

TR-Rack

EXPANDED ACCESS MODULE



Advanced Control Combined Synthesis System

PCI/F



User's Guide

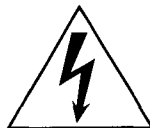
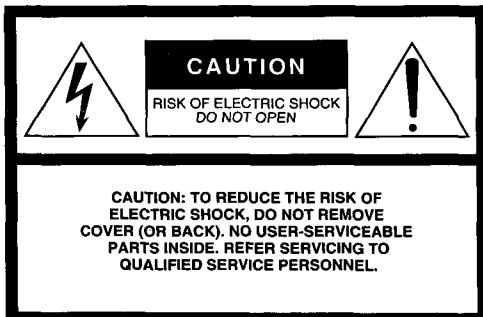
KORG

IMPORTANT SAFETY INSTRUCTIONS

WARNING — When using electrical products, basic precautions should be followed, including the following:

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

SAVE THESE INSTRUCTIONS



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



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

GROUNDING INSTRUCTIONS

This product must be grounded (earthed). If it should malfunction or breakdown, grounding a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with the local codes and ordinances.

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

THE FCC REGULATION WARNING

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

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

CE mark for European Harmonized Standards

CE mark which is attached to our company's products of AC mains operated apparatus until December 31, 1996 means it conforms to EMC Directive (89/336/EEC) and CE mark Directive (93/68/EEC).

And, CE mark which is attached after January 1, 1997 means it conforms to EMC Directive (89/336/EEC), CE mark Directive (93/68/EEC) and Low Voltage Directive (73/23/EEC).

Also, CE mark which is attached to our company's products of Battery operated apparatus means it conforms to EMC Directive (89/336/EEC) and CE mark Directive (93/68/EEC).

IMPORTANT NOTICE FOR THE UNITED KINGDOM

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

- the wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
- the wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.
- Do not connect the wire to earth terminal of a three-pin plug.

Data handling

Unforeseen malfunctions can result in the loss of memory contents. Please be sure to save important data on an external data filer (storage device). Korg can accept no responsibility for any loss or damage which you may incur as a result of data loss.

- Apple, the Apple logo, and Macintosh are registered trademarks; MIDI Manager and PatchBay are trademarks of Apple Computer, Inc.
- IBM is a registered trademark of International Business Machines Corporation.
- MS-DOS and Windows are trademarks of Microsoft Corporation.
- Other brand and product names are trademarks or registered trademarks of their respective holders.

How to use the owner's manual

How the TR-Rack owner's manual is organized

The TR-Rack owner's manual is intended to be used as follows.

First read the **Basic section** carefully to gain an understanding of the instrument and to learn about basic operation. For details on parameters, read the **Parameter section**.

The TR-Rack owner's manual assumes that you have a basic understanding of synthesizers and of MIDI.

- The explanations in the owner's manual are supplemented by various explanatory LCD screens. Please be aware that the sound names, parameters and values shown in these screens are for explanatory purposes only, and may not necessarily match the LCD screens shown on your instrument. Also, please be aware that appearance and specifications may change without notice for improvement of the product.

User's Guide

Basic section

"STEP 1" explains the main features of the TR-Rack, and its front and rear panel.

"STEP 2" explains how to make connections, and prepare for playing. (How to select sounds, and adjusting the tuning and transposition.)

"STEP 3" explains basic editing of programs and combinations, and MIDI.

In explanations of MIDI-related functionality, "Control Change Number" is abbreviated as "CC#." Also, numeric values in MIDI messages that are enclosed in square brackets [] are hexadecimal values.

Parameter section

This section explains the parameters of each page, and discusses points that you need to know. Refer to this section when you wish to know more about each parameter.

Effect Guide

This explains each effect and its parameters, and discusses points that you need to know.

Refer to this material when you wish to know more about the effects.

Voice Name List

This lists the multisamples and drum samples that are built into the TR-Rack, and the names of the factory preset combinations, programs and drum kits.

Refer to this material when you wish to know more about the pre-loaded sounds.

How to use the Parameter section

The following example shows how this Parameter section is organized.

(Example)

Page name

Mode name

4. Combination Edit Mode

Page 17: Prog Change (Enable Program Change)

VZ Btm Slope [0...120]

With a setting of 0, the Bottom Velocity will have the original volume.
As this value is increased, the change in volume will become more gradual.

Page no.

The settings of pages 17–20 allow you to filter the reception of MIDI data.

You can specify whether each timbre 1–8 will receive various types of MIDI message.

Since filter settings can be made independently for each timbre, you can (for example) apply pitch bend to one timbre and not to another, even if both are receiving the same MIDI channel.

Parameter name

Prog Change [DIS, ENA]

Parameter values (adjustable range)

MIDI Specify whether or not each timbre 1–8 will receive MIDI program change messages.

With a setting of ENA, that timbre will change programs when a MIDI program change message is received.

With a setting of DIS, that timbre will not receive MIDI program change messages.

To enable/disable reception of MIDI program change messages for the entire TR-Rack, make settings in Global mode "Page7: Prog Change."

Page 18: Ctrl Change (Enable Control Change)

MIDI Specify whether or not each timbre 1–8 will receive MIDI control change messages.

This mark appears at the beginning of the explanation regarding MIDI.

Ctrl Change [DIS, ENA]

With a setting of ENA, MIDI control change messages will be received to control vibrato or volume, etc.

With a setting of DIS, control change messages will not be received.

To enable/disable reception of MIDI control change messages for the entire TR-Rack, set the Ctrl parameter of Global mode "Page8: MIDI Filter."

Page 19: After Touch (Enable Aftertouch)

MIDI Specify whether or not each timbre 1–8 will receive MIDI aftertouch messages.

After Touch [DIS, ENA]

With a setting of ENA, MIDI aftertouch messages will be received.

With a setting of DIS, MIDI aftertouch messages will not be received.

To enable/disable reception of MIDI aftertouch messages for the entire TR-Rack, set the A.T parameter of Global mode "Page8: MIDI Filter."

There are two types of aftertouch message; channel aftertouch and polyphonic aftertouch. The TR-Rack receives only channel aftertouch messages.

Page 20: Sustain Pedal (Enable Sustain Pedal)

MIDI Specify whether or not each timbre 1–8 will receive MIDI CC#64 Hold (Damper Pedal) messages.

Sustain Pedal [DIS, ENA]

With a setting of ENA, MIDI hold messages will be received.

With a setting of DIS, MIDI hold messages will not be received.

Since MIDI Hold is a type of control change message, reception can be enabled/disabled for the entire TR-Rack by the Ctrl parameter of Global mode "Page8: MIDI Filter."

Page 21: Scale Select (Use Program's Scale)

Select the scale used by each timbre 1–8.

Scale Select [CMB, PRG]

With a setting of PRG, the scale specified by the pro-

Note

- "CC#" that often appears in this guide is the abbreviation of "Control Change number."

Table of Contents

Basic section 1

Overview 3

1. Main features 3
 - ACCESS 3
 - Program Edit allows simple modification of program sounds 3
 - 512 programs and combinations 3
 - Digital multi-effect units 3
 - Digital output 3

2. Front and rear panel 4

Basic Operation 5

1. Connections 5
2. MIDI keyboard settings 6
 - MIDI transmit channel 6
 - MIDI transmit filter 6
3. Connections with a computer 6
 - Connections via MIDI 6
 - Connections to an IBM PC (compatible) 6
 - Connections to an Apple Macintosh 7
 - Setting the HOST BR 7
4. Listen to the demo song 7
5. Selecting and playing a program 8
 - Selecting programs from the front panel 8
 - Selecting programs by category 8
6. Selecting and playing a combination 9
 - Selecting combinations from the front panel 9
 - Selecting combinations by category 9
7. Tuning 10
8. Transposing 10
9. Writing in each mode 11
 - Writing procedure 11
 - Compare 11
10. Restoring the factory settings 12
11. Editing procedure 12

Advanced Operation 13

1. Program Play mode 13
 - How a program is organized 13
 - Elements of sound 13
2. Program Edit mode 14
 - About program editing 14
 - Program editing procedure 14
 - Other parameters 15
 - Performance techniques 15
3. Combination Play mode 16
 - How a combination is organized 16
 - How timbres will sound (Layer, Split, Velocity Switch) 16
4. Combination Edit mode 17
 - About combination editing 17
 - Combination editing procedure 17
 - Selecting the program for each timbre 17

- Volume settings 17
- MIDI channel settings 17
- Key zone settings 17
- Velocity Zone settings 18
- Other combination edit parameters 18

5. Multi mode 19
 - About the TR-Rack's Multi mode 19
 - How Multi mode is organized 19
 - Accessing display pages and setting parameters 19
6. Effects 19
 - Insertion effects 19
 - Master effect 20
 - Master EQ 20
 - Effect bypass 20
 - Send/return adjustments 20
7. Global mode 21
 - Accessing display pages and setting parameters 21
8. Saving data 21
 - Writing to internal memory 21
 - MIDI data dump 21
9. MIDI Applications 22
 - MIDI channels 22
 - Note on/off 22
 - Changing the program and bank 22
 - Selecting combinations 22
 - Sustain pedal 22
 - Applying aftertouch 23
 - Applying pitch bend 23
 - Adjusting the volume 23
 - Applying vibrato (Oscillator LFO) 23
 - Applying wah (Filter LFO) 23
 - Adjusting the stereo location (Panpot) 23
 - Adjusting the master effect send levels (Send 1, 2) 23
 - Turning effects on/off 24
 - Effect dynamic modulation 24
 - Adjusting the tone 24
 - Adjusting the attack time 24
 - Adjusting the release time 24
 - Editing with RPN messages 24
 - Tuning 25
 - Transposing 25
 - Setting the pitch bend range 25
 - If a note is "stuck" 25
 - Turning off all notes of a channel 25
 - Resetting all controllers of a channel 25
 - System exclusive messages 25
 - Transmitting sound data settings etc. (Data Dump) 26
 - Editing sounds, etc. 26
 - Connecting to an external device for multi-timbral playing 26
10. When you want to 27
 - Adjust the tuning 27
 - Change the transposition 27
 - Adjust the velocity sensitivity 27
 - Receive program change and bank select messages in Combination Play mode to select combinations or the programs of each timbre 27
 - Play two or more programs simultaneously 27
 - Play different sounds in the left and right hands 28
 - Bring back the factory settings 28
 - Directly save sound data and settings on a computer etc. 28

11. Troubleshooting	28
I pressed the POWER switch but the power does not come on!	28
No sound!	28
Can't control via MIDI!	28
Can't write data!	28
On a drum oscillator program, the keyboard does not play the correct drum sounds!	28
Can't use MIDI program changes to select programs!	28
In Combination Play mode, can't use MIDI program changes to select combinations!	29
In Combination Play mode, certain notes produce no sound!	29
Can't control from a computer connected to the TO HOST connector!	29

Parameter section 31

1. Program Play mode	33
Page1: Program Bank/Program No./Program Name/Category	33
2. Program Edit mode	34
Page1: Octave	34
Page2: Amp Level	34
Page3: Filter Fc	34
Page4: Filter EG Int	34
Page5: Resonance	34
Page6: Attack Time	35
Page7: Decay Time	35
Page8: Release Time	35
Page9: Velocity	35
Page10: After Touch	35
Page11: LFO Intensity	36
Page12: LFO Frequency	36
Page13: Pan	36
Page14: Master FX Send1	36
Page15: Master FX Send2	36
Page16~19: IFX1~IFX4 (Insert Effect Setting)	37
Page20: IFX Copy (Copy Insert Effect)	37
Page21: IFX Swap (Swap Insert Effect)	38
Page22: IFX Chain	38
Page23: IFX Pan (Pan/Width)	38
Page24: IFX Send MFX	38
Page25, 26: MstrFX1-Mod/MstrFX2-Rev (Effect1/Effect2 Setting)	39
Page27: Master FX Copy (Copy Master Effect)	39
Page28: Master FX Chain	39
Page29: Master FX Return	40
Page30: Master EQ dB	40
Page31: MFX Pan to Out3/4 (Pan1/2)	40
Page32: Rename (Program Name)	40
Page33: Set Category	40
3. Combination Play mode	41
Page1: Combination Bank/Combination No./Combination Name/Category	41
4. Combination Edit mode	42
Page1: Program	42
Page2: Level	42
Page3: Channel (MIDI Channel)	42
Page4: Timbre SW	42
Page5: Transpose	42
Page6: Detune	42

Page7: Bend Range	43
Page8: Delay Start [ms]	43
Page9: Key Zone Top (Top Key)	43
Page10: Key Zone Btm (Bottom Key)	43
Page11: KZ Top Slope (Top Slope)	43
Page12: KZ Btm Slope (Bottom Slope)	44
Page13: Vel Zone Top (Top Velocity)	44
Page14: Vel Zone Btm (Bottom Velocity)	44
Page15: VZ Top Slope (Top Slope)	44
Page16: VZ Btm Slope (Bottom Slope)	44
Page17: Prog Change (Enable Program Change)	45
Page18: Ctrl Change (Enable Control Change)	45
Page19: After Touch (Enable Aftertouch)	45
Page20: Sustain Pedal (Enable Sustain Pedal)	45
Page21: Scale Select (Use Program's Scale)	45
Page22: Hide OSC2	46
Page23: Force Poly	46
Page24: Pan	46
Page25: MFX Send 1	46
Page26: MFX Send 2	46
Page27: InsrtFX Size	46
Page28~31: IFX1~IFX4 (Insert Effect Setting)	47
Page32: IFX Copy (Copy Insert Effect)	48
Page33: IFX Swap (Swap Insert Effect)	48
Page34: IFX Chain	49
Page35: IFX Pan (Pan/Width)	49
Page36: IFX Send (Send1, 2)	49
Page37, 38: MstrFX1-Mod/MstrFX2-Rev (Effect1/Effect2 Setting)	49
Page39: Master FX Copy (Copy Master Effect)	49
Page40: Master FX Chain	50
Page41: Master FX Return	50
Page42: Master EQ dB	50
Page43: MFX Pan to Out3/4	50
Page44: Scale	50
Page45: Initialize	51
Page46: Rename (Combination Name)	51
Page47: Set Category	51
5. Multi mode	52
Page1: Program (Bank/Program)	52
Page2: Level	52
Page3: Channel (MIDI Channel)	52
Page4: Track SW	52
Page5: Transpose	53
Page6: Detune	53
Page7: Bend Range	53
Page8: Prog Change (Enable Program Change)	53
Page9: Ctrl Change (Enable Control Change)	54
Page10: After Touch (Enable Aftertouch)	54
Page11: Sustain Pedal (Enable Sustain Pedal)	54
Page12: Scale Select (Use Program's Scale)	54
Page13: Hide OSC2	55
Page14: Force Poly	55
Page15: Pan	55
Page16: MFX Send 1	55
Page17: MFX Send 2	56
Page18: InsrtFX Size	56
Page19~22: IFX1~IFX4 (Insert Effect Setting)	56
Page23: IFX Copy (Copy Insert Effect)	57
Page24: IFX Swap (Swap Insert Effect)	58
Page25: IFX Chain	58
Page26: IFX Pan (Pan/Width)	58
Page27: IFX Send (Send1, Send2)	58
Page28, 29: MstrFX1-Mod/MstrFX2-Rev (Effect1/Effect2 Setting)	58

Page30: Master FX Copy (Copy Master Effect) 59
Page31: Master FX Chain..... 59
Page32: Master FX Return..... 59
Page33: Master EQ dB..... 59
Page34: MFX Pan to Out3/4 (Pan 1/2)..... 59
Page35: Scale..... 60
Page36: Initialize..... 60
Page37: Copy from Comb..... 60

6. Global mode61

Page1: Master Tune 61
Page2: Key Transpose 61
Page3: MIDI Channel..... 61
Page4: Curve 61
Page5: Insert FX Off 62
Page6: Master FX Off 62
Page7: Prog Change (Filter)..... 62
Page8: MIDI Filter..... 63
Page9: Memory Protect 63
Page10: Preload..... 64
Page11: All Note Scale/Octave Scale..... 64
Page12: Data Dump 64
Page13: Page Memory 65
Page14: Prog Category..... 65
Page15: Comb Category..... 65
Page16: P/C Select 66
Page17: System Clock..... 66

Appendices67

1. How the TR-Rack is organized 67
2. Internal parameters of the TR-Rack 75
3. Initialized data..... 77
4. Korg MIDI Driver installation and setup 79
5. About the DI-TRI digital I/F option..... 85
6. Messages..... 86
7. Specification and options..... 86
MIDI Implementation Chart 87

Basic section

Overview

1. Main features

ACCESS

The **TR-Rack** features ACCESS (Advanced Control Combined Synthesis System), the PCM tone generation system which performs all processing in a fully digital format.

The tone generator contains a gigantic 24 Mbytes of PCM ROM, with 415 multisamples and 458 drum samples recorded at a sampling frequency of 48 kHz. The effect section provides powerful sonic potential with 100 types of insertion effect and 14 types of modulation-type and reverb/delay-type master effects (send/return connection).

Since all processing is done in a digital format, you can enjoy high-quality sound with minimum loss of audio quality.

Digital output

By adding the separately sold **DI-TRI digital I/F option**, you can add a Digital OUT connector.

The Digital OUT connector can be connected to the DIGITAL IN connector of an ADAT Optical format compatible mixer, amp, or recorder so that the signal from the **TR-Rack** can be processed by the mixer, amp or recorder etc. in digital format.

Program Edit allows simple modification of program sounds

The program parameters of the **TR-Rack** allow you to easily and intuitively modify the complex parameters of each program. (The internal parameters are the same as on the Trinity series.)

By connecting a Trinity-series instrument via MIDI or by using editing software on your computer, you can edit the same parameters as on the Trinity.

512 programs and combinations

The **TR-Rack** contains 128 programs in each bank A, B, C and D, for a total of 512. This provides a versatile array of sounds for any performing situation.

The **TR-Rack** contains 512 combinations, each of which assigns a program to one of up to eight timbres. The assigned programs can be layered or switched by note number or velocity.

Digital multi-effect units

The effect section of the **TR-Rack** provides 100 types of insertion effect and 14 types of master effect.

Insertion effects include effects which modify the tone or dynamics (equalizer, limiter, exciter, etc.), effects which simulate the character of a particular instrument (amp simulation, rotary speaker, etc.), and other effects such as ring modulator, vocoder, and pitch shifter. The master effects provide a send/return style modulation effect, and a reverb/delay effect to make your sound even more powerful.

The **Dynamic Modulation** function lets you use various controllers to modulate effect parameters.

2. Front and rear panel

[+PAGE]/[-PAGE] keys

In Program Edit mode, Combination Edit mode, Multi mode and Global mode these keys are used to select screen pages. In Program Play mode and Combination Play mode, they are used to select program numbers or combination numbers by category (see p.8 of this manual).

Cursor [◀]/[▶] keys

In Program Edit mode, Combination Edit mode, Multi mode and Global mode these keys are used to select parameters. In Program Play mode and Combination Play mode, they are used to select program numbers or combination numbers by category (see p.8 of this manual).

[+1/YES]/[-1/NO] keys

In Program Play mode and Combination Play mode, these are used to select program numbers or combination numbers. In Program Edit mode, Combination Edit mode, Multi mode and Global mode these keys are used to modify the value of the selected parameter.

VOLUME knob

This adjusts the volume of the output from the 1/L/MONO and 2/R output jacks and the headphone jack.



Headphone jack

A set of headphones (phone plug) can be connected here. The left channel of the headphones will output the signal of the 1/L/MONO output jack, and the right channel will output the signal of the 2/R output jack.

[COMPARE] key

When you press this key during editing the LED will light, and the settings that have been written into memory will be recalled. Press the key again and the LED will go off, and the settings that were being edited will return.

[A4] key

When this key is pressed, the currently selected sound will play at a pitch of A4 (440 Hz). This provides an easy way for you to audition sounds, or to check MIDI or audio connections. When MIDI data is received, the LED above the key will light to function as a MIDI indicator.

Power switch

This turns the power on/off.

[PROG] key, [COMB] key, [GLOBAL/MULTI] key, [EDIT] key

These keys are used to enter the various modes. When a key is pressed, the LED located above (or below) the key will light, and you will enter the corresponding mode.

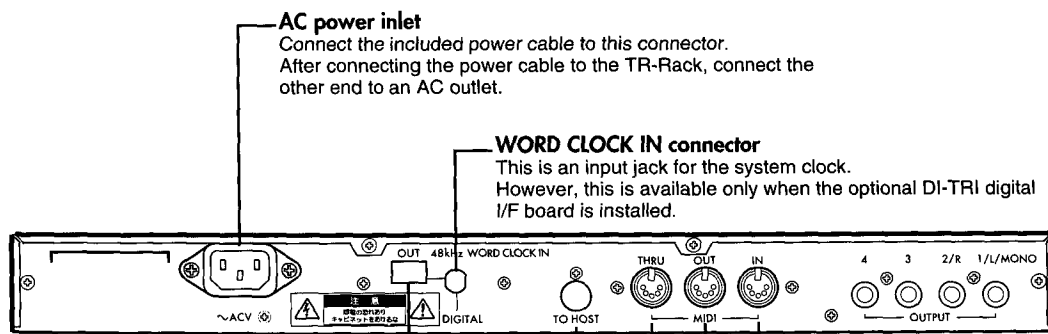
When you are in Program Play mode or Combination Play mode, pressing the [EDIT] key will take you to Program Edit mode or Combination Edit mode. Each time you press the [Global/Multi] key, you will alternate between Global mode (LED blinking) and Multi mode (LED lit).

[RESET] key

Press this key if a "stuck note" occurs for any reason.

[WRITE] key

In each mode, use this key to write settings into memory.



AC power inlet

Connect the included power cable to this connector. After connecting the power cable to the TR-Rack, connect the other end to an AC outlet.

WORD CLOCK IN connector

This is an input jack for the system clock. However, this is available only when the optional DI-TR1 digital I/F board is installed.

DIGITAL OUT connectors (Digital I/F format)

This connector digitally outputs the signals from the OUTPUT jacks (1/L/MONO, 2/R, 3, 4). Use an ADAT Optical format compatible cable to connect an ADAT Optical format compatible device (mixer, amp, recorder etc.). However, this is available only when the optional DI-TR1 digital I/F board is installed.

TO HOST connector

Use this to connect a computer.

MIDI THRU connector

MIDI messages received at the MIDI IN connector are retransmitted without change from this connector. Use this when you wish to connect multiple MIDI devices.

OUTPUT jacks (1/L/MONO, 2/R, 3, 4)

Connect these to your amp or mixer. When making stereo connections, use 1/L/MONO and 2/R. When making monaural connections, use 1/L/MONO. The function of 3 and 4 will depend on the master effect settings, so check the settings before using these outputs. Also, 3 and 4 are not affected by the VOLUME knob.

MIDI IN connector

MIDI messages are received at this connector. Connect it to an external MIDI device.

MIDI OUT connector

MIDI messages are transmitted from this connector. Connect it to an external MIDI device.

Basic Operation

1. Connections

Front panel side TR-Rack EIA standard case

Screw Insulating washer Insulating bushing

If you will be installing the **TR-Rack** into an equipment rack, insert the insulating washers and insulating bushings into the holes.

⚠ If you will be placing the **TR-Rack** directly on a table or other surface for use, please do not place another rack or computer etc. on top of the **TR-Rack**.

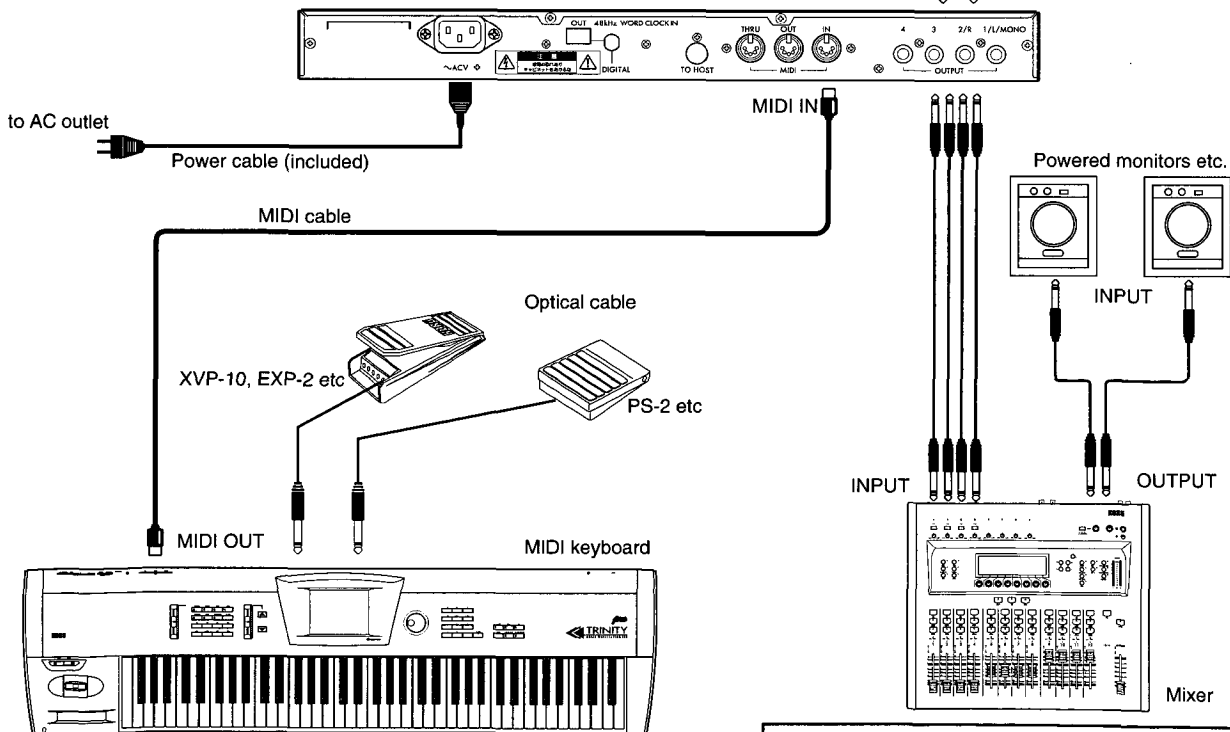
If you wish to use headphones, connect them to the headphone jack on the front panel.

Headphone

<Connecting the power cable>
Connect the included power cable to the AC power inlet, and connect the other end to an AC outlet.

<Connecting powered monitors/stereo amp>
In order to faithfully reproduce the sound of the **TR-Rack**, we recommend that you use powered monitors (speakers with built-in amps, such as the PM-15) whenever possible. If you wish to connect the **TR-Rack** to a stereo audio amp or to a stereo cassette radio that has external input jacks, connect it to the jacks marked **LINE IN**, **AUX IN** or external input.

⚠ When the **TR-Rack** is connected to a stereo audio amp, be careful not to raise the volume excessively, since playing it at high volumes may damage your speaker system.



<Connections using the MIDI connectors>
If you wish to use a connected MIDI device to control the **TR-Rack** (for example to playback data from an external sequencer on the **TR-Rack**'s tone generator), connect the **MIDI IN** connector of the **TR-Rack** to the **MIDI OUT** connector of the MIDI device.
To connect a computer, you will normally use the **TO HOST** connector.

⚠ By using the **MIDI THRU** connector, you can "daisy chain" several MIDI devices, but in order to prevent malfunctions we recommend that you limit such connections to 2-3 devices. If you need to connect more MIDI devices than this, use a MIDI patch bay.

<Mixer connections>
Connect the **OUTPUT** jacks to your mixer. In order to take full advantage of the **TR-Rack**'s high-quality sound, we recommend that you play it in stereo whenever possible. If you wish to make monaural connections, use the **1/L/MONO** jack.

2. MIDI keyboard settings

The **TR-Rack** receives MIDI messages transmitted from a MIDI keyboard, and produces sound in response.

When using a MIDI keyboard to play the **TR-Rack**, you will first need to make the following MIDI transmission settings on your MIDI keyboard. For details on operating your keyboard, refer to the manual for your instrument.

MIDI transmit channel

Set the MIDI transmit channel of your keyboard to match the Global MIDI channel of the **TR-Rack**.

If your transmit channel of your MIDI keyboard is fixed or if you are unable to change it, you can change the MIDI receive channel of the **TR-Rack**.

MIDI transmit filter

Some MIDI keyboards allow you to select the types of MIDI message that are transmitted. Make such settings as desired.

The **TR-Rack** receives the following MIDI messages.

Note on/off (note messages): These messages are the most basic type of musical performance data.

Program change: These messages are used to select programs.

Control change: These messages convey controller movements and performance expressions.

Pitch bend: These messages convey movements of the pitch bender (joystick, wheel, lever).

Aftersustain: These messages are transmitted to convey pressure that is applied to the keyboard in order to control an effect.

⚠ When you play the **TR-Rack** from your MIDI keyboard, only those types of MIDI message that your MIDI keyboard can transmit will be available for use. For example if you are using a MIDI keyboard (such as a digital piano) which does not transmit pitch bend messages, the pitch bend effect will not be available.

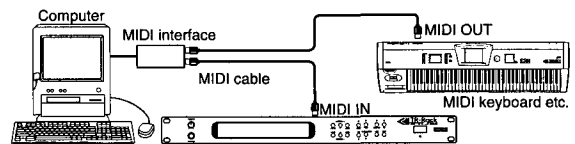
3. Connections with a computer

By connecting the **TR-Rack** to your computer via a special cable (or via MIDI cables), you can use your computer to play the **TR-Rack**.

Connections via MIDI

To connect the **TR-Rack** to a computer that has a MIDI interface, use MIDI cables to connect the MIDI OUT connector of the computer (MIDI interface) to the MIDI IN connector of the **TR-Rack**.

For details on connecting your computer and MIDI interface, and how to make MIDI port settings, refer to the owner's manual for your MIDI interface.



Connections to an IBM PC (compatible)

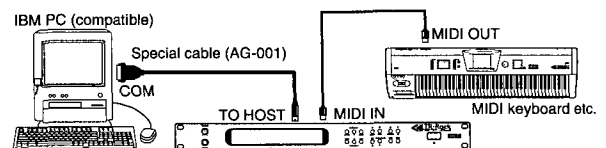
Make connections using a separately sold AG-001 kit (connection cable and Korg MIDI Driver software).

However, applications which do not support Windows cannot be used with this connection method unless they specifically support the **TR-Rack**.

If the serial port of your computer uses a 25 pin connector, you will need a 9 pin-25 pin adapter.

Use the special cable to connect the serial port (COM port) of the IBM PC (compatible) to the TO HOST connector of the **TR-Rack**.

Set the Global mode "Page16: P/C Select" parameter to 38.4 kBPS.

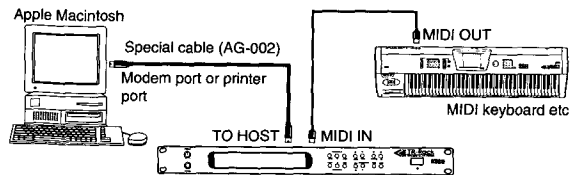


Connections to an Apple Macintosh

Make connections using a separately sold AG-002 kit (connection cable and Korg MIDI Driver software).

Use the special cable to connect the modem port or printer port of the Apple Macintosh to the TO HOST connector of the TR-Rack.

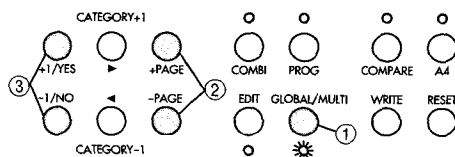
Set the Global mode "Page16: P/C Select" parameter to 31.25 kBPS.



Setting the HOST BR

Specify the rate at which data will be transmitted to and from the computer.

This setting will depend on the type of computer to which the TR-Rack is connected.



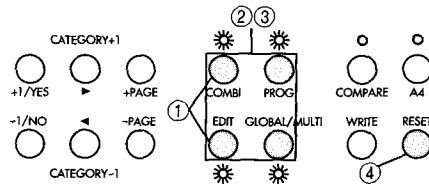
- ① Press the [GLOBAL/MULTI] key to enter Global mode. The [GLOBAL/MULTI] key LED will light.
- ② Use the [+PAGE] [-PAGE] keys to select "Page16: P/C Select."

```
16 P/C Select
31.25kBPS
```

- ③ Use the [+1/YES] [-1/NO] keys to select either 31.25 kBPS or 38.4 kBPS.
 - If you are using an Apple Macintosh, select 31.25 kBPS.
 - If you are using an IBM-PC (compatible), select 38.4 kBPS.

4. Listen to the demo song

Here's how to listen to the built-in demo song.



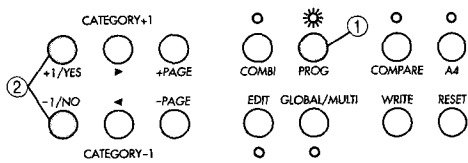
- ① Simultaneously press the [COMBI] key and the [EDIT] key. You will enter demo mode.
- ② Press any one of the [COMBI], [PROG], [EDIT] or [GLOBAL/MULTI] keys. Demo playback will begin. (The demo will playback continuously.)
- ③ Press any one of the [COMBI], [PROG], [EDIT] or [GLOBAL/MULTI] keys to stop the demo playback.
- ④ Press the [RESET] key to exit demo mode and enter Combination Play mode.

5. Selecting and playing a program

③ Use the [+PAGE] [-PAGE] keys to successively select the various programs which belong to the specified category. Only programs which belong to the category specified in step ② will be selected.

Selecting programs from the front panel

The following example shows how to select program 3 from bank A.



- ① Press the [PROG] key to enter Program Play mode. The [PROG] key LED will light.
- ② Use the [+1/YES] [-1/NO] keys to select program A03.
 - If you hold down the [+1/YES] key and press the [▶] key, the program number will increase in steps of 10. If you hold down the [-1/NO] key and press the [◀] key, the program number will decrease in steps of 10.
 - If you hold down the [+1/YES] key and press the [+PAGE] key, the program number will increase in steps of 128. If you hold down the [-1/NO] key and press the [-PAGE] key, the program number will decrease in steps of 128.

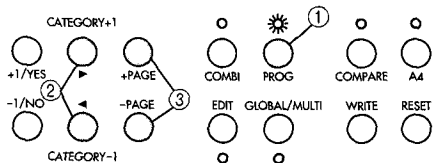
You can also select programs from a connected MIDI device.

For details refer to "Advanced Operation - 9. MIDI Applications" on p.22 of this manual.

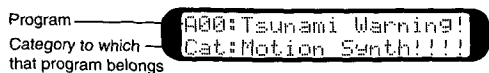
Selecting programs by category

Each of the 512 programs is assigned a category name which indicates the type of sound.

You can use these categories to select programs.



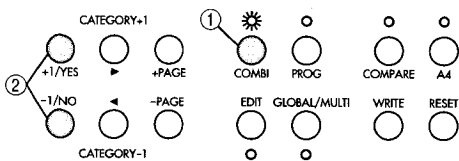
- ① Press the [PROG] key to enter Program Play mode.
- ② Use the cursor [◀] (CATEGORY +1) or [▶] (CATEGORY -1) keys to select the desired program category.



6. Selecting and playing a combination

Selecting combinations from the front panel

The following example shows how to select combination 3 from bank A.



- ① Press the [COMBI] key to enter Combination Play mode. The [COMBI] key LED will light.
- ② Use the [+1/YES] [-1/NO] keys to select combination A03.
 - If you hold down the [+1/YES] key and press the [▶] key, the combination number will increase in steps of 10.
 - If you hold down the [-1/NO] key and press the [◀] key, the combination number will decrease in steps of 10.
 - If you hold down the [+1/YES] key and press the [+PAGE] key, the combination number will increase in steps of 128.
 - If you hold down the [-1/NO] key and press the [-PAGE] key, the combination number will decrease in steps of 128.

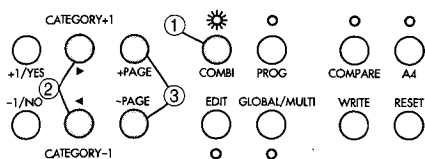
You can also select combinations from a connected MIDI device.

For details refer to “Advanced Operation – 9. MIDI Applications” on p.22 of this manual.

Selecting combinations by category

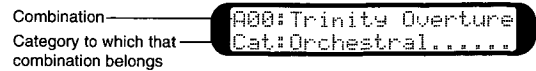
Each of the 512 combinations is assigned a category name.

You can use these categories to select combinations.



- ① Press the [COMBI] key to enter Combination Play mode.
- ② Use the cursor [◀] (CATEGORY +1) or [▶] (CATEGORY

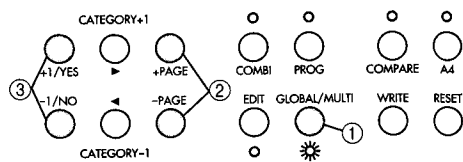
-1) keys to select the desired combination category.



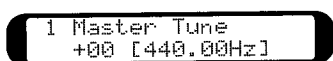
- ③ Use the [+PAGE] [-PAGE] keys to successively select the various combinations which belong to the specified category. Only combinations which belong to the category specified in step ② will be selected.

7. Tuning

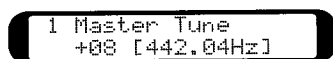
Here's how to adjust the tuning.



- ① Press the [GLOBAL/MULTI] key to enter Global mode. The [GLOBAL/MULTI] key LED will blink.
- ② Use the [+PAGE] [-PAGE] keys to select the "Page1: Master Tune" page.



- ③ Use the [+1/YES] [-1/NO] keys to adjust the parameter value.



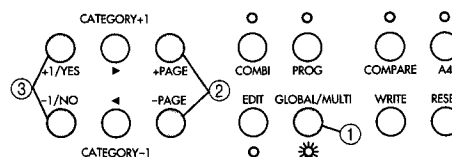
Watch the frequency (Hz) indication as you adjust the setting. The setting is made in one-cent units.

One cent is a very small unit, and differences of about ± 3 will be virtually unnoticeable.

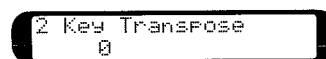
8. Transposing

Shifting the pitch range is known as transposing.

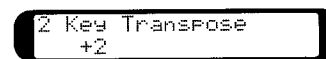
Here's how to transpose the pitch.



- ① Press the [GLOBAL/MULTI] key to enter Global mode. The [GLOBAL/MULTI] key LED will blink.
- ② Use the [+PAGE] [-PAGE] keys to select the "Page2: Key Transpose" page.



- ③ Use the [+1/YES] [-1/NO] keys to adjust the parameter value.



The pitch will increase one semitone each time you press the [+1/YES] key.

The pitch will decrease one semitone each time you press the [-1/NO] key.

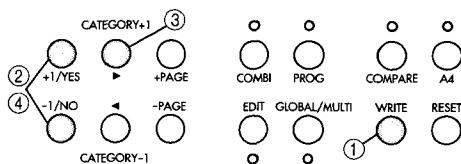
9. Writing in each mode

In Program Edit, Combination Edit, Multi and Global modes, the settings that you modify can be saved to internal memory. This is referred to as the Write procedure. In addition to saving this data to internal memory, you can also save it on an external MIDI device. (Refer to "Advanced Operation – 8. Saving data" on p.21 of this manual.)

Writing procedure

Before you write data, you must turn off the protect setting in Global mode (Global mode Page9: Memory Protect).

An example of writing data in Program Edit mode is given below.



- From the appropriate mode, press the [WRITE] key. The following display will appear. (The example of Program Edit mode is shown below.)

```
Program Write
A000 > A000 OK?
```

- Use the [+1/YES] [-1/NO] keys to select the writing destination. (In the case of Multi mode or Global mode, there is no writing destination.) The program that is currently selected in Program Edit mode will be the writing source.
- Press the cursor [▶] key to make "OK?" blink.
- Press the [+1/YES] key. The LCD screen will ask "Are you sure OK?"

```
Program Write
Are you sure OK?
```

- Press the [+1/YES] key once again. The data will be written, and the LCD screen will indicate "Completed." The write operation will take several seconds to complete. If you decide to exit the procedure without writing, make "OK?" blink and press the [-1/NO] key.

<About the edit buffer>

When you select a program or combination in Program Play mode or Combination Play mode, that program or combination is called into an edit buffer.

When you modify parameter settings in Program Edit mode or Combination Edit mode, your changes will affect the data in the edit buffer.

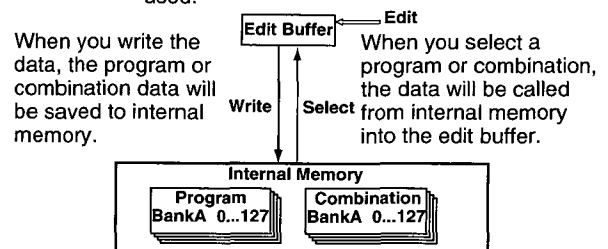
If you wish to save the modified data, you must write it.

When you write the data, the data in the edit buffer will be written to the program number or combination number that was specified as the writing destination.

If you select another program or combination without writing, the data for the newly selected program or combination will be called into the edit buffer, and the data that you modified will be lost.

For Program mode and Combination mode

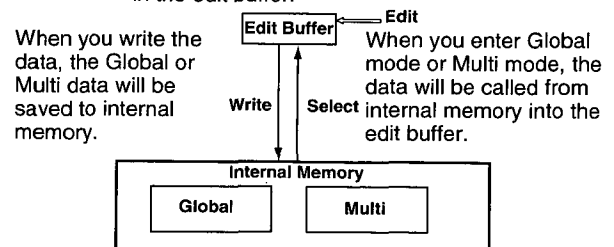
Editing will affect the data in the edit buffer. When a program or combination is played, the data in the edit buffer is used.



In Multi mode and Global mode, the settings are automatically called from internal memory, but if after modifying the settings you turn off the power without writing, the internal memory will return to the previous settings.

For Global mode and Multi mode

Editing will affect the data in the edit buffer. Global and Multi operation will use the data in the edit buffer.



Compare

While editing a program or combination, you can use the Compare function to compare the edited sound with the original sound.

During editing, press the [COMPARE] key to make the LED light, and the settings that were written into memory will be recalled.

Press the key once again and the LED will go dark, and you will return to the settings that you had been editing.

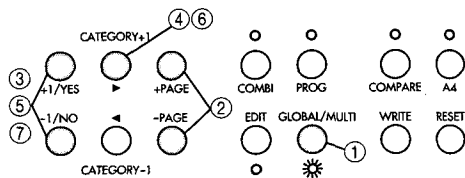
- If you edit the settings during Compare, the LED will go dark, and those settings will become the edited settings. In this case the previous settings will not be brought back even if you press the [COMPARE] key once again.

10. Restoring the factory settings

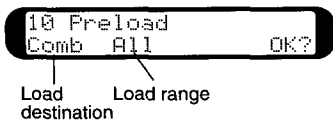
The factory-set sounds are referred to as the “preloaded data.” By loading the preloaded data you can restore the sounds and settings of the TR-Rack to their factory settings.

The following example shows how to load the preloaded combination data.

Before loading this data, you must turn off the Global mode “Page9: Memory Protect” setting.



- ① Press the [GLOBAL/MULTI] key.
You will enter Global mode (the [GLOBAL/MULTI] key LED will blink).
- ② Use the [+PAGE] [-PAGE] keys to select “Page10: Preload.”



- ③ Use the [+1/YES] [-1/NO] keys to select the loading destination. For this example, select “Comb.”
- ④ Press the [▶] key to make the loading range (shown at the right) blink.
- ⑤ Use the [+1/YES] [-1/NO] keys to select the range of data to be loaded. For this example, select “All.”
- ⑥ Press the [▶] key to make “OK” blink.
- ⑦ Press the [+1/YES] key.
The LCD screen will ask “Are you sure OK?”
- ⑧ Press the [+1/YES] key once again.
The LCD screen will indicate “Now loading data,” and the preloaded data will be loaded. It will take several seconds for the data to be loaded.

11. Editing procedure

On the TR-Rack, editing is done using the following procedure.

- ① Enter the mode in which you wish to edit.
 - Program Edit mode: Press the [PROG] key, and then press the [EDIT] key.
 - Combination Edit mode: Press the [COMB] key, and then press the [EDIT] key.
 - Multi mode: Press the [GLOBAL/MULTI] key (to make the LED light).
 - Global mode: Press the [GLOBAL/MULTI] key (to make the LED blink).
- ② Use the [+PAGE] [-PAGE] keys to select the desired page.
 - By holding down the [EDIT] key and pressing the [+PAGE] or [-PAGE] keys, you can move through the pages in larger steps.
- ③ Use the cursor [◀][▶] keys to select the value of the parameter that you wish to modify. (The selected value will blink.)
- ④ Use the [+1/YES] [-1/NO] keys to modify the value of the parameter.
 - Each time you press the [+1/YES] key, the value will increase by one.
Each time you press the [-1/NO] key, the value will decrease by one.
 - If you hold down the [+1/YES] key and press the [▶] key, the value will increase in steps of 10.
If you hold down the [-1/NO] key and press the [◀] key, the value will decrease in steps of 10.
 - If you hold down the [+1/YES] key and press the [+PAGE] key, the value will increase in steps of 100.
If you hold down the [-1/NO] key and press the [-PAGE] key, the value will decrease in steps of 100.

Advanced Operation

1. Program Play mode

The basic sounds that you play on the TR-Rack are called "programs."

The mode in which you play these programs is called Program Play mode.

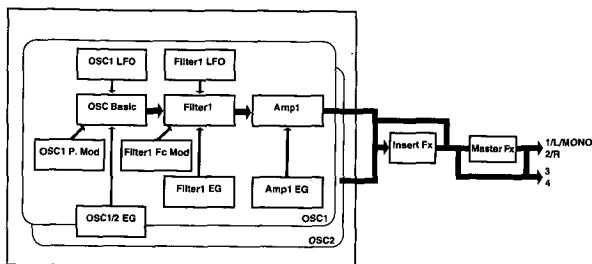
Programs are used by combinations or in Multi mode.

In Program Play mode you can select and play programs.

How a program is organized

Programs consist of a large number of parameters. Program Edit mode lets you edit groups of these parameters in a convenient way.

The sound from the program is sent through the insertion effect and master effects, and is output.



Elements of sound

Sound can be thought of as having three major elements: pitch, tone and volume.

On the TR-Rack, the oscillator, filter and amplifier sections in a program correspond to these three elements respectively. In other words you will adjust the settings of the oscillator if you wish to modify the pitch of the sound, adjust the settings of the filter to modify the tone, and adjust the amplifier to modify the volume.

Oscillator: Specify the pitch

The TR-Rack provides two oscillators, each of which uses a waveform (called a "multisample") that is the basis of the sound.

You can specify the pitch of this waveform.

The multisamples that are provided include instrumental waveforms such as piano sounds as well as waveforms that are unique to synthesizers.

The overtones and frequency components contained in these multisamples are what determine the basic character of the sound, causing it to be heard as "piano-like" or "guitar-like."

The pitch is specified in "Page1: Octave."

On the TR-Rack, the Octave parameter is the only oscillator parameter which can be modified. (It is not possible to change the multisample(s) used by each program.)

Filter: Specify the tone (brightness)

Tone varies between instruments, within the same family of instrument. For example even though they are both brass instruments, a horn has a mellow sound and a trumpet has a bright and piercing sound.

When creating instrumental sounds on a synthesizer, this type of adjustment is important in producing the desired character.

Also, when you layer several programs in Combination Play mode, or when you play the TR-Rack together with other instruments in a band, there may be situations in which the sound of a particular program is excessively muted or excessively bright.

In such cases, you can adjust the tone or volume with the overall ensemble in mind.

On the TR-Rack, you can adjust the tone by using a filter to cut or emphasize a specified frequency range of the multisample used by the oscillator.

On the TR-Rack, the numerous filter-related parameters can be adjusted simply by modifying three settings: Filter Fc, Filter EG Int and Resonance. These settings can be made in Program Edit mode "Page3: Filter Fc," "Page4: Filter EG Int" and "Page5: Resonance."

Amplifier: Specify the volume (changes in volume)

Rather than the overall volume of the sound, the important volume-related settings have to do with how the volume will change over time.

When a note is played (note-on) on a piano or organ, the sound reaches its maximum level immediately. However a note played on a bowed string instrument such as a violin will increase gradually in volume.

The way in which the volume increases from the beginning of the note is referred to as the "attack."

As you continue holding a note on a piano, the volume will gradually decrease. However a note held on an organ will continue at the same volume.

As this example shows, the way in which the volume of a note changes over its duration is different for each instrument. The way in which the volume falls over the duration of a note is referred to as the "decay."

When you release a note that was played on a piano (note-off), the sound lingers for a brief time. This is referred to as the "release."

On the TR-Rack, the numerous amplifier-related parameters can be adjusted simply by modifying three settings: Attack Time, Decay Time and Release Time.

These settings can be made in Program Edit mode "Page6: Attack Time," "Page7: Decay Time" and "Page8: Release Time."

2. Program Edit mode

In this mode you can modify the pitch, tone, volume and effects of the program that you selected in Program Play mode.

If you wish to save the modified settings in internal memory, you must perform the Write operation (see p.11 in this manual).

About program editing

“Program editing” refers to the process of modifying the parameters which make up the program.

In the Program Edit mode of the TR-Rack, some of the numerous internal parameters have been carefully selected to allow you to modify the sound easily in a variety of ways.

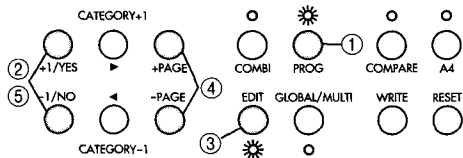
Although it is not possible to edit all of the internal parameters from the panel of the TR-Rack itself, those of you who have a Trinity-series instrument or a computer with TR-Rack editing software can connect the TR-Rack via MIDI or the TO HOST connector and edit all of the internal parameters.

Program editing procedure

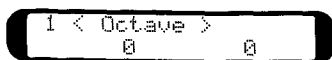
Programs which uses one oscillator are called “single oscillator programs,” and those which use two oscillators are called “double oscillator programs.” For single/drum oscillator programs, the lower line of the LCD will display one parameter. For double oscillator programs, it will display two parameters.

Pitch editing

This setting is made in “Page1: Octave.”



- ① Press the [PROG] key to enter Program Play mode. The [PROG] key LED will light.
- ② Use the [+1/YES] [-1/NO] keys to select the program that you wish to edit.
- ③ Press the [EDIT] key to enter Program Edit mode. The [EDIT] key LED will light.
- ④ Use the [+PAGE] [-PAGE] keys to select the Octave setting of Page1.

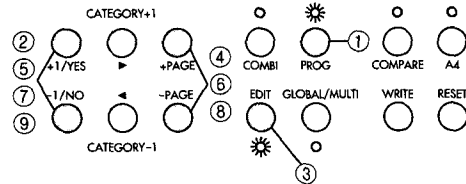


- ⑤ Use the [+1/YES] [-1/NO] keys to modify the setting. For a double oscillator program, use the cursor [◀][▶] keys to select the parameter that you wish to set. (The selected parameter will blink.)

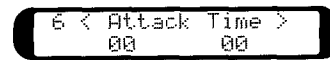
Positive (+) settings will raise the pitch in octave units, and negative (-) settings will lower the pitch.

Amplifier editing

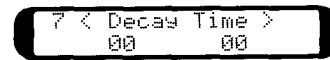
These settings are made in “Page6: Attack Time,” “Page7: Decay Time” and “Page8: Release Time.”



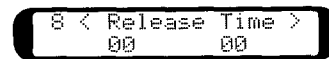
- ① Press the [PROG] key to enter Program Play mode. The [PROG] key LED will light.
- ② Use the [+1/YES] [-1/NO] keys to select the program that you wish to edit.
- ③ Press the [EDIT] key to enter Program Edit mode. The [EDIT] key LED will light.
- ④ Use the [+PAGE] [-PAGE] keys to select the Attack Time setting of Page6.



- ⑤ Use the [+1/YES] [-1/NO] keys to modify the setting. For a double oscillator program, use the cursor [◀][▶] keys to select the parameter that you wish to set. (The selected parameter will blink.)
Positive (+) settings will lengthen the attack (making it slower), and negative (-) settings will shorten the attack.
- ⑥ Press the [+PAGE] key to select the Decay Time setting of Page7.



- ⑦ Use the [+1/YES] [-1/NO] keys to modify the setting. Positive (+) settings will lengthen the decay, and negative (-) settings will shorten the decay.
- ⑧ Press the [+PAGE] key to select the Release Time setting of Page8.

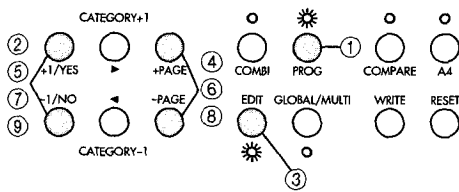


- ⑨ Use the [+1/YES] [-1/NO] keys to modify the setting. Positive (+) settings will lengthen the release, and negative (-) settings will shorten the release.

Filter editing

These settings are made in “Page3: Filter Fc,” “Page4:

Filter EG Int" and "Page5: Resonance."



- ① Press the [PROG] key to enter Program Play mode. The [PROG] key LED will light.
- ② Use the [+1/YES] [-1/NO] keys to select the program that you wish to edit.
- ③ Press the [EDIT] key to enter Program Edit mode. The [EDIT] key LED will light.
- ④ Use the [+PAGE] [-PAGE] keys to select the Filter Fc setting of Page3.

```
3 < Filter Fc >
  00      00
```

- ⑤ Use the [+1/YES] [-1/NO] keys to modify the setting. For a double oscillator program, use the cursor [◀][▶] keys to select the parameter that you wish to set. (The selected parameter will blink.)
Positive (+) settings will brighten the sound, and negative (-) settings will darken the sound.
- ⑥ Press the [+PAGE] key to select the Filter EG Int setting of Page4.

```
4 < Filter EG Int >
  00      00
```

- ⑦ Use the [+1/YES] [-1/NO] keys to modify the setting. Positive (+) settings will deepen the effect of the Filter EG, and negative (-) settings will lessen the effect of the Filter EG.
- ⑧ Press the [+PAGE] key to select the Resonance setting of Page5.

```
5 < Resonance >
  +20     -20
```

- ⑨ Use the [+1/YES] [-1/NO] keys to modify the setting. Positive (+) settings will strengthen the resonance, and negative (-) settings will weaken it.

Other parameters

In addition to the parameters which were explained above, Program Edit mode also allows you to edit the way in which the sound will respond in realtime to Velocity and Aftertouch etc., and to make effect settings.

Try editing these other parameters, and listen to the results.

Performance techniques

The TR-Rack lets you use control messages transmitted from a connected external MIDI device to make your performance more expressive.

Alternate Modulation

Alternate Modulation refers to an aspect of the sound which can be controlled in realtime.

AMS (Alternate Modulation Source) refers to the various control sources which can be assigned to control an Alternate Modulation parameter.

These include control sources that you actually operate (such as a joystick or ribbon controller), incoming MIDI messages, and also modulators such as EG or LFO.

On the TR-Rack, modulators can themselves be modulated, and such modulation is referred to as Alternate Modulation.

The TR-Rack provides 14 types of Alternate Modulation.

Alternate modulation settings have been made for each program, but these settings cannot be changed from the front panel of the TR-Rack.

Dynamic Modulation

"Effect Balance" refers to the balance between the DRY (unprocessed) and WET (processed) sound of the effect. On the TR-Rack you can control specific effect parameters (such as effect balance or modulation speed, etc.) while you play, which allows you to use an interesting variety of performance expressions. The ability to control effect parameters in this way is referred to as Dynamic Modulation.

Src (Dynamic Modulation Source) is the control source that controls effect dynamic modulation, and can be selected from controllers such as the joystick or ribbon controller of the connected MIDI keyboard.

You can also specify what will be controlled by dynamic modulation (speed, depth etc.), and the amount of control (Amt).

For details refer to p.10 "About Dynamic Modulation" in the separate Effect Guide.

3. Combination Play mode

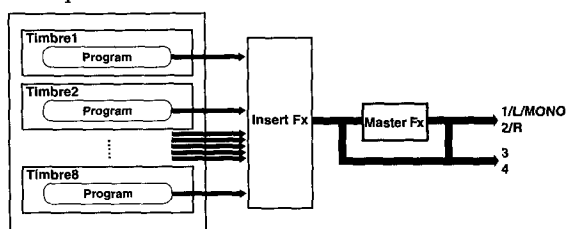
How a combination is organized

Use a combination when you wish to play two or more programs at the same time.

In each combination, a program is assigned to each of the eight timbres.

Combinations can be played in Combination Play mode.

The sound of the programs in the combination is sent through the insertion effects and the master effects, and is output.



How timbres will sound (Layer, Split, Velocity Switch)

In a combination, the programs which are assigned to each timbre can be played in three ways: **layer**, **split** or **velocity switch**.

Connect a MIDI keyboard to the **TR-Rack**.

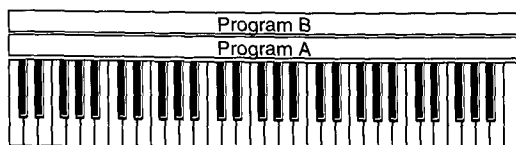
Set the MIDI channel of all timbres you wish to play to the same MIDI channel as your MIDI keyboard.

The MIDI channel of each timbre can be set in Combination Edit mode "Page3: Channel."

Layer

You can make settings so that two or more programs will sound simultaneously when you play a note. Such settings are called a "layer."

Play two or more programs simultaneously (layered).



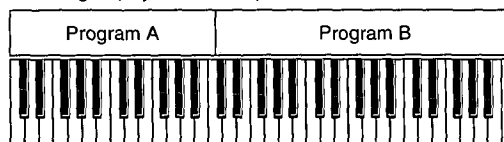
Even in combinations which are not set as a layer, you can create a layer-type combination by modifying the settings of Combination Edit mode "Page9: Key Zone Top"-"Page12: KZ Btm Slope" so that the note ranges of the different timbres will overlap.

For details on settings, refer to "Key zone settings" on p.17 of this manual.

Split

You can make settings so that different programs will sound in different areas of the keyboard. Such settings are called a "split."

Different programs can be played in different note ranges (keyboard areas)



Even in combinations which are not set as a split, you can create a split-type combination by modifying the settings of Combination Edit mode "Page9: Key Zone Top"-"Page12: KZ Btm Slope" so that the note ranges of the different timbres do not overlap.

For details on settings, refer to "Key zone settings" on p.17 of this manual.

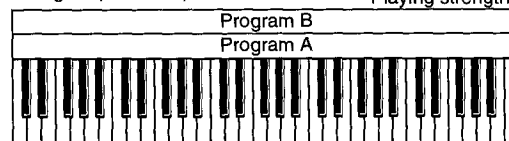
Velocity switch

You can make settings so that different programs will sound in response to notes played at different velocities (playing strengths). Such settings are called a "velocity switch."

Even in combinations which are not set as a velocity switch, you can create a velocity switch-type combination by modifying the settings of Combination Edit mode "Page13: Vel Zone Top"-"Page16: VZ Btm Slope" so that the velocity zones of the different timbres do not overlap.

For details on settings, refer to "Velocity Zone settings" on p.18 of this manual.

Different programs can sound for notes played at different strengths (velocities).



On the **TR-Rack**, you can use a different program for each of up to eight timbres, and make independent settings for the zones of each timbre. This allows you to use layers, splits and velocity switches in conjunction, to create even more complex setups.

For Key Zone and Velocity Zone settings, the **TR-Rack** also lets you specify a Slope (to fade the sound in gradually). By specifying a slope for the Key Zone or Velocity Zone, you can change a split into a keyboard crossfade, and a velocity switch into a velocity crossfade.

4. Combination Edit mode

After you have selected a combination in Combination Play mode, you can use Combination Edit mode to select a program for each timbre, adjust the pan and volume, and make key zone and velocity zone settings to specify the range in which the program will sound. You can also edit the name and effects of the combination.

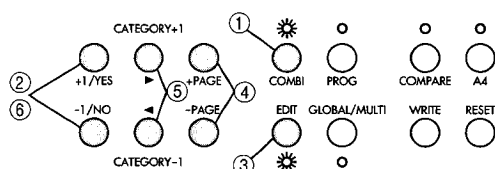
If you wish to save the combination that you have modified, you must perform the Write operation (see p.11 in this manual).

About combination editing

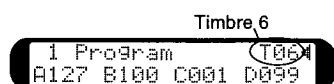
A combination consists of eight timbres, with a program assigned to each timbre.

Combination editing refers to the process of modifying how the combination will sound; specifying the program that is assigned to each timbre, modifying the sound, specifying the range in which the program will sound, or specifying which programs will sound simultaneously, etc.

Combination editing procedure



- ① Press the [COMBI] key to enter Combination Play mode. The LED below the [COMBI] key will light.
- ② Use the [+1/YES] [-1/NO] keys to select the combination that you wish to edit. The combination will be selected.
- ③ Press the [EDIT] key to enter Combination Edit mode. The LED above the [EDIT] key will light.
- ④ Use the [+PAGE] [-PAGE] keys to select the desired screen page. Pressing the [+PAGE] key will advance to the next page, and pressing the [-PAGE] key will return to the previous page.
- ⑤ Use the cursor [◀][▶] keys to move the cursor to the parameter value that you wish to set.



In screen pages of Combination Edit mode or Multi mode in which you make settings for individual timbres or tracks, you can use the [▶] or [◀] keys to select the timbre or track. At this time, the selected timbre or track will be displayed in the upper right of the LCD. In the example above, the parameter for timbre 6 is selected.

A "▶" displayed at the right edge of the upper line of the LCD indicates that another screen exists to the right of the currently displayed screen. Press the cursor [▶] key to access this screen.

- ⑥ Use the [+1/YES] [-1/NO] keys to modify the parameter value.

The value of the parameter selected by the cursor will change.

Pressing the [+1/YES] key will increase the parameter value, and pressing the [-1/NO] key will decrease the parameter value.

Selecting the program for each timbre

You can select the program that will be assigned to each timbre. Any of the 512 programs can be selected.

Programs can be selected in "Page1: Program."

Volume settings

You can set the volume of the program assigned to each timbre. The volume balance between timbres is an important aspect of the overall sound. This setting will have a significant impact on the overall character of the combination.

The volume is adjusted in "Page2: Level."

MIDI channel settings

You can set the MIDI receive channel for each timbre.

Set this to match the MIDI transmit channel of the MIDI keyboard that is connected to the TR-Rack.

The MIDI channel setting is made in "Page3: Channel."

Key zone settings

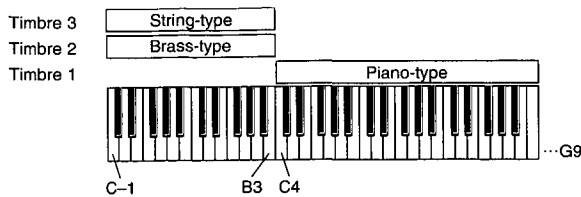
In a combination, you can switch between programs by playing in different areas of your MIDI keyboard. (This is done by specifying the keyboard area for each timbre.)

The area of the keyboard in which each timbre will sound is called the **Key Zone**.

By making key zone settings for two or more timbres and using them in conjunction, you can create layered or split combinations.

For each timbre, you can set the upper and lower limit of the key zone by adjusting the Top Key and Bottom Key parameters.

The following diagram shows a combination in which the key zones of timbres 1–3 have been set to create both layered and split sounds. Timbres 2 and 3 are layered. Timbres 2 and 3 are split with timbre 1 at the B3 and C4 notes.



To create a combination like the one shown above, first use "Page1: Program" to select the program which will be used by each timbre 1-3.

Select a piano-type program for timbre 1, a brass-type program for timbre 2, and a strings-type program for timbre 3.

Set the MIDI channel of the timbres that you will be using. The MIDI channel setting for each timbre can be made in "Page3: Channel."

Make key zone settings as follows.

- ① In "Page9: Key Zone Top," set the Top Key of timbre 1 to G9, and the Top Key of timbres 2 and 3 to B3.

```
9 Key Zone Top T03▶
G9 B3 B3 C-1
```

- ② In "Page10: Key Zone Btm," set the Bottom Key of timbre 1 to C4, and the Bottom Key of timbres 2 and 3 to C-1.

```
10 Key Zone Btm T03▶
C4 C-1 C-1 C-1
```

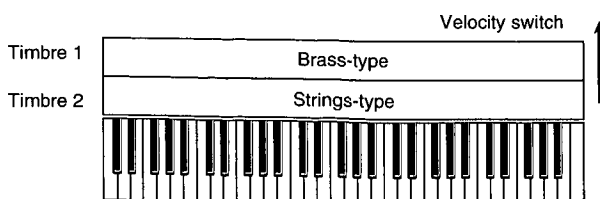
At this time if you make settings so that part of the key zone of timbre 1 overlaps with the key zones of timbres 2 and 3, and use "Page11: KZ Top Slope" and "Page12: KZ Btm Slope" to make the volume fade in/out across the overlapping range, you can cause the sounds to fade smoothly across B3 and C4 of the keyboard.

Velocity Zone settings

In a combination, you can make settings to specify the range of velocities for which each timbre will sound.

The range of velocities for which a timbre will sound is called the velocity zone. The upper and lower limits of the velocity zone for each timbre are specified by Top Vel and Bottom Vel respectively.

The following diagram shows a velocity switch type combination in which the velocity zones of timbres 1 and 2 have been set so that notes played at differing strengths will play different programs.



To create a combination like the one shown above, first use Combination Edit mode "Page1: Program" to select the program which each timbre 1 and 2 will use.

Assign a brass-type program to timbre 1, and a strings-type program to timbre 2.

Set the MIDI channel that each timbre will use. The MIDI channel setting for each timbre is made in "Page3: Channel."

Set the velocity zone as follows.

- ① Set the Top Vel of timbre 1 to 127, and the Top Vel of timbre 2 to 63.

```
13 Vel Zone Top T02▶
127 63 127 127
```

- ② Set the Bottom Vel of timbre 1 to 64, and the Bottom Vel of timbre 2 to 1.

```
14 Vel Zone Btm T02▶
64 1 08 15
```

If at this time you set the velocity zones of timbres 1 and 2 to partially overlap, and set "Page15: VZ Top Slope" and "Page16: VZ Btm Slope" so that the volume changes gradually over the overlapping area, you can fade smoothly between the sounds in the area of velocities 63 and 64.

Other combination edit parameters

In addition to the settings discussed above, Combination Edit mode lets you modify the pitch (transpose, detune) and adjust pan and send levels for each timbre. You can also specify a different MIDI channel for each timbre, so that separate timbres can be played independently.

5. Multi mode

In Multi mode you can use an external sequencer or computer connected to the TR-Rack to play (playback) songs.

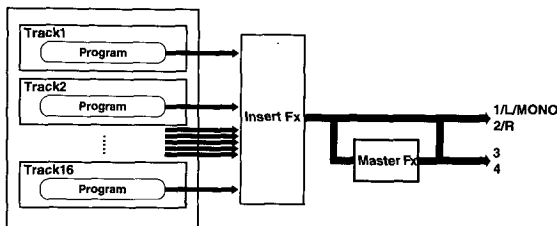
About the TR-Rack's Multi mode

Multi mode provides 16 tracks for the playback of musical data, and you can specify the program that will be used by each track.

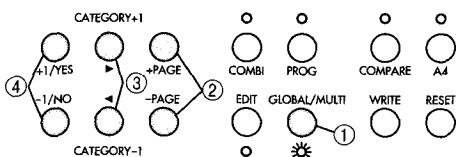
- The MIDI channel can be specified for each track.
- Settings can be copied from a combination to Multi mode.

How Multi mode is organized

Multi mode consists of 16 tracks, three insertion effects (four insertion effects when a drum oscillator program is used), and two master effects.



Accessing display pages and setting parameters



- ① Press the front panel [GLOBAL/MULTI] key to enter Multi mode.
The LED above the [GLOBAL/MULTI] key will light.
- ② Use the [+PAGE] [-PAGE] keys to select the display page that you wish to set.
- ③ Use the cursor [◀][▶] keys to move the cursor to the parameter value that you wish to set.
- ④ Use the [+1/YES] [-1/NO] keys to modify the parameter value.

If you wish to save the modified settings, perform the Write operation (see p.11 in this manual).

In Pages 1-18 you can make settings for each track.

In Pages 19-37 you can make settings for the effects and settings which affect the entire multi.

For details on the various settings of Multi mode, refer to the Parameter section.

6. Effects

Effects are used to apply various changes to the sound, and to simulate the sound field.

The TR-Rack contains digital multi-effect units, and a wide variety of effect types are provided.

Dynamic modulation can be used to control an effect parameter from a selected modulation source while you play.

There are two types of effects: insertion effects and master effects. 100 types of insertion effect and 14 types of master effect are provided.

<Insertion effects and master effects>

Insertion effects (IFX) are used as a part of creating the sound of an instrument, and include effects such as overdrive, equalizer, wah and compressor.

Master effects (MFX) are used to simulate the acoustics of the room in which the performance takes place, and include effects such as ensemble, delay and reverb.

<Effect routing>

The TR-Rack lets you connect effects in parallel or in series. This choice is referred to as Effect Routing.

The number of effects which can be connected will depend on the mode.

Insertion effects

<Effect size>

Insertion effects use a concept called "effect size," and each insertion effect has an effect size of either 1, 2 or 4.

The types of effect which can be selected will depend on the effect size. (Refer to the separate Effect Guide, which lists the effects by size.)

The maximum total effect size is determined for each mode.

<Effect grouping>

In a combination or multi, one insertion effect can be used by more than one timbre or track.

Two or more timbres (or tracks) can be treated as a group to share an insertion effect. This is referred to as "effect grouping." The timbre (or track) which determines the settings for the shared insertion effects is referred to as the grouping source.

Programs

For single oscillator or double oscillator programs, the effects are connected in series. For drum oscillator programs, the effects can be connected either in series or in parallel.

Effect settings can be copied from another program or combination, or from multi mode.

Combinations

The effect settings of each program will be ignored, and the insertion effect settings of each combination will be used.

For timbres which use a single oscillator or double oscillator program, the effects will be connected in series.

For timbres which use a drum oscillator program, the effects can be connected either in series or in parallel.

Effect settings can be copied from a program or another combination, or from multi mode.

Multi

The effect settings of each program will be ignored, and the insertion effect settings of Multi mode will be used.

For tracks which use a single oscillator or double oscillator program, the effects will be connected in series.

For tracks which use a drum oscillator program, the effects can be connected either in series or in parallel.

Effect settings can be copied from a program or combination.

Master effect

The modulation-type effect MFX1 and the reverb/delay type effect MFX2 (both monaural in, stereo out) can be connected either in series or in parallel.

Master EQ

A Low Gain and Hi Gain equalizer can be applied to the signal that is output from the 1/L/MONO and 2/R output jacks.

Low Gain adjusts the low frequency range, and Hi Gain adjusts the high frequency range.

Effect bypass

If you wish to hear the sound of the **TR-Rack** unprocessed by the effects (i.e., the "bypass" sound), set the insertion effects, master effects and master EQ as follows.

Insertion effects

Either set the insertion effects OFF, or set the insert effect size to 0.

However if an insertion effect of size 1 is turned OFF, the bypass sound will be monaural.

Master effects

Turn the master effects OFF.

Master EQ

Set Low Gain and Hi Gain to 0.

Send/return adjustments

On the **TR-Rack**, the depth of the master effects is adjusted by the Send Level to the effect and the Return Level from the effect.

The Send Level and Return Level can be adjusted on the pages described below.

Programs

Send level settings

If the insert effect is ON, set this in Program Edit mode "Page24: IFX Send MFX."

If the insert effect is OFF, set this in Program Edit mode "Page14-15: Master FX Send."

Return level settings

Set in Program Edit mode "Page29: Master FX Return."

Combinations

Send level settings

If the insert effect is ON, set this in Combination Edit mode "Page36: IFX Send."

If the insert effect is OFF, set this in Combination Edit mode "Page25-26: MFX Send."

Return level settings

Set in Combination Edit mode "Page41: Master FX Return."

Multi

Send level settings

If the insert effect is ON, set this in "Page27: IFX Send."

If the insert effect is OFF, set this in "Page16-17: MFX Send."

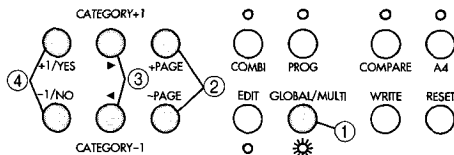
Return level settings

Set in "Page41: Master FX Return."

7. Global mode

In Global mode you can set parameters which affect the overall operation of the entire TR-Rack.

Accessing display pages and setting parameters



- 1 Press the front panel [GLOBAL/MULTI] key to enter Global mode.
The [GLOBAL/MULTI] key LED will blink.
- 2 Use the [+PAGE] [-PAGE] keys to select the page in which you wish to make settings.
- 3 Use the cursor [◀][▶] keys to move the cursor to the parameter that you wish to set.
- 4 Use the [+1/YES] [-1/NO] keys to modify the parameter value.

If you wish to save the modified settings, perform the Write operation (see p.11 in this manual).

For details on the parameters of Global mode, refer to the Parameter section.

8. Saving data

Writing to internal memory

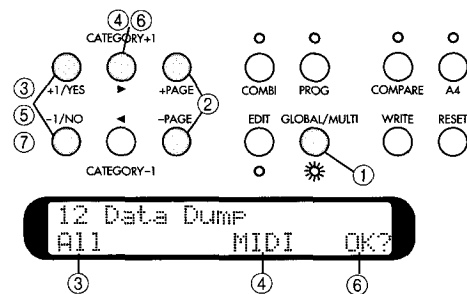
When program, combination, multi or global settings are Written, they will be stored in internal memory and will not be lost when the power is turned off.

The writing procedure is explained on p.11.

MIDI data dump

Various types of settings can be transmitted as MIDI exclusive data, and saved on a connected external MIDI device such as a data filer.

The following procedure shows how you can transmit a data dump of program, combination, multi and global data.



Before you begin, connect the TR-Rack to a device which will be able to receive the data dump (a data filer, computer, Trinity series instrument etc.).

- 1 Press the [GLOBAL/MULTI] key to enter Global mode.
The [GLOBAL/MULTI] key LED will blink.
- 2 Use the [+PAGE] [-PAGE] keys to select Page 12 Data Dump.
- 3 Use the [+1/YES] [-1/NO] keys to select the type of data that you wish to dump.
For this example, select All.
When All is selected, the indication at right (the range to be transmitted) will disappear.
- 4 Press the [▶] key to move the cursor to the selection of output connector from which the data will be transmitted.
- 5 Use the [+1/YES] [-1/NO] keys to select the output connect which will be used for transmission.
If the device which will receive the data dump is connected to the MIDI OUT connector, select MIDI. If it connected to the TO HOST connector, select PC IF.
- 6 Press the [▶] key once go move the cursor to "OK."
- 7 Press the [+1/YES] key.
The display will indicate "Are you sure OK?" so press the [+1/YES] key once again.

The programs, combinations, drum kits, multi settings and global settings in internal memory will be transmitted.

⚠ While a data dump is in progress, do not touch the front panel keys of the TR-Rack.

9. MIDI Applications

MIDI channels

Similar to the way in which a television set operates, the data of a channel can be received when the receiving device is set to the same channel as the transmitting device. However, channels are handled differently in each mode.

- In Program Play mode, data is received on the Global MIDI channel.
- In Combination Play mode, data is received on the Global MIDI channel to select combinations, control the master effects, and to receive exclusive data. The MIDI channel specified for each timbre (Combination Edit mode “Page3: Channel”) is used to control the corresponding timbre (select programs, play notes, adjust the volume etc.).
- In Multi mode, control data for the master effects and exclusive data is received on the Global MIDI channel. The MIDI channel specified for each track (“Page3: Channel”) is used to control the corresponding track (select programs, play notes, adjust the volume etc.). The **Global MIDI channel** is the channel used to receive messages which apply to the entire **TR-Rack**, such as master effect settings and exclusive data. The Global MIDI channel is set in Global mode “Page3: MIDI channel.”

Note on/off

When you press a note on a connected MIDI keyboard, data indicating the keyboard location that you pressed (the note number) and the force (velocity) with which you pressed the key will be transmitted as a **Note On message** [9n, kk, vv] (n: channel, kk: note number, vv: velocity). (When you release the note, a **Note Off message** [8n, kk, vv] will be transmitted. However, few instruments transmit or receive Note Off velocity.)

- In Program Play mode, note on/off messages are received on the Global MIDI channel.
- In Combination Play mode, note on/off messages are received on the channel that is specified for each timbre.
- In Multi mode, note on/off messages are received on the channel that is specified for each track.

Changing the program and bank

A sound (program) can be selected using a **Program Change message** [Cn, pp] (pp: a program number that specifies one of 128 programs).

Bank Select messages [Bn, 00, mm] (control change #00) and [Bn, 20, bb] (control change #32) (mm: bank number MSB, bb: bank number LSB, together selecting one of 16384 possible banks) can be used in conjunction with Program Change messages to select programs from

other banks.

Bank Select	CC#0=0	CC#32=0	Bank A
Bank Select	CC#0=0	CC#32=1	Bank B
Bank Select	CC#0=0	CC#32=2	Bank C
Bank Select	CC#0=0	CC#32=3	Bank D

For example to select program B00 on MIDI channel 2, transmit [B1, 00, 00], [B1, 20, 01], [C1, 00].

When a Bank Select message is received, the program bank will be selected. However the actual bank change will not occur until a Program Change message is subsequently received.

In Program Play mode, the program will change when a program change message is received on the Global MIDI channel.

To select programs for each timbre of a combination or for each track of the multi, use program change and/or bank select messages on the channel specified for the timbre or track.

You can specify for each timbre of a combination (or for each track of the multi) whether or not program change messages will be received.

You can set the Global mode “Page7: Prog Change” setting to specify whether or not program change messages will be received by the entire **TR-Rack**. You can also specify whether or not incoming messages will select combinations, and whether or not bank select messages will be received.

If the Global mode “Page7: Prog Change” setting C (Enable Combination Change) is set to “DIS,” program changes in combination mode will not select combinations even if they are received on the Global MIDI channel.

If the Global mode “Page7: Prog Change” setting B (Enable Bank Select) is set to “DIS,” bank select messages will be ignored. When controlling the **TR-Rack** from an external device which handles bank select messages differently, this allows you to prevent undesired bank changes from occurring.

Selecting combinations

Combinations are also selected using program change messages and bank select messages, in the same way in which programs are selected.

In Combination Play mode, program change messages and bank select messages received on the Global MIDI channel will select combinations.

If messages received on another channel match the channel of a timbre, they will switch the program of that timbre.

Sustain pedal

When a sustain pedal connected to your MIDI keyboard is operated, a **Hold message** [Bn, 40, vv] (control change #64) (vv is 127 [7FH] for ON, or 00 for OFF) will normally be transmitted. When this message is received, the sustain pedal effect will be switched off if the value is 63 [3FH] or less, or on if the value is 64 [40H] or

greater.

For each combination and for the multi, reception of this message can be enabled/disabled independently for each timbre or track.

Applying aftertouch

On many types of MIDI keyboard, pressing down on the keyboard after playing a note will cause **Channel Aftertouch messages [Dn, vv]** (vv is the value) to be transmitted.

When the **TR-Rack** receives this message, it can apply an aftertouch effect.

The Global mode MIDI Filter settings allow you to enable/disable reception of aftertouch for the entire **TR-Rack**, and for each combination and for the multi, reception of this message can be enabled/disabled independently for each timbre or track.

There is another type of aftertouch, **Polyphonic Key Pressure [An, kk, vv]** (kk: note number, vv: value), which applies an effect independently for each note. This message can be used as an alternate modulation source.

Applying pitch bend

When you move the joystick of a connected MIDI keyboard in the X axis (left/right), **Pitch Bend messages [En, bb, mm]** (bb: lower byte of the value, mm: upper byte of the value; together indicating a total of 16384 steps with center value at 8192 [bb and mm = 00H, 40H]) will be transmitted.

When the **TR-Rack** receives this message, pitch bend will be applied. You can also adjust the range of the pitch bend (the depth of the pitch change) via MIDI. (Refer to "Setting the pitch bend range" on p.25 of this manual.)

Adjusting the volume

When **Volume messages [Bn, 07, vv]** (control change #07) (vv: value) are received, the volume will change. However the volume of the **TR-Rack** is determined by the product of the value of the Volume message and the value of the **Expression message [Bn, 0B, vv]** (control change #11) (vv: value). This means that if the volume does not increase sufficiently in response to Volume messages, or if there is no sound, you should try transmitting a MIDI Expression message with a value of 127. Alternatively you can press the front panel [RESET] key.

In Multi mode, pressing the [RESET] key will reset Expression to the maximum value (127).

A sequencer (or a computer with sequencer software) that is connected to the **TR-Rack** can control the volume of each track in the song. You should use Volume messages in the setup data for each track (i.e., the data at the beginning of the song which specifies the volume balance between the tracks), and use Expression messages to adjust the volume during the song. If you include Vol-

ume messages in the music data, that track may be set to an unintended volume.

By using the Universal Exclusive message Master Volume (refer to "System exclusive messages" on p.25 of this manual), you can adjust the overall volume without changing the balance between timbres or tracks.

Applying vibrato (Oscillator LFO)

When the joystick of a connected MIDI keyboard is moved in the +Y axis (away from yourself), **Modulation 1 Depth messages [Bn, 01, vv]** (control change #01) (vv: value) will be transmitted. When the **TR-Rack** receives these messages, vibrato will be applied.

Applying wah (Filter LFO)

When the joystick of a connected MIDI keyboard is moved in the -Y axis (toward yourself), **Modulation 2 Depth messages [Bn, 02, vv]** (control change #02) (vv: value) will be transmitted. When the **TR-Rack** receives these messages, wah will be applied. However, other manufacturers may use this message in other ways (e.g., Breath Control, etc.).

Adjusting the stereo location (Panpot)

The output of the oscillators, timbres and tracks of the **TR-Rack** is determined by the L:R Panpot, Send 1 and Send 2 settings.

In particular, the panpot for timbres and tracks can be adjusted by MIDI **Panpot messages [Bn, 0A, vv]** (control change #10) (vv: value, where 00 is L, 64 is center, and 127 is R). If the Panpot setting is OFF or PRG, this message is not received.

If this message is received while a note is sounding, the sound will not change immediately. The new panpot setting will be applied from the next-played note.

Adjusting the master effect send levels (Send 1, 2)

The output destination of the **TR-Rack's** oscillators, timbres and tracks is determined by the L:R Panpot and by Send 1 and Send 2.

In particular, the Send 1 setting for timbres and tracks is adjusted by the **Effect 3 Level message [Bn, 5B, vv]** (control change #93) (vv: value), and the Send 2 setting by the **Effect 1 Level message [Bn, 5D, vv]** (control change #91). If the Send 1 or 2 setting is OFF or PRG, these messages will not be received.

These messages are merely defined for use in adjusting the effect levels, and will not necessarily perform the same function on other devices.

If these messages are received while a note is sounding, the change in effect send level will not occur immediately, but will take effect from the next played note.

Turning effects on/off

Separately from the program, combination and multi settings, the insertion effects and master effects 1 and 2 can be switched on/off by the Global mode "Page5: Insert FX Off" and "Page6: Master FX Off." Also, **Effect 2 Level messages [Bn, 5C, vv]** (control change #92) (vv: value, where 00 is off and 127 is on) (for insertion effects), **Effect 4 Level messages [Bn, 5E, vv]** (control change #94) (for master effect 1), or **Effect 5 Level messages [Bn, 5F, vv]** (control change #95) (for master effect 2) can be used to turn their respective effects on/off.

These messages are merely defined for use in adjusting the effect levels, and will not necessarily perform the same function on other devices.

These messages are received on the Global MIDI channel. The effect will be off for a value 'vv' of 00, and on for a value of 1 or greater.

These control messages for the insertion effect are valid only for effects which are already turned ON. (They cannot be used to turn an effect ON which had been set OFF.)

Effect dynamic modulation

You can select a dynamic modulation source and use it to control effects.

For example if you wish to use MIDI Aftertouch for control, you must first select AfterT (aftertouch) as the dynamic modulation source (Src) for that effect. Then when MIDI Aftertouch messages are received, dynamic modulation will be applied.

Modulation source FX1 #12 corresponds to the **Effect Control 1 message [Bn, 0C, vv]** (control change #12). (It can be used in the same way as Effect Control 1.)

Insert effects are controlled:

in Program Play mode on the Global MIDI channel.

in Combination Play mode on the MIDI channel of each timbre.

in Multi mode on the MIDI channel of each track.

Adjusting the tone

MIDI Brightness messages [Bn, 4A, vv] (control change #74) (vv: value) can be received to adjust the tone color. For a 'vv' value of 64 [40H], there will be no change in the tone. For lower values the sound will become darker, and for higher values the sound will become brighter.

This message can be used to edit the cutoff frequency of the filter (Program Edit mode "Page3: Filter Fc").

However since this message has come into use only recently, it may not be implemented on some instruments.

Adjusting the attack time

When a **MIDI Attack Time message [Bn, 49, vv]** (control change #73) (vv: value) is received, the attack time will change. For a value of 64 [40H] there will be no change in the attack time. For lower values the attack will become faster, and for higher values the attack will become slower.

This message can be used to edit the amp EG Attack Time (Program Edit mode "Page6: Attack Time").

However since this message has come into use only recently, it may not be implemented on some instruments.

Adjusting the release time

When a **MIDI Release Time message [Bn, 48, vv]** (control change #72) (vv: value) is received, the release time will change. For a value of 64 [40H] there will be no change in the release time. For lower values the release will become faster, and for higher values the release will become slower.

This message can be used to edit the amp EG and filter EG Attack Time (Program Edit mode "Page8: Release Time").

Since this message has come into use only recently, it may not be implemented on some instruments.

Editing with RPN messages

RPN (Registered Parameter Number) messages allow settings to be made in the same way for instruments of different manufacturers. In contrast, NRPN (Non-registered Parameter Number) messages and exclusive messages can be used freely by each instrument manufacturer.

To edit using RPN messages, you the following procedure.

- ① Use **RPN (LSB) [Bn, 64, rr]** and **RPN (MSB) [Bn, 65, mm]** messages (control changes #100 and #101) (rr, mm: parameter number lower and upper bytes) to specify the parameter.
- ② Use **Data Entry (MSB) [Bn, 06, mm]** and **Data Entry (LSB) messages [Bn, 26, vv]** (control changes #06 and #38) to specify the value. ('mm' and 'vv' are the upper and lower bytes, allowing a total of 16384 steps.)
- ③ You can use **Data Increment [Bn, 60, 00]** (control change #96: value fixed at 00) or **Data Decrement [Bn, 61, 00]** (control change #97: value fixed at 00) messages to increase or decrease the value in steps of 1.

The **TR-Rack** receives the three types of RPN message described below (tuning, transposing, and setting the pitch bend range).

Tuning

In Multi mode, you can use RPN messages to adjust the Detune setting of each track. (Use the MIDI channel for each track.) In other modes, you can adjust the Master Tune setting that is otherwise set in Global mode "Page1: Master Tune." (Use the Global MIDI channel.)

Use the following procedure.

- ① Select RPN 01.
Transmit to the **TR-Rack** a message of [**Bn, 64, 01, 65, 00**] (control change #100 with a value of 01, and #101 with a value of 00).
- ② Use Data Entry messages to adjust the value.
Use [**Bn, 06, mm, 26, vv**] (control change #06 and #38) to adjust the value. A value of 8192 [mm, vv = 64, 00] is center (normal pitch). A value of 0 is -100 cents, and a value of 16383 [mm, vv = 127, 127] is +100 cents.

Transposing

In Multi mode, you can use RPN messages to set the Transpose setting of each track. (Use the MIDI channel for each track.)

Use the following procedure.

- ① Select RPN 02.
Transmit to the **TR-Rack** a message of [**Bn, 64, 02, 65, 00**] (control change #100 with a value of 02, and #101 with a value of 00).
- ② Use Data Entry messages to adjust the value. However, only the upper byte is used.
Use [**Bn, 06, mm**] (control change #06). A value of 64 is center (normal pitch). A value of 52 is -12 semitones, and a value of 76 is +12 semitones.

Setting the pitch bend range

In Multi mode, you can use RPN messages to adjust the pitch bend range for each track. (Use the MIDI channel for each track.)

Use the following procedure.

- ① Select RPN 00.
Transmit to the **TR-Rack** a message of [**Bn, 64, 00, 65, 00**] (control change #100 with a value of 00, and #101 with a value of 00).
- ② Use Data Entry messages to adjust the value. However, only the upper byte is used.
Use [**Bn, 06, mm**] (control change #06). A value of 00 (mm = 00) sets a pitch bend range of 0. A value of 1536 (mm = 12) sets a pitch bend range of +12 semitones (1 octave). The **TR-Rack** allows negative values to be set as well, but only positive values can be set using RPN messages.

If a note is "stuck"

If for some reason a note "sticks" (i.e., continues to sound without stopping), pressing the [RESET] key or moving to a different mode will normally solve the problem. Disconnecting the MIDI cable will also stop the note.

MIDI transmits a message known as Active Sensing [FE] at regular intervals. This allows a device that receives this message to know that an external MIDI device is connected. If no MIDI messages are received for a certain length of time, the receiving device will decide that the connection has been broken, and will turn off notes and reset controller values that were received via MIDI.

Turning off all notes of a channel

When an **All Note Off message** [**Bn, 7B, 00**] (control change #123, data of 00) is received, all notes currently sounding on that channel will be turned off (as though you had released them on the keyboard).

An **All Sound Off message** [**Bn, 78, 00**] (control change #120, data of 00) will stop all sound being produced on that channel. While an All Note Off message allow note decays to continue, the All Sound Off message will stop the sound immediately.

These messages are only for use in emergency situations, and are not used while you play.

Resetting all controllers of a channel

When a **Reset All Controller message** [**Bn, 79, 00**] (control change #121, data of 00) is received, the values will be reset for all controllers currently being used on that channel.

System exclusive messages

Since manufacturers are free to use system exclusive messages in any way they please, these messages are used mainly to transmit and receive sound data or editing data for parameters that are unique to a given model of instrument.

On the **TR-Rack** and on Trinity series instruments, the system exclusive message format is [**F0, 42, 3n, 3B, ff, ..., F7**] (n: Global MIDI channel, ff: function code (type of message)).

However some exclusive messages are defined to have a specific purpose common to all manufacturers. These are called universal system exclusive messages.

The **TR-Rack** supports the following three universal system exclusive messages.

- When an **Inquiry Message Request message** [**F0, 7E, nn, 06, 01, F7**] is received, the **TR-Rack** will respond with an **Inquiry Message** [**F0, 7E, nn, 06, 02, (nine bytes), F7**] that means "I am a Korg TR-Rack, system version ..."

- A **Master Volume message** [F0, 7F, nn, 04, 01, vv, mm, F7] (vv: lower byte of value, mm: upper byte of value; together expressing 16384 steps) can adjust the overall volume while preserving the volume balance between timbres of a combination, or between tracks of the multi.
- A **Master Balance message** [F0, 7F, nn, 04, 02, vv, mm, F7] (vv: lower byte of value, mm: upper byte of value; together expressing 16384 steps, where 8192 is the initial setting, and lower values will move increasingly to the left) can adjust the overall pan position while preserving the relative pan position between timbres in a combination or between tracks of the multi.

Connecting to an external device for multi-timbral playing

The **TR-Rack** can be played multi-timbrally from an external device in the following ways.

- MIDI messages from the external device can play a combination (8 independent timbres). However, overall settings (from programs and levels to effects) are switched by using Program Change messages to change combinations.
- MIDI messages from the external device can play the multi (16 independent timbres).

Transmitting sound data settings etc. (Data Dump)

Program, combination, drum kit, multi and global settings can be transmitted as MIDI exclusive messages. The transmission of MIDI exclusive messages to an external device is referred to as a "data dump."

If you have a Trinity series instrument, you can dump data from the **TR-Rack** to change the sounds and settings of the Trinity.

A data dump can be performed in the following two ways.

- By executing a data dump in Global mode "Page12: Data Dump," you can transmit the specified type of internal memory data.
- If the Global mode "Page8: MIDI Filter" setting Exclusive is set to "ENA," a Dump Request message can be received to initiate a data dump.

This data is transmitted and received on the Global MIDI channel.

Editing sounds, etc.

By using MIDI exclusive messages and data dumps, you can rewrite all programs or individual programs. By using Parameter Change or Drumkit Parameter Change messages, you can edit individual parameters as follows.

Using parameter changes

- In Program Edit mode, you can edit all internal parameters with the exception of the program name.
- In Combination Edit mode, you can edit parameters with the exception of the combination name.

In particular for programs, it is possible to edit all parameters only by using MIDI exclusive messages.

By using Drumkit Parameter Change messages, you can edit a drumkit. (It is not possible to edit a drumkit when the **TR-Rack** is used alone.)

10. When you want to...

Adjust the tuning

Adjust the Global mode "Page1: Master Tune" setting. The setting can be adjusted in 1-cent steps from -50 (427.47 Hz) to +50 (452.89 Hz).

Change the transposition

Adjust the Global mode "Page2: Key Transpose" setting. The pitch can be adjusted in semitone steps over a range of ± 1 octave.

Adjust the velocity sensitivity

If the volume or tone does not respond in the desired way to changes in your playing dynamics on a connected MIDI keyboard, you can adjust the velocity sensitivity.

The velocity sensitivity can be adjusted by the Global mode "Page4: Curve" setting Vel.

There are eight different velocity curves (1-8), and 4 is the normal curve. With lower-numbered velocity curves, you will have to play quite strongly in order to make the sound change. With higher-numbered velocity curves, the sound will change significantly even if you play softly.

Receive program change and bank select messages in Combination Play mode to select combinations or the programs of each timbre

If you wish to change combinations

- ① In Global mode "Page7: Prog Change," set C (Enable Combination Change) to "ENA."
- ② When program change or bank select messages are received on the Global MIDI channel, the combination will change.

If you wish to change the program of a timbre

- ① In Combination Edit mode "Page3: Channel," specify the MIDI channel for the timbre.
- ② In Combination Edit mode "Page17: Prog Change," select "ENA" for timbres whose program you wish to change.
In Combination Edit mode "Page17: Prog Change," specify whether or not each timbre will receive program change or bank select messages.

- ③ When program change or bank select messages are received on the channel that was specified for a timbre by Combination Edit mode "Page3: Channel," the program of that timbre will change.
If you do not want the bank to change, set Global mode "Page7: Prog Change" B (Enable Bank Change) to "DIS." The bank will not change even if a bank select message is received.

If you wish to change the program of a timbre on the Global MIDI channel

- ① In Combination Edit mode "Page3: Channel," set the MIDI channel of the timbre to the Global MIDI channel "G."
- ② In Combination Edit mode "Page17: Prog Change," select "ENA" for the timbre whose program you want to change.
- ③ In Global mode "Page7: Prog Change," set C (Enable Combination Change) to "DIS."
- ④ When a program change or bank select message is received on the Global MIDI channel, the program of that timbre will change.

Play two or more programs simultaneously

A combination allows you to combine two or more programs in various ways and play them together.

The following example shows how to create a "layer."

Make the following settings in Combination Edit mode.

- ① In "Page1: Program," assign the program that you wish to play to a timbre.
- ② In "Page2: Level," set the volume of the timbre.
- ③ In "Page3: Channel," set the MIDI channel of the timbre to the same setting as all other timbres that you wish to play simultaneously.
As necessary, use Page24-26 to adjust Pan, Send 1 and Send 2.
- ④ In "Page9: Key Zone Top," set the Top Key of the timbre to "G9."
- ⑤ In "Page10: Key Zone Btm," set the Bottom Key of the timbre to "C-1."
- ⑥ In "Page11: KZ Top Slope," set the Top Slope of the timbre to "0."
- ⑦ In "Page12: KZ Btm Slope," set the Bottom Slope of the timbre to "0."
Make other settings as desired.
- ⑧ Make the same settings for as many programs as you wish to play simultaneously.
- ⑨ Play the keyboard, and all of the programs you specified will sound simultaneously.

Play different sounds in the left and right hands

Make "split" settings in a combination.

Make the following settings in Combination Edit mode.

First, perform steps 1–3 described above in "Play two or more programs simultaneously."

- ① Set "Page9: Key Zone Top" and "Page10: Key Zone Btm" to define the keyboard area in which you want to play the program.
- ② Set "Page11: KZ Top Slope" and "Page12: KZ Btm Slope" to "0" respectively.
- ③ Play the keyboard, and the programs will sound separately in the keyboard areas that you specified.

Bring back the factory settings

If after editing programs or combinations you wish to bring back the factory settings, use Global mode "Page10: Preload" to load the factory setting data. In addition to program or combination data, you can also load global, multi or drumkit data.

When you load this data, the data that was previously in memory will be lost. If you wish to keep the previous data, save it on an external device such as a MIDI data filer.

Directly save sound data and settings on a computer etc.

MIDI exclusive data dumps can be used to transmit and receive various types of sound data and settings.

The following data can be transferred: programs, combinations, multi, some global parameters, and drumkits. Each of these types of data can be transmitted/received as a whole, or by individual bank or individual item.

Data dumps can be transmitted in Global mode "Page12: Data Dump."

While you are in the "Page12: Data Dump" display page, data dumps can be transmitted or received regardless of the "Page8: MIDI Filter" Exclusive setting (enable/disable transmission and reception of exclusive data). Data dumps are transmitted and received on the Global MIDI channel.

11. Troubleshooting

I pressed the POWER switch but the power does not come on!

- Is the power cable connected to an AC outlet?

No sound!

- Are the amp, mixer or headphones connected to the correct jacks?
- Is the power of your amp and mixer turned on, and are their controls set correctly?
- Is the volume raised?
- Is the MIDI cable connected correctly?
- In Program Play mode, does the MIDI channel of the data being transmitted from the external device match the Global MIDI channel?
- In Combination Play mode, does the MIDI channel of the data being transmitted from the external device match the MIDI channel of the timbre?

Can't control via MIDI!

- Is the MIDI cable connected correctly?
- Have settings been made so that MIDI data is received on the channel on which the transmitting device is transmitting?
- Are the various settings in Global mode "Page8: MIDI Filter" set to "ENA"?

Can't write data!

- Are the various settings in Global mode "Page9: Memory Protect" turned "ON"?

On a drum oscillator program, the keyboard does not play the correct drum sounds!

- Is the Global mode "Page2: Key Transpose" setting at "+00"?
- Is the Program Edit mode "Page1: Octave" setting at "+0"?

Can't use MIDI program changes to select programs!

- Is the Global mode "Page7: Prog Change" P set to "ENA"?

In Combination Play mode, can't use MIDI program changes to select combinations!

- Is the Global mode "Page7: Prog Change" C set to "ENA"?

In Combination Play mode, certain notes produce no sound!

- Are you transmitting note messages to the TR-Rack which will not be sounded due to keyboard split settings?

Can't control from a computer connected to the TO HOST connector!

- Is the cable connected correctly?
- Is the Global mode "Page16: P/C Select" set correctly?

Parameter section

1. Program Play mode

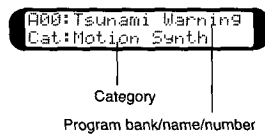
In this mode you can select programs.

The **TR-Rack** allows you to select **512** programs (0–127 in each bank A, B, C, D).

A list of the factory-set voices is given in **Voice Name List**.

Page 1: Program Bank/Program No./Program Name/Category

The upper line of the LCD indicates the selected program, and the lower line indicates its category name.



Program Bank/Program No./Program Name [A00...D127]

Use the [+1/YES] [-1/NO] keys to select a program. You can also select programs by category. (Basic section p.8)

For details on using program change messages from an external MIDI device to select programs, refer to "9. MIDI Applications" on p.22 of this manual.

MIDI All MIDI data in Program Play mode is received on the **Global MIDI channel** that was specified in Global mode "Page3: MIDI channel."

When a Volume message (CC#7) is received, the volume level setting value will change.

2. Program Edit mode

In this mode you can modify program settings.

On the **TR-Rack**, editing is performed not by creating a sound from scratch, but rather by making simple modifications to the preloaded program sounds. (Internally, the **TR-Rack** has the same parameters as the Trinity, but major groups of parameters are edited together.)

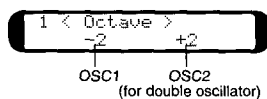
In **pages 1–15, 32 and 33**, you can make basic settings for the program and for the oscillators that are used.

In **pages 16–31**, you can make settings for the effect (insertion effect and master effect) that the program will use.

In **pages 1–15**, the lower line of the LCD will show the oscillator settings used by the program.

For programs which use a **Single/Drum oscillator**, the parameter value is shown in the left side of the lower line of the LCD.

For programs which use a **Double oscillator**, an additional parameter value is also shown in the right side of the lower line of the LCD.

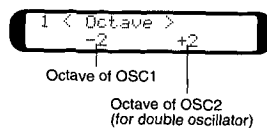


Parameter names which are displayed in angle brackets < > as shown in the above LCD apply a relative change to the value of the settings in memory. These settings indicate how greatly the original sound has been modified. If the original value is already set near its maximum (or minimum) value, there may be cases in which making a major change to the parameter value will not change the sound.

If you wish to save the changes you made, you must Write the data. If you select another program or turn the power off without writing, the settings will return to their unmodified state.

Page1: Octave

Adjusts the basic pitch in steps of an octave.



Octave

[-3...+3]

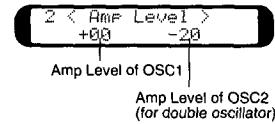
Positive (+) values will raise the pitch in octave units.

Negative (-) values will lower the pitch in octave units.

At 0, the original setting will apply.

Page2: Amp Level

Adjusts the volume of the oscillator.



Amp Level

[-99...+99]

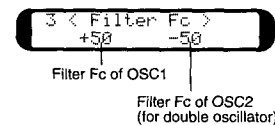
Positive (+) values will increase the volume.

Negative (-) values will decrease the volume.

At 0, the original setting will apply.

Page3: Filter Fc

Adjusts the cutoff frequency.



Filter Fc

[-99...+99]

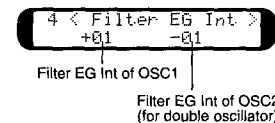
Positive (+) values brighten the sound.

Negative (-) values darken the sound.

At 0, the original setting will apply.

Page4: Filter EG Int

Adjusts the degree to which the filter EG will affect the filter cutoff frequency.



Filter EG Int

[-99...+99]

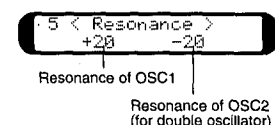
Positive (+) values will cause the EG to have a greater effect.

Negative (-) values will cause the EG to have less effect.

At 0, the original setting will apply.

Page5: Resonance

Adjusts the way in which the overtones of the region near the frequency specified by Filter Fc will be boosted to add character to the sound.

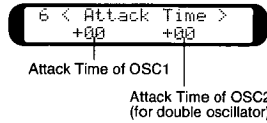


Resonance [-99...+99]

Positive (+) values will strengthen the effect.
 Negative (-) values will weaken the effect.
 At 0, the original setting will apply.

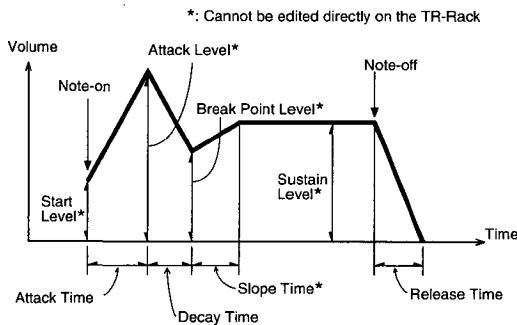
Page6: Attack Time

Adjusts the time from note-on until the attack level is reached.



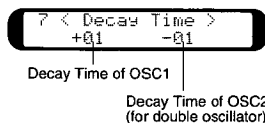
Attack Time [-99...+99]

Positive (+) values will make the attack slower.
 Negative (-) values will make the attack faster.
 At 0, the original setting will apply.
 When this parameter is modified, the values of several Amp EG parameters (Start Level, etc.) will be modified together. For details refer to "Appendix 2. Internal parameters of the TR-Rack" on p.75 of this manual.



Page7: Decay Time

Adjusts the time from the Attack Level until the Break Point Level is reached. (Refer to the diagram for Page6: Attack Time.)

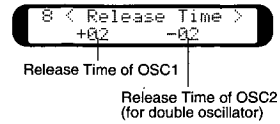


Decay Time [-99...+99]

Positive (+) values will lengthen the time until the Break Point.
 Negative (-) values will shorten the time until the Break Point.
 At 0, the original setting will apply.
 When this parameter is adjusted, the Decay Time values of the Amp EG and Filter EG will be modified together. For details refer to "Appendix 2. Internal parameters of the TR-Rack" on p.75 of this manual.

Page8: Release Time

Adjusts the time from note-off until the volume reaches 0. (Refer to the diagram for Page6: Attack Time.)

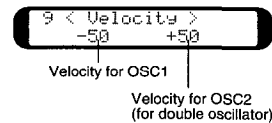


Release Time [-99...+99]

Positive (+) values will lengthen the time until the volume reaches 0.
 Negative (-) values will shorten the time until the volume reaches 0.
 At 0, the original setting will apply.
 When this parameter is adjusted, the Release Time values of the Amp EG and Filter EG will be modified together. For details refer to "Appendix 2. Internal parameters of the TR-Rack" on p.75 of this manual.

Page9: Velocity

Adjusts the degree to which note velocity (keyboard playing dynamics) will affect the tone or volume.

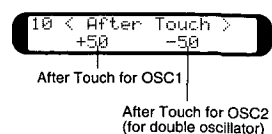


Velocity [-99...+99]

Positive (+) values will cause velocity to have a greater effect.
 Negative (-) values will cause velocity to have less effect.
 At 0, the original setting will apply.
 When this parameter is adjusted, various values of the Filter EG, Filter Resonance, OSC EG and Amp EG etc. will be modified together. For details refer to "Appendix 2. Internal parameters of the TR-Rack" on p.75 of this manual.

Page10: After Touch

Adjusts the degree to which aftertouch (pressure applied to the keyboard after playing a note) will affect the tone or volume.



After Touch [-99...+99]

Positive (+) values will cause aftertouch to have a greater effect.

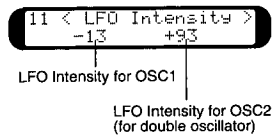
Negative (-) values will cause aftertouch to have less effect.

At 0, the original setting will apply.

When this parameter is adjusted, various values of the OSC LFO, Filter LFO and Filter Fc etc. will be modified together. For details refer to "Appendix 2. Internal parameters of the TR-Rack" on p.75 of this manual.

Page 11: LFO Intensity

Adjusts the depth of the LFO effect.



LFO Intensity [-99...+99]

Positive (+) values will increase the LFO effect.

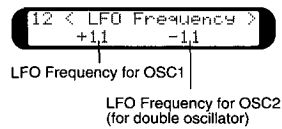
Negative (-) values will decrease the LFO effect.

At 0, the original setting will apply.

When this parameter is adjusted, various parameters for OSC and Filter Fc etc. will be modified together. For details refer to "Appendix 2. Internal parameters of the TR-Rack" on p.75 of this manual.

Page 12: LFO Frequency

Adjusts the frequency of the LFO.



LFO Frequency [-99...+99]

Positive (+) values will speed up the LFO frequency.

Negative (-) values will slow down the LFO frequency.

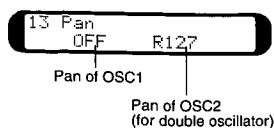
At 0, the original setting will apply.

When this parameter is adjusted, the frequencies of the OSC LFO and the Filter LFO will be modified together. For details refer to "Appendix 2. Internal parameters of the TR-Rack" on p.75 of this manual.

Page 13: Pan

Sets the pan (stereo location) for input to the insertion effect.

If you are not using an insertion effect, this will be the pan setting to the 1/L/MONO and 2/R output jacks.



Pan (Panpot) [OFF, L000...C064...R127]

When this is OFF, the sound will not be sent to 1/L/MONO or 2/R.

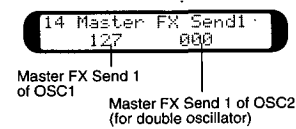
The sound will be output only from the left with a setting of L000, from the center with C064, and only from the right with R127.

⚠ If the Insertion effect is Size 1 (mono input/output), this setting will be ignored.

Page 14: Master FX Send1

When an insertion effect is not used, this specifies the input level to master effect 1.

If an insertion effect is used, this setting will be ignored.



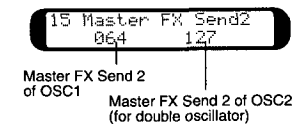
Master FX Send1 [0...127]

When using an insertion effect, the input level of master effect 1 is set by the "Page24: IFX Send MFX" parameter Send 1.

Page 15: Master FX Send2

When an insertion effect is not used, this specifies the input level to master effect 2.

If an insertion effect is used, this setting will be ignored.



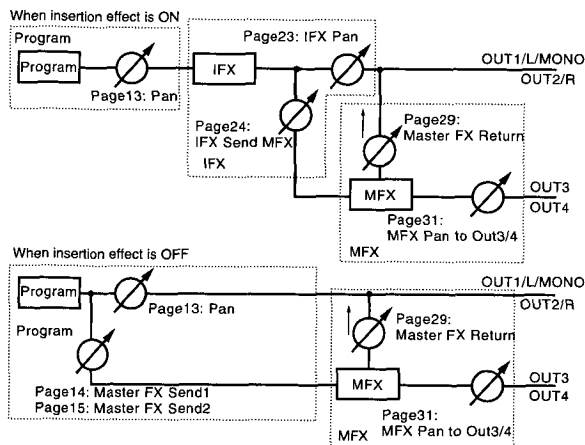
Master FX Send2 [0...127]

When using an insertion effect, the input level of master effect 2 is set by the "Page24: IFX Send MFX" parameter Send 2.

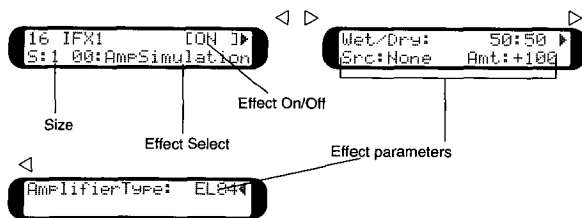
Page16~19: IFX1~IFX4 (Insert Effect Setting)

Selects the insertion effect which will be used by the program, and sets the effect parameters.

The signal flow, pan, and send adjustment locations will differ as shown below, depending on whether or not an insertion effect is used.



The following diagram shows the LCD screens for “Page16: IFX1 (Insertion Effect 1).” Pages 17–19 show IFX2–IFX4.



However, “Page19: IFX4 (Insertion Effect 4)” can be set only if the program uses a drum oscillator.

S (Size) [0, 1, 2, 4]

The type of insertion effect that can be selected will depend on the Size setting.

With a setting of 0, there will be no effect, and an insertion effect cannot be selected.

With a setting of 1–4, you will be able to select an insertion effect in Effect Select.

For the available effect types, refer to the separate **Effect Guide**.

The total sizes of IFX1–IFX3 (or if using a drum oscillator, IFX1–IFX4) must be 4 or less. (It is not possible to make settings that would total 5 or more.)

Effect On/Off [OFF, ON]

Turns the effect on/off.

When this is **OFF**, the effect will be bypassed. If a Size 1 effect is selected, the dry sound will also be monaural. If you wish to enable the pan setting (“Page13: Pan”) of a stereo oscillator, set Size to other than 1.

Separately from this setting, you can use Effect 2 Control messages (CC#92) to turn all of the insertion effects off. They will be turned off when the control

change value is 0, and will return to their original setting for values of 1–127.

Effect Select

Selects the effect type. However, the effects which can be selected will depend on the Size setting.

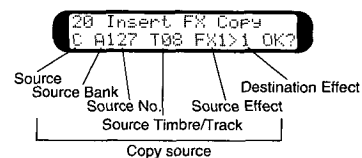
The parameters for the effect selected here can be set in the display screen located at the right (press the cursor [▶] key to access this).

For details of each effect, refer to the separate **Effect Guide**.

Page20: IFX Copy (Copy Insert Effect)

This operation copies insertion effect settings from another program, combination or multi to the insertion effect of the currently-selected program.

For example if you wish to copy the insertion effect 1 used by timbre 8 of combination A127 to the insertion effect 1 of the currently selected program, make the following settings.



Source [P, C, M]

Specifies whether the settings will be copied from a program (P), a combination (C) or a multi (M).

Source Bank [A...D]

If you are copying from a program or combination, this parameter selects the bank.

Source No. [000...127]

If you are copying from a program, this parameter specifies the program number. If you are copying from a combination, this parameter selects the combination number.

Source Timbre/Track [T01...08, T01...16]

If you are copying from a combination, this parameter specifies the timbre. If you are copying from a multi, this parameter specifies the track.

Source Effect [FX1...4, ALL]

Selects the copy source insertion effect.

If you select **ALL**, all insertion effects being used will be copied.

If the copy source and copy destination programs both use a drum oscillator, you will be able to select FX4 (IFX4).

Destination Effect [1...4]

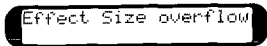
Selects the copy destination insertion effect.

If the copy destination program uses a drum oscillator, you will be able to select 4 (IFX4).

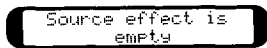
To execute the copy operation, press the cursor [▶] key to make "OK" blink, and press the [+1/YES] key.

Copying is not possible in the following situations.

1. When the copy destination Effect Size is smaller than the copy source Effect Size.
The following message will appear in the LCD.



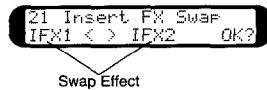
2. When the copy source does not use an insertion effect, or when the effect size is 0.
The following message will appear in the LCD.



Page21: IFX Swap (Swap Insert Effect)

This operation exchanges (Swaps) the insertion effect settings of the currently selected program.

For example if you wish to Swap the settings of insertion effect 1 and insertion effect 2, make the following settings.



Swap Effect [IFX1...4]

Selects the insert effects that you wish to Swap.

If the currently selected program uses a drum oscillator, you will be able to select IFX4.

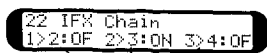
To execute the Swap operation, press the cursor [▶] key to make "OK" light, and press the [+1/YES] key.

Page22: IFX Chain

Specifies how the insertion effects will be connected.

However this can be set only for programs which use a drum oscillator. For other programs, the lower line of the LCD (the screen shown below at the right) will indicate "Invalid. DrmPGM only."

For example if, out of the four insertion effects, you want insertion effects 2 and 3 to be connected in series, make settings as shown below (in the screen at left).



Connection between insertion effects



If the program uses a Drum Oscillator

- | | |
|-----|----------|
| 1>2 | [OF, ON] |
| 2>3 | [OF, ON] |
| 3>4 | [OF, ON] |

With a setting of OF (OFF), each effect will be used in

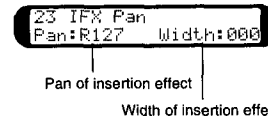
parallel (individually).

With a setting of ON, each effect will be connected in series.

For details on insertion effect connections, refer to "Program-Drums OSC mode" on p.5 of the separate Effect Guide.

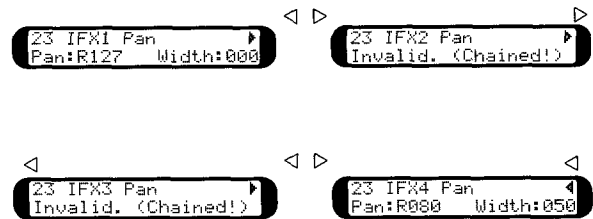
Page23: IFX Pan (Pan/Width)

Adjusts the Pan and Width (left/right spread) of the sound that has passed through the insertion effect.



In the case of a program which uses a drum oscillator, pan can be set independently for each insertion effect (IFX1-IFX4). However when insertion effects are used in series, the pan is set for the last insertion effect.

For example if IFX2-4 are used in series, the LCD screens for IFX2 and 3 will indicate "Invalid. (Chained!)," and the pan will be set by "Page23: IFX4 Pan."



An example of when the three (of the four) insertion effects IFX 2, 3 and 4 are connected in series

Pan (Panpot) [OFF, L000...C064...R127]

Sets the pan of the sound that has passed through the insertion effect.

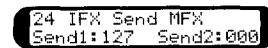
Width [0...127]

Sets the left/right spread of the sound that has passed through the insertion effect.

The left/right spread will be greater as this value is increased.

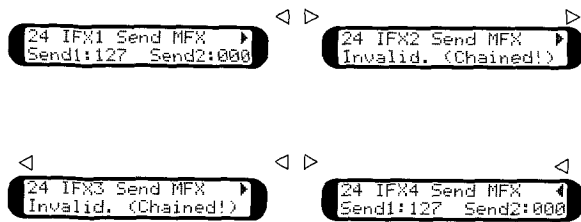
Page24: IFX Send MFX

Adjusts the send levels to master effects 1 and 2.



In the case of a program which uses a drum oscillator, send can be set independently for each insertion effect (IFX1-IFX4). However if insertion effects are used in series, the send level is set for the last insertion effect.

For example if IFX2-4 are used in series, the LCD screens for IFX2 and 3 will indicate "Invalid. (Chained!)," and the send level will be set by "Page24: IFX Send MFX."



An example of when the three (of the four) insertion effects IFX 2, 3 and 4 are connected in series

Send1 [0...127]

Sets the send level for master effect 1.

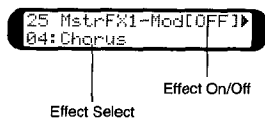
Send2 [0...127]

Sets the send level for master effect 2.

Page25, 26: MstrFX1-Mod/ MstrFX2-Rev (Effect1/Effect2 Setting)

Selects the master effects 1 (modulation) and 2 (reverb) which the program will use, and sets their parameters.

The following illustration shows the LCD screen for "Page25: MstrFX1-Mod." MstrFX2-Rev will be displayed for Page26.



Effect On/Off [ON/OFF]

Turn the master effect on/off

MIDI Separately from this setting, Master Effect 1 can be turned OFF by an Effect 4 Control message (CC#94), and Master Effect 2 can be turned OFF by an Effect 5 Control message (CC#95). The effect will be turned OFF by a data value of 0, and will have its original setting with data values of 1-127. The Global MIDI channel is used for these messages.

Effect Select

Select the effect type.

A modulation-type effect can be selected for master effect 1, and a reverb/delay-type effect for master effect 2.

Settings for the effect you select here can be made in the screen located at the right (use the cursor [▶] key to access).

For details on each effect, refer to the separate **Effect Guide**.

Page27: Master FX Copy (Copy Master Effect)

This operation copies master effect settings from another program, combination or multi to the master effect of the currently-selected program.

For example if you wish to copy the master effects 1 and 2 used by program A127, make the following settings.



Source [PRG, CMB, MLT]

Specifies whether the settings will be copied from a program (PRG), a combination (CMB) or a multi (MLT).

Source Bank [A...D]

If you are copying from a program or combination, this parameter selects the bank.

Source No. [000...127]

If you are copying from a program, this parameter specifies the program number. If you are copying from a combination, this parameter selects the combination number.

Source Effect [MFX1, MFX2, ALL]

Selects the copy source master effect.

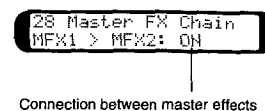
If you select ALL, both master effects 1 and 2 will be copied.

To execute the copy operation, press the cursor [▶] key to make "OK" blink, and press the [+1/YES] key.

Page28: Master FX Chain

Specifies how the master effects will be connected.

For example if you wish to connect master effects 1 and 2 in series, make settings as shown below.



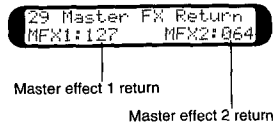
MFX1>MFX2 [OFF, ON]

When this is OFF, master effect 1 and master effect 2 will be used in parallel.

When this is ON, master effect 1 and master effect 2 will be connected in series. (The output of master effect 1 will be sent to master effect 2.)

Page29: Master FX Return

Adjusts the level of the signals that are sent from the master effects to the 1/L/MONO and 2/R output jacks.



MFX1 [0...127]

Adjusts the level of the signal that is sent from master effect 1 to the 1/L/MONO and 2/R output jacks.

MFX2 [0...127]

Adjusts the level of the signal that is sent from master effect 2 to the 1/L/MONO and 2/R output jacks.

The signal that is routed through Pan L and R is combined with the signals from master effect 1 and master effect 2 (adjusted by these Master FX Return levels) and output from the 1/L/MONO and 2/R output jacks.

Page30: Master EQ dB

Adjusts the tone of the signal that is output from 1/L/MONO and 2/R.



Lo (Low Gain) [-18.0...+18.0]

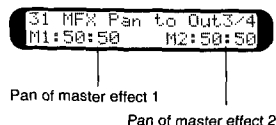
Adjusts the level of the low frequency range. The setting is in [dB] units.

Hi (High Gain) [-18.0...+18.0]

Adjusts the level of the high frequency range. The setting is in [dB] units.

Page31: MFX Pan to Out3/4 (Pan 1/2)

Adjusts the panning to output jacks 3 and 4.



M1 [OFF, L, 99:01...01:99, R]

Adjusts the pan from master effect 1 to output jacks 3 and 4.

M2 [OFF, L, 99:01...01:99, R]

Adjusts the pan from master effect 2 to output jacks 3 and 4.

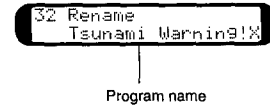
With a setting of OFF, no sound will be sent to output jacks 3 and 4.

With a setting of L, the sound will be sent only to output jack 3.

With a setting of R, the sound will be sent only to output jack 4.

Page32: Rename (Program Name)

Specifies the name of (or rename) the program.



Use the cursor [◀][▶] keys to select the character, and use the [+1/YES] [-1/NO] keys to change the character.

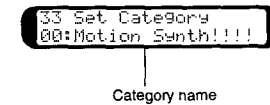
The following characters are available.

	!	"	#	\$	%	&	'	()	*	+	,	-	.	/
0	1	2	3	4	5	6	7	8	9	:	:	<	=	>	?
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[]	^	_	
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
p	q	r	s	t	u	v	w	x	y	z	{	}	~	+	=

⚠ If you wish to save the program name that you have modified, you must perform the Write operation (p.11 in this manual). If you select a different program or turn the power off before you Write, the modified program name will be lost.

Page33: Set Category

Assign the category to which the program will belong.



Set Category [Keyboard...Drums/Perc.]

When selecting programs in Program Play mode, you can search for programs according to a category which has been assigned to each program.

With the factory settings, instrumental names have been assigned to each category, but you can modify the category names as desired in Global mode "Page14: Prog Category."

3. Combination Play mode

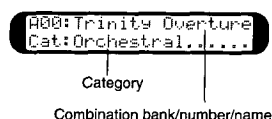
In this mode you can select combinations.

The **TR-Rack** lets you select 512 combinations (0–127 in each bank A, B, C and D).

A list of the factory-set combinations is given in the separate **Voice Name List**.

Page 1: Combination Bank/Combination No./Combination Name/Category

The upper line of the LCD will indicate the currently selected combination, and the lower line indicates its category.



Combination Bank/Combination No./Combination Name [A00...D127]

Use the [+1/YES] [-1/NO] keys to select a combination. You can also select combinations by category. (Basic section p.9)

MIDI When Volume messages (CC#7) are received, the volume level setting will change.

By specifying the MIDI channel for each timbre in Combination Edit mode "Page3: Channel," you can play and control each timbre independently.

For details on using program change messages from an external MIDI device to select combinations, refer to "9. MIDI Applications" on p.22 of this manual.

4. Combination Edit mode

In this mode you can edit combination settings.

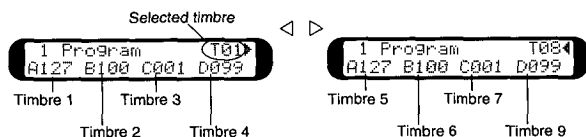
Pages 1–27 contain settings which are made independently for each timbre.

Pages 28–43 contain settings for the effects (insertion effects, master effects) that are used by the combination.

Pages 44–47 contain settings which are shared by the entire combination.

In Pages 1–26, settings for 4 timbres are displayed in each screen. Use the cursor [◀][▶] keys to select the timbre for which you wish to make settings.

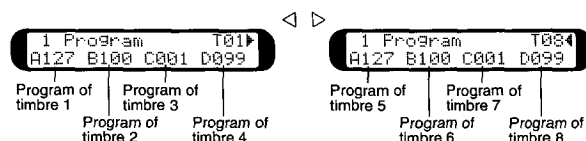
At this time, the timbre selected by the cursor will be shown in the upper right of the LCD.



If you wish to save the changes you have made, you must perform the Write operation. If you select another program or turn off the power without Writing, your changes will be lost.

Page1: Program

Selects the program that will be assigned to each timbre 1–8.

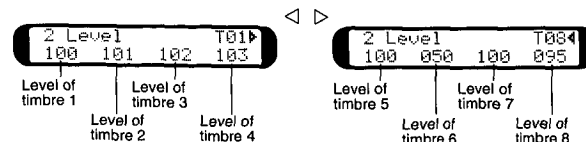


Bank No. [A...D] [000...127]

MIDI When a program change message is received in Combination Play mode, the program of the corresponding timbre will change.

Page2: Level

Adjusts the volume level of timbres 1–8.

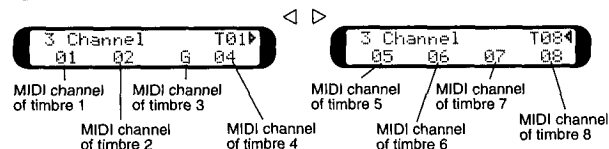


Level [0...127]

MIDI When a volume message CC#07 is received in Combination Play mode, the volume level of the corresponding timbre will change.

Page3: Channel (MIDI Channel)

Specifies the MIDI receive channel for each timbre 1–8.



Channel [01...16, G]

When this is set to G, the timbre will use the channel that is specified as the Global MIDI channel by the Global mode "Page3: MIDI Channel" setting.

Page4: Timbre SW

Specifies whether or not each timbre 1–8 will sound.

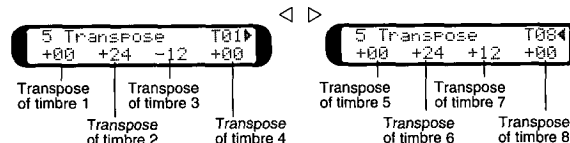


With a setting of OFF, that timbre will not sound.

With a setting of ON, that timbre will sound.

Page5: Transpose

Adjusts the pitch of each timbre 1–8 in semitone steps.

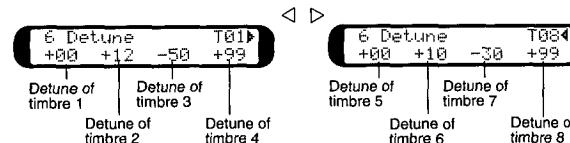


Transpose [-24...+24]

12 units are one octave.

Page6: Detune

Adjusts the pitch of each timbre 1–8 in one-cent steps.



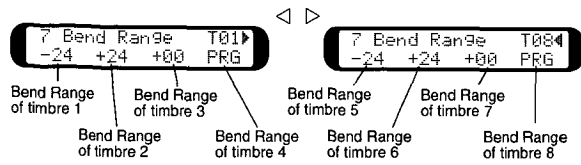
Detune [-99...+99]

A setting of 0 is the normal pitch.

As this setting is increased, the pitch will be further away from the standard pitch.

Page7: Bend Range

For each timbre 1-8, this parameter specifies the range of the pitch change that can be controlled by pitch bending.



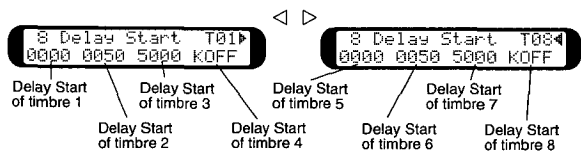
Bend Range [PRG, -24...+24]

With a setting of PRG, the pitch bend range specified by the program will be used.

With a setting of -24—+24, the timbre will use the setting specified here, regardless of the program setting.

Page8: Delay Start [ms]

For each timbre 1-8, this parameter specifies a delay in millisecond units from when note-on is received until the timbre begins to sound.



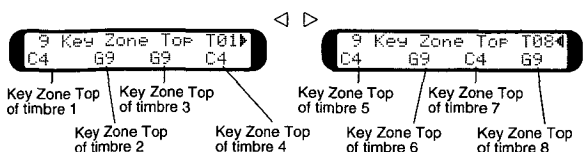
Delay Start [0...5000, KOFF]

With a setting of KOFF, the timbre will begin sounding when note-off is received. In this case if the program is a sustain-type sound such as an organ, the sound will continue indefinitely. This setting can be used for sound such as harpsichord.

Normally you will leave this set at 0.

Page9: Key Zone Top (Top Key)

Specifies the top key (upper limit) for which each timbre 1-8 will sound.



Key Zone Top [C-1...G9]

About the Key Zone

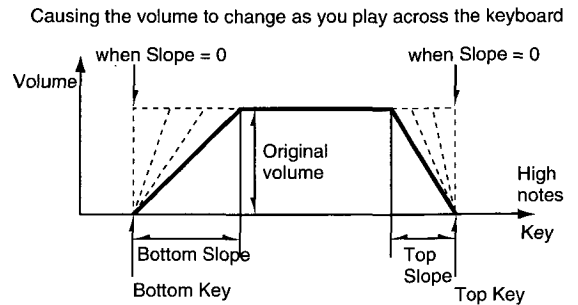
By setting the Top/Bottom Key you can specify a range (key zone) in which each timbre 1-8 will play, and by setting the Top/Bottom Slope you can specify how the volume will be faded in/out for these zones.

By setting two or more timbres to an overlapping range, you can cause two or more sounds to be heard for a single key. (This is called a Layer.)

By setting timbres to non-overlapping ranges, you can cause two or more sounds to play in different areas of

the keyboard. (This is called a Key Split.)

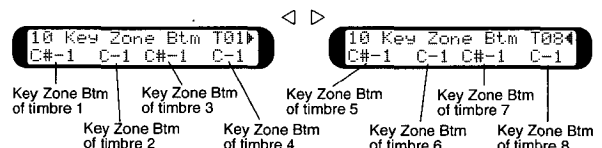
In addition, you can make settings so that the Slope overlaps, causing different sounds to fade in and out as you play across the keyboard. (This is called Positional Crossfade.)



For any timbre, the Bottom Key cannot be set above the Top Key. Nor is it possible to make settings that cause the Top Slope and Bottom Slope to overlap.

Page10: Key Zone Btm (Bottom Key)

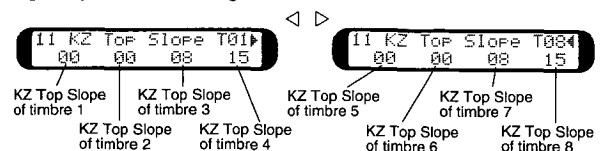
Specifies the bottom key (lower limit) for which each timbre 1-8 will sound.



Key Zone Btm [C-1...G9]

Page11: KZ Top Slope (Top Slope)

Specifies the number of notes (12 is one octave) from the Top Key until the original volume is reached.



KZ Top Slope [00...72]

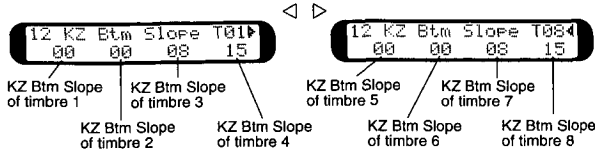
With a setting of 0, the original volume will be effective from the Top Key (i.e., immediately).

With a setting of 12, the volume will gradually increase as you play downward, and will reach the original volume one octave below the Top Key.

With a setting of 60, the volume will gradually increase as you play downward, and will reach the original volume five octaves below the Top Key.

Page 12: KZ Btm Slope (Bottom Slope)

Specifies the number of notes (12 is one octave) from the Bottom Key until the original volume is reached.



KZ Btm Slope [00...72]

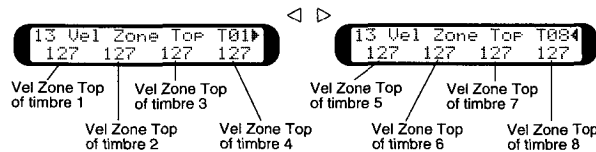
With a setting of 0, the original volume will be effective from the Bottom Key (i.e., immediately).

With a setting of 12, the volume will gradually increase as you play upward, and will reach the original volume one octave above the Bottom Key.

With a setting of 60, the volume will gradually increase as you play upward, and will reach the original volume five octaves above the Bottom Key.

Page 13: Vel Zone Top (Top Velocity)

Specifies the maximum velocity for which each timbre 1–8 will sound.



Vel Zone Top [1...127]

About the Velocity Zone

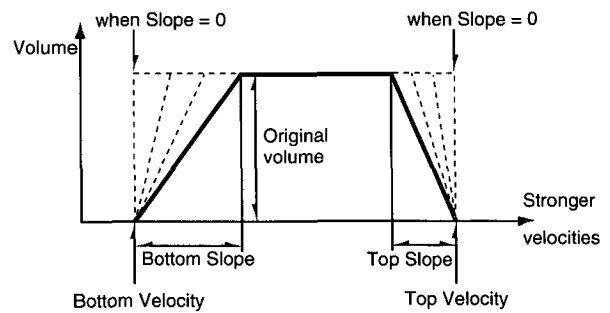
By setting the Top/Bottom Velocity you can specify a range of velocities (Velocity Zone) for which each timbre 1–8 will play, and by setting the Top/Bottom Slope you can specify how the volume will change at the edges of the range.

By making settings so that two or more timbres are played by velocities of the same range, you can create layered sounds.

By making settings so that two or more timbres are played by velocities of different ranges, you can cause different sounds to be heard for notes played with different strengths (Velocity Switch).

In addition, you can make settings so that the slopes of two velocity ranges overlap, causing different sounds to be faded in/out as you play more strongly or softly (Velocity Crossfade).

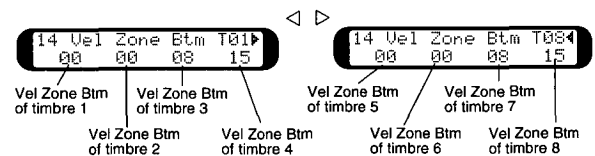
Volume change controlled by velocity



It is not possible to set the Bottom Velocity greater than the Top Velocity. Nor is it possible to set the Top Slope and Bottom Slope to overlap.

Page 14: Vel Zone Btm (Bottom Velocity)

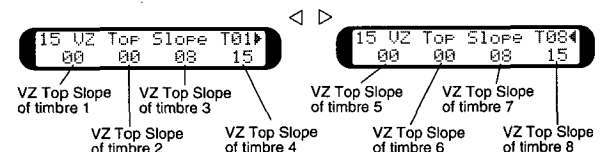
Specifies the minimum velocity for which each timbre 1–8 will sound.



Vel Zone Btm [1...127]

Page 15: VZ Top Slope (Top Slope)

Specifies the range from the Top Velocity until the original volume is reached.



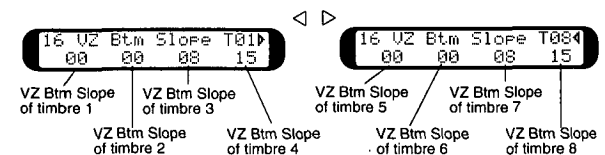
VZ Top Slope [0...120]

With a setting of 0, the Top Velocity will have the original volume.

As this value is increased, the change in volume will become more gradual.

Page 16: VZ Btm Slope (Bottom Slope)

Specifies the range from the Bottom Velocity until the original volume is reached.



VZ Btm Slope [0...120]

With a setting of 0, the Bottom Velocity will have the original volume.

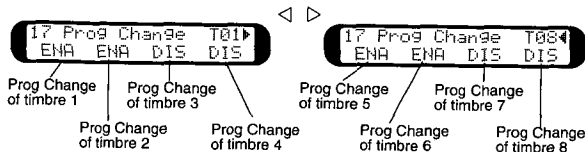
As this value is increased, the change in volume will become more gradual.

Page17: Prog Change (Enable Program Change)

The settings of pages 17–20 allow you to filter the reception of MIDI data.

You can specify whether each timbre 1–8 will receive or ignore various types of MIDI message.

Since filter settings can be made independently for each timbre, you can (for example) apply pitch bend to one timbre and not to another, even if both are receiving the same MIDI channel.



Prog Change [DIS, ENA]

MIDI Specifies whether or not each timbre 1–8 will receive MIDI program change messages.

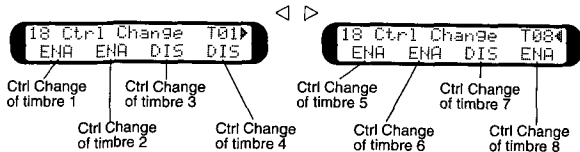
With a setting of ENA, that timbre will change programs when a MIDI program change message is received.

With a setting of DIS, that timbre will not receive MIDI program change messages.

To enable/disable reception of MIDI program change messages for the entire TR-Rack, make settings in Global mode "Page7: Prog Change."

Page18: Ctrl Change (Enable Control Change)

MIDI Specifies whether or not each timbre 1–8 will receive MIDI control change messages.



Ctrl Change [DIS, ENA]

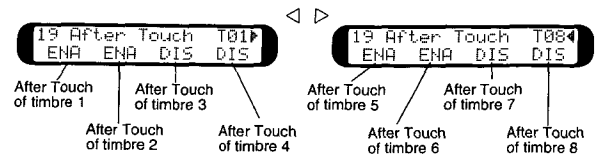
With a setting of ENA, MIDI control change messages will be received to control vibrato or volume, etc.

With a setting of DIS, control change messages will not be received.

To enable/disable reception of MIDI control change messages for the entire TR-Rack, set the Ctrl parameter of Global mode "Page8: MIDI Filter."

Page19: After Touch (Enable Aftertouch)

MIDI Specifies whether or not each timbre 1–8 will receive MIDI aftertouch messages.



After Touch [DIS, ENA]

With a setting of ENA, MIDI aftertouch messages will be received.

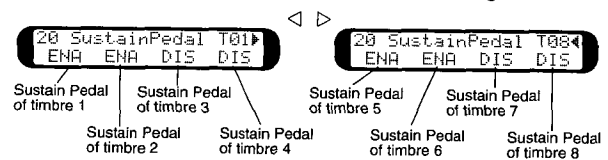
With a setting of DIS, MIDI aftertouch messages will not be received.

To enable/disable reception of MIDI aftertouch messages for the entire TR-Rack, set the A.T parameter of Global mode "Page8: MIDI Filter."

There are two types of aftertouch message; channel aftertouch and polyphonic aftertouch. The TR-Rack receives only channel aftertouch messages.

Page20: Sustain Pedal (Enable Sustain Pedal)

MIDI Specifies whether or not each timbre 1–8 will receive MIDI CC#64 Hold (Damper Pedal) messages.



Sustain Pedal [DIS, ENA]

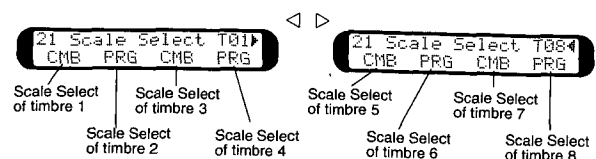
With a setting of ENA, MIDI hold messages will be received.

With a setting of DIS, MIDI hold messages will not be received.

Since MIDI Hold is a type of control change message, reception can be enabled/disabled for the entire TR-Rack by the Ctrl parameter of Global mode "Page8: MIDI Filter."

Page21: Scale Select (Use Program's Scale)

Selects the scale used by each timbre 1–8.



Scale Select [CMB, PRG]

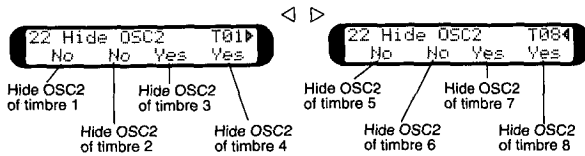
With a setting of PRG, the scale specified by the pro-

gram will be used.

With a setting of CMB, the scale specified for the combination by "Page44: Scale" will be used.

Page22: Hide OSC2

For each timbre 1–8, this specifies whether or not oscillator 2 will be used. However, this setting is valid only for timbres for which a double oscillator program is selected.



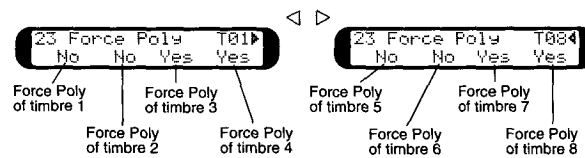
Hide OSC2 [NO, YES]

With a setting of YES, OSC2 will not play. (Only OSC1 will sound.)

With a setting of NO, the program will play with its original settings. Except for special situations, you will normally leave this set to NO.

Page23: Force Poly

For each timbre 1–8, this specifies whether the Key Assign setting will be forced to polyphonic. This setting is valid only for mono-assigned programs.



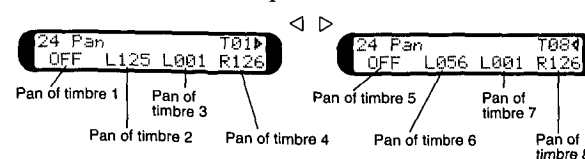
Force Poly [NO, YES]

With a setting of YES, the program will play polyphonically.

With a setting of NO, the program will play according to its own Key Assign setting. Except for special cases, you will normally set this to NO.

Page24: Pan

Specifies the panning (the output from the rear panel 1/L/MONO and 2/R output jacks) for each timbre 1–8. However when an insertion effect is used, this setting will be the pan for the input to the insertion effect.



Pan [OFF, L000...C064...R127, PROG]

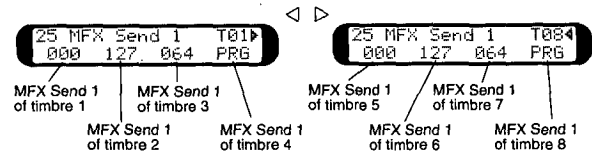
With a setting of PROG, the pan setting specified by the program will be used.

MIDI In Combination Play mode, incoming Panpot messages (CC#10) will change this setting. (However, only when this setting is in the range of L000–R127.)

Page25: MFX Send 1

Specifies the send level (input level to master effect 1) for each timbre 1–8.

This will also be the output level to rear panel output jacks 3 and 4.



MFX Send 1 [0...127, PRG]

With a setting of PRG, the send level specified by the program will be used.

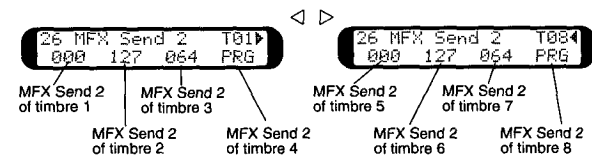
⚡ When the insertion effect is ON, this setting is ignored.

MIDI In Combination Play mode, incoming Effect 3 Level messages (CC#93) will change this setting (however, only when this setting is in the range of 0–127).

Page26: MFX Send 2

Specifies the send level (input level to master effect 2) for each timbre 1–8.

This will also be the output level to rear panel output jacks 3 and 4.



MFX Send 2 [0...127, PRG]

With a setting of PRG, the send level specified by the program will be used.

⚡ When the insertion effect is ON, this setting is ignored.

MIDI In Combination Play mode, incoming Effect 1 Level messages (CC#91) will change this setting (however, only when this setting is in the range of 0–127).

Page27: InsrFX Size

Specifies the Size and Grouping of the insertion effects.

When making settings for insertion effects in a combination, the total Effect Size for all timbres must be 8 or less. This means that, for example, if you use a different insertion effect for each timbre, the effect size must be 1 for each timbre.

The audio signal from a timbre can be sent to the inser-

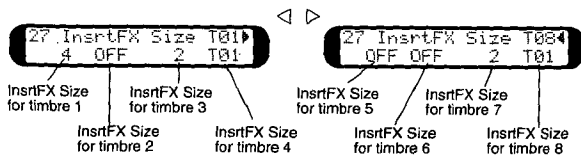
tion effect specified for another timbre. In other words, the insertion effect of one timbre can be used by one or more other timbres. This is referred to as the Grouping function.

For this reason, it is recommended that you group timbres which use similar insertion effects, decide which timbre will be the basis of the group, and set parameters for the insertion effect of that timbre.

Parameters for the insertion effect of each timbre are set in "Page27: IFX1" and following.

For details refer to the separate **Effect Guide**.

The settings that you edit in Pages 28–36 will be for the timbre that you select in this page (by using the cursor [◀][▶] keys to make the setting blink).



InsrtFX Size [OFF, 1, 2, 4, 8, T01...T08]

Specifies the effect size and grouping destination for the insertion effect used by each timbre.

With settings of 1, 2, 4, or 8, you can select an insertion effect and make parameter settings in "Page28: IFX1" and following.

However, the total effect size for timbres 1–8 must be 8 or less.

For example if you specify an effect size of 4 for two timbres, it will not be possible to specify the effect size (i.e., to use other insertion effects) for other timbres.

With a setting of T01–T08, the timbre will be grouped with the effect of the other corresponding timbre.

For example if you are using a flanger on timbre 3 and set the effect size of timbre 5 to T03, timbre 3 will be the basis of the group, and the audio signals of timbre 3 and timbre 5 will be input to the flanger that is specified by the program of timbre 3.

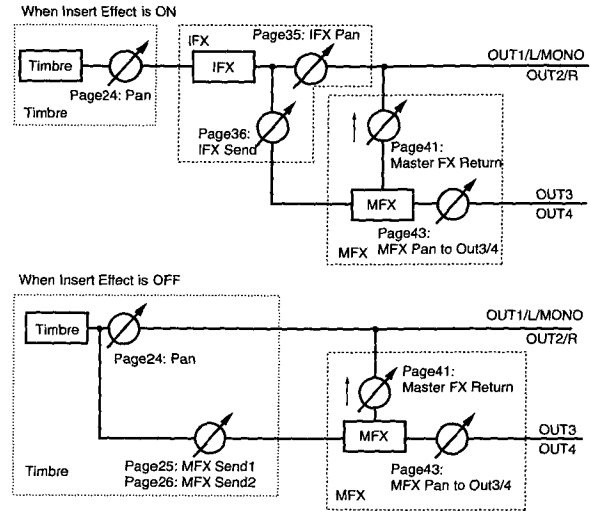
MIDI Control change messages which match the MIDI channel of a timbre can control the insertion effects of that timbre.

For details refer to p.10 of the separate **Effect Guide**.

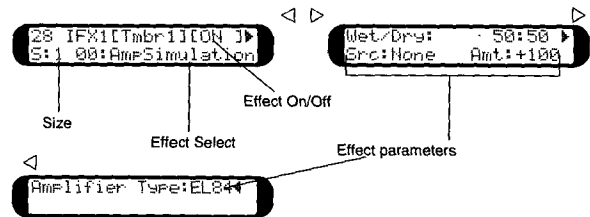
Page28~31: IFX1~IFX4 (Insert Effect Setting)

Selects the insertion effect that will be used by the timbre, and sets its parameters.

The signal flow, pan, and send adjustment locations will differ depending on whether or not an insertion effect is used.



The following diagram shows the LCD screens of "Page28: IFX1 (Insertion Effect 1)." Pages 29–31 are for IFX2–IFX4.



Your edits will apply to the insertion effect of the **timbre that was selected in "Page27: InsertFx Size,"** and this will be shown in the upper line of the LCD. **To move to another timbre, use Page27.**

⚠ Insertion Effect 4 (Page31: IFX4 (Insertion Effect 4)) can be set only if a timbre which uses a drum oscillator is selected.

S (Size) [0, 1, 2, 4, 8]

Specifies the size of the insertion effect.

The types of insertion effect that can be selected will depend on the size.

A setting of 0 is No Effect, and an insertion effect cannot be selected.

A setting of 1–4 allows you to select an insertion effect in "Effect Select."

However the total size of IFX1, IFX2,... must be less than the value that was set in "Page27: InsrtFX Size."

Effect On/Off [OFF, ON]

Switches the effect on/off.

With a setting of OFF, the effect will be bypassed. If a size 1 effect is selected, the dry sound will also be mon-

aural. If you wish to enable the pan settings ("Page24: Pan") of timbres that are set to stereo, set the Size to other than 1.

MIDI In addition to this setting, Effect 2 Control messages (CC#92) can be used to turn off the insertion effects of all timbres simultaneously. A value of 0 will turn the effects off, and values of 1–127 will restore the original setting. The Global MIDI channel is used for this message.

Effect Select

Selects the effect type. However, the effects that can be selected will depend on the Size setting.

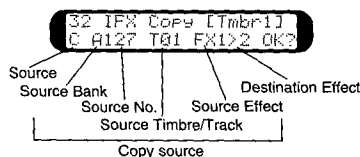
The parameters of the effect you select here can be set in the screens at right (accessed by pressing the cursor [▶] key).

For details on each effect, refer to the separate **Effect Guide**.

Page32: IFX Copy (Copy Insert Effect)

This operation copies settings from an insertion effect used by another program, combination or multi to the insertion effect of the currently selected timbre.

For example if you wish to copy the settings of the insertion effect 1 used by timbre 1 of combination A127 to the insertion effect 2 of timbre 1 in the currently selected combination, make the following settings.



Source [P, C, M]

Specifies whether the settings will be copied from a program (P), a combination (C) or a multi (M).

Source Bank [A...D]

If you are copying from a program or combination, this parameter selects the bank.

Source No. [000...127]

If you are copying from a program, this parameter specifies the program number. If you are copying from a combination, this parameter selects the combination number.

Source Timbre/Track [T01...08, T01...16]

If you are copying from a combination, this parameter specifies the timbre. If you are copying from a multi, this parameter specifies the track.

Source Effect [FX1...4, ALL]

Selects the copy source insertion effect.

If you select **ALL**, all insertion effects being used will be copied.

If the copy source and copy destination programs both

use a drum oscillator, you will be able to select FX4 (IFX4).

Destination Effect [1...4]

Selects the copy destination insertion effect.

If the copy destination program uses a drum oscillator, you will be able to select 4 (IFX4).

To execute the copy operation, press the cursor [▶] key to make "OK" blink, and press the [+1/YES] key.

⚠ Copying is not possible in the following situations.

1. When the copy destination Effect Size is smaller than the copy source Effect Size.

The following message will appear in the LCD.

Effect Size overflow

2. If three insertion effects are used in series, it is not possible to copy a size 4 effect to IFX2. Also, for a timbre which uses a drum oscillator program, when four insertion effects are used in series, it is impossible to copy a size 4 effect to IFX2 or IFX3.

The following message will appear in the LCD.

Size4 Placement err

3. When the copy source does not use an insertion effect, or when the effect size is 0.

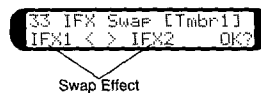
The following message will appear in the LCD.

Source effect is empty

Page33: IFX Swap (Swap Insert Effect)

This operation exchanges (Swaps) the insertion effect settings of the currently selected timbre.

For example if you wish to Swap the settings of insertion effect 1 and insertion effect 2 within timbre 1, make the following settings.



Swap Effect [IFX1...4]

Selects the insertion effects that you wish to Swap.

If the currently selected timbre uses a drum oscillator program, you will be able to select IFX4.

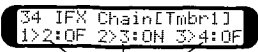
To execute the Swap operation, press the cursor [▶] key to make "OK" light, and press the [+1/YES] key.

⚠ If three insertion effects are connected in series, it is not possible to Swap a size 4 effect to IFX2. Also, for a timbre which uses a drum oscillator program, if four insertion effects are used in series, it is not possible to Swap a size 4 effect to IFX2 or IFX3.

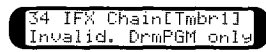
Page34: IFX Chain

Specifies how the insertion effects will be connected. However this can be set only for timbres which use a drum oscillator program. For other timbres, the lower line of the LCD will be as shown in the lower right screen.

For example if, out of the four insertion effects, you want insertion effects 2 and 3 to be connected in series, make settings as shown below (in the screen at left).



Connection between insertion effects



This display will appear if the timbre does not use a DrumKit program

1>2	[OF, ON]
2>3	[OF, ON]
3>4	[OF, ON]

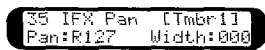
With a setting of OF (OFF), each effect will be used in parallel (individually).

With a setting of ON, each effect will be connected in series.

For details on insertion effect connections, refer to "Program-Drums OSC mode" on p.5 of the separate Effect Guide.

Page35: IFX Pan (Pan/Width)

Adjusts the Pan and Width (left/right spread) of the sound that has passed through the insertion effect.



Pan of insertion effect
Width of insertion effect

Pan [OFF, L000...C064...R127]

Sets the pan of the sound that has passed through the insertion effect.

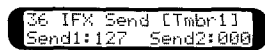
Width [0...127]

Sets the left/right spread of the sound that has passed through the insertion effect.

The left/right spread will be greater as this value is increased.

Page36: IFX Send (Send1, 2)

Adjusts the send levels to master effects 1 and 2.

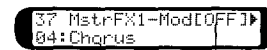


Send1, 2 [0...127]

Page37, 38: MstrFX1-Mod/ MstrFX2-Rev (Effect1 /Effect2 Setting)

In Page37 you can select master effect 1 (modulation) and set its parameters. In Page38 you can select master effect 2 (reverb) and set its parameters.

The following illustration shows the LCD screen for "Page37: MstrFX1-Mod." MstrFX2-Rev is displayed in Page38.



Effect Select
Effect On/Off

Effect On/Off [OFF, ON]

Turns the master effect on/off

MIDI Separately from this setting, Master Effect 1 can be turned OFF by an Effect 4 Control message (CC#94), and Master Effect 2 can be turned OFF by an Effect 5 Control message (CC#95). The effect will be turned OFF by a data value of 0, and will have its original setting with data values of 1-127. The Global MIDI channel is used for these messages.

Effect Select

Selects the effect type.

A modulation-type effect can be selected for master effect 1, and a reverb/delay-type effect for master effect 2.

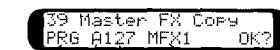
Settings for the effect you select here can be made in the screen located at the right (use the cursor [▶] key to access).

For details on each effect, refer to the separate Effect Guide.

Page39: Master FX Copy (Copy Master Effect)

This operation copies master effect settings from another program, combination or multi to the master effect of the currently-selected combination.

For example if you wish to copy master effect 1 used by program A127, make the following settings.



Source
Source Bank
Source Effect
Source No.

Source [PRG, CMB, MLT]

Specifies whether the settings will be copied from a program (PRG), a combination (CMB) or a multi (MLT).

Source Bank [A...D]

If you are copying from a program or combination, this parameter selects the bank.

Source No. [000...127]

If you are copying from a program, this parameter specifies the program number. If you are copying from a combination, this parameter selects the combination number.

Source Effect [MFX1, MFX2, ALL]

Selects the copy source master effect.

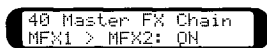
If you select **ALL**, both master effects 1 and 2 will be copied.

To execute the copy operation, press the cursor [▶] key to make "OK" blink, and press the [+1/YES] key.

Page40: Master FX Chain

Specifies how the master effects will be connected.

For example if you wish to connect master effects 1 and 2 in series, make settings as shown below.



Connection between master effects 1 and 2

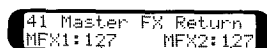
MFX1>MFX2 [OFF, ON]

When this is **OFF**, master effect 1 and master effect 2 will be used in parallel.

When this is **ON**, master effect 1 and master effect 2 will be connected in series. (The output of master effect 1 will be sent to master effect 2.)

Page41: Master FX Return

Adjusts the level of the signals that are sent from the master effects to the 1/L/MONO and 2/R output jacks.



Master effect 1 return
Master effect 2 return

MFX1 [0...127]

Adjusts the level of the signal that is sent from master effect 1 to the 1/L/MONO and 2/R output jacks.

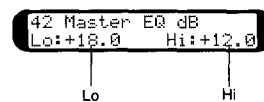
MFX2 [0...127]

Adjusts the level of the signal that is sent from master effect 2 to the 1/L/MONO and 2/R output jacks.

The signal that is routed through Pan L and R is combined with the signals from master effect 1 and master effect 2 (adjusted by these Master FX Return levels) and output from the 1/L/MONO and 2/R output jacks.

Page42: Master EQ dB

Adjusts the tone of the signal that is output from 1/L/MONO and 2/R.



Lo Hi

Lo (Low Gain) [-18.0...+18.0]

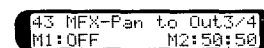
Adjusts the level of the low frequency range. The setting is in [dB] units.

Hi (High Gain) [-18.0...+18.0]

Adjusts the level of the high frequency range. The setting is in [dB] units.

Page43: MFX Pan to Out3/4

Adjusts the panning to output jacks 3 and 4.



Pan of master effect 1
Pan of master effect 2

M1 [OFF, L, 99:01...01:99, R]

Adjusts the pan from master effect 1 to output jacks 3 and 4.

M2 [OFF, L, 99:01...01:99, R]

Adjusts the pan from master effect 2 to output jacks 3 and 4.

With a setting of **OFF**, no sound will be sent to output jacks 3 and 4.

With a setting of **L**, the sound will be sent only to output jack 3.

With a setting of **R**, the sound will be sent only to output jack 4.

Page44: Scale

Specifies the scale which the combination will use.



Scale type Scale key Random setting

Type (Scale Type) [Equal Temp...All Range User]

Selects the type of scale.

Equal Temperament is the most widely used scale, and consists of equally-spaced semitone steps.

Pure Major will cause the major chords of the selected key to be perfectly in tune.

Pure Minor will cause the minor chords of the selected key to be perfectly in tune.

Arabic is a scale which includes a quarter-tone scale of Arabic music.

Pythagorean is a scale based on ancient Greek musical theory, and is suitable for playing melodies.

Werckmeister (Werkmeister III) is an equal-tempered scale used in the latter baroque period.

Kirnberger (Kirnberger III) is a scale created in the 18th century, and is used mainly for tuning harpsichords.

Slendro is an Indonesian gamelan scale in which the octave consists of 5 notes. If the Scale Key is set to C, use the C, D, F, G, and A keys. (Other keys will produce the same pitches as equal temperament.)

Pelog is an Indonesian gamelan scale in which the octave consists of 7 notes. If the Scale Key is set to C, use only the white keys. (Other keys will produce the same pitches as equal temperament.)

Octave User Scale is the scale that you create in Octave Scale of Global mode "Page11. All Note Scale/Octave Scale."

Stretch is a tuning used for acoustic pianos.

All Range User is the scale that you create in All Note Scale of Global mode "Page11: All Note Scale/Octave Scale."

Key (Scale Key) [C...B]

Selects the note that will be the tonic of the specified scale.

Random [0...7]

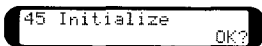
As this value is increased, an increasing amount of randomness will be added to the pitch of each note.

This is useful when you wish to simulate instruments that have a natural instability in pitch, such as tape-mechanism organs and acoustic instruments.

Normally you will set this to 0.

Page45: Initialize

This operation initializes the parameters of the timbre.

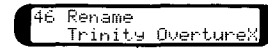


To initialize the data, press the [+1/YES] key. The lower line of the LCD will ask "Are you sure." Press the [+1/YES] key once again. The data will be initialized, and the display will indicate "Completed."

For details on the initialized parameters and their values, refer to "Appendix 3. Initialized data" on p.77 of this manual.

Page46: Rename (Combination Name)

Specifies the name of (or rename) the combination.



Combination name

Use the cursor [◀][▶] keys to select the character, and use the [+1/YES] [-1/NO] keys to change the character.

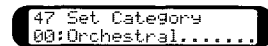
The following characters are available.

	!	"	#	\$	%	&	'	()	*	+	,	-	.	/
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
Q	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[]	^	_	
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
p	q	r	s	t	u	v	w	x	y	z	{		}	~	←

⚠ If you wish to save the combination name that you have modified, you must perform the Write operation (p.11 in this manual). If you select a different combination or turn the power off before you Write, the modified combination name will be lost.

Page47: Set Category

Assigns the category to which the combination will belong.



Category name

Set Category [Pad&Lead...Drums/Special FX]

When selecting combinations in Combination Play mode, you can search for combinations according to a category which has been assigned to each combination.

With the factory settings, instrumental names have been assigned to each category, but you can modify the category names as desired in Global mode "Page15: Comb Category" (p.65 in this manual).

5. Multi mode

In this mode you can use a sequencer/computer connected to the TR-Rack's MIDI IN or TO HOST connector to play (playback) songs.

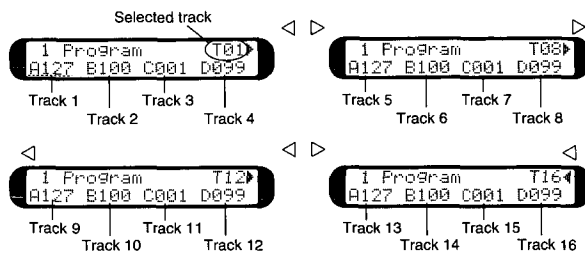
In **Pages 1–18** you can make settings for each track.

In **Pages 19–34** you can make settings that are common to the entire Multi (insertion effects, master effects).

In **Pages 35–37** you can make basic settings for the entire Multi.

The LCD screens in **Pages 1–18** will show the settings for four tracks at a time. Use the cursor [◀][▶] keys to select the timbre for which you wish to make settings.

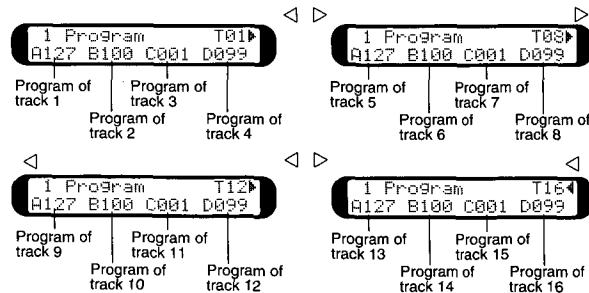
At this time, the track that is selected by the cursor will be indicated in the upper right of the LCD.



If you wish to save the changes that you have made, you must Write them. If you turn the power off without writing the settings into memory, they will return to the unmodified state.

Page 1: Program (Bank/Program)

Selects the program that will be assigned to each track 1–16.

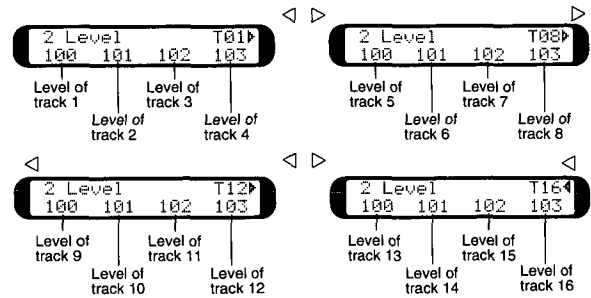


Bank No.

[A...D]
[000...127]

Page 2: Level

Specifies the volume level of each track 1–16.



Level

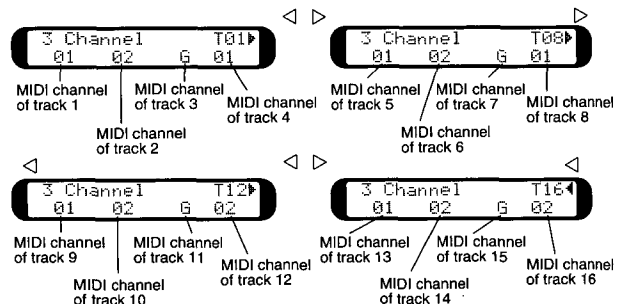
[0...127]

MIDI When a song is played back by an external sequencer, volume adjustments are normally made by Volume (CC#7) and Expression (CC#11) messages in conjunction.

Volume (CC#7) is used to adjust the volume balance between tracks at the beginning of the song. Expression (CC#11) is used to modify the volume during the song. Volume (CC#7) should not be used during the song.

Page 3: Channel (MIDI Channel)

MIDI Specifies the MIDI receive channel for each track 1–16.



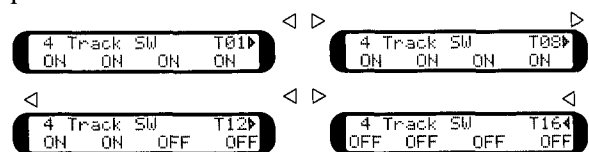
Channel

[01...16, G]

MIDI If this is set to G, the same channel as the Global MIDI channel specified in Global mode "Page 3: MIDI channel" (p.61 in this manual) will automatically be selected.

Page 4: Track SW

Specifies whether or not each track 1–16 will sound.

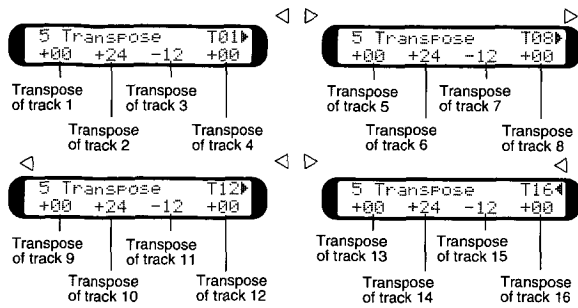


With a setting of OFF, that track will not sound.

With a setting of ON, that track will sound.

Page5: Transpose

Adjusts the pitch of each track 1–16 in semitone steps.



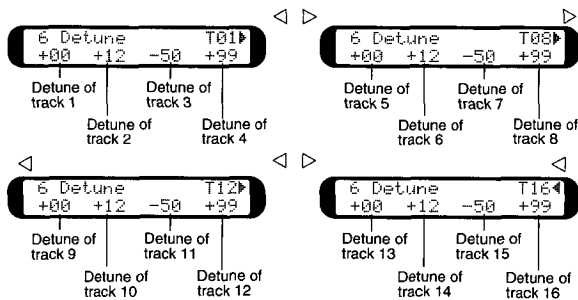
Transpose [-24...+24]

Positive (+) settings will raise the pitch (+12 will raise the pitch one octave).

Negative (-) settings will lower the pitch (-12 will lower the pitch one octave).

Page6: Detune

Makes fine adjustments to the pitch of each track 1–16 in 1-cent steps.



Detune [-99...+99]

Positive (+) settings will raise the pitch.

Negative (-) settings will lower the pitch.

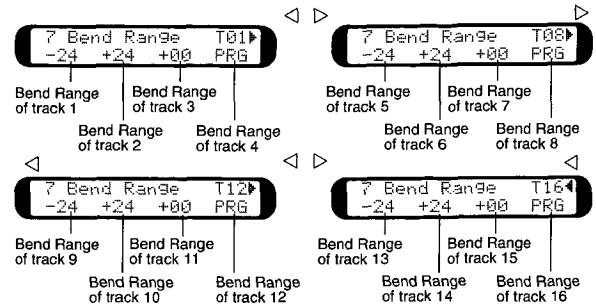
The pitch will be normal with a setting of 0.

As the value is increased, the pitch will move further away from the normal pitch.

MIDI MIDI RPN “Fine Tune” messages can be received to modify this setting.

Page7: Bend Range

For each track 1–16, this parameter specifies the range of the pitch change that can be controlled by pitch bending.



Bend Range [PRG, -24...+24]

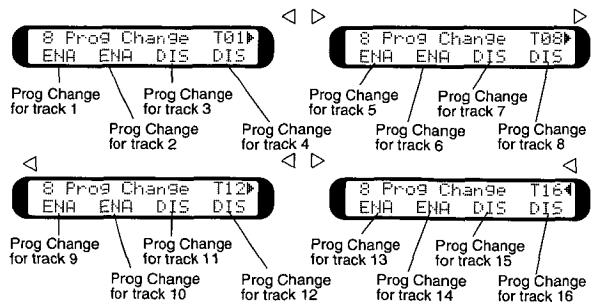
With a setting of **PRG**, the bend range specified by the program will be used.

With a setting of **-24+24**, the specified range will be used regardless of the program settings.

Page8: Prog Change (Enable Program Change)

In pages 8–11 you can make settings for MIDI data reception filters.

These filters let you specify whether or not each track 1–16 will receive various types of MIDI message. Since filter settings can be made independently for each track, you can (for example) cause pitch bend to be applied to one track and not another, even if they are both receiving the same MIDI channel.



Prog Change [DIS, ENA]

MIDI Specifies whether or not each track 1–16 will receive MIDI program change messages.

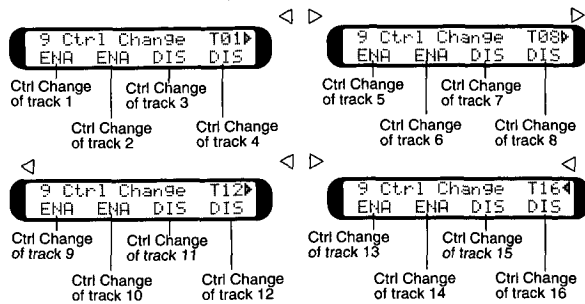
With a setting of **ENA**, MIDI program change message will be received to select programs.

With a setting of **DIS**, MIDI program change messages will not be received.

To enable/disable reception of MIDI program change messages for the entire **TR-Rack**, make settings in Global mode “Page7: Prog Change.”

Page9: Ctrl Change (Enable Control Change)

MIDI Specifies whether or not each track 1–16 will receive MIDI control change messages.



Ctrl Change [DIS, ENA]

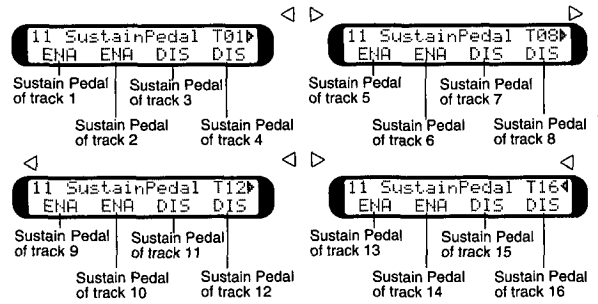
With a setting of ENA, MIDI control change messages will be received to control vibrato or volume, etc.

With a setting of DIS, control change messages will not be received.

To enable/disable reception of MIDI control change messages for the entire TR-Rack, set the Ctrl parameter of Global mode "Page8: MIDI Filter."

Page11: Sustain Pedal (Enable Sustain Pedal)

MIDI Specifies whether or not each track 1–16 will receive MIDI CC#64 Hold (Damper Pedal) messages.



Sustain Pedal [DIS, ENA]

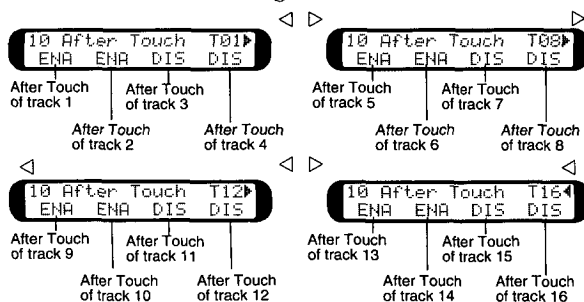
With a setting of ENA, MIDI hold messages will be received.

With a setting of DIS, MIDI hold messages will not be received.

Since MIDI Hold is a type of control change message, reception can be enabled/disabled for the entire TR-Rack by the Ctrl parameter of Global mode "Page8: MIDI Filter."

Page10: After Touch (Enable Aftertouch)

MIDI Specifies whether or not each track 1–16 will receive MIDI aftertouch messages.



After Touch [DIS, ENA]

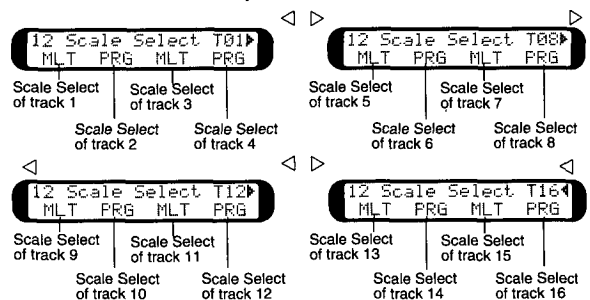
With a setting of ENA, MIDI aftertouch messages will be received.

With a setting of DIS, MIDI aftertouch messages will not be received.

To enable/disable reception of MIDI aftertouch messages for the entire TR-Rack, set the A.T parameter of Global mode "Page8: MIDI Filter."

Page12: Scale Select (Use Program's Scale)

Selects the scale used by each track 1–16.



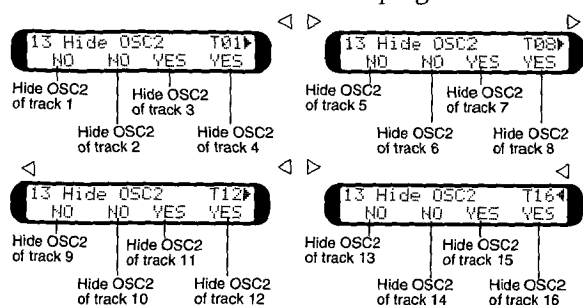
Scale Select [MLT, PRG]

With a setting of PRG, the scale specified by the program will be used.

With a setting of MLT, the scale specified for the multi by "Page35: Scale" will be used.

Page 13: Hide OSC2

For each track 1–16, this specifies whether or not oscillator 2 will be used. However, this setting is valid only for tracks for which a double oscillator program is selected.



Hide OSC2 [NO, YES]

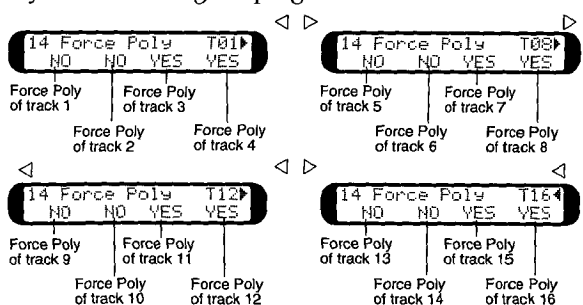
With a setting of YES, OSC2 will not play. (Only OSC1 will sound.)

With a setting of NO, the program will play with its original settings.

Except for special situations, you will normally leave this set to NO.

Page 14: Force Poly

For each track 1–16, specify whether the Key Assign setting will be forced to polyphonic. This setting is valid only for mono-assigned programs.



Force Poly [NO, YES]

With a setting of YES, the program will sound polyphonically.

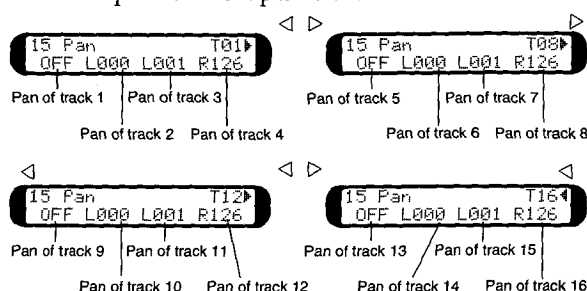
With a setting of NO, the program will sound according to its own Key Assign setting.

Except for special cases, you will normally set this to NO.

Page 15: Pan

Specifies the panning (the output from the rear panel 1/L/MONO and 2/R output jacks) for each track 1–16.

However when an insertion effect is used, this setting will be the pan for the input to the insertion effect.



Pan [OFF, L000...C064...R127, PROG]

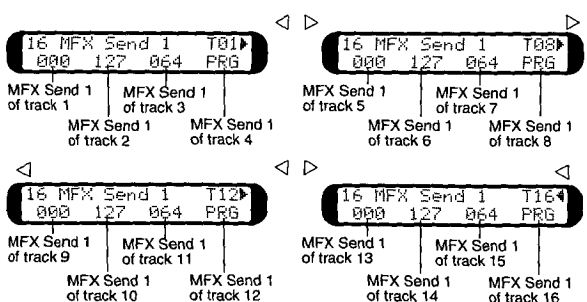
With a setting of PROG, the pan setting specified by the program will be used.

MIDI Panpot messages (CC#10) that are received will change this setting. (However, only when this setting is in the range of L000–R127.)

Page 16: MFX Send 1

Specifies the send level (input level to master effect 1) for each track 1–16.

This will also be the output level to rear panel output jacks 3 and 4.



MFX Send 1 [0...127, PRG]

With a setting of PRG, the send level specified by the program will be used.

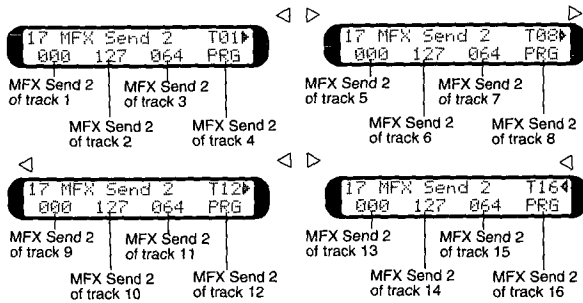
⚠ When the insertion effect is ON, this setting is ignored.

MIDI Effect 3 Level messages (CC#93) that are received will change this setting (however, only when this setting is in the range of 0–127).

Page17: MFX Send 2

Specifies the send level (input level to master effect 2) for each track 1-16.

This will also be the output level to rear panel output jacks 3 and 4.



MFX Send 2 [0...127, PRG]

With a setting of PRG, the send level specified by the program will be used.

When the insertion effect is ON, this setting is ignored.

MIDI Effect 1 Level messages (CC#91) that are received will change this setting (however, only when this setting is in the range of 0-127).

Page18: InsrtFX Size

Specifies the Size and Grouping of the insertion effects.

When making settings for insertion effects in a multi, the total Effect Size must be 8 or less. This means that if you wish to use as many insertion effects as possible, you should set an effect size of 1.

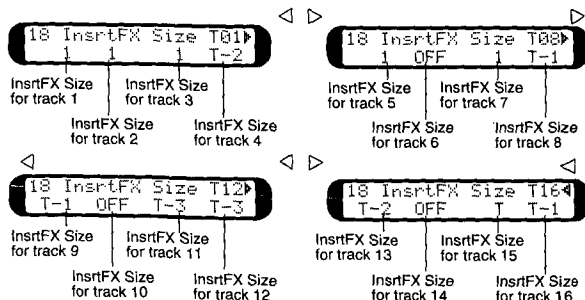
The audio signal from a track can be sent to the insertion effect specified for another track. In other words, the insertion effect of one track can be used by one or more other tracks. This is referred to as the Grouping function.

For this reason, it is recommended that you group tracks which use similar insertion effects, decide which track will be the basis of the group, and set parameters for the insertion effect of that track.

Parameters for the insertion effect of each track are set in "Page19: IFX1" and following.

For details refer to the separate Effect Guide.

The settings that you edit in Pages 19-27 will be for the track that you select in this page (by using the cursor [◀|▶] keys to make the setting blink).



InsrtFX Size [OFF, 1, 2, 4, 8, T01...T16]

Specifies the effect size and grouping destination for the insertion effect used by each track.

With settings of 1, 2, 4, or 8, you can select an insertion effect and make parameter settings in "Page28: IFX1" and following.

However, the total effect size for tracks 1-16 must be 8 or less.

For example if you specify an effect size of 4 for two tracks, it will not be possible to specify the effect size (i.e., to use other insertion effects) for other tracks.

With a setting of T01-T16, the track will be grouped with the effect of the other corresponding track.

For example if you are using a flanger on track 3 and set the effect size of track 5 to T03, track 3 will be the basis of the group, and the audio signals of track 3 and track 5 will be input to the flanger that is specified by the program of track 3.

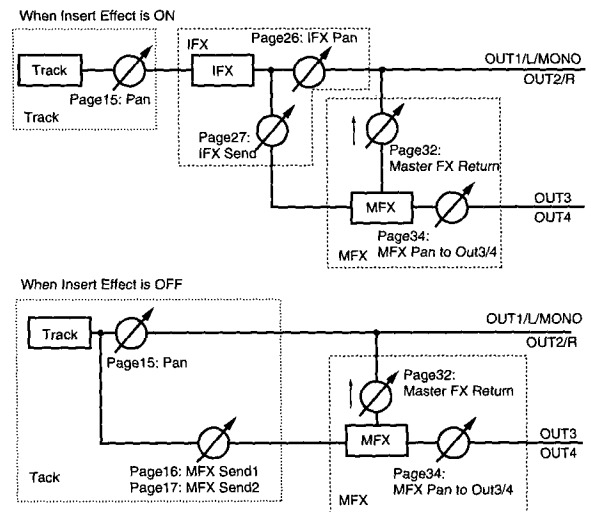
MIDI Control change messages which match the MIDI channel of a track can control the insertion effects of that track.

For details refer to p.10 of the separate Effect Guide.

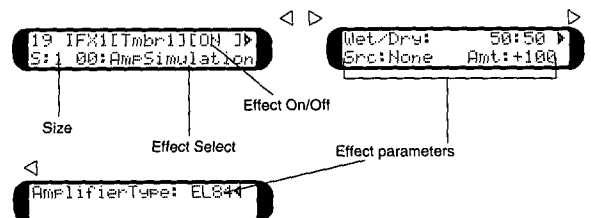
Page19~22: IFX1~IFX4 (Insert Effect Setting)

Selects the insertion effect that will be used by the track, and set its parameters.

The signal flow, pan, and send adjustment locations will differ depending on whether or not an insertion effect is used.



The following diagram shows the LCD screens of "Page19: IFX1 (Insertion Effect 1)." Pages 20-22 are for IFX2-IFX4.



🔊 Insertion Effect 4 (Page22: IFX4 (Insertion Effect 4) can be set only if a track which uses a drum oscillator program is selected.

Your edits will apply to the insertion effect of the track that was selected in "Page18: InsertFx Size," and this will be shown in the upper line of the LCD. To move to another timbre, use Page18.

S (Size) [0, 1, 2, 4, 8]

Specifies the size of the insertion effect.

The types of insertion effect that can be selected will depend on the size.

A setting of 0 is No Effect, and an insertion effect cannot be selected.

A setting of 1-4 allows you to select an insertion effect in "Effect Select."

However the total size of IFX1, IFX2,... must be less than the value that was set in "Page18: InsrtFX Size."

Effect On/Off [OFF, ON]

Switches the effect on/off.

With a setting of OFF, the effect will be bypassed. If a size 1 effect is selected, the dry sound will also be monaural. If you wish to enable the pan settings ("Page15: Pan") of tracks that are set to stereo, set the Size to other than 1.

MIDI In addition to this setting, Effect 2 Control messages (CC#92) can be used to turn off the insertion effects of all tracks simultaneously. A value of 0 will turn the effects off, and values of 1-127 will restore the original setting. The Global MIDI channel is used for this message.

Effect Select

Selects the effect type. However, the effects which can be selected will depend on the Size setting.

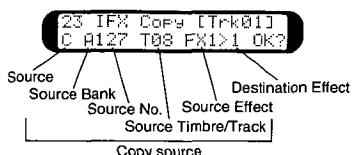
The parameters for the effect selected here can be set in the display screen located at the right (press the cursor [▶] key to access this).

For details of each effect, refer to the separate **Effect Guide**.

Page23: IFX Copy (Copy Insert Effect)

This operation copies settings from an insertion effect used by another program, combination or multi to the insertion effect of the currently selected track.

For example if you wish to copy the settings of the insertion effect 1 used by timbre 8 of combination A127 to the insertion effect 1 of track 1, make the following settings.



Source [P, C, M]

Specifies whether the settings will be copied from a program (P), a combination (C) or a multi (M).

Source Bank [A...D]

If you are copying from a program or combination, this parameter selects the bank.

Source No. [000...127]

If you are copying from a program, this parameter specifies the program number. If you are copying from a combination, this parameter selects the combination number.

Source Timbre/Track [T01...08, T01...16]

If you are copying from a combination, this parameter specifies the timbre. If you are copying from a multi, this parameter specifies the track.

Source Effect [FX1...4, ALL]

Selects the copy source insertion effect.

If you select ALL, all insertion effects being used will be copied.

If the copy source and copy destination both use a drum oscillator program, you will be able to select FX4 (IFX4).

Destination Effect [1...4]

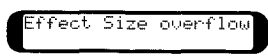
Selects the copy destination insertion effect.

If the copy destination track uses a drum oscillator program, you will be able to select 4 (IFX4).

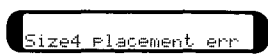
To execute the copy operation, press the cursor [▶] key to make "OK" blink, and press the [+1/YES] key.

🔊 Copying is not possible in the following situations.

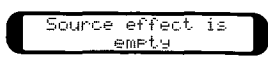
1. When the copy destination Effect Size is smaller than the copy source Effect Size. The following message will appear in the LCD.



2. If three insertion effects are used in series, it is not possible to copy a size 4 effect to IFX2. Also, for a track which uses a drum oscillator program, when four insertion effects are used in series, it is impossible to copy a size 4 effect to IFX2 or to IFX3. The following message will appear in the LCD.



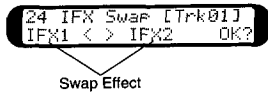
3. When the copy source does not use an insertion effect, or when the effect size is 0. The following message will appear in the LCD.



Page24: IFX Swap (Swap Insert Effect)

If the currently selected track uses two or more insertion effects, this operation exchanges (Swaps) the insertion effect settings within that track.

For example if you wish to Swap the settings of insertion effect 1 and insertion effect 2 within track 1, make the following settings.



Swap Effect [IFX1...4]

Selects the insertion effects that you wish to Swap.

If the currently selected track uses a drum oscillator program, you will be able to select IFX4.

To execute the Swap operation, press the cursor [▶] key to make "OK" light, and press the [+1/YES] key.

- ⚠ If three insertion effects are connected in series, it is not possible to Swap a size 4 effect to IFX2. Also, for a track which uses a drum oscillator program, if four insertion effects are used in series, it is not possible to Swap a size 4 effect to IFX2 or IFX3.

Page25: IFX Chain

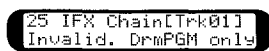
Specifies how the insertion effects will be connected.

However this can be set only if a drum oscillator program is used. In other cases, the lower line of the LCD will indicate "Invalid. DrmPGM only" as shown in the lower line of the LCD shown at the lower right.

For example if, out of the four insertion effects, you want insertion effects 2 and 3 to be connected in series, make settings as shown below (in the screen at left).



Connection between insertion effects



This display will appear if the track does not use a drum oscillator program

- 1>2 [OF, ON]
- 2>3 [OF, ON]
- 3>4 [OF, ON]

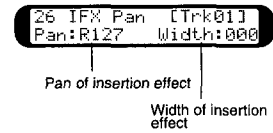
With a setting of OF (OFF), each effect will be used in parallel (individually).

With a setting of ON, each effect will be connected in series.

For details on insertion effect connections, refer to "Program-Drums OSC mode" on p.5 of the separate Effect Guide.

Page26: IFX Pan (Pan/Width)

Adjusts the Pan and Width (left/right spread) of the sound that has passed through the insertion effect.



Pan (Panpot) [OFF, L000...C064...R127]

Sets the pan of the sound that has passed through the insertion effect.

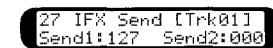
Width [0...127]

Sets the left/right spread of the sound that has passed through the insertion effect.

The left/right spread will be greater as this value is increased.

Page27: IFX Send (Send1, Send2)

Adjusts the send levels to master effects 1 and 2.

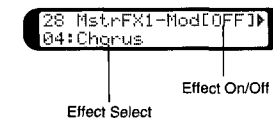


Send1, 2 [0...127]

Page28, 29: MstrFX1-Mod/ MstrFX2-Rev (Effect1/Effect2 Setting)

In Page28 you can select master effect 1 (modulation) and set its parameters. In Page29 you can select master effect 2 (reverb) and set its parameters.

The following illustration shows the LCD screen for "Page28: MstrFX1-Mod." MstrFX2-Rev is displayed in Page29.



Effect On/Off [OFF, ON]

Turns the master effect on/off

- MIDI Separately from this setting, Master Effect 1 can be turned OFF by an Effect 4 Control message (CC#94), and Master Effect 2 can be turned OFF by an Effect 5 Control message (CC#95). The effect will be turned OFF by a data value of 0, and will have its original setting with data values of 1-127. The Global MIDI channel is used for these messages.

Effect Select

Selects the effect type.

A modulation-type effect can be selected for master effect 1, and a reverb/delay-type effect for master effect 2.

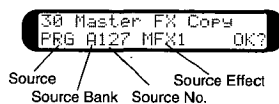
Settings for the effect you select here can be made in the screen located at the right (use the cursor [▶] key to access).

For details on each effect, refer to the separate Effect Guide.

Page30: Master FX Copy (Copy Master Effect)

This operation copies master effect settings from another program or combination to the master effect of the currently-selected multi.

For example if you wish to copy master effect 1 used by program A127, make the following settings.



Source [PRG, CMB, MLT]

Specifies whether the settings will be copied from a program (PRG), a combination (CMB) or a multi (MLT).

Source Bank [A...D]

If you are copying from a program or combination, this parameter selects the bank.

Source No. [000...127]

If you are copying from a program, this parameter specifies the program number. If you are copying from a combination, this parameter selects the combination number.

Source Effect [MFX1, MFX2, ALL]

Selects the copy source master effect.

If you select ALL, both master effects 1 and 2 will be copied.

To execute the copy operation, press the cursor [▶] key to make "OK" blink, and press the [+1/YES] key.

Page31: Master FX Chain

Specifies how the master effects will be connected.

For example if you wish to connect master effects 1 and 2 in series, make settings as shown below.



Connection between master effects 1 and 2

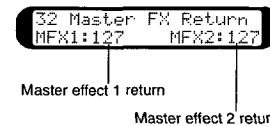
MFX1>MFX2 [OFF, ON]

When this is OFF, master effect 1 and master effect 2 will be used in parallel.

When this is ON, master effect 1 and master effect 2 will be connected in series. (The output of master effect 1 will be sent to master effect 2.)

Page32: Master FX Return

Adjusts the level of the signals that are sent from the master effects to the 1/L/MONO and 2/R output jacks.



MFX1 [0...127]

Adjusts the level of the signal that is sent from master effect 1 to the 1/L/MONO and 2/R output jacks.

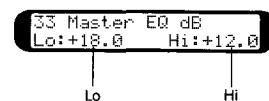
MFX2 [0...127]

Adjusts the level of the signal that is sent from master effect 2 to the 1/L/MONO and 2/R output jacks.

The signal that is routed through Pan L and R is combined with the signals from master effect 1 and master effect 2 (adjusted by these Master FX Return levels) and output from the 1/L/MONO and 2/R output jacks.

Page33: Master EQ dB

Adjusts the tone of the signal that is output from 1/L/MONO and 2/R.



Lo (Low Gain) [-18.0...+18.0]

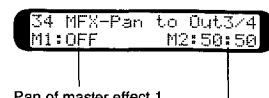
Adjusts the level of the low frequency range. The setting is in [dB] units.

Hi (High Gain) [-18.0...+18.0]

Adjusts the level of the high frequency range. The setting is in [dB] units.

Page34: MFX Pan to Out3/4 (Pan 1/2)

Adjusts the panning to output jacks 3 and 4.



M1 [OFF, L, 99:01...01:99, R]

Adjusts the pan from master effect 1 to output jacks 3 and 4.

M2 [OFF, L, 99:01...01:99, R]

Adjusts the pan from master effect 2 to output jacks 3 and 4.

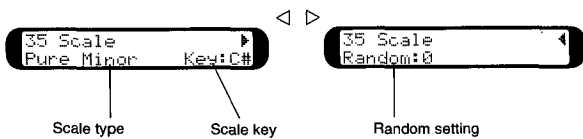
With a setting of OFF, no sound will be sent to output jacks 3 and 4.

With a setting of L, the sound will be sent only to output jack 3.

With a setting of R, the sound will be sent only to output jack 4.

Page35: Scale

Specifies the scale which the multi will use.



Type (Scale Type) [Equal Temp...All Range User]

Selects the type of scale.

For details of each scale type, refer to Combination Edit mode "Page44: Scale" (p.50 in this manual).

Key (Scale Key) [C...B]

Selects the note that will be the tonic of the specified scale.

Random [0...7]

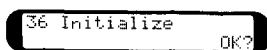
As this value is increased, an increasing amount of randomness will be added to the pitch of each note.

This is useful when you wish to simulate instruments that have a natural instability in pitch, such as tape-mechanism organs and acoustic instruments.

Normally you will set this to 0.

Page36: Initialize

This operation initializes track parameters.



To initialize the data, press the [+1/YES] key. The lower line of the LCD will ask "Are you sure." Press the [+1/YES] key once again. The data will be initialized, and the display will indicate "Completed."

For details on the initialized parameters and their values, refer to "Appendix 3. Initialized data" on p.77 of this manual.

Page37: Copy from Comb

This operation copies the parameters of the specified combination as if they were data for a multi.

When this copy operation is executed, the data that had been set for the multi will be erased, and replaced by the settings of the specified combination.

For example if you wish to copy the settings of combination A000 to tracks 1-8 of the multi, make the following settings.



from [A000...D127]

Selects the copy source number.

to [T01-08, T09-16]

Selects the copy destination tracks.

If you select T01-08, the combination settings will be copied to tracks 1-8.

If you select T09-16, the combination settings will be copied to tracks 9-16.

with FX [NO, YES]

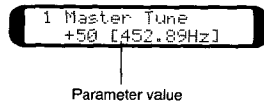
Specifies whether or not the effect settings (insertion effects, master effects) of the combination specified in "from" will also be copied.

To execute the copy operation, press the cursor [▶] key to make "OK" blink, and then press the [+1/YES] key.

6. Global mode

In this mode you can make settings which affect the entire **TR-Rack**, such as master tuning, MIDI settings, and memory protect.

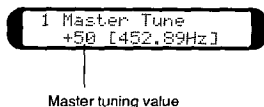
In each page, the upper line of the LCD will show the parameter name, and the lower line will show the value or setting of the parameter.



If you wish to save the settings you have modified, you must Write them into memory. If you turn the power off without Writing, the settings will revert to their unmodified state.

Page 1: Master Tune

Adjusts the standard tuning of the entire **TR-Rack** in 1-cent steps (a semitone = 100 cents) over a range of ± 50 cents.



Master Tune [-50...+50]

Positive (+) settings will raise the pitch.

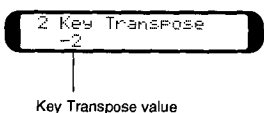
Negative (-) settings will lower the pitch.

With the setting of 0, the standard pitch (the frequency of the A4 note) will be 440 Hz.

MIDI The tuning of the **TR-Rack** can be adjusted by MIDI RPN Fine Tune messages received on the Global MIDI channel. (The **SG-ProX** can transmit this message.) However in Multi mode, this message will be received on the MIDI channel that is specified for each track, and will adjust the Detune value of the corresponding track.

Page 2: Key Transpose

Adjusts the pitch in semitone steps, over a range of ± 1 octave.



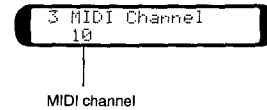
Key Transpose [-12...+12]

Positive (+) settings will raise the pitch (+12 raises the pitch one octave).

Negative (-) settings will lower the pitch (-12 lowers the pitch one octave).

Page 3: MIDI Channel

Sets the Global MIDI channel.



MIDI Channel [1...16]

MIDI The Global MIDI channel is used in Program Play mode to receive musical data, in Combination Play mode to select combinations via MIDI, in all modes to control the master effects via MIDI, and as the channel on which system exclusive messages are received and transmitted.

About MIDI reception

In Program Play mode, the **TR-Rack** will produce sound in response to MIDI messages received on the Global MIDI channel. However in Combination Play mode or Multi mode, MIDI messages received on the MIDI channel specified for each timbre or track will play the **TR-Rack**.

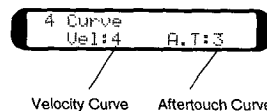
In Combination Play mode, program change messages received on the Global MIDI channel will select combinations.

If you wish to control the master effects via MIDI (to switch effects on/off, or control dynamic modulation), transmit MIDI messages on the Global MIDI channel.

If you wish to control the insertion effects of a combination or multi, transmit MIDI messages on the MIDI channel of the appropriate timbre or track.

Page 4: Curve

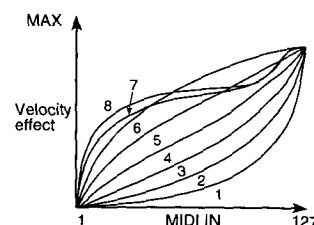
Specifies how the **TR-Rack** will respond to aftertouch or velocity data.



Vel (Velocity) [1...8]

The way in which the volume and/or tone etc. are affected by variations in velocity will be determined by the curve that you select here.

The velocity effect relative to the velocity of the received note data will change as shown in the following graph. When you are using an external keyboard or sequencer to play the **TR-Rack** and the overall sound is too bright or too dark, you can select an appropriate velocity curve here.



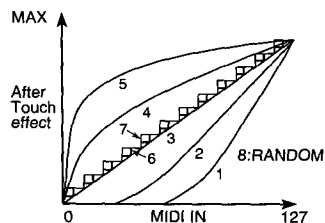
Since curves 7 and 8 produce a fairly even effect for notes played with medium velocity, they are appropriate for situations in which you do not wish to use velocity, or when you want the loudness of the notes to be more consistent; however, control will be more difficult for softly-played notes. In this way, each curve has its own characteristics, so select a curve that will be suitable for your playing strength, style, and the effect that you desire.

- 1: Significant effect will not occur unless you play strongly
- 2: }
- 3: }
- 4: Changes in velocity will produce corresponding change in the effect (Normal curve)
- 5: }
- 6: Significant effect will occur even if you do not play very strongly.
- 7: Notes played with medium strength will be consistent.
- 8: Notes played with medium strength will be even more consistent than 7.

A.T (Aftertouch) [1...8]

The way in which the volume and/or tone etc. are affected by variations in aftertouch will be determined by the curve that you select here.

The aftertouch effect relative to the values of the received aftertouch messages will change as shown in the following graph.



Curves 6 and 7 will produce change over 24 and 12 steps respectively.

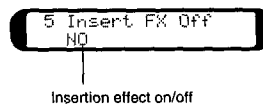
Curves 1–5 are used when you need fine control.

Curve 8 produces random change, and is used when you wish to use aftertouch to apply random modulation.

- 1: Significant effect will not be obtained unless you apply strong pressure
- 2: }
- 3: Changes in aftertouch will control the effect (Normal curve)
- 4: }
- 5: An effect will be obtained even with moderate pressure
- 6: Changes in aftertouch will control the effect, but change will be stepped (24 steps)
- 7: Changes in aftertouch will control the effect, but change will be stepped (12 steps)
- 8: Random

Page5: Insert FX Off

Specifies whether or not the insertion effects used in each mode will be turned off.



Insert FX Off [NO, YES]

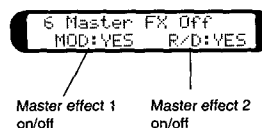
With a setting of YES, all insertion effects will be turned off.

With a setting of NO, all insertion effects will use the on/off settings of Program Edit mode "Page16–19: IFX1–IFX4," Combination Edit mode "Page28–31: IFX1–IFX4," and Multi mode "Page19–22: IFX1–IFX4."

When the TR-Rack's power is turned on, this parameter will be set to NO.

Page6: Master FX Off

Specifies whether or not the master effects used in each mode will be turned off.



Mod [NO, YES]

With a setting of YES, [MFX1] (modulation type master effect) will be turned off.

With a setting of NO, [MFX1] will use the on/off setting of Program Edit mode "Page25: MstrFX1-Mod," Combination Edit mode "Page37: MstrFX1-Mod," and Multi mode "Page28: MstrFX1-Mod."

R/D [NO, YES]

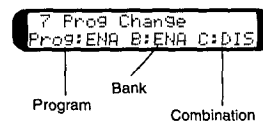
With a setting of YES, [MFX2] (reverb/delay type master effect) will be turned off.

With a setting of NO, [MFX2] will use the on/off setting of Program Edit mode "Page26: MstrFX2-Rev," Combination Edit mode "Page38: MstrFX2-Rev," and Multi mode "Page29: MstrFX2-Rev."

When the TR-Rack's power is turned on, this parameter will be set to NO.

Page7: Prog Change (Filter)

Specifies whether or not Program Change and Bank Select messages will be received.



Prog (Enable Program Change) [DIS, ENA]

MIDI Specifies whether or not MIDI program change messages will be received.

With a setting of **ENA**, program changes will be received. However, the settings of **B (Enable Bank Change)** and **C (Enable Combination Change)** will apply.

In Program Play mode, program changes received on the Global MIDI channel will select programs.

In Combination Play mode, program changes received on the Global MIDI channel will select combinations, but the "Enable Combination Change" setting can be made so that the combination will not change.

When a program change is received on a channel which has been specified as the channel for a timbre (set in Combination Edit mode "Page3: Channel"), the program of that timbre will change.

In Multi mode, program changes received on a channel which has been specified as the channel for a track (set in Multi mode "Page3: Channel") will select programs for that track.

With a setting of **DIS**, program change messages will not be received.

B (Enable Bank Change) [DIS, ENA]

MIDI Specifies whether or not Bank Select messages will be received.

This setting is valid when Prog (Enable Program Change) is set to ENA.

With a setting of **ENA**, both Bank Select and Program Change messages will be received.

With a setting of **DIS**, only Program Change messages will be received.

C (Enable Combination Change) [DIS, ENA]

MIDI This setting applies to Combination Play mode.

This setting is valid when Prog (Enable Program Change) is set to ENA.

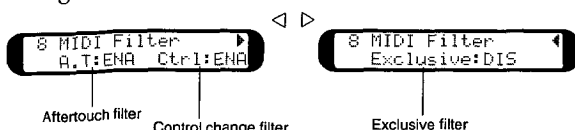
With a setting of **ENA**, program changes received on the Global MIDI channel will select combinations.

With a setting of **DIS**, the combination will not change even if a program change is received on the Global MIDI channel.

If a program change is received on the MIDI channel specified for a timbre, the program of that timbre will change. However, this setting will apply only that channel matches the Global MIDI channel.

Page8: MIDI Filter

Specifies whether or not aftertouch and control change messages etc. will be received.

**A.T (Enable Aftertouch) [DIS, ENA]**

MIDI Specifies whether or not Aftertouch messages will be received.

With a setting of **ENA**, aftertouch messages will be received.

With a setting of **DIS**, aftertouch messages will not be received.

Ctrl (Enable Control Change) [DIS, ENA]

MIDI Specifies whether or not Control Change messages (pitch bend, damper pedal, volume, joystick etc.) will be received.

With a setting of **ENA**, control change messages will be received.

With a setting of **DIS**, control change messages will not be received.

Exclusive (Enable Exclusive) [DIS, ENA]

MIDI Specifies whether or not System Exclusive messages (sound data for programs or combinations etc.) will be received.

With a setting of **ENA**, exclusive messages will be received.

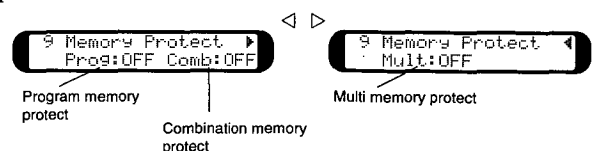
If you have connected the **TR-Rack** to a computer and wish to edit the **TR-Rack** from the computer, set this to **ENA**.

With a setting of **DIS**, exclusive messages will not be received. Normally you will leave this setting at **DIS**.

However when "Page11: Data Dump" is displayed, exclusive messages can be transmitted and received regardless of this setting.

Page9: Memory Protect

Specifies whether or not each type of memory will be protected.

**Prog (Protect Program Memory) [OFF, ON]**

Specify whether or not internal program memory will be protected.

If this is **ON**, internal program memory will be protected, and the following Write operations will not be possible.

- Program write
- Loading preset program data
- Reception of program data via MIDI data dump

If this is **OFF**, data can be written into internal program memory.

Comb (Protect Combination Memory) [OFF, ON]

Specifies whether or not internal combination memory will be protected.

If this is **ON**, internal combination memory will be protected, and the following Write operations will not be possible.

- Combination write
- Loading preset combination data
- Reception of combination data via MIDI data dump

If this is **OFF**, data can be written into internal combination memory.

Multi (Protect Multi Memory) [OFF, ON]

Specifies whether or not internal multi memory will be protected.

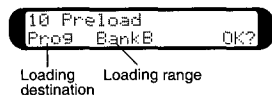
If this is **ON**, internal multi memory will be protected, and the following Write operations will not be possible.

- Multi write
- Reception of multi data via MIDI data dump

If this is **OFF**, data can be written into internal multi memory.

Page 10: Preload

This operation loads the factory settings into the specified memory.



Loading destination [Prog, Comb, All]

Selects the data which will be loaded.

Prog will load the factory settings into program memory.

Comb will load the factory settings into combination memory.

All will load data for all programs, all combinations, all drumkits, and global data.

Loading range [All, BankA...D, A000...D127]

Specifies the range of data which will be loaded.

This can be selected only if the Loading Destination is Prog or Comb.

All will load all programs or all combinations.

BankA-D will load all data for the selected program (or combination) bank.

A000-D127 will load the data for the specified program (or combination) number.

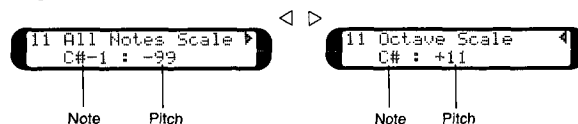
To execute the Load operation, press the cursor [▶] key to make "OK" blink, and then press the [+1/YES] key.

Before you use this operation to load the factory settings into memory, you must turn off the memory protect setting in Global mode "Page9: Memory Protect."

Page 11: All Note Scale/Octave Scale

Here you can create two types of user scale.

The scales that you create here can be selected in Combination Edit mode "Page44: Scale" or Multi mode "Page35: Scale."



All Note Scale

This lets you create your own original scale by specifying the pitch of each of the 128 notes (from C-1 to G9).

Note [C-1...G9]

Selects the note whose pitch you wish to adjust.

Pitch [-99...+99]

Adjusts the pitch in one-cent steps relative to equal temperament.

A setting of **-99** will lower the pitch approximately one semitone below standard pitch.

A setting of **+99** will raise the pitch approximately one semitone above standard pitch.

Octave Scale

This lets you create your own original scale by specifying the pitch of each note in the octave (C-B).

Note [C...B]

Selects the note whose pitch you wish to adjust.

Pitch [-99...+99]

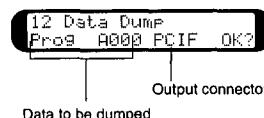
Adjusts the pitch in one-cent steps relative to equal temperament.

A setting of **-99** will lower the pitch approximately one semitone below standard pitch.

A setting of **+99** will raise the pitch approximately one semitone above standard pitch.

Page 12: Data Dump

This operation transmits the TR-Rack's exclusive data to another Trinity series instrument, to a MIDI data filer, or to a computer.



In the LCD screen shown, settings have been made to transmit data for program A000 from the PC I/F connector.

For details on the dump procedure, refer to p.21 of the Basic section.

When Page12 is selected, data dumps can be transmitted and received regardless of the Exclusive setting of "Page8: MIDI Filter."

If you wish to transmit a MIDI data dump to another **Trinity series** instrument to replace its programs or combinations, set the Global MIDI channel of both devices to match.

If you are transmitting a MIDI data dump to a data file, it is not normally necessary to set the MIDI channel.

	Transmitted data
Dump Program	Programs of all banks, Programs of the specified bank, 1 Program
Dump Combination	Combinations of all banks, Combinations of the selected bank, 1 Combination
Dump Drum Kit	All Drumkits, 1 Drumkit
Dump Global	Global parameters
Dump Multi	Multi
Dump All	All banks of Programs + Combinations + Drumkits + Global parameters + Multi

⚠ While a data dump is in progress, do not touch the switches or controls of the **TR-Rack**.

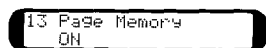
The following table shows the size of the dumped data, and the time that is required for its transmission.

Type of dumped data	Data size (kBytes)	Time required (Sec)
All Data	525.4	168.2
All Programs	253.4	81.1
1 Program Bank	63.3	20.3
1 Program	0.5	0.2
All Combinations	227.0	72.7
1 Combination Bank	56.8	18.2
1 Combination	0.4	0.2
All Drumkits	39.1	12.6
1 Drumkit	1.6	0.6
Global Parameter	1.3	0.5
Multi*1	4.6	1.5

*1 Multi data is transmitted as Song 00 using the Sequence Data format of the **Trinity series**. At the same time, songs 01-19 and other data is also transmitted, but this will be invalid data. When song data is dumped from a **Trinity series** instrument to the **TR-Rack**, the **TR-Rack** will receive only song 00 of the **Trinity series** instrument.

Page 13: Page Memory

Turns the page memory function on/off.



Page memory setting

Page Memory [OFF, ON]

If this is **ON** when you move from one mode to another mode, and then return to the previous mode, the page

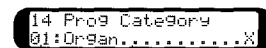
(parameter) that had last been selected in that mode will appear.

If this is **OFF**, the first page of that mode will always appear whenever you enter the mode.

Page 14: Prog Category

Renames the categories which can be used to search for programs in Program Play mode.

With the factory settings, the categories are named by instrument.



Category No.
Category Name

Category No. [01...16]

Selects the category that you wish to rename. There are 16 categories.

Category Name

Use the cursor [◀][▶] keys to select the character, and the [+1/YES] [-1/NO] keys to change the character.

The following characters can be used.

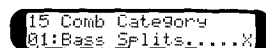
!	"	#	\$	%	&	'	()	*	+	,	-	.	/	
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~

⚠ If you wish to keep the category names that you have modified, you must execute the Write operation (p.11 in this manual). If you move to a different mode or turn off the power before Writing, the renamed category name will be lost.

Page 15: Comb Category

Renames the categories which can be used to search for combinations in Combination Play mode.

With the factory settings, the categories are named by instrument.



Category No.
Category Name

Category No. [01...16]

Selects the category that you wish to rename. There are 16 categories.

Category Name

Use the cursor [◀][▶] keys to select the character, and the [+1/YES] [-1/NO] keys to change the character.

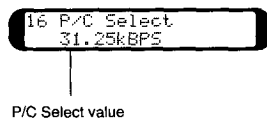
The following characters can be used.

	!	"	#	\$	%	&	'	()	*	+	,	-	.	/
0	1	2	3	4	5	6	7	8	9	:	:	<	=	>	?
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[]	^	_	
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
p	q	r	s	t	u	v	w	x	y	z	{		}	+	=

- ⚠ If you wish to keep the category names that you have modified, you must execute the Write operation (see p.11 in this manual). If you move to a different mode or turn off the power before Writing, the renamed category name will be lost.

Page16: P/C Select

Specifies the rate at which data will be exchanged with the computer connected to the rear panel PC I/F connector.



P/C Select [31.25, 38.4]

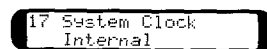
If you are connecting an IBM PC (compatible), set this to 38.4.

If you are connecting an Apple Macintosh, set this to 31.25.

Page17: System Clock

Specifies the system clock for the TR-Rack.

If the DI-TRI option is installed, the TR-Rack can be synchronized with an ADAT Optical format compatible device.



System Clock [Internal, Word Clock]

With a setting of **Internal**, the TR-Rack will operate according to its own internal clock.

With a setting of **Word Clock**, the TR-Rack will synchronize to the system clock of the ADAT Optical format compatible device that is connected.

- ⚠ If the DI-TRI option is not installed, this setting will be fixed at Internal, and it will not be possible to select Word Clock.

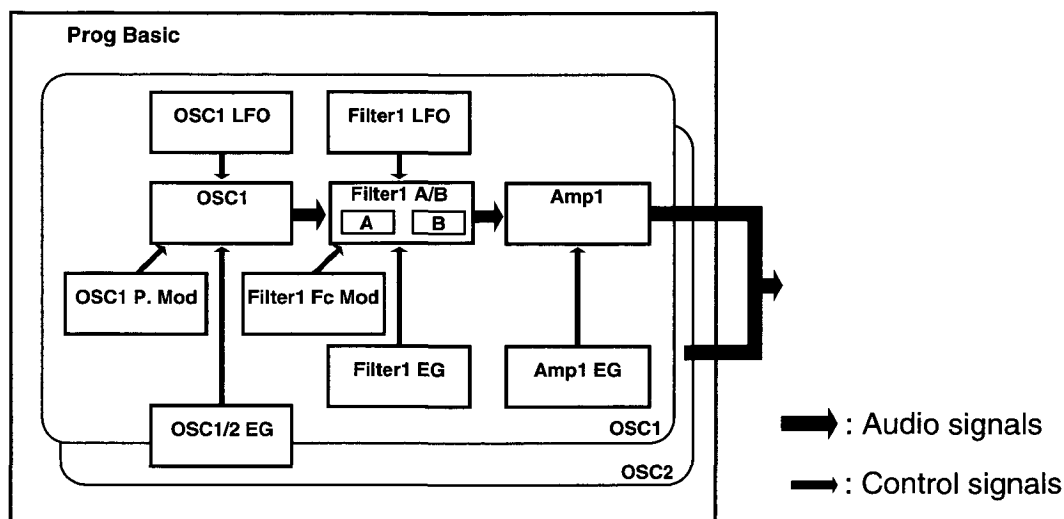
Appendices

1. How the TR-Rack is organized

The **TR-Rack** features the ACCESS tone generator that is used on the Trinity series.

Program editing on the **TR-Rack** is limited to making adjustments to the preloaded programs. However by using a Trinity-series instrument or editing software, you can perform full editing of all program sound parameters and drum kits.

The following diagram shows the internal structure of the tone generator and parameters of the **TR-Rack**.



OSC: Makes basic settings for the oscillator, and select a multisample or drumkit.

OSC P.Mod: Makes settings which apply pitch modulation to the oscillator.

OSC LFO: Makes settings for the LFO which cyclically modulates the pitch of the oscillator (the Vibrato effect).

OSC EG: Makes settings for the oscillator EG which applies time-varying change to the pitch of the oscillator.

Filter A/B: Specifies how filters A and B will be connected, and adjust their cutoff frequency.

Filter Fc Mod: Specifies how modulation will be applied to the cutoff frequency of the filters to modify the brightness.

Filter LFO: Makes settings for the LFO which cyclically modulates the cutoff frequency of the filter.

Filter EG: Makes settings for the filter EG which applies time-varying change to the cutoff frequency of the filter.

Amp: Specifies the volume and how it will change.

Amp EG: Specifies how the volume will change over time.

Parameter program

	Parameter		Value		
OSC Basic	Oscillator Mode		single, double, drums		
	Assign/Hold	Key Assign		Poly, Mono	
		Legato		OFF, ON	
		Priority		Low, High, Last	
		Single Trig		OFF, ON	
		Hold		OFF, ON	
	Scale	Type		Equal Temp...User Scale	
		Key		C...B	
		Random		0...7	
	Velocity Switch	OSC1 Switch		1...127	
OSC2 Bottom			1...127	only when Oscillator Mode = double	
OSC1 (Oscillator Mode =single,double)	OSC Multisample	Higher Multisample		0...374	
		Lower Multisample		0...374	
		Higher Start Offset		Normal, Offset	
		Lower Start Offset		Normal, Offset	
		Higher Level		0...127	
		Lower Level		0...127	
		Delay		0ms...5000ms, KeyOff	
		Octave		32...4	
		Transpose		-12...+12	
Drumkit (Oscillator Mode =drums)		Drumkit		0...23	
		Delay		0ms...5000ms, keyOff	
		Octave		32...4	
		Transpose		-12...+12	
		Tune		-1200...+1200	
OSC1 PMod	Pitch Slope by Ribbon (X)			-1.0...+2.0	
				-12...+12	
	by JS (+X)	Intensity		-60...+12	
		Step		Continuous, 1/8...12	
	by JS (-X)	Intensity		-60...+12	
		Step		Continuous, 1/8...12	
	by Alternate Modulation	AMS		OFF...Tempo	
		Intensity		-12.00...+12.00	
	by Oscillator EG	Intensity		-12.00...+12.00	
		mod by Velocity		-99...+99	
		mod by Alternate Modulation	AMS	OFF...Tempo	
	by Oscillator1 LFO	Intensity		-12.00...+12.00	
			mod by JS (+Y)		0...99
		mod by Aftertouch		0...99	
		mod by Alternate Modulation	AMS	OFF...Tempo	
Intensity				-12.00...+12.00	
OSC1 LFO	Wave form		Triangle 0...Random6		
	Frequency		00...99		
	Offset		-99...+99		
	Start Mode		Key On, Key Off, Both		
	Key Sync		Off/On		
	Delay		0...99		
	Fade		-99...+99		
	Frequency Modulation	by Keyboard Track		-99...+99	
		by JS (+Y)		00...99	
		by Alternate Modulation	AMS	OFF...Tempo	for OSC2, OFF-Filter LFO
OSC1/2 EG	Level		Start	-99...+99	
			Attack	-99...+99	
			Release	-99...+99	
	Time		Attack	0...99	
			Decay	0...99	
			Release	0...99	
	Time Modulation	by Velocity		-99...+99	
		by Alternate Modulation	AMS	OFF...Filter1 LFO	
			Intensity	-99...+99	

	Parameter		Value		
Filter1	Routing			parallel, serial, single, thru	
		Filter1A	Type		Low Pass...Band Reject
	Cutoff Frequency			00...99	
	Trim			00...99	
	Resonance			00...31	
	Filter1B	Resonance Mod By Vel		-99...+99	
		Type		Low Pass...Band Reject	
		Cutoff Frequency		00...99	
		Trim		00...99	
	Filter1 Fc Mod	of Filter1A	Keyboard Track	Lower Key	C-1...G9
Higher Key				C-1...G9	
Lower Ramp				-99...+99	
Higher Ramp				-99...+99	
by JS (X)				-99...+99	
by Aftertouch				0...99	
of Filter1B		Keyboard Track	AMS	OFF...Tempo	for Filter2, OFF-Filter LFO
			Intensity	-99...+99	
			Lower Key	C-1...G9	
			Higher Key	C-1...G9	
	Lower Ramp	-99...+99			
	Higher Ramp	-99...+99			
of Filter1 EG	by JS (-X)	by Aftertouch		0...99	
		by Alternate Modulation	AMS	OFF...Tempo	for Filter2, OFF-Filter LFO
		Intensity	-99...+99		
		Filter1A Int		-99...+99	
	by Filter1 LFO	Filter1B Int		-99...+99	
		Filter1A Int by Vel		-99...+99	
		Filter1B Int by Vel		-99...+99	
		Alternate Modulation	AMS	OFF...Tempo	
	Filter1 EG	Level	Intensity	-99...+99	
			Start	-99...+99	
Attack			-99...+99		
Break			-99...+99		
Time		Sustain	-99...+99		
		Release	-99...+99		
		Attack	00...99		
		Decay	00...99		
Time Modulation		by Keyboard Track	Slope	00...99	
			Release	00...99	
	Attack		-99...+99		
	Decay		-99...+99		
	by Velocity	Slope	-99...+99		
		Release	-99...+99		
		Attack	-99...+99		
		Decay	-99...+99		
	by Alternate Modulation	Slope	-99...+99		
		Release	-99...+99		
		Attack	-99...+99		
		Decay	-99...+99		
Level Modulation	by Velocity	AMS	OFF...Tempo		
		Intensity	-99...+99		
		Start	-99...+99		
		Attack	-99...+99		
		Break	-99...+99		

	Parameter			Value			
Filter1 LFO	Wave form			Triangle 0...Random6			
	Frequency			00...99			
	Offset			-99...+99			
	Start Mode			Key On, Key Off, Both			
	KeySync			Off, On			
	Delay			00...99			
	Fade			-99...+99			
	Frequency Modulation	by Alternate Modulation	AMS	OFF...Filter1 LFO			
Amp1	Amp Level			0...127			
	Amp Modulation	by Keyboard Track	Lower Key	C-1...G9			
			Higher Key	C-1...G9			
			Lower Ramp	-99...+99			
			Higher Ramp	-99...+99			
		by Velocity		-99...+99			
		by Aftertouch		-99...+99			
	by Alternate Modulation	AMS	OFF...Tempo	for Amp2, OFF-Filter1 LFO			
		Intensity	-99...+99				
	Pan	by Alternate Modulation	AMS	OFF, L...C...R			
			Intensity	OFF...Tempo	for Amp2, OFF-Filter1 LFO		
	Send	Send1		0...127			
Send2			0...127				
Amp1 EG	Level		Start	00...99			
			Attack	00...99			
			Break	00...99			
			Sustain	00...99			
	Time		Attack	00...99			
			Decay	00...99			
			Slope	00...99			
			Release	00...99			
			Time Modulation	by Keyboard Track	Attack	-99...+99	
					Decay	-99...+99	
	Slope	-99...+99					
	by Velocity	Attack		-99...+99			
		Decay		-99...+99			
		Release		-99...+99			
	by Alternate Modulation	AMS	OFF...Filter1 LFO				
		Intensity	-99...+99				
	Level Modulation	by Velocity	Start	-99...+99			
			Attack	-99...+99			
Break			-99...+99				
OSC2	OSC Maltisample						
	Velocity Switch						
OSC2 P.Mod	Pitch Slope						
	by Ribbon (X)						
	by JS (+X)						
	by JS (-X)						
	by Alternate Modulation						
	by Oscillator EG						
OSC2 LFO	Wave form						
	Frequency						
	Offset						
	Start Mode						
	Key Sync						
	Delay						
	Fade						
	Frequency Modulation						
Filter2	Routing						
	Filter2A						
	Filter2B						

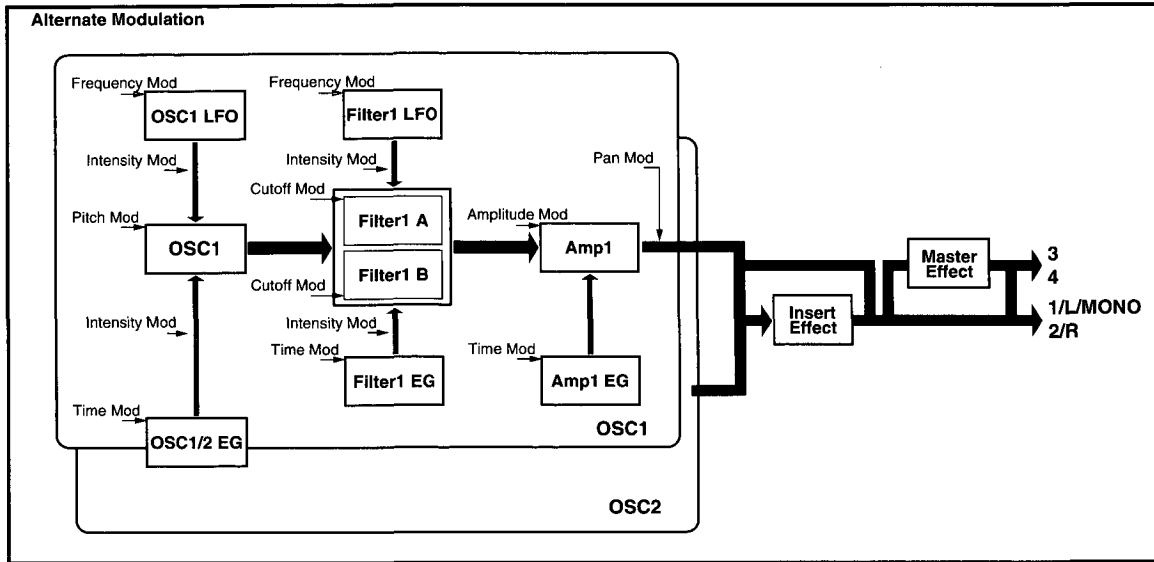
refer to OSC2

	Parameter	Value		
Filter2 Fc Mod	of Filter2A	refer to OSC1		
	of Filter2B			
	of Filter2 EG			
	by Filter2 LFO			
Filter2 EG	Level			
	Time			
	Time Modulation			
	Level Modulation			
Filter2 LFO	Wave form			
	Frequency			
	Offset			
	Start Mode			
	KeySync			
	Delay			
	Fade			
	Frequency Modulation			
Amp2	Amp Level			
	Amp Modulation			
	Pan			
	Send			
Amp2 EG	Level			
	Time			
	Time Modulation			
	Level Modulation			
Prog Basic	Program Name			
	Category	A	1..16	used only on the Trinity
		B	1..6	
	Panel Switch Assign	SW1	JS (X)Lock...Mod[CC#80]	used only on the Trinity
		SW2	JS (X)Lock...Mod[CC#80]	used only on the Trinity

Alternate Modulation

Alternate Modulation allows you to use a separately selected AMS (Alternate Modulation Source) to apply modulation.

As shown in the following diagram, you can use 14 types of Alternate Modulation in 27 locations (OSC EG is shared by both OSC1 and 2).



Alternate Modulation Source (AMS)

There are 26 types of AMS, and these sources can be used to control various Alternate Modulation destinations. By selecting two or more Alternate Modulation destinations to be controlled by the same AMS, you can apply multiple changes from a single source.

Alternate Modulation Source	
OSC EG	Oscillator EG
Filter EG	Filter EG (filter EG of the same oscillator)
Amplifier EG	Amp EG (amp EG of the same oscillator)
OSC LFO	Oscillator LFO (oscillator LFO of the same oscillator)
Filter LFO	Filter LFO (filter LFO of the same oscillator)
Velocity	Functions when MIDI note-on messages are received.
Note No.	Functions when MIDI note-on messages are received.
Poly After	Functions when MIDI poly key pressure messages are received.
Aftertouch	Functions when MIDI channel aftertouch messages are received.
Joy Stick (X)	Functions when MIDI pitch bender messages are received.
Joy Stick (+Y)	Functions when control change CC#1 is received.
Joy Stick (-Y)	Functions when control change CC#2 is received.
Ribbon (X)	Functions when control change CC#16 is received.
Ribbon (Z)	Functions when control change CC#17 is received.
Foot Pedal (CC#4)	Functions when control change CC#4 is received.
Value Slider (CC#18)	Functions when control change CC#18 is received.
MIDI (CC#19)	Functions when control change CC#19 is received.
SW1 (CC#80)	Functions when control change CC#80 is received.
SW2 (CC#81)	Functions when control change CC#81 is received.
Pedal SW (CC#82)	Functions when control change CC#82 is received.
MIDI (CC#83)	Functions when control change CC#83 is received.
Tempo	Functions in synchronization with the incoming tempo (MIDI Clock messages).
Filter 1 EG	Filter 1 EG (select only for oscillator 2)
Filter Amp 1 EG	Amp 1 EG (select only for oscillator 2)
OSC1 LFO	Oscillator 1 LFO (select only for oscillator 2)
Filter 1 LFO	Filter 1 LFO (select only for oscillator 2)

Alternate Modulation settings

By operating an AMS (Alternate Modulation Source), you can control the specified modulation destination as shown in the following table.

Parameter (AMS Intensity)	AMS	EG LFO -99...0...+99	Amp EG 0...+99	JS(X), Ribbon(X) -Max...0...+Max	Controller ¹ 0...+127	SW ² Off, On	Note No. ³ ...C2...C4...C6...	Tempo ⁴ ♩(...60...120...240...)
Pitch	(+12.00)	-1...0...+1 [Oct]	0...+1 [Oct]	dedicated parameter	0...+1 [Oct]	0, +1 [Oct]	dedicated parameter	...- 1...0...+ 1... [Oct]
Cutoff ⁵	(+99)	-99...0...+99	0...+99	-99...0...+99	0...+99	0, +99	...-99...0...+99	...-99...0...+ 99
Amplitude	(+99)	value x (0...1...8)	dedicated parameter	value x (0...1...8)	value x (1...8)	value x (1, 8)	value x (0...1...8...)	value x (0...1...8...)
EG/ LFO Time ⁶	(+99)	value x (64...1...1/64)	value x (1...1/64)	value x (64...1...1/64)	value x (1...1/64)	value x (1, 1/64)	value x (64...1...1/64...)	value x (64...1...1/64...)
EG/LFO Intensity ⁷	(+12.00) (+99)	-1...0...+1 [Oct] -99...0...+99	0...+1 [Oct] 0...+99	-1...0...+1 [Oct] -99...0...+99	-1...0...+1 [Oct] 0...+99	0...+1 [Oct] 0, +99	...-1...0...+1 [Oct]-99...0...+99...	...-1...0...+1... [Oct] -99...0...+99...
Panpot ⁸	(+99)	-127...0...+127	0...+127	-127...0...+127	0...+127	0, +127	-127...0...+127	-127...0...+127

*1: Controller: Velocity, After Touch, Poly After, CC#17, CC#04, CC#01, CC#02, CC#18, CC#19, CC#83

*2: SW: Control changes CC#80, CC#81, CC#82

*3: If Note No. is selected as an AMS, C4 is the normal value.

*4: If Tempo is selected as an AMS, ♩ = 120 is the normal value.

*5: This will function as though it were added to the Cutoff value. Raising the Cutoff value by 10 will double the cutoff frequency (raise it by 1 octave).

*6: EG time: Attack Time, Decay Time, Slope Time, Release Time

LFO time: Delay, Fade, Frequency (as Time becomes shorter, Frequency will become faster)

*7: For the Oscillator EG/LFO, the maximum AMS Intensity value will be +12. For the Filter EG/LFO and Amp EG, the maximum AMS Intensity value will be +99.

*8: This is determined by the state at note-on, and the value will be added to the Panpot setting (positive (+) values are toward the right).

Applications of Alternate Modulation

- If you select Tempo as the modulation source for the various EG times and LFO Frequencies, the EG and LFO speeds will change according to the tempo of the MIDI Clock messages received from a connected MIDI device. If you also use Tempo to control Pitch and Cutoff Frequency, you can simulate fast-forwarding on an analog tape recorder.
- By selecting Poly After as an AMS, you can apply modulation only to specific notes (just as you can by EG and Velocity). For example while a chord is sounding, you can apply vibrato only to one note of the chord.
- The sound, EG, and LFO etc. can be controlled not only by velocity and joystick, but also by switches and pedals.
- You can control Panpot from a joystick or from a random LFO.
- You can use the Filter EG to control both Cutoff Frequency and Pitch, or use the Filter 1 EG to control the Cutoff Frequency of Filter 2.

Dynamic Modulation Sources

By operating the D/mod Src (Dynamic Modulation Source) specified for each effect, you can apply modulation to the parameters.

The parameters which can be controlled will depend on the type of effect, and some effects have more than one modulation source.

There are 26 types of D/mod Src, and Dynamic Modulation can be controlled using these sources.

For details on the types of dynamic modulation sources, refer to p.10 of the separate Effect Guide.

Drumkit parameters

A "drumkit" assigns a different drum sample (PCM waveform data for a percussive sound) to each key, and allows you to adjust the pitch and level etc. of each one.

Programs which use a drumkit are referred to as "drum oscillator programs," and programs which use a multisample (PCM waveform) are referred to either as "single oscillator programs" or "double oscillator programs."

Drum oscillator programs have different parameters than programs which use multisamples.

When editing a drumkit, you must first set the Oscillator Mode of the program to Drum Oscillator, and then edit the drumkit. For drum oscillator programs, the category will be Drums/Perc.

	Parameter	Value		
Drumkit	Assign		OFF, ON When ON, that drum sample will sound	
	Higher	Drumsample	OFF, 1...258	Selects the drum sample that will sound for velocities greater than the Bottom Vel
		Start Offset	ON/OFF	Specifies the point at which the drum sample waveform will sound
		Tune	-60.0...+24.0	Adjusts the pitch
		Level	-99...+99	Adjusts the volume
		Decay	-99...+99	Adjusts the decay time of the sound
	Lower	Drumsample	OFF, 1...258	Selects the drum sample that will sound for velocities less than the Bottom Vel
		Start Offset	OFF, ON	Specifies the point at which the drum sample waveform will sound
		Tune	-60.0...+24.0	Adjusts the pitch
		Level	-99...+99	Adjusts the volume
		Decay	-99...+99	Adjusts the decay time of the sound
	Bottom Vel of Higher		1...127	Specifies the velocity value at which High and Low will be divided
	Exclusive Assign		OFF, Group01...Group16	Specifies the group to which the drum sample will be assigned
	Pan		OFF, L000...C064...R127	Sets the pan (panpot)
	Send1		0...127	Sets the Send 1 level
	Send2		0...127	Sets the Send 2 level
Bypass Filter		Bypass, Filterd	Specifies whether or not the filter will be applied by the program	
Insert FX Group		OFF, Inst1...Inst4	Specifies the effect to which the drum sample will be output	

2. Internal parameters of the TR-Rack

On the **TR-Rack**, modifying program parameters in Program Edit mode will cause multiple internal parameters to be modified as a group.

Internal parameters marked "*" are signed values (+, -), When you modify the parameter value in Program Edit mode, the internal parameter values will also change, but will not pass beyond 0. For example if the internal parameter value is +2, lowering the Program Edit mode parameter value to -6 will not cause the internal parameter value to have a negative value; it will remain at 0.

Page	Parameter	Value	Internal Parameter
1	Octave	-3...+3	OSC1 Multisample-Octave
		-3...+3	OSC2 Multisample-Octave
2	Amp Level	-99...+99	Amp1-Amplitude Level
		-99...+99	Amp2-Amplitude Level
3	Filter Fc	-99...+99	Filter 1A-Cutoff Frequency
			Filter 1B-Cutoff Frequency
			Filter 2A-Cutoff Frequency
			Filter 2B-Cutoff Frequency
4	Filter EG Int	-99...+99	Filter1 EG-Intensity to Filter1A*
			Filter1 EG-Intensity to Filter1B*
			Filter1 EG-Velocity to Filter1A*
			Filter1 EG-Velocity to Filter1B*
			Filter1 EG-AMS-Intensity*
		-99...+99	Filter2 EG-Intensity to Filter2A*
			Filter2 EG-Intensity to Filter2B*
			Filter2 EG-Velocity to Filter2A*
			Filter2 EG-Velocity to Filter2B*
			Filter2 EG-AMS-Intensity*
5	Resonance	-99...+99	Filter1A-Resonance
			Filter1B-Resonance
		-99...+99	Filter2A-Resonance
			Filter2B-Resonance
6	Attack Time	-99...+99	Amp1 EG-Attack Time *
			Amp1 EG-Start Level *
		-99...+99	Amp2 EG-Attack Time *
			Amp2 EG-Start Level *
7	Decay Time	-99...+99	Filter1 EG-Decay Time
			Amp1 EG -Decay Time
		-99...+99	Filter2 EG-Decay Time
			Amp2 EG-Decay Time
8	Release Time	-99...+99	Filter1 EG-Release Time
			Amp1 EG-Release Time
		-99...+99	Filter2 EG-Release Time
			Amp2 EG-Release Time
9	OSC1 Velocity	-99...+99	OSC1-Oscillator EG by Velocity*
			OSC1 EG-Time Modulation by Velocity*
			Filter1 EG by Velocity to Filter1A*
			Filter1 EG by Velocity to Filter1B*
			Filter1A-Resonance Mod By Velocity*
			Filter1B-Resonance Mod By Velocity*
			Filter1 EG-Time Modulation by Velocity-At*
			Filter1 EG-Time Modulation by Velocity-Dc*
			Filter1 EG-Time Modulation by Velocity-Si*
			Filter1 EG-Time Modulation by Velocity-RI*
			Filter1 EG-Start Level Modulation by Velocity*
			Filter1 EG-Attack Level Modulation by Velocity*
			Filter1 EG-Break Point Level Modulation by Velocity*
			Amp1-Amplitude Modulation by Velocity*
			Amp1 EG-Time Modulation by Velocity-At*
			Amp1 EG-Time Modulation by Velocity-Dc*
			Amp1 EG-Time Modulation by Velocity-Si*
			Amp1 EG-Time Modulation by Velocity-RI*
			Amp1 EG-Level Modulation by Velocity-St*
			Amp1 EG-Level Modulation by Velocity-At*
Amp1 EG-Br Level Modulation by Velocity*			

Page	Parameter	Value	Internal Parameter
9	OSC2 Velocity	-99...+99	OSC2-Oscillator EG by Velocity*
			OSC2 EG-Time Modulation by Velocity*
			Filter2 EG by Velocity to Filter2A*
			Filter2 EG by Velocity to Filter2B*
			Filter2A-Resonance Mod By Velocity*
			Filter2B-Resonance Mod By Velocity*
			Filter2 EG-Time Modulation by Velocity-At*
			Filter2 EG-Time Modulation by Velocity-Dc*
			Filter2 EG- Time Modulation by Velocity-Sl*
			Filter2 EG-Time Modulation by Velocity-Rl*
			Filter2 EG-Level Modulation by Velocity-St*
			Filter2 EG-Level Modulation by Velocity-At*
			Filter2 EG-Level Modulation by Velocity-Br*
			Amp2 -Amplitude Modulation by Velocity*
			Amp2 EG-Time Modulation by Velocity-At*
			Amp2 EG-Time Modulation by Velocity-Dc*
			Amp2 EG-Time Modulation by Velocity-Sl*
Amp2 EG-Time Modulation by Velocity-Rl*			
Amp2 EG-Level Modulation by Velocity-St*			
Amp2 EG-Level Modulation by Velocity-At*			
Amp2 EG-Br Level Modulation by Velocity*			
10	After Touch	-99...+99	OSC1-Oscillator1 LFO by Aftertouch
			Filter1-Filter1 LFO-Aftertouch
			Filter1A Cutoff by Aftertouch
			Filter1B Cutoff by Aftertouch
			Amp1-Amplifier by Aftertouch
		-99...+99	OSC2-Oscillator2 LFO by Aftertouch
			Filter2-Filter2 LFO by Aftertouch
			Filter2A Cutoff by Aftertouch
			Filter2B Cutoff by Aftertouch
			Amp2-Amplitude by Aftertouch
11	LFO Intensity	-99...+99	Oscillator1 LFO-Intensity to OSC1*
			Filter LFO-Intensity to Filter1A*
			Filter LFO-Intensity to Filter1B*
		-99...+99	Oscillator2 LFO-Intensity to OSC2*
			Filter LFO-Intensity to Filter2A*
			Filter LFO-Intensity to Filter2B*
12	LFO Frequency	-99...+99	OSC1 LFO-Freq
			Filter1 LFO-Freq
		-99...+99	OSC2 LFO-Freq
			Filter2 LFO-Freq
13	Panpot	OFF, L000...R127	Amp1-Pan
		OFF, L000...R127	Amp2-Pan
14	Send1	0...127	Amp1-Send1
		0...127	Amp2-Send1
15	Send2	0...127	Amp1-Send2
		0...127	Amp2 -Send2

*1: When Start Level >0, lowering the **TR-Rack** value by 1 will cause the value of the internal parameter Start Level to decrease in steps of 5. As the **TR-Rack** value is lowered until the Start Level reaches 0, the Attack Time value will begin to change (at a rate of 1:1).
 When the **TR-Rack** value is changed to a positive (+) value, the Start Level will not change; only the Attack Time will change.

3. Initialized data

Combination

When you execute "Page45: Initialize" in Combination Edit mode, the parameters will be set to the following values.

Page	Parameter	Value		
1	Program	A000		
2	Level	127		
3	Channel	G		
4	Timbre SW	ON		
5	Transpose	00		
6	Detune	00		
7	Bend Range	PRG		
8	Delay Start	0000		
9	Key Zone Top	G9		
10	Key Zone Bottom	C-1		
11	K.Z Top Slope	00		
12	K.Z Bottom Slope	00		
13	Vel Zone Top	127		
14	Vel Zone Bottom	001		
15	V.Z Top Slope	00		
16	V.Z Bottom Slope	00		
17	Prog Change Filter	ENA		
18	Ctrl Change Filter	ENA		
19	After Touch Filter	ENA		
20	Sustain Pedal Filter	ENA		
21	Scale Select	PRG		
22	Hide OSC2	NO		
23	Force Poly	NO		
24	Panpot	PRG		
25	MFX Send1	PRG		
26	MFX Send2	PRG		
27	Insert FX Size	OFF		
28	IFX1	Effect On/Off	ON	
		Size	0	
		Effect Select	00	
29	IFX2	Effect On/Off	ON	
		Size	0	
		Effect Select	00	
30	IFX3	Effect On/Off	ON	
		Size	0	
		Effect Select	00	
31	IFX4	Effect On/Off	ON	(for drum oscillator programs)
		Size	0	(for drum oscillator programs)
		Effect Select	00	
34	IFX Chain	1>2	OFF	(for drum oscillator programs)
		2>3	OFF	(for drum oscillator programs)
		3>4	OFF	(for drum oscillator programs)
35	IFX Pan	IFX1 Pan	C064	
		IFX1 Width	000	
		IFX2 Pan	C064	(for drum oscillator programs)
		IFX2 Width	000	(for drum oscillator programs)
		IFX3 Pan	C064	(for drum oscillator programs)
		IFX3 Width	000	(for drum oscillator programs)
		IFX4 Pan	C064	(for drum oscillator programs)
IFX4 Width	000	(for drum oscillator programs)		
36	IFX Send	IFX1 Send1	000	
		IFX1 Send2	000	
		IFX2 Send1	000	(for drum oscillator programs)
		IFX2 Send2	000	(for drum oscillator programs)
		IFX3 Send1	000	(for drum oscillator programs)
		IFX3 Send2	000	(for drum oscillator programs)
		IFX4 Send1	000	(for drum oscillator programs)
IFX4 Send2	000	(for drum oscillator programs)		
37	Master FX(Mod)	Effect On/Off	OFF	
		Effect Select	04: Chorus	
38	Master FX(Rev)	Effect On/Off	OFF	
		Effect Select	04: Reverb-Hall	
40	Master FX Chain		OFF	
41	Master FX Return	MFX1	000	
		MFX2	000	
42	Master EQ dB	Lo	00.0	
		Hi	00.0	
43	MFX Pan to Out3/4	M1	L	
		M2	R	
44	Scale	Type	Equal Temp	
		Key	C	
		Random	0	
46	Rename		Initial Combi	
47	Category		00	

Multi


When you execute "Page36: Initialize" in Multi mode, the parameters will be set to the following values.

Page	Parameter		Value	
1	Program		A000	
2	Level		127	
3	Channel		G	
4	Track SW		ON	
5	Transpose		00	
6	Detune		00	
7	Bend Range		PRG	
8	Prog Change		ENA	
9	Ctrl Change		ENA	
10	After Touch		ENA	
11	Sustain Pedal		ENA	
12	Scale Select		PRG	
13	Hide OSC2		NO	
14	Force Poly		NO	
15	Panpot		PRG	
16	MFX Send1		PRG	
17	MFX Send2		PRG	
18	Insert FX Size		OFF	
19	IFX1	Effect On/Off	ON	
		Size	0	
		Effect Select	00	
20	IFX2	Effect On/Off	ON	
		Size	0	
		Effect Select	00	
21	IFX3	Effect On/Off	ON	
		Size	0	
		Effect Select	00	
22	IFX4	Effect On/Off	ON	(for drum oscillator programs)
		Size	0	(for drum oscillator programs)
		Effect Select	00	
25	IFX Chain	1>2	OFF	(for drum oscillator programs)
		2>3	OFF	(for drum oscillator programs)
		3>4	OFF	(for drum oscillator programs)
26	IFX Pan	IFX1 Pan	C064	
		IFX1 Width	000	
		IFX2 Pan	C064	(for drum oscillator programs)
		IFX2 Width	000	(for drum oscillator programs)
		IFX3 Pan	C064	(for drum oscillator programs)
		IFX3 Width	000	(for drum oscillator programs)
		IFX4 Pan	C064	(for drum oscillator programs)
IFX4 Width	000	(for drum oscillator programs)		
27	IFX Send	IFX1 Send1	000	
		IFX1 Send2	000	
		IFX2 Send1	000	(for drum oscillator programs)
		IFX2 Send2	000	(for drum oscillator programs)
		IFX3 Send1	000	(for drum oscillator programs)
		IFX3 Send2	000	(for drum oscillator programs)
		IFX4 Send1	000	(for drum oscillator programs)
IFX4 Send2	000	(for drum oscillator programs)		
28	Master FX(Mod)	Effect On/Off	OFF	
		Effect Select	04: Chorus	
29	Master FX(Rev)	Effect On/Off	OFF	
		Effect Select	04: Reverb-Hall	
31	Master FX Chain		OFF	
32	Master FX Return	MFX1	000	
		MFX2	000	
33	Master EQ dB	Low	00	
		High	00	
34	MFX Pan to Out3/4	1	L	
		M2	R	
35	Scale	Type	Equal Temp	
		Key	C	
		Random	0	

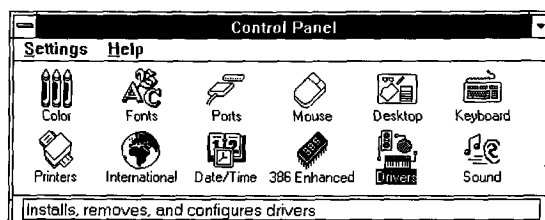
4. Korg MIDI Driver installation and setup

The Korg MIDI Driver is included with the **TR-Rack**. If you are using an IBM PC (compatible) computer and your application (sequencer) is Windows-compatible, using the Korg MIDI Driver will allow the **TR-Rack** connected to the serial port (COM, RS-232C, SERIAL2) to be handled as a MIDI device. If you are using an Apple Macintosh and your application (sequencer) is compatible with the Apple MIDI Manager, using the Korg MIDI Driver will allow the Macintosh to exchange data with the **TR-Rack** connected to its serial port (modem or printer).

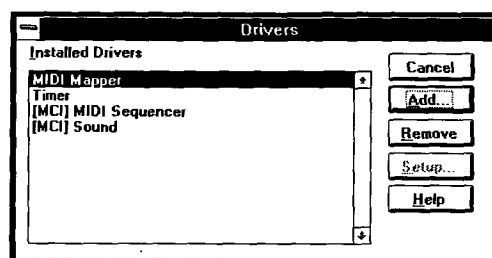
Installing the Korg MIDI Driver into Windows 3.1

 Data from MIDI IN may not be received correctly if your computer is not fast enough.

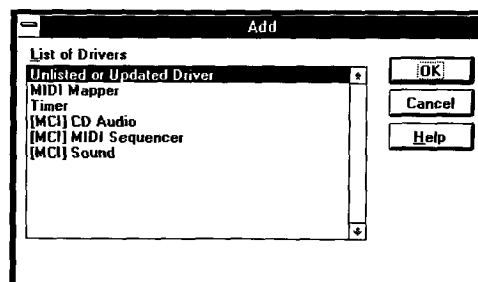
① In the Control Panel, double-click the Drivers icon.



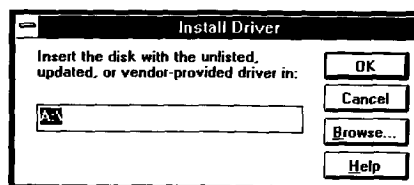
② Click the [Add] button.



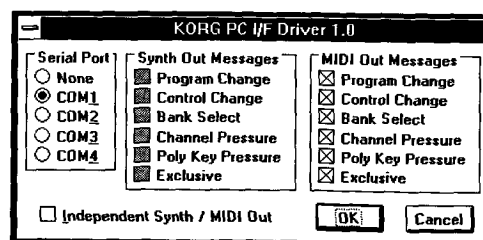
③ From the list of drivers, select [Unlisted or Updated Driver], and click the [OK] button.



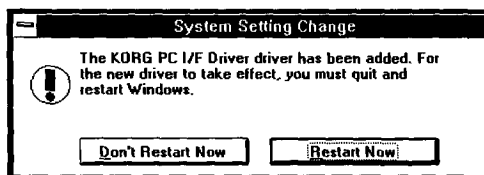
④ Insert the disk included with **KMD-01** into the disk drive of your computer. If the disk was inserted into drive A, type "A:\\" (or if drive B, type "B:\\"") and click the [OK] button.



⑤ Select **KORG PC I/F Driver** and click the [OK] button. The setup window will appear. Follow the instructions of "Setting up the Korg MIDI Driver (Windows)" to perform the setup.

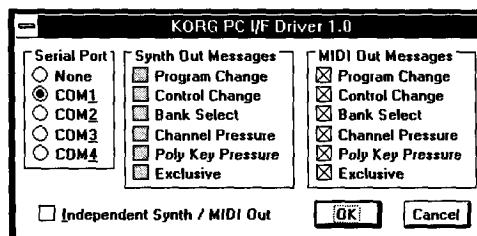


- ⑥ After setup is complete, remove the disk and select [Restart Now] to make the newly installed driver available.




Setting up the Korg MIDI Driver (Windows)

- ① In the Control Panel, double-click the Drivers icon, select [KORG PC I/F Driver], and click the settings button to open the setup window.

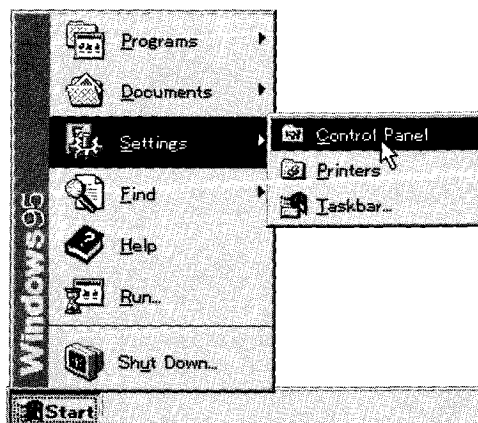


- ② For the Serial Port setting, select the serial port to which the **TR-Rack** is connected ([COM1]–[COM4]). If you wish to use the serial port for another purpose after installing the Korg MIDI Driver, either Delete the driver or select [None] to cancel the driver.
- ③ Check [Independent Synth/MIDI Out]. When this is checked, the internal tone generator of the **TR-Rack** and its MIDI OUT can be used independently.
 Data that is transmitted to Default MIDI will be output both to the MIDI OUT connector and to the internal tone generator.
 Data that is transmitted to MIDI Out will be output only to the MIDI OUT connector, and will not be sounded by the internal tone generator of the **TR-Rack**. Data that is output to Synth-A will be sent to the internal tone generator. (Do not use Synth-B.)
 If [Independent Synth/MIDI Out] is not checked, only Default MIDI can be used.
- ④ [MIDI Out Messages] allows you to select the types of message that will be transmitted to the **TR-Rack**.
- ⑤ When you finish making settings, click the [OK] button. If you wish to cancel your settings, click [Cancel].

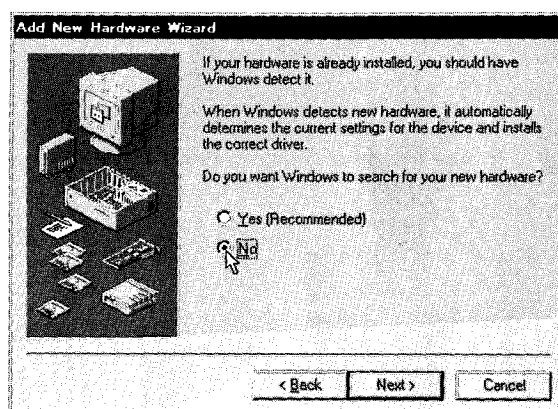
Installing the Korg MIDI Driver into Windows 95

 Data from MIDI IN may not be received correctly if your computer is not fast enough.

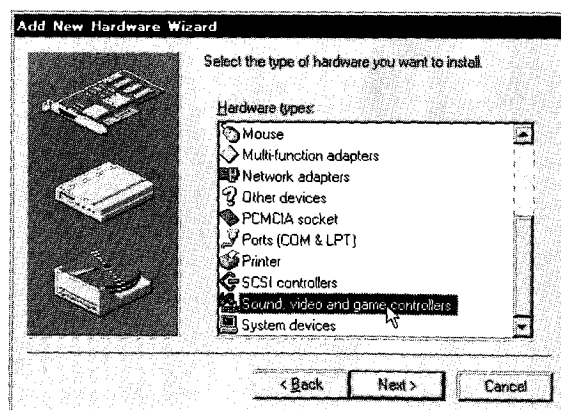
- ① Click the [Start] button in the task bar, and click [Control Panel] in [Settings].



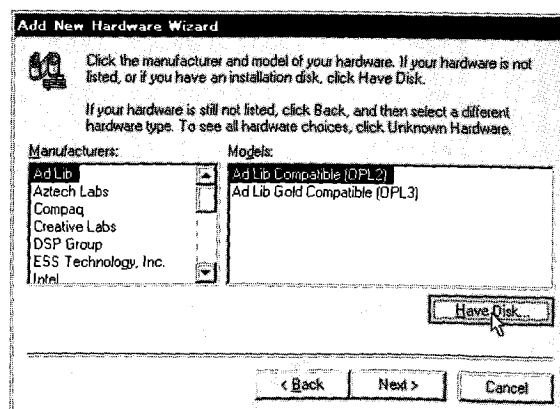
- ② Double-click the [Hardware] icon in the control panel, and the hardware wizard will start up. Click the [Next>] button.
- ③ In response to the question "Do you want Windows to search for your new hardware?" be sure to select [No], and click the [Next>] button.



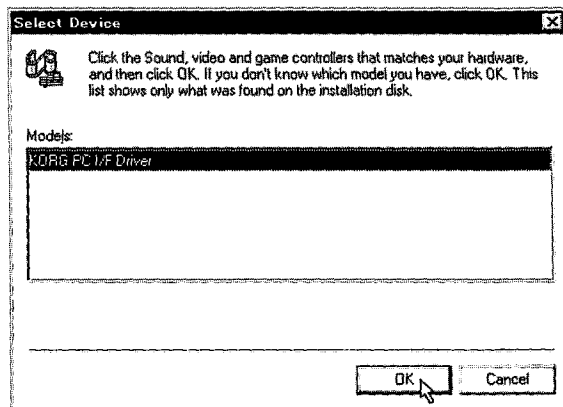
- ④ Select [Sound, video and game controllers], and click the [Next>] button.



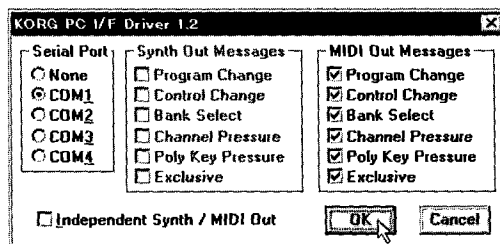
- ⑤ Click [Have Disk].
A dialog box will appear, allowing you to specify the drive and directory.
- ⑥ Insert the disk included with **KMD-01** into the disk drive of your computer. If the disk was inserted into drive A, type "A:\\" (or if drive B, type "B:\\") and click the [OK] button.



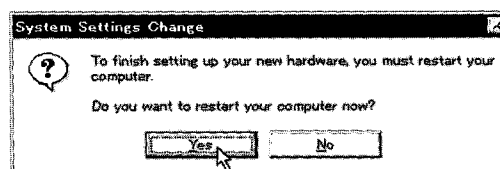
⑦ Click the [OK] button and click [OK].



⑧ Perform the setup as directed in [Setting up the Korg MIDI Driver (Windows)] (p.80 in this manual), and click the [OK] button.

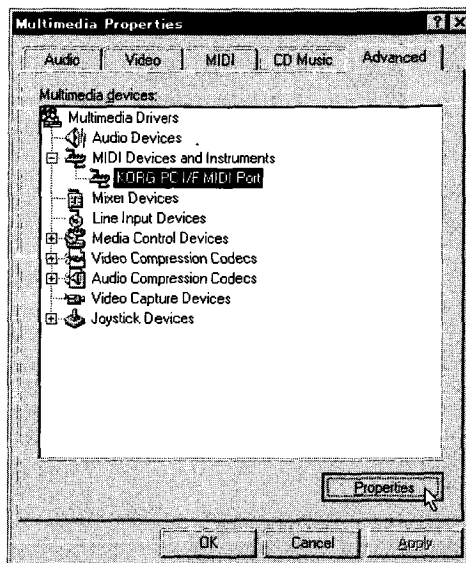


⑨ Be sure to restart your computer so that the driver will take effect.



Modifying the Korg MIDI Driver setup for Windows 95

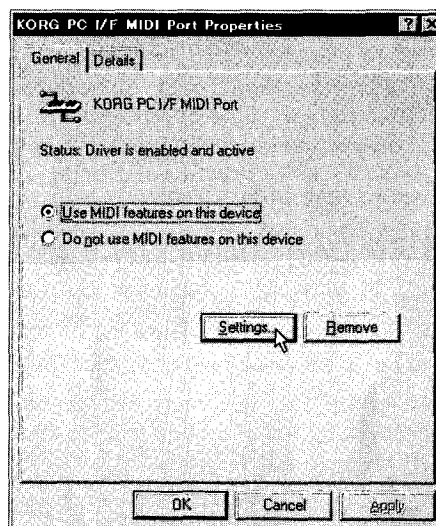
- ① In the control panel, double-click the [Multimedia] icon, and the multimedia properties dialog box will appear.
- ② Click the [Advanced] tab located at the upper right.
- ③ Click the [+] for [MIDI Devices] (the display will change to [-]), and click [KORG PC I/F MIDI Port].
- ④ Click the [Properties] button.
The KORG PC I/F MIDI Port properties will be displayed.



- ⑤ Click the [Settings] button.

Perform the setup as directed in "Setting up the Korg MIDI Driver (Windows)" (p.80 in this manual), and click the [OK] button.

If you have modified the settings, you must re-start Windows.

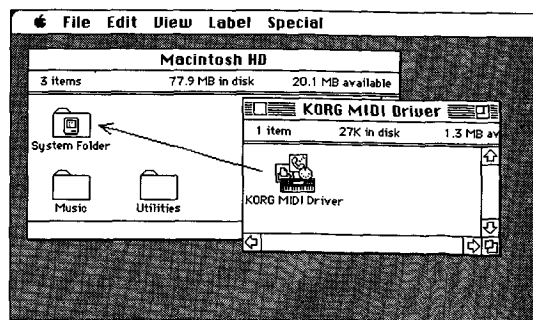


Installing the Korg MIDI Driver into a Macintosh

- ⚡ In order to use the Korg MIDI Driver, the Apple MIDI Manager and PatchBay must already be installed. Use the versions of Apple MIDI Manager and PatchBay that are included with your MIDI application. They are not included with the TR-Rack.

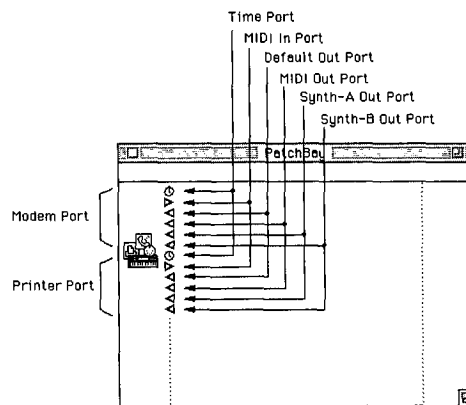
When the Korg MIDI Driver is used, the "Modem MIDI Out/Port setting" dialog box (p.84 in this manual) will allow you to specify the MIDI channels and types of messages which will be transmitted to the TR-Rack. If you do not need this functionality, you can simply use the Apple MIDI Driver without the Korg MIDI Driver. When using the Apple MIDI Driver, or when using a MIDI application (sequencer) which does not use the Apple MIDI Manager, refer to page 84.

- ① Copy the KORG MIDI Driver from the disk included with the KMD-01 into the system folder of your startup disk.
- ② If there is a copy of Apple MIDI Driver in your system folder, either delete it, or move it to another folder. Be careful not to delete or move the Apple MIDI Manager.
 - The Korg MIDI Driver includes the functionality of the Apple MIDI Driver.
- ③ From the Special menu, select "Restart."

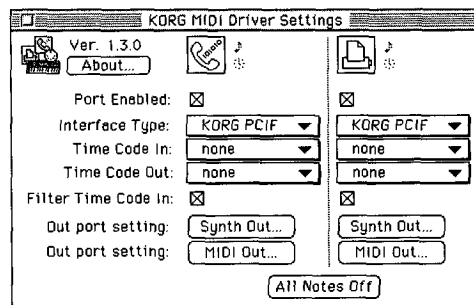


Setting up the Korg MIDI Driver (Macintosh)

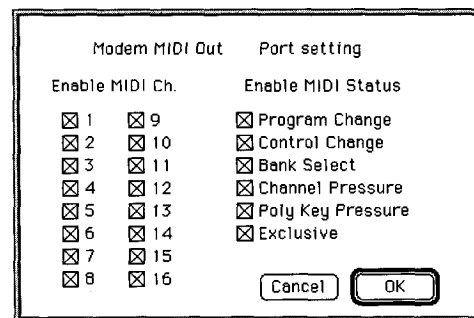
- ① Start up PatchBay.
If installation has been performed correctly, the KORG MIDI Driver icon will appear in the PatchBay window when PatchBay is started up. (The modem and printer ports will be displayed differently depending on the setup condition of each port.)
- ② In PatchBay, double-click the KORG MIDI Driver icon. The setup dialog box will appear.



- ③ Check "Port Enable" for the port to which the **TR-Rack** is connected, and set the Interface Type to [KORG PCIF] or [1 MHz].
If the Interface Type is set to "KORG PCIF," you will be able to use Default Out, MIDI Out, and Synth-A Out. (Do not use Synth-B Out.)
When Default Out is selected, data will be output both to the MIDI OUT connector and to the internal tone generator.
When MIDI Out is selected, data will be output only to the MIDI OUT connector. When Synth-A Out is selected, data will be output only to the internal tone generator.



- ④ Press the [Out Port Setting] button.
The following dialog box will appear. Here you can select the MIDI channels/messages which will be output to each port. Only those channels/messages which are checked will be output.
- ⑤ After you have made settings, press the [OK] button.
- ⑥ Start up your MIDI application (sequencer), and drag the mouse from the Out Port "<" of the MIDI application to connect it to the MIDI Out of the MIDI Driver.



- For details on using PatchBay, refer to the explanations found in the "🍏" menu item "About PatchBay..." etc.

To use the **Apple MIDI Driver**, you must first delete or move the Korg MIDI Driver if it exists in your system folder. Then start up PatchBay, double-click the Apple MIDI Driver icon that appears, check Enabled for the Port to which the **TR-Rack** is connected, set Interface Type to [1 MHz], and close the dialog box. In PatchBay, drag the mouse from the OutPort "<" of the MIDI application (sequencer) to connect it to MIDI Out.

If you are using a MIDI application (sequencer) which does not use the **Apple MIDI Manager**, select the Port to which the **TR-Rack** is connected, and for applications which have a clock setting, set it to [1 MHz].

5. About the DI-TRI digital I/F option

By installing a separately sold **DI-TRI digital I/F option**, a **DIGITAL OUT** connector and **WORD CLOCK IN** connector can be added to the **TR-Rack**.

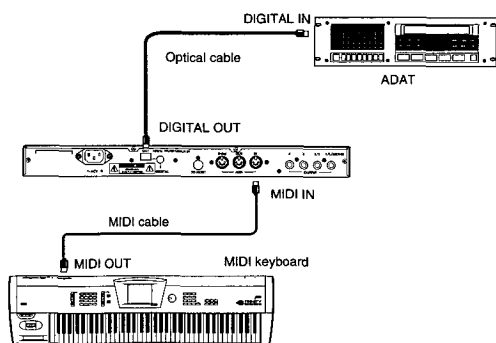
The **DIGITAL OUT** connector is an ADAT compatible output. By connecting it to the **DIGITAL IN** connector of an Optical format compatible mixer, amp or recorder etc., you can digitally output the signals that are output from the 1/L/MONO, 2/R, 3 and 4 output jacks (analog audio signals).

The output of these signals uses channels 1, 2, 3 and 4 of the eight channels of the ADAT Optical format.

The **WORD CLOCK IN** connector is an input for the system clock. By connecting this to the **WORD CLOCK OUT** connector of an ADAT Optical format compatible mixer or remote controller which has a **WORD CLOCK IN** connector, you can synchronize the connected devices.

Connections

Digitally recording the sound of the TR-Rack



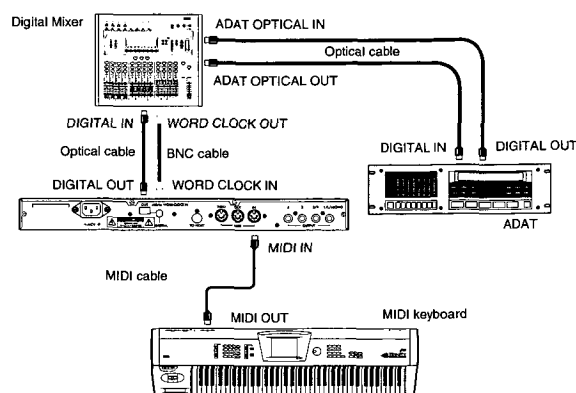
- 1 Connect the **TR-Rack's** **DIGITAL OUT** connector to the ADAT's **DIGITAL INPUT** jack.

Use an ADAT-Optical cable made by Alesis Corporation or a CD/DAT optical cable (both sold separately) to make connections.

- 2 Set the **TR-Rack's** Global mode "Page17: System Clock" parameter to "Internal."

For details on ADAT settings and recording procedure, refer to the ADAT owner's manual.

Digitally recording the sound of the TR-Rack mixed by a digital mixer to ADAT



- 1 As shown in the diagram above, connect the **TR-Rack's** **DIGITAL OUT** connector to the ADAT Optical format compatible mixer's **ADAT OPTICAL IN** connector of the ADAT Optical format compatible mixer.
- 2 Connect the **IN** and **OUT** connectors of the ADAT Optical format compatible mixer and the ADAT as shown in the above diagram.
- 3 Connect the **WORD CLOCK OUT** connector of the mixer to the **WORD CLOCK IN** connector of the **TR-Rack**.

To make this connection, use a BNC coax cable sold by Alesis or a BNC cable sold for video use (both sold separately).

- 4 Set the **TR-Rack's** Global mode "Page17: System Clock" parameter to "Word Clock."

For details on settings of the ADAT and mixer, refer to the manuals for each device.

The digital signal will be output from the **DIGITAL OUT** connector in synchronization with the clock signal received at the **WORD CLOCK IN** connector, allowing the various devices to be synchronized.

- ⚠ If the clock cannot be detected correctly because of a disconnected BNC cable, etc., the characters in the upper line of the LCD will alternate with the warning message "DI-tri clock error," and problems such as falling pitch etc. will occur. If this occurs, check whether there is a problem with the BNC cable.

Please contact a Korg dealer or a nearby Korg service center with questions regarding installation.

6. Messages

Effect Size overflow

Meaning: When copying an insertion effect, the copy destination effect size was smaller than the copy source.

Action: First press [+1/YES] or [-1/NO] to exit the error message. Then modify either the copy destination or the copy source effect size so that the copy operation can be executed.

Memory protected

Meaning: The memory into which you attempted to write data or receive a data dump is protected.

Action: Turn off memory protection for the corresponding memory. (Set the Global mode "Page 9: Memory Protect" parameter "OFF.")

MIDI receiving error

Meaning: A new MIDI message was received before the system exclusive data currently being received ended with an "F7" (End of Exclusive).

Action: Make sure that the transmitting device adds an "F7" to the end of the system exclusive data which it transmits. This is a problem with the transmitting device, and cannot be solved on the **TR-Rack**.

Source FX is empty

Meaning: When copying insertion effect settings, the effect size of the copy source timbre or track is turned "OFF."

Action: First press [+1/YES] or [-1/NO] to exit the error message. Then select an appropriate copy source.

Size4 placement err

Meaning: When copying or swapping insertion effect settings in a combination or multi, the specified operation would result in impossible effect size settings, such as FX1=2, FX2=4, FX3=2, or FX1=2, FX2=4, FX3=1.

Action: First press [+1/YES] or [-1/NO] to exit the error message. Then modify the settings so that the operation does not result in impossible effect size settings.

7. Specification and options

Specification

Synthesis method	ACCESS
Tone generator section	32 voice, 32 oscillator (for single oscillator), 16 voice, 32 oscillator (for double oscillator)
Memory	PCM ROM 2 Mbytes
Number of programs	512 (128 × 4)
Number of combinations	512 (128 × 4), Number of timbre: 8
Number of track	16
Effect section	Program (for single/double oscillator): 3 insert effects + 2 master effects Program (for drum oscillator): 4 insert effects + 2 master effects Combination: 8 insert effects + 2 master effects Multi: 8 insert effects + 2 master effects
Number of Effect	100 (insert effects), 14 (master effects)
OUTPUT jack	1/L/MONO, 2/R, 3, 4, Phones
Display	Backlit LCD, 20 characters × 2 lines
MIDI	IN, OUT, THRU
PC interface	TO HOST
Power consumption	18 W
Dimensions (W × D × H)	482 mm × 264 mm × 45 mm
Weight	2.8 kg
Included items	AC power cable, Floppy disk: KMD-01, SoundDiver Trinity (Mac/Win) Insulating bushing, Insulation washer

ACCESS: Advanced Control Combined Synthesis System

Options (sold separately)

DI-TRI Digital I/F Option

Function	Transmitted	Recognized	Remarks	
Basic Channel	Default	1-16	1-16	Memorized
	Changed	1-16	1-16	
Mode	Default	X	3	
	Messages	X	X	
	Altered	*****	X	
Note Number:		X	0-127	
	True Voice	*****	0-127	
Velocity	Note On	X	O 9n, V=1-127	
	Note Off	X	X	
Aftertouch	Polyphonic (Key)	X	O	For Alternate Mod *A
	Monophonic (Channel)	X	O	*A
Pitch Bend	X	O	*C	
Control Change	0, 32	x	O	Bank Select (MSB, LSB) *P
	1, 2, 16, 17, 18	x	O	Joystick (+Y, -Y), Ribbon (X, Z), Slider *C
	4, 64, 82	x	O	Foot pedal, Sustain pedal, Foot SW *C
	6, 38	x	O	Data Entry (MSB, LSB)
	7, 11	x	O	Volume Expression *C
	10, 91, 93	x	O	L: R panpot, Send 1, 2 *C
	12, 13, 80, 81	x	O	Effect controller 1, 2, Panel swich 1, 2 *C
	19, 83	x	O	Alternate Modulation, Dynamic Modelation *C
	72, 73, 74	x	O	EG time (Release, Attack), Brightness *C
	92, 94, 95	x	O	Insert, Master (M, R/D), Effect on/off *C
	96, 97	x	O	Date Increment/Decrement
100, 101	x	O	RPN(LSB, MSB) *1	
120, 121	x	O	All sound off, Reset all Controllers	
Program Change		x	O 0 - 127	*P
	Variable Range	*****	0 - 127	
System Exclusive	O	O	*2*E	
System Common	Song Position	X	X	
	Song Select	X	X	
	Tune	X	X	
System Real Time	Clock	x	O	For Alternate Mod
	Command	x	x	
Aux Messages	Local On/Off	X	X	
	All Notes Off	X	O 123 - 127	
	Active Sense	O	O	
	Reset	X	X	
Notes				
*C, *P, *A, *E: Sent and received when MIDI Filter(Controller, Program Change, Aftertouch, System Exclusive)is set to ENA.				
*1 LSB, MSB=00, 00: pitch bend range, =01, 00: fine tune, =02, 00: course tune				
*2 Includes Inquiry, Master Balance, and Master Volume messages.				

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

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

O: Yes
X: No

Consult your local Korg distributor for more infomation on MIDI IMPLEMENTATION.

NOTICE

KORG products are manufactured under strict specifications and voltages required by each country. These products are warranted by the KORG distributor only in each country. Any KORG product not sold with a warranty card or carrying a serial number disqualifies the product sold from the manufacturer's/distributor's warranty and liability. This requirement is for your own protection and safety.

KORG KORG INC.

15 - 12, Shimotakaido 1 - chome, Suginami-ku, Tokyo, Japan.