 1	1
72	Fretless 2	1
73	Flute 1	1
74	Flute 2	1
75	Piccolo 1	1
76	Piccolo 2	2
77	Recorder	1
78	Pan Pipes	1
79	Sax 1	1
80	Sax 2	1
81	Sax 3	1
82	Sax 4	1
83	Clarinet 1	1
84	Clarinet 2	1
85	Oboe	1
86	Engl Horn	1
87	Bassoon	1
88	Harmonica	1
89	Trumpet 1	1
90	Trumpet 2	1
91	Trombone 1	2
92	Trombone 2	2
93	Fr Horn 1	2
94	Fr Horn 2	2
95	Tuba	1
96	Brs Sect 1	1

PC #	Instrument name	V
97	Brs Sect 2	2
98	Vibe 1	1
99	Vibe 2	1
100	Syn Mallet	1
101	Windbell	2
102	Glock	1
103	Tube Bell	1
104	Xylophone	1
105	Marimba	1
106	Koto	1
107	Sho	2
108	Shakuhachi	2
109	Whistle 1	2
110	Whistle 2	1
111	Bottleblow	2
112	Breathpipe	1
113	Timpani	1
114	Melodic Tom	1
115	Deep Snare	1
116	Elec Perc 1	1
117	Elec Perc 2	1
118	Taiko	1
119	Taiko Rim	1
120	Cymbal	1
121	Castanets	1
122	Triangle	1
123	Orche Hit	1
124	Telephone	1
125	Bird Tweet	1
126	One Note Jam	1
127	Water Bells	2
128	Jungle Tune	2

CC0 # : Value of control number 0
(GS bank select number)
PC # : Program number (instrument number)
V : Number of voices

■DRUM SET TABLE

	Note number	PC#1:STANDARD Set PC#33: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
	27	High Q						Closed Hi-Hat [EXC1]
	28	Slap						Pedal Hi-Hat [EXC1]
	29	Scratch Push						Open Hi-Hat [EXC1]
	30	Scratch Pull						Ride Cymbal
	31	Sticks						
	32	Square Click						
	33	Metronome Click						
	34	Metronome Bell						
	35	Kick Drum 2						Concert BD 2
C2	36	Kick Drum 1		MONDO Kick	Elec BD	808 Bass Drum		Concert BD 1
	37	Side Stick				808 Rim Shot		
	38	Snare Drum 1		Gated SD	Elec SD	808 Snare Drum	Brush Tap	Concert SD
	39	Hand Clap					Brush Slap	Castanets
	40	Snare Drum 2			Gated SD		Brush Swirl	Concert SD
	41	Low Tom 2	Room Low Tom 2	Room Low Tom 2	Elec Low Tom 2	808 Low Tom 2		Timpani F
	42	Closed Hi – hat [EXC1]				808 CHH [EXC1]		Timpani F#
	43	Low Tom 1	Room Low Tom 1	Room Low Tom 1	Elec Low Tom 1	808 Low Tom 1		Timpani G
	44	Pedal Hi – hat [EXC1]				808 CHH [EXC1]		Timpani G#
	45	Mid Tom 2	Room Mid Tom 2	Room Mid Tom 2	Elec Mid Tom 2	808 Mid Tom 2		Timpani A
	46	Open Hi – hat [EXC1]				808 OHH [EXC1]		Timpani A#
	47	Mid Tom 1	Room Mid Tom 1	Room Mid Tom 1	Elec Mid Tom 1	808 Mid Tom 1		Timpani B
C3	48	High Tom 2	Room Hi Tom 2	Room Hi Tom 2	Elec Hi Tom 2	808 Hi Tom 2		Timpani c
	49	Crash Cymbal 1				808 Cymbal		Timpani c#
	50	High Tom 1	Room Hi Tom 1	Room Hi Tom 1	Elec Hi Tom 1	808 Hi Tom 1		Timpani d
	51	Ride Cymbal 1						Timpani d#
	52	Chinese Cymbal			Reverse Cymbal ★			Timpani e
	53	Ride Bell						Timpani f
	54	Tambourine						
	55	Splash Cymbal						
	56	Cowbell				808 Cowbell		
	57	Crash Cymbal 2						Concert Cymbal 2
	58	Vibra – slap						
	59	Ride Cymbal 2						Concert Cymbal 1
C4	60	High Bongo						
	61	Low Bongo						
	62	Mute High Conga				808 High Conga		
	63	Open High Conga				808 Mid Conga		
	64	Low Conga				808 Low Conga		
	65	High Timbale						
	66	Low Timbale						
	67	High Agogo						
	68	Low Agogo						
	69	Cabasa						
	70	Maracas				808 Maracas		
	71	Short Hi Whistle [EXC2]						
C5	72	Long Low Whistle [EXC2]						
	73	Short Guiro [EXC3]						
	74	Long Guiro [EXC3]						
	75	Claves				808 Claves		
	76	High Wood Block						
	77	Low Wood Block						
	78	Mute Cuica [EXC4]						
	79	Open Cuica [EXC4]						
	80	Mute Triangle [EXC5]						
	81	Open Triangle [EXC5]						
	82	Shaker						
	83	Jingle Bell						
	84	Bell Tree						
C6	85	Castanets						
	86	Mute Surdo [EXC6]						
	87	Open Surdo [EXC6]						
	88			------				Applause ★

PC # : Program number (drum set number)

★ : Tones which are created by using two voices. (All other tones are created by one voice.)

Blank : Same as the percussion sound of "STANDARD"

------ : No sound

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

● SFX set (Program number 57)

Note number	PC#57:SFX Set
39	High Q
40	Slap
41	Scratch Push
42	Scratch Pull
43	Sticks
44	Square Click
45	Metronome Click
46	Metronome Bell
47	Guitar sliding finger
C3 48	Guitar cutting noise (down)
49	Guitar cutting noise (up)
50	String slap of double bass
51	Fl. Key Click
52	Laughing
53	Screaming
54	Punch
55	Heart Beat
56	Footsteps1
57	Footsteps2
58	Applause ★
59	Door Creaking
C4 60	Door
61	Scratch
62	Windchime ★
63	Car-Engine
64	Car-Stop
65	Car-Pass
66	Car-Crash ★
67	Siren
68	Train
69	Jetplane ★
70	Helicopter
71	Starship ★
C5 72	Gun Shot
73	Machine Gun
74	Lasergun
75	Explosion ★
76	Dog
77	Horse-Gallop
78	Birds ★
79	Rain ★
80	Thunder
81	Wind
82	Seashore
83	Stream ★
C6 84	Bubble ★

★ : Tones which are created by using two voices.
(All other tones are created by one voice.)

– – – – – : No sound

[EXC] : Percussion sounds of the same number cannot be heard at the same time.

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

● CM-64/32Lset (Programnumber128)

Note number	PC#128:CM-64/32L Set
34	– – – – –
35	Acoustic Bass Drum
C2 36	Acoustic Bass Drum
37	Rim Shot
38	Acoustic Snare Drum
39	Hand Clap
40	Electronic Snare Drum
41	Acoustic Low Tom
42	Closed High Hat [EXC1]
43	Acoustic Low Tom
44	Open High Hat 2
45	Acoustic Middle Tom
46	Open High Hat 1 [EXC1]
47	Acoustic Middle Tom
C3 48	Acoustic High Tom
49	Crash Cymbal
50	Acoustic High Tom
51	Ride Cymbal
52	– – – – –
53	– – – – –
54	Tambourine
55	– – – – –
56	Cowbell
57	– – – – –
58	– – – – –
59	– – – – –
C4 60	High Bongo
61	Low Bongo
62	Mute High Conga
63	High Conga
64	Low Conga
65	High Timbale
66	Low Timbale
67	High Agogo
68	Low Agogo
69	Cabasa
70	Maracas
71	Short Whistle
C5 72	Long Whistle
73	Quijada
74	– – – – –
75	Claves
76	Laughing
77	Screaming
78	Punch
79	Heartbeat
80	Footsteps 1
81	Footsteps 2
82	Applause ★
83	Creaking
C6 84	Door
85	Scratch
86	Windchime ★
87	Engine
88	Car-Stop
89	Car-Pass
90	Crash ★
91	Siren
92	Train
93	Jet ★
94	Helicopter
95	Starship ★
C7 96	Pistol
97	Machine Gun
98	Lasergun
99	Explosion ★
100	Dog
101	Horse-Gallop
102	Birds ★
103	Rain ★
104	Thunder
105	Wind
106	Waves
107	Stream ★
C8 108	Bubble ★

Roland Exclusive Messages

1. Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all exclusive messages (type IV) :

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
CMD	Command ID
[BODY]	Main data
F7H	End of exclusive

MIDI status : F0H, F7H

An exclusive message must be flanked by a pair of status codes, starting with a Manufacturer-ID immediately after F0H (MIDI version1.0).

Manufacturer-ID : 41H

The Manufacturer-ID identifies the manufacturer of a MIDI instrument that triggers an exclusive message. Value 41H represents Roland's Manufacturer-ID.

Device-ID : DEV

The Device-ID contains a unique value that identifies the individual device in the multiple implementation of MIDI instruments. It is usually set to 00H – 0FH, a value smaller by one than that of a basic channel, but value 00H – 1FH may be used for a device with multiple basic channels.

Model-ID : MDL

The Model-ID contains a value that uniquely identifies one model from another. Different models, however, may share an identical Model-ID if they handle similar data.

The Model-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model-IDs, each representing a unique model :

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

Command-ID : CMD

The Command-ID indicates the function of an exclusive message. The Command-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command-IDs, each representing a unique function :

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

Main data : BODY

This field contains a message to be exchanged across an interface. The exact data size and contents will vary with the Model-ID and Command-ID.

2. Address-mapped Data Transfer

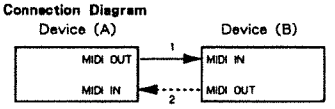
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory-resident records--waveform and tone data, switch status, and parameters, for example--to specific locations in a machine-dependent address space, thereby allowing access to data residing at the address a message specifies.

Address-mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures : one-way transfer and handshake transfer.

One-way transfer procedure (See Section 3 for details.)

This procedure is suited for the transfer of a small amount of data. It sends out an exclusive message completely independent of a receiving device status.

Connection Diagram

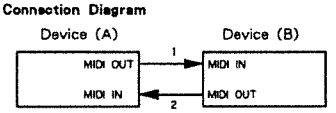


Connection at point 2 is essential for "Request data" procedures. (See Section 3.)

Handshake-transfer procedure (This device does not cover this procedure)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

Connection Diagram



Connection at points 1 and 2 is essential.

Notes on the above two procedures

* There are separate Command-IDs for different transfer procedures.
* Devices A and B cannot exchange data unless they use the same transfer procedure, share identical Device-ID and Model ID, and are ready for communication.

3. One-way Transfer Procedure

This procedure sends out data all the way until it stops and is used when the messages are so short that answerbacks need not be checked. For long messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts intervals of at least 20 milliseconds in between.

Types of Messages

Message	Command ID
Request data 1	RQ1 (11H)
Data set 1	DT1 (12H)

Request data #1 : RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.

On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.
If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device will send out nothing.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
11H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

* The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The same number of bytes comprises address and size data, which, however, vary with the Model-ID.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Data set 1 : DT1 (12H)

This message corresponds to the actual data transfer process. Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more data as well as a series of data formatted in an address- dependent order.

The MIDI standards inhibit non-real time messages from interrupting an exclusive one. This fact is inconvenient for the devices that support a "soft-through" mechanism. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate segments.

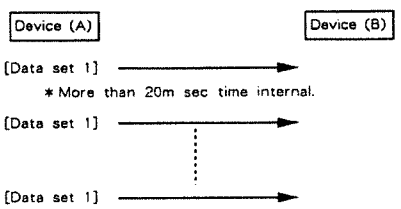
Byte	Description
F0H	Exclusive
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
	LSB
ddH	Data
sum	Check sum
F7H	End of exclusive

* A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The number of bytes comprising address data varies from one Model-ID to another.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

Example of Message Transactions

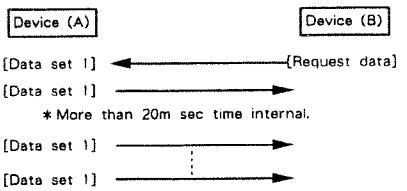
● Device A sending data to Device B

Transfer of a DT1 message is all that takes place.



● Device B requesting data from Device A

Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.



MIDI Implementation

1. Receive data

■Channel Voice Message

When the MINUS function is set to ON, MIDI channel number of the message from MIDI IN 2 is converted to that of the selected part.

●Note off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H

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

* Ignored when "Rx.Note message = OFF".
* In the drum part, recognized when "Rx.Note off = ON" at each instrument.
* Velocity is ignored.
* Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

●Note on

Status	Second	Third
9nH	kkH	vvH

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

* Ignored when "Rx.Note message = OFF".
* In the drum part, ignored when "Rx.Note on = OFF" at each instrument.
* Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

●Polyphonic key pressure

Status	Second	Third
AnH	kkH	vvH

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

* Ignored when "Rx.Polyphonic key pressure = OFF".
* Effect to the parameter set on "PAf controller function". No initial setting available.
* Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

●Control change

* All control change messages except channel mode messages are ignored when "Rx.Control change = OFF".
* The value set by control change messages won't be reset by recieveing new Program Change messages.

○Bank select

Status	Second	Third
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number : 0H - FH (ch.1 - ch.16)
mm,ll = Bank number : 00H,00H - 7FH,7FH (bank1 - bank16384)

* The LSB 7bit is ignored (value = 00H).
* "Bank select" is suspended until receiving "Program change". To select a timbre of another bank, you have to send Bank select (mm,ll) first and then send the Program change message.
* The "Variation number" of the SC - 155 is defined as the decimal number of the value of MSB (Control change number 00H) of the Bank select.
* Ignored when "Rx Inst Chg : Off" or USER function is ON.

○Modulation

Status	Second	Third
BnH	01H	vvH

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

* Ignored when "Rx.Modulation = OFF".
* Effect to the parameter set on "MOD controller function". The default setting is pitch modulation.
* Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

○Portamento time

Status	Second	Third
BnH	05H	vvH

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

* The Portament time value changes the rate of pitch change at portamento on.

○Data entry

Status	Second	Third
BnH	06H	mmH
BnH	26H	llH

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

○Volume

Status	Second	Third
BnH	07H	vvH

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

* Ignored when "Rx.Volume = OFF".
* Ignored when USER function is ON.

○Panpot

Status	Second	Third
BnH	0AH	vvH

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

* Resolution of panpot is approx. 7bit (127 steps).
* In the drum part, it works for all over the mapped drum instruments relatively.
* Ignored when "Rx.Panpot = OFF".
* Ignored when USER function is ON.

○Expression

Status	Second	Third
BnH	0BH	vvH

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

* The Expression message controls the amplitude level of the specified channel (part). The Volume message also controls the level, however they works individually.
* Ignored when "Rx.Expression = OFF".
* Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

○Hold1

Status	Second	Third
BnH	40H	vvH

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

* Ignored when "Rx.Hold1 = OFF".
*Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

○Portamento

Status	Second	Third
BnH	41H	vvH

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

* Ignored when "Rx.Portamento = OFF".

○Sostenuto

Status	Second	Third
BnH	42H	vvH

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

* Ignored when "Rx.Sostenuto = OFF".
*Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

○Soft

Status	Second	Third
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

* Ignored when "Rx.Soft = OFF".
*Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

○Effect1 depth (Reverb send level)

Status	Second	Third
BnH	5BH	vvH

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

○Effect3 depth (Chorus send level)

Status	Second	Third
BnH	5DH	vvH

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

○NRPN MSB/LSB

Status	Second	Third
BnH	63H	mmH
BnH	62H	llH

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

*Recognized when "Rx.NRPN = ON". "Rx.NRPN" is set to OFF by power on reset or recieving "Turn General MIDI System On (F0 7E 7F 09 01 F7), and it is set to ON by "GS RESET" (F0 41 10 42 12 40 00 7F 00 41 F7).
*The value set by NRPN won't be reset by recieveing new Program Change messages.

NRPN
NRPN (Non Registered Parameter Number) is an expanded control change message.
Each function of an NRPN is described by the individual manufactures.
Set NRPN MSB/LSB before sending data entry.

You can change the value of several sound parameters.
There are relative change (from preset) parameters and absolute change parameters.
The relative change parameters may have limits on the effect (depend upon the timbres) even if the value is between 0EH - 72H.
The NRPN parameters of the SC - 155 are as shown below ;

NRPN MSB	NRPN LSB	Data entry MSB	Description
01H	08H	mmH	Vibrate rate relative change on specified channel mm: 0EH-40H-72H (-50 - 0 - +50)
01H	09H	mmH	Vibrate depth relative change on specified channel mm: 0EH-40H-72H (-50 - 0 - +50)
01H	0AH	mmH	Vibrate 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-50H (-50 - 0 - +16)
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: note 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: note number of drum instrument mm: 00H-7FH (zero - maximum)
1CH	rrH	mmH	Panpot of drum instrument absolute change on specified drum instrument rr: note 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: note number of drum instrument mm: 00H-7FH (zero - maximum)

NRPN MSB	LSB	Data entry MSB	Description
1EH	rrH	mmH	Chorus send level of drum instrument absolute change on specified drum instrument rr: note number of drum instrument mm: 00H-7FH (zero - maximum)

* Data entry LSB is ignored.
* The relative change means that the parameter value (e.g. - 50 - 0 - + 50) will add to the preset value.
* The absolute change means that the parameter value will be replaced by the received value.
* The effective range of value for these parameters may more narrow than the range shown above depend on the timbres.

○RPN MSB/LSB

Status	Second	Third
BnH	65H	mmH
BnH	64H	llH

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

* Ignored when "Rx.RPN = OFF".
* The value set by RPN won't be reset by recieveing new Program Change messages.

RPN
RPN (Registered Parameter Number) is the expanded control change message. Each function of RPN is described by MIDI.

You can change the value of RPN parameters. First, set RPN MSB/LSB before sending data entry.

The SC - 155 can receive Pitch bend sensitivity (RPN # 0), Master fine tuning (RPN # 1), Master coarse tuning (RPN # 2) and RPN reset (RPN # 16383).

RPN MSB	LSB	Data entry MSB	LSB	Description
00H	00H	mmH	---	Pitch bend sensitivity mm: 00H-18H (0 - 24 semitone) ll: Ignored (Up to 2 octaves, power on default is two semitones)
00H	01H	mmH	llH	Master fine tuning mm, ll: 00H, 00H-40H, 00H-7FH, 7FH (-8192*100/8192 - 0 - +8191*100/8192 cent)
00H	02H	mmH	---	Master coarse tuning mm: 28H-40H-58H (-24 - 0 - +24 semitone) ll: Ignored
7FH	7FH	---	---	RPN reset Return to no specified parameter of RPN and NRPN. Current setting value is not changed. mm, ll: ignored

●Program change

Status	Second
CnH	ppH

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

* The voices already on before recieving a program change message aren't affected.
  The tone will change to the new voice after the program change is received.
* Ignored when "Rx.Program change = OFF".
* In the drum part, some Models may not receive Program change message when the Bank is 129 - 16384 (the value of the control change 00H is not 00H).
* Ignored when "Rx Inst Chg : Off" or USER function is ON.

●Channel pressure

Status	Second
DnH	vvH

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

* Ignored when "Rx.Channel pressure = OFF".
* Effect to the parameter set on "MOD controller function".
  No initial setting available.
* Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

●Pitch bend change

Status	Second	Third
EnH	llH	mmH

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

* Ignored when "Rx.Pitch bend change = OFF"
* Effect to the parameter set on "MOD controller function".
  The default setting is pitch bend.
* Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

■Channel Mode Message

When the MINUS ONE function is set to ON, MIDI channel number of the message from MIDI IN 2 is converted to that of the selected part.

●All sounds off

Status	Second	Third
BnH	78H	00H

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

* When "All sounds off" is received, all sounds on specified channel turn off immediately.
  However, the state of channel messages does not change.
* Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

●Reset all controllers

Status	Second	Third
BnH	79H	00H

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

* When "reset all controllers" is received, the controller value of a specified channel returns to the default value.

Controller	Value
Pitch bend change	±0(Center)
Polyphonic key pressure	0(off)
Channel pressure	0(off)
Modulation	0 (off)
Expression	127(maximum)
Hold1	0(off)
Portamento	0(off)
Sostenuto	0(off)
Soft	0(off)
RPN	No specified parameter, value is not changed.
NRPN	No specified parameter, value is not changed.

* Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

● All notes off

Status	Second	Third
BnH	7BH	00H

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

* When "All notes off" is received, all notes are turned off in the specified channel. However, sound continues when hold1 and/or sostenuto is on.
* Ignored the MINUS ONE function is set to ON and MIDI channel number of the message from MIDI IN 1 is the same as the selected part.

● OMNI OFF

Status	Second	Third
BnH	7CH	00H

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

* OMNI OFF is only recognized as "all notes off". Mode doesn't change.

● OMNI ON

Status	Second	Third
BnH	7DH	00H

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

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

● MONO

Status	Second	Third
BnH	7EH	mmH

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

* MONO is recognized as "all sounds off". The specified channel turns to Mode4 (m = 1), even if mm is not equal to 1 (mm is ignored).

● POLY

Status	Second	Third
BnH	7FH	00H

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

* POLY is recognized as "all sounds off". The specified channel turns to Mode3.

■ System Realtime Message

● Active sensing

Status
FEH

* Having received an "active sensing" message, the SC-155 expects to receive additional active sensing message within 300 ms. If the interval is over 420 milli-second, the SC-155 execute "All sounds off", "All notes off" and "Reset all controllers" and returns to normal operation.(Monitoring of active sensing messages will terminate.)

■ System Exclusive Message

Status	Data
F0H	iiH,ddH,.....,eeH
F7H	

F0H : System exclusive
ii = ID number : 41H (65)
dd,...,ee = data : 00H - 7FH (0 - 127)
F7H : EOX (End of Exclusive/System common)

* Ignored when "Rx SysEx : Off".
* The SC-155 can receive mode change, data request (RQ1) and data set (DT1).
* Refer to section 3, 4.

■ System Exclusive Message of Mode Change

● GS reset

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

Byte	Description	
F0H	Exclusive status	
41H	Manufacturer's ID	(Roland)
10H	Device ID	(UNIT#=17)
42H	Model ID	(GS)
12H	Command ID	(DT1)
40H	Address MSB	
00H	:	
7FH	Address LSB	
00H	Data	(GS reset)
41H	Check sum	
F7H	EOX	(End of exclusive)

* Receiving this message, all the internal parameters are set to the GS default setting, and can receive GS MIDI data correctly. Set Rx.NRPN = ON.
* It takes about 50ms to excute this message. Please take a rest before the next messages.
* Ignored when "Rx GS Reset : Off".

● Turn General MIDI System On

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

Byte	Description	
F0H	Exclusive status	
7EH	ID number	(Universal non-real time message)
7FH	ID of target device	(Broadcast)
09H	sub-ID#1	(General MIDI message)
01H	sub-ID#2	(General MIDI On)
F7H	EOX	(End of exclusive)

* Receiving this message, all the internal parameters are set to the General MIDI Level 1 default setting even if in the any mode, and can play the General MIDI score (level 1) correctly. Set Rx.NRPN = OFF.
* It takes about 50ms to excute this message. Please take a rest before the next messages.
* Ignored when "Rx GS Reset : Off".

2. Transmit data

■ Channel Voice Message

● Control change

This message is transmitted with the respective MIDI channel number which is assigned to each part.

○ Bank select

Status	Second	Third
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number : 0H - FH (ch.1 - ch.16)
mm,ll = Bank number : 00H,00H - 7FH,7FH (bank1 - bank16384)

* The "Variation number" of the SC-155 is written as the decimal number that is the value of MSB (Control change number 00H) of the Bank select.
* This message is transmitted when "Send SETUP" is executed. And this message is also transmitted when MIDI SEND is ON and the instrument is called by INST CALL function.

○ Modulation

Status	Second	Third
BnH	01H	vvH

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

* This message is transmitted when MIDI SEND is set to ON, SLIDER SELECT is set to MIDI Slider and the function of the slider is set to "MS : Modulation".

○Portamento time

Status	Second	Third
BnH	05H	vvH

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

*This message is transmitted when MIDI SEND is set to ON, SLIDER SELECT is set to MIDI Slider and the function of the slider is set to "MS: Porta. Tm.".

○Data entry

Status	Second	Third
BnH	06H	mmH
BnH	26H	llH

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

*This message is transmitted when MIDI SEND is set to ON, SLIDER SELECT is set to MIDI Slider and the function of the slider is set to the parameter from "MS: Vib. Rate"to "MS: Release Tm." (NRPN).

○Volume

Status	Second	Third
BnH	07H	vvH

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

*This message is transmitted on condition that;
"Send SETUP" or "Send LEVEL" is excuted, MIDI SEND is set to ON and SLIDER SELECT is set to LEVEL, MIDI SEND is set to ON and SLIDER SELECT is set to MIDI Slider and then the slider is set to "MS: Volume".

○Panpot

Status	Second	Third
BnH	0AH	vvH

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

*Resolution of panpot is approx. 7bit (127 steps).
*This message is transmitted on condition that;
"Send SETUP" or "Send PAN" is excuted, MIDI SEND is set to ON and SLIDER SELECT is set to PAN, MIDI SEND is set to ON and SLIDER SELECT is set to MIDI Slider and then the slider is set to "MS: Pan".

○Expression

Status	Second	Third
BnH	0BH	vvH

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

*The Expression message controls the amplitude level of the specified channel (part). The Volume message also controls the level, however they works individually.
*This message is transmitted when MIDI SEND is set to ON, SLIDER SELECT is set to MIDI Slider and the function of the slider is set to "MS: Expression".

○Effect1 depth (Reverb send level)

Status	Second	Third
BnH	5BH	vvH

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

*This message is transmitted when "Send SETUP" is executed. And this message is also transmitted when MIDI SEND is set to ON, SLIDER SELECT is set to MIDI Slider and the function of the slider is set to "MS: Reverb".

○Effect3 depth (Chorus send level)

Status	Second	Third
BnH	5DH	vvH

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

*This message is transmitted when "Send SETUP" is executed. And this message is also transmitted when MIDI SEND is set to ON, SLIDER SELECT is set to MIDI Slider and the function of the slider is set to "MS: Chorus".

○NRPN MSB/LSB

Status	Second	Third
BnH	63H	mmH
BnH	62H	llH

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

NRPN
NRPN (Non Registered Parameter Number) is an expanded control change message.
Each function of an NRPN is described by the individual manufactures.
Set NRPN MSB/LSB before sending data entry.

NRPN MSB	NRPN LSB	Data entry MSB	Description
01H	08H	mmH	Vibrate rate relative change on specified channel mm: 0EH-40H-72H (-50 - 0 - +50)
01H	09H	mmH	Vibrate depth relative change on specified channel mm: 0EH-40H-72H (-50 - 0 - +50)
01H	0AH	mmH	Vibrate 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-50H (-50 - 0 - +16)
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)

*This message is transmitted when MIDI SEND is set to ON, SLIDER SELECT is set to MIDI Slider and the function of the slider is set to the parameter from "MS: Vib. Rate"to "MS: Release Tm." (NRPN).

●Program change

Status	Second
CnH	ppH

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

*This message is transmitted when "Send SETUP" is executed. And this message is also transmitted when MIDI SEND is set to ON and the instrument is called by INST CALL function.

■System Realtime Message

●Active sensing

Status
FEH

* Transmit at about 250 milli - second intervals.

■System Exclusive Message

Status	Data
F0H	iiH,ddH,.....,eeH
F7H	

F0H : System exclusive
ii = ID number : 41H (65)
dd,....,ee = data : 00H - 7FH (0 - 127)
F7H : EOX (End of Exclusive/System common)

* Refer to section 3, 4.

3. Exclusive communications

* The SC - 155 can transmit and receive patch parameters using system exclusive messages.
* Model ID which can be used for the SC - 155 is 45H (for the SC - 55) and 42H (for GS). Device ID is 00H - 1FH.

■One way communication

●Request data 1 RQ1 (11H)

Byte	Description	
F0H	Exclusive status	
41H	Manufacturer's ID	(Roland)
dev	Device ID	(dev: 00H - 1FH)
mdl	Model ID	(mdl: 42H)
11H	Command ID	(RQ1)
aaH	Address MSB	
bbH	:	
ccH	Address LSB	
ssH	Size MSB	
ttH	:	
uuH	Size LSB	
sum	Check sum	
F7H	EOX	(End of exclusive)

●Data set 1 DT1 (12H)

Byte	Description	
F0H	Exclusive status	
41H	Manufacturer's ID	(Roland)
dev	Device ID	(dev: 00H - 1FH)
mdl	Model ID	(mdl: 45H or 42H)
12H	Command ID	(DT1)
aaH	Address MSB	
bbH	Address	
ccH	Address LSB	
ddH	Data	
:	:	
ddH	Data	
sum	Check sum	
F7H	EOX	(End of exclusive)

4. Parameter address map (Model ID = 45H or 42H)

The address and size are described with 7 - bit hexadecimal.

Address	MSB		LSB
Binary	0aaa aaaa	0bbb bbbb	0ccc cccc
Hexadecimal	AA	BB	CC

Size	MSB		LSB
Binary	0sss ssss	0ttt tttt	0uuu uuuu
Hexdecimal	SS	TT	UU

■Parameter base address

There are two types of the SC - 155 exclusive message. One is an individual parameter communication, the other is a bulk dump communication.

The address map of the exclusive communication is outlined below ;

< Model ID = 45H >

Address	Block	Sub Block	Notes
10 00 00	Display data		Individual (DT1 only)

< Model ID = 42H >

Address	Block	Sub Block	Notes
40 00 00	System parameters		Individual
40 01 00	Patch parameters	Patch common Patch block 0 Patch block F	Individual
40 30 00	Information		Individual
41 00 00	Drum setup parameters	Drum map name Drum inst parameters	Individual
48 00 00	Bulk dump	System parameters Patch common Patch block 0 Patch block F	Bulk
49 00 00	Bulk dump (Drum setup parameters)	Drum inst parameters Drum map name	Bulk

Notes : Using address of individual parameter

One system exclusive message "F0 ..... F7" can only have one parameter.

You cannot use any address having " #" for the top address in a system exclusive message.

< MODEL ID = 45H >

[DISPLAY DATA]

Address(H)	SIZE(H)	Data(H)	Parameter	Description		Default Value (H)
10 00 00	00 00 20	20 - 7F	DISPLAYED LETTER	32 - 127(ASCII)		--
10 00 01#						
10 00 02#						
10 00 :						
10 00 1F#						

When this message is received, a series of characters is displayed for a few seconds, in accordance with the received data. Data size is recognized through 1 - 32 bytes. When data size exceeds 16 bytes, the display will scroll automatically.

10 01 00	00 00 40	00 - 1F	DISPLAYED DOT DATA	d00	00 - 31	--
10 01 01#				d01		
10 01 02#				d02		
10 01 :			:			
10 01 3F#				d63		

When this message is received, 16×16 dot-graphics will be displayed for a few seconds according to the data received. The relation between data and dots is as follows:

bit	4	3	2	1	0	4	3	2	1	0	4	3	2	1	0	4
	[***	***	d00	***	***][***	***	d16	***	***][***	***	d32	***	***	***][d48]		
	[***	***	d01	***	***][***	***	d17	***	***][***	***	d33	***	***	***][d49]		
	[***	***	d02	***	***][***	***	d18	***	***][***	***	d34	***	***	***][d50]		
	[***	***	d03	***	***][***	***	d19	***	***][***	***	d35	***	***	***][d51]		
	[***	***	d04	***	***][***	***	d20	***	***][***	***	d36	***	***	***][d52]		
	[***	***	d05	***	***][***	***	d21	***	***][***	***	d37	***	***	***][d53]		
	[***	***	d06	***	***][***	***	d22	***	***][***	***	d38	***	***	***][d54]		
	[***	***	d07	***	***][***	***	d23	***	***][***	***	d39	***	***	***][d55]		
	[***	***	d08	***	***][***	***	d24	***	***][***	***	d40	***	***	***][d56]		
	[***	***	d09	***	***][***	***	d25	***	***][***	***	d41	***	***	***][d57]		
	[***	***	d10	***	***][***	***	d26	***	***][***	***	d42	***	***	***][d58]		
	[***	***	d11	***	***][***	***	d27	***	***][***	***	d43	***	***	***][d59]		
	[***	***	d12	***	***][***	***	d28	***	***][***	***	d44	***	***	***][d60]		
	[***	***	d13	***	***][***	***	d29	***	***][***	***	d45	***	***	***][d61]		
	[***	***	d14	***	***][***	***	d30	***	***][***	***	d46	***	***	***][d62]		
	[***	***	d15	***	***][***	***	d31	***	***][***	***	d47	***	***	***][d63]		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Lower 5 bits (bit4 to 0) of one byte data are used and each bit corresponds to each dot of the display, however bit 4 only is used for d48 to d63.

```
d00:  0--*****
d01:  0--*****
 |                    *:  when the value of bit is 0, the dot is turned off.
d47:  0--*****           when the value of bit is 1, the dot is turned on.
d48:  0--*----      -:  don't care
 |
d63:  0--*----
```

< MODEL ID = 42H >

[SYSTEM PARAMETERS]

Address(H)	SIZE(H)	Data(H)	Parameter	Description	Default Value (H)
40 00 00	00 00 04	0018 - 07E8	MASTER TUNE	-100.0 - +100.0 [cent]	00 04 00 00
40 00 01#				Use nibblized data.	
40 00 02#					
40 00 03#					
40 00 04	00 00 01	00 - 7F	MASTER VOLUME	0 - 127	7F
40 00 05	00 00 01	28 - 58	MASTER KEY-SHIFT	-24 - +24 semitones	40
40 00 06	00 00 01	01 - 7F	MASTER PAN		40
40 00 7F	00 00 01	00	GS RESET	All internal parameters are reset to the GS default setting. Ignored when "RX GS Reset: off".	--

For example:

If you set the master tune 100 cents higher,
following messages should be sent.
F0 41 10 42 12 40 00 00 00 07 0E 08 sum F7

If you set the master volume at 100 (decimal),
following messages should be sent.
F0 41 10 42 12 40 00 04 64 sum F7

[PATCH PARAMETERS]

* n...block number (0 - F), Part 1 (default MIDIch = 1) n = 1
: : :
Part 9 (default MIDIch = 9) n = 9
Part10 (default MIDIch = 10) n = 0
Part11 (default MIDIch = 11) n = A
: : :
Part16 (default MIDIch = 16) n = F

* x...MIDI channel number (0 - F).

Address(H)	SIZE(H)	Data(H)	Parameter	Description	Default Value (H)
40 01 00	00 00 10	20 - 7F	PATCH NAME	16 ASCII Characters	--
: #					
40 01 0F#					
40 01 10	00 00 10	00 - 18	VOICE RESERVE	Part 10(Drum Part)	02
40 01 11#				Part 1	06
40 01 12#				Part 2	02
40 01 13#				Part 3	02
40 01 14#				Part 4	02
40 01 15#				Part 5	02
40 01 16#				Part 6	02
40 01 17#				Part 7	02
40 01 18#				Part 8	02
40 01 19#				Part 9	02
40 01 1A#				Part 11	00
40 01 :#				:	
40 01 1F#				Part 16	00

The sum total of voice reserves should not exceed the maximum polyphony of the generator.
For example, 18H is the maximum value for a 24 voice sound generator.

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
40 01 31	00 00 01	00 - 07	REVERB CHARACTER		04
40 01 32	00 00 01	00 - 07	REVERB PRE-LPF		00
40 01 33	00 00 01	00 - 7F	REVERB LEVEL		40
40 01 34	00 00 01	00 - 7F	REVERB TIME		40
40 01 35	00 00 01	00 - 7F	REVERB DELAY FEEDBACK		00
40 01 36	00 00 01	00 - 7F	REVERB SEND LEVEL TO CHORUS		00

Address(H)	SIZE(H)	Data(H)	Parameter	Description	Default Value (H)
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
40 01 39	00 00 01	00 - 07	CHORUS PRE-LPF		00
40 01 3A	00 00 01	00 - 7F	CHORUS LEVEL		40
40 01 3B	00 00 01	00 - 7F	CHORUS FEEDBACK		08
40 01 3C	00 00 01	00 - 7F	CHORUS DELAY		50
40 01 3D	00 00 01	00 - 7F	CHORUS RATE		03
40 01 3E	00 00 01	00 - 7F	CHORUS DEPTH		13
40 01 3F	00 00 01	00 - 7F	CHORUS SEND LEVEL TO REVERB		00
40 1n 00	00 00 02	00 - 7F	TONE NUMBER	CC#00 VALUE	00
40 1n 01#		00 - 7F		P.C. VALUE	00
	Ignored when "Rx Inst Chg: Off" or USER function is ON.				
40 1n 02	00 00 01	00 - 10	Rx. CHANNEL	1 - 16,OFF	same as the Part#
40 1n 03	00 00 01	00 - 01	Rx. PITCH BEND	OFF / ON	01
40 1n 04	00 00 01	00 - 01	Rx. CH PRESSURE(CAf)	OFF / ON	01
40 1n 05	00 00 01	00 - 01	Rx. PROGRAM CHANGE	OFF / ON	01
40 1n 06	00 00 01	00 - 01	Rx. CONTROL CHANGE	OFF / ON	01
40 1n 07	00 00 01	00 - 01	Rx. POLY PRESSURE(PAf)	OFF / ON	01
40 1n 08	00 00 01	00 - 01	Rx. NOTE MESSAGE	OFF / ON	01
	Ignored when "MUTE Lock: On".				
40 1n 09	00 00 01	00 - 01	Rx. RPN	OFF / ON	01
40 1n 0A	00 00 01	00 - 01	Rx. NRPN	OFF / ON	00
	Rx. NRPN is set to OFF by power on reset, but it is set to ON by "GS RESET". In case the NRPN is assigned to the sliders, this switch "Rx. NRPN" is ON automatically when the slider is moved.				
40 1n 0B	00 00 01	00 - 01	Rx. MODULATION	OFF / ON	01
40 1n 0C	00 00 01	00 - 01	Rx. VOLUME	OFF / ON	01
40 1n 0D	00 00 01	00 - 01	Rx. PANPOT	OFF / ON	01
40 1n 0E	00 00 01	00 - 01	Rx. EXPRESSION	OFF / ON	01
40 1n 0F	00 00 01	00 - 01	Rx. HOLD1	OFF / ON	01
40 1n 10	00 00 01	00 - 01	Rx. PORTAMENTO	OFF / ON	01
40 1n 11	00 00 01	00 - 01	Rx. SOSTENUTO	OFF / ON	01
40 1n 12	00 00 01	00 - 01	Rx. SOFT	OFF / ON	01
	The OFF/ON setting of the receiving switch(40 1n 03 - 40 1n 12) must be executed while the unit is not sounding.				
40 1n 13	00 00 01	00 - 01	MONO/POLY MODE	Mono / Poly (=Bx 7E 01 / Bx 7F 00)	01
40 1n 14	00 00 01	00 - 02	ASSIGN MODE	0 = SINGLE 1 =LIMITED-MULTI 2 = FULL-MULTI	00 at n=0 01 at n≠0
40 1n 15	00 00 01	00 - 02	USE FOR RHYTHM PART	0 = OFF 1 = MAP1 2 = MAP2	00 at n≠0 01 at n=0
40 1n 16	00 00 01	28 - 58	PITCH KEY SHIFT	-24 - +24 (semitone)	40
40 1n 17	00 00 02	08 - F8	PITCH OFFSET FINE	-12.0 - +12.0 [Hz]	08 00
40 1n 18#				Use nibblized data.	
40 1n 19	00 00 01	00 - 7F	PART LEVEL	0 - 127 (=Bx 07 vv)	64
	Ignored when USER function is ON.				
40 1n 1A	00 00 01	00 - 7F	VELOCITY SENSE DEPTH	0 - 127	40
40 1n 1B	00 00 01	00 - 7F	VELOCITY SENSE OFFSET	0 - 127	40
40 1n 1C	00 00 01	00 - 7F	PART PANPOT	Random,-63(LEFT) - +63(RIGHT) (=Bx 0A vv, except random)	40
	Ignored when USER function is ON.				
40 1n 1D	00 00 01	00 - 7F	KEY RANGE LOW	C-1 - G9	00
40 1n 1E	00 00 01	00 - 7F	KEY RANGE HIGH	C-1 - G9	7F
40 1n 1F	00 00 01	00 - 5F	CC1 CONTROLLER NUMBER	0 - 95	10
40 1n 20	00 00 01	00 - 5F	CC2 CONTROLLER NUMBER	0 - 95	11

Address(H)	SIZE(H)	Data(H)	Parameter	Description	Default Value (H)
40 1n 21	00 00 01	00 - 7F	CHORUS SEND LEVEL	0 - 127 (=Bx 5D vv)	00
40 1n 22	00 00 01	00 - 7F	REVERB SEND LEVEL	0 - 127 (=Bx 5B vv)	28
40 1n 30	00 00 01	0E - 72	TONE MODIFY 1 Vibrato rate	-50 - +50 (=Bx 63 01 62 08 06 vv)	40
40 1n 31	00 00 01	0E - 72	TONE MODIFY 2 Vibrato depth	-50 - +50 (=Bx 63 01 62 09 06 vv)	40
40 1n 32	00 00 01	0E - 50	TONE MODIFY 3 TVF cutoff freq.	-50 - +16 (=Bx 63 01 62 20 06 vv)	40
40 1n 33	00 00 01	0E - 72	TONE MODIFY 4 TVF resonance	-50 - +50 (=Bx 63 01 62 21 06 vv)	40
40 1n 34	00 00 01	0E - 72	TONE MODIFY 5 TVF&TVA Env. attack	-50 - +50 (=Bx 63 01 62 63 06 vv)	40
40 1n 35	00 00 01	0E - 72	TONE MODIFY 6 TVF&TVA Env. decay	-50 - +50 (=Bx 63 01 62 64 06 vv)	40
40 1n 36	00 00 01	0E - 72	TONE MODIFY 7 TVF&TVA Env. release	-50 - +50 (=Bx 63 01 62 66 06 vv)	40
40 1n 37	00 00 01	0E - 72	TONE MODIFY 8 Vibrato delay	-50 - +50 (=Bx 63 01 62 0A 06 vv)	40
40 1n 40	00 00 0C	00 - 7F	SCALE TUNING C	-64 - +63 [cent]	40
40 1n 41#		00 - 7F	SCALE TUNING C#	-64 - +63 [cent]	40
40 1n 42#		00 - 7F	SCALE TUNING D	-64 - +63 [cent]	40
40 1n 43#		00 - 7F	SCALE TUNING D#	-64 - +63 [cent]	40
40 1n 44#		00 - 7F	SCALE TUNING E	-64 - +63 [cent]	40
40 1n 45#		00 - 7F	SCALE TUNING F	-64 - +63 [cent]	40
40 1n 46#		00 - 7F	SCALE TUNING F#	-64 - +63 [cent]	40
40 1n 47#		00 - 7F	SCALE TUNING G	-64 - +63 [cent]	40
40 1n 48#		00 - 7F	SCALE TUNING G#	-64 - +63 [cent]	40
40 1n 49#		00 - 7F	SCALE TUNING A	-64 - +63 [cent]	40
40 1n 4A#		00 - 7F	SCALE TUNING A#	-64 - +63 [cent]	40
40 1n 4B#		00 - 7F	SCALE TUNING B	-64 - +63 [cent]	40
40 2n 00	00 00 01	28 - 58	MOD PITCH CONTROL	-24 - +24 [semitone]	40
40 2n 01	00 00 01	00 - 7F	MOD TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40
40 2n 02	00 00 01	00 - 7F	MOD AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40
40 2n 03	00 00 01	00 - 7F	MOD LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 04	00 00 01	00 - 7F	MOD LFO1 PITCH DEPTH	0 - 600 [cent]	0A
40 2n 05	00 00 01	00 - 7F	MOD LFO1 TVF DEPTH	0 - 2400 [cent]	00
40 2n 06	00 00 01	00 - 7F	MOD LFO1 TVA DEPTH	0 - 100.0 [%]	00
40 2n 07	00 00 01	00 - 7F	MOD LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 08	00 00 01	00 - 7F	MOD LFO2 PITCH DEPTH	0 - 600 [cent]	00
40 2n 09	00 00 01	00 - 7F	MOD LFO2 TVF DEPTH	0 - 2400 [cent]	00
40 2n 0A	00 00 01	00 - 7F	MOD LFO2 TVA DEPTH	0 - 100.0 [%]	00
40 2n 10	00 00 01	28 - 58	BEND PITCH CONTROL	-24 - +24 [semitone]	42
40 2n 11	00 00 01	00 - 7F	BEND TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40
40 2n 12	00 00 01	00 - 7F	BEND AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40
40 2n 13	00 00 01	00 - 7F	BEND LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 14	00 00 01	00 - 7F	BEND LFO1 PITCH DEPTH	0 - 600 [cent]	00
40 2n 15	00 00 01	00 - 7F	BEND LFO1 TVF DEPTH	0 - 2400 [cent]	00
40 2n 16	00 00 01	00 - 7F	BEND LFO1 TVA DEPTH	0 - 100.0 [%]	00
40 2n 17	00 00 01	00 - 7F	BEND LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 18	00 00 01	00 - 7F	BEND LFO2 PITCH DEPTH	0 - 600 [cent]	00
40 2n 19	00 00 01	00 - 7F	BEND LFO2 TVF DEPTH	0 - 2400 [cent]	00
40 2n 1A	00 00 01	00 - 7F	BEND LFO2 TVA DEPTH	0 - 100.0 [%]	00
40 2n 20	00 00 01	28 - 58	CAf PITCH CONTROL	-24 - +24 [semitone]	40
40 2n 21	00 00 01	00 - 7F	CAf TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40
40 2n 22	00 00 01	00 - 7F	CAf AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40
40 2n 23	00 00 01	00 - 7F	CAf LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 24	00 00 01	00 - 7F	CAf LFO1 PITCH DEPTH	0 - 600 [cent]	00
40 2n 25	00 00 01	00 - 7F	CAf LFO1 TVF DEPTH	0 - 2400 [cent]	00
40 2n 26	00 00 01	00 - 7F	CAf LFO1 TVA DEPTH	0 - 100.0 [%]	00
40 2n 27	00 00 01	00 - 7F	CAf LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 28	00 00 01	00 - 7F	CAf LFO2 PITCH DEPTH	0 - 600 [cent]	00
40 2n 29	00 00 01	00 - 7F	CAf LFO2 TVF DEPTH	0 - 2400 [cent]	00
40 2n 2A	00 00 01	00 - 7F	CAf LFO2 TVA DEPTH	0 - 100.0 [%]	00
40 2n 30	00 00 01	28 - 58	PAf PITCH CONTROL	-24 - +24 [semitone]	40
40 2n 31	00 00 01	00 - 7F	PAf TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40
40 2n 32	00 00 01	00 - 7F	PAf AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40
40 2n 33	00 00 01	00 - 7F	PAf LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 34	00 00 01	00 - 7F	PAf LFO1 PITCH DEPTH	0 - 600 [cent]	00
40 2n 35	00 00 01	00 - 7F	PAf LFO1 TVF DEPTH	0 - 2400 [cent]	00
40 2n 36	00 00 01	00 - 7F	PAf LFO1 TVA DEPTH	0 - 100.0 [%]	00
40 2n 37	00 00 01	00 - 7F	PAf LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 38	00 00 01	00 - 7F	PAf LFO2 PITCH DEPTH	0 - 600 [cent]	00
40 2n 39	00 00 01	00 - 7F	PAf LFO2 TVF DEPTH	0 - 2400 [cent]	00
40 2n 3A	00 00 01	00 - 7F	PAf LFO2 TVA DEPTH	0 - 100.0 [%]	00

Address(H)	SIZE(H)	Data(H)	Parameter	Description	Default Value (H)
40 2n 40	00 00 01	28 - 58	CC1 PITCH CONTROL	-24 - +24 [semitone]	40
40 2n 41	00 00 01	00 - 7F	CC1 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40
40 2n 42	00 00 01	00 - 7F	CC1 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40
40 2n 43	00 00 01	00 - 7F	CC1 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 44	00 00 01	00 - 7F	CC1 LFO1 PITCH DEPTH	0 - 600 [cent]	00
40 2n 45	00 00 01	00 - 7F	CC1 LFO1 TVF DEPTH	0 - 2400 [cent]	00
40 2n 46	00 00 01	00 - 7F	CC1 LFO1 TVA DEPTH	0 - 100.0 [%]	00
40 2n 47	00 00 01	00 - 7F	CC1 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 48	00 00 01	00 - 7F	CC1 LFO2 PITCH DEPTH	0 - 600 [cent]	00
40 2n 49	00 00 01	00 - 7F	CC1 LFO2 TVF DEPTH	0 - 2400 [cent]	00
40 2n 4A	00 00 01	00 - 7F	CC1 LFO2 TVA DEPTH	0 - 100.0 [%]	00
40 2n 50	00 00 01	28 - 58	CC2 PITCH CONTROL	-24 - +24 [semitone]	40
40 2n 51	00 00 01	00 - 7F	CC2 TVF CUTOFF CONTROL	-9600 - +9600 [cent]	40
40 2n 52	00 00 01	00 - 7F	CC2 AMPLITUDE CONTROL	-100.0 - +100.0 [%]	40
40 2n 53	00 00 01	00 - 7F	CC2 LFO1 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 54	00 00 01	00 - 7F	CC2 LFO1 PITCH DEPTH	0 - 600 [cent]	00
40 2n 55	00 00 01	00 - 7F	CC2 LFO1 TVF DEPTH	0 - 2400 [cent]	00
40 2n 56	00 00 01	00 - 7F	CC2 LFO1 TVA DEPTH	0 - 100.0 [%]	00
40 2n 57	00 00 01	00 - 7F	CC2 LFO2 RATE CONTROL	-10.0 - +10.0 [Hz]	40
40 2n 58	00 00 01	00 - 7F	CC2 LFO2 PITCH DEPTH	0 - 600 [cent]	00
40 2n 59	00 00 01	00 - 7F	CC2 LFO2 TVF DEPTH	0 - 2400 [cent]	00
40 2n 5A	00 00 01	00 - 7F	CC2 LFO2 TVA DEPTH	0 - 100.0 [%]	00

As the LFO is used for creating the internal sounds. In some cases, changing the parameters of LFO1 and LFO2 may not affect the sound.

[INFORMATION] ----- RQ1 ONLY -----

Address(H)	SIZE(H)	Data(H)	Parameter
40 30 00	00 00 20	20 - 7F	SYSTEM
: #			INFORMATION
: #			
: #			
40 30 1F#			

[DRUM SETUP PARAMETER]

*m : Map number (0 = MAP1, 1 = MAP2)
*rr : drum part note number (00 - 7F)

Address(H)	SIZE(H)	Data(H)	Parameter	Description
41 m0 00	00 00 0C	20 - 7F	DRUM MAP NAME	ASCII Character
: #				
41 m0 0B#				
41 m1 rr	00 00 01	00 - 7F	PLAY NOTE NUMBER	Pitch coarse
41 m2 rr	00 00 01	00 - 7F	LEVEL	TVA level (=Bx 63 1A 62 rr 06 vv)
41 m3 rr	00 00 01	00 - 7F	ASSIGN GROUP NUMBER	Non, 1 - 127
41 m4 rr	00 00 01	00 - 7F	PANPOT	Random, -63(LEFT) - +63(RIGHT) (=Bx 63 1C 62 rr 06 vv)
41 m5 rr	00 00 01	00 - 7F	REVERB DEPTH	0.0 - 1.0 Multiplicand of the part reverb depth (=Bx 63 1D 62 rr 06 vv)
41 m6 rr	00 00 01	00 - 7F	CHORUS DEPTH	0.0 - 1.0 Multiplicand of the part chorus depth (=Bx 63 1E 62 rr 06 vv)
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 you change drum sets, all value of the DRUM SETUP PARAMETER will be initialized.

[Bulk Dump]
1 - packet = 128 byte (MIDI)

--- ALL (8 + 64 + (112 * 16) = 0x748 byte)
--- 0x748 * 2 (nibblize) = 1D 10 (MIDI)

Address(H)	SIZE(H)	Data(H)	Parameter	Description
48 00 00	00 1D 10			
	#			30 packets
48 1D 0F#				

--- SYSTEM PARAMETER (8 = 0x08 byte)
--- 0x08 * 2 (nibblize) = 00 10 (MIDI)

Address(H)	SIZE(H)	Data(H)	Parameter	Description
48 00 00	00 00 10			
	#			1 packet
48 00 0F#				

--- PATCH COMMON (64 = 0x40 byte)
--- 0x40 * 2 (nibblize) = 01 00 (MIDI)

Address(H)	SIZE(H)	Data(H)	Parameter	Description
48 00 10	00 01 00			
	#			1 packet
48 01 0F#				

--- PATCH PART (112 = 0x70 byte)
--- 0x70 * 2 (nibblize) = 01 60 (MIDI)

Address(H)	SIZE(H)	Data(H)	Parameter	Description
48 01 10	00 01 60			
	#	block 0		2 packet
48 02 6F#				
48 02 70	00 01 60			
	#	block 1		2 packet
48 04 4F#				
48 04 50	00 01 60			
	#	block 2		2 packet
48 06 2F#				
48 06 30	00 01 60			
	#	block 3		2 packet
48 08 0F#				
48 08 10	00 01 60			
	#	block 4		2 packet
48 09 6F#				
48 09 70	00 01 60			
	#	block 5		2 packet
48 0B 4F#				
48 0B 50	00 01 60			
	#	block 6		2 packet
48 0D 2F#				
48 0D 30	00 01 60			
	#	block 7		2 packet
48 0F 0F#				
48 0F 10	00 01 60			
	#	block 8		2 packet
48 10 6F#				
48 10 70	00 01 60			
	#	block 9		2 packet
48 12 4F#				
48 12 50	00 01 60			
	#	block A		2 packet
48 14 2F#				
48 14 30	00 01 60			
	#	block B		2 packet
48 16 0F#				
48 16 10	00 01 60			
	#	block C		2 packet
48 17 6F#				
48 17 70	00 01 60			
	#	block D		2 packet
48 19 4F#				
48 19 50	00 01 60			
	#	block E		2 packet
48 1B 2F#				
48 1B 30	00 01 60			
	#	block F		2 packet
48 1D 0F#				

----- DRUM MAP PARAMETER (128 = 80h)
----- 0x80 * 2 (nibblize) = 00 02 00 (MIDI)

Address(H)	SIZE(H)			
49 m0 00	00 02 00			
		PLAY NOTE NUMBER		2 packet
49 m1 7F				
49 m2 00	00 02 00			
		LEVEL		2 packet
49 m3 7F				
49 m4 00	00 02 00			
		ASSIGN GROUP		2 packet
49 m5 7F		NUMBER		
49 m6 00	00 02 00			
		PANPOT		2 packet
49 m7 7F				
49 m8 00	00 02 00			
		REVERB DEPTH		2 packet
49 m9 7F				
49 mA 00	00 02 00			
		CHORUS DEPTH		2 packet
49 mB 7F				
49 mC 00	00 02 00			
		Rx. NOTE ON/OFF		2 packet
49 mD 7F				
49 mE 00	00 00 18			
		DRUM MAP NAME		1 packet
49 mE 17				

m : map number (0 - 1)

Micro Edit

Parameter values used in exclusive messages can be modified direcrly by using panel procedures.

*While in the Micro Edit status, press the INSTRUMENT buttons (◀ and ▶) simultaneously to transmit the displayed parameter values from MIDI OUT.

< Modifying System, Drum Set, and All Part parameters >
① After turning the ALL button indicator on, press the PART buttons (◀ and ▶) simultaneously.
② Press ALL and MUTE quickly two times simultaneously. The value (hexidecimal numbers) will be shown in the upper section of the display indicating the Micro Edit status.
③ Use ALL MUTE to select parameter address that you want to modify (in the Drum Set's case, use PART (◀ ▶) to select the note number).
④ Use INSTRUMENT (◀ ▶) to modify the value.
⑤ After pressing ALL and MUTE simultaneously, press the PART buttons (◀ and ▶) to finalize.

< Modifying parameters that can be set for each part >
① After turning the ALL button indicator off, press the PART buttons (◀ and ▶) simultaneously.
② Press ALL and MUTE quickly two times simultaneously. The value (hexidecimal numbers) will be shown in the upper section of the display indicating the Micro Edit status.
③ Use PART (◀ ▶) to select the part.
④ Use ALL MUTE to select parameter address that you want to modify.
⑤ Use INSTRUMENT (◀ ▶) to modify the value.
⑥ After pressing ALL and MUTE simultaneously, press the PART buttons (◀ and ▶) to finalize.

MIDI SOUND GENERATOR

Model SC-155

MIDI Implementation Chart

Date : Dec. 16 1991

Version : 1.00

Function ...		Transmitted	Recognized	Remarks
Basic Channel	Default	1 – 16	1 – 16	
	Changed	1 – 16	1 – 16 each	Memorized
Mode	Default	×	Mode 3	
	Messages	×	Mode 3, 4 (M = 1)	* 2
	Altered	*********		
Note Number		×	0 – 127	
	True Voice	*********	0 – 127	
Velocity	Note ON	×	○	
	Note OFF	×	×	
After Touch	Key's	×	* 1	
	Ch's	×	* 1	
Pitch Bend		×	* 1	
Control Change	0, 32	○	* 3 (MSB only)	Bank select
	1	○	* 1	Modulation
	5	○	* 3	Portamento time
	6, 38	○ (MSB only)	* 3	Data entry
	7	○	* 1	Volume
	10	○	* 1	Panpot
	11	○	* 1	Expression
	64	×	* 1	Hold1
	65	×	* 1	Portamento
	66	×	* 1	Sostenuto
	67	×	* 1	Soft
	91	○	* 3 (Reverb)	Effect1 depth
	93	○	* 3 (Chorus)	Effect3 depth
	98, 99	○	* 1	NRPN LSB, MSB
	100, 101	×	* 1	RPN LSB, MSB
	120	×	○	All sounds off
	121	×	○	Reset all controllers
Prog Change		○	* 1	
	True #	*********	0 – 127	Prog.Number 1 – 128
System Exclusive		○	* 1	
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	×	×	
	Commands	×	×	
Aux Messages	Local ON/OFF	×	×	
	All Notes OFF	×	○ (123 – 125)	
	Active Sense	○	○	
	Reset	×	×	
Notes		* 1 ○× is selectable. * 2 Recognize as M = 1 even if M ≠ 1. * 3 ○× is selectable, only when using the receive switch control change (all).		

Mode 1 : OMNI ON, POLY Mode 2 : OMNI ON, MONO ○ : Yes

Mode 3 : OMNI OFF, POLY Mode 4 : OMNI OFF, MONO × : No

■ How to read a MIDI Implementation Chart

○ : MIDI data that can be transmitted or received.
× : MIDI data that cannot be transmitted or received.

● Basic Channel

The MIDI channel for transmitting (or receiving) MIDI data can be specified over this range. The MIDI channel setting is remembered even when the power is turned off.

● Mode

Most recent keyboard use mode 3 (omni off, poly).
Reception : MIDI data is received only on the specified channels, and played polyphonically.
Transmission : All MIDI data is transmitted on the specified MIDI channel.

* "Mode" refers to MIDI Mode messages.

● Note Number

This is the range of note numbers that can be transmitted (or received). Note number 60 is middle C (C4).

● Velocity

This is the range over which velocity can be transmitted (or received) by Note On and Note Off messages.

● Aftertouch

Key's : Polyphonic Aftertouch
Ch's : Channel Aftertouch

● Pitch Bend

The bend range setting of each Tone determines the range of pitch change caused by Pitch Bend messages. When set to 0, Pitch Bend messages will be ignored.

● Control Change

This indicates the control numbers that can be transmitted (or received), and what they will control. For details, refer to the MIDI implementation.

● Program Change

The program numbers in the chart indicate the actual data.(This is one less than the Pitch and Tone program numbers.)

● Exclusive

Exclusive message reception can be turned On/Off.

● Common, Real time

These MIDI messages are used to synchronize sequencers and rhythm machines. The Model 660 dose not use these messages.

● Aux messages

These messages are mainly used to keep a MIDI system running correctly.
Active sensing transmission can be turned on/off.

■ SPECIFICATIONS

SC-155 Sound Canvas
(GS response)

☐ Sound Canvas

● Number of parts
16 (Two parts can be set in the drum part)

● Maximum Polyphony
24 (voices)

● Effects
Reverb
Chorus

● Display
70.6 x 24.5mm (backlit LCD)

● Connectors
MIDI connectors (IN 1 (SEQ), IN 2 (KBD), OUT, THRU)
Audio Input jack × 2 (L, R)
Audio Output jack × 2 (L, R)
Headphone jack

● Power supply
DC 9V (AC adaptor)

● Current Draw
500 mA

● Dimensions
218 (W) × 231 (D) × 66 (H) mm
8-5/8 (W) × 9-1/8 (D) × 2-5/8 (H) inches

● Weight
1.3 kg
2 lbs 14 oz

☐ Remote control unit

● Operating range
Distance: approximately 5 m
Angle: 40 degrees

● Power supply
DC 3V (CR2025 lithium battery)

● Dimensions
54 (W) × 85.5 (D) × 4.9 (H) mm
2-1/8 (W) × 3-3/8 (D) × 3/16 (H) inches

☐ Accessories

Owner's manual
AC adaptor
MIDI cable (1 m) x 1
Remote control unit
Lithium battery (CR2025)
Audio cable (RCA pin ↔ RCA pin ＜1/4 inch phone type＞)

* The included MIDI cable is for MIDI only. It cannot be used for other purposes.

* The specifications for this product are subject to change without prior notice.

SOUND Canvas INSTRUMENT TABLE

Program number
(Number of voices)
Instrument name

Piano	1 (1) Piano 1	2 (1) Piano 2	3 (1) Piano 3	4 (2) Honky-Tonk Piano	5 (1) E. Piano 1	6 (1) E. Piano 2	7 (1) Harpsichord	8 (1) Clav.
Chromatic Percussion	9 (1) Celesta	10 (1) Glockenspiel	11 (1) Music Box	12 (1) Vibraphone	13 (1) Marimba	14 (1) Xylophone	15 (1) Tubular-bell	16 (1) Santur
Organ	17 (1) Organ 1	18 (1) Organ 2	19 (2) Organ 3	20 (1) Church Org. 1	21 (1) Reed Organ	22 (2) Accordion Fr	23 (1) Harmonica	24 (2) Bandneon
Guitar	25 (1) Nylon-str. Gt	26 (1) Steel-str. Gt	27 (1) Jazz Gt.	28 (1) Clean Gt.	29 (1) Muted Gt.	30 (1) Overdrive Gt	31 (1) DistortionGt	32 (1) Gt. Harmonics
Bass	33 (1) Acoustic Bs.	34 (1) Fingered Bs.	35 (1) Picked Bs.	36 (1) Fretless Bs.	37 (1) Slap Bass 1	38 (1) Slap Bass 2	39 (1) Synth Bass 1	40 (2) Synth Bass 2
Strings/orchestra	41 (1) Violin	42 (1) Viola	43 (1) Cello	44 (1) Contrabass	45 (1) Tremolo Str	46 (1) PizzicatoStr	47 (1) Harp	48 (1) Timpani
Ensemble	49 (1) Strings	50 (1) Slow Strings	51 (1) Syn. Strings1	52 (2) Syn. Strings2	53 (1) Choir Aahs	54 (1) Voice Oohs	55 (1) SynVox	56 (2) OrchestraHit
Brass	57 (1) Trumpet	58 (1) Trombone	59 (1) Tuba	60 (1) MutedTrumpet	61 (2) French Horn	62 (1) Brass 1	63 (2) Synth Brass1	64 (2) Synth Brass 2
Reed	65 (1) Soprano Sax	66 (1) Alto Sax	67 (1) Tenor Sax	68 (1) Baritone Sax	69 (1) Oboe	70 (1) English Horn	71 (1) Bassoon	72 (1) Clarinet
Pipe	73 (1) Piccolo	74 (1) Flute	75 (1) Recorder	76 (1) Pan Flute	77 (2) Bottle Blow	78 (2) Shakuhachi	79 (1) Whistle	80 (1) Ocarina
Synth lead	81 (2) Square Wave	82 (2) Saw Wave	83 (2) Syn. Calliope	84 (2) Chiffer Lead	85 (2) Charang	86 (2) Solo Vox	87 (2) 5th Saw Wave	88 (2) Bass&Lead
Synth pad etc.	89 (2) Fantasia	90 (1) Warm Pad	91 (2) Polysynth	92 (1) Space Voice	93 (2) Bowed Glass	94 (2) Metal Pad	95 (2) Halo Pad	96 (1) Sweep Pad
Synth SFX	97 (2) Ice Rain	98 (2) Soundtrack	99 (2) Crystal	100 (2) Atmosphere	101 (2) Brightness	102 (2) Goblin	103 (1) Echo Drops	104 (2) Star Theme
Ethnic	105 (1) Sitar	106 (1) Banjo	107 (1) Shamisen	108 (1) Koto	109 (1) Kalimba	110 (1) Bag Pipe	111 (1) Fiddle	112 (1) Shannai
Percussive	113 (1) Tinkle Bell	114 (1) Agogo	115 (1) Steel Drums	116 (1) Woodblock	117 (1) Taiko	118 (1) Melo. Tom 1	119 (1) Synth Drum	120 (2) Reverse Cym.
SFX	121 (1) Gt. FretNoise	122 (2) Breath Noise	123 (1) Seashore	124 (2) Bird	125 (1) Telephone 1	126 (1) Helicopter	127 (2) Applause	128 (1) Gun Shot

The above items are capital instruments. For variation instruments see P.Ap.-15.

SOUND Canvas DRUM SET TABLE

	Note number	PC#1:STANDARD Set PC#33: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
	27	High Q						Closed Hi-Hat [EXC1]
	28	Slap						Pedal Hi-Hat [EXC1]
	29	Scratch Push						Open Hi-Hat [EXC1]
	30	Scratch Pull						Ride Cymbal
	31	Sticks						
	32	Square Click						
	33	Metronome Click						
	34	Metronome Bell						
	35	Kick Drum 2						Concert BD 2
C2	36	Kick Drum 1		MONDO Kick	Elec BD	808 Bass Drum		Concert BD 1
	37	Side Stick				808 Rim Shot		
	38	Snare Drum 1		Gated SD	Elec SD	808 Snare Drum	Brush Tap	Concert SD
	39	Hand Clap					Brush Slap	Castanets
	40	Snare Drum 2			Gated SD		Brush Swirl	Concert SD
	41	Low Tom 2	Room Low Tom 2	Room Low Tom 2	Elec Low Tom 2	808 Low Tom 2		Timpani F
	42	Closed Hi – hat [EXC1]				808 CHH [EXC1]		Timpani F#
	43	Low Tom 1	Room Low Tom 1	Room Low Tom 1	Elec Low Tom 1	808 Low Tom 1		Timpani G
	44	Pedal Hi – hat [EXC1]				808 CHH [EXC1]		Timpani G#
	45	Mid Tom 2	Room Mid Tom 2	Room Mid Tom 2	Elec Mid Tom 2	808 Mid Tom 2		Timpani A
	46	Open Hi – hat [EXC1]				808 OHH [EXC1]		Timpani A#
	47	Mid Tom 1	Room Mid Tom 1	Room Mid Tom 1	Elec Mid Tom 1	808 Mid Tom 1		Timpani B
C3	48	High Tom 2	Room Hi Tom 2	Room Hi Tom 2	Elec Hi Tom 2	808 Hi Tom 2		Timpani c
	49	Crash Cymbal 1				808 Cymbal		Timpani c#
	50	High Tom 1	Room Hi Tom 1	Room Hi Tom 1	Elec Hi Tom 1	808 Hi Tom 1		Timpani d
	51	Ride Cymbal 1						Timpani d#
	52	Chinese Cymbal			Reverse Cymbal ★			Timpani e
	53	Ride Bell						Timpani f
	54	Tambourine						
	55	Splash Cymbal						
	56	Cowbell				808 Cowbell		
	57	Crash Cymbal 2						Concert Cymbal 2
	58	Vibra – slap						
	59	Ride Cymbal 2						Concert Cymbal 1
C4	60	High Bongo						
	61	Low Bongo						
	62	Mute High Conga				808 High Conga		
	63	Open High Conga				808 Mid Conga		
	64	Low Conga				808 Low Conga		
	65	High Timbale						
	66	Low Timbale						
	67	High Agogo						
	68	Low Agogo						
	69	Cabasa						
	70	Maracas				808 Maracas		
	71	Short Hi Whistle [EXC2]						
C5	72	Long Low Whistle [EXC2]						
	73	Short Guiro [EXC3]						
	74	Long Guiro [EXC3]						
	75	Claves				808 Claves		
	76	High Wood Block						
	77	Low Wood Block						
	78	Mute Cuica [EXC4]						
	79	Open Cuica [EXC4]						
	80	Mute Triangle [EXC5]						
	81	Open Triangle [EXC5]						
	82	Shaker						
	83	Jingle Bell						
C6	84	Bell Tree						
	85	Castanets						
	86	Mute Surdo [EXC6]						
	87	Open Surdo [EXC6]						
	88			- - - - -				Applause ★

PC # : Program number (drum set number)

★ : Tones which are created by using two voices. (All other tones are created by one voice.)

Blank : Same as the percussion sound of "STANDARD"

- - - - - - : No sound

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

*In addition to the above, the SFX set and CM-32L (CM-64) set are also available (☞P.Ap.-20).

For Nordic Countries

Apparatus containing Lithium batteries

ADVARSEL!

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Lever det brugte batteri tilbage til leverandøren.

VARNING!

Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL!

Lithiumbatteri – Eksplosjonsfare.
Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten.
Brukt batteri returneres apparatleverandøren.

VAROITUS!

Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

For Germany

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

Roland Sound Canvas SC-155

(Gerät. Typ. Bezeichnung)

in Übereinstimmung mit den Bestimmungen der

Amtsbl. Vfg 1046/1984

(Amtsblattverfügung)

funk-entstört ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

Roland Corporation Osaka/Japan

Name des Herstellers/Importeurs

For the USA

RADIO AND TELEVISION INTERFERENCE

WARNING — This equipment has been verified to comply with the limits for a Class B computing device, pursuant to Subpart J, of Part 15, of FCC rules. Operation with non-certified or non-verified equipment is likely to result in interference to radio and TV reception.

The equipment described in this manual generates and uses radio frequency energy. If it is not installed and used properly, that is, in strict accordance with our instructions, it may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J, of Part 15, of FCC Rules. These rules are designed to provide reasonable protection against such a interference in a rasidential installation. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by the following measure:

- Disconnect other devices and their input/output cables one at a time. If the interference stops, it is caused by either the other device or its I/O cable.
  These devices usually require Roland designated shielded I/O cables. For Roland devices, you can obtain the proper shielded cable from your dealer. For non Roland devices, contact the manufacturer or dealer for assistance.
  If your equipment does cause interference to radio or television reception, you can try to correct the interference by using one or more of the following measures.
- Turn the TV or radio antenna until the interference stops.
- Move the equipment to one side or the other of the TV or radio.
- Move the equipment farther away from the TV or radio.
- Plug the equipment into an outlet that is on a different circuit than the TV or radio. (That is, make certain the equipment and the radio or television set are on circuits controlled by different circuit breakers or fuses.)
- Consider installing a rooftop television antenna with coaxial cable lead-in between the antenna and TV. If necessary, you should consult your dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet prepared by the Federal Communications Commission:
  "How to Identify and Resolve Radio — TV Interference Problems"
  This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

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 Réglement des signaux parasites par le ministère canadien des Communications.

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SOUND Canvas MIDI SOUND GENERATOR SC-155

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