Digital Recording Studio

D16

Owner's Manual

TouchView Graphical User Interface

REMS

KORG

Ⓔ ②

To ensure long, trouble-free operation, please read this manual carefully.

Precautions

Location

Using the unit in the following locations can result in a malfunction.

- In direct sunlight
- Locations of extreme temperature or humidity
- Excessively dusty or dirty locations
- Locations of excessive vibration

Power supply

Please connect the designated AC/AC power supply to an AC outlet of the correct voltage. Do not connect it to an AC outlet of voltage other than that for which your unit is intended.

The AC/AC power supply will produce a certain amount of heat during operation, but this is not a malfunction. When power is connected, place it in a well ventilated location, and avoid placing it on a plastic object or where heat buildup might occur.

Interference with other electrical devices

This product contains a microcomputer. Radios and televisions placed nearby may experience reception interference. Operate this unit at a suitable distance from radios and televisions.

Handling

To avoid breakage, do not apply excessive force to the switches or controls.

Care

If the exterior becomes dirty, wipe it with a clean, dry cloth. Do not use liquid cleaners such as benzene or thinner, or cleaning compounds or flammable polishes.

Keep this manual

After reading this manual, please keep it for later reference.

Keeping foreign matter out of your equipment

- Never set any container with liquid in it near this equipment. If liquid gets into the equipment, it could cause a breakdown, fire, or electrical shock.
- Be careful not to let metal objects get into the equipment. If something does slip into the equipment, unplug the AC/AC power supply from the wall outlet. Then contact your nearest Korg dealer or the store where the equipment was purchased.

THE FCC REGULATION WARNING (for U.S.A.)

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

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

Unauthorized changes or modification to this system can void the user's authority to operate this equipment.

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).

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Handling of the internal hard disk

Do not apply physical shock to this device. In particular, you must never move this device or apply physical shock while the power is turned on. This can cause part or all of the data on disk to be lost, or may damage the hard disk or interior components.

When this device is moved to a location where the temperature is radically different, water droplets may condense on the disk drive. If the device is used in this condition, it may malfunction, so please allow several hours to pass before operating the device.

Do not repeatedly turn the power on / off. This may damage not only the D16, but also any SCSI devices that are connected.

This device begins to access the hard disk immediately after the power is turned on.

Never turn off the power while the HDD access indicator is lit or blinking. Doing so can cause all or part of the data on disk to be lost, or may cause malfunctions such as hard disk damage.

If the hard disk has been damaged due to incorrect operation, power failure, or accidental interruption of the power supply, a fee may be charged for replacement even if this device is still within its warrantee period.

Introduction

Thank you for purchasing the Korg **D16** Digital Recording Studio. To ensure trouble-free enjoyment, please read this manual carefully and use the instrument as directed.

Features

- The D16 is a 16 track digital multi-track recorder (MTR) with full-digital processing (**24 bit** internal processing, **16/24 bit uncompressed** recording and playback, **44.1 kHz** sampling frequency).
- It contains a **16 track** recorder, a **24-channel 8-bus** mixer, and effects.

  When using **16 bit** recording / playback: **8** tracks can be recorded simultaneously, and **16** tracks can be played back simultaneously.

  When using **24 bit** recording / playback: **4** tracks can be recorded simultaneously, and **8** tracks can be played back simultaneously.

  From recording to effect processing to mixing down to CD-R / RW (a CD-R / RW drive is required), DAT recorder or MIXDOWN, **all processing is performed completely in the digital domain**.
- A **2.1 GB** hard disk is built-in, allowing a total of up to **6.5 hours** of recording (when recording one track at 16 bits). A maximum of **100** songs × **16** tracks × **8** virtual tracks can be recorded, for a total maximum of 12,800 tracks of data.
- All analog inputs in the mixer section use high-performance balanced preamps to take full advantage of the audio quality of full-digital processing.

  Dedicated **XLR input** and **guitar input** jacks are provided, and support a range from mic level to +16 dBu (beyond pro audio level) so that virtually any audio source can be connected.

  All phone jack inputs use **TRS balanced jacks** to support **balanced** input. Of course, **unbalanced** input is also supported.

  The D16 has a **built-in mic** that lets you immediately record phrases that come to mind.

  The **S/P DIF digital input** provides a sampling rate converter that automatically converts 48 kHz or 32 kHz sources to **44.1 kHz**.
- Each analog input / mixer channel provides **high EQ**, **mid EQ**, and **low EQ**. The **mid EQ** has an **adjustable cutoff frequency**.

  Since separate EQ is provided for the inputs and the mixer, you will never have the problem of unintentional "double EQ" that can occur on MTR systems with an analog mixer, when the EQ settings used during recording are re-applied during playback.

  A maximum of eight **insert effects** can be used on the analog inputs / mixer channels. Two **master effects** accept sends from each channel. And lastly, a dedicated **final effect** can be applied to the master outputs. Insert effects and master effects can be selected from **128/32/32** (total of **192**) different preset programs, each of which combine up to **five** of **98** varieties of high-quality effect with settings created by professional musicians and studio engineers. You can freely edit the preset programs and store them in one of **192** user areas. An expression pedal (separately sold option) can be connected to **control** an insert effect in realtime.
- The effects built into the D16 make it easy for you to use detailed and powerful modeling sounds produced by Korg's "*AI EMS*" modeling technology.
- A **tuner** is built in, so that you can tune an instrument etc. whose sound is picked up by the internal mic, or check the tuning of a playback track.
- Fader, EQ, pan, and effect settings etc. of the mixer section can be stored as **scenes**, and up to **100** scenes can be recorded in each song. Scenes can be switched as time elapses during playback, or you can recall them when desired as general-purpose settings.
- Operations such as record, copy, and delete are performed using **non-destructive editing**. You can use the **Undo** function to return to the state before recording or editing, and then use the **Redo** function to cancel the Undo operation. Undo allows you to return through the previous **99** recording or editing operations.
- The **Auto Save function** ensures that songs or phrases that you created by recording or editing are automatically saved to disk when you switch songs or turn off the power, freeing you from having to manually save your data.
- Each track provides eight **virtual tracks**.

  When recording solo parts etc., you can switch between virtual tracks to record multiple takes, and select the best one later. Or when bouncing (ping-pong recording), you can specify an "unselected virtual track" as the recording destination, so that sixteen tracks of recorded data can be mixed down to two tracks without erasing any of the sixteen tracks. By repeatedly **bouncing** sixteen tracks to two tracks, you can theoretically create a song with 16 × 8 = 128 tracks without erasing any of the original track data.
- In addition to the metronome sound, the D16 provides **215** different **rhythm patterns** in a wide range of musical styles, which can provide a recording guide with a more realistic sense of tempo. Even without connecting a rhythm machine, it's easy to begin recording along with a favorite rhythm. These rhythm patterns can also be recorded on a track.
- **Auto** and **manual punch-in/out recording** functions make it easy for you to re-record a specific portion of your performance that you would like to redo.
- The **Trigger Record** function can automatically initiate recording when audio input occurs, so that it's easy to begin recording even if both hands are occupied with playing a guitar or keyboard. A foot switch can also be used to start / stop recording.

- The **Scrub** function lets you audition the recorded state of each track just as if you were using an open-reel tape recorder, making it easy to find the precise beginning of a desired phrase, etc.
- The **Locate** Point (**four** locations per song) and **Mark** Point (**100** locations per song) memory functions allow you to memorize points for instant recall, such as divisions in the song structure. You can assign a name to each mark.
- The D16 provides a **Program Playback** function similar to that found on a CD or MD, so that you can playback multiple songs in a specified order. This function can also be used to produce your own album that can be recorded directly to MD or DAT etc.
- You can connect a CD-R/RW drive and produce your own original albums (a CD-R/RW drive is required).

  Be aware that some audio CD players are unable to play back CD-R/RW discs.
- When recording and editing songs or phrases from a record or CD, you can **tap** along to the tempo to match the **tempo**. You can also create a **tempo map**, or **record MIDI Clock data** from an external device.
- The D16 can be **synchronized** to a sequencer or rhythm machine etc. that supports MIDI Clock, MTC, or MMC.
- Major types of connectors such as SCSI and S/P DIF digital interface etc. are standard, allowing immediate connection to external devices.

  The **SCSI** connector allows recording/playback or data backup on an external hard disk or removable disk etc.

  The **S/P DIF** connectors allow audio data to be digitally recorded from an external digital device such as a CD or MD, or a song you create to be mixed down to DAT or MD via direct digital output.

  The **AUX OUT** jack allows an external effect to be connected.
- The D16 features the **TouchView system** that allows you perform operations by directly touching the LCD screen, making cursor movements easy. A four-directional cursor key is also provided to allow traditional operation.
- The D16 is compact and lightweight, and can be easily carried into the studio or anywhere else.

What is *RADIAS*?

RADIAS (Resonant structure and Electronic circuit Modeling System) is KORG's proprietary sound modeling technology which precisely reproduces the complex character and nature of both acoustic and electric instruments as well as electronic circuits in real world environments. *RADIAS* emulates a wide variety of sound generation characteristics including instrument bodies, speakers & cabinets, acoustic fields, microphones, vacuum tubes, transistors, etc.

Printing conventions in this manual

Switches and knobs [ ]
Keys, **dials**, and **knobs** on the panel of the D16 are printed within [square brackets].

Parameters that appear in the LCD screen " "
Parameters that appear in the LCD screen are printed inside "double quotation marks." The terms '**button**' and '**tab**' refer to objects in the LCD screen.

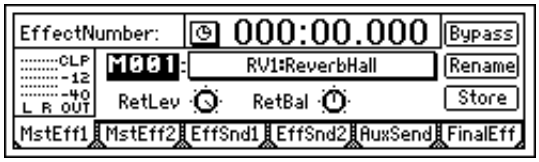
Bold-face type
Panel settings such as for faders or the [TRACK STATUS] keys are printed in **bold type**, and parameter values are printed in "**bold type**."

Bold type also indicates content within the text that we wish to emphasize.

note Example: The currently selected tab page

The following figure shows the [MASTER EFFECT/AUX] "MstEff1" tab page. To select this tab page, press the [MASTER EFFECT/AUX] key located on the top panel, and press the "MstEff1" tab in the LCD screen.

The various objects in the tab page are parameters etc. There are also under-bars, popup buttons, and icons.
In the figure shown, "EffectNumber," "RetLev" and "Rename" buttons etc. are parameters. Currently, "EffectNumber" is highlighted, and can be edited. The current value is "**M001**," and this will change if you rotate the [VALUE] dial. (→p.9)



Steps ① ② ③ …
Steps in a procedure are indicated as ① ② ③ …

Selecting a parameter
There are two ways to select a parameter on the D16. You can directly press that parameter in the LCD screen, or you can use the [CURSOR] key and the [ENTER] key to move to the parameter (→p.9). In this owner's manual, the explanations will usually use the method of directly pressing the LCD screen.

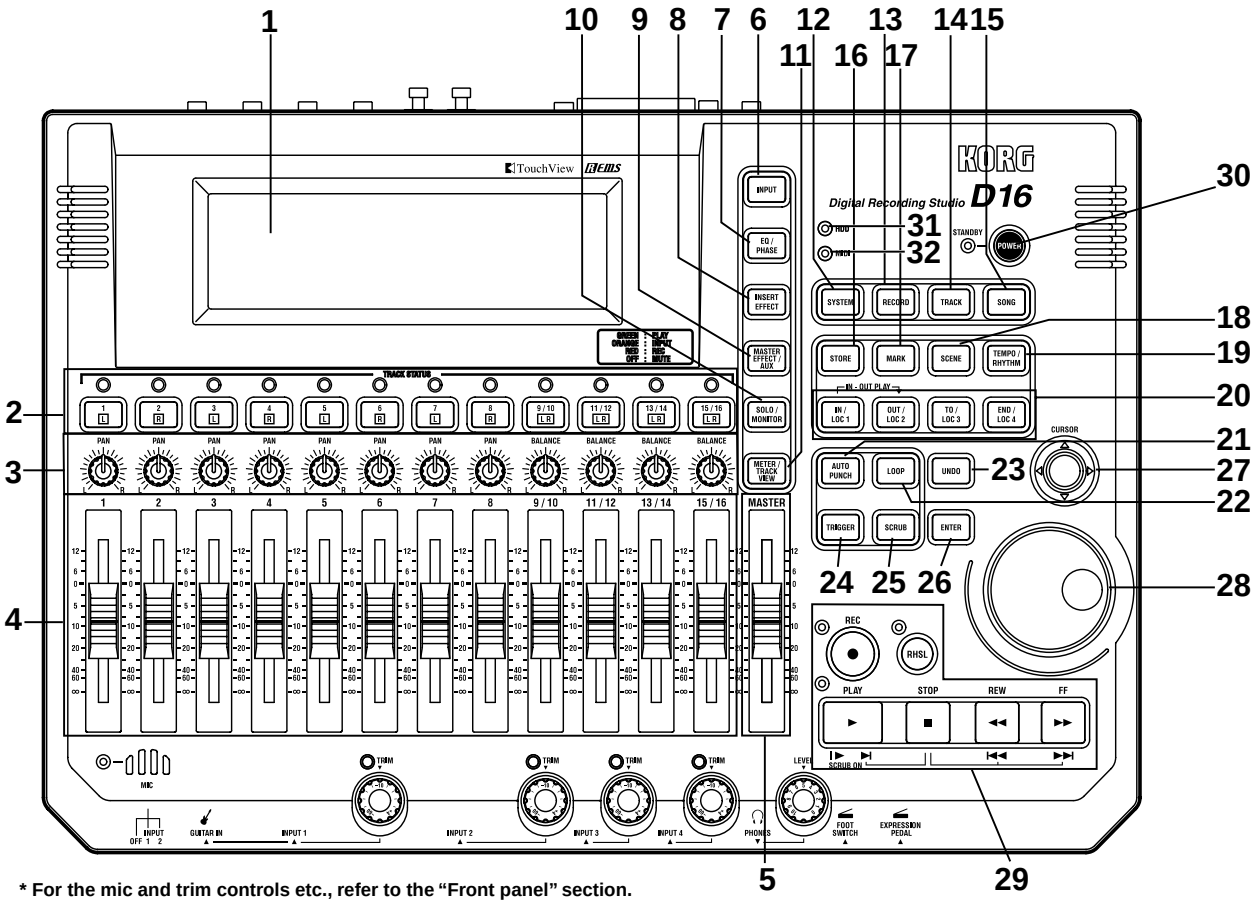
p.■■
This indicates a page or parameter number for reference.

Symbols , note
These symbols respectively indicate cautions or advisory explanations.

LCD screens
The parameter values shown in the LCD screens printed in this manual are explanatory examples, and may not necessarily match the displays that appear on your D16.

Panel overview of the D16

Top panel



*** For the mic and trim controls etc., refer to the "Front panel" section.**

1 LCD screen

The D16 uses a TouchView system based on a touch panel screen. By pressing objects that are shown in the LCD screen, you can select pages, tabs, and parameters, and set their values.

During recording / playback, this area displays volume data (level meters), time data (locator), and various parameters. (→p.8)

2 [TRACK STATUS] keys

These keys are used to put each track into playback or record status, or to mute (silence) it. Each time you press a key, the track setting will alternate (LED color lit, dark). (→p.86)

When recording from analog / digital input, you can select up to eight recording tracks.

note These settings can be paired.

3 [PAN] knobs (Ch 1…8) [BALANCE] knobs (Ch 9…16)

These knobs adjust the stereo location of each channel.

For channels 1–8 they adjust the pan of each channel. For channels 9–16 they adjust the balance. (→p.86)

note These settings can be paired, and registered in a scene.

4 [CHANNEL] faders (Ch1…8, Ch9/10…15/16)

These faders adjust the recording / playback volume of each channel.

Channels 9–16 are stereo faders. (→p.86)

note These settings can be paired, and registered in a scene.

5 [MASTER] fader

This fader sets the overall volume of all channels. When bouncing, it sets the recording level of the bounce destination tracks. (→p.86)

6 [INPUT] key

This key is used to select the mixer channel to which the audio signal from each input will be

sent. It is also used to specify EQ (for recording) for the analog inputs.
You will also select this key when using the tuner. (→p.26, 75)

7 [EQ/PHASE] key

This key is used to specify the EQ (for track playback) and phase of each channel. (→p.25, 78)

note These settings can be paired, and registered in a scene.

8 [INSERT EFFECT] key

This key is used to select the location of an insert effect, to select the effect type, and to select and edit effect programs. (→p.29, 79)

note These settings can be registered in a scene.

9 [MASTER EFFECT/AUX] key

This key is used to select and edit effect programs for master effects 1 and 2, and to set the send levels from each channel to the master effects. In addition, it is used to set the send amount to an external effect, and to select and edit effect programs for the master effects. (→p.31, 81)

note These settings can be registered in a scene. The send settings can be paired.

10 [SOLO/MONITOR] key

This key is used to solo an individual channel, send, or return. It is also used to select an audio source for monitoring. (→p.84)
When solo is on, the LED will blink.

11 [METER/TRACK VIEW] key

This key is used to display volume data (level meters) during recording and playback, and to view audio event data in each track (track view). (→p.85)

12 [SYSTEM] key

This key is used to make foot switch and MIDI-related settings, to manage data on disk, and to backup or restore data. (→p.45)

13 [RECORD] key

Press this key to make recorder settings such as selecting the recording source or the bounce recording method etc. (→p.51)

14 [TRACK] key

Press this key to select the virtual track for each track, or to perform track editing operations such as copy or delete. (→p.52)

15 [SONG] key

Press this key to create a new song, rename/select a song, perform a song editing operation such as copy or move, perform program playback of songs, or produce an audio CD (a CD-R/RW drive is required). (→p.59)

16 [STORE] key

To register a locate point, mark, or scene, press this key to register the time. The registered time can be stored to a location key by pressing the corresponding key. (→p.64)

17 [MARK] key

This key is used to register time locations within a song, and to jump immediately to a registered location.
It is also used to edit marks by renaming or deleting them etc. (→p.64)

18 [SCENE] key

This key is used to store settings of the [CHANNEL] faders, [PAN]/[BALANCE] knobs, EQ, and effect send effects. to the desired location of a song as a Scene. When Scene is on, playing back the song will cause the registered scenes to switch automatically. This key is also used to perform scene editing operations such as copy, rename, or delete. (→p.65)
This key will light when the Scene function is on.

19 [TEMPO/RHYTHM] key

This key is used to set the tempo for a song, create a tempo map, and turn the rhythm function on/off. (→p.68)
This key will light when the Rhythm function is on.

20 [IN/LOC1] key, [OUT/LOC2] key, [TO/LOC3] key, [END/LOC4] key

These keys are used to register a desired time location within a song, or to instantly jump to a registered time location.
The time locations registered here are used as the punch-in/out locations, and the editing range for track editing operations such as copy or delete. (→p.70)

By holding down the [IN/LOC1] key and pressing the [OUT/LOC2] key, you can listen to the audio between the IN–OUT points.

21 [AUTO PUNCH] key

This key is used to turn the Auto Punch-in/out function on/off, to set the pre/post roll time, and to verify the start/end locations. (→p.71)

This key will light when the Auto Punch-in/out function is on.

22 [LOOP] key

This key is used to turn the Loop function on/off for playback or recording, and to verify the start/end locations. (→p.72)
This key will light when the Loop function is on.

23 [UNDO] key

This key accesses the **Undo** function which lets you return data to its original state after recording or editing a track, and the **Redo** function which

restores the state prior to Undo.
The previous 99 recording or editing operations can be undone. (→p.73)
This key will light when the Undo function is available.

24 [TRIGGER] key

This is the on / off key for the **Trigger Recording** function, which causes recording to begin automatically in response to an audio input. This key is also used to set the threshold level and pre-trigger time. (→p.73)

This key will light when the Trigger Recording function is on.

25 [SCRUB] key

This is the on / off key for the **Scrub**, **Play To/From**, and **Slow Play functions**. These functions are used by operating the corresponding controller. (→p.74)

This key will light when the Scrub function is on.

26 [ENTER] key

This key is used to finalize a parameter selection or to turn it on / off. It has the same result as directly pressing the LCD screen.

27 [CURSOR] key

This key moves the cursor.

28 [VALUE] dial

This dial is used to modify various values, and to move the current time location.
When the Scrub function is on, rotating the dial will playback the track at the corresponding speed.

29 TRANSPORT keys [REC] key, [RHSL] key, [PLAY] key, [STOP] key, [REW] key, [FF] key

These keys control recorder operations such as playback and record. (→p.87)

30 [POWER] key

This key turns the power on / off. (→p.12)

31 HDD access indicator

This indicator will light when the internal hard disk is being accessed for recording, playback, or editing etc.

32 MIDI indicator

This indicator will light when MIDI data is being received from the MIDI IN connector.

Front panel

1 MIC (built-in mic)

2 [MIC] on indicator

3 [MIC] switch: OFF, INPUT 1, INPUT 2

OFF: The built-in mic is turned off. (LED dark)

INPUT 1: The built-in mic is input from [INPUT 1]. (LED lit)

INPUT 2: The built-in mic is input from [INPUT 2]. (LED lit)

When the [MIC] switch is set of the **INPUT 1** or **INPUT 2**, that input will used as the mic input, and the source connected to that jack will not be input.

The input priority order is as follows.

•① [MIC], ② [GUITAR IN] , ③ [INPUT]
If you are not using the built-in mic, set the [MIC] switch to **OFF** so that sound from the mic is not input.

4 [GUITAR IN] jack

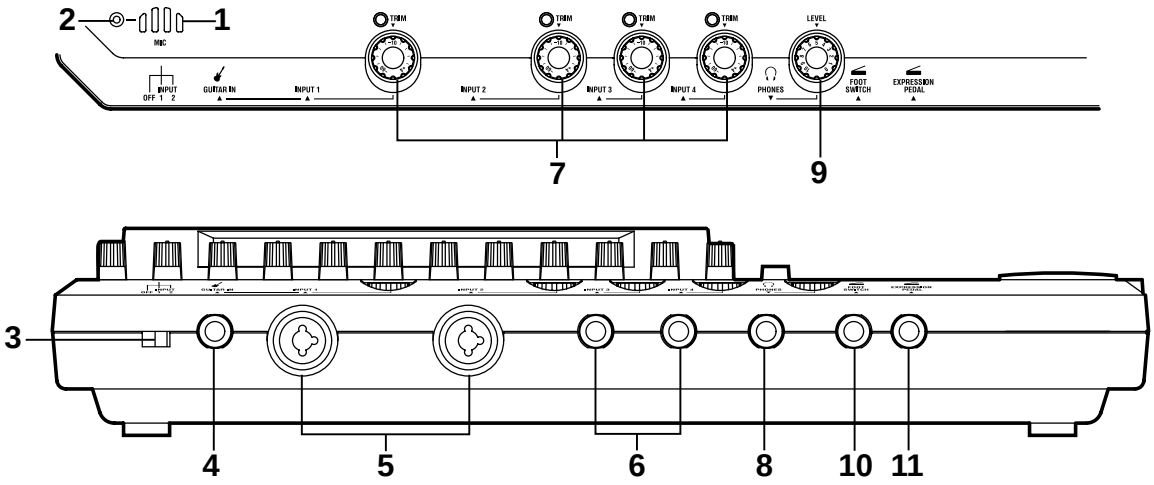
A guitar or bass guitar can be input here.
This is an unbalanced 1 / 4" (6.3 mm) input jack with 1 M-ohm impedance.

5 [INPUT 1], [INPUT 2] jacks

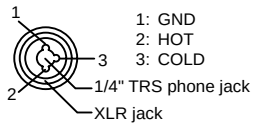
Audio sources such as mic or line (keyboard etc.) can be connected here.

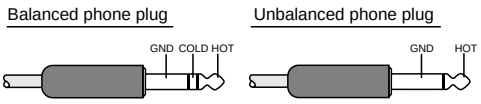
These are combination type jacks that combine an XLR jack and a 1 / 4" jack TRS phone jack.

Both jacks are balanced inputs.



Unbalanced phone plugs can also be connected.





Be aware that if you plug into the [GUITAR IN] jack, nothing can be input from the [INPUT 1] jack. If you wish to input a source to the [INPUT 1] jack, you must remove the plug from the [GUITAR IN] jack.

6 [INPUT 3], [INPUT 4] jacks

Audio sources such as mic or line (keyboard etc.) can be connected here.

These are balanced inputs with 1/4" TRS phone jacks. Unbalanced phone plugs can also be connected.

7 [TRIM] knobs: –60…–10…+4 dBu

These knobs adjust the input level. The markings indicate the input level. Adjust these as appropriate for your input device.

The LEDs will show different colors to indicate the following statuses.

Lit **green**: input present

Lit **orange**: correct level

Lit **red**: excessive level

Adjust these knobs so that the LEDs do not light red.

Although the input level will depend on your equipment and performance, here are some general guidelines for adjusting these knobs.

–40 – –60 dBu: mic input

–30 dBu: guitar, bass guitar

–10 dBu: consumer audio equipment such as CD players

+4 dBu: keyboards and studio equipment

If the [TRIM] knob is raised excessively for an input to which nothing is connected, you may hear hum or noise.

8 [PHONES] jack

Headphones can be connected here.

This is a 1/4" stereo phone jack.

It outputs the same audio signal as [MONITOR OUT L/R].

9 [PHONES LEVEL] knob: 0…10

This knob adjusts the volume level of the headphones. Higher settings will increase the volume.

10 [FOOT SWITCH] jack

If both your hands are occupied with playing an instrument etc., you can use a foot switch to perform basic operations of the D16's recorder.

The foot switch can be used to play/stop, start/end manual punch recording, register a mark, and register tap tempo etc. (→p.45)

Connect a foot switch (separately sold option, PS-1 etc.) to this jack.

11 [EXPRESSION PEDAL] jack

You can use a pedal to control a specified parameter of an insert effect. You can control the parameter in realtime while you play or record. (→p.33)

Connect an expression pedal (separately sold option, EXP-2, XVP-10 etc.) to this jack.

Rear panel

1 [AC 9V] connector

Connect the included AC / AC power supply to this connector.

2 [MIDI OUT] connector

MIDI messages are transmitted from this connector. Use this when you wish to control a connected external MIDI device from the D16. (→p.46)

3 [MIDI IN] connector

MIDI messages are received at this connector. Use this when you wish to control the D16 from a connected external MIDI device. (→p.46)

4 [LCD CONTRAST] knob

This knob adjusts the contrast of the LCD screen. The visibility of the LCD screen will depend on your viewing angle, so adjust this knob as necessary. When viewed from the front panel, rotating this knob toward the right will darken the characters, and rotating it toward the left will lighten the characters.

5 [SCSI] connector

An external hard disk drive, or removable disk drive (→p.48) can be connected here, and used for recording / playback in the same way as the internal drive. An external drive can also be used for backup. (→p.49)
In addition, you can connect a CD-R / RW drive and create audio CD's. (→p.62)
This is a D-sub 25 pin SCSI connector.

For details on the SCSI devices that can be used with the D16, please refer to the Korg website or contact Korg information.

6 [AUX OUT] jack

This jack outputs the external send signal from each mixer channel. (The send amount is adjusted in the [MASTER EFFECT / AUX] "AuxSnd" tab page.) Connect this jack to your external effect processor.
This is a 1 / 4" inch phone jack.

7 [MONITOR OUT L / R] jacks

Connect your external monitor system to these jacks. The bus that is sent to the monitor output is selected in the [SOLO / MONITOR] "Monitor" tab page. (→p.84) These jacks output the same audio signal as [PHONES].
These are RCA phono jacks.

8 [MONITOR OUT LEVEL] knob

This knob adjusts the volume level from the [MONITOR OUT L / R] jacks.

9 [MASTER OUT L / R] jacks

These are analog outputs for the master LR bus which combines the signals from each mixer channel, or for the audio source that is selected by the Solo function. The Solo selection is made in the [SOLO / MONITOR] "Solo" tab page.

Connect your external monitor system or recording device to these jacks. They output the same audio signal as the [S / P DIF OUT] jacks.
These are RCA phono jacks.

10 [S / P DIF OUT] jack

This is an optical-type S / P DIF format (IEC60958, EIAJ CP-1201) digital output jack (stereo).
Use an optical cable to connect this jack to the optical digital input of your DAT or MD.
This jack digitally outputs the same audio signal as the [MASTER OUT L / R] jacks (→"9 [MASTER OUT L / R] jacks"), at a sampling rate of 44.1 kHz.

11 [S / P DIF IN] jack

This is an optical-type S / P DIF format (IEC60958, EIAJ CP-1201) digital input jack (stereo).

Use an optical cable to connect this jack to the optical digital output of your DAT, CD, or MD.

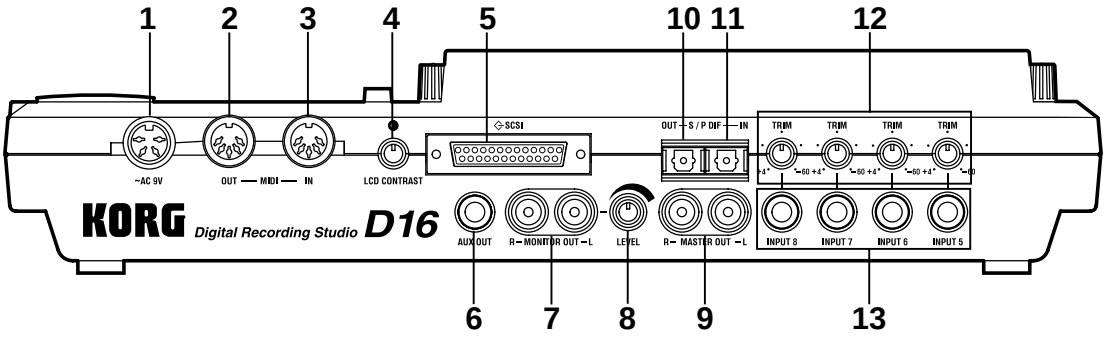
Since this jack has a built-in sampling rate converter, sources with sampling rates of 48 kHz or 32 kHz can be connected directly. The signal will be automatically converted to 44.1 kHz.

12 [TRIM] knobs: –60…+4 dBu

These knobs adjust the input levels.
Input levels will differ depending on your equipment or performance, but here are some general guidelines.
–40 — –60 dBu: mic input
+4 dBu: keyboards or studio devices

13 [INPUT 5], [INPUT 6], [INPUT 7], [INPUT 8] jacks

These are inputs for audio sources such as mic or line signals (keyboard etc.). (→"6 [INPUT 3], [INPUT 4] jacks")



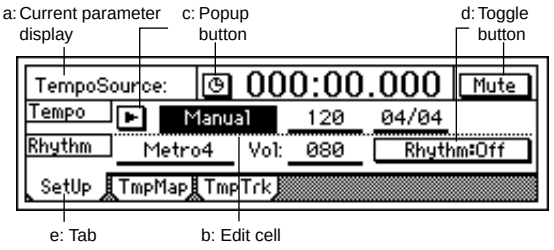
Objects in the LCD screen and their functions

Objects in the LCD screen

The LCD screen of the D16 features a TouchView system that uses a touch panel.

By pressing objects that appear in the LCD screen, you can select pages, set parameter values, move the cursor, modify settings, and perform other operations.

note In this owner's manual for the D16, words enclosed in "double quotation marks" such as "…", "…" button, or "…" tab refer to items shown in the LCD screen. Words enclosed in [square brackets] such as […] key, […] knob, […] dial, or […] fader refer to controls on the top panel, front panel, or rear panel.



a: Current parameter display

This is the name of the currently selected parameter. For icon-type parameters such as EQ and faders, the value is shown at the right.

b: Edit cell

When you press an editable parameter on the LCD screen, the parameter or parameter value will be highlighted. This is referred to as the **edit cell**, and your editing will affect the highlighted portion.

To modify the parameter value in the edit cell, you can use either the [VALUE] dial (→p.9) or the popup buttons in the LCD screen.

c: Popup button

When you press this button, the available parameter values will be displayed in a **dialog box (f:)**.
To input the value of a parameter, press the desired value in the dialog box.

▶, Rename, New

d: Toggle button

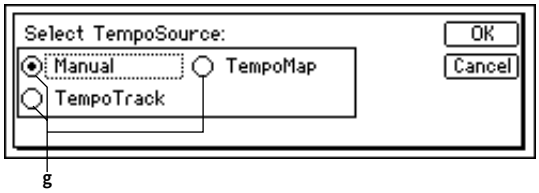
This type of button switches a function or setting on / off each time it is pressed.

Mute (On) / Mute (Off),
Rhythm:On (On) / Rhythm:Off (Off)

e: Tab

Press a tab to select the desired page.
Alternatively, you can cycle through the available tabs by repeatedly pressing the mode key for the currently selected page.

f: Dialog box

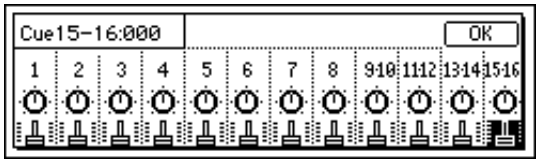


To execute, press the "OK" button. To cancel without executing, press the "Cancel" button. The dialog box will close.

g: Radio buttons

These type of buttons are used to select one of multiple choices.

h: Icon



To modify the parameter value of an object shaped like a slider or knob, press it to make it the edit cell, and rotate the [VALUE] dial to adjust the value.

i: Scroll buttons

Use these buttons to view parameter values that cannot be shown in a single screen.

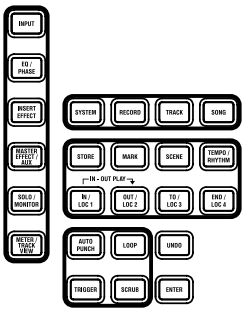
Adjusting the contrast of the LCD screen

Use the rear panel [LCD CONTRAST] knob to adjust the contrast. (→p.7)

Basic operations in the LCD screen

1. Select the mode

○ **When you wish to access a function in the D16's LCD screen, you must first press the appropriate key to select the Mode that contains that function.**



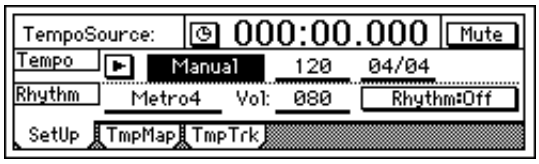
For details on the functions of each mode, refer to "Reference" (→p.45).

2. Select the tab page

Each mode contains a variety of parameters, which are organized into pages. These pages are divided by **tabs**.

① **Make sure that the desired mode has been selected.**

The following figure shows the TEMPO / RHYTHM page that appears when the [TEMPO / RHYTHM] key is pressed.



② **Select the desired tab page. There are two ways to do so.**

- Press one of the tabs located at the bottom of the page.
- Each time you press the currently selected mode key, you will cycle through the available tab pages.

Some pages have only one tab.

3. Select the parameter and make settings

Selecting the parameter

Use one of the following methods to select the parameter that you wish to edit.

○ **Directly press the parameter in the LCD screen.**

○ **Press the up/down/left/right area of the [CURSOR] key to move to the parameter.**

○ **In a list display screen, move by rotating the [VALUE] dial.**

Setting the parameter value

The method of setting the parameter value will depend on the type of parameter.

○ **Select the parameter to highlight it, and rotate the [VALUE] dial to set the value.**

This is the usual method, and applies to parameters with an underline "_," iconic parameters such as EQ, and when using Locate to change the time.

There are also the following methods.

○ **Popup buttons, dialog boxes**

Use a popup button to access a dialog box, and specify the value of a parameter. (→p.8)

A dialog box can be accessed from a popup button in the following ways.

- Directly press the button that you wish to select.
- Use the [CURSOR] key to select the parameter, and press the [ENTER] key.

○ **Toggle buttons**

These buttons switch a function or setting on / off (→p.8). They can be switched in the following ways.

- Press the button directly.
- Use the [CURSOR] key to select the parameter, and press the [ENTER] key.

○ **Radio buttons**

These buttons select one of multiple choices. They can be selected in the following ways.

- Press the desired button directly.
- Use the [CURSOR] key to move the cursor to the desired selection, and press the [ENTER] key.

○ **Selecting a song or mark etc. from a list**

The following methods can be used to select a single item from a list.

- Directly press the desired item (name).
- Rotate the [VALUE] dial to select the desired item.

○ **Selecting a song for a program play list**

A special method is used only when creating a program play list in the [SONG] "PrgPlay" tab page.

Select a song from the list, and perform the desired operation for it.

① Press a play list number.

② Rotate the [VALUE] dial to select the desired song.

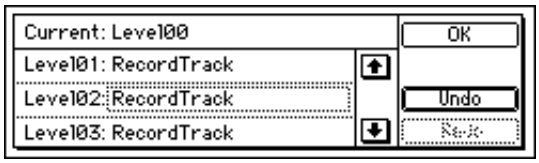
Undo

After recording or editing a track, you can execute **Undo** to return to the state before the data was recorded or edited.
You can undo up to **99** previous operations. You can also use **Redo** to return the data to the state in which it was before you performed Undo.

As an example, suppose that you have been using loop recording, and would like to select the best take. For details on loop recording, refer to p.72.

① **Press the [UNDO] key.**

The list will show the latest recording and previous recordings.



② **Rotate the [VALUE] dial to select what you consider the best take from the list.**

③ **Press the "Undo" button to execute Undo.**

The specified take will be selected.

④ **Playback to verify that you selected the correct take.**

If you press the [PLAY] key when "AutoPunch" is turned "**On**" (in the [AutoPunch] "AtPunch" tab page), playback will loop between the record start (**IN**) time and the record end (**OUT**) time.

⑤ **Press the "Redo" button, and you will return to the "Level00" take.**

For details on Undo, refer to p.73.

Step 1. Making connections, and turning the power on / off

Connecting audio devices to the D16, and turning the power on

1. Connections

The diagram below shows a basic example of connections when using the D16 to record. Make the appropriate connections for your system, substituting your own equipment as necessary for the equipment shown here.

Be sure than the power is turned off while you are making connections. If the power is on while connections are being made, your speaker system may be damaged, or other malfunctions may occur.

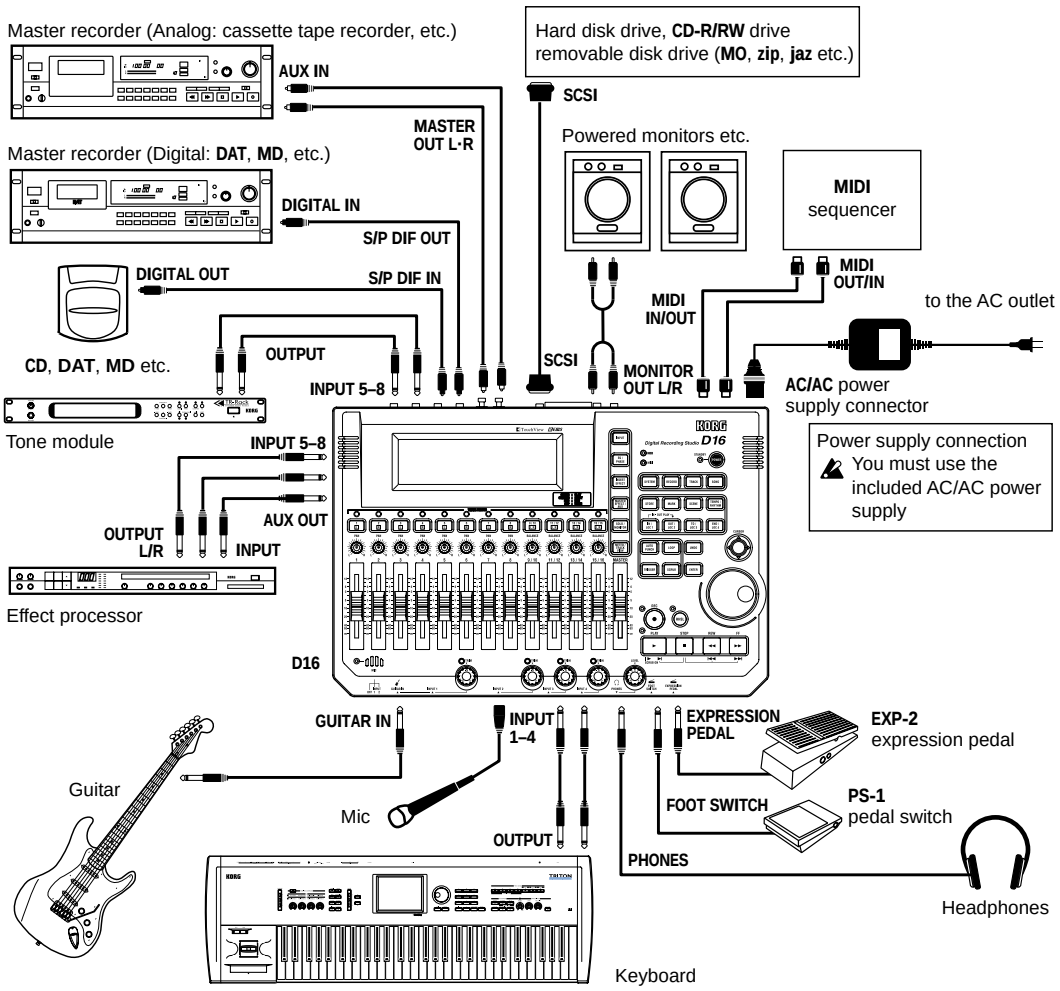
① **Connect the included AC/AC power supply.**
Connect the AC / AC power supply to the AC / AC power supply connector of the D16. Then plug the other end into an AC outlet.

② **Connect your audio monitoring system.**
Use RCA phono cables to connect a powered monitor system (separately sold option: PM-15B amplified speakers) etc. to the [MONITOR OUT L / R] jacks.

If you will be monitoring through headphones, connect the 1 / 4" phone plug of your headphones to the [PHONES] jack.

note The audio signal that is output from the [MONITOR OUT L / R] jacks and the [PHONE] jack is set in the [SOLO / MONITOR] "Monitor" tab page. (→p.84)

③ **Connect your input devices.**



Connections for recording analog sources

- Guitar, bass guitar ↔ [GUITAR IN] jack
- Mic (XLR) ↔ [INPUT 1], [INPUT 2] jacks
- Synthesizer etc. ↔ [INPUT 1]–[INPUT 8] jacks

note A guitar or bass guitar that is being sent through a compact effect device can be connected to [INPUT 1]–[INPUT 8].

note When inputting in stereo, you should select two adjacent inputs (1–2, 3–4, 5–6, 7–8) so that track editing can be performed more efficiently.

If you are recording from a connected mic, locate the mic at a sufficient distance from the D16 so that it does not pick up noise.

For more input examples, and details on sending the input audio to mixer channels and auditioning input signals, refer to p.16.

Connections for recording digital sources

- Optical digital (S/P DIF) output of a digital output device such as CD or MD ↔ [S/P DIF] connector of the D16 (use an optical digital cable for connection)

For more input examples, and details on sending the input audio to mixer channels and auditioning input signals, refer to p.18.

④ **Make other connections.**

Connections for mixdown

Make connections to the recording device (DAT, MD, cassette tape recorder etc.) to which the song you created on the D16 will be mixed down.

- Optical digital (S/P DIF) input of a digital recording device such as DAT or MD ↔ [S/P DIF OUT] of the D16
- AUX IN inputs of an analog recording device such as a cassette tape recorder ↔ [MASTER OUT L/R] jacks of the D16

Connections when using external effects

If you wish to apply an external effect to the signal from [AUX OUT] send output, use the [INPUT 1]–[INPUT 8] jacks to receive the return signal(s).

In this case, you can choose whether the signal(s) will be returned to the mixer channel(s) in the same way as a conventional input, or sent directly to the master bus. (→p.75)

Connections when using a foot switch to perform manual punch recording, or playback/stop etc.

Connect the pedal switch (separately sold option: PS-1) to the [FOOT SWITCH] jack.

Connections when using a foot pedal to control effects

Connect the expression pedal (separately sold option: EXP-2, XVP-10) to the [EXPRESSION PEDAL] connector.

Do not connect a volume pedal, since it will not function correctly.

Connections when controlling effects or switching scenes from an external MIDI device

MIDI OUT connector of the external MIDI device ↔ [MIDI IN] connector of the D16. (→p.47)

Connections when synchronizing the D16 with a MIDI sequencer etc.

MIDI IN connector of the sequencer etc. ↔ [MIDI OUT] connector of the D16 (use a MIDI cable for connections)

If you will be using MMC, connect the MIDI OUT connector of the sequencer etc. ↔ [MIDI IN] connector of the D16. (→p.47)

Connections when producing an audio CD on a CD-R/RW drive

- SCSI connector of the CD-R/RW drive ↔ [SCSI] connector of the D16 (use a SCSI cable to make connections). (→p.48)

Connections when saving or backing up data on an external hard disk or removable disk

SCSI connector of the external SCSI device ↔ [SCSI] connector of the D16 (use a SCSI cable to make connections). (→p.48)

2. Turning the power on/off

Turning the power on

Use the following procedure to turn on the power of the D16 and of the devices connected to it.

Before turning the power on, set the volume controls of all devices to the minimum position, and turn on the power switches beginning with the devices that are earliest (first) in the audio signal chain.

① **Lower the D16's [MASTER] fader to the –∞ position. Then turn the volumes of the external devices to the minimum positions.**

② **Turn on the power of the external input devices (keyboards etc.) that send audio signals to the D16.**

If an external drive is connected, turn on the power of the external drive.

③ **Press the [POWER] key of the D16 to turn on the power.**

The LCD screen will show the opening message, and then the [SONG] "SelSong" tab page will appear.

The song that had been selected when the power was last turned off will be selected.

④ **Turn on the power of the devices to which audio signals are being sent from the D16, such as your monitor system or MD recorder.**

Turning the power off

When you are finished playing or recording a song, turn off the power. Use the following procedure to turn off the power of the D16 and of the connected devices.

- Before turning off the power, turn the volume of all devices down to the minimum position, and turn off the power switches beginning with the devices that are at the end of the audio signal chain.
- Never disconnect the AC / AC power supply until the power is completely off. Data may be destroyed if you do so.
- The audio that is recorded on the D16 and the mixer settings etc. are saved automatically when you select or change songs, or when you turn off the power. However, effect settings that you edit will be lost unless you save them.

① **If you wish to keep any effect settings that you edited, save them. (→p.33)**

② **Lower the [MASTER] fader of the D16 to the –∞ position. Then turn the volumes of all connected external devices to the minimum position.**

③ **Turn off the power of devices to which the D16 is sending audio, such as your monitor system or MD recorder.**

④ **Press and hold down the [POWER] key of the D16 to turn off the power.**

When you press the [POWER] key, a message will ask you for confirmation, so press the "YES" button.

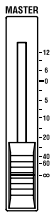
⑤ **If an external drive is connected, turn off the power of the external drive.**

⑥ **Turn off the power of external input devices such as a keyboard etc. that is sending audio to the D16.**

Listening to the demo songs

When shipped from the factory, the D16 contains several demo songs. Here's how to listen to these demo songs.

① **Set the [CHANNEL] faders of the D16 to the 0 position, and the [MASTER] fader to –∞.**



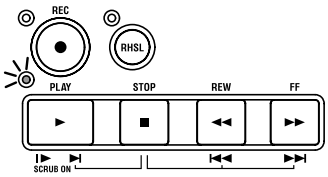
② **Select the song that you wish to play.**

For details on selecting a song, refer to "3. Selecting an existing song" (→p.14).

③ **Make the [TRACK STATUS] key LED of each track light green.**

If any are lit with a different color, or are dark, press the key to select green (PLAY).

④ **Press the [PLAY] key to begin playback.**



⑤ **Gradually raise the [MASTER] fader to adjust the volume level.**

While the song plays, you can try adjusting the [CHANNEL] faders, [PAN] knobs, EQ, the send amount to the master effects, or selecting different programs for the insert effects or master effects to hear the result.

⑥ **When the demo song finishes playing, press the [STOP] key to stop playback.**

Step 2. Creating or selecting a song

Creating or selecting a song

In order to record a new song, you must first create a new song on the D16. Here's how to create a new song, assign a name to the song, and select a song.

1. Creating a new song

① **Select the [SONG] "SelSong" tab page.**

Press the [SONG] key, and then the "SelSong" tab.

② **Press the "New" button.**

③ **Select the number of bits/tracks for the song that will be created, and the mixer settings. (→p.59)**

④ **Press the "OK" button.**

A song named "NewSong" will be created for the song number that follows the last existing song.

To delete a song, refer to p.61.

2. Naming a song

We recommend that you assign a name to your new song, to distinguish it from other songs.

If you wish to change the name of a song, you must first select that song (→"3. Selecting an existing song").

① **Select the [SONG] "SelSong" tab page.**

Press the [SONG] key, and then the "SelSong" tab.

② **Press the "Rename" button.**

③ **Change the name of the song.**

Use the "◄" "►" buttons to move the cursor in the song name (alphabetical characters) to the characters that you wish to change, and rotate the [VALUE] dial to select the desired characters.

The buttons in the LCD screen have the following function.

"Space" button:	Select a blank (space).
"ClearAll" button:	Erase the entire name.
"A../a.." button:	Select the alphabetical character "A." Press once again to select "a."
"0…9" button:	Select the numeral "0"
"Mark" button:	Select the symbol

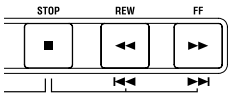
④ **If you are satisfied with the name that you input, press the "OK" button. If you decide not to change the name, press the "Cancel" button.**

3. Selecting an existing song

Selecting (creating) a new song is different than selecting an existing song. Here's how to select an existing song. (For a new song, refer to "1. Creating a new song.")

There are three ways to select an existing song.

[STOP] key + [FF] key, [STOP] key + [REW] key



Use this method to select the previous or next numbered song in the same drive.

- To select the next-numbered song, hold down the **[STOP]** key and press the **[FF]** key.
- To select the previous-numbered song, hold down the **[STOP]** key and press the **[REW]** key.

  If you are at the beginning of the song ("**000:00.000**" etc.), you will move to the previous-numbered song.

  If you are in the middle of a song, pressing the above buttons once will move to the beginning of the song, and pressing them once again will move to the beginning of the previous-numbered song.

Move the cursor to the song number, and rotate the [VALUE] dial

Use this method to select a different song in the same drive.

① **Select the [SONG] "SelSong" tab page.**
Press the [SONG] key, and then the "SelSong" tab.

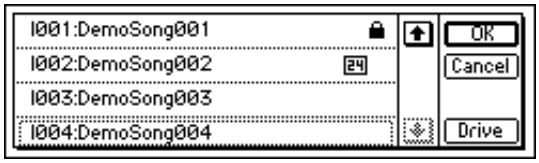
② **Press "SongNumber" (it will be highlighted), and rotate the [VALUE] dial to select the desired song number.**

Select from the song list (Select a song from another drive)

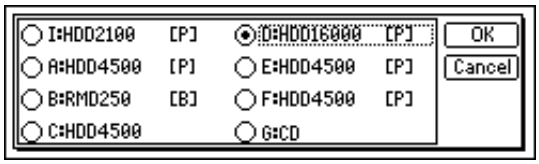
Use this method to select another song from the same drive, or a song from a different drive.

① **Select the [SONG] "SelSong" tab page.**
Press the [SONG] key, and then the "SelSong" tab.

② **Press the "SongNumber: ▶" button located at the left of the song number.**
The song list will appear.



③ **If you wish to change drives, press the "Drive" button, select a drive from the list, and press the "OK" button.**



④ **In the song list, rotate the [VALUE] dial to select the desired song, and press the "OK" button.**

Step 3. Recording

This section explains the basic recording procedures on the D16. Use the recording method that is appropriate for your purpose.

During recording, the audio signal flows in the following order: input → mixer channel → recorder.

1. Selecting the input / record track

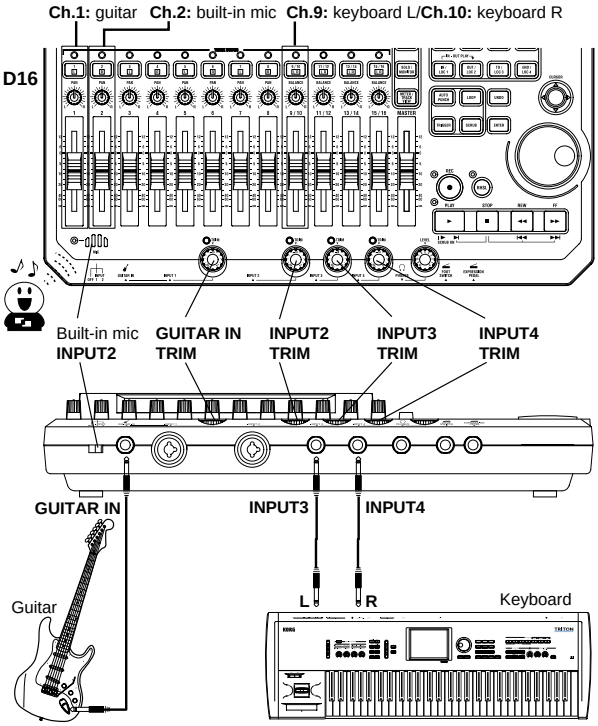
The D16 has both analog and digital input jacks. In order to record an external audio source, the audio must be assigned to a mixer channel.

This section explains how input sources are assigned to mixer channels so that you can audition them.

note On the D16, the number of the mixer channel used for input will be the same as the track number for recording and playback. For example if you wish to record on track 8, you would input the audio to mixer channel 8.

Analog inputs

Various situations are given below as examples.
Refer to the example that is closest to your situation.



- The **guitar** connected to the [GUITAR IN] jack will be input to mixer channel 1
- The **built-in mic** will be assigned to the [INPUT 2] jack, and input to mixer channel 2
- The **keyboard** connected to the [INPUT 3] and [INPUT 4] jacks will be input to mixer channels 9 and 10 please revise graphic to indicate INPUT 4

If you are using a stereo input source, you should select adjacent inputs (1–2, 3–4, 5–6, 7–8) to input the stereo signal to adjacent mixer channels.

note Before you proceed, refer to "1. Creating a new song" (→p.14), and create a new song.

Assign the guitar input from [GUITAR IN] to mixer channel 1

① **Connect your guitar.**

Lower the [MASTER] fader of the D16, and connect your guitar to the [GUITAR IN] jack.

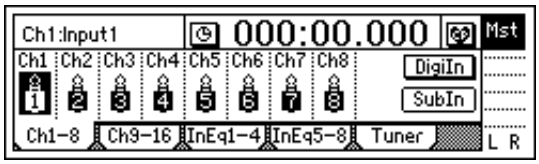
② **Adjust the trim.**

While playing your guitar, adjust the [TRIM] knob for GUITAR IN / INPUT 1. Adjust the level as high as possible without allowing the LED to light red.

③ **Specify the input channel.**

- Select the [INPUT] "Ch1–8" tab page.
- Press the "Ch1" icon, and rotate the [VALUE] dial to select "**Input 1**."

This assigns the input from the [GUITAR IN] jack to channel 1.



④ **Specify the recording track.**

Press the track 1 [TRACK STATUS] key to select **REC** (the LED will light red).

This causes the audio to be input to channel 1, and also specifies track 1 as the recording track.

⑤ **Check the record mode.**

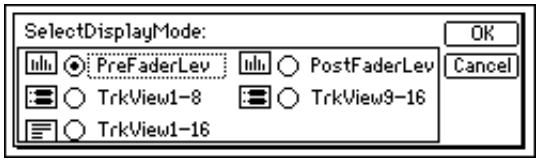
- Select the [RECORD] "RecMode" tab page.
- Press "**Input**" (=record the input).

⑥ **Use the level meter to check the input level.**

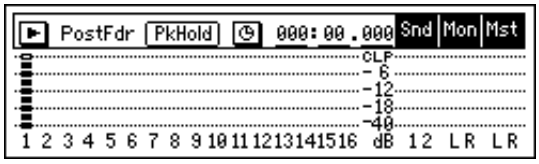
Display the pre-fader level.

- Press the [METER / TRACK VIEW] key.

- Press the "▶" button to select "**PreFaderLev**," and press the "OK" button.

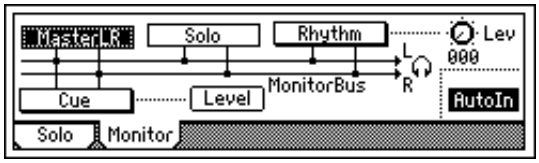


The ch.1 level meter will move to show changes in the input.



⑦ **Audition the audio signal.**

- Select the [SOLO / MONITOR] "Monitor" tab page.
- Press the "MasterLR" button to turn it "**On**" (highlighted).
- Gradually raise the [PHONES LEVEL] knob or the [MONITOR OUT LEVEL] knob, and listen to the audio signal in your headphones or monitor system.



Assign the built-in mic from [INPUT 2] to mixer channel 2

① **Turn on the built-in mic.**

Lower the [MASTER] fader of the D16, and set the [MIC] switch to **INPUT 2** (refer to the diagram on the previous page).

The [MIC] on indicator will light.

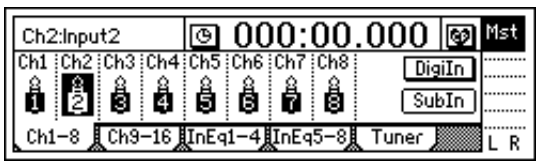
② **Adjust the trim.**

Speak or sing near the mic, and adjust the INPUT 2 [TRIM] knob. Adjust the level as high as possible without allowing the LED to light red.

③ **Specify the input channel.**

- Select the [INPUT] "Ch1–8" tab page.
- Press the "Ch2" icon, and rotate the [VALUE] dial to select "**Input 2**."

This assigns the input from the built-in mic to channel 2.



④ **Specify the recording track.**

Press the track 2 [TRACK STATUS] key to select **REC** (the LED will light red).

⑤ **Check the record mode and input level, and audition the sound.**

Refer to steps ⑤, ⑥, and ⑦ of "Assign the guitar input from [GUITAR IN] to mixer channel 1."

Assign the keyboard connected to [INPUT 3] and [INPUT 4] to mixer channels 9 and 10

① **Connect your keyboard.**

Lower the [MASTER] fader of the D16, and connect your keyboard to the [INPUT 3] and [INPUT 4] jacks (refer to the diagram on the previous page).

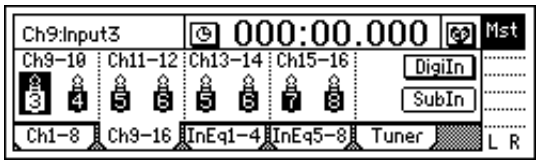
② **Adjust the trim.**

While playing your keyboard, adjust the INPUT 3 and 4 [TRIM] knobs. Adjust the level as high as possible without allowing the LED to light red.

③ **Specify the input channels.**

- Select the [INPUT] "Ch9–16" tab page.
- Press the "Ch9" icon, and rotate the [VALUE] dial to select "**Input 3**." In the same way, assign "Ch10" to "**Input 4**."

This assigns the input from the keyboard to channels 9 and 10.



④ **Specify the recording tracks.**

Press the track 9 / 10 [TRACK STATUS] key to select **REC** (the LED will light red).

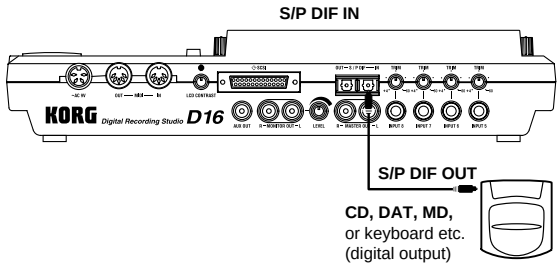
⑤ **Check the record mode and input level, and audition the sound.**

Refer to steps ⑤, ⑥, and ⑦ of "Assign the guitar input from [GUITAR IN] to mixer channel 1."

Digital input

The D16 allows digital input and recording via its S/P DIF connector.

As an example, we will explain how audio from a CD player connected to the [S/P DIF IN] jack can be input to mixer channels 1 and 2.

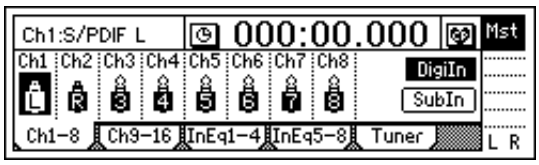


① **Connect the digital output device.**

Lower the [MASTER] fader of the D16, and use an optical digital cable to connect the digital output of the CD player to the [S/P DIF IN] jack.

② **Enable the digital input.**

- Select the [INPUT] "Ch1–8" tab page.
- Press the "DigiIn" button to turn it "**On**" (highlighted).



③ **Specify the input channel.**

Press the "Ch1" icon, and rotate the [VALUE] dial to select "**S/P DIF L**." Similarly, set "Ch2" to "**S/P DIF R**." This assigns the input from [S/P DIF IN] to channels 1 and 2.

④ **Specify the recording tracks.**

Playback the CD, and press the [TRACK STATUS] keys for tracks 1 and 2 to set them to **REC** (LED lit red).

⑤ **Check the record mode and input level, and audition the sound.**

Refer to steps ⑤, ⑥, and ⑦ of "Assign the guitar input from [GUITAR IN] to mixer channel 1."

2. Adjusting the record level, and recording

Here's how to record the audio sources that you assigned to mixer channels in "1. Selecting the input/record track" (→p.16).

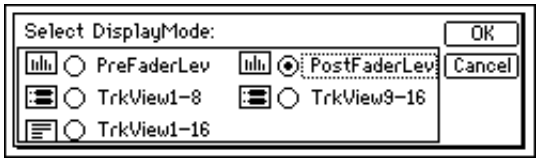
note If you wish to create a new song and record it, refer to "1. Creating a new song" (→p.14).

Turn [RHSL] **off**.

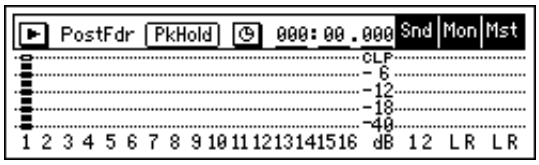
① **Set the recording level.**

Use the [CHANNEL] fader to adjust the recording level.

- Press the [METER/TRACK VIEW] key.
- Press the "▮-" button, select "**PostFaderLev**," and press the "OK" button.



- As you gradually raise the [CHANNEL] fader, the level meter of the input channel will rise correspondingly. Raise the level as far as possible without allowing the level bar to reach "CLP."



② **Move the current time to the location where you wish to start recording. (→p.24)**

We will start recording from the beginning of the song ("**001.01.000**" or "**000:00.000**").

③ **Press the [TRACK STATUS] key of the track(s) that you wish to record, to set them to REC (LED lit red).**

④ **Enter record-ready mode.**

Press the [REC] key. (The [REC] and [PLAY] LED's will blink.)

⑤ **Begin recording.**

Press the [PLAY] key. (The [REC] and [PLAY] LED's will light.)

Start your performance.

⑥ **Stop recording.**

When your performance is finished, press the [STOP] key. (The [REC] and [PLAY] LED's will go dark.)

note When you are finished recording, check that your performance was recorded correctly.

⑦ **Move to the beginning of the song. (→p.24)**

⑧ **Specify the track(s) to be played back.**

Press the [TRACK STATUS] key for the track(s) that you recorded, to select **PLAY** (LED lit green).

⑨ **Begin playback.**

Press the [PLAY] key. (The [PLAY] LED will light.)

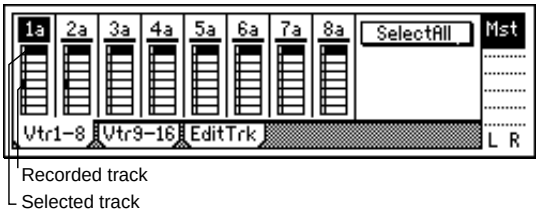
⑩ **Stop playback.**

When the performance ends, press the [STOP] key. (The [PLAY] LED will go dark.)

Recording on a virtual track

The D16 has sixteen tracks, and each of these tracks has eight virtual tracks.

When recording solo parts etc., you can record each take on a different virtual track, and choose the best performance later. Or when using bounce (ping-pong) recording, you can specify an **unselected virtual track** as the recording destination, so that you can mix down sixteen tracks to two tracks without erasing any of the original track data. (→p.21)



① **Select a virtual track.**

In the [TRACK] "Vtr 1–8" or "Vtr 9–16" tab page, press "VirtualTrackSelect" for the track whose virtual track you wish to change, and rotate the [VALUE] dial to select the desired virtual track.

② **Adjust the recording level of the input device, and record.**

Refer to "1. Selecting the input / record track" and "2. Adjusting the record level, and recording" (→p.16, 18).

Overdubbing – recording another track while you listen to a previously-recorded track

The process of recording another track while you listen to a previously-recorded track is called "**overdubbing**." This technique allows you to play a solo etc. while listening to a recorded accompaniment.

① **Press the [TRACK STATUS] key of the track(s) that you wish to playback, to set them to PLAY (LED lit green).**

② **Press the [TRACK STATUS] key of the track that you wish to record, to set it to REC (LED blinking red).**

③ **Turn down the [CHANNEL] faders of the remaining tracks, so that only the record and playback tracks will be heard.**

④ **Adjust the recording level of the input device, and record.**

Refer to "1. Selecting the input / record track" and "2. Adjusting the record level, and recording" (→p.16, 18).

In the [RECORD] "RecMode" tab page, set "Select RecMode" to "Input."

Punching-in / out – re-recording a specific area

If you made a mistake in part of a recorded performance, or if the performance did not turn out as you expected, you can re-record just a specific area without having to re-record the entire song from the beginning. **Punch-in** refers to switching from playback mode to record mode, and **punch-out** refers to switching from record mode back to playback mode.

Manual punch-in / out

Manual punch-in/out is where you punch-in and punch-out manually.

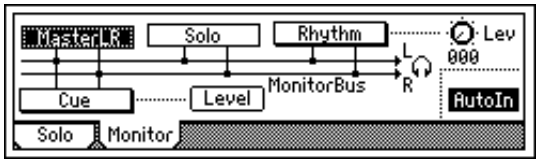
To manually punch-in / out on the D16, press the [REC] key or foot switch (separately sold option) during playback to start recording. To stop recording, press either the [REC] key, [PLAY] key, or the foot switch.

① **Connect the input device, and adjust the recording level.**

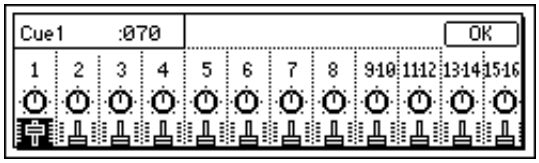
Refer to "1. Selecting the input / record track" (→p.16).

② **Select the monitor output.**

- Select the [SOLO / MONITOR] "Monitor" tab page. Turn the "AutoIn" button "**On**." (→p.85)



- Normally, you will turn "**On**" the "MasterLR" or "Cue" button in the [SOLO / MONITOR] "Monitor" tab page. If you turned the "Cue" button "**On**", press the "Level" button to adjust the cue level of the recording track.



③ **Move the current time to a location slightly earlier than where you wish to begin re-recording. (→p.24)**

④ **Press the [PLAY] key to begin playback.**

You will hear the playback sound of the recording destination track.

⑤ **When you arrive at the place where you wish to begin re-recording, press the [REC] key.**

Recording will begin (**manual punch-in**). At this time, the external input sound will be heard.

⑥ **When you arrive at the end of the area you wish to re-record, press the [REC] key or the [PLAY] key.**

Recording will end, and the track will resume playback (**manual punch-out**). Now the track playback will be heard once again.

⑦ **Press the [STOP] key to stop playback.**

After you have finished recording, move the current time to a point earlier than the beginning of the recording, and check the newly recorded material.

Manual punch-in/out using a foot switch

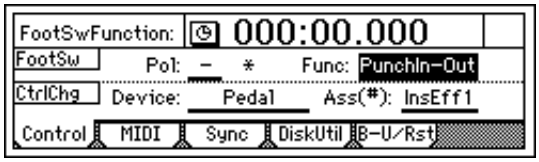
You can use a foot switch (separately sold option) to switch between recording and playback.
This allows you to switch between playback and recording while you play an instrument, or when you are at a distance from the D16.

① **Connect a foot switch to the [FOOT SWITCH] jack.**

② **Select the [SYSTEM] "Control" tab page.**

③ **Specify the function of the foot switch.**

Set the "Func (FootSwFunction)" parameter to "**PunchIn-Out**."



④ **In "Manual punch-in/out" steps ⑤ and ⑥ (→p.19), press the foot switch instead of the [REC] key (either may be used) to perform manual punch-in/out.**

note You can also use the foot switch to record from the beginning of the song. (Set the "Func" to "**Play/Stop**.")

○ **If you press the [REC] key (LED blinking) at the beginning of the song, recording will begin when you press the foot switch.**

Auto punch-in/out

Auto punch-in/out is a function that automatically performs punch-in and punch-out at time locations that you specify ahead of time.

① **Register the time at which recording will begin as the IN (punch-in) location, and the time at which recording will end as the OUT (punch-out) location.**

For the procedure of registering the **IN** and **OUT** times, refer to p.70.

In the [AUTO PUNCH] "AtPunch" tab page, you can press the "Wave" button to register the **IN** and **OUT** times while watching a waveform display.

note Be aware that the time locations you register will be overwritten onto the [IN/LOC1] key and [OUT/LOC2] key, respectively.

② **Connect the input device, and adjust the recording level.**

Refer to "1. Selecting the input/record track" (→p.16).

③ **Make monitor output settings.**

Refer to "Manual punch-in/out" step ②. (→p.19)

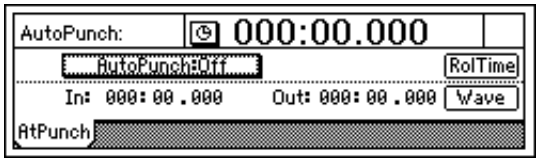
④ **Specify how far before the start of recording you wish to start playback (pre-roll).**

In the [AUTO PUNCH] "AtPunch" tab page, press the "RolTime" button to access the "SetRollTime" page. (→p.71)

- Set the pre-roll time. The units are seconds (s) or measures (M).
- After making the setting, press the "OK" button to return to the previous page.

⑤ **Turn on the Auto Punch-in/out recording function.**

Select the [AUTO PUNCH] "AtPunch" tab page, and press the "Auto Punch" button to turn it "**On**." The [AUTO PUNCH] key will light.



⑥ **Begin recording.**

- When you press the [REC] key, the D16 will automatically locate to a point earlier (by the pre-roll time) than the location where recording will start, and will enter record-ready mode (LED blinking).
- When you press the [PLAY] key, playback will begin. During the pre-roll, the track will playback. When the record start location (**IN**) arrives, recording will begin. (The [REC] LED will light.)
- When the record end location arrives, recording will end. (The [REC] LED will blink.)

⑦ **Press the [STOP] key to stop.**

note When the post roll time has elapsed, playback will stop, and the location will move backward for the distance of the pre roll time.

Audition the content that you newly recorded.

Bouncing – combining multiple tracks into two tracks

You can combine the performances from multiple tracks into two tracks and record the result on other tracks, freeing up the original tracks for further recording. This process is called **bouncing**. You will use this process when you need to playback more than 16 tracks.
Broadly speaking, tracks can be bounced on the D16 in the following ways.

- 14 tracks of audio and two external audio input sources can be recorded on the remaining two tracks.
- 16 tracks of audio can be overwritten onto two of these tracks.
- 16 tracks of audio can be recorded on two currently unselected virtual tracks.

note If you use a CD-R/RW drive to create an audio CD, the data of tracks 1 and 2 will be written to the disc, so you will need to combine the completed song onto tracks 1 and 2.

note It is also possible to record a mixdown to two of the D16's tracks, instead of mixing down your completed song to an external two-channel recorder.

Recording 14 tracks of audio and 2 external input sources to the remaining 2 tracks

As an example, here's how the audio of tracks 1–14 and the audio input of INPUT 1 and 2 can be recorded to tracks 15 and 16.

① **Select the playback tracks and the recording tracks.**

Use the [TRACK STATUS] keys to set the playback tracks (1–14) to **PLAY**, and the recording tracks (15, 16) to **REC**.

② **Specify the input channels.**

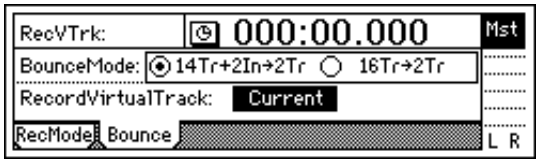
- Select the [INPUT] "Ch9–16" tab page.
- Assign "**INPUT 1**" to "Ch15," and "**INPUT 2**" to "Ch16."

③ **Set the record mode to bounce recording.**

- Select the [RECORD] "RecMode" tab page.
- Select "**Bounce**" (=bounce recording).

④ **Select the bounce mode.**

- Select the [RECORD] "Bounce" tab page.
- Set "BounceMode" to "**14Tr+2In→2Tr**."



⑤ **Specify the currently selected tracks for recording.**

Set "RecordVirtualTrack" to "**Current**."

⑥ **Adjust the pan of the playback tracks and inputs.**

Press the [PLAY] key to playback, and use the [PAN] and [BALANCE] knobs to adjust the stereo location of channels 1–16. For channels 15/16, temporarily set the [TRACK STATUS] to **INPUT**.

The balance of channels 15/16 should be set to **CNT**.

⑦ **Adjust the playback/recording levels.**

Use the [CHANNEL] fader to adjust the playback levels and input levels. Use the [MASTER] fader to adjust the recording level.

- Press the [METER/TRACK VIEW] key, and then press the "▶" button to select "**PostFaderLev**." The meters will show the level controlled by the faders.
- After you have finished making adjustments, press the [STOP] key to stop playback, and set the [TRACK STATUS] of channels 15/16 to **REC**.

⑧ **Move the current time to the beginning of the song. (→p.24)**

⑨ **Begin bounce recording.**

Press the [REC] key to enter record-ready mode (LED blinking), and press the [PLAY] key to start recording (LED lit). Begin playback.

⑩ **After you have finished recording, press the [STOP] key to stop.**

⑪ **Audition the newly-recorded result.**

- Press the [TRACK STATUS] keys of the recorded tracks (15, 16) to set them to **PLAY**.
- Either lower the faders of the remaining channels, or turn [SOLO/MONITOR] "Solo," "15–16" "**On**".
- Press the [PLAY] key to playback. After auditioning the new recording, press the [STOP] key to stop.

Recording 16 tracks to overwrite 2 of the tracks

As an example, here's how the audio of tracks 1–16 can be recorded (overwritten) on tracks 1 and 2.

① **Select the playback and recording tracks.**

Press the [TRACK STATUS] keys to set the playback tracks (3–16) to **PLAY**, and the recording tracks (1, 2) to **REC**.

② **Set the recording mode to Bounce recording.**

- Select the [RECORD] "RecMode" tab page.
- Select "**Bounce**" (=bounce recording).

③ **Select the bounce mode.**

- Select the [RECORD] "Bounce" tab page.

- Set the "BounceMode" to "**16Tr→2Tr**."

④ **Specify the currently selected tracks for recording.**

Set "RecordVirtualTrack" to "**Current**."

⑤ **Adjust the pan of the playback tracks.**

Press the [PLAY] button to playback, and use the [PAN] and [BALANCE] knobs to adjust the stereo position of channels 1–16.

⑥ **Adjust the playback/recording levels.**

Use the [CHANNEL] fader to adjust the playback levels and input levels. Use the [MASTER] fader to adjust the recording level.

- Press the [METER / TRACK VIEW] key, and then press the "▶" button to select "**PostFaderLev**." The meters will show the level controlled by the faders.
- After you have finished making adjustments, press the [STOP] key to stop playback.

⑦ **Begin bounce recording.**

Refer to steps ⑧–⑪ of "Recording 14 tracks of audio and 2 external input sources to the remaining 2 tracks."

Recording 16 tracks of audio to 2 currently unselected virtual tracks

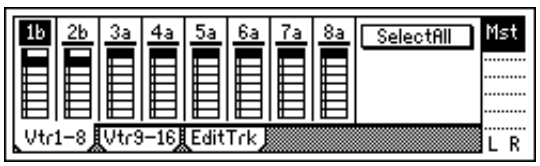
As an example, here's how to record tracks 1–16 (with virtual track "**a**" selected for all tracks) to virtual tracks "**b**" of tracks 1 and 2.

○ **Perform bounce recording as described in "Recording 16 tracks to overwrite 2 of the tracks."**

The only difference is that in step ④, you need to set "RecordVirtualTrack" to "**b**" in order to record on virtual tracks "**b**."

○ **To audition the bounce-recorded result, select virtual track "b," and playback.**

Select the [TRACK] "Vtr1–8" tab page, and set "VirtualTrackSelect" for 1 and 2 to "**1b**" and "**2b**."



note After recording or track editing, you can use the Undo function to return to the state before recording or track editing (→p.73). After returning to the state before recording, you must remember to return tracks 15–16 to virtual track "**a**."

Other recording methods

In addition to the recording methods described earlier, the D16 lets you use the following types of recording. For details refer to the appropriate pages.

- Applying **EQ** to the audio being recorded. (→p.26)
- Applying **effects** to the audio being recorded. (→p.30)
- Listening to the built-in **rhythm** as you record your performance. (→p.39)
- Recording the built-in **rhythm**. (→p.39)
- **Loop** recording. During auto-punch recording, you can record repeatedly over a loop, and use the Undo / Redo functions to select the best of the recorded takes after you finish recording. (→p.72)
- **Trigger recording**. This is a function that initiates recording when the input sound exceeds a specified level (trigger). The D16 will begin recording when audio is input. (→p.73)
- **Rehearse recording**. (→p.87)

Step 4. Playback

This section explains basic playback on the D16, and also how to use program playback.

Playback

① **Select the track(s) for playback.**
Press the [TRACK STATUS] keys for the tracks that you wish to play, to put them in **PLAY** mode (LED lit green).

② **Move to the time location from which you wish to playback.**
For details on changing the time location, refer to p.24.

③ **Begin playback.**
Press the [PLAY] key. (The [PLAY] LED will light.)

④ **Stop playback.**
Press the [STOP] key. (The [PLAY] LED will go dark.)

You can also use a foot switch (separately sold option) to start and stop playback. (→p.45)

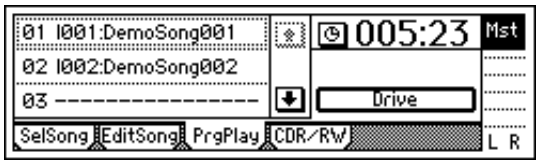
Program play

Two or more songs that you created can be played back in a specified order.

In addition to playing songs in a favorite order, this function is also useful when mixing down to DAT or MD.

Creating a program

① **Select the [SONG] "PrgPlay" tab page.**



② **Select the first song.**
Press "**01**" in the program play list, and rotate the [VALUE] dial to select the desired song. If you wish to change drives, press the "Drive" button to access the "Drive Select" screen, select the drive, and press the "OK" button.

③ **In the same way, select the second, third, and subsequent songs.**

note If you wish to **delete** a song from the list, select that song, and rotate the [VALUE] dial to select "– – –".

note The "Program Play List" is preserved until the power is turned off.

Playback using the "Program Play List" is possible only when you are in the "PrgPlay" tab page.

Using program playback

① **Select the [SONG] "PrgPlay" tab page.**

② **Press the [PLAY] key to start playback.**
The songs will playback in the order of the list, starting from the first song in the program.

During playback, you can press the [FF] key to advance to the next song. Pressing the [REW] key will advance to the beginning of the song if you are in the middle of a song, or to the beginning of the previous song if you are already at the beginning of a song.

③ **Press the [STOP] key to stop playback.**

Other playback methods

In addition to the playback methods described above, you can use the following types of playback. For details refer to the pages given for each item.

- **In-Out** playback. Playback will occur between the IN and OUT time locations of the song, allowing you to audition the contents of that area. (→p.70)
- **Loop** playback. Playback will repeat between the IN and OUT time locations of the song, allowing you to audition the contents of that area or to use auto-punch recording in conjunction with this to perform Loop Recording. (→p.72)
- Apply **EQ** to the playback audio. (→p.25)
- Adjust the **level** and **pan** of the playback audio. (→p.25)
- Apply **effects** to the playback audio. (→p.31)
- Play the built-in **rhythms** together with the playback. (→p.39)

Step 5. Changing the time location

Here's how you can change the time location within a song.

Switching the counter display

You can switch the units of the current time displayed by the counter.

The following four displays can be selected.

- ___, __, ___ "measures" , "beats" , "1/96th's of a beat"
- ___; __, ___ "minutes" ; "seconds" , "1/1000th's of a second"
- ___: __.__F "minutes" ; "seconds" . "1/30th's of a second"
- ___. __Free "minutes" , "seconds" (remaining recording time)

note The "___.__Free" (remaining recording time) display is calculated for a mono track. If you are using stereo recording, the actual time available for recording will be half of this. (Even if there are 10 minutes remaining, "Memory Full" will occur after about 5 minutes of recording.) In order to determine the actual amount of time that remains, set the [TRACK STATUS] to **REC** for the track to be recorded, and press the [REC] key to put the D16 in record-ready mode. At this time, the remaining recording time will be displayed for the number of tracks that are set to **REC**.

For details on switching this setting and for more about the display, refer to p.45.

Changing the current time location

Using the counter

① **Select a page where the counter display appears in the upper part of the LCD, such as the [SONG] "SelSong" tab page.**

② **Press the portion of the counter that you wish to change, and rotate the [VALUE] dial to move the time location.**

Using the [FF] [REW] keys

Moving backward

Press the [REW] key to move toward the beginning of the song. If you continue pressing the key, you will move continuously. You can also move during playback.

Moving forward

Press the [FF] key to move toward the end of the song. If you continue pressing the key, you will move continuously. You can also move during playback.

Moving to the beginning of the song

When the current time is in the middle of the song, you can hold down the [STOP] key and press the [REW] key to jump to the beginning of the song.

Using the locator (LOC1, LOC2, LOC3, LOC4)

You can register a specific time location in the **locator**, and jump instantly to a registered location.

The locator lets you register up to **four** locations for each song.
Press the [IN / LOC1], [OUT / LOC2], [TO / LOC3], or [END / LOC4] key.

For details on registering a location and jumping to it, refer to p.70.

note In addition to recalling a location, the locator is also used to specify the IN / OUT times for auto-punch recording, and the editing area for track editing, etc.

Using marks

You can register a mark at a specific time location, and jump instantly to a **mark**.
A name can be assigned to each mark, so that you can use marks to identify sections within your song.

Up to **100** marks can be registered in each song.

For details on registering and recalling marks, refer to p.64.

Using Scrub Playback to find precise locations

You can use the **Scrub function**, the **Play From/To function**, and the **Slow Play function** to search for the time location where the sound begins, or to register a Locate point or Mark more precisely.

For details on these functions and their use, refer to p.74.

Step 6. Using the mixer

Mixer settings such as volume, tone, and pan can be adjusted to control the volume, tone and panning of the input, recording, or playback of each channel, in order to create the desired overall mix.

For details on adjusting the effects, refer to p.29

Adjusting the volume

The input or recording / playback volume is adjusted by the [CHANNEL] faders. Raise or lower the faders to adjust the volume. (→p.86)

The volume can be adjusted from silence (–∞) to unity gain (**0 dB**) to **+12 dB** gain.

note Normally, you should set the faders at unity gain (the position where the input signal is output at the same volume) and then lower the faders for any channels that are too loud, rather than raising the faders of channels that are too soft. This will reduce the possibility of clipping at the final stage, and is the most effective way to mix.

- When **Pairing** is on, use the odd-numbered channel fader to make adjustments. (→p.26)
- These settings can be registered in a **scene**. (→p.66)

Adjusting the stereo position

The stereo position of each channel can be adjusted by the [PAN] and [BALANCE] knobs. Rotate the knobs to make adjustments.

Channel 1–8 [PAN] knobs

Rotating the knob toward the L position will place the sound toward the left, and rotating it toward the R position will place the sound toward the right.

Channel 9–16 [BALANCE] knobs

Rotating the knob toward the L position will reduce the volume of the even-numbered channel, and rotating it toward the R position will reduce the volume of the odd-numbered channel.

note Normally, vocals and bass are located in the center, guitar at the left or right, and piano at the opposite side from guitar.

- When **Pairing** is on, use the odd-numbered channel knob to make adjustments. (→p.26)
- These settings can be registered in a **scene**. (→p.66)

When inputting to tracks 9 / 10–15 / 16 and recording in stereo, you should leave the [BALANCE] knob of channels 9 / 10–15 / 16 fixed in the center position.
The same applies when you have set the channel 1 / 2–7 / 8 pan to **Pair** On (=Balance), and when inputting to tracks 1 / 2–7 / 8 and recording in stereo, you should leave the odd-numbered [Pan] knob of the paired channels fixed in the center position.

Using EQ to adjust the tone

The tone of each channel can be adjusted by a three-band equalizer (EQ).

- To adjust the input sound (analog), use the **Input EQ** ([INPUT] "InEq1–4," "InEq5–8" tab pages). This will affect the sound that is recorded.
- To adjust the track playback sound, use the **EQ** ([EQ / PHASE] "Eq1–4," "Eq5–8," "Eq9–16" tab pages).

note EQ can be used to cut a frequency range in which unwanted noise (hiss) is heard, or to boost / cut the low range or high range to correct the tone. Normally, you should make EQ settings so that the sound is heard most clearly.

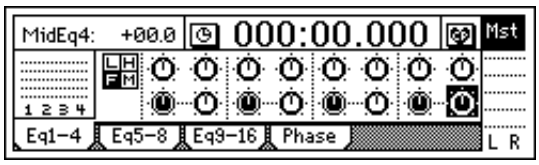
If you use EQ excessively by boosting the EQ gain of a channel to the maximum setting, the overall mix will become unbalanced. EQ should be used in the "cut" direction as well, and in any case should be used as lightly as possible.

Applying EQ to the track playback

- If **Pairing** is on, use the odd-numbered channel "Eq" to make adjustments. (→p.26)
- These settings can be registered in a **scene**. (→p.66)

① **Select the tab page that contains the EQ you wish to adjust.**

Select from the [EQ / PHASE] "Eq1–4," "Eq5–8," and "Eq9–16" tab pages.



② **Select the desired EQ.**

For each channel, the EQ controls are arranged as follows.

High EQ gain (H):	**upper right icon**
Low EQ gain (L):	**upper left icon**
Mid EQ gain (M):	**lower right icon**
Mid EQ cutoff frequency (F):	**lower left icon**

③ **Adjust the gain and cutoff frequency settings.**

Gain will be cut as you increase the value in the "**–**" direction, and boosted as you increase the value in the "**+**" direction.

Cutoff frequency will be raised as you increase the value, and lowered as you decrease the value.

High EQ, Low EG

- For the channel that you wish to adjust, select "High EQ Gain (H)" or "Low EQ Gain (L)," and rotate the [VALUE] dial to set the amount of gain. The value is displayed in the upper left of the screen.

Mid EQ

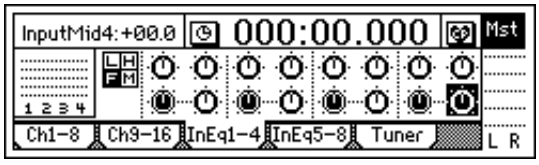
- For the channel that you wish to adjust, select "Mid EQ Cutoff Frequency (F)," and rotate the [VALUE] dial to set the cutoff frequency. The value is displayed in the upper left of the screen.
- For the channel that you wish to adjust, select "Mid EQ Gain," and rotate the [VALUE] dial to set the gain. The value is displayed in the upper left of the screen.

Applying input EQ to the analog inputs / Recording with input EQ

You can apply input EQ to the analog inputs (EQ cannot be applied to the digital input), and record the sound that has been adjusted by the EQ.

① **Select the page containing the channel to which you wish to apply EQ.**

Select the [INPUT] "InEq1–4" or "InEq5–8" tab page.



② **Input an audio source, and adjust its level appropriately.**

Refer to "1. Selecting the input / record track" and "2. Adjusting the record level, and recording" (→p.16, 18).

Verify that the level meter in the left edge of the LCD screen moves, and that you hear the sound.

③ **For each "InputEQ," select the gain settings and mid EQ cutoff frequency, and rotate the [VALUE] dial to adjust them. (→p.25 ② ③)**

④ **Record the sound as adjusted by the EQ.**

Refer to "2. Adjusting the record level, and recording" (→p.18).

Pairing

Adjacent odd and even-numbered channels (1–2, 3–4, 5–6, 7–8) can be **paired**, so that changing a value for the odd-numbered channel will simultaneously change the value for both channels. It is convenient to use mixer pairing for stereo-recorded channels.

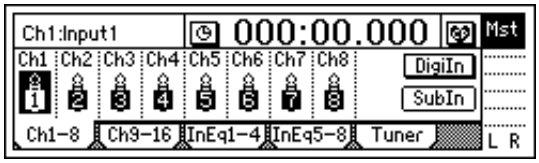
Pairing is valid for the following settings.

- [TRACK STATUS] keys
- EQ (channel EQ)
- EffSnd 1 + 2 (effect send)
- AuxSend (auxiliary send)
- [PAN] knobs
- [CHANNEL] faders

note With the exception of the [TRACK STATUS] keys and the [CHANNEL] faders, you can select whether or not pairing will be enabled for a parameter. This selection is made simultaneously for both Effect Sends 1 and 2.

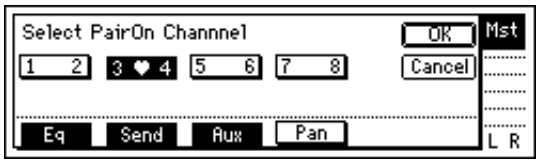
① **Access the "Select Pair" screen.**

Press the "⚙" button that is found in the [INPUT], [EQ / PHASE], and [INSERT EFFECT] pages to access the following screen.



② **Select "Select PairOn Channel."**

Press the "**1 2**" – "**7 8**" buttons to turn "**On**" pairing for the desired channels. (When highlighted, the symbol appears as ■.)



③ **Select the function(s) for which pairing will be enabled.**

Select the function(s) for which pairing will enabled for the channels selected in "Select PairOn Channel."

For "**Eq**," "**Send**," "**Aux**," and "**Pan**," press the functions that you wish to enable. Then press the "OK" button to execute the settings.

Monitoring adjustments

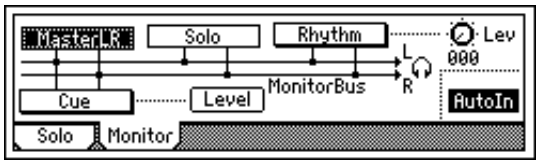
Here's how to make settings for monitoring the sound from the D16.

Normally, you will monitor the sound by connecting powered monitor speakers etc. to the [MONITOR OUT L/R] jacks, or by connecting headphones to the [PHONES] jack.

Selecting the signal to be monitored

① **Select the signal to be monitored.**

- Make your selection in the [SOLO/MONITOR] "Monitor" tab page.
- Normally you will select "MasterLR." Press the "MasterLR" button to turn it "**On**" (highlighted).



For details refer to p.84.
If "Solo" is selected, solo will take priority. In this case, defeat "Solo" before making your selection.

② **Select the input monitor.**

If the "AutoIn" button is "**On**," mixer channels whose [TRACK STATUS] is **REC** will sound the playback track during playback, or the external input during recording (or rehearsal) or when stopped. Normally you will leave this "**On**."

③ **Adjust the monitor volume.**

Use the [MONITOR OUT LEVEL] knob or the [PHONES] level knob to adjust the volume level of the [MONITOR OUT L/R] jacks or [PHONES] jack.

Adjusting the cue level

Since the [CHANNEL] faders of the D16 control both the recording level of each track and the volume level of each channel, the level being recorded and the volume level being monitored will be the same.

For this reason, a Cue Level function is provided to allow you to set the monitor volume without regard to the recording level, for example in situations where you wish to hear your own instrument more loudly while you are playing it. The cue level has no relation to the recording level. Select this when you wish to adjust the monitoring volume or pan for comfort while performing, without affecting the recording level.

① **Select Cue as the signal for monitoring.**

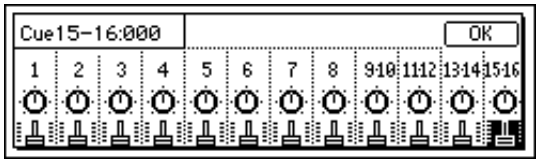
In the [SOLO/MONITOR] "Monitor" tab page, turn "**On**" the "Cue" button.

If the "Solo" button is "**On**", solo will take priority. Turn "Solo" "**Off**."

② **Adjust the cue level.**

Press the "Level" button to access the cue level screen. Press the icons for each channel, and rotate the [VALUE] dial to adjust the volume and pan.

The values are displayed in the upper left.



Solo settings

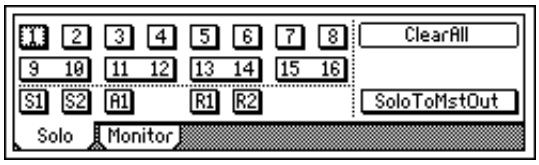
When the Solo function is used, only the audio for which the "Solo" button is turned "**On**" will be sent to the monitor bus. Use this function when you wish to hear only a specific channel out of numerous audio signals, or when you wish to audition a send signal etc. The solo audio is output to the [MONITOR OUT L/R] jacks and the [PHONES] jack.

Selecting the signals to be soloed

① **Select the signals to be soloed, and turn Solo on.**

Make your selection in the [SOLO/MONITOR] "Solo" tab page.

Press one or more "Solo" buttons to turn solo "**On**" for the desired signals. (Your selection(s) will be highlighted.) If even one selection is turned "**On,**" the [SOLO/MONITOR] key will blink. You can select one or more signals for soloing.



② **Adjust the monitor volume.**

Use the [MONITOR OUT LEVEL] knob or [PHONES LEVEL] knob to adjust the volume.

○ **Turn solo off**

Select the [SOLO/MONITOR] "Solo" tab page.

Press the "Solo" buttons that you wish to turn "**Off.**" If you press the "ClearAll" button, solo will be turned off for all signals.

Outputting the solo signal from master LR

You can output the solo signal from the [MASTER OUT L/R] jacks. Use this when you wish to hear the solo signal from the monitor system that is connected to the [MASTER OUT L/R] jacks.

○ **In the [SOLO/MONITOR] "Solo" tab page, turn the "SoloToMstOut" button "On" (highlighted).**

This setting is valid only in the [SOLO/MONITOR] page. When you move to another page, it will automatically be turned "**Off**."

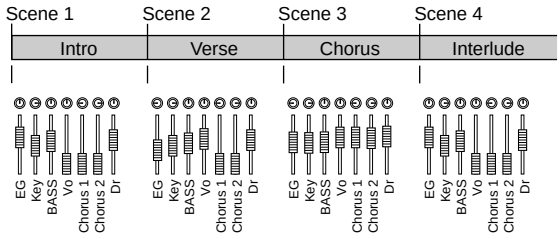
Registering / recalling a scene

The mixer settings you adjust can be registered as a **scene**, and scenes can be automatically recalled as time passes during playback.

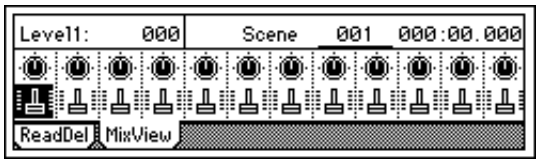
Scenes can also be recalled as general-purpose settings, and mixer settings you recalled can be copied to a different time location, or re-adjusted and then overwritten elsewhere.

Up to **100** scenes can be registered in each song.
The following contents can be registered as a scene.

- EQ
- Effect settings
- EffSnd (Effect send)
- AuxSend (External send)
- [PAN] and [BALANCE] knobs
- [CHANNEL] faders of each channel



note The faders and pan / balance knobs of the top panel do not actually move, but you can watch the values change in the [SCENE] “MixView” screen.



For details on registering and using scenes, refer to p.66.

Step 7. Using effects

Overview of the effects

The D16 provides a maximum of eight **insert effects** that can be inserted into an analog input or mixer channel, two **master effects** that are applied to a send signal from each channel, and one **final effect** that is applied to the master LR output. All these effects are independent of each other. This means that you can use a maximum of eleven effect programs simultaneously.

Effect algorithms: total of 98
Effect programs:

	Presets (192)	User (192)
Insert effects	I000, I001–I128	U001–U128
Master effects	M000, M001–M032	u001–u032
Final effects	F000, F001–F032	u033–u064

Preset effects contain effect programs created by professional musicians and studio engineers.
User effects can store your own effect programs that you created by editing a preset effect.

note It is not possible to rewrite a preset program.

Insert effects

The **insert effects** can be inserted into an analog input or mixer channel, to apply an effect to the analog input signal or playback track. Effects can also be applied to a built-in rhythm sound that is input to a mixer channel.

There are four types of insert effects, as described below. The available effect programs will depend on the effect type you select. (→p.79, 89)

- **1in2outx2**
  These are **mono-in stereo-out** effect chains consisting of three to five effects. Two such effects can be used simultaneously. These are ideal when you wish to add a sense of spaciousness to a guitar or vocal etc.
- **2in2outx2**
  These are **stereo-in stereo-out** effects such as reverb, chorus, and delay. Two such effects can be used simultaneously. These are ideal for stereo-input sources such as keyboard.
- **1in1outx4**
  These are **mono-in mono-out** effect chains consisting of two effects. Four such effects can be used simultaneously. These are ideal for sources whose stereo location is fixed, such as rhythm guitar.
- **1in1outx8**
  These are **mono-in mono-out** effects. Eight such effects can be used simultaneously. These are ideal for sources whose stereo is fixed, such as drums.

note The effect type selection is made in [INSERT EFFECT] “InsAss” tab page “SelectEffType.”

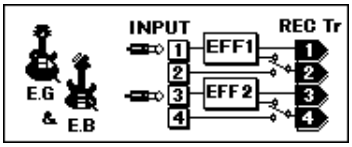
Examples of using the insert effects

Various ways in which insert effects can be used for recording or track playback are described below for each effect type.

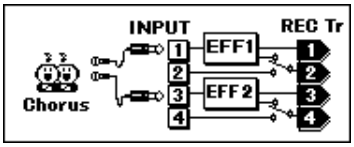
During recording

1in2outx2 (mono-in / stereo-out × 2)

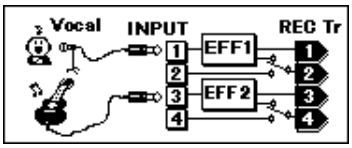
- While recording guitar and bass simultaneously, you could apply Guitar Multi to the guitar and Bass Multi to the bass as you record.



- While recording two vocals simultaneously, you could apply separate Vocal Multi programs to each singer as you record.



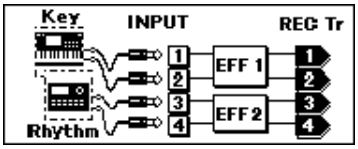
- While recording vocal and guitar simultaneously, you could apply Vocal Multi to the vocal and Guitar Multi to the guitar as you record.

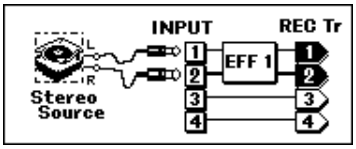


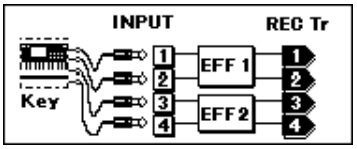
2in2outx2 (stereo-in / stereo-out × 2)

- While recording keyboard and rhythm machine simultaneously, you could apply St.Chorus to the keyboard and St.Comp to the rhythm machine as you record.

  Other examples are shown below.



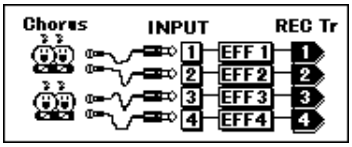


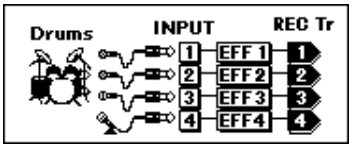


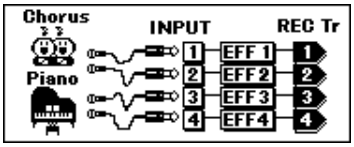
1in1outx4 (mono-in / mono-out × 4)

- While recording four vocals simultaneously, you could apply Exciter-Comp to voices that lack impact, and apply Limiter-P4EQ to loud voices as you record.

  Other examples are shown below.

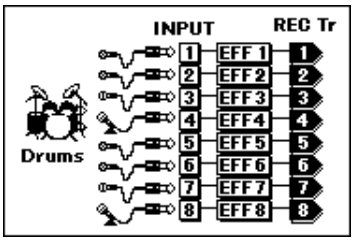




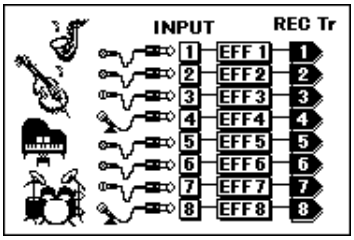


1in1outx8 (mono-in / mono-out × 8)

- When you have set up eight mics to simultaneously record each instrument of a drum set, you could apply separate effect programs to each; e.g., Limiter on the bass drum, Gate on the snare and cymbal, and Exciter on the toms.



- When you have set up eight mics to simultaneously record multiple instruments, you could apply Gate to each sound to reduce leakage between the mics, or apply Limiter to adjust the dynamics.



During track playback

2in2outx2 (stereo-in / stereo-out × 2)

- Two tracks containing stereo recorded drums etc. could be processed by St.Comp or St.Limiter to adjust the dynamics, or Reverb could be applied to create a broader sense of space.

1in1outx4 (mono-in / mono-out × 4)

- Exciter-Comp or Limiter-P4EQ could be applied to individual recorded tracks to adjust the dynamics, or P4EQ-Cho / Fln could be applied to add modulation.

1in1outx8 (mono-in / mono-out × 8)

- Comp, Limiter, Gate, or Expander could be applied to individual recorded tracks to adjust the dynamics, or Chorus, Phaser, or Delay could be applied.

Applying the insert effects while you record (analog / rhythm only)

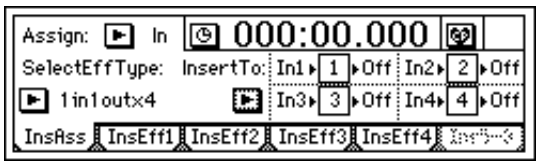
While you record, effects can be applied to the input from an instrument connected to the [INPUT 1 / GUTAR IN] – [INPUT 8] analog inputs, or to the built-in rhythm sound that is input to a mixer channel, so that the sound processed by the effect is recorded.

As an example, here's how you can connect a guitar to the [GUITAR IN] jack, apply effects, and record the result on track 1.

① **Connect the guitar, and select the track for recording.**

Refer to "Assign the guitar input from [GUITAR IN] to mixer channel 1" (→p.16).

② **Select the [INSERT EFFECT] "InsAss" tab page.**



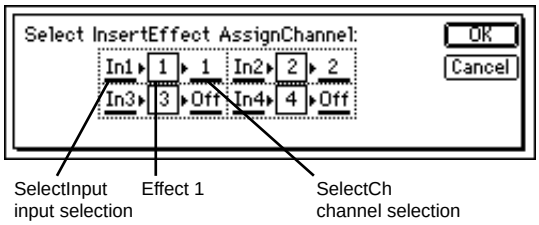
③ **Press the "Assign: ▶" button to select "Input (In)."**

④ **Press the "SelectEffType: ▶" button to select the effect type.**

The screen shown here is for when "**1in1outx4**" is selected.

⑤ **Insert the effect between INPUT 1 (GUITAR IN) and channel 1.**

- Press the "Insert To: ▶" button.
- For effect 1, use "SelectInput" to set the input to "**In 1**," and use "SelectCh" to set the channel to "**1**."
- Press the "OK" button to apply the settings.



⑥ **Select the effect program.**

- Select the [INSERT EFFECT] "InsEff1" tab page.
- Press "EffectNumber," and rotate the [VALUE] dial to select an effect program.

⑦ **As described in "2. Adjusting the record level, and recording" (→p.18), adjust the record level and then record.**

Make sure that the [TRACK STATUS] LED is lit red for track 1 to be recorded.

Applying an insert effect to a track during playback

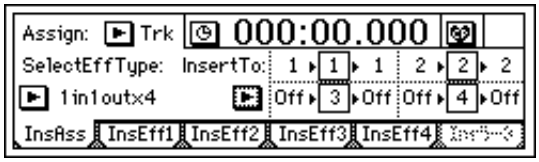
Here's how you can insert an insert effect into a mixer channel so that the effect is applied to the track playback.

① **Select the track that you wish to playback.**

Press the [TRACK STATUS] key for a recorded track, putting it in **PLAY** mode (LED lit green) so that it will play back.

② **Select the [INSERT EFFECT] "InsAss" tab page.**

③ **Press the "Assign: ▶" button to select "PlayTrack (Trk)."**



④ **Press the "SelectEffType: ▶" button, and select the effect type. (→p.30, 79)**

⑤ **Specify the channel into which the effect will be inserted.**

- Press the "InsertTo: ▶" button.
- For each effect, use "SelectCh" and rotate the [VALUE] dial to select the input (output) channel.
- When you have finished making settings, press the "OK" button.

⑥ **Select the effect program.**

- Use the [INSERT EFFECT] "InsEff1" and "InsEff2" tab pages etc. to select the effect that you wish to use.
- Press "EffectNumber," and rotate the [VALUE] dial to select the effect program.

⑦ **Press the [PLAY] key to begin playback.**

You can also select effect programs while you listen to the playback.

Master effects

The D16 contains two master effects (MstEff1 and MstEff2) which can be used simultaneously. You can adjust the send amount from each channel to change the depth of the effect (→diagram on following page).

How the master effects can be used

The master effects are used mainly for spatial processing (reverb etc.) to create an overall sense of depth and balance.

For example, you could use send 1 for ReverbHall and send 2 for ReverbRoom, in order to use the effects to simulate a complex spatial environment.
In this way, you can combine two different effects to produce results that would not be possible when using only a single effect.

Using the master effects

① **Select the [MASTER EFFECT/AUX] "MstEff1" or "MstEff2" tab page.**

② **Select an effect program.**

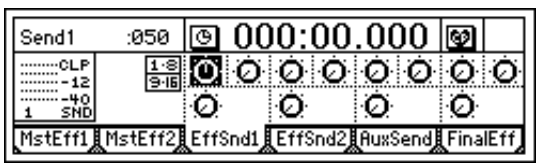
Press "EffectNumber," and rotate the [VALUE] dial to select an effect program.

③ **Set the return level from the master effect to the master LR, and set the return balance.**

For this example, set "RetLev" (return level) to "**100**," and set "RetBal" (return balance) to "**CNT**."

④ **Adjust the send levels.**

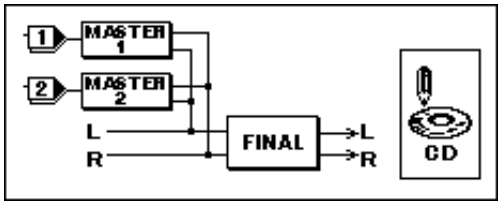
- Adjustments for Master Effect 1 are made in the "EffSnd1" tab page, and for Master Effect 2 in the "EffSnd2" tab page.



- Select the appropriate "Send" icon knob, and rotate the [VALUE] dial to adjust the send amount.
  Play back to hear the output from master LR, and audition the resulting effect.

Final effect

One stereo-in stereo-out effect is provided as the final effect. It applies to the master LR output.



How the final effect can be used

The final effect is used mainly for dynamics processing (compression etc.) to make the overall level more consistent.

During mixdown, you can use the final effect to apply mastering effects such as a multi-band limiter, in order to polish the mix for CD-quality results.

Using the final effect

① **Select the [MASTER EFFECT/AUX] "FinalEff" tab page.**

② **Select an effect program.**

Press "EffectNumber," and rotate the [VALUE] dial to select an effect program.

Play back, and listen to the output from master LR to hear the result of the effect.

Editing an effect

You can edit (modify) the effect programs that are used as insert effects, master effects, and final effects.

If you select a different "EffectNumber" or turn off the power without saving, the effect settings you edited will be lost. If you wish to keep your edited settings, you must save them after you are finished editing.

① **Access the page for the effect that you wish to edit.**

The screen shot given here shows an example where the [INSERT EFFECT] "InsEff1" tab page is selected.

② **Select an effect program.**

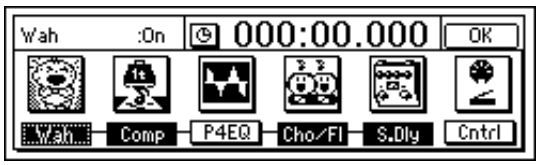
Press "EffectNumber," and rotate the [VALUE] dial to select an effect program.

③ **Listen to the sound produced by the effect program.**

If you press the "Bypass" button, the effect will be bypassed (there will be no effect). If you then press the "Cancel" button, bypass will be switched off (the effect will be heard). You can use this function to compare the processed and unprocessed sounds.

④ **View the effects and chain that make up the selected effect program.**

Press the "(EffectProgramName)" button, to view the "EffectAlgorithm" dialog box for the selected effect program.



⑤ **As necessary, turn the individual effects on/off.**

By pressing the "(Effect On / Off)" button located below each "(EffectIcon)" button, you can switch each effect on (highlighted) or off.

⑥ **Adjust the settings of each effect.**

- Press the "(EffectIcon)" button for the effect that you wish to adjust. The following figure shows the dialog box when "S.Dly" is selected.
- Select a parameter, and rotate the [VALUE] dial to adjust it. For details on each parameter, refer to p.89–102.

- Use the "Effect On / Off" button located at the top of the dialog box to switch the effect on / off, so that you can hear the result of the effect. This on / off setting is linked with the "(Effect On / Off)" button of step ⑤. Changing one setting will change the other as well.
- When you are finished making adjustments, press the "OK" button.
  (If you wish to adjust other effects, press the "(EffectIcon)" button, and adjust the parameters.)
- In the "EffectAlgorithm" dialog box, press the "OK" button.

⑦ **Assign a name to the effect program that you edited.**

- Press the "Rename" button to access the "RenameEffect" dialog box. For the rename procedure, refer to "2. Naming a song" (→p.14).
- After you have assigned a name, press the "OK" button.

⑧ **Store the effect program.**

- If the D16 is playing, press the [STOP] key to stop playback.
- Playback "Store" button to access the "StoreEffect" dialog box.
- Specify the number for storing, and press the "Exec." button to store the data.

Be aware that when you store, the data will be overwritten onto that number, and any data previously stored in that number will be lost.

Controlling an effect from an external device

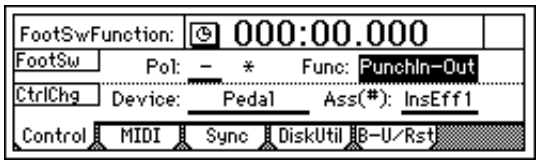
You can use an expression pedal or MIDI controller to control an insert effect in realtime.

For the effect parameters that can be controlled, refer to p.89–102.

① **Connect an expression pedal or external MIDI controller. (→p.11)**

② **Select the external device that will control the effect.**

- Select the [SYSTEM] "Control" tab page.
- In "Device (CtrlChgDevice)," select "**Pedal**" if you wish to use an expression pedal, or select a MIDI message if you wish to control via MIDI. (→p.45)



- When setting "Device (CtrlChgDevice)" to a MIDI message other than "**Pedal**" for control, set the [SYSTEM] "MIDI" tab page "GlobalCh (**GlobalChannel**)" setting to match the MIDI channel of the external MIDI device that is transmitting the control messages.

③ **Select the insert effect that you wish to control.**

Use "Ass(#) (CtrlChgAssign)" to select the insert effect that will be controlled.

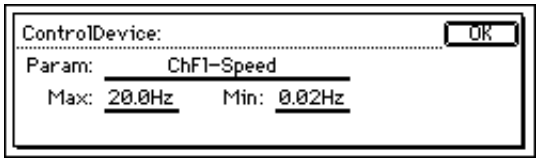
④ **Select the effect program that you wish to control.**

- In the [INSERT EFFECT] "InsEff1"–"InsEff5–8" tab pages, choose the insert effect that you selected in step ③.
- Press "EffectNumber," and rotate the [VALUE] dial to select the effect program.
  If the selected effect includes a control function, and the conditions allow the effect to be controlled, a "#" symbol will be added at the end of the effect program name.

⑤ **Specify the parameter to be controlled, and the range of control.**

- Press the "(Effect Program Name)" button.
  The "Effect Algorithm" dialog box that makes up that effect program will appear.

- Press the “Cntrl Icon” button to access the “ControlDevice” dialog box.



- Select “Param,” and rotate the [VALUE] dial to select the parameter that you wish to control.
- Rotate the [VALUE] dial to set “Max” to the maximum value, and “Min” to the minimum value.
- When you have finished making settings, press the “OK” button.
- In the “Effect Algorithm” dialog box, press the “OK” button.

note If you wish to save the above settings, save your data as described on p.33.

⑥ **Operate the expression pedal or external MIDI controller to control the effect.**

Using an external effect

A send signal can be output from the [AUX OUT] jack, and processed by an external effect. The output of the external effect can then be returned to the [INPUT 1]–[INPUT 8] jacks and sent to the desired channels or to the master LR bus.

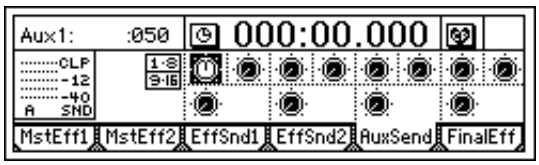
As an example, here’s how the playback sound can be sent to an external effect, and returned to the master LR bus via the [INPUT 7] and [INPUT 8] jacks.

① **Connect your external effect processor.**

Connect the [AUX OUT] jack of the D16 to the INPUT jack of your external effect processor, and connect the OUTPUT jacks of the external effect processor to the [INPUT 7] and [INPUT 8] jacks of the D16.

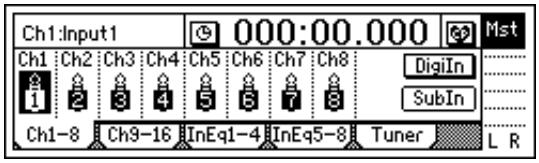
② **Send the playback sound to the external effect.**

- Select the [MASTER EFFECT / AUX] “AuxSend” tab page.
- Select “Aux” for the channel(s) that you wish to send to the external effect, and rotate the [VALUE] dial to adjust the send amount.

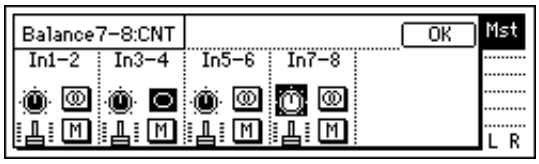


③ **Input the audio from the external effect processor.**

- Select the [INPUT] “Ch1–8” or “Ch9–16” tab page.



- Press the “SubIn” button to access the dialog box. Use the “In7–8” fader to adjust the return level, and use “Balance” to adjust the return balance. (→p.35, 75)



Step 8. Mixdown

You can use mixer settings such as EQ, faders, and effects to adjust the audio from each recorded track in order to create a finished song (→p.25, 29), and record the final result on a two-channel recorder (DAT recorder, MD recorder, cassette recorder etc.). This process is called **mixdown**.

Recording to a master tape

① **Listen to the completed song.**

Use the faders and knobs to adjust the volume and pan of each track, and listen to the playback.

② **Connect your external recording device.**

Refer to "Connections for mixdown" (→p.12).

③ **Record on your external recording device.**

- Playback the D16 song, and adjust the recording level on your external recorder. Then return the D16 song to the beginning.
- Put your external recording device in record mode, and playback the D16 to record the song on your two-channel recorder.

note You can also use the Program Playback function to play back songs in a specified order (→p.23).

Using the sub inputs

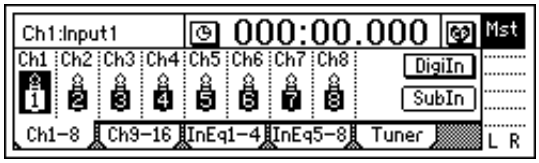
You can use any of the analog inputs ([INPUT 1 / GUITAR IN]–[INPUT 8]) as a sub input to send the audio directly to the master bus.

This is useful when you have synchronized a sequencer to the completed song and would like to input the sequenced sounds, or to add the return audio from an external effect processor connected to the [AUX OUT] jack.

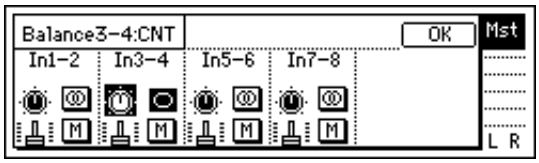
① **Connect the external audio source to the analog inputs.**

② **Make sub input settings.**

- Select the [INPUT] "Ch1–8" or "Ch9–16" tab page.



- Press the "SubIn" button to access the "Sub input setting" screen.



- Turn "**Off**" the "M (mute)" button for the connected input.
- Press the "Fader" icon and rotate the [VALUE] dial to raise the value so that the audio signal will be input.
- If the input is monaural, press the "Stereo / Mono" button to select "**Mono**." The audio will be sent to both L and R buses.

Step 9. Track editing

On the D16, tracks can be edited in the following ways. For the procedures, refer to p.37, 53 and p.56.

If there is little remaining free space on the hard disk, it may not be possible to perform track editing. You will need to create enough free space for track editing (the time between IN-OUT or TO-END).

Copying track data: Copy Track

The Copy Track command copies recorded track data from the specified region (**IN–OUT**) to another location (**TO**).

- You can copy the **IN–OUT** data not only once, but multiple times in succession.
- You can copy not only a single track, but multiple tracks simultaneously.
- By using the clipboard, you can copy track data to another song.

This command can be used in ways such as the following.

- A phrase of several measures (such as a drum pattern) can be copied repeatedly to create track data for the entire song.
- The first verse of a song can be copied, and used to create the second verse.
- A favorite phrase can be recorded on a track, and copied for use on another track or song.

Inserting a blank: Insert Track

The Insert Track command inserts a blank into the specified region (**IN–OUT**) of the recorded track data. Track data located after the inserted blank will be moved toward the end of the song.

- You can insert a blank into not only a single track, but into multiple tracks simultaneously.

This command can be used in ways such as the following.

- When you wish to add a phrase in the middle of previously-recorded data, you can insert the appropriate length of blank space, and then record onto the newly-created blank space.

Erasing data from a track: Erase Track

The Erase Track command erases the specified region (**IN–OUT**) of recorded track data. When data is erased, a blank space will be created in that region.

note Unlike the Delete Track command, the data that followed the **OUT** location will not be moved forward.

- You can erase data from not only one track, but from the **IN–OUT** region of multiple tracks simultaneously.

Deleting track data: Delete Track

The Delete Track command deletes data from the specified region (**IN–OUT**) of recorded track data. When data is deleted, the data that followed (the data after the **OUT** location) will be moved forward.

- You can delete data from not only one track, but from the **IN–OUT** region of multiple tracks simultaneously.

Reversing track data: Reverse Track

The Reverse Track command copies a reversed version of the specified region (**IN–OUT**) of recorded track data to the **TO** location of another track. (The copy source audio will play back in reverse.)

- The **IN–OUT** region can be copied not just once, but multiple times in succession.
- Data can be copied not only from one track, but from multiple tracks simultaneously.

Optimizing track data: Optimize Track

This command optimizes the specified region (**IN–OUT**) of recorded track data.

If recording or editing has been performed repeatedly within a short length of time so that the data has become fragmented, the disk will have to be accessed more frequently, which may cause skips in the sound or indications of “DiskBusy” and failure to play back. If this occurs, you can optimize the area of fragmented data so that playback can occur normally.

Swapping track data: Swap Track

This command exchanges (swaps) the specified region (**IN–OUT**) of recorded track data with the same region of another track.

- Data can be swapped not only between single tracks, but also between multiple tracks simultaneously.

Expanding or compressing a track: Expansion / Compression Track

This command expands or compresses the specified region (**IN–OUT**) of recorded track data into the specified region (**TO–END**) of a specified track.

- The original data is left unchanged, and the time-expanded / compressed result is created in another track.
- You can select whether or not the pitch will be converted.
- Not only a single track, but multiple adjacent tracks of data can be converted simultaneously.
- The converted data can be copied multiple times in succession.

This command can be used in ways such as the following.

- Drum loops of different tempo can be changed to the same tempo.
- Phrases can be made to fit into a specific time length.

Copying an entire track / Copying to a V-track: Copy Whole Track

This command copies an entire recorded track (from beginning to end) to a different entire track.

- You can copy not only one track, but multiple tracks simultaneously.
- The currently selected V-track can be copied to multiple unselected V-tracks.

This command can be used in ways such as the following.

- The same track can be copied to multiple V-tracks, and used to create multiple takes that are partially different.

Exchanging entire tracks / V-tracks: Swap Whole Track

This command exchanges (swaps) the data of an entire recorded track (from beginning to end) with the data of another entire track.

- Not only individual tracks, but multiple tracks can be swapped simultaneously.

This command can be used in ways such as the following.

- Recorded tracks can have their numbers re-ordered by type (of instrument etc.).
- Data that is scattered across different V-tracks can be rearranged into V-track "a" etc.

Track editing procedure

Here is the basic procedure for track editing. For some actual examples, refer to p.56.

Basic track editing procedure

① **Specify the region (time) that will be edited.**

In order to edit a track, you must first specify the region (area of time) that will be edited.

Move to the location that you wish to register, press the [STORE] key, and then press one of the following keys to register the current location.

[IN / LOC1] key: **IN** time, [OUT / LOC2] key: **OUT** time
[TO / LOC3] key: **TO** time, [END / LOC4] key: **END** time

The **IN**, **OUT**, **TO**, and **END** times are used as follows by each editing command.

How the editing commands use the IN, OUT, TO, and END times

	IN	OUT	TO	END
Copy Track	Copy start time of source	Copy end time of source	Copy start time of destination	– – –
Insert Track	Start of inserted blank	End of inserted blank	– – –	– – –
Erase Track	Start of erasure	End of erasure	– – –	– – –
Delete Track	Start of deletion	End of deletion	– – –	– – –
Swap Track	Start of swapped range	End of swapped range	– – –	– – –
Reverse Track	Start of reversed range	End of reversed range	Start of reversed copy	– – –
Optimize Track	Start of optimization	End of optimization	– – –	– – –
Expand/ Contract Track	Start of expansion/ contraction	End of expansion/ contraction	Start of expanded/ contracted copy	End of expanded/ contracted copy

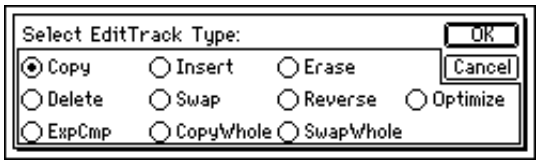
note Depending on the "EditType," the "Wave" button may appear, allowing you to view the waveform as you specify the location more precisely. (→p.55)

② **Select the [TRACK] "EditTrk" tab page.**

③ **Select the type of operation that you wish to execute (copy, insert blank, etc.).**

Select the "EditType." Press on the area to the right of the "▶" button, and rotate the [VALUE] dial to select the desired editing operation.

Alternatively, you can use the "▶" button to display "Select EditTrack Type," select the type of editing, and press the "OK" button.



④ **Select the track(s) that you wish to edit.**

The LCD screen will differ depending on the "EditType" selection. The screen ② shown here is when "EditType" is set to "**CopyTrk**."

For "**CopyTrk**," use "SourceTrack" to specify the copy source track, "DestTrack" to specify the copy destination track, and "Time" to specify the number of copies. You can use "Wave" to view the waveform as you specify the copy region.

⑤ **Execute the selected track editing command.**

Press the "Exec." button to execute the selected track editing command.

In the example shown here, the data in the **IN–OUT** region of track 1 will be copied three times starting at the **TO** location of track 2.

Step 10. Song editing

On the D16, songs can be edited in the following ways.

Undo is not available for song editing.

Copying a song: Copy Song

This command copies the currently selected song to a song number in any drive.

- You can use this to save a backup of your song on a different hard disk drive etc.
- You can use this when creating different mixes or arrangements of the same song.

Moving a song: Move Song

This command moves the currently selected song to another song number in the same drive.

- You can use this to change the order of songs.

Deleting a song: Delete Song

This command deletes the selected song.

Protecting a song: Protect Song

This command protects the currently selected song so that it cannot be modified.

If the protect setting is turned on for a song, an error message will appear if you attempt to record that song. It will not be possible to modify any of the parameters of that song.

- Use this command to avoid accidentally modifying a completed song.

Copying all songs in a drive: Copy All Songs

This command copies all songs of the drive that contains the currently selected song.

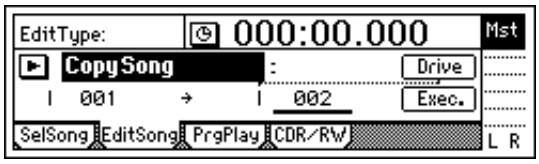
Song editing procedure

Here is the basic procedure for song editing operations.
For actual examples, refer to p.61.

Basic song editing procedure

① **Select the song that you wish to edit. (In the case of "CopyAllSongs," select the drive.)**

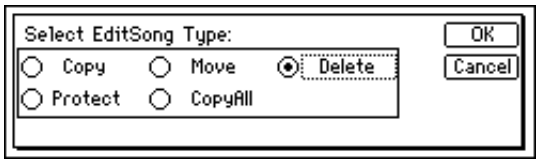
② **Select the [SONG] "EditSong" tab page.**



③ **Select the type of editing operation, such as copy or delete.**

Select "EditType." Press on the area to the right of the "▶" button, and rotate the [VALUE] dial to select the desired editing operation.

Alternatively, you can press the "▶" button to view "Select EditSong Type," select the desired editing operation, and press the "OK" button.



④ **Select the song that will be edited.**

The LCD screen will differ depending on the "EditType." The LCD display ② shown here is for when "**CopySong**" has been selected as the "EditType."

In the case of "**CopySong**," the "SourceSong" will show the copy source song you selected in step ①. Use "Drive" to specify the copy destination drive, and "DestSong" to specify the copy destination song.

⑤ **Execute the song editing command.**

Press the "Exec." button to execute the specified song editing command.

In the example shown, song 1 on the internal hard disk will be copied to song 2. Songs that had been located at song 2 and following will be moved backward.

Step 11. Rhythm / tempo settings

The D16 contains numerous rhythm patterns for a variety of time signatures (→p.114 “Rhythm Pattern List”).

When you have a sudden idea for a song, you can record your performance immediately, using the built-in rhythms as a guide.
By joining various rhythm patterns, you can also create drum patterns for an entire song.

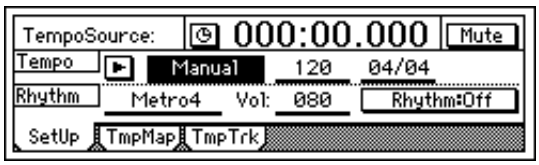
Playing rhythms

Specifying and playing a rhythm

○ **Select the [TEMPO/RHYTHM] “SetUp” tab page.**

The settings described below are made in this page.

When you enter this page, a rhythm will sound. To silence it, press the “Mute” button.



Turning the rhythm on / off

○ **Press the “Rhythm” button to turn it “On” (highlighted).**

The [TEMPO / RHYTHM] the key will light, and the rhythm will sound during playback or recording.

If you do not want the rhythm to be heard during playback or recording, press the “Rhythm” button once again to turn it “**Off**.”

Adjusting the rhythm volume

○ **Press the “RhythmVol (Vol),” and rotate the [VALUE] dial to adjust the volume.**

Setting the tempo and time signature

① **Press “TempoSource,” and select the tempo source.**

For this example, we will select “**Manual**” which will use a single tempo, time signature, and rhythm pattern.

If you wish to change the tempo, time signature, and rhythm pattern during the song, you must create a Tempo Map. (→p.40)

② **Press “Tempo,” and rotate the [VALUE] dial to adjust the tempo.**

③ **Press “Beat,” and rotate the [VALUE] dial to set the time signature.**

Selecting the rhythm pattern

○ **Press “SelRhythm,” and rotate the [VALUE] dial to select the desired rhythm pattern.**

Recording your performance while you listen to the rhythm

You can record your performance while listening to the built-in rhythm as a guide.

① **Make settings as described in “Specifying and playing a rhythm.”**
- Turn “Rhythm” “**On**.”
- Make other settings as necessary.

② **Connect your input device, and begin recording.**

Refer to “1. Selecting the input / record track” and “2. Adjusting the record level, and recording” (→p.16, 18).

When you press the [REC] key to enter record-ready mode, a count will sound. Recording will begin when you press the [PLAY] key. You will hear the selected rhythm pattern. Begin performing, using the rhythm as a guide.

Recording the rhythm

Built-in rhythm patterns can be recorded on a track.

As an example, here’s how the rhythm pattern can be recorded on mixer channels 1 and 2.

① **Make settings as described in “Specifying and playing a rhythm.”**
- Turn “Rhythm” “**Off**.” (If this is turned “**On**,” the sound will be doubled; on the tracks and also on the master LR bus.)
- Since “RhythmVol (Vol)” adjusts the send volume to the master LR bus, you do not need to set it in this example. You will use each mixer channel to set the volume.
- Make other settings as necessary.

② **Specify the input channels.**
- Select the [INPUT] “Ch1–8” tab page.
- Press the “Ch1” icon, and rotate the [VALUE] dial to select “**Rhythm L**.” In the same way, set “Ch2” to “**Rhythm R**.”

③ **Specify the recording tracks.**

Press [TRACK STATUS] keys for tracks 1 and 2 to set them to **REC** (LED lit red).

④ **Check the record mode.**
- Select the [RECORD] “RecMode” tab page.
- Select “**Input**” (= record the input).

⑤ **Check the record mode, input level, and audio.**

Refer to “Assign the guitar input from [GUITAR IN] to mixer channel 1,” steps ⑤, ⑥, and ⑦. (→p.16)

After checking the settings, press the [STOP] key to stop.

⑥ **Adjust the recording level, and record.**

Refer to “2. Adjusting the record level, and recording” (→p.18).

Setting the tempo

A song on the D16 can be controlled by the following tempo sources.

- Manual tempo
- Tempo map
- Tempo track (MIDI clock or tap tempo)

You can select one of these sources, and use it to manage the tempo of the D16 song. At the same time, this also controls the tempo at which an external MIDI device will synchronize to the D16.

○ **The tempo source is selected by the [TEMPO/RHYTHM] “SetUp” tab page item “Tempo-Source.”**

Here’s how you can make settings for each tempo source.

Manual tempo

Manual tempo follows the tempo settings of “Tempo,” the time signature of “Beat,” and the rhythm pattern of “SelRhythm.” The tempo etc. will not change during the song.

○ **Set the tempo source to Manual.**

- Select the [TEMPO/RHYTHM] “SetUp” tab page.
- Press “TempoSource,” and rotate the [VALUE] dial to select “**Manual**.”
  For details on setting “Tempo,” “Beat,” and “SelRhythm,” refer to “Specifying and playing a rhythm” (→p.39).

Tempo map

Tempo map lets you specify the tempo, time signature, and rhythm pattern for each measure. The tempo, time signature, and rhythm pattern will change at the specified measure locations. A tempo map can be created in the “TmpMap” tab page.

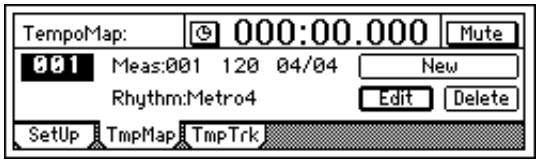
① **Select the Tempo Map as the tempo source.**

- Select the [TEMPO/RHYTHM] “SetUp” tab page.
- Press “TempoSource,” and rotate the [VALUE] dial to select “**TempoMap**.”

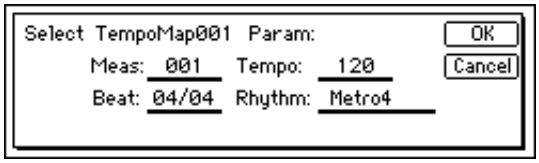
② **Set tempo map “001” to specify the initial tempo at the beginning of the song.**

note The tempo map consists of tempo map “**001**” (the initial tempo), and tempo maps “**002**”–“**200**” which modify the tempo in subsequent measures.

- Select the [TEMPO/RHYTHM] “TmpMap” tab page.



- Select "TempoMap," and rotate the [VALUE] dial to select tempo map "**001**."
- Press the "Edit" button to access the "Select TempoMap001 Param" dialog box.



- Select the tempo in "Tempo," the time signature in "Beat," and the rhythm pattern in "Rhythm." For tempo map "**001**" it is not possible to change "Meas."
- When you have finished making settings, press the "OK" button.

③ **Add a tempo map as desired to change the tempo, time signature, or rhythm pattern during the song.**

- Press the "New" button so that the display reads "Select TempoMap002 Param."
- Set "Meas" to the measure for which the new tempo map will be created, and select the tempo in "Tempo," the time signature in "Beat," and the rhythm pattern in "Rhythm."
- Press the "OK" button to add the tempo map.

The map numbers will automatically be renumbered from front to back.

④ **Repeat step ③ to create tempo maps at the required locations.**

note By adding tempo maps and using "Rhythm" to change the rhythm pattern, you can create drum patterns for an entire song, including an intro, fill-in's, and ending.

Deleting / modifying a tempo map

You can delete an unwanted tempo map, or modify the measure location or tempo etc. of a tempo map.

① **Select the tempo map that you wish to delete or modify.**

- Select the [TEMPO / RHYTHM] "TmpMap" tab page.
- Press "TempoMap," and rotate the [VALUE] dial to select the appropriate tempo map.

② **Delete or modify the tempo map.**

- To **delete**, press the "Delete" button. A message of "AreYouSure?" will ask you to confirm.
- Press the "OK" button, and the tempo map you selected in step ① will be deleted. If you turn the "SelectAll" button "**On**" (highlighted), all tempo maps other than "**001**" will be deleted.

Undo is not available for this operation.

- If you wish to **change the setting again**, press the "Edit" button to access the dialog box. Set the parameters as desired, and press the "OK" button.

Tempo track

The **tempo track** records MIDI clock data from an external MIDI sequencer etc., or tap tempo.

Recording MIDI clock data from an external MIDI sequencer, and using it as the tempo track

Here's how MIDI clock tempo data from an external MIDI sequencer can be recorded on the tempo track.

Use this when you wish to synchronize the D16 song with song data created on a MIDI sequencer in which the tempo changes continuously.

① **Specify the time signature in the tempo map.**

If the time signature of the MIDI sequencer song data changes during the song, you will need to create tempo maps at the locations where the time signature changes. (→"Tempo map")

If the time signature changes during the song, it will be detected as an incorrect tempo unless you have created a tempo map that matches the changes in time signature. There is no need to specify the tempo.

② **Connect the MIDI OUT of your MIDI sequencer to the [MIDI IN] of the D16.**

③ **Make settings on your MIDI sequencer so that it will transmit MIDI clock messages.**

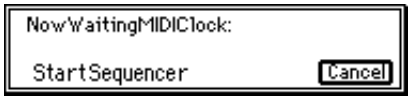
Refer to the owner's manual for your MIDI sequencer.

④ **Select the type of tempo track that will be recorded.**

In the [TEMPO / RHYTHM] "TempTrk" tab page, select "**MIDIClock**."

⑤ **Record the MIDI clock data.**

- Press the "RecStart" button to put the D16 in record-ready mode.



- Start your MIDI sequencer.
- When MIDI clock messages are received from the MIDI sequencer, the display will indicate "Now Receiving MIDI Clock."

⑥ **When playback is finished, stop the MIDI sequencer.**

The D16 will finish recording, and will display "Completed." Press the "OK" button.

⑦ **Specify the tempo track as the tempo source.**

- Select the [TEMPO / RHYTHM] "SetUp" tab page.
- Press "TempoSource," and rotate the [VALUE] dial to select "**TempoTrk**."

If MIDI clock messages are not being transmitted correctly from the MIDI sequencer, tempo recording may end prematurely.

Recording tap tempo

While playing back a song, you can press (tap) the [PLAY] key at the beginning of each measure or beat to record a tempo. Alternatively, you can use a foot switch (separately sold option) instead of the [PLAY] key.

Tap tempo can be used to record the tempo after you have recorded a song. By recording the tempo afterward for a song that contains no tempo settings, you can do the following things.

- Edit tracks in units of a measure
- Synchronize external MIDI devices

① **Prepare the audio for which you wish to record the tempo.**

First, the audio for which you wish to record tempo data must be recorded from the beginning of the song.

note Trigger recording is convenient when recording from the beginning of the song. (→p.73)

② **Set the tempo map to specify the time signature.**

If the source whose tempo you wish to record has a time signature that changes during the song, you must create tempo maps at locations where the time signature changes. (→"Tempo map")

If the time signature changes during the song, it will be detected as an incorrect tempo unless you have created a tempo map that matches the changes in time signature. There is no need to specify the tempo.

③ **If you wish to use a foot switch to input the tap tempo, connect a PS-1 foot switch etc. (separately sold option) to the [FOOT SWITCH] jack of the D16.**

④ **Select the type of tempo track that you wish to record.**

In the [TEMPO/RHYTHM] "TmpTrk" tab page, select either "**MeasTap**" (tap at the beginning of each measure), or "**BeatTap**" (tap at each beat).

⑤ **Record the tap data.**

- Press the "RecStart" button to put the D16 in record-ready mode.
- Press either the [PLAY] key or the foot switch, and playback and recording will begin simultaneously.
- While listening to the playback, press either the [PLAY] key or the foot switch at the intervals you selected in step ④, to record the tap data. A counter will be displayed while tap data is being recorded.

When pressing the [PLAY] key to record taps, do not strike the key with excessive force. Doing so will cause the hard disk to malfunction.

⑥ **Stop recording taps.**

On the last tap, press the [STOP] key to end.

For example if you are recording four measures of 4/4 time, you would tap 4 times for "**MeasTap**" or 16 times for "**BeatTap**," and press the [STOP] key at the beginning of measure 5.

If the song tempo is essentially constant, you can input taps to part-way through the song, and the tempo of the last-input measure or beat will be automatically copied until the end of the song.

⑦ **Specify the tempo track as the tempo source.**

- Select the [TEMPO/RHYTHM] "SetUp" tab page.
- Press "TempoSource," and rotate the [VALUE] dial to select "**TempoTrk**."

Step 12. Song saving

A word about data

There is always a remote possibility that the D16 will malfunction, causing errors in the data or loss of data. If the D16 malfunctions, recorded data or other types of data may be lost. Please copy or back up your important data on an external drive such as a hard disk or removable disk.

You must obtain appropriate permission before digitally recording copyrighted audio material from a DAT or CD. Otherwise you must use non-copyrighted material.

Korg disclaims all responsibility for any damages that may result from loss of data or from your violation of copyright law.

The D16 provides an **auto save function** that automatically stores the recorded / edited song to disk when you switch songs or turn off the power. This means that you are not required to perform an operation to save the data. (You will need to save the effect after editing an effect program.)

The save operations explained here assume that you wish to save the song to an external disk, for example in order to save important data on an external disk, or to transfer data from the internal hard disk to an external disk so that data can be deleted from the internal hard disk to free up more space.

When saving a song on an external disk, you can select from the following methods.

- **Copy Song, Copy All Songs**
- **Backup 1 Song, Backup All Songs**

Copy and Backup differ in the following ways.

Copy Song **Copy All Songs**	**Backup 1 Song** **Backup All Songs**
A copied song can be directly played back	A backed up song cannot be directly played back (the song must be Restored before it can play back)
The songs in the save destination are not erased	All songs in the save destination are erased
Song data exceeding the disk capacity cannot be saved	Song data exceeding the disk capacity can be backed up using multiple removable disks
Songs can be saved on hard disk or removable disk	Songs can be saved only on removable disk
Initialization/formatting is necessary when using a disk for the first time	Initialization/formatting is not necessary when using a disk for the first time
Effect user data cannot be saved	Effect user data can be saved

note When saving a song to an external removable disk, you can use either Copy or Backup. Refer to the above table and choose the most suitable method for your needs.

If the song to be saved is larger than the disk capacity, use the Backup operation.

If you use Copy to save a song, and then subsequently modify and re-save the user effect settings that were used by that song, the modified effect settings will be used the next time you play the copied song, meaning that it will not sound the same. To avoid this situation, you should use Backup instead of Copy. Alternatively, you could use Copy, but backup the user effects separately by using the **Backup User Data** command.

Copy Song
Copy All Songs

You can use the "**CopySong**" command to copy the currently selected song, or the "**CopyAllSongs**" command to copy all songs of the currently selected drive.

For the copy procedure, refer to "**CopySong**" (→p.61) or "**CopyAllSongs**" (→p.61).

To **restore a copied song to the internal hard disk**, select the copied song on the external hard disk as the copy source, and select the internal hard disk as the copy destination. Then execute "CopySong" or "CopyAllSongs."

Undo is not available for these commands.

If a disk is being used for the first time, it must be initialized / formatted. (→p.47, 48)

Backup / Restore

Backup

You can use the "**Backup1Song**" command to back up the currently selected song, the "**BackupAllSongs**" command to back up all songs of the currently selected drive, or the "**BackupUserData**" command to back up the current user effect settings.

The user effect settings will always be backed up when you execute the "**Backup1Song**" command or the "**BackupAllSongs**" command.

Be aware that the backup commands will always overwrite the entire backup destination drive.

It is not necessary to format the disk.

If the amount of data to be backed up will not fit on a single disk, making it necessary to use multiple volumes of media, you must use media of the same capacity.

Restore

The Restore command will recall the backed-up data so that it can be used on the D16.
When restoring data of all songs ("**BackupAllSongs**") or one song ("**Backup1Song**"), you can select whether or not you wish to overwrite the current user effect data.

It is also possible to restore a specific individual song from the songs that were backed up by "**BackupAllSongs**."

note Backup and restore commands are performed in the [SYSTEM] "B–U/Rst" tab page. For the procedure, refer to p.50.

Reference

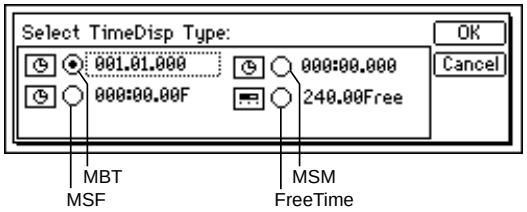
1. COUNTER

Counter: Counter display

The counter located in the upper right of each page shows the current location of the recorder.

Use the following procedure to switch the counter display.

① Press the " " button at the left of the counter to access the "Select Time Disp Type" dialog box.
② Select the desired type of location display, and press the "OK" button.



___.__.___ (MBT): The current location will be shown in measures from the beginning of the song.
From the left, the numbers indicate the Measure, Beat, and Tick (1/96 beat).

___:__.___ (MSM): The current location will be shown as an absolute time from the beginning of the song.

From the left, the numbers are Minutes : Seconds. Milliseconds (1/1000 second).

___:__.__F (MSF): The current location will be shown as an absolute time from the beginning of the song. This is normally used when synchronizing with MTC.

From the left, the numbers are Minutes : Seconds. Frames (1/30 second).

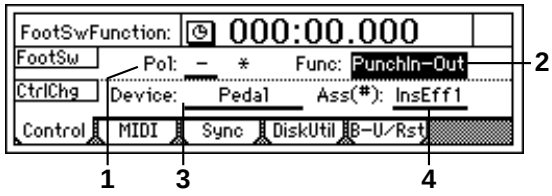
___.__Free (Free Time): The remaining time available for recording on the currently selected drive will be shown.

From the left, the numbers are Minutes . Seconds.

note To change the current time location at the cursor, either press the counter value or use [CURSOR] to move to the value, and use the [VALUE] dial to change the value.

2. SYSTEM

P1 Control: Foot switch/control change device (pedal/MIDI) settings



1. Pol(FootSwPolarity) ..... [– , +]
This sets the polarity of the foot switch.

Connect a foot switch (such as the separately sold PS-1 option) to the front panel [FOOT SWITCH] jack, and set this parameter so that the polarity indicator "*" is lit when you press the foot switch.

2. Func(FootSwFunction) ..... [PunchIn–Out, Play/Stop, Mark]
Select the function that the foot switch will control.

PunchIn–Out: The foot switch will start/stop manual punch recording. Use the [TRACK STATUS] keys to set the desired track to **REC**, begin playback, and press the foot switch at the location where you wish to begin recording. Press the foot switch again to stop recording. (→p.20)

Play/Stop: The foot switch will start/stop playback. Press the foot switch to start playback, and press it again to stop playback.

Mark: The foot switch will register a mark. When you press the foot switch, a mark will be registered at that time location.

While this page is displayed, the foot switch will be used only to verify the polarity, and the specified function will be disabled.

Also during tap recording, the function you select here will be ignored, and the foot switch will automatically function as a tap marker. (→p.42)

3. Device(CtrlChgDevice)..... [Pedal, A.Touch, PitchBend, Velocity, NoteNum, CC#000…119]
Select the external device that will control the internal effects of the D16. The effect selected by "Ass" (P1-4) can be controlled in realtime.
Pedal: An expression pedal can be used to control the effect. Connect an expression pedal (separately sold option: XVP-10, EXP-2 etc.) to the [EXPRESSION PEDAL] jack, and operate the pedal to control the effect.

A.Touch, PitchBend, Velocity, NoteNum: MIDI aftertouch, pitch bend, velocity, or note number data can be used to control the effect. Connect the

MIDI OUT of your external MIDI device to the [MIDI IN] connector on the rear panel, and transmit the selected MIDI data to control the effect.

CC(Control Change) #000…119: MIDI control change messages can be used to control the effect. Connect the MIDI OUT of your external MIDI device to the [MIDI IN] connector on the rear panel, and transmit the selected MIDI control change message to control the effect.

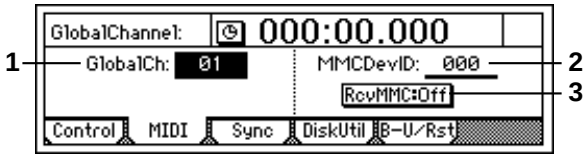
4. Ass(CtrlChgAssign) ..... [ExpOff, InsEff1…4]
Select the insertion effect that will be controlled. The insertion effect that you select here will be controlled by the selected "Device" (P1-3).

ExpOff: The insertion effect will not be controlled.

InsEff1, InsEff2, InsEff3, InsEff4: Insertion effect 1, 2, 3, or 4 will be controlled respectively.

If the effect program that you are using does not provide control capability, it cannot be controlled. (→p.89)

P2 MIDI: MIDI settings



On the D16, you can use MIDI to do the following things:

- Control effects (→p.33)
- Synchronize with MIDI devices such as sequencers
- Select scenes (→p.67)

1. GlobalCh(GlobalChannel).....[01…16]
Specify the global MIDI channel.

This setting is required in the following situations.

- When using MIDI messages to control an effect with a "Device" (P1-3) setting other than "**Pedal**"
- When using program change messages to transmit / receive scene changes

To allow MIDI messages to be transmitted and received, connect the external MIDI device to the D16 via MIDI, and set the MIDI channel of the external device to match the "GlobalCh" of the D16.

2. MMCDevID(MMC Device ID).....[000…127]
Specify the device ID that will be used when receiving MMC messages from an external MIDI device. To allow MMC messages to be received, connect the external MIDI device to the D16 via MIDI, set the device ID to match, and turn "RcvMMC" (P2-3) "**On**."

3. RcvMMC(Receive MMC) .....[On, Off]
Specify whether or not the D16 will receive MMC messages from an external MIDI device.

RcvMMC:On **On**: MMC messages will be received.

RcvMMC:Off **Off**: MMC messages will be ignored

Using a MIDI sequencer to control stop / play / fast-forward / rewind / record / locate on the D16 (Control by MMC)

MMC (MIDI Machine Control) messages transmitted from a MIDI sequencer can control stop / play / fast-forward / rewind / record / locate on the D16.

note Use a MIDI sequencer that supports MMC. These operations cannot be performed by a sequencer that does not support MMC.

① Use a MIDI cable to connect the MIDI OUT connector of your MIDI sequencer to the [MIDI IN] connector of the D16.
② Make settings on your MIDI sequencer so that it will output MMC to control an external device. (For details refer to the owner's manual of your MIDI sequencer.)
③ In the [SYSTEM] "MIDI" tab page, turn the "RcvMMC" button "**On**."
④ Set "MMCDevID" to the MMC device ID of your MIDI sequencer.
The device ID specifications of various sequencers differ, and this may not necessarily be the identical number.
⑤ When you perform stop / play / fast-forward / rewind / record / locate operations on your MIDI sequencer, the D16 will be controlled accordingly. (For details refer to the owner's manual of your MIDI sequencer.)

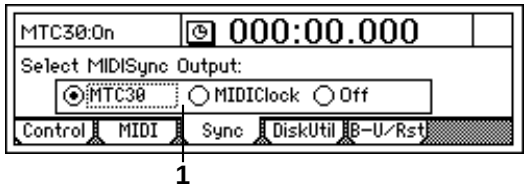
note At this time, the D16 can transmit MTC (MIDI Time Code) or MIDI Clock messages to synchronize the MIDI sequencer, so that stop / play / fast-forward / rewind / record / locate operations on the sequencer will cause the D16 and the MIDI sequencer to synchronize. For details on synchronization, refer to "Synchronizing a MIDI sequencer to the D16" (→p.47).

P3 Sync: Synchronization settings

By synchronizing the D16 with an external MIDI sequencer, you can simultaneously play back 16 tracks of audio together with your external tone generator.

The process of causing the D16 to operate at the same timing as a MIDI sequencer or other device is called **synchronization**. The device that transmits the synchronization clock is called the **master** device, and the device(s) that receives the synchronization clock is called the **slave** device. The D16 always operates as the master device.

MMC messages can also be received from a MIDI sequencer to control playback and recording etc. on the D16.



1. Select MIDISync Output ..... [MTC30, MIDIClock, Off]

Select the type of synchronization data that will be transmitted from the [MIDI OUT] connector.

MTC30 (MTC30: On): MTC30NDF (MIDI Time Code 30 non-drop frame) will be transmitted.

MIDIClock (MIDI Clock: On): MIDI Clock will be transmitted.

Off (Gen: Off): Synchronization data will not be transmitted.

Synchronizing a MIDI sequencer to the D16

Here's how you can use MIDI Clock or MTC (MIDI Time Code) messages transmitted from the D16 to synchronize your MIDI sequencer, with the D16 acting as the master device and your MIDI sequencer acting as the slave.

① Use a MIDI cable to connect the MIDI IN connector of your MIDI sequencer to the [MIDI OUT] connector of the D16.

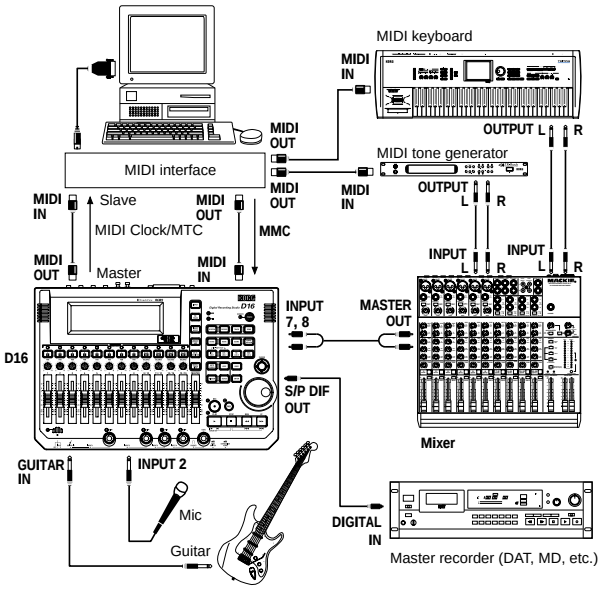
② Select the type of synchronization messages that will be transmitted from the [MIDI OUT] connector. This selection is made in the [SYSTEM] "Sync" tab page.
To control using MIDI Clock, select "**MIDI Clock**."
To control using MTC, select "**MTC30**."

③ Set your MIDI sequencer so that it will receive and synchronize to MIDI Clock / MTC messages from an external device. (For details refer to the owner's manual for your MIDI sequencer.)
Set the master device and slave device to the same tempo and time signature.

④ Start your MIDI sequencer (put it in playback mode).

⑤ Press the [PLAY] key of the D16 to start playback, and the MIDI sequencer will also begin playback at the tempo specified by the D16.

note This operation is not possible if your MIDI sequencer does not support either MIDI Clock or MTC.



P4 DiskUtil: Initializing / formatting / checking a drive

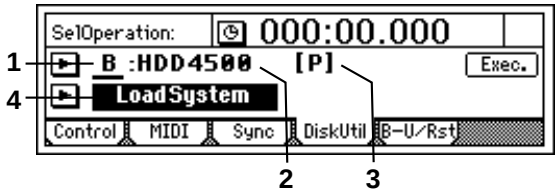
Here you can initialize, format, and check a drive.

When using a disk for the first time to record / play a song, you must initialize or format the disk.

- **Initialize** should be performed erase the contents of a newly purchased drive before using it for the first time.
- **Format** should be performed before a disk that had been used on another device is used on the D16, or if "DiskError" messages appear frequently during playback.

note Initialize / Format are not required for a removable disk that is used for backup / restore.

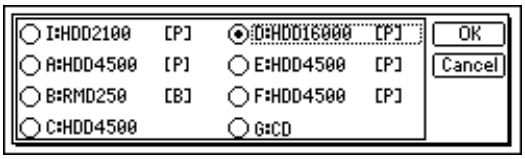
Be aware that when you execute Initialize or Format, all data on the affected drive will be lost.



1. Drive ID .....[I, A…G]

Select the drive that will be initialized, formatted, or checked.

If you press the "▶" button, you will be able to select from a list.



I: Internal IDE
A: SCSI ID0, **B**: SCSI ID1, **C**: SCSI ID2, **D**: SCSI ID3, **E**: SCSI ID4, **F**: SCSI ID5, **G**: SCSI ID6

"**G**" is the ID for CD-R and CD-RW. It can also be selected for a HDD (hard disk drive).

2. Device Type, Total Size..... (HDD, RMD)

This shows the type and capacity of the drive.

HDD: Hard Disk Drive

RMD: Removable Disk Drive

* **Removable disk drive** is a collective term for drives that allow the disk to be removed, such as magneto-optical, Zip, and Jaz drives.

3. Format Type.....(P, B)

This shows the format type of the disk.
The drive that was installed in the D16 when it was shipped from the factory and external drives initialized or formatted when connected to the D16 will be shown as "playable type." All others drives will be shown as "backup type."

P (Playable Type): used for creating songs

B (Backup Type): used for backup

4. SelOperation .....[EjectRMD, CheckDrive, Initialize, Format, LoadSystem]

Select the operation that you wish to perform on the drive.

If you press the "▶" button, you will be able to select from a list.

EjectRMD: The removable disk selected by "Drive ID" (P4-1) will be ejected.
If the currently selected song is on the removable disk, it will be locked from the D16, so you should use this operation to eject it. In other cases, you can use the eject button of the drive to eject the disk. (→p.49)

Check Drive: Errors on the drive selected by "Drive ID" will be detected and repaired. Execute this command if Disk or Disk Busy error messages begin appearing frequently. After this command is executed, song data will still be usable unless major errors had occurred on the drive.

Significant time is required in order to execute Check Drive.
Internal drive: approximately 40 minutes
10 GB external hard disk drive: approximately 8 hours

Initialize: The drive selected by "Drive ID" will be initialized.

Format: The drive selected by "Drive ID" will be formatted.

LoadSystem: The system will be loaded from the drive selected by "Drive ID," rewriting the system. For details refer to "Updating the system software" (→p.107).

Connecting an external drive

Here's how to connect an external drive such as a hard disk, removable disk, or CD-R/RW.

- Maximum capacity of an external drive that can be connected: 1,000 Gbyte per drive
- Connector: 25 pin SCSI cable
- Number of drives that can be connected: up to 7 drives

① Turn off the power of the D16 and of the external drive.

Before connecting/disconnecting a SCSI cable or changing the SCSI ID of a drive, make sure that the power of the D16 and of the drive is turned off.

② Set the SCSI ID of the external drive.
Set the SCSI ID of a **CD-R/RW** drive to **6** (displayed as "**G**").
Set the SCSI ID of a **hard disk** or **removable disk** to as low a number as possible.
For details on setting the SCSI ID of a CD-R/RW drive etc., refer to its owner's manual.

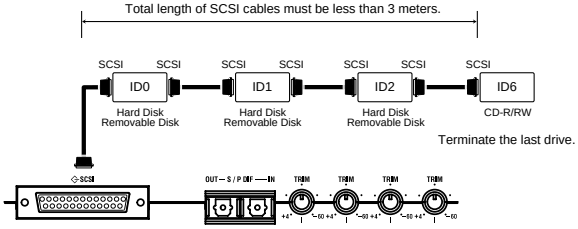
When connecting two or more drives, set the drive numbers so that they do not overlap.

If you set two or more drives to the same ID, malfunctions or loss of data may occur. Never set two or more drives to the same ID.

③ Connect the [SCSI] connector of the D16 to the SCSI connector of the external drive.

Connect (or switch on) a terminator for the last external drive in the chain. Also when connecting two or more external drives, make sure that the total length of cable does not exceed 3 meters. (For details on connections and installation, refer to the owner's manual for your external drive.)

For some external drives, insufficient access speed may cause "skips" in the sound or errors. Please use external drives that have a sufficiently fast access speed.



Turning the external drive power on/off

When turning **on the power**, first turn on the power of the external drive(s), and then turn on the power of the D16.
When turning **off the power**, first turn off the power of the D16, and then turn off the power of the external drive(s).

Initializing and formatting a disk

When you initialize or format a disk, all data on that disk will be lost. Please check the contents of the disk before you execute these operations.

If the power is turned off accidentally while the internal drive is being initialized/formatted, the D16 may be unable to function correctly.
If this occurs, please contact a Korg dealer.

Approximately 40 minutes will be required to format the internal drive.
The time required to format an external drive will depend on the media, but several hours may be required in some cases.

① Select the drive.
Select the [SYSTEM] "DiskUtil" tab page, and use "Drive ID" to select the drive. A drive that has not been initialized or formatted will be displayed as "Unknown Drive."

② To initialize the drive, use "SelOperation" to select "**Initialize**." To format the drive, select "**Format**."

③ Execute the initialize or format operation.
Press the "Exec." button. The display will ask "AreYouSure?" To execute, press the "Yes" button. When the operation has been completed, the display will indicate "Completed." Press "OK." Verify that the display has changed from "Unknown Drive" to correctly indicate the type and capacity of the drive.

Using a removable disk

A removable disk can be used in the following ways.

- For recording/playback
- For backup/restore

Before a disk is first used for recording/playback, it must be initialized or formatted (→p.47).
When using a disk for backup/restore, it is not necessary to initialize or format.

Be aware that some types of removable disk drive are not suitable for recording / playback.

Exchanging removable disks

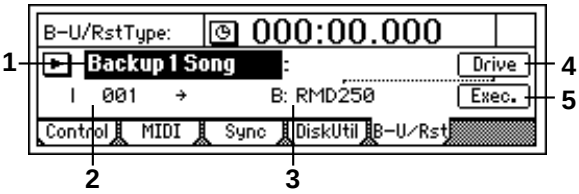
If the currently selected song is on a removable disk, use the following procedure to exchange disks.

① Select the [SYSTEM] "DiskUtil" tab page.
② Use "SelOperation" to select "**EjectRMD**."
③ Press the "Exec." button. The disk will be ejected, and the internal drive will be selected.
Insert a different disk into the removable disk drive.
If you will be using it for recording / playback, re-select that drive.
If you will not be inserting a different disk, use the same page to select a different drive.

If the currently selected song is not on a removable disk, press the eject switch of the removable disk drive to eject the removable disk and exchange it.

P5 B–U / Rst: Backing-up and restoring data to removable disk

Here you can backup (save) and restore (recall) data to and from a removable disk.



Be aware that backup operations and some restore operations will overwrite the data on the destination drive.

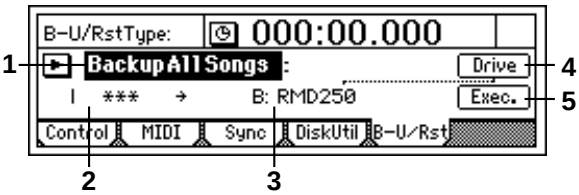
1. B–U / RstType .....[Backup1Song, BackupAllSongs, BackupUserData, Restore]

Select the type of data backup / restore operation.

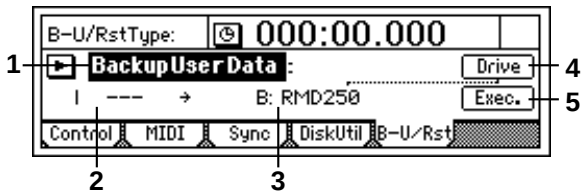
If you press the "▶" button, you can select from a dialog box.

Backup1Song: Back up one song and user effect data on the selected drive.

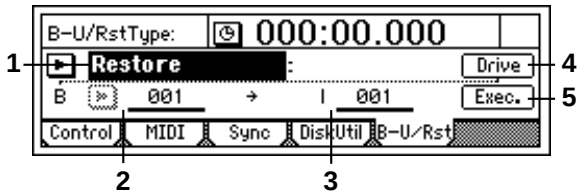
BackupAllSongs: Back up all songs and user effect data on the selected drive.



BackupUserData: Back up user effect data.



Restore: Restore song and user effect data.
For a drive on which "**Backup1Song**" was performed, that song and user effect data will be restored.
For a drive on which "**BackupAllSongs**" was performed, you can select any individual song or all songs to restore.
For a drive on which "**BackupUserData** was performed, the user effect data will be restored.



2. Source ..... (I, A…F / 001…100, *)[*1], (I, A…F / ---)[*2], [A…F / 001…100, ***, ---] [*3]**

During backup, this shows the songs etc. of the backup source. During restore, the song to be restored can be selected here.

For the drive number ("**I**"–"**F**"), refer to "Drive ID." (→p.47)

001…100: Song number, **---**: User effects, *******: All songs

[*1]: For "**Backup1Song**" or "**BackupAllSongs**" ("B–U / RstType"), this shows the drive and song number of the data that is to be backed up. The currently selected drive and song number will be backed up.
[*2]: For "**BackupUserData**" ("B–U / RstType"), this shows the backup source drive and user effect "–." The currently selected drive and user effect data will be backed up.
[*3]: For "**Restore**" ("B–U / RstType"), this shows the resource source drive, and lets you select the song number.
Use the "Drive" button (P5-4) to select the drive.
If you press the "▶" button, you will be able to select a song number from a dialog box.
A song can be selected only when restoring from a disk that was backed up using "**Backup AllSongs**." If you wish to restore only a single song, select the desired song "**001**"–"**100**" (as far as the number of songs that exist). To restore all songs, select "***".

3. Destination.....(A…F: RMD---- x1…99)[*1], [(I…F) / ---] [*2], [(I…F) / 001…100, *] [*3]**

When executing a backup, here you can select the drive to which the data will be backed up. When restoring, this displays the restore destination drive, and lets you select the song number.

For the drive number ("**I**"–"**F**"), refer to "Drive ID." (→p.47)

*1: For "**Backup1Song**" or "**BackupAllSongs**" ("B–U / RstType"), this displays the backup destination drive, drive information ("**RMD----**"), and the number of media volumes required ("**x1**"–"**x99**").

*2: For "**BackupUserData**" ("B–U / RstType"), this displays the backup destination drive and user effect "**---**".

*3: For "**Restore**" ("B–U / RstType"), this displays the restore destination drive, and lets you select the song number. The currently selected drive will be the restore destination. If you are restoring only a single song, it will be restored to the song number you select here.

Internal drive "I" is the only drive to which user effect data can be restored

4. Drive .....[A…F]

For the drive number ("**A**"–"**F**"), refer to "Drive ID." (→p.47)

For "**Backup1Song**," "**BackupAllSongs**," or "**BackupUserData**" ("B–U / RstType"), this selects the backup destination drive. Press this button and a dialog box will appear. Select the drive and press the "OK" button.

For "**Restore**" ("B–U / RstType"), this selects the restore source drive. Press this button and a dialog box will appear. Select the drive and press the "OK" button.

5. Exec. .....

Execute the backup or restore operation.

For "**Backup1Song**" ("B–U / RstType"), the specified "Source" song will be backed up on the "Destination" drive.

For "**BackupAllSongs**" ("B–U / RstType"), all songs of the "Source" will be backed up on the "Destination" drive.

For "**BackupUserData**" ("B–U / RstType"), user effect data of the "Source" will be backed up on the "Destination" drive.

Be aware that the data on the backup destination drive ("Destination") will be overwritten.

For "**Restore**" ("B–U / RstType"), the "Source" song or user data will be restored to the "Destination" drive.

When restoring a single song, ("**Backup1Song**" or "**BackupAllSongs**"), the "Source" song will be restored at the "Destination" song number. Any songs at or following the "Destination" number will be renumbered backward. The existing songs will not be overwritten.

When restoring all songs ("**BackupAllSongs**"), all songs from "Source" will be restored after the existing songs of the "Destination" drive. The existing songs will not be overwritten.

When restoring user effect data ("**BackupUserData**"), the "Source" user data will be overwritten onto the user data of the "Destination" drive.

note When restoring data from a "**Backup1Song**" or "**BackupAllSongs**" drive to the internal drive "**I**," you can select whether or not the user data will be overwritten. (→"Restore User Data")

Before "**Backup1Song**" or "**BackupAllSongs**" data is restored, the restore destination capacity will be checked, and if the capacity is insufficient the operation will not be executed.

6. Restore User Data .....[Yes, No]

When restoring song data to the internal drive "**I**," you can select whether or not the user effect data that was stored at the time of the backup will be overwritten onto the user effects.

note User data is backed up automatically when a song backup is performed.

Yes: User effect data will be restored.

No: User effect data will not be restored.

This will overwrite the current user effects. Please use caution.

Backup procedure

① Insert a disk into the backup destination drive.

② Use the [SONG] "SelSong" tab page or the [SYSTEM] "DiskUtil" to select the backup source drive ("Source").
If you will be performed "**Backup1Song**," select the desired song within that drive. Select the song as described in "3. Selecting an existing song" (→p.14), and use the [SYSTEM] "B–U / Rst" tab page to check the backup source song number.

③ Use "B–U / RstType" to select the type of data that you wish to backup.

④ Select the backup destination drive ("Destination"). Press the "Drive" button to access the dialog box, select the drive, and press the "OK" button.

⑤ For "**Backup1Song**" and "**BackupAllSongs**," the display will indicate the number of disks required for the backup. Prepare the required number of disks, each with the same capacity.

⑥ Execute the backup.
Press the "Exec." button. The display will ask "AreYouSure?," so press the "Yes" button to execute.

⑦ If multiple disks were required in step ⑤, the display will ask for the next disk when each disk is filled up. Insert the next disk and press the "OK" button.

⑧ When the operation has been completed, the display will indicate "Completed." Press the "OK" button.

Restore procedure

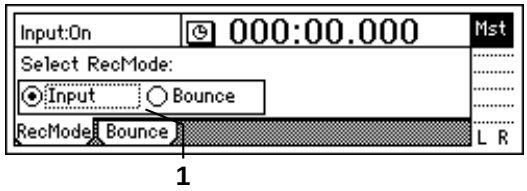
① Use the [SONG] “SelSong” tab page or the [SYSTEM] “DiskUtil” tab page to select the restore destination drive.
② Select the restore operation.
In the [SYSTEM] “B–U / Rst” tab page, select “**Restore**” for “B–U / RstType.”
③ Select the restore source drive (“Source”).
Press the “Drive” button to access the dialog box, select the drive, and press the “OK” button.
④ Select the restore source song (“Source”).
For a drive that was backed up using “**BackupAllSongs**,” you can select whether to restore all songs or a single song. Use “Source” to select the song that you wish to restore. To restore all songs, select “***” (“SelectAll” in the dialog box).
⑤ When restoring a single song (“**Backup1Song**” or “**BackupAllSongs**”), select the restore destination song (“Destination”).
⑥ Execute the restore operation.
Press the “Exec.” button. The display will ask “Are You Sure,” so press the “Yes” button to execute.
⑦ If you are restoring a backup that extended across two or more disks, the display will prompt you for the next disk when the data of each disk has been restore. Insert the next disk, and press the “OK” button.
⑧ When restoring data from “**Backup1Song**” or “**BackupAllSongs**” to internal drive “I,” you can select whether or not the user data will be overwritten.
The display will ask “RestoreUserData,” inquiring whether the user data that was saved at the time of the backup should be written over the current data. To overwrite, press the “Yes” button. To keep the current data, press the “No” button.

If you overwrite the data, the previous data will be lost.

⑨ When the operation has been completed, the display will indicate “Completed.” Press the “OK” button.

3. RECORD

P1 RecMode: Selecting the recording mode



1. Select RecMode .....[Input, Bounce]
Select the recording mode.

Input: The input (analog, digital, internal rhythm) will be recorded. The recording level of each track is adjusted by the channel faders. Select this for normal recording.

Bounce: The master LR bus will be recorded. The playback level of each track is adjusted by the channel faders, and the recording level is adjusted by the master faders.

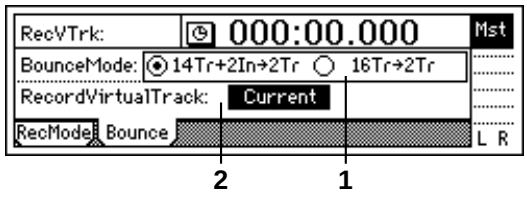
You will select this mainly for the following situations.

- Pingpong recording (combining multiple tracks to one or two tracks)
- Recording the sound processed by the master effect
- Recording multiple inputs on one or two tracks.

When “**Bounce**” is selected, a maximum of two tracks can be recorded simultaneously.

P2 Bounce: Settings for bounce recording

For the procedure of bounce recording, refer to p.21.



1. Select BounceMode ..... [14Tr+2In→2Tr, 16Tr→2Tr]
Select the type of bounce recording.

14Tr+2In→2Tr: Select this when recording 14 tracks of playback + 2 inputs onto two tracks, or when recording 15 tracks of playback + 1 input onto one track.
The input sound selected in the [INPUT] “Ch1–8” tab page and “Ch9–16” tab page will be valid for the channel(s) whose [TRACK STATUS] key is set to **REC** (LED lit red), and will be recorded together with the other playback tracks.

16Tr→2Tr: Select this when recording 16 tracks of playback onto two tracks or one track.
The track playback will be valid for the channel(s) whose [TRACK STATUS] key is set to **REC** (LED lit red), and will be recorded together with the other playback tracks.

Be aware that if rhythm is "On" during bounce recording, the rhythm will also be recorded together with the other sounds.

2. RecordVirtualTrack.....[Current, a…h]
Select the recording destination virtual track.

Select the virtual track of the recording track selected by the [TRACK STATUS] key on which bounce recording will occur.

Current: The currently selected track

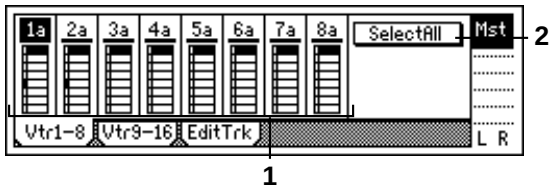
a…h: The specified virtual track

By selecting "**Current**" or any other virtual track "**a**"–"**h**," you can do things like combine sixteen tracks to two virtual tracks without erasing any of them. However if the track selected for recording is the same as the currently selected virtual track, conventional bounce recording will occur.

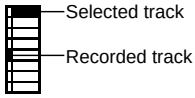
To avoid accidentally recording over a previously recorded track, use [TRACK] "Vtr1–8" and "Vrt9–16" tab pages to check which virtual tracks are "**Current**" and which contain recorded data before you make your selection.

4. TRACK

P1 Vtr1–8: Select virtual tracks 1–8



1. Select VirtualTrack.....[1a…1h, …, 8a…8h]
Select the virtual track for each track "1"–"8." Each track has eight virtual tracks: "a"–"h." One of these virtual tracks can be selected for recording / playback.



2. SelectAll.....[On, Off]
Turn this "**On**" if you wish to use the same virtual track number for all tracks (1–16). Then choose any "Select VirtualTrack" to choose the track.

SelectAll **On**: All tracks will be set to the same virtual track number.

SelectAll **Off**: The virtual track number can be selected independently for each track.

P2 Vtr9–16: Select virtual tracks 9–16

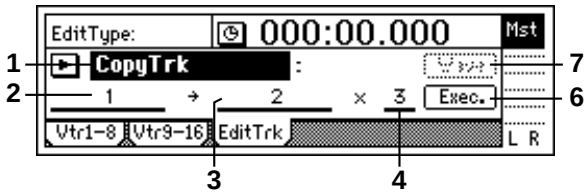
For details refer to "Vtr1–8."

This page cannot be selected for a 24 bit song.

1. Select VirtualTrack.....
[9–10a…9–10h, …, 15–16a…15–16h]
Select the virtual track for each pair of tracks.

2. SelectAll.....[On, Off]

P3 EditTrk: Track editing



Editing will apply to currently selected tracks 1–16 (→"Vtr1–8," "Vtr9–16"). Virtual tracks that are not selected will not be affected by editing. (However, "**CopyWholeTrk**" and "**SwapWholeTrk**" are exceptions.)

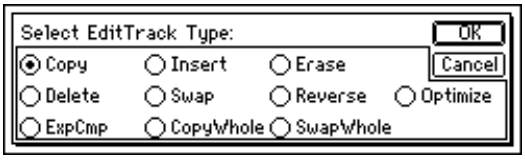
note The range (area of time) that will be edited is determined by the time locations that are registered in the [IN / LOC1], [OUT / LOC2], [TO / LOC3], and [END / LOC4] keys. (→p.70)

note The undo operation is available after you execute an editing operation.

1. EditType ..... [CopyTrk, InsertTrk, EraseTrk, DeleteTrk, SwapTrk, ReverseTrk, OptimizeTrk, ExpCmpTrk, CopyWholeTrk, SwapWholeTrk]

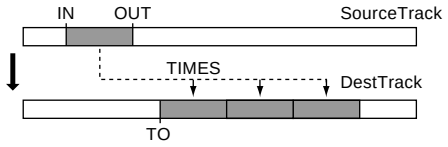
Select type of editing operation. (→p.56)

Press the "▶" button and select an editing operation from the dialog box.



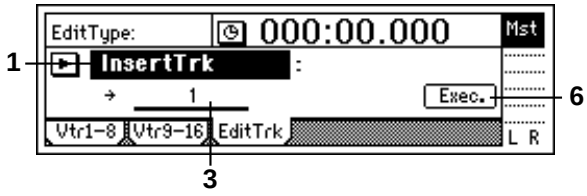
CopyTrk: This operation copies the audio data in the **IN**–**OUT** range of the copy source track ("SourceTrack") to the **TO** location of the copy destination track ("DestTrack"), repeating the specified number of times.
You can use the clipboard to copy data to a track of a different song.

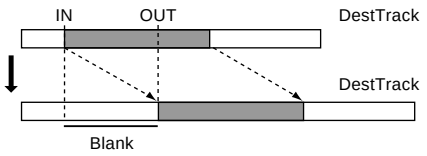
When this is executed ("Exec"), the copy destination track ("DestTrack") will be overwritten.



InsertTrk: This operation inserts a blank in the **IN**–**OUT** range of the insert destination track ("DestTrack").

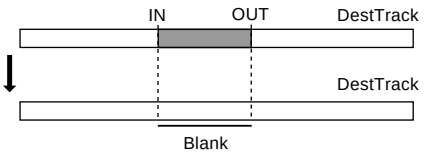
When this is executed ("Exec"), any track data that followed the inserted blank will be moved toward the end of the song.





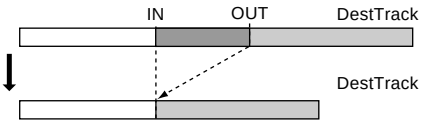
EraseTrk: This operation erases the track data in the **IN**–**OUT** range of the erase destination track ("DestTrack").

When this is executed ("Exec"), the **IN**–**OUT** range will contain silence.



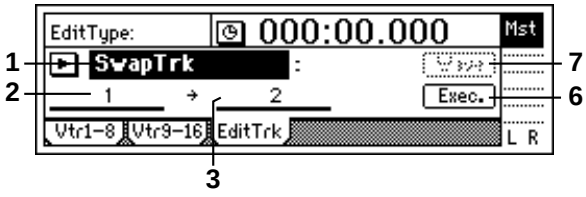
DeleteTrk: This operation deletes the track data from the **IN**–**OUT** range of the delete destination track ("DestTrack").

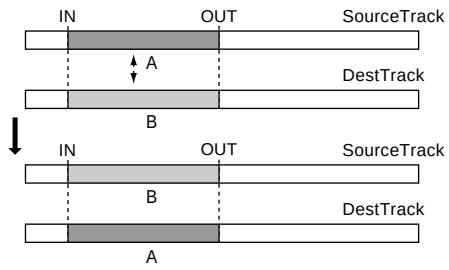
When this is executed ("Exec"), the data of the **IN**–**OUT** range will be discarded, and any track data that followed the deleted range will be moved toward the beginning of the song.



SwapTrk: This operation exchanges (swaps) the track data of the **IN**–**OUT** range of the swap source track ("SourceTrack") with the track data in the **IN**–**OUT** range of the swap destination track ("DestTrack").

When this is executed ("Exec"), the data in the **IN**–**OUT** ranges of the "SourceTrack" and "DestTrack" will be exchanged.

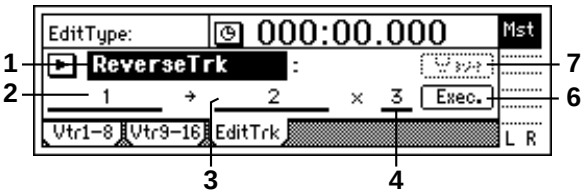


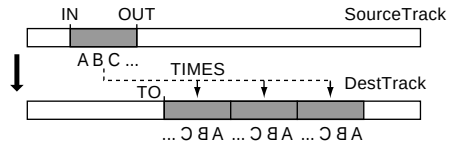


ReverseTrk: This operation copies the track data of the **IN**–**OUT** range of the reverse source track ("SourceTrack") to the **TO** location of the reverse destination track ("DestTrack") in reverse (flipped front-to-back). You can specify the number of times that the data will be copied.

When this is executed ("Exec"), the copied data will be reversed, so that the playback will be backward.

The specified range of the reverse destination track will be overwritten.

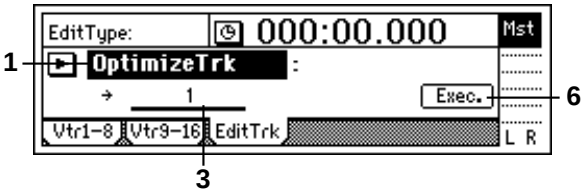


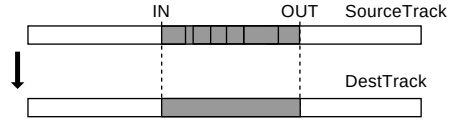


OptimizeTrk: This operation optimizes the track data of the **IN**–**OUT** range of the optimize destination track ("DestTrack").

When this is executed ("Exec"), the events of the **IN**–**OUT** range will be combined into a single event.

note You should execute the "**OptimizeTrk**" operation if the sound skips during playback or if the "Disk-Busy" message appears frequently. In other cases, this operation is not necessary. By re-creating the track data as a single piece of data, this reduces the number of times that the disk must be accessed.

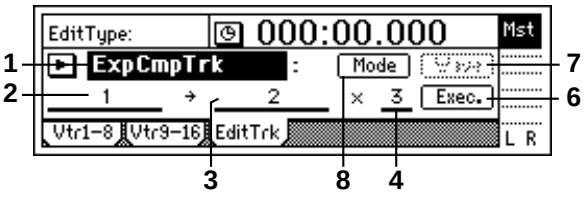


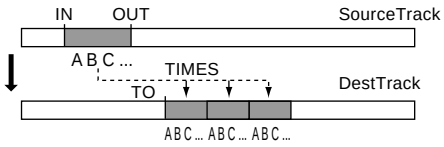


ExpCmpTrk: This operation expands or compresses the track data of the **IN**–**OUT** range of the expansion / compression source track ("SourceTrack"), places it in the **TO**–**END** range of the expansion / compression destination track ("DestTrack"), and copies it the specified number of times beginning at the TO location.

When this is executed ("Exec"), the expansion / compression destination track will be overwritten.

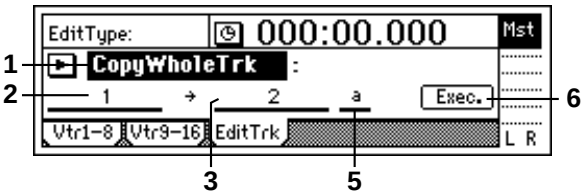
The available ratio of expansion / compression is limited, and if the **IN**–**OUT** duration is drastically different than the **TO**–**END** duration, an error message will appear when this is executed. In general, the **TO**–**END** time can be changed to 50–200% of the **IN**–**OUT** time.

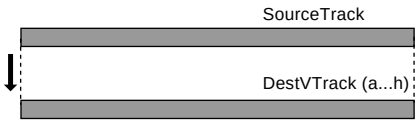




CopyWholeTrk: This operation copies the track data from the beginning to the end of the copy source track ("SourceTrack"; the currently selected virtual track) to the specified virtual track of the copy destination track ("DestTrack").

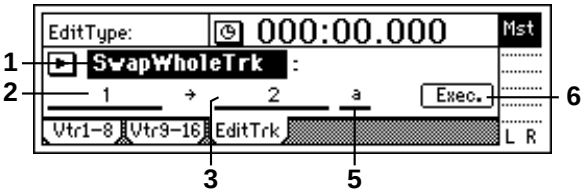
When this is executed ("Exec"), the copy destination track will be overwritten.

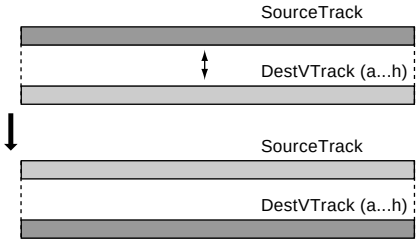




SwapWholeTrk: This operation exchanges (swaps) the track data from the beginning to the end of the swap source track ("SourceTrack"; the currently selected virtual track) with the specified virtual track of the swap destination track ("DestTrack"). Use this operation when you wish to reorder the recorded tracks. When you have finished recording a song, this operation also provides a useful way to move the final data so that virtual track "**a**" is used for all tracks.

When this is executed ("Exec"), all data of the "SourceTrack" and "DestTrack" will be exchanged.





2. SourceTrack .....[1…16, 1–2…15–16, 1–4…13–16, 1–8, 9–16, 1–16, Clip#[*1]] [1…16, 1–2…15–16] [*2]

Select the source track for the editing operation.

[*1]: "**Clip#**" can be selected only for "**CopyTrk**." # is the number of tracks(=1, 2, 4, 8, 16) in the clipboard. You can use "**Clip#**" to copy to tracks of a different song. If you copy data between songs of differing bit rates, it will be treated as 16 bit data at the copy destination.

[*2]: This can be selected only for "**ExpCmpTrk**."

note For a 24 bit song, only tracks 1–8 can be selected.

For "**CopyTrk**" ("EditType"), select the copy source track.

For "**SwapTrk**" ("EditType"), select the swap source track.

For "**ReverseTrk**" ("EditType"), select the reverse source track.

For "**ExpCmpTrk**" ("EditType"), select the expansion / compression source track.

For "**CopyWholeTrk**" ("EditType"), select the copy source track.

For "**SwapWholeTrk**" ("EditType"), select the swap source track.

3. DestTrack.....[1…16, 1–2…15–16, 1–4…13–16, 1–8, 9–16, 1–16, Clip#[*1]] [1…16, 1–2…15–16] [*2]

Select the destination track for the editing operation.

[*1]: "**Clip#**" can be selected only for "**CopyTrk**." # is the number of tracks in the clipboard. You can use "**Clip#**" to copy to tracks(=1, 2, 4, 8, 16) of a different song. If you copy data between songs of differing bit rates, it will be treated as 16 bit data at the copy destination.

[*2]: This can be selected only for "**ExpCmpTrk**."

note For a 24 bit song, only tracks **1–8** can be selected.

For "**CopyTrk**" ("EditType"), select the copy destination track.

For "**InsertTrk**" ("EditType"), select the insert destination track.

For "**EraseTrk**" ("EditType"), select the erase destination track.

For "**DeleteTrk**" ("EditType"), select the delete destination track.

For "**SwapTrk**" ("EditType"), select the swap destination track.

For "**OptimizeTrk**" ("EditType"), select the optimize destination track.

For "**ExpCmpTrk**" ("EditType"), select the expansion / compression destination track.

For "**CopyWholeTrk**" ("EditType"), select the copy destination track.

For "**SwapWholeTrk**" ("EditType"), select the swap destination track.

For "**ReverseTrk**" ("EditType"), select the reverse copy destination.

4. Times.....[1…99]

For the "**CopyTrk**," "**ReverseTrk**," and "**Exp CmpTrk**" ("EditType") operations, specify the number of times the data will be copied.

5. DestVTrk .....[a…h]

For "**CopyWholeTrk**" ("EditType"), select the virtual track of the copy destination track ("DestTrack") to which the data will be copied.

For "**SwapWholeTrk**" ("EditType"), select the virtual track of the swap destination track ("DestTrack") with which the data will be swapped.

6. Exec.(Execute) .....

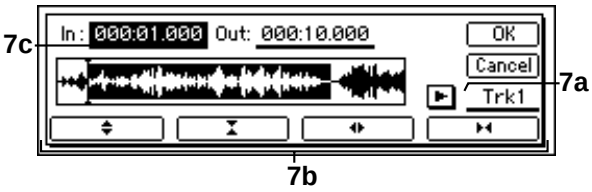
Execute the track editing operation. For the results of the operation, refer to the explanations in "EditType" (→p.53).

7. Wave.....

This displays the track audio as a waveform, allowing you to set the editing points (**IN**, **OUT**, **TO**) with greater precision.

This can be selected when "EditType" is set to "**CopyTrk**," "**InsertTrk**," "**EraseTrk**," "**DeleteTrk**," "**SwapTrk**," "**ReverseTrk**," or "**ExpCmpTrk**."
It can also be selected when the cursor is located at "SourceTrack" or "DestTrack."

note Before you make settings here, it is best to set the **IN**, **OUT**, and **TO** locations to the approximately locations desired.



7a. Select Track.....

Select the track whose time location you wish to specify.

7b. Zoom-in / out / up / down .....

Adjust the height etc. of the waveform display area.

7c. Locate .....[In, Out, To]

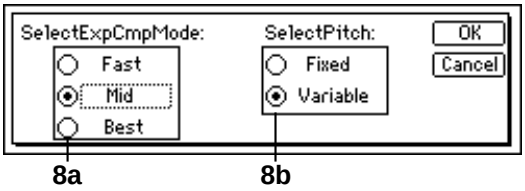
Specify the location.
When you move the cursor to "Locate," scrub will be automatically turned on, and you can rotate the [VALUE] dial to hear the track selected by "SelectTrack" by itself (solo) as you make settings.

When you press the **"OK" button**, the specified time will be overwritten for the selected key ([IN / LOC1] etc.). If you press the **"Cancel" button**, the setting will be cancelled.

8. Mode.....

Select the method by which the expansion / compression time will be calculated.

For "**ExpCmpTrk**" ("EditType"), this will appear when you press the "Mode" button.



8a. SelectExpCmpMode.....[Fast, Mid, Best]
Select the conversion mode for expansion / compression.

Fast: Emphasize processing speed

Mid: Between "Fast" and "Best"

Best: Emphasize audio quality

If "SelectPitch" (8b) is "**Variable**," this setting will have no effect.

8b. SelectPitch.....[Fixed, Variable]
Select whether or not the pitch will change as a result of the expansion / compression.

Fixed: The pitch will not change.

Variable: The pitch will change.

Press the **"OK" button**, and the expansion / compression processing method will be finalized. If you press the **"Cancel" button**, the settings will be cancelled.

Examples of track editing

"CopyTrk": Copying a track within the same song

Here's how the **IN**–**OUT** range of track **1** can be copied three times to the **TO** location of track **2**.

① Register the **IN**, **OUT**, and **TO** locations. (→p.70)
② Select copy.
In the [TRACK] "EditTrk" tab page, set "EditType" to "**CopyTrk**."
③ Select the copy source track number.
Set "SourceTrack" to track "**1**."
④ Select the copy destination track number.
Set "DestTrack" to track "**2**."
⑤ Specify the number of copies.
Set "Times" to "**3**."
⑥ Execute the copy.
Press the "Exec." button. The display will ask "AreYouSure?" Press the "Yes" button to execute the copy.
When the copy operation is completed, the display will indicate "Completed." Press the "OK" button.

The copy destination track will be overwritten.

⑦ Press the [TO / LOC3] key to move to the **TO** location, and check that the copy was performed correctly.
You can use **Undo** to return to the state before execution (→p.73).

"CopyTrk": Copying to a track of a different song

Here's how the **IN**–**OUT** range of track **1** in song **001** can be copied once to the **TO** location of track **2** in song **002**.

① Select song **001**.
② Register the **IN** and **OUT** locations. (→p.70)
③ Select copy.
In the [TRACK] "EditTrk" tab page, set "EditType" to "**CopyTrk**."
④ Select the copy source track number.
Set "SourceTrack" to track "**1**."
⑤ Select the clipboard as the copy destination track.
Set "DestTrack" to "**Clip**."
⑥ Execute the copy.
Refer to step ⑥ of ""CopyTrk": Copying a track within the same song."

The data of the clipboard will be overwritten.

⑦ Select song **002**.
⑧ Register the **TO** location. (→p.70)
⑨ Select copy.
In the [TRACK] "EditTrk" tab page, set "EditType" to "**CopyTrk**."
⑩ Select the clipboard as the copy source track number.
Set "SourceTrack" to "**Clip1**." The number indicates the number of tracks in the clipboard.
⑪ Select the copy destination track number.
Set "DestTrack" to track "**2**."
⑫ Specify the number of times that the data will be copied.
Set "Times" to "**1**."
⑬ Execute the copy operation.
Refer to step ⑥ of ""CopyTrk": Copying a track within the same song."

The copy destination track will be overwritten.

⑭ Check that the copy was performed correctly.
Refer to step ⑦ of ""CopyTrk": Copying a track within the same song."

If you use an external drive, please be aware that the data in the clipboard will be erased when you switch drives.

"InsertTrk"

Here's how a blank can be inserted into the **IN**–**OUT** range of track **1**.

① Set the **IN** and **OUT** time locations. (→p.70)
② Select insert.
In the [TRACK] "EditTrk" tab page, set "EditType" to "**InsertTrk**."
③ Select the track number into which the blank will be inserted.
Set "DestTrack" to track "**1**."
④ Execute the insert operation.
Press the "Exec." button. The display will ask "AreYouSure?" Press the "Yes" button to insert the blank.
When the blank has been inserted, the display will indicate "Completed." Press the "OK" button.
⑤ Press the [IN / LOC1] key to move to the **IN** location, and check that the blank was inserted correctly.
You can use **Undo** to return to the state before execution (→p.73).

"EraseTrk"

Here's how the **IN**–**OUT** range of track 1 can be erased.

① Set the **IN** and **OUT** time locations. (→p.70)
② Select erase.
In the [TRACK] "EditTrk" tab page, set "EditType" to "**EraseTrk**."
③ Select the track number from which data will be erased.
Set "DestTrack" to track "**1**."

④ Execute the erase operation.
Press the “Exec.” button. The display will ask “Are YouSure?” Press the “Yes” button to erase the data. When the data has been erased, the display will-indicate “Completed.” Press the “OK” button.
⑤ Press the [IN / LOC1] key to move to the **IN** location, and check that the data was erased correctly. You can use **Undo** to return to the state before execution (→p.73).

“DeleteTrk”

Here’s how the **IN**–**OUT** range of track **1** can be deleted.

① Set the **IN** and **OUT** time locations. (→p.70)
② Select delete.
In the [TRACK] “EditTrk” tab page, set “EditType” to “**DeleteTrk**.”
③ Select the track number from which data will be deleted.
Set “DestTrack” to track “**1**.”
④ Execute the delete operation.
Press the “Exec.” button. The display will ask “AreYouSure?” Press the “Yes” button to delete the data.
When the data has been deleted, the display will indicate “Completed.” Press the “OK” button.
⑤ Press the [IN / LOC1] key to move to the **IN** location, and check that the data was deleted correctly. You can use **Undo** to return to the state before execution (→p.73).

“SwapTrk”

Here’s how the **IN**–**OUT** range of track **1** and track **2** can be exchanged.

① Set the **IN** and **OUT** time locations. (→p.70)
② Select swap.
In the [TRACK] “EditTrk” tab page, set “EditType” to “**SwapTrk**.”
③ Select the swap source track number.
Set “SourceTrack” to track “**1**.”
④ Select the swap destination track number.
Set “DestTrack” to track “**2**.”
⑤ Execute the swap operation.
Press the “Exec.” button. The display will ask “Are YouSure?” Press the “Yes” button to swap the data. When the data has been swapped, the display will indicate “Completed.” Press the “OK” button.
⑥ Press the [IN / LOC1] key to move to the **IN** location, and check that the data was swapped correctly.
You can use **Undo** to return to the state before execution (→p.73).

“ReverseTrk”

Here’s how the **IN**–**OUT** range of track **1** can be reversed and copied **three** times starting at the **TO** location of track **2**.

① Set the **IN**, **OUT**, and **TO** time locations. (→p.70)
② Select reverse.
In the [TRACK] “EditTrk” tab page, set “EditType” to “**ReverseTrk**.”
③ Select the reverse source track number.
Set “SourceTrack” to track “**1**.”
④ Select the reverse destination track number.
Set “DestTrack” to track “**2**.”
⑤ Specify the number of times for the copy.
Set “Times” to “**3**.”
⑥ Execute the reverse operation.
Press the “Exec.” button. The display will ask “AreYouSure?” Press the “Yes” button to reverse the data.
When the data has been reversed, the display will indicate “Completed.” Press the “OK” button.
⑦ Press the [TO / LOC3] key to move to the **TO** location, and check that the data was reversed correctly. You can use **Undo** to return to the state before execution (→p.73).

The longer the range (**IN**–**OUT**) that is specified for this operation, the more time will be required for processing before the display indicates “Completed.”

“OptimizeTrk”

Here’s how the **IN**–**OUT** range of track **1** can be optimized.

① Set the **IN** and **OUT** time locations.
Set **IN** at a time slightly before “Disk Busy” begins to appear, and **OUT** at the time that the message stops appearing. (→p.70)
② Select optimize.
In the [TRACK] “EditTrk” tab page, set “EditType” to “**OptimizeTrk**.”
③ Select the track number whose data will be optimized.
Find the track where editing has been most concentrated (track 1 in this example), and set “SourceTrack” to track “**1**.”
④ Execute the optimize operation.
Press the “Exec.” button. The display will ask “AreYouSure?” Press the “Yes” button to optimize the data.
When the data has been optimized, the display will indicate “Completed.” Press the “OK” button.
⑤ Press the [IN / LOC1] key to move to the **IN** location, and play back. If the playback occurs correctly without an indication of “Disk Busy,” the optimization was successful.
You can use **Undo** to return to the state before execution (→p.73).

The longer the range (**IN**–**OUT**) that is specified for this operation, the more time will be required for processing before the display indicates “Completed.”

“ExpCmpTrk”

Here’s how the **IN**–**OUT** range of track **1** can be converted to the **TO**–**END** length of track **2** without changing the pitch, and copied three times at that location.

① Set the **IN**, **OUT**, **TO**, and **END** time locations. (→p.70)
② Select expansion / compression.
In the [TRACK] “EditTrk” tab page, set “EditType” to “**ExpCmpTrk**.”
③ Select the expansion / compression mode.
Press the “Mode” button to access the dialog box. For this example, select “**Fast**” and “**Fixed**,” and press the “OK” button to return to the [TRACK] “EditTrk” tab page. (→p.55)

④ Select the expansion / compression source track number.
Set "SourceTrack" to track "**1**."
⑤ Select the expansion / compression destination track number.
Set "DestTrack" to track "**2**."
⑥ Specify the number of times that the data will be copied.
Set "Times" to "**3**."
⑦ Execute the expansion / compression operation.
Press the "Exec." button. The display will ask "AreYouSure?" Press the "Yes" button to reverse the data.
When the data has been expanded / compressed, the display will indicate "Completed." Press the "OK" button.
⑧ Press the [TO / LOC3] key to move to the **TO** location, play back, and check that the data was expanded or compressed correctly.
You can use **Undo** to return to the state before execution (→p.73).

The longer the range (**IN**–**OUT**) that is specified for this operation, the more time will be required for processing before the display indicates "Completed."

"CopyWholeTrk": Copying an entire track

Here's how track **1** can be copied to V-track "**a**" (=currently selected) of track **2**.

① Select the Copy Whole operation.
In the [TRACK] "EditTrk" tab page, set "EditType" to "**CopyWholeTrk**."
② Select the copy source track number.
Set "SourceTrack" to track "**1**."
③ Select the copy destination track number.
Set "DestTrack" to track "**2**."
④ Select the copy destination V-track.
Set "DestVTrk" to V-track "**a**."
⑤ Execute the copy operation.
Press the "Exec." button. The display will ask "AreYouSure?" Press the "Yes" button to copy the data.
When the data has been copied, the display will indicate "Completed." Press the "OK" button.
⑥ Move to the beginning of the song, play back, and check that the data has been copied correctly.
You can use **Undo** to return to the state before execution (→p.73).

"CopyWholeTrk": Copying to a V-track

Here's how V-track "**a**" (=currently selected) of track **1** can be copied to V-track "**b**" of track **1**.

① Check the copy destination.
In the [TRACK] "Vtr1–8" tab page, check that track 1 V-track "**b**" is either empty or may be erased (overwritten). After checking, be sure to re-select "**a**." (→p.52)
② Select the Copy Whole operation.
In the [TRACK] "EditTrk" tab page, set "EditType" to "**CopyWholeTrk**."
③ Select the copy source track number.
Set "SourceTrack" to track "**1**."
④ Select the copy destination track number.
Set "DestTrack" to track "**2**."
⑤ Select the copy destination V-track.
Set "DestVTrk" to V-track "**b**."
⑥ Execute the copy operation.
Press the "Exec." button. The display will ask "AreYouSure?" Press the "Yes" button to copy the data.
When the data has been copied, the display will indicate "Completed." Press the "OK" button.
⑦ In the [TRACK] "Vtr1–8" tab page, select V-track "**b**" of track 1.
Move to the beginning of the song, play back, and check that the data has been copied correctly.
You can use **Undo** to return to the state before execution (→p.73). In this case, set the V-track back to "**a**" for track 1.

"SwapWholeTrk": Exchanging an entire track

Here's how track **1** can be exchanged with V-track "**a**" (=currently selected) of track **2**.

① Select the Swap Whole operation.
In the [TRACK] "EditTrk" tab page, set "EditType" to "**SwapWholeTrk**."
② Select the swap source track number.
Set "SourceTrack" to track "**1**."
③ Select the swap destination track number.
Set "DestTrack" to track "**2**."
④ Select the swap destination V-track.
Set "DestVTrk" to V-track "**a**."
⑤ Execute the swap operation.
Press the "Exec." button. The display will ask "Are YouSure?" Press the "Yes" button to swap the data.
When the data has been swapped, the display will indicate "Completed." Press the "OK" button.
⑥ Move to the beginning of the song, play back, and check that the data has been swapped correctly.
You can use **Undo** to return to the state before execution (→p.73).

"SwapWholeTrk": Exchanging V-tracks

Here's how V-track "**a**" (=currently selected) of track **1** can be exchanged with V-track "**b**" of track **1**.

① Check the exchange destination.
In the [TRACK] "Vtr1–8" tab page, check that track 1 V-track "**b**" is the track that you wish to swap.
After checking, be sure to re-select "**a**." (→p.52)
② Select the Swap Whole operation.
In the [TRACK] "EditTrk" tab page, set "EditType" to "**SwapWholeTrk**."
③ Select the swap source track number.
Set "SourceTrack" to track "**1**."
④ Select the swap destination track number.
Set "DestTrack" to track "**1**."
⑤ Select the swap destination V-track.
Set "DestVTrk" to V-track "**b**."
⑥ Execute the swap operation.
Press the "Exec." button. The display will ask "Are YouSure?" Press the "Yes" button to swap the data.
When the data has been swapped, the display will indicate "Completed." Press the "OK" button.
⑦ In the [TRACK] "Vtr1–8" tab page, select V-track "**b**" of track **1**.
Move to the beginning of the song, play back, and check that the data has been swapped correctly.
You can use **Undo** to return to the state before execution (→p.73). In this case, set the V-track back to "**a**" for track 1.

5. SONG

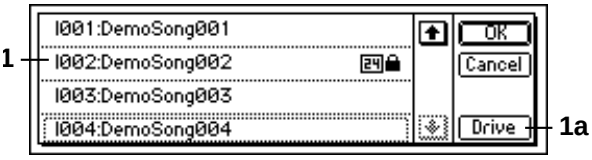
P1 SelSong: Selecting a song

1. SongNumber ..... [I...G/001...100]
Select the song.

The display shows the drive, song number, and song name.

If 24 bit recording is selected, the display will indicate "24." If the song is protected, the display will indicate " " (→p.60).

Press the "▶" button, and you will be able to select from a list. To select a **different drive**, select "Drive" from this list.

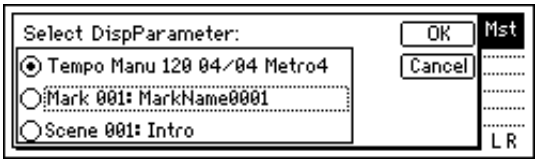


note You can also select songs by holding down the [STOP] key and pressing the [FF] key or [REW] key.

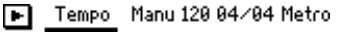
1a. Drive ..... [I...G]
Select the drive.
For details on the drive numbers, refer to "Drive ID" (→p.47).

2. Select DispParameter..... [Tempo, Mark, Scene]
Select whether the LCD display will show the current tempo, mark, or scene settings.

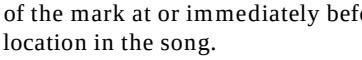
Press the "▶" button, and you will be able to select from a list.



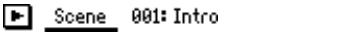
Tempo: The display will show the tempo source, tempo, time signature, and rhythm of the song.



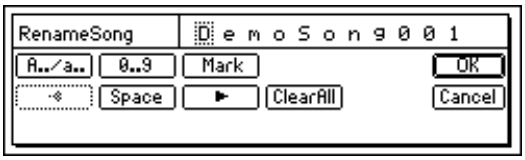
Mark: The display will show the number and name of the mark at or immediately before the current location in the song.



Scene: The display will show the number and name of the scene for the current location in the song.

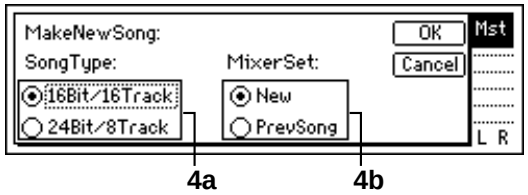


3. Rename .....
Press the "Rename" button to access the dialog box, and modify the song name. You can input a song name of up to sixteen characters. (→p.14)



4. New .....
This creates a new song following the last song of the currently selected drive.

Press the "New" button to access the dialog box.



Set "SongType" and "MixerSet," and press the "OK" button to create the new song. If you press the "Cancel" button, no song will be created.

4a. SongType ..... [16Bit/16Track, 24Bit/8Track]

16Bit/16Track: Create a song for 16 bit recording/playback. Tracks 1–16 can be used. A maximum of eight tracks can be recorded simultaneously.

24Bit/8Track: Create a song for 24 bit recording/playback. Eight tracks (1–8) can be used. Tracks 9–16 are not available. A maximum of four tracks can be recorded simultaneously.
When audio data is transferred to a 16 bit song ("**CopyTrk**": →p.56), it will be handled as 16 bit data.

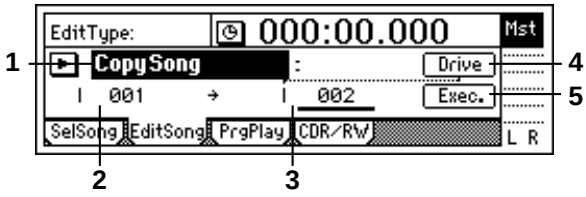
The "SongType" (Bit/Track) setting can be changed only when creating a new song.

4b. MixerSet ..... [New, PrevSong]
Select the mixer settings for the new song.

New: New settings will be used.

PrevSong: The mixer settings of the currently selected song will be used.

P2 EditSong: Song editing



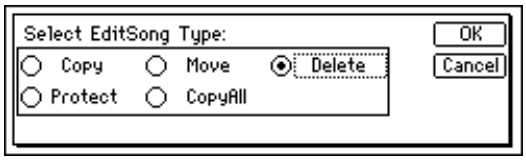
note The song affected by editing will normally be the currently selected song. (However the "**CopyAllSong**" operation will affect all songs.)

Undo is not available after these operations.

1. EditType..... [CopySong, MoveSong, DeleteSong, ProtectSong, CopyAllSongs]

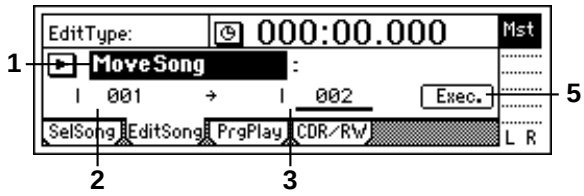
Select the song editing operation.

Press the "▶" button, and you will be able to select an editing operation from the following dialog box.



CopySong: The currently selected song will be copied to the drive and song number you specify.

MoveSong: The currently selected song will be moved to a different song number within the same drive.

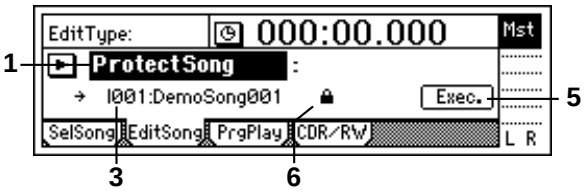


DeleteSong: The currently selected song will be deleted.

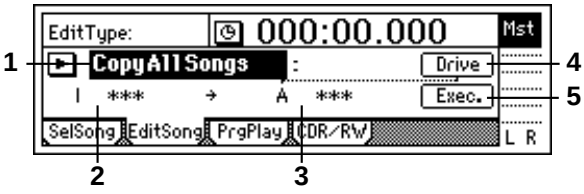
ProtectSong: The currently selected song will be protected, so that writing is prohibited. This lets you prevent a completed song from accidentally being overwritten.

No writing operations can be performed when protect is on, including recording, track editing, and registering a scene.

note When protect is turned on, the settings of a song will also be stored. Fader and EQ etc. will reflect your editing, but will not be stored.



CopyAllSongs: All songs of the drive where the currently selected song is located will be copied.



2. SourceSong..... (I...G/001...100)

This indicates the edit source song. The currently selected drive and song will be displayed as the edit source.

For "**CopySong**" ("EditType"), the copy source drive and song number will be displayed.

For "**MoveSong**" ("EditType"), the move source drive and song number will be displayed.

For "**CopyAllSongs**" ("EditType"), the copy source drive will be displayed. "***" indicates all songs in the drive.

3. DestSong ..... [(I...G/001...100)]

This selects/indicates the edit destination song.

For "**CopySong**" ("EditType"), this shows the copy destination drive, and selects the song number. The numbers available for selection are "**001**"–"**the number of existing songs + 1**." Use "Drive" to select the drive.

For "**MoveSong**" ("EditType"), this shows the move destination drive, and selects the song number. The numbers available for selection are "**001**"–"**the number of existing songs**."

For "**DeleteSong**" ("EditType"), this shows the drive, number, and name of the song to be deleted. The currently selected song is shown.

For "**ProtectSong**" ("EditType"), this shows the drive, number, and name of the song to be protected. The currently selected song is shown.

For "**CopyAllSongs**" ("EditType"), this shows the copy destination drive. "*******" indicates all songs in the drive. Use "Drive" to select the drive.

4. Drive ..... [I...G]

For "**CopySong**" ("EditType"), this selects the copy destination drive. Press this button to access a dialog box. Select the drive, and press the "OK" button.

For "**CopyAllSongs**" ("EditType"), this selects the copy destination drive. Press this button to access a dialog box. Select the drive, and press the "OK" button.

5. Exec. .....

Execute the editing operation.

Undo is not available. Please use caution.

For "**CopySong**" ("EditType"), this executes the copy operation.
When this is executed, the song will be copied to the copy destination song number ("DestSong"). If the "DestSong" is an existing song number, that song and following songs will be renumbered upward by one. They will not be overwritten.

For "**MoveSong**" ("EditType"), this executes the move operation.
If the move destination ("DestSong") number is larger than the move source ("SourceSong") number, the "DestSong" and following songs will be renumbered downward by one. If the destination number is less than the source number, the "DestSong" and following songs will be renumbered upward by one. They will not be overwritten.

For "**DeleteSong**" ("EditType"), this executes the delete operation.
When this is executed, the "DestSong" will be deleted, and subsequent songs will be renumbered downward by one.

For "**ProtectSong**" ("EditType"), this protects the song. Each time you press the "Exec." button, the setting will alternate on / off.

For "**CopyAllSongs**" ("EditType"), this executes the copy operation.
When this is executed, the songs will be copied following the last song on the copy destination drive ("DestSong"). They will not be overwritten.

6. Protect On / Off Mark.....[On, Off]
For "**ProtectSong**" ("EditType"), a lock symbol will be displayed when protect is "**On**," and will be hidden when "**Off**." Press the "Exec." button to switch the setting on / off.

Examples of song editing

"CopySong": Copying a single song

① Select the song that you wish to copy ("SourceSong"). (→p.14)
② Select the Copy Song operation.
In the [SONG] "EditSong" tab page, set "EditType" to "**CopySong**."
③ Make sure that the copy source song is selected for "SourceSong."
④ Select the copy destination drive.
Press the "Drive" button, and in the dialog box, select the copy destination drive. Then press the "OK" button.
⑤ Select the copy destination song number.
Use "DestSong" to select the copy destination song number.
⑥ Execute the copy. ("5. Exec.")
Press the "Exec." button. The display will ask "AreYouSure?" Press the "Yes" button to execute the copy.
When the copy is finished, the display will indicate "Completed." Press the "OK" button.

"MoveSong"

① Select the song that you wish to move ("SourceSong"). (→p.14)
② Select the Move Song operation.
In the [SONG] "EditSong" tab page, set "EditType" to "**MoveSong**."
③ Make sure that the move source song is selected for "SourceSong."
④ Select the move destination song number.
Use "DestSong" to select the move destination song number.
⑤ Execute the move. ("5. Exec.")
Press the "Exec." button. The display will ask "AreYouSure?" Press the "Yes" button to execute the move.
When the move is finished, the display will indicate "Completed." Press the "OK" button.

"DeleteSong"

① Select the song that you wish to delete ("DestSong"). (→p.14)
② Selecting Delete Song operation.
In the [SONG] "EditSong" tab page, set "EditType" to "**DeleteSong**."
③ Make sure that the song to be deleted is selected for "DestSong."
④ Execute the deletion. ("5. Exec.")
Press the "Exec." button. The display will ask "AreYouSure?" Press the "Yes" button to delete the song.
When the song has been deleted, the display will indicate "Completed." Press the "OK" button.

"ProtectSong"

① Select the song that you wish to protect ("DestSong"). (→p.14)
② Select the Protect Song operation.
In the [SONG] "EditSong" tab page, set "EditType" to "**ProtectSong**."
③ Make sure that the song to be protected is selected for "DestSong."
④ Switch the protect setting on / off. (→ "5. Exec.")
Press the "Exec." button. If the lock mark is shown, that song is protected. If not, the song is not protected. The setting will be switched on / off each time you press the "Exec." button.

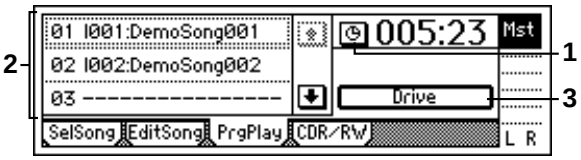
"CopyAllSongs": Copying all songs on a drive

① Select the drive containing the copy source songs ("SourceSong") (→p.15).
② Select the Copy All Songs operation.
In the [SONG] "EditSong" tab page, set "EditType" to "**CopyAllSongs**."
③ Make sure that the drive whose songs are to be copied is selected for "SourceSong." "***" indicates all songs.
④ Select the copy destination drive.
Press the "Drive" button, and in the dialog box, select the copy destination drive. Then press the "OK" button.
⑤ Execute the copy. (→"5. Exec.")
Press the "Exec." button. The display will ask "AreYouSure?" Press the "Yes" button to copy the songs.
When the songs have been copied, the display will indicate "Completed." Press the "OK" button.

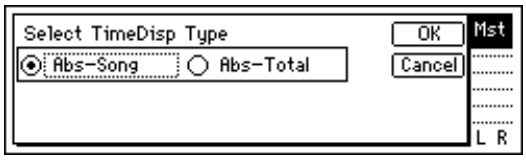
P3 PrgPlay: Program playback of songs

You can create a program play list to arrange songs in a desired order, and play them consecutively.

For settings and playback procedure, refer to p.23.



1. Select TimeDisp Type ..... [Abs–Song, Abs–Total]



Select the type of counter display.

Abs–Song: The elapsed time of the individual song will be displayed.

Abs–Total: The elapsed time of the entire program will be displayed.

If you are satisfied with the setting you selected, press the "OK" button. To cancel, press the "Cancel" button.

2. ProgramPlay List .....[01…99]

Here you can arrange songs in a list. The songs will be played in order, starting at the top. To select a different drive, press the "Drive" button.

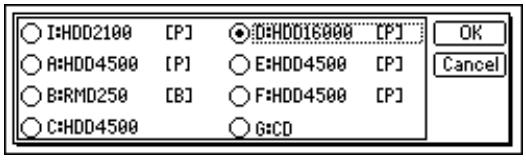
From the left, this display shows the play list number, drive, song number, and song name.

If the list contains a play list number without a song, that number will be skipped, and the next song in the play list will be played.

3. Drive ..... [I…G]

Select the drive.

For details on drive numbers ("**I**"–"**F**"), refer to "Drive ID." (→p.47)

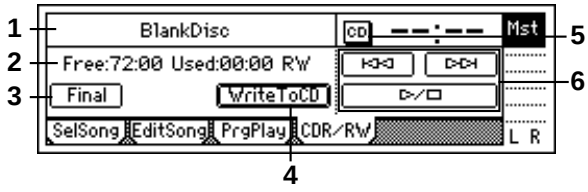


P4 CDR/RW: Creating and playing a CD-R/RW

The D16 allows you to connect a CD-R (CD Recordable) or CD-RW (CD Re-Writable) drive and produce an audio CD.

The first through last events of tracks 1 and 2 of the currently selected song will be written to the CD-R/RW. Here you can also play back the CD-R/RW that you created.

Some audio CD players are unable to play back a CD-R/RW disc.



1. CD-R/RW Information ..... (01…99, BlankDisc, NoDisc, NoDrive)

This shows the song on the CD-R/RW that will be played.

01…99: The song number within the CD-R/RW disc.

BlankDisc: An unwritten CD-R/RW disc is inserted.

NoDisc: No CD-R/RW disc is inserted, or the inserted disc is unreadable.

NoDrive: No drive is connected.

2. Size/DeviceType..... (Free, Used/R, RW, DA)

This shows the time available on the CD-R/RW for writing, and the type of disc.

Time display

Free: Display the free time on the disc.

Used: Display the used time on the disc.
The times are displayed in minutes and seconds.

Disc type

R: The disc has been detected as a CD-R.
This corresponds to the following cases.
- Drive = CD-R, Disc = CD-R
- Drive = CD-RW, Disc = CD-R

RW: The disc has been detected as a CD-RW.
This corresponds to the following case.
- Drive = CD-RW, Disc = CD-RW

DA: The disc has been detected as an audio CD.
This corresponds to the following cases.
- A CD-R with TOC that was created on the D16
- A CD-RW with TOC that was created on the D16
- An audio CD

3. Final(Finalize).....

Execute the Finalize operation.

In order for a CD-R/RW disc created on the D16 to be playable on an audio CD player, the Finalize operation must be executed.

Finalize can be executed only once. After a disc has been finalized, it is no longer possible to write addi-

tional songs on that disc. This means that you should press the "Final" button to execute Finalize only after you have written all the songs you intend to write on that disc.

4. WriteToCD .....
This executes the writing operation to the CD-R/RW.

5. CD.....[Abs–Song, Abs–Total]
Select the display method for the CD-R/RW playback counter.

Abs–Song: Display the elapsed time for a single song.

Abs–Total: Display the elapsed time for the entire disc.

6. CD-R/RW transport keys
Use these keys to play, stop, and select songs on an audio CD you created.

[⏮] : If you are in the middle of a song, this key moves to the beginning of that song. If you are at the beginning of a song, this key moves to the beginning of the previous song.

[⏭] : This key moves to the beginning of the next song.

[▷/□] : This key alternately starts/stops playback.

The playback sound will be output from the audio outputs of the CD-R/RW drive.

Procedure for creating an audio CD

In order to create an audio CD, you will need the same amount of free space on the hard disk as the song that you are creating (total of two channels). For example if you are creating an audio CD of a five-minute song, you will need enough free space for ten minutes of monaural recording.

① Connect a CD-R/RW drive to the D16.
Refer to "Connecting an external drive" (→p.48).
Set the SCSI ID of the CD-R/RW drive to **6**.

② Turn on the power first for the CD-R/RW drive, and then for the D16. Then insert a disc into the CD-R/RW drive.

③ Select the song that will be written to the CD-R/RW disc. (→p.14)
Before you proceed, mixdown the song that you wish to write to the CD-R/RW disc, and bounce-record (→p.21) it on tracks 1 and 2.

The scene settings will be ignored.

④ Select the [SONG] "CDR/RW" tab page.
Make sure that the "CD-R/RW Information" field of the display indicates either "BlankDisc" or "Song number."

⑤ Execute the write operation.
Press the "WriteToCD" button.
The display will ask "AreYouSure?" Press the "Yes" button to begin writing.

note If you press the "Abort" button during the writing process, the writing will be halted. However, this will produce an incomplete disc.

⑥ Finish the procedure.
When writing is completed, the display will indicate "Completed." Press the "OK" button.

⑦ Press the "[▷/□]" button to play back, and check that the song was written correctly.

Use the audio outputs of the CD-R/RW drive to listen to the sound.

⑧ If you wish to continue writing another song, repeat steps ④–⑧. The next song will be written following the last song on the CD-R/RW.

⑨ Finalize the disc.
If you wish to use an audio CD player to play back the CD-R/RW you created, you must stop playback, and then press the "Final" button to finalize the disc.

After the disc has been finalized, it is no longer possible to write additional songs on that disc. This means that you should finalize the disc only after you have written all the songs you intend to write on that disc.

6. STORE

You can store a time location for registration to a locate memory, scene, or mark.

The time at which you pressed the [STORE] key is remembered, and can be registered by pressing one of the registration destination keys. If you press the [STORE] key once again instead of pressing a registration destination key, the store operation will be cancelled.

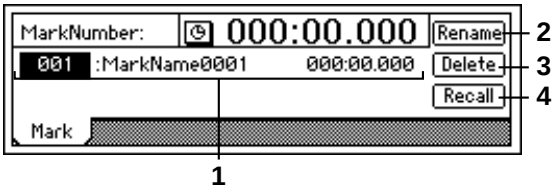
For details on these functions and on the registration procedure, refer to Locate (→p.70), Scene (→p.65), and Mark.

7. MARK

You can register a specific time location in a Mark, and then jump instantly to that location when desired. Since you can assign a name to each mark, you can use them to indicate sections within your song.

A maximum of 100 marks can be registered in each song.

P1 Mark: Editing marks



1. MarkNumber.....[001…100]
Select the mark number. Beside the mark number, the display shows the name of the mark, and the registered time location.

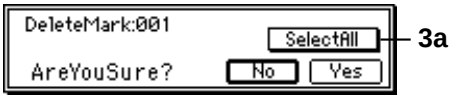
note Mark numbers are updated in order of their time location.

2. Rename .....
Modify the name of the mark.

Select the mark whose name you wish to modify, press the "Rename" button to access the dialog box, and modify the name. You can input a name of up to sixteen characters. (→p.14)

3. Delete.....
Delete a mark.

The Undo function is not available after deleting a mark. Please use caution.



3a. SelectAll.....[On, Off]
Select all marks for deletion.

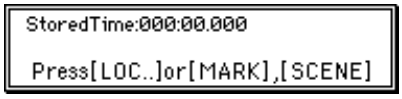
SelectAll **On**: All marks will be subject to deletion. The mark number will be displayed as "***."

SelectAll **Off**: The single mark selected by "MarkNumber" will be selected for deletion.

4. Recall .....
Recall the mark selected by "MarkNumber," and move the current time to that location.

Registering a mark

① Move to the time location where you wish to register a mark.
Use the counter ("Counter") or [FF] and [REW] keys to move (→p.24).
② Press the [STORE] key to save the selected time location.



③ Register the stored time location.
Press the [MARK] key to register the time as a mark. Registration is completed the instant you press the key, and the mark number you registered will be displayed. Marks are renumbered automatically in order of their time locations.

note You can register locate times while playing / recording a song by performing steps ② and following. (The time at the instant you press the [STORE] key will be registered.)

Moving to a mark location

① Select the [MARK] "Mark" tab page.
② Use "MarkNumber" to select the desired mark.
③ Press the "Recall" button to recall the mark.
You will move to the time location of that mark.

Deleting a mark

The Undo function is not available after deleting a mark. Please use caution.

① Select the [MARK] "Mark" tab page.
② Use "MarkNumber" to select the mark that you wish to delete.
③ Press the "Delete" button to access the dialog box.
④ Check "Delete mark number" in the upper left. If you are sure that you want to delete this mark, press the "Yes" button to delete it. You can press the "No" button to cancel without deleting.
To delete all marks, press the "Select All" button to turn it "**On**" (step ② is not necessary), and then press the "Yes" button to delete the marks.

8. SCENE

The mixer settings that you adjust can be registered at a desired time location as a **Scene**, and used to automatically change the mixer settings as the song plays (when Scene Read is turned "**On**"). Scenes can also be used as general-purpose settings, and recalled and used when desired.

Up to **100** scenes can be registered in each song.

The following settings can be registered in a scene.

MixerChannel
Eq, EffectSend1, 2, AuxSend, Pan / Balance, ChFader, PairOn / Off

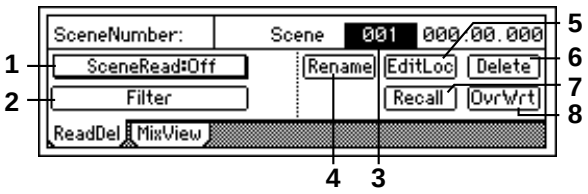
InsertEffect
Assign, EffectType, InsertTo, EffectNumber

MasterEffect
EffectNumber, EffectReturn

FinalEffect
EffectNumber

Filters are provided for each of these parameter groups, allowing you to select whether or not they will be registered or recalled (→"Filter"). The "MixerChannel" parameters are enabled for each selected channel.

P1 ReadDel: Scene playback on / off and editing



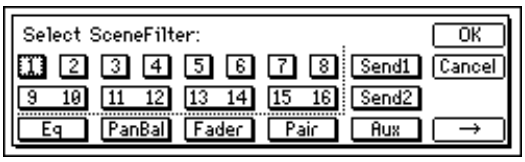
1. SceneRead .....[On, Off]
Turn scene playback on / off.

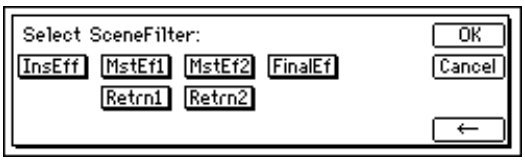
SceneRead:On **On**: Scene playback is enabled. During playback, each scene will be recalled when its registered time is reached, and the mixer settings will change automatically.

When this is "On," the [SCENE] key will light.

SceneRead:Off **Off**: Scene playback is disabled. You can freely recall scenes as general-purpose settings without regard to their time location. (→p.66 "Recalling a scene")

2. Filter .....
You can use the filter to prevent specific mixer settings (parameters) from being changed when you register a scene or play back a scene.
Here you can specify which mixer settings (parameters) will be disabled.





On: The filter will be on for that channel / parameter, and the scene settings will be disabled.
Off: The filter will be off, and the scene settings will be enabled.
When you register a scene, the filter settings act as a registration filter for that song. When you play back, the filter settings act as a playback filter for that song.
Use the filter while registering if you wish to preserve some of the settings from the previous scene. For example, suppose that you turned the filter "On" for the "Pan" of channels 1 and 2, and registered the current settings as scene "002" in the middle of the song. Then for playback, suppose you turned the "EQ" filter "On."
Turn on scene playback and play back from the beginning of the song. When playback reached the location of scene "002," pan will remain at the settings of scene "001" (registered at the beginning of the song), since scene "002" does not contain pan settings. Other settings will change to the values of scene "002." Since EQ is being played back through the playback filter, the values registered in the scenes from the beginning of the song will not be used; the current EQ settings will be maintained.

3. SceneNumber .....[001…100]
This recalls the mixer settings of a scene to the current time location.
This is also used to recall a scene when you wish to modify its name or to change its time location.
The time location at which the scene is registered is shown beside "SceneNumber."
If "SceneRead" (P1-1) is "**Off**," you can select any scene. If it is "**On**," the scene for the current time will be selected automatically; manual selection will not be possible.

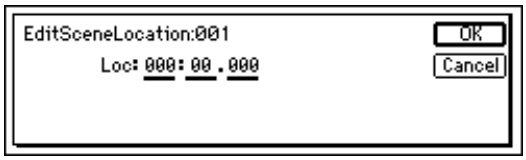
4. Rename .....
This lets you modify the name of a scene.

Use "SceneNumber" to recall the scene whose name you wish to modify, press the "Rename" button to access the dialog box, and modify the name. A name of up to sixteen characters can be input. (→p.14)
If the [SONG] "SelSong" tab page item "Select DispParameter" is set to "**Scene**," the scene name will be displayed in that page. (→p.59)

5. EditLoc .....
This lets you change the registered time of a scene.

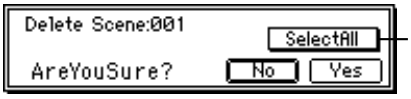
Use "SceneNumber" to recall the scene whose location you wish to change. Press the "EditLoc" button to access the dialog box, and modify the location of the scene.

You can either directly press the time value that you wish to modify, or use the cursor to select it. Then use the [VALUE] dial to modify the time.
Press the "OK" button to finalize the change, or press "Cancel" button to cancel the change.



6. Delete.....
This lets you delete a scene.

The Undo function is not available after you delete a scene. Please use caution.



6a. SelectAll.....[On, Off]
This selects all scenes for deletion.

SelectAll **On**: All scenes will be subject to deletion. The scene number will be displayed as "***."

SelectAll **Off**: The single scene selected in "SceneNumber" will be subject to deletion.

7. Recall .....
This recalls the settings that are registered in a scene.

If you recall a scene and edit the EQ etc., pressing the "Recall" button to recall it will recall the settings prior to editing (i.e., the mixer settings that were registered in the scene).

8. OvrWrt.....
This overwrites the current mixer settings onto the currently selected scene number. Use this when you wish to make detailed adjustments to the scene, or to replace it with a different scene.

Procedure for registering a scene

① Move the current time to the location where you wish to register the scene.
Use the counter ("Counter") or the [FF]/[REW] keys to move (→p.24).
② Adjust the mixer settings.
Adjust the [CHANNEL] faders, [PAN] knobs, EQ, and effects etc.
③ Register the scene.
- Press the [STORE] key, and the current time will be stored.
- Press the [SCENE] key, and the scene number "S***" to be registered will appear, and registration will be completed.
The time at which you pressed the [STORE] key will register the current mixer settings as a scene.

note Scenes you register are automatically numbered in order, starting at the lowest unused number.
You can use step ③ above to register a scene even while playing or recording a song.

Automatically switching scenes while the song plays

Here's how to make scenes switch automatically during playback when their registered times arrive.

note Register scenes at the time locations where you want the mixer settings to change (→"Procedure for registering a scene").

① Turn "SceneRead" "On."
- Select the [SCENE] "ReadDel" tab page.
- Press the "SceneRead" button to turn it "**On**."
When "**On**," the [SCENE] key will light.

② Play back the song.
Move to the location where you wish to start playback, and press the [PLAY] key to start playback. When the registered time arrives, the scene will change automatically.

Recalling a scene

Here's how to recall the mixer settings registered in a scene.

① Turn "SceneRead" "**Off**."
- Select the [SCENE] "ReadDel" tab page.
- Press the "SceneRead" button to turn it "**Off**."
When "**Off**," the [SCENE] key will be dark.

If "SceneRead" is "**On**," it is not possible to recall scenes that are registered at other time locations.

② Recall the scene.
In the [SCENE] "ReadDel" or "MixView" tab page, move the cursor to "SceneNumber," and rotate the [VALUE] dial to select a scene. The selected scene will be recalled.

Copying a scene

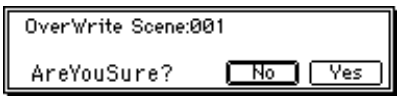
Here's how to copy a registered scene to a different time location.

① Select the scene that contains the mixer settings you wish to copy.
Recall the scene as described in the procedure for "Recalling a scene."
② Move the current time to the location where you wish to register the scene. (→p.24)
③ Register the scene.
Press the [STORE] key, and then the [SCENE] key.

Editing and overwriting a scene

Here's how you can edit part of a scene, and overwrite the edited settings onto that scene.

① Recall the scene.
As described in the procedure for "Recalling a scene," recall the scene that you wish to edit.
② Edit the settings of the scene.
Re-adjust the [CHANNEL] faders, [PAN] knobs, EQ, and effects etc.
③ Overwrite the edited settings onto the scene.
- In the [SCENE] "ReadDel" tab page, make sure that the scene number you wish to modify is selected.
- Press the "OvrWrt" button.
A dialog box will ask you for confirmation. Press the "Yes" button to overwrite the scene onto that number.



Deleting a scene

Here's how to delete an unwanted scene.

Undo is not available for this operation. Please use caution.

① Select the scene.
As described in the procedure for "Recalling a scene," recall the scene that you wish to delete.

② Delete the scene.
In the [SCENE] "ReadDel" tab page, press the "Delete" button. Check the "Delete scene number" in the upper left, and if you are sure that you want to delete it, press the "Yes" button. To cancel without deleting, press the "No" button.
To delete all scenes, press the "SelectAll" button to turn it "**On**" (step ① is not necessary). Then press the "Yes" button to delete all scenes.

Moving the time location of a registered scene

Here's how to move the time location of a registered scene.

① Select the scene.
As described in the procedure for "Recalling a scene," recall the scene that you wish to move.

② Move the time location of the scene.
- Press the "EditLoc" button.
- In the dialog box, edit the time location and click the "OK" button to execute the move.

Filtering scenes

① In the [SCENE] "ReadDel" tab page, press the "Filter" button to access "Select SceneFilter."

② Select the parameters whose settings you wish to disable.
The setting screen consists of two pages; use the "→" button to view the next page.
In the first page you can make settings for the parameters of each channel. For example if you wish to use the filter to disable the pan settings of channels 1 and 2, set the "**1**," "**2**," and "**PanBal**" buttons "**On**."
The second page contains overall parameters. As in the first page, turn "**On**" the parameters whose settings you wish to disable (i.e., filter). Press the "OK" button to finalize the settings.

Using MIDI to control scenes

MIDI output

When the scene is changed, a scene change message (program change) will be transmitted. This is transmitted in the following cases.

- When you use "SceneNumber" to switch scenes in the [SCENE] "ReadDel" tab page.
- When you press the [STORE] key and [SCENE] key to register a scene.
- When "SceneRead" is "**On**" and the scene changes during playback / recording.

MIDI input

When "SceneRead" is "**Off**" and a scene change message (program change) is received, the correspondingly-numbered scene will be selected.
When "SceneRead" is "**On**," this message will be ignored regardless of whether the D16 is playing or recording.

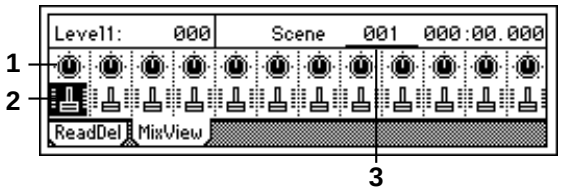
① Connect an external MIDI device. (→p.12)

② Set the MIDI channels to match.
Set [SYSTEM] "MIDI" tab page "GlobalCh" to match the channel of the external MIDI device that will transmit the messages.

③ In the [SCENE] "ReadDel" tab page, turn "SceneRead" to "**Off**."

④ Transmit program changes from the external MIDI device to switch scenes.
When the D16 receives program change #0, scene "**001**" will be selected. Program change #0–99 correspond to scenes "**001**"–"**100**."

P2 MixView: Pan / fader scene display



1. Pan / Balance ..... (Pan1…Pan8, Bal9–10…Bal15–16)
This shows the currently selected pan and balance settings.
When you select an icon, the channel number and setting value will be displayed in the upper left.

2. Level..... (Lev1…Lev8, Lev9–10…Lev15–16)
This shows the currently selected channel fader settings.
When you select an icon, the channel number and setting value will be displayed in the upper left.

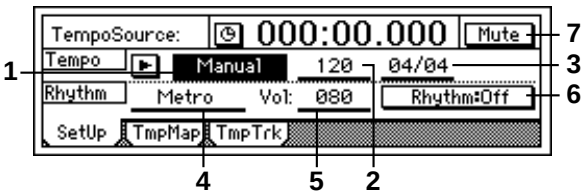
3. SceneNumber .....[001…100]
This recalls the mixer settings of a scene to the current time location. (→p.65)

9. TEMPO / RHYTHM

Here you can make tempo, time signature, and rhythm (metronome) settings for a song. When the counter is displaying "MBT" (measures, beats, and 1/96th of a beat) (→p.45), it will operate according to the specified tempo.

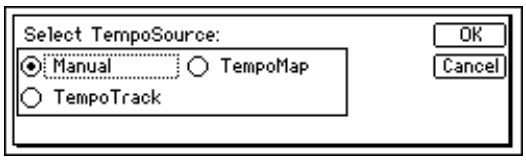
note Tempo / rhythm can also be viewed in the [SONG] "SelSong" tab page (→p.59).

P1 SetUp: Tempo and rhythm settings



1. TempoSource [Manual, TempoMap, TempoTrack]
Specify the tempo source.

Press the "▶" button, and you can select from a dialog box.



Manual: The tempo will follow the "Tempo" (→P1-2) and "Beat" (→P1-3)settings. It will not be possible to change the tempo, time signature, and rhythm pattern automatically as the song progresses.

TempoMap: The tempo, time signature, and rhythm pattern will change automatically as the song progresses, as directed by the tempo map. The tempo map can be created in the "TmpMap" tab page.

TempoTrack: The recorded tap tempo or MIDI Clock will be used. Use the "TmpTrk" tab page to record a tap tempo or tempo data from a sequencer, and select "**TempoTrack**" here.
The time signature will follow the settings created in the "TmpMap" tab page. For details refer to p.40.

note The "**TempoTrack**" can be selected after it is created.

2. Tempo ..... [40…240, (Trk)]
Specify the tempo that will be used when "TempoSource" is set to "**Manual**." In the case of "**TempoMap**," this will show the current tempo created in the "TmpMap" tab page. In the case of "**TempoTrack**," this will show "**Trk**."
The units are ♩=**40–240**.

3. Beat ..... [01/04…16/16]
Specify the time signature that will be used when "TempoSource" is set to "**Manual**." In the cases of "**TempoMap**" and "**TempoTrack**," this will show the time signature corresponding to the current time as specified in the "TmpMap" tab page.

4. SelRhythm.....[(Rhythm Pattern List)]
Specify the rhythm parameter that will be used when "TempoSource" is set to "**Manual**." In the cases of "**TempoMap**" and "**TempoTrack**," this will show the rhythm(→P1-2) corresponding to the current time as specified in the "TmpMap" tab page.

The rhythms that can be selected will depend on the "Beat." (→p.114)

5. RhythmVol .....[000…100]
Specify the volume of the rhythm. This volume is sent to the master LR bus.

6. Rhythm.....[On, Off]
Turn the rhythm on / off.
You can specify whether or not the rhythm will play during recording and playback.

Rhythm:On **On**: The rhythm will sound. The [TEMPO / RHYTHM] key LED will light.

Rhythm:Off **Off**: The rhythm will not sound.

Be aware that during bounce recording, the rhythm will be recorded if this setting is "**On**."

The rhythm that is input for [INPUT] "Ch1–8" and "Ch9–16" ("**RhythmL**" and "**RhythmR**") will sound during recording or playback whether this setting is **On** or **Off**.

If you select the "METER / TRACK VIEW" page when the rhythm is sounding in this page, the rhythm will continue sounding.

7. Mute.....[On, Off]
When you enter this page, the rhythm will sound regardless of the "Rhythm" "**On/Off**" setting, allowing you to set the tempo and rhythm. However, you can use this button to mute the rhythm.

This is linked with the "Mute" button of the "TmpMap" tab page.

Mute **On**: The rhythm will not sound.

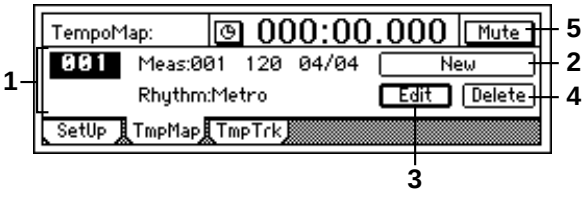
Mute **Off**: The rhythm will sound.

P2 TmpMap: Editing the tempo map

By creating a tempo map, you can cause the tempo, time signature, and rhythm pattern to change while the song is recorded or played back.

note Changes in tempo, time signature, or rhythm can be made only at the beginning of a measure.

For details on creating a tempo map, refer to p.40.

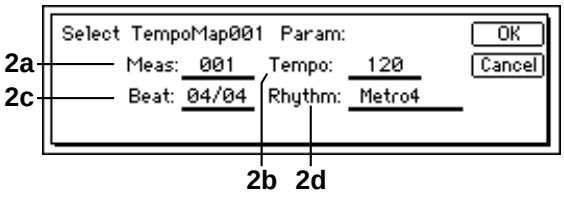


1. TempoMap.....[001…200]
This is the number of the selected tempo map. At the right, the display shows the starting measure, tempo, time signature, and rhythm pattern of this tempo map.

When "TempoSource" (→P1-1) is "Manual," it is not possible to select "TempoMap."

2. New.....
Create a new tempo map.
When you wish to add a tempo map in the middle of the song, create a new tempo map.

The following "Select TempoMap*** Param" dialog box will appear.



2a. Meas.....[001…999]
Specify the location at which the tempo map will be created. This can be set in units of a measure.

2b. Tempo.....[40…240]
Specify the tempo. The units are ♩=40–240.

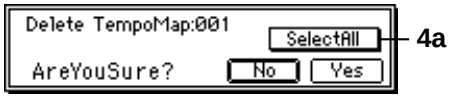
2c. Beat.....[01/04…16/16]
Specify the time signature.

2d. SelRhythm.....[(Rhythm Pattern List)]
Specify the rhythm. If you wish to specify a period of silence, you can select a silent rhythm.

The rhythms that can be selected will depend on the "Beat" setting. (→p.114)

3. Edit.....
Here you can edit the settings of a tempo map. Select this when you wish to modify an existing map. Use "TempoMap" to select the map that you wish to modify, and then press this button. The "Select TempoMap*** Param" dialog box will appear, and you can set the desired values. (→"New")

4. Delete.....
This deletes a tempo map.



4a. SelectAll.....[On, Off]
All tempo maps will be subject to deletion.

SelectAll **On**: All tempo maps will be subject to deletion. The tempo map number will be shown as "***."

SelectAll **Off**: The single tempo map selected by "TempoMap" will be subject to deletion.

5. Mute.....[On, Off]
When you enter this page, the rhythm will sound regardless of the "Rhythm" "**On/Off**" setting, allowing you to set the tempo and rhythm. However, you can use this button to mute the rhythm. (→p.68 "Mute")

P3 TmpTrk: Create a tempo track

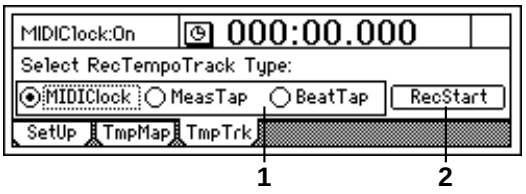
The tempo track can be recorded in two ways.

- By recording MIDI Clock
- By recording tap tempo

The first method is used to synchronize the D16 to data created on an external sequencer.
The second method is used when you do not know the tempo of audio data recorded on the D16 (for example if you recorded from a CD), but would like to manage the data and edit tracks in units of measures.
For the procedure, refer to p.41.

Since these two types of tempo track are recorded in the same area, it is not possible for both tempo tracks to exist simultaneously.

If memory becomes full during recording, recording will end.



1. Select RecTempoTrack Type ..... [MIDIClock, MeasTap, BeatTap]
Select the type of tempo track.

MIDIClock: The tempo track will be created by recording MIDI Clock data from a song that was created on an external sequencer.

MeasTap: The tempo track will be created by recording taps at the beginning of each measure.

BeatTap: The tempo track will be created by recording taps at the beginning of each beat.

2. RecStart.....
Begin recording the tempo track.

10. IN/LOC1, OUT/LOC2, TO/LOC3, END/LOC4

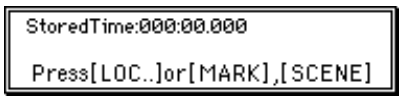
If locations in the song have been registered to the [IN/LOC1], [OUT/LOC2], [TO/LOC3], and [END/LOC4] keys, you can use them to perform the following functions.

- Locate point (press a key to move to the registered time location)
- Loop playback in/out points
- In/out points for auto-punch recording
- Editing locations for track editing
- In-out playback
  With this function, you can hold down the [IN/LOC1] key and press the [OUT/LOC2] key to playback from the **IN** time registered in the [IN/LOC1] key to the **OUT** time registered in the [OUT/LOC2] key. This provides a convenient way to play back the **IN**–**OUT** range so that you can check its contents.

Registering a locate point ([IN/LOC1], [OUT/LOC2], [TO/LOC3], [END/LOC4])

① Move the current time to the location that you wish to register.
Use the counter ("Counter") or the [FF]/[REW] keys to move (→p.24).

② Press the [STORE] key to store the selected time location.



③ Register the stored time location.
Press either the [IN/LOC1], [OUT/LOC2], [TO/LOC3], or [END/LOC4] key to register the time to that key. Registration is completed the moment you press the key.

note You can perform steps ② and ③ following even during song playback/recording. The time location at which you pressed the [STORE] key will be stored, allowing you to register it to a locate key.

Moving to a locate point

○ When you press a [IN/LOC1], [OUT/LOC2], [TO/LOC3], or [END/LOC4] key that you registered, you will move to the registered time location.

Locate functions

IN/LOC1:

The time location registered to the [IN/LOC1] key is used in the following ways for the following functions.

- Move to locate point 1
- Punch-in time for auto-punch recording
- Playback start time for loop playback
- Playback start time for in-out playback
- The following times for track editing operations
  Copy source start time for "Copy Track"
  Start of blank insert location for "Insert Track"
  Start of erased region for "Erase Track"
  Start of deleted region for "Delete Track"
  Start time of swap source and swap destination for "Swap Track"
  Start of reversed region for "Reverse Track"
  Start of expanded/compressed region for "ExpCmpTrack"

OUT/LOC2:

The time location registered to the [OUT/LOC2] key is used in the following ways for the following functions.

- Move to locate point 2
- Punch-out time for auto-punch recording
- Playback end time for loop playback
- Playback end time for in-out playback
- The following times for track editing operations
  Copy source end time for "Copy Track"
  End of blank insert location for "Insert Track"
  End of erased region for "Erase Track"
  End of deleted region for "Delete Track"
  End time of swap source and swap destination for "Swap Track"
  End of reversed region for "Reverse Track"
  End of expanded/compressed region for "ExpCmpTrack"

TO/LOC3:

The time location registered to the [TO/LOC3] key is used in the following ways for the following functions.

- Move to locate point 3
- The following times for track editing operations
  Copy destination time for "Copy Track"
  Reverse copy destination time for "Reverse Track"
  Start time + copy destination time of expanded/compressed data for "ExpCmpTrack"

END/LOC4:

The time location registered to the [END/LOC4] key is used in the following ways for the following functions.

- Move to locate point 4
- The following time for track editing operations
  End time of expanded/compressed data for "ExpCmpTrack"

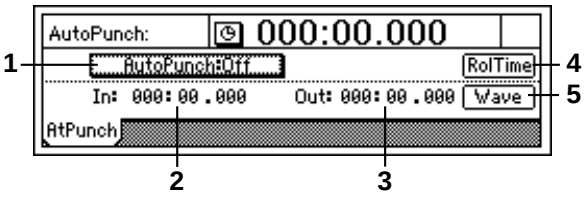
11. AUTO PUNCH

P1 AtPunch: Settings for auto punch-in / out recording

Auto punch-in / out recording is a function that automatically starts recording (punch-in) and stops recording (punch-out) at the time locations you specify beforehand.

If you record when "AutoPunch" is "**On**," punch-in / out recording will occur automatically.

note By turning the [RHSL] key "**On**," you can rehearse auto punch-in / out recording (i.e., practice without actually recording anything). (→p.87)



1. AutoPunch .....[On, Off]
Switch the auto punch-in / out recording function on / off.

AutoPunch:On **On**: When you record, auto punch recording will occur. When "**On**," the [AUTO PUNCH] key will light.

When you begin recording, the song will start at the pre-roll time before the registered time (**IN**), recording will occur for the recording region (**IN**–**OUT**), and playback will stop after the post-roll time. (→"RolTime")

AutoPunch:Off **Off**: When you record, recording will occur normally.

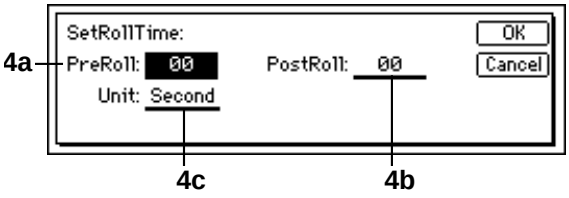
2. In .....(000:00.000…)
This shows the auto punch-in time (where recording will begin).

To set this time location, use the [STORE] key and [IN / LOC1] key, or use "Wave."

3. Out.....(000:00.000…)
This shows the auto punch-out time (where recording will end).

To set this time location, use the [STORE] key and [OUT / LOC2] key, or use "Wave."

4. RolTime .....
Specify the pre-roll and post-roll.
When using auto punch recording, you can specify a **pre-roll** time so that you can be ready to start recording at the punch-in (**IN**) point. Set the **post-roll** time so that you can confirm the transition from the end of recording (**OUT**) to the material that follows.

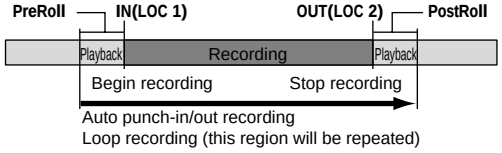


4a. PreRoll .....[00…10]
Set the pre-roll time.

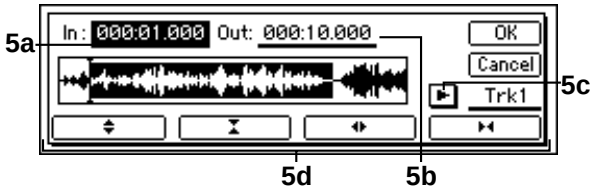
4b. PostRoll.....[00…10]
Set the post-roll time.

4c. Unit.....[Second, Meas(Measure)]
Select the units for the pre / post roll times.
You can select either **seconds** or **measures**.

Press the "OK" button, and the specified pre / post-roll times will take effect. If you press the "Cancel" button, the times you set will be cancelled.



5. Wave.....
This displays the waveform. You can view the waveform as you set **IN** and **OUT**, which allows you to specify time locations with greater precision.



5a. In .....[000:00.000…]
5b. Out.....[000:00.000…]
Set **IN** and **OUT**.

When you place the cursor at "**In**" or "**Out**," the track selected by "TrackSelect" will automatically be set to Solo and Scrub On, so that you can rotate the [VALUE] dial to hear only the sound of that track.

5c. TrackSelect .....[Track1…16]
Select the track whose waveform will be shown and which will be played. Press the "▶" button and select from the list.

5d. Zoom In / Out / Up / Down
Adjust the size of the waveform display and the playback speed.

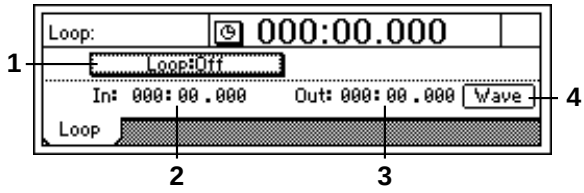
↕: Expand the waveform display vertically.
↕: Shrink the waveform display vertically.
↔: Expand the waveform display horizontally.
↔: Shrink the waveform display horizontally.

When you press the "OK" button, the times you specified for "**In**" and "**Out**" will be overwritten onto the respective keys ([IN / LOC1], [OUT / LOC2]). If you press the "Cancel" button, the times you selected will be cancelled.

12. LOOP

P1 Loop: Loop playback / recording settings

This function repeatedly plays / records over the range of time specified by [IN / LOC1]–[OUT / LOC2].



1. Loop .....[On, Off]
Turn loop playback on / off.

Loop:On **On**: Playback will occur repeatedly over the **IN**–**OUT** range. When "**On**," the [LOOP] key will light.

Loop:Off **Off**: Playback will be normal.

2. In .....(000:00.000…)
This shows the loop start time.

To set this time location, use the [STORE] key and [IN / LOC1] key, or use "Wave."

3. Out .....(000:00.000…)
This shows the loop end time.

To set this time location, use the [STORE] key and [OUT / LOC2] key, or use "Wave."

4. Wave .....
This displays the waveform. You can view the waveform as you set **IN** and **OUT**, which allows you to specify time locations with greater precision. (→p.71 "Wave")

Loop playback procedure

Here's how you can repeatedly playback the **IN**–**OUT** range of the song.

① Select the playback track(s).
For each track that you wish to play back, press the [TRACK STATUS] key to select **PLAY** (LED lit green).
② Register the range (**IN**–**OUT**) that will be used for loop playback. (→p.70)
You can also set this using "Wave" in [LOOP] "Loop" or in [AUTO PUNCH] "AtPunch."
③ Select the [LOOP] "Loop" tab page, and turn the "Loop" button "**On**."
④ Perform loop playback.
When you press the [PLAY] key, playback will begin from the **IN** location, and will play repeatedly over the **IN**–**OUT** range.
⑤ Press the [STOP] key to stop.

Loop recording procedure

If you turn "Loop" "**On**" when using auto punch recording, you can record repeatedly (loop) over the **IN**–**OUT** range.
In this case, the song will play back before and after the **IN**–**OUT** range according to the "RolTime" ("PreRoll" and "PostRoll") settings of [AUTO PUNCH] "AtPunch."

① Register the range (**IN**–**OUT**) that you wish to record. (→p.70)
You can also set this using "Wave" in the [LOOP] "Loop" or [AUTO PUNCH] "AtPunch" tab page.
② Connect the input device, and adjust the recording level.
Refer to "1. Selecting the input / record track" (→p.16).
③ Make monitor output settings.
Refer to "Manual punch-in / out" step ②. (→p.19)
④ Set the pre-roll and post-roll.
- In the [AUTO PUNCH] "AtPunch" tab page, select "RolTime."
- Set "PreRoll" to specify how far before the record start point you want playback to begin. Set "PostRoll" to specify how far after the record end point you want playback to continue. Use "Unit" to select the units for the pre / post-roll settings.
- After making the settings, press the "OK" button.

⑤ In the [AUTO PUNCH] "AtPunch" tab page, turn "Auto Punch" "**On**." ([AUTO PUNCH] key will light)
⑥ In the [LOOP] tab page, set "Loop" "**On**."
⑦ Begin recording.
- When you press the [REC] key, the D16 will locate to a point earlier than the specified **IN** (record start) time as specified by the pre-roll time, and will enter record-ready mode. ([REC] key LED will blink)
- When you press the [PLAY] key, playback will begin.
Playback will occur for the pre-roll time, and recording will begin at the **IN** time. ([REC] key LED will light)
When the **OUT** location is reached, recording will end, and playback will occur for the post-roll time. ([REC] key LED will blink)
Then the D16 will locate to the pre-roll time, and the same operation will be repeated.
- When you press the [STOP] key at a point outside the recording area (**IN**–**OUT**), loop recording will end.

⑧ Check the recorded content.
Use Undo / Redo to select the best take.

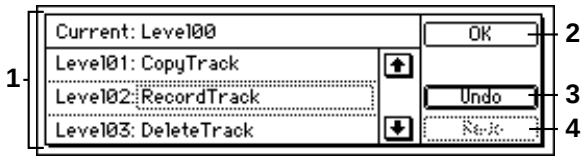
By using loop recording in conjunction with Undo / Redo (→p.10), you can record up to 99 takes and select the best take later.

13. UNDO

After performing one of the operations listed below, you can use the **Undo** function to return to the state prior to the operation. The **Redo** function lets you return to the state before you performed Undo.

- Recording
- Track editing
  CopyTrack, InsertTrack, EraseTrack, DeleteTrack, SwapTrack, ReverseTrack, OptimizeTrack, ExpCmpTrack, CopyWholeTrack, SwapWholeTrack

Undo can be used repeatedly to step back through the previous 99 operations.



1. UndoList ..... [Level 00, 01…99]
You can select the operation that will be undone. By selecting "01"–"99" (the number of prior operations executed) and executing Undo, you can return to the state before the operation was executed.

Current: The current undo level

Level 00: The most recent operation executed

Level 01…99: The previous operation executed – the operation executed 99 times ago

2. OK .....
Return from this page to the page in which you last were.

3. Undo .....
Execute the Undo. You will return to the state that followed the last operation selected in the "UndoList."

4. Redo.....
Execute Redo. You will return to the state of "**Level 00**."

The contents of the list are maintained until the next recording or track editing operation. When you record or edit, the data following the level for which Undo was last executed will be deleted. The contents of the list will also be deleted when you select a different song and record or edit. Please use caution.

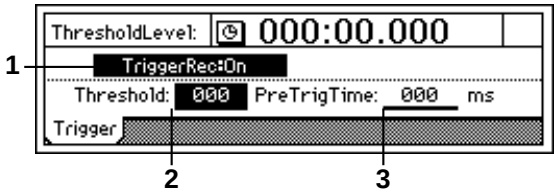
The hard disk recorder of the D16 preserves a history of up to the last 99 recordings, edits, or operations so that you can use the Undo function to return to an earlier state of your work. This means old data that no longer exists in a track will remain on the disk without being deleted. Such data will consume disk capacity, and may cause the available recording time to appear shorter. In such cases, you can recover the disk capacity by turning off the power of the D16 to delete the Undo history.

14. TRIGGER

Trigger Recording is a function that automatically initiates (triggers) recording when the input volume exceeds a specified level.

After setting "TriggerRec" "**On**," press the [REC] key (the LED will blink) to enter record-ready mode. Then when the input sound of the channel whose [TRACK STATUS] is set to **REC** exceeds a specified volume (the threshold level), recording will begin automatically. When in record-ready mode, you can press the [STOP] key or [REC] key to exit record-ready mode.

P1 Trigger: Settings to start trigger recording



1. TriggerRec.....[On, Off]
Turn the trigger recording function on / off.

TriggerRec:On **On**: When in record-ready mode, input sounds that exceed the threshold level will initiate recording. When this is "**On**," the [TRIGGER] key will light.

TriggerRec:Off **Off**: Trigger recording will not occur.

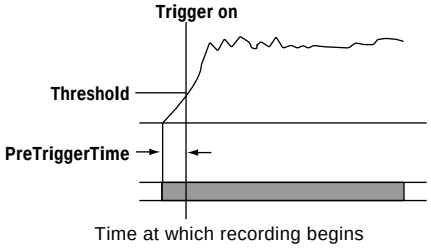
note When this is "**On**," recording will not begin if the input sound fails to reach the threshold level (the "Threshold" setting) in record-ready mode.
If recording does not begin as you expect, press the [STOP] key or [REC] key to cancel trigger recording, and re-adjust the "Threshold" level.

2. Threshold.....[000…100]
When trigger recording is used, this sets the input level at which recording will begin. Recording will begin when the input level exceeds this setting.

note Normally, you should set this to as low a level as possible without allowing noise to trigger recording. The appropriate level will differ depending on the input source. If recording begins too early or too late, re-adjust this level.

3. PreTrigTime ..... [000…700ms]
When trigger recording is used, the D16 can record the sound that was heard immediately before recording actually started.
Trigger recording will initiate recording when the input signal exceeds the "Threshold" level, but this can mean that the initial attack of the first note may be lost. In such cases, you can increase the "PreTrigTime" so that the earliest part of the sound (the part that is lower than the threshold level) will also be included in the recording.

This setting is not valid for the beginning of the song. Also, if you use trigger recording to continue recording after the end of a previously-recorded track, setting other than "**000 ms**" will cause a corresponding length of the previously-recorded sound to be lost.



Procedure for trigger recording

① Connect an input device, and adjust the recording level.
Refer to "1. Selecting the input / record track" (→p.16).
② Select the [TRIGGER] "Trigger" tab page, and turn "TriggerRec" "**On**" (the [TRIGGER] key will light).
③ Press the [REC] key to enter record-ready mode (the LED will blink).
④ Begin performing.
When the input level exceeds the threshold level ("Threshold"), recording will begin automatically.

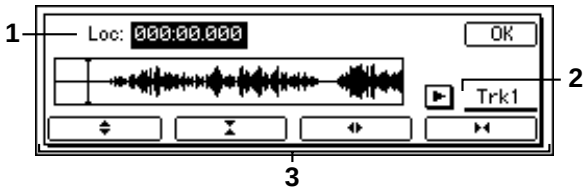
note Refer to "Threshold" and "PreTrigTime."

⑤ When you are finished performing, press the [STOP] key to stop.

15. SCRUB

Scrub, Play From / Play To, and Slow Play functions can be switched on / off here.
Each time you press the [SCRUB] key, the setting will be switched **on** or **off**.

By using these functions, you can register Locate and Mark times more precisely and easily.



On ([SCRUB] key lit):

The following functions will be available.

- **Scrub function**: Rotate the **[VALUE] dial** to play back the track data.
Use this to find a specific location in the song while listening to the sound. This method is similar to manually rotating an analog record on a turntable to find the desired location.
- **Play From function**: When you press the **[PLAY] key**, playback will begin from the currently stopped location and will stop after two seconds. Then you will automatically return to the location where playback began.
- **Play To function**: When you hold down the **[STOP] key** and press the **[PLAY] key**, playback will begin from two seconds earlier than the currently stopped location, and will continue to the location where playback had been stopped.

  note By using the Play From function in conjunction with the Play To function, you can find a time location with greater accuracy.
- **Slow Play function**: When you press the **[FF] key**, half-speed playback will begin from the currently stopped location. When you press the [STOP] key playback will stop, and you will return to the location where playback began.

  note The sound will play slowly, at a pitch one octave lower than normal. You can use this function by itself or in conjunction with a pitch shifter to learn or practice difficult phrases.

When this is "**On**," the [VALUE] dial is used only for Scrub playback. This means that the [VALUE] dial cannot be used to set parameter values.

Off ([SCRUB] key dark):

Operation will be normal.

1. Loc (Locate).....[000:00.000…]
Change the current time location.
You can rotate the [VALUE] dial to change the current time location while listening to the sound and viewing the waveform.

2. TrackSelect..... [Trk1…16]
Select the track that will be played and whose waveform will be displayed. Press the "▶" button and select from the list.

3. Zoom In / Out / Up / Down
Adjust the size of the waveform display and the playback speed.

: Expand the waveform display vertically.
: Shrink the waveform display vertically.
: Expand the waveform display horizontally.
: Shrink the waveform display horizontally.

Using the Scrub function:

① Press the [TRACK STATUS] key for the track that you wish to search, to put that track in **PLAY** mode (LED lit green).
② Press the [SCRUB] key to turn the "Scrub" function "**On**" (key lit).
③ Use "TrackSelect" to select the track that you wish to playback.
④ Select "Loc," and rotate the [VALUE] dial to search for the desired location while listening to the audio. The track audio will play correspondingly to how you rotate the [VALUE] dial.

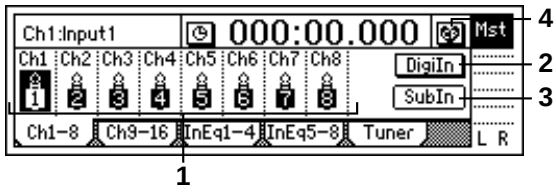
16. ENTER

For an explanation of the [ENTER] key, refer to p.5.

17. INPUT

P1 Ch1–8: Select the inputs for mixer channels 1–8

Here you can select the inputs for mixer channels 1–8. For the procedure, refer to p.16.



1. Ch1–8 ....[Input1….8, S/PDIF L, R, Rhythm L, R]
Select a channel icon "Ch1"–"Ch8," and select the source that will be input to each channel.

INPUT1…8: The analog output from an instrument connected to the [INPUT 1 / GUITAR IN]–[INPUT 8] jacks will be input to the channel.

S/P DIF L, R: The digital output from a CD or DAT connected to the [S / P DIF IN] connector will be input to the channel. This can be selected when "DigiIn" is "**On**."

Insert effects cannot be used on the digital input.

Rhythm L, R: The rhythm selected by "SelRhythm" (→p.68) will be input to the channel. During recording / playback, the rhythm will be heard regardless of the "Rhythm" (→p.68) "**On/Off**" setting. This rhythm can be recorded. (→p.39)

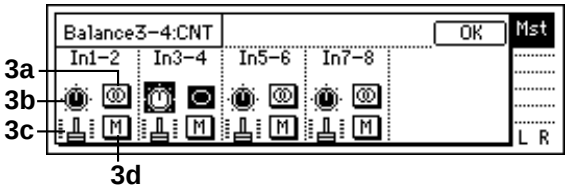
2. DigiIn .....[On, Off]
Turn this "On" when you wish to use the digital input (S / P DIF IN).

DigiIn **On**: "**S/P DIF L**" or "**S/P DIF R**" can be selected for "Ch1…8."

When this is "**On**," insert effects cannot be used.

DigiIn **Off**: "**S/P DIF L**" or "**S/P DIF R**" cannot be selected for "Ch1…8."

3. SubIn.....



Make these settings when you wish to use the inputs as "**sub inputs**" for inputting the return from an external effect to the [INPUT 1 / GUITAR IN]–[INPUT 8] jacks, or so that the sound of an instrument connected to these jacks can be mixed with the track playback. (→p.35)

After completing a song on the D16, you can synchronize a sequencer to the D16 and use **sub inputs** to mix the sequenced sounds with the track playback of the D16.

These inputs are sent via the stereo / mono switch through the balance and fader settings, and then to the master LR bus.

note Use the [AUX OUT] jack to transmit the effect send to your external effect processor. (→p.82 [MASTER EFFECT / AUX] "AuxSend" tab page)

3a. Stereo / Mono ..... [Stereo, Mono]

Stereo: Odd-numbered channel inputs will be sent to the master L bus, and even-numbered channel inputs will be sent to the master R bus.

Mono: Odd-numbered and even-numbered channel inputs will be summed, and the same signal will be sent to the master L bus and R bus. Use this when the input is received on only one channel.

If the sound distorts when this is set to "**Mono**," adjust the level on the input device or using the [TRIM] knob.

3b. Balance .....[L63…CNT…R63]

Adjust the balance for when the sub input is sent in stereo to the master LR bus.

3c. Fader .....[000…100]

Adjust the amount of sub input signal that is sent to the master LR bus.

3d. Mute.....[On, Off]

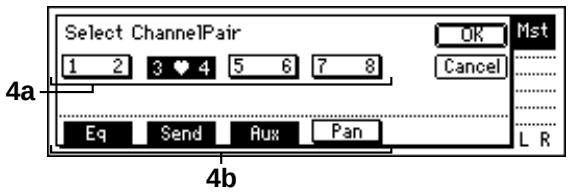
On: The sub input will be muted; it will not be sent to the master LR bus.

Off: The sub input will not be muted; it will be sent to the master LR bus.

4. Pair .....

This lets you pair adjacent mixer channels.

Press the "♥" button to access the following screen.



Channels that are paired will be controlled by the knobs and fader of the odd-numbered channel. Operating the knobs or fader of the even-numbered channel will not control anything.

4a. Select ChannelPair .....[1 2…7 8]

Press the "1 2"–"7 8" button for the channels that you wish to pair. When pairing is "On," the heart icon will be displayed.

4b. Select Function ..... [Eq, Send, Aux, Pan]

Select the functions that will be paired for the channels selected by "Select ChannelPair."

For the functions "**EQ**"–"**Pan**" that you wish to pair, press the button to enable pairing (the button will be highlighted). The settings will be applied when you press the "OK" button.

note When pairing is on, the pairing function will always apply to the fader and track status.

P2 Ch9–16: Select the inputs for mixer channels 9–16

Here you can select the inputs for mixer channels 9–16.

Refer to "P1 Ch1–8: Select the inputs for mixer channels 1–8."

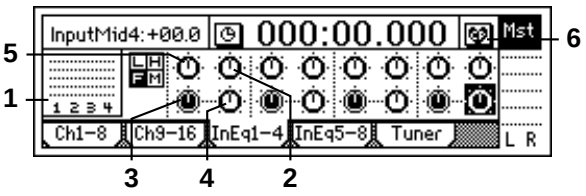
P3 InEq1–4: EQ settings for inputs 1–4

Here you can apply EQ (equalizer) to the analog inputs from the [INPUT 1 / GUITAR IN]–[INPUT 4] jacks.

Make these settings when you wish to directly record the sound that is adjusted by the EQ.

The EQ has three bands. High EQ and low EQ are shelving type, and the mid EQ is a peaking type with adjustable cutoff frequency.

This EQ cannot be used on the digital input (S / P DIF IN) or on the rhythm.



1. InputLevelMeter.....
(1, 2, 3, 4 / 0, –6, –12, –18, –40dB)

This shows the level of each analog input. The horizontal axis indicates the channel, and the vertical axis indicates the level.

Inputs that are not selected in "Ch1…8" ([INPUT] P1-1) will not be displayed.

2. InputHigh..... [(Fc=10kHz)–15.0…+15.0(dB)]

Set the input high EQ gain. This adjusts the high-frequency range.
You can cut / boost over a range of –15 – +15 dB at a 10 kHz cutoff frequency.

3. InMidFc.....[100Hz…20.0k(Hz)]

Set the cutoff frequency for the input mid EQ.
This can be adjusted over the range of 100 Hz–20 kHz.

4. InputMid ..... [–15.0…+15.0(dB)]

Set the input mid EQ gain. This adjusts the mid-frequency range.
You can cut / boost over a range of –15 – +15 dB at the cutoff frequency specified by "InMidFc."

5. InputLow..... [(Fc=100Hz)–15.0…+15.0(dB)]

Set the input low EQ gain. This adjusts the low-frequency range.
You can cut / boost over a range of –15 – +15 dB at a 100 Hz cutoff frequency.

6. Pair .....

Enable pairing for adjacent mixer channels. (→p.76 "Pair")

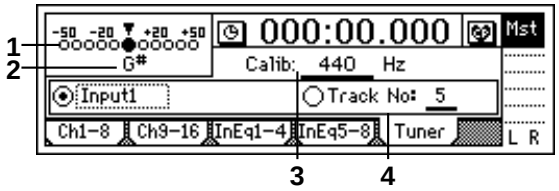
P4 InEq5–8: EQ settings for inputs 5–8

Here you can apply EQ (equalizer) to the analog inputs from the [INPUT 5]–[INPUT 8] jacks. Refer to "P3 InEq1–4: EQ settings for inputs 1–4."

P5 Tuner: Tuner

You can use the built-in tuner to tune an instrument connected to the [INPUT 1 / GUITAR IN] jack or input from the built-in mic. You can also measure the pitch of a track.

Recording is not possible while this page is displayed. Nor is it possible to select this page during recording or playback.
To allow tuning to be performed accurately, the effects will be turned off while this page is displayed.



1. CENT Scale .....(–50…+50)
The "▽" symbol in the center will change to "▼" when the tuning is correct. The amount of pitch deviation is shown in units of cents (100 cents = 1 semitone, and 1200 cents = 1 octave)

2. NoteDisplay.....(C…B)
This shows the name of the note that is closest to the input sound.
It is not possible to detect the pitch if two or more notes are played simultaneously.

3. Calib ..... [435…440…445Hz]
Specify the frequency that will be the basis for tuning. Normally you will set this to "**440**."

4. SelectSource.....[Input1, Track No1…16]
Input1: Select this when you wish to tune an external device such as a guitar, or when using the built-in mic to tune.

Track No "1…16": Select the track whose pitch you wish to measure. Move to the time location that you wish to measure, then specify the track in this page, and play back to measure the pitch of the specified track.

Using the tuner

① Use "SelectSource" to select the source that you wish to tune.
- To tune an instrument such as guitar, connect the instrument to [INPUT 1 / GUITAR IN]. To tune using the built-in mic, set the [MIC] switch (→p.5) to **INPUT1**.
  Then select "**Input 1**" for "Ch1" of [INPUT] "Ch1–8," and select "**Input 1**" for "SelectSource" of [INPUT] "Tuner."
- To measure the tuning of a track, use "SelectSource" to select the "**Track**," and select the desired track.

② Use "Calib" to set the basic frequency for tuning.

③ Tune your instrument / measure the pitch of the track.
"Note Display" will indicate the note name, and "Cent Scale" will indicate the pitch.
- If "**Input 1**" is selected, play your instrument to produce sound, and adjust its tuning so that the solid triangle symbol "▼" appears in the middle.
- If "**Track**" is selected, move to the time that you wish to measure, and press the [PLAY] key to play back. Check the note name and pitch.

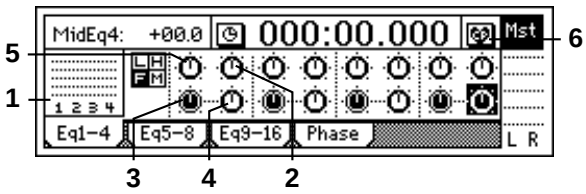
18. EQ/PHASE

P1 Eq1–4: EQ settings for mixer channels 1–4

Here you can apply EQ (equalizer) to the playback of tracks 1–4.

Use these settings when you wish to apply EQ to the playback.

The EQ has three bands. High EQ and low EQ are shelving type, and the mid EQ is a peaking type with adjustable cutoff frequency.



1. **TrackLevelMeter ..... (1, 2, 3, 4/0, –6, –12, –18, –40dB)**
   This shows the input level from each track. The horizontal axis indicates the channel, and the vertical axis indicates the level.

2. **HighEq ..... [(Fc=10kHz)–15.0…+15.0(dB)]**
   Set the high EQ gain. This adjusts the high-frequency range.
   You can cut/boost over a range of –15 – +15 dB at a 10 kHz cutoff frequency.

3. **MidFc ..... [100Hz…20.0k(Hz)]**
   Set the cutoff frequency for the mid EQ.
   This can be adjusted over the range of 100 Hz–20 kHz.

4. **MidEq..... [–15.0…+15.0(dB)]**
   Set the mid EQ gain. This adjusts the mid-frequency range. You can cut/boost over a range of –15 – +15 dB at the cutoff frequency specified by "MidFc."

5. **LowEq ..... [(Fc=100Hz)–15.0…+15.0(dB)]**
   Set the low EQ gain. This adjusts the low-frequency range.
   You can cut/boost over a range of –15 – +15 dB at a 100 Hz cutoff frequency.

6. **Pair .....**
   Enable pairing for adjacent mixer channels.
   (→"Pair" P1-4)

P2 Eq5–8: EQ settings for mixer channels 5–8

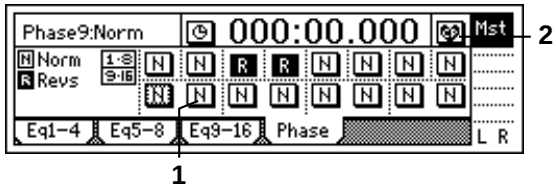
Here you can apply EQ (equalizer) to the playback of tracks 1–4.
Refer to "P1 Eq1–4: EQ settings for mixer channels 1–4."

P3 Eq9–16: EQ settings for mixer channels 9–16

Here you can apply EQ (equalizer) to the playback of tracks 9–16.
Refer to "P1 Eq1–4: EQ settings for mixer channels 1–4."

P4 Phase: Phase settings for mixer channels

Here you can invert the phase of each channel. This setting applies to the playback tracks. If an audio device is input in stereo via a jack whose hot and cold conductors are reversed, their stereo position may be blurred, or portions of the sound may be cancelled. This setting lets you invert the phase to correct such situations.



1. **Phase .....[N, R]**
   N (NormalPhase): The phase of this channel will not be inverted. Normally you will leave this at "**N**."

   R (ReversePhase): The phase of this channel will be inverted.

2. **Pair .....**
   Enable pairing for adjacent mixer channels.
   (→"Pair" P1-4)

19. INSERT EFFECT

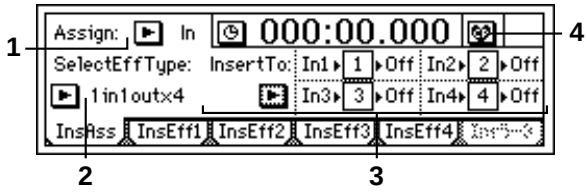
The insert effects can be applied to the analog inputs during recording, or to track playback.

The D16 lets you use up to eight different insert effects simultaneously.

Insert effects cannot be used if "DigiIn" is turned "**On**" in the [INPUT] "Ch1–8" or "Ch9–16" tab pages.

Be aware that the location at which insert effects are inserted has a pre-specified priority beginning with the lower-numbered effects.

P1 InsAss: Insert effect insertion location / type



1. Assign .....[In(Input), Trk(PlayTrack)]
Select whether the insert effect will be applied to an analog input or to a playback track.

In (Input): Use these settings to apply an effect to analog inputs from the [INPUT 1 / GUITAR IN]–[INPUT 8] jacks while recording.

Trk (PlayTrack): Use these settings to apply an effect to a playback track. Effects can also be used during mixdown.

2. SelectEffType..... [1in2outx2, 2in2outx2, 1in1outx4, 1in1outx8]
Select the configuration of insert effects.

The effects that can be selected will depend on this setting. For the effects that are available for each configuration, refer to "Effect Program List" (→p.112).

1in2outx2: Select this when you wish to use two mono-in / stereo-out effects.
This is ideal when you wish to add more spaciousness to a lead guitar or vocal.

This can be selected only if "Assign" is "**In**."

2in2outx2: Select this when you wish to use two stereo-in / stereo-out effects.
This is ideal for stereo input sources such as keyboard.

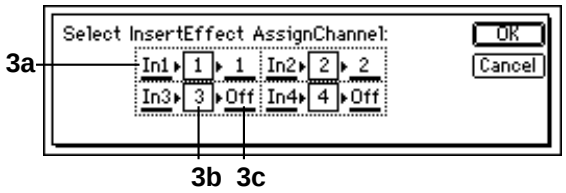
1in1outx4: Select this when you wish to use four mono-in / mono-out effects.
This is ideal for sources for which the panning is fixed, such as rhythm guitar.

1in1outx8: Select this when you wish to use eight mono-in / mono-out effects.
This is ideal for sources for which the panning is fixed, such as drums.

3. InsertTo.....
Select the location at which the insert effect will be inserted.

Press the "▶" button to access the dialog box and make settings. Press the "OK" button to execute your settings, or press the "Cancel" button to cancel them.

Be aware that these settings will be reflected by the mixer channel input settings (→p.75 [INPUT] "Ch1"–"Ch16").



■ When "Assign" is "In"

The signal flow will be: input select → (effect) → return channel.

3a. SelectInput ..... [In 1…8, DrL, DrR]
In 1…8: Select an analog input [INPUT 1 / GUITAR IN]–[INPUT 8] jacks).

DrL, DrR: Select rhythm L or R.

note When "SelectEffType" is **2in2outx2**," the available choices for "SelectInput" will be odd-numbered "**In1**"–"**In8**," and "**DrL**."

3b. Effect .....(1…8)
This shows the effect number.

3c. SelectCh .....[1…16, Off]
Specify the return channel for the effect output.

■ When "Assign" is "Trk"

The signal flow will be: input channel select → (effect) → (return = insert channel).

3a. SelectCh.....[1…16, Off]
Select the insert destination mixer channel.

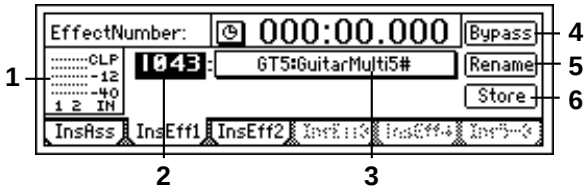
note When "SelectEffType" is "**2in2outx2**," only odd-numbered channels can be selected for "SelectCh."

3b. Effect .....(1…8)
This shows the insert effect number.

3c. SelectCh .....(1…16, Off)
This shows the return channel of the effect output. The same channel as "3a. SelectCh" will be selected.

4. Pair
You can specify that adjacent mixer channels be paired. (→p.76 "Pair").

P2 InsEff1: Selection and settings for Insert Effect 1



1. InputLevelMeter..... (IN1, 2 / CLIP, –6, –12, –18, –40 dB)

This shows the input level of each effect. The horizontal axis indicates the effect input, and the vertical axis shows the level. "**IN2**" will be input only if [INSERT EFFECT] "InsEff1" is "**2in2outx2**."

2. EffectNumber..... [000, 001...128, U001...128, (#)]

Select the effect program.

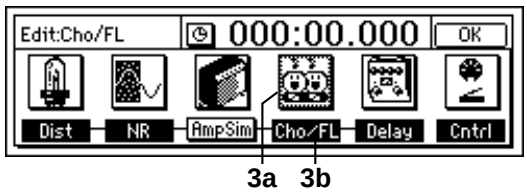
"**U001**"–"**U128**" is the user area, where you can store effect programs that you have edited.

If the effect program includes a control function, a "**#**" will be displayed following the effect name.

The effects that can be selected will depend on the "SelectEffType" setting in the [INSERT EFFECT] "InsAss" tab page. For the effects that are available in each configuration, refer to "Effect Program List" (→p.112).

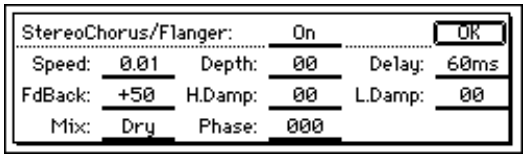
3. EffectProgramName.....(Effect Program List)

When you press this button, the "Effect Algorithm" dialog box will appear. Here you can view the structure of the program and the on / off settings of each effect. Each insert effect program consists of up to five different effects.



3a. EffectIcon.....

Select the effect that you wish to edit.
When you press the "EffectIcon" button, the "Effect Edit" dialog box will appear.



For details on each parameter, refer to "Effect Parameter List" (→p.89). The "**On/Off**" setting at the top of the screen is linked with "Effect On / Off" (3b).

3b. Effect On / Off.....[On, Off]

Turn each effect on / off.

Cho/FL **On**: The effect is on.

Cho/FL **Off**: The effect is off.

4. Bypass.....

This lets you compare the sound processed by the effect with the unprocessed effect. Press the "Bypass" button to bypass the effect (the unprocessed sound will be heard).

Press the "Cancel" button to cancel bypass.

5. Rename .....

Here you can modify the name of the effect program.

Select the effect program whose name you wish to modify, press the "Rename" button to access the dialog box, and modify the name. A name of up to 16 characters can be input. (→p.14)

After modifying the program name, use "Store" (→P2-6) to store it. The effect program name you modified will be discarded unless you use "Store" to store it.

6. Store .....

The effect program whose name or parameters you modified can be stored in user areas "**U001**"–"**U128**." The D16 provides 128 user areas for insert effects.

In the "StoreEffect" dialog box, specify the "user area number" and press the "Exec." button to store the effect. To cancel, press the "Cancel" button.

Effects are always overwritten. Please use caution.

P3 InsEff2: Selection and settings for Insert Effect 2

Select insert effect 2 and make settings for it.
For details refer to "P2 InsEff1: Selection and settings for Insert Effect 1."

P4 InsEff3: Selection and settings for Insert Effect 3

Select insert effect 3 and make settings for it.
This will appear only if you have selected "**1in1outx4**" or "**1in1outx8**" for "SelectEffType" in the "InsAss" tab page (→p.79).

For details refer to "P2 InsEff1: Selection and settings for Insert Effect 1."

P5 InsEff4: Selection and settings for Insert Effect 4

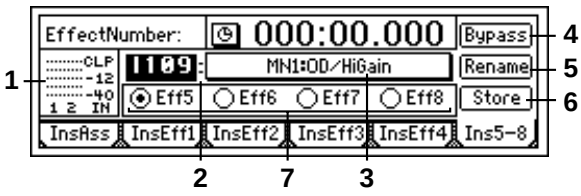
Select insert effect 4 and make settings for it.
This will appear only if you have selected "**1in1outx4**" or "**1in1outx8**" for "SelectEffType" in the "InsAss" tab page (→p.79).

For details refer to "P2 InsEff1: Selection and settings for Insert Effect 1."

P6 Ins5–8: Selection and settings for Insert Effects 5–8

Select insert effects 5–8 and make settings for them.
This will appear only if you have selected "**1in1outx8**" for "SelectEffType" in the "InsAss" tab page (→p.79).

For insert effects 5–8, use "SelectEffect5…8" to select an effect and edit it.



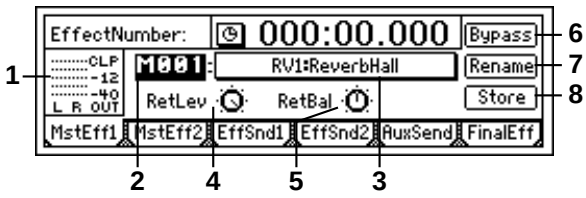
7. SelectEffect5…8 .....[Eff5, Eff6, Eff7, Eff8]
Of insert effects 5–8, select the effect that will be displayed in this page. Editing, bypass, and rename operations will affect the effect that is displayed.

For other details refer to "P2 InsEff1: Selection and settings for Insert Effect 1."

20. MASTER EFFECT / AUX / FINAL EFFECT

The **master effects** are used by sending an adjustable send amount from each channel to the effect. They can be used to adjust the overall depth and balance. The D16 provides two master effects.
The **final effect** is used to adjust the final stage of the master LR bus. The D16 provides one stereo final effect.
The **AUX send** is used when you wish to apply an external effect to the sound.

P1 MstEff1: Selection and settings for master effect 1



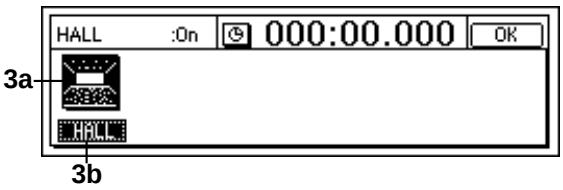
1. OutputLevelMeter .....
(OUT L, R / CLP, –6, –12, –18, –40 dB)
This indicates the output level of the effect. The horizontal axis indicates the effect output, and the vertical axis indicates the level.

note The send amount from each channel (i.e., the level that is input to the effect) is adjusted in the "EffSnd1" tab page.

2. EffectNumber .....
[M000, M001…032, u001…032]
Select the effect program.

"**u001**"–"**u032**" is the user area, where effect programs that you edit can be stored.

3. EffectProgramName .....(Effect Program List)
When you press this button, the "Effect Algorithm" dialog box will appear. Here you can view the structure of the program, and check the on / off status.



3a. EffectIcon .....

3b. Effect On / Off .....[On, Off]
Refer to "EffectIcon" and "Effect On / Off" for insert effects (→p.80).

4. RetLev.....[000…100]
Adjust the return level from the master effect to the master bus. Higher settings will cause the effect to apply more deeply.

5. RetBal.....[L63…CNT…R63]
Adjust the return balance from the master effect to the master LR bus. "**L**" and "**R**" indicate L (left) and R (right) of the master bus.

6. Bypass.....
Refer to "Bypass" for the insert effects (→p.80).

7. Rename .....
Here you can modify the name of the effect program.

Select the effect program whose name you wish to modify, press the "Rename" button to access the dialog box, and modify the name. A name of up to 16 characters can be input. (→p.14)

After modifying the program name, use "Store" (→P1-8) to store it. The effect program name you modified will be discarded unless you use "Store" to store it.

8. Store .....
The effect program whose name or parameters you modified can be stored in user areas "**u001**"–"**u032**." The D16 provides 32 user areas for master effects.

In the "StoreEffect" dialog box, specify the "user area number" and press the "Exec." button to store the effect. To cancel, press the "Cancel" button.

Effects are always overwritten. Please use caution.

P2 MstEff2: Selection and settings for master effect 2

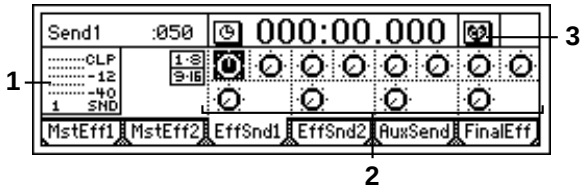
Here you can select and make settings for master effect 2.

For details refer to "P1 MstEff1: Selection and settings for master effect 1."

note The send amount from each channel (the input level to the effect) is adjusted in the "EffSnd2" tab page.

P3 EffSnd1: Send settings for effect 1

Here you can set the send amount from each mixer channel to effect 1.



1. SendLevelMeter.....
(SND 1/CLP, –6, –12, –18, –40 dB)
This shows the send level to effect 1. The vertical axis shows the level.

2. Send..... [Ch1…8, 9–10…15–16/000…100]
Adjust the send amount from each mixer channel to effect 1.

3. Pair .....
Specify pairing for adjacent mixer channels. (→p.76 "Pair")

P4 EffSnd2: Send settings for effect 2

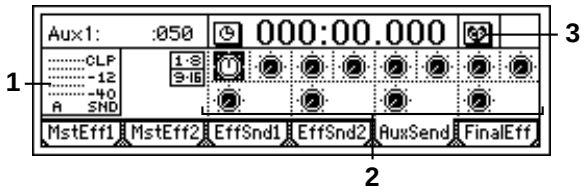
Here you can set the send amount from each mixer channel to effect 2.

For details refer to "P3 EffSnd1: Send settings for effect 1."

P5 AuxSend: External send settings

Here you can set the send amount from each mixer channel that will be output to the [AUX OUT] jack.

For details on connecting and using an external effect, refer to p.33.



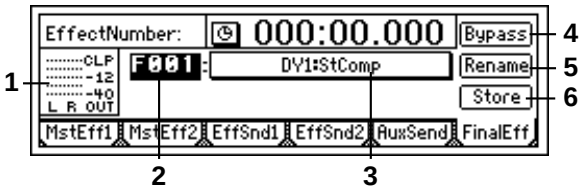
1. SendLevelMeter.....
(SND A/CLP, –6, –12, –18, –40 dB)
This shows the output level to the [AUX OUT] jack. The vertical axis shows the level.

2. Aux ..... [Ch1…8, 9–10…15–16/000…100]
Set the send amount from each mixer channel to the [AUX OUT] jack.

3. Pair .....
Specify pairing for adjacent mixer channels. (→p.76 "Pair")

P6 FinalEff: Selection and settings for the final effect

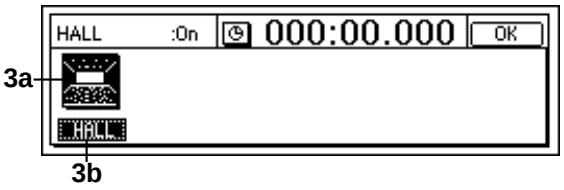
The final effect is applied to the overall output from the mixer, and is used mainly to adjust the overall balance. For the location at which the final effect is inserted, refer to the block diagram (→p.111).



1. OutputLevelMeter .....
(OUTL, R/CLP, –6, –12, –18, –40 dB)
This shows the output level of the effect. The horizontal axis shows the effect output, and the vertical axis shows the level.

2. EffectNumber .....
[F000, F001…032, u033…064]
Select the desired effect program.
"**u033**"–"**u064**" is the user area, in which you can store effect programs that you edited.

3. EffectProgramName .....(Effect Program List)
When you press this button, the "Effect Algorithm" dialog box will appear. Here you can view the structure of the program and its on/off status.



3a. EffectIcon .....

3b. Effect On/Off .....[On, Off]
Refer to "EffectIcon" and "Effect On/Off" for the insert effects (→p.80).

4. Bypass.....
Refer to "Bypass" for the insert effects (→p.80).

5. Rename .....
Here you can modify the name of the effect program.
Select the effect program whose name you wish to modify, press the "Rename" button to access the dialog box, and modify the name. A name of up to 16 characters can be input. (→p.14)

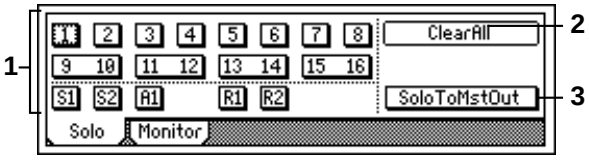
After modifying the program name, use "Store" (→P6-6) to store it. The effect program name you modified will be discarded unless you use "Store" to store it.

6. Store .....
The effect program whose name or parameters you modified can be stored in user areas "**u033**"–"**u064**." The D16 provides 32 user areas for final effects.
In the "StoreEffect" dialog box, specify the "user area number" and press the "Exec." button to store the effect. To cancel, press the "Cancel" button.

Effects are always overwritten. Please use caution.

21. SOLO / MONITOR

P1 Solo: Solo select



1. SelectSolo .....[1…8, 9–10…15–16, S1, S2, A1, R1, R2 / On, Off]

Switch the solo function on / off.

Only the audio for which the "Solo" button is "**On**" will be sent to the monitor bus. Use this function when you wish to hear only a specific channel (or channels) out of multiple audio sources, or to check the send etc. The solo signal will be output to the [MONITOR OUT L / R] jacks and to the [PHONES] jack.

If one or more are "**On**," the [SOLO / MONITOR] key will blink.

1 **On**: Solo is on. Only the selected signal(s) will be heard.

1 **Off**: Solo is off. If another signal is set to solo on, signals for which solo is off will be muted.

1…8: Mixer channels 1–8

9–10…**15–16**: Mixer channels 9–10 – 15–16

S1, S2: Sends to master effects 1 and 2

A1: Send to external output [AUX OUT] jack

R1, R2: Return from master effect 1 and 2

To adjust the volume of each signal, use the corresponding pages or knobs. Be aware that when you switch the signal that is selected, some settings may cause the monitor volume to change dramatically. Please use caution.

2. ClearAll .....

This turns "**Off**" all "SoloSelect" settings that were "**On**."

3. SoloToMstOut.....[On, Off]

This specifies whether or not the solo signal will be output from the [MASTER OUT L / R] jacks. Use this setting if you have connected your monitor system to the [MASTER OUT L / R] jacks and wish to use it for soloing.

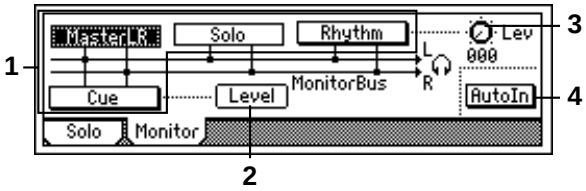
SoloToMstOut **On**: The solo signal will be output from the [MASTER OUT L / R] jacks.

SoloToMstOut **Off**: Normal operation. The solo signal will be output from the [MONITOR OUT L / R] jacks and from the [PHONE] jack.

The "**On**" setting is valid only within the [SOLO / MONITOR] page. When you exit this page, it will automatically be turned "**Off**."

P2 Monitor: Monitor settings

Select the audio signals that will be output from the monitor output ([MONITOR OUT L / R] jacks) and the headphone output ([PHONES] jack).



1. SelectMonitor ..... [MasterLR, Cue, Rhythm, (Solo) / On, Off]

Select the audio signals that will be output from the [MONITOR OUT L / R] jacks and the [PHONES] jack.

Cue **On**: The signal will be output for monitoring.

Cue **Off**: The signal will not be output for monitoring.

MasterLR: The master LR bus will be output for monitoring. Normally you will select this.

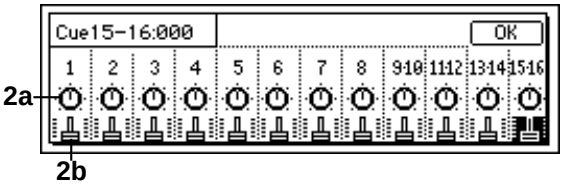
Cue: The channels specified by "Level" will be output for monitoring. Select this when you wish to adjust the monitor volume and pan for comfort during recording without affecting the recording levels.

Rhythm: The built-in rhythm sound will be directly output for monitoring. During a live performance, you can use this to output the sound of the tracks from the [MASTER OUT L / R] jacks, and use the headphones to listen only to the rhythm. Normally you will leave this off.

(Solo): If solo is turned "**On**" for even one source in the "Solo" tab page, this will be selected automatically, and it will not be possible to select "**MasterLR**," "**Cue**." To select these, you must first turn solo "**Off**" in the "Solo" tab page.

2. Level.....

Set the volume level and panning of each mixer channel when "Cue" is turned "**On**" in "SelectMonitor." Press the "Level" button, and view and adjust the settings in the "cue setting page."



2a. Pan (Ch1–8) / Balance (Ch9–16)..... [L63…CNT…R63]

Set the monitoring pan and balance for each channel / cue signal.

2b. Cue .....[000…100]

Set the monitoring output volume for each channel / cue signal.

3. RhythmLevel .....[000…100]
Adjust the level at which the rhythm will be monitored. It will be output directly at this volume.

4. AutoIn .....[On, Off]
For mixer channels whose [TRACK STATUS] is set to **REC**, you can specify whether to monitor the external input ([INPUT 1/GUITAR IN]–[INPUT8], [S/P DIF IN] jacks) or to monitor the track playback sound.

This selection applies to the "SelectMonitor" settings "MasterLR" and "Cue."

AutoIn **On**: For mixer channels whose [TRACK STATUS] is **REC**, the track playback sound will be heard during playback, and the external input sound will be heard during recording (and rehearsing) and when stopped.

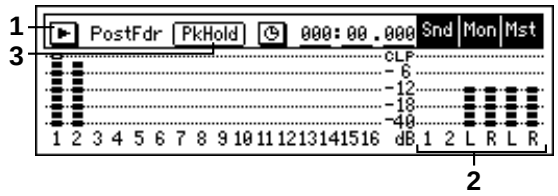
When "AutoIn" is "**On**," you will normally turn "MasterLR" "**On**" in "SelectMonitor." If you wish to monitor at a different level than the recording level (e.g., if you are playing an instrument and would like to monitor it at a louder level), you can use "SelectMonitor" to turn "Cue" "**On**," and use "Level" to adjust the cue volume level of each channel for comfortable listening.

AutoIn **Off**: Normal operation. You will always hear the input sound for mixer channels whose [TRACK STATUS] is "**REC**."

22. METER/TRACK VIEW

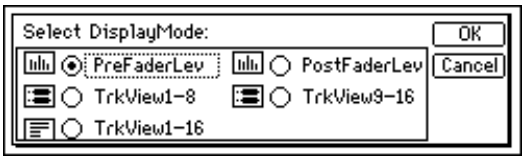
Here you can view the pre fader level meter and post fader level meter. You can also use the track view display to check whether a track contains audio events.

From the top, the level meters indicate **CLP**, **–3**, **–6**, **–9**, **–12**, **–15**, **–18**, **–24** and **–40 dB**.



1. Select DisplayMode ..... [PreFaderLev, PostFaderLev, TrkView1–8, TrkView9–16, TrkView1–16]
Select the signals that you wish to display.

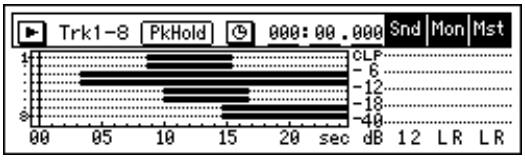
Press the "▶" button to access the dialog box, and make a selection. Press the "OK" button to activate your selection, or press the "Cancel" button to cancel.



PreFaderLev: Display the pre-fader level of each mixer channel.

PostFaderLev: Display the post-fader level of each mixer channel.

TrkView1–8: Display tracks 1–8. Areas where audio events exist are shown as a heavy line.



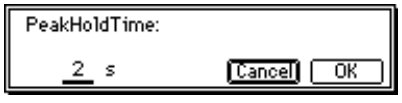
TrkView9–16: Display tracks 9–16. (→"TrkView1–8")

TrkView1–16: Display tracks 1–16. (→"TrkView1–8")

2. Snd1, 2/Mon L, R/Mst L, R .....
These are the level meters for "Send 1, 2" (effect send 1, 2), "Mon L, R" (monitor L, R), and "Mst L, R" (master L, R).

note "MstL, R" is also displayed at the right of the page in [SONG], [TRACK], [RECORD], [INPUT], and [EQ/PHASE] modes, allowing you to check the master LR level.

3. PkHold .....[0…8s, ∞]



Specify the time until the peak hold of the level meter is cancelled.

This setting applies to the level meters of this page. Press the "PkHold" button to access the dialog box, and make the desired setting. Press the "OK" button to activate your selection, or press the "Cancel" button to cancel.

0…8s: 0–8 seconds

∞: The peak hold indicator will be held forever. The hold indicator will be cleared when you press the "PkHold" button to access the dialog box.

23. TRACK STATUS

These indicators show the status of each track.

Each time you press the [TRACK STATUS] key, the LED will change color to indicate the selected function.

PLAY (LED lit green)
The selected track can be played.

REC (LED lit red)
The selected track can be recorded.

INPUT (LED lit orange)
An external audio signal can be input to the selected track. This can be selected only while stopped.

Select this when you wish to listen to the sound of other tracks as you play your instrument, or as a substitute for rehearsing before you record, or when you wish to mix an external input with the playback tracks.

MUTE (LED dark)
The selected track will be muted (silent).

The settings available here will depend on the state / settings of the recorder. When stopped, the selection will change in the order **PLAY→INPUT→REC→MUTE→PLAY**. During recording or playback, the selection will alternate between **PLAY↔MUTE or INPUT↔MUTE**.

24. PAN / BALANCE

For each channel, adjust the stereo position (pan) or left / right balance of the signal sent to the masterLR bus.

For channels **1–8** whose pair setting is "**Off**," this is the pan setting to the masterLR bus.
For channels **1–8** whose pair setting is "**On**" and for channels **9–16**, this is the left / right balance setting to the master LR bus.

note These settings can be paired and registered in a scene.

When recording to tracks whose channels have a balance setting, be sure to set the knob at "**CNT**."

25. FADER

Adjust the volume levels.

The faders that adjust the recording level will differ depending on whether you are recording an external input or performing bounce recording.

- **When recording an external input** (when "**Input**" is selected for the [RECORD] "RecMode" tab page item "Select RecMode"), the channel faders will adjust the recording level.
- **When using bounce recording** (when "**Bounce**" is selected for "SelectRec Mode" in the [RECORD] "RecMode" tab page), the master fader will adjust the recording level.

[CHANNEL] faders.....[1…8, 9–10…15–16]
These adjust the volume level of each channel.

- For a channel whose [TRACK STATUS] is **PLAY**, the fader adjusts the playback volume.
- For a channel whose [TRACK STATUS] is **REC**, the fader adjusts the recording level of the external input or the rhythm.
- For a channel whose [TRACK STATUS] is **INPUT**, the fader adjusts the recording level of the external input.

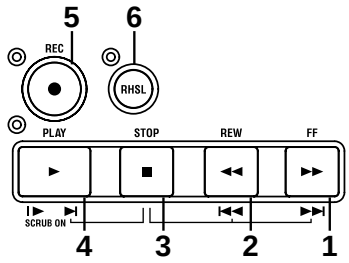
[MASTER] fader.....[MASTER]
This adjusts the volume level of the master LR bus.

The signal from the [MASTER OUT L / R] jacks and [S / P DIF OUT] jacks will be output at the specified volume.

- **When recording an external input** (when "**Input**" is selected for the [RECORD] "RecMode" tab page item "Select RecMode"), this fader adjusts the volume level of the master bus.
- **When bounce-recording** (when "**Bounce**" is selected for "SelectRecMode" of the [RECORD] "RecMode" tab page), this fader adjusts the recording level on the track for which the [TRACK STATUS] is set to **REC**.

26. TRANSPORT KEYS

These keys are used to operate the recorder for operations such as recording and playback.



1. [FF] key

When stopped or playing, this key moves the time backward (rewind).
If you hold down the [STOP] key and press this key, you will move to the beginning of the next song.
When the Scrub function is on, you can press this key to perform **Slow Play** (→p.74).

2. [REW] key

When stopped or playing, this key moves the time forward (fast-forward).
If you hold down the [STOP] key and press this key, you will move to the beginning of the previous song if you are at the beginning of the current song, or to the beginning of the current song if you are in the middle of the song.

3. [STOP] key

This key ends recording or playback, and stops the recorder.

4. [PLAY] key

When you press this key, tracks whose [TRACK STATUS] is **PLAY** will play back.
For tracks whose [TRACK STATUS] is **REC**, pressing the [REC] key and then pressing this key will begin recording.
While the recorder is recording or playing, the LED will light.
When the Scrub function is on, you can press this key to use **Play From**, or hold down the [STOP] key and press this key to use **Play To**. (→p.74)

5. [REC] key

When you press this key, the D16 will enter record-ready mode (the LED will blink). In order to enter record-ready mode, [TRACK STATUS] must be set to **REC** for at least one track. When you press the [PLAY] key, the LED will light and recording will begin.
If the foot switch function (→p.45) has been set to "PunchInOut," the foot switch will act as a substitute for the [REC] key.

6. [RHSL (REHEARSAL)] key

This key lets you rehearse a recording.
When you press this key, the Rehearsal function will be turned on (the LED will light), and you will be able to rehearse the recording (recording will not actually occur). When you turn rehearsal on and start recording, the monitor output will behave in the same way as when actually recording, allowing you to practice recording.

note It is convenient to use this to rehearse before using auto punch-in / out recording.

Effect Parameter List

Example

Algorithm number: Category number: Algorithm name

1: RV1: Reverb Hall

Parameter name shown on screen... (parameter name)	Range of parameter	Explanation
*Time (Reverb Time [sec])	01...10.0s	Sets the reverberation time

* Parameters marked by an "*" in front of the screen parameter name can be controlled by an external device such as an expression pedal. (→p.45 "Device")

Insert (2in2outx2) / Master / Final Effect

These algorithms can be selected for an **insert effect** if "**2in2outx2**" is selected for "SelectEffType". They can also be selected for a **master effect** or a **final effect**.

When these effects are used as an insert effect or final effect, they are **stereo-in/stereo-out**. However when these effects are used as a master effect, they are **mono-in/stereo out**.

Reverb RV1 – RV7

Category: Reverb-type effects

1: RV1: Reverb Hall

This hall-type reverb simulates the reverberation of mid-size concert halls or ensemble halls.

2: RV2: Smooth Hall

This hall-type reverb simulates the reverberation of larger halls and stadiums, and creates a smooth release.

3: RV3: Reverb Wet Plate

This plate reverb simulates warm (dense) reverberation.

4: RV4: Reverb Dry Plate

This plate reverb simulates dry (light) reverberation.

Time (Reverb Time [sec])	0.1...10.0s	Sets the reverberation time
HiDamp (High Damp [%])	0...100	Sets the damping amount in the high range
PreDly (Pre Delay [msec])	0...200ms	Sets the delay time from the dry sound
Thru (Pre Delay Thru [%])	0...100	Sets the mix ratio of non-delay sound
EQTrim (EQ Trim)	0...100	Sets the EQ input level
LEQG (Pre LEQ Gain [dB])	–15...+15dB	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB])	–15...+15dB	Sets the gain of High EQ
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Pre Delay [msec], : Pre Delay Thru [%]
The "Pre Delay" sets the delay time to the reverb input, allowing you to control spaciousness.
Using the "Pre Delay Thru" parameter, you can mix the dry sound without delay, emphasizing the attack of the sound.

5: RV5: Reverb Room

This room-type reverb emphasizes the early reflections that make the sound tighter. Changing the balance between the early reflections and reverb sound allows you to simulate nuances, such as the type of walls of a room.

6: RV6: Bright Room

This room-type reverb emphasizes the early reflections that make the sound brighter.

Time (Reverb Time [sec])	0.1...3.0s	Sets the reverberation time
HiDamp (High Damp [%])	0...100	Sets the damping amount in the high range
PreDly (Pre Delay [msec])	0...200ms	Sets the delay time from the dry sound
Thru (Pre Delay Thru [%])	0...100	Sets the mix ratio of non-delay sound
ERLvl (ER Level)	0...100	Sets the level of early reflections
RvbLvl (Reverb Level)	0...100	Sets the reverberation level
EQTrim (EQ Trim)	0...100	Sets the EQ input level
LEQG (Pre LEQ Gain [dB])	–15...+15dB	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB])	–15...+15dB	Sets the gain of High EQ
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: ER Level, : Reverb Level
These parameters set the early reflection level and reverb level. Changing these parameter values allows you to simulate the type of walls in the room. That is, a larger "ER Level" simulates a hard wall, and a larger "Reverb Level" simulates a soft wall.

7: RV7: Early Reflections

This effect is only the early reflection part of a reverberation sound, and adds presence to the sound. You can select one of the four decay curves.

Type (Type)	Sharp, Loose, Modula, Revers	Selects the decay curve for the early reflection
ERTime (ER Time [msec])	10...800ms	Sets the time length of early reflection
PreDly (Pre Delay [msec])	0...200ms	Sets the time taken from the original sound to the first early reflection
EQTrim (EQ Trim)	0...100	Sets the input level of EQ applied to the effect sound
LEQG (Pre LEQ Gain [dB])	–15.0...+15.0	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB])	–15.0...+15.0	Sets the gain of High EQ
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Type
This parameter selects the decay curve for the early reflection.

Delay DL1 – DL6

Category: Delay-type effects

8: DL1: L/C/R Delay

This multitap delay outputs three Tap signals to the left, right, and center respectively. You can also adjust the left and right spread of the delay sound.

LTime (L Delay Time [msec])	0...1360ms	Sets the delay time of TapL
LLevel (Level)	0...50	Sets the output level of TapL
CTime (C Delay Time [msec])	0...1360ms	Sets the delay time of TapC
CLevel (Level)	0...50	Sets the output level of TapC
RTime (R Delay Time [msec])	0...1360ms	Sets the delay time of TapR
RLevel (Level)	0...50	Sets the output level of TapR
Fdback (Feedback (C Delay))	–100...+100	Sets the feedback amountof TapC

HiDamp (High Damp [%])	0...100	Sets the damping amount in the high range
LoDamp (Low Damp [%])	0...100	Sets the damping amount in the low range
Spread (Spread)	0...50	Sets the width of the stereo image of the effect sound
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: High Damp [%], : Low Damp [%]
These parameters set the damping amount of high range and low range. The tone of the delayed sound becomes darker and lighter as it feeds back.

: Spread
This parameter sets the pan width of the effect sound. The stereo image is widest with a value of "**50**," and the effect sound of both channels is output from the center with a value of "**0**."

9: DL2: St/Cross Delay (Stereo/Cross Delay)

This is a stereo delay, and can by used as a cross-feedback delay effect in which the delay sounds cross over between the left and right by changing the feedback routing.

Mode (Stereo/Cross)	Stereo, Cross	Switches between stereo delay and cross-feedback delay
LTime (L Delay Time [msec])	0...680ms	Sets the delay time for the left channel
RTime (R Delay Time [msec])	0...680ms	Sets the delay time for the right channel
LFback (L Feedback)	–100...+100	Sets the feedback amount for the left channel
RFback (R Feedback)	–100...+100	Sets the feedback amount for the right channel
HiDamp (High Damp [%])	0...100	Sets the damping amount in the high range
LoDamp (Low Damp [%])	0...100	Sets the damping amount in the low range
Spread (Spread)	–50...+50	Sets the width of the stereo image of the effect sound
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

10: DL3: St.Multitap Delay (Stereo Multitap Delay)

The left and right Multitap Delays have two taps respectively. Changing the routing of feedback and tap output allows you to create various patterns of complex effect sounds.

Mode (Mode)	Normal, X.Fback, X.Pan1, X.Pan2	Switches the left and right delay routing
T1Time (Tap1 Time [msec])	0...680ms	Sets the Tap1 delay time
T2Time (Tap2 Time [msec])	0...680ms	Sets the Tap2 delay time
T1Lvl (Tap1 Level)	0...100	Sets the Tap1 output level
Fdback (Feedback)	–100...+100	Sets the Tap2 feedback amount
HiDamp (High Damp [%])	0...100	Sets the damping amount in the high range
LoDamp (Low Damp [%])	0...100	Sets the damping amount in the low range
Spread (Spread)	–100...+100	Sets the width of the stereo image of the effect sound
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Mode
The left/right panning of the delay can be modified by changing the connections of the left and right delay. Be aware that different sounds must be input to the left and right channels in order for this parameter to be effective.

: Tap1 Level
This parameter sets the output level of Tap1. Setting a different level from Tap2 will add a unique touch to a monotonous delay and feedback.

11: DL4: St.Modulation Delay (Stereo Modulation Delay)

This stereo delay uses an LFO to sweep the delay time. The pitch also varies. You will obtain a delay sound with swell and shimmering.

LFO (LFO Waveform)	TRI, SIN	Selects LFO Waveform
Shape (LFO Shape)	–100...+100	Determines how much the LFO waveform is changed
*Speed (LFO Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
LPhase (L LFO Phase [degree])	–180...+180	Sets the phase obtained when the left LFO is reset
RPhase(R LFO Phase [degree])	–180...+180	Sets the phase obtained when the right LFO is reset
*LDepth (L Depth)	0...200	Sets the depth of the left LFO modulation
*RDepth (R Depth)	0...200	Sets the depth of the right LFO modulation
LTime (L Delay Time [msec])	0...500	Sets the delay time for the left channel
RTime (R Delay Time [msec])	0...500	Sets the delay time for the right channel
LFback (L Feedback)	–100...+100	Sets the feedback amount of left delay
RFback (R Feedback)	–100...+100	Sets the feedback amount of right delay
Mix (Wet/Dry)	–Wet...–1:99, Dry, 1:99...Wet	Sets the balance between the effect and dry sounds

: L LFO Phase [degree], : R LFO Phase [degree]
"L LFO Phase" and "R LFO Phase" specify the phase difference between the two LFO's when they are reset. This allows the pitch change of the sweep to be set independently for left and right.

12: DL5: St.Dynamic Delay (Stereo Dynamic Delay)

This stereo delay controls the level of delay according to the input signal level. You can use this as a ducking delay that applies delay to the sound only when you input signals at a high velocity or only when the volume level is low.

Contrl (Control Target)	None, Out, FB	Selects from no control, output, and feedback
Polrty (Polarity)	+, –	Reverses level control
Thrshl (Threshold)	0...100	Sets the level to which the effect is applied
Offset (Offset)	0...100	Sets the offset of level control
Attack (Attack)	1...100	Sets the attack time of level control
Relse (Release)	1...100	Sets the release time of level control
LTime (L Delay Time [msec])	0...680ms	Sets the delay time for the left channel
RTime (R Delay Time [msec])	0...680ms	Sets the delay time for the right channel
Fdback (Feedback)	–100...+100	Sets the feedback amount
HiDamp (High Damp [%])	0...100	Sets the damping amount in the high range
LoDamp (Low Damp [%])	0...100	Sets the damping amount in the low range
Spread (Spread)	–100...+100	Sets the width of the stereo image of the effect sound
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Control Target
This parameter selects no level control, delay output control (effect balance), or feedback amount control.

: Polarity, :Threshold, :Offset, :Attack, :Release
The "Offset" parameter specifies the value for the "Control Target" parameter (when level control is not being applied), expressed as a ratio relative to the parameter setting. The parameter setting will be the "Wet/Dry" value if "Control Target"="**Out**," or the "Feedback" value if "Control Target"="**FB**."
When "Polarity" is "**+**", the "Control Target" value is obtained by multiplying the parameter value by the "Offset" value (if the input level is below "Threshold"), or will equal the parameter value if the input level exceeds the threshold.
When "Polarity" is "**–**", the Control Target value will equal the parameter value if the input level is below "Threshold", or is obtained by multiplying the parameter value by the "Offset" value if the input level exceeds "Threshold."

The "Attack" and "Release" parameters specify attack time and release time of delay level control.

13: DL6: St.Auto Panning Delay (Stereo Auto Panning Delay)

This stereo delay effect pans the delay sound left and right using the LFO.

LTime (L Delay Time [msec]) ..... 0...680ms	Sets the delay time for the left channel
LFback (L Feedback) ..... –100...+100	Sets the feedback amount for the left channel
RTime (R Delay Time [msec]) ..... 0...680ms	Sets the delay time for the right channel
RFback (R Feedback) ..... –100...+100	Sets the feedback amount for the right channel
HiDamp (High Damp [%]) ..... 0...100	Sets the damping amount in the high range
LoDamp (Low Damp [%]) ..... 0...100	Sets the damping amount in the low range
LFO (LFO Waveform) ..... TRI, SIN	Selects LFO Waveform
Shape (LFO Shape) ..... –100...+100	Determines how much the LFO waveform is changed
Phase (LFO Phase [degree]) ... –180...+180	Sets the LFO phase difference between the left and right
*Speed(Panning Frequency [Hz]) ..... 0.02...20.0Hz	Sets the panning speed
*Depth (Panning Depth) ..... 0...100	Sets the panning width
Mix (Wet/Dry) .....Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

Modulation MO1– MO7

Category: Modulation-type effects

14: MO1: St.Chorus (Stereo Chorus)

This effect adds thickness and warmth to the sound by modulating the delay time of the input signal. A two-band equalizer can be used to adjust the tone of the effect sound. You can control the spaciousness of the sound by offsetting the phase of the left and right LFOs from each other.

LFO (LFO Waveform) ..... TRI, SIN	Selects LFO Waveform
Phase (LFO Phase [degree]) ... –180...+180	Sets the LFO phase difference between the left and right
*Speed (LFO Frequency [Hz]) ..0.02...20.0Hz	Sets the LFO speed
LDly (L Pre Delay [msec]) ..... 0.0...50.0ms	Sets the delay time for the left channel
RDly (R Pre Delay [msec]) ..... 0.0...50.0ms	Sets the delay time for the right channel
*Depth (Depth) ..... 0...100	Sets the depth of LFO modulation
EQTrim (EQ Trim) ..... 0...100	Sets the EQ input level
LEQG (Pre LEQ Gain [dB]) .... –15.0...+15.0	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB]) ... –15.0...+15.0	Sets the gain of High EQ
Mix (Wet/Dry) ..... –Wet...–1:99, Dry, 1:99...Wet	Sets the balance between the effect and dry sounds

: L Pre Delay [msec], : R Pre Delay [msec]
Setting the left and right delay time individually allows you to control the stereo image.

15: MO2: St.Flanger (Stereo Flanger)

This effect gives a significant swell and movement of pitch to the sound. It is more effective when applied to a sound with a lot of harmonics. This is a stereo flanger. You can add spread to the sound by offsetting the phase of the left and right LFOs from each other.

Time (Delay Time [msec]) ..... 0.0...50.0ms	Sets the delay time from the original sound
LFO (LFO Waveform) ..... TRI, SIN	Selects LFO Waveform
Shape (LFO Shape) ..... –100...+100	Determines how much the LFO waveform is changed
Phase (LFO Phase [degree]) .... –180...+180	Sets the LFO phase difference between the left and right
*Speed (LFO Frequency [Hz]) . 0.02...20.0Hz	Sets the LFO speed
*Depth (Depth) ..... 0...100	Sets the depth of LFO modulation
Fdback (Feedback) ..... –100...+100	Sets the feedback amount
HiDamp (High Damp [%]) ..... 0...100	Sets the feedback damping amount in the high range
Mix (Wet/Dry) ..... –Wet...–1:99, Dry, 1:99...Wet	Sets the balance between the effect and dry sounds

: LFO Shape
Changing the LFO waveform shape controls the peak sweep of flanging effects.

: Feedback, : Wet/Dry
The peak shape of the positive and negative "Feedback" value is different. The harmonics will be emphasized when the effect sound is mixed with the dry sound if you set a positive value for both "Feedback" and "Wet / Dry", and if you set a negative value for both "Feedback" and "Wet / Dry".

: High Damp [%]
This parameter sets the amount of damping of the feedback in the high range. Increasing the value will cut high-range harmonics.

16: MO3: St.Phaser (Stereo Phaser)

This effect creates a swell by shifting the phase. It is very effective on electric piano sounds. This is a stereo effect, and you can control the spaciousness of the sound by offsetting the phase of the left and right LFOs from each other.

LFO (LFO Waveform) ..... TRI, SIN	Selects LFO Waveform
Shape (LFO Shape) ..... –100...+100	Determines how much the LFO waveform is changed
Phase (LFO Phase [degree]) .... –180...+180	Sets the LFO phase difference between the left and right
*Speed (LFO Frequency [Hz]) . 0.02...20.0Hz	Sets the LFO speed
Manual (Manual) ..... 0...100	Sets the frequency to which the effect is applied
*Depth (Depth) ..... 0...100	Sets the depth of LFO modulation
Reso (Resonance) ..... –100...+100	Sets the resonance amount
HiDamp (High Damp [%]) ..... 0...100	Sets the resonance damping amount in the high range
Mix (Wet/Dry) ..... –Wet...–1:99, Dry, 1:99...Wet	Sets the balance between the effect and dry sounds

: Resonance, : Wet/Dry
The peak shape of the positive and negative Feedback value is different. The harmonics will be emphasized when the effect sound is mixed with the dry sound, if you set a positive value for both "Resonance" and "Wet / Dry", and if you set a negative value for both "Resonance" and "Wet / Dry".

: High Damp [%]
This parameter sets the amount of damping of the resonance in the high range. Increasing the value will cut high-range harmonics.

17: MO4: St.Vibrato (Stereo Vibrato)

This effect causes the pitch of the input signal to shimmer. You can use an expression pedal etc. to gradually increase or decrease the shimmering speed.

LFO (LFO Waveform) ..... TRI, SIN	Selects LFO Waveform
Shape (LFO Shape) ..... –100...+100	Determines how much the LFO waveform is changed
*Speed (LFO Frequency [Hz]) . 0.02...20.0Hz	Sets the LFO speed
*Depth (Depth) ..... 0...100	Sets the depth of LFO modulation
Mix (Wet/Dry) ..... Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

18: MO5: St.Tremolo (Stereo Tremolo)

This effect modulates the volume level of the input signal. The effect is stereo, and offsetting the LFO of the left and right phases from each other produces a tremolo effect between left and right.

LFO (LFO Waveform)	TRI, SIN, Vintage, Up, Down	Selects LFO Waveform
Shape (LFO Shape)	–100...+100	Determines how much the LFO waveform is changed
Phase (LFO Phase [degree])	–180...+180	Sets the LFO phase difference between the left and right
*Speed (LFO Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
*Depth (Depth)	0...100	Sets the depth of LFO modulation
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: LFO Waveform

This parameter selects the LFO waveform. "**Vintage**" wave simulates the characteristics of the tremolo created on a guitar amplifier. Combining this effect with the Amp Simulation will make a realistic, vintage tremolo amplifier sound.

: LFO Phase [degree]

This parameter determines the difference between the left and right LFO phases. A higher value will simulate the auto-pan effect in which the sound is panned between left and right.

19: MO6: St.Auto Pan (Stereo Auto Pan)

This Auto Pan effect pans sound between left and right. It is stereo, and shifting the left and right LFO phases from each other will simulate the sound of the left and right channels crossing over each other by turns, or chasing each other.

LFO (LFO Waveform)	TRI, SIN	Selects LFO Waveform
Shape (LFO Shape)	–100...+100	Determines how much the LFO waveform is changed
Phase (LFO Phase [degree])	–180...+180	Sets the LFO phase difference between the left and right
*Speed (LFO Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
*Depth (Depth)	0...100	Sets the depth of LFO modulation
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: LFO Shape

You can change the panning curve by modifying the LFO waveform.

: LFO Phase

This parameter determines the difference in the left and right LFO phases. When you change the value gradually from "**0**," the sound from the left and right channels will chase each other around. If you set the parameter to" **+180**" or "**–180**," the sound from each channel will cross over each other.

You need to input different sounds to each channel in order for this parameter to be effective.

20: MO7: Ensemble

This Ensemble effect has three chorus blocks that use LFO to create subtle shimmering, and gives three dimensional depth and spread to the sound, because the signal is output from the left, right, and center.

*Speed (Speed)	1...100	Sets the LFO speed
*Depth (Depth)	0...100	Sets the depth of LFO modulation
Shimmr (Shimmer)	0...100	Sets the amount of shimmering of the LFO waveform
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Shimmer

This parameter sets the amount of shimmering of the LFO waveform. Increasing this value adds more shimmering, making the chorus effect more complex and richer.

Dynamics DY1 – DY7

Category: Dynamics-type effects

21: DY1: St.Compressor (Stereo Compressor)

This effect compresses the input signal to regulate the level and give a "punchy" effect. It is useful for guitar, piano, and drum sounds. This is a stereo compressor. You can link left and right channels, or use each channel separately.

Envelp (Envelope Select)	L/RMix, Indivi	Determines whether the left and right channels are linked or used separately
Sens (Sensitivity)	1...100	Sets the sensitivity
Attack (Attack)	1...100	Sets the attack level
EQTrim (EQ Trim)	0...100	Sets the EQ input level
LEQG (Pre LEQ Gain [dB])	–15.0...+15.0	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB])	–15.0...+15.0	Sets the gain of High EQ
Level (Output Level)	0...100	Sets the output level of the compressor
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Envelope Select

This parameter selects whether the left and right channels are linked to control both signals simultaneously, or whether each channel is controlled independently.

: Sensitivity, : Output Level

The "Sensitivity" parameter sets the sensitivity of the compressor. If this parameter is set to a higher value, lower level sounds will be boosted. With a higher Sensitivity, the overall volume level is higher. To adjust the final volume level, use the "Output Level" parameter.

: Attack

Controls the strength of the attack that is characteristic of a compressor.

22: DY2: St.Limiter (Stereo Limiter)

The Limiter regulates the input signal level. It is similar to the Compressor, except that the Limiter compresses only signals that exceed the specified level to lower unnecessary peak signals. The Limiter applies a peaking-type EQ to the trigger signal (which controls the degree of the Limiter effect), allowing you to set any band width to be covered. This effect is a stereo limiter. You can link left and right channels, or use each channel individually.

Envelp (Envelope Select)	L/RMix, L Only, R Only, Indivi	Selects from linking both channels, controlling only from left channel, only from the right channel, or controlling each channel individually
Ratio (Ratio)	1.0:1...50.0:1, Inf:1	Sets the signal compression ratio
Thrshl (Threshold [dB])	–40...0dB	Sets the level above which the compressor is applied
Attack (Attack)	1...100	Sets the attack time
Relse (Release)	1...100	Sets the release time
GLevel (Gain Adjust [dB])	–Inf, –38...+24dB	Sets the output gain
SPEQ (Side PEQ Insert)	Off, On	Toggles between on/off of the trigger signal's EQ
Triggr (Trigger Monitor)	Off, On	Switches between effect output monitor and trigger signal monitor
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds
Fc (Side PEQ Cutoff [Hz])	20...12.0kHz	Sets the EQ center frequency for the trigger signal
Q (Q)	0.5...10.0	Sets the EQ bandwidth for the trigger signal
Gain (Gain [dB])	–18.0...+18.0	Sets the EQ gain for the trigger signal

: Envelope Select

When "**L/R Mix**" is selected for this parameter, the left and right channels are linked to control the Limiter using the mixed signal.

If "**L Only**" (or "**R Only**") is selected, the left and right channels are linked, and the Limiter is controlled via only the left (or right) channel.
With "**indivi**", the left and right channels control the Limiter individually.

: Ratio, : Threshold [dB], : Gain Adjust [dB]
This parameter sets the signal compression "Ratio". Compression is applied only when the signal level exceeds the "Threshold" value.
Adjust the output level using the "Gain Adjust" parameter, since compression causes the entire level to be reduced.

: Attack, : Release
These parameters set the attack time and release time. A higher attack time will cause the compression to be applied more slowly.

: Side PEQ Insert, : Side PEQ Cutoff [Hz], : Q, : Gain [dB]
These parameters are used to set the EQ applied to the trigger signal.
The Limiter determines whether the compression is applied or not, based on the post-EQ trigger signal. Setting the equalizer allows you to set the Limiter to respond to any frequency band.

: Trigger Monitor
Setting this parameter "**On**" will cause the trigger signal to be output, instead of the effect sound. Use this parameter to check the trigger signal with EQ applied.
Usually, set this to "**Off**."

23: DY3: Multiband Limiter

This effect applies the Limiter to the low range, mid range, and high range of the input signal. You can control dynamics for each range to adjust the sound pressure of the low range, mid range, and high range in a different way from the EQ.

Ratio (Ratio)	1.0:1...50.0:1, Inf:1	Sets the signal compression ratio
Thrshl (Threshold [dB])	–40...0dB	Sets the level above which the compressor is applied
Attack (Attack)	1...100	Sets the attack time
Relse (Release)	1...100	Sets the release time
LoOfst (Low Offset [dB])	–40...0dB	Sets the low range gain of trigger signal
MdOfst (Mid Offset [dB])	–40...0dB	Sets the mid range gain of trigger signal
HiOfst (High Offset [dB])	–40...0dB	Sets the high range gain of trigger signal
GLevel (Gain Adjust [dB])	–Inf, –38...+24dB	Sets the output gain
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Low Offset [dB], : Mid Offset [dB], : High Offset [dB]
These parameters set the gain of the trigger signal.
For example, if you do not want to apply compression to the high range, reduce the "High Offset" value down below the "Threshold" level. In this way, the high range limiter will not respond, and compression will not be applied.

24: DY4: St.Gate (Stereo Gate)

This effect mutes the input signal if its level is lower than the specified level. It also reverses the on and off operation of the gate, and uses Note On and Off messages to turn the gate on and off.

Envelp (Envelope Select)	L/RMix, L Only, R Only	Selects from Control via the modulation source, mixing the left and right signals, Only left, and Only right
Polrty (Polarity)	+, –	Switches between non-reversed and reversed Gate on/off
Thrshl (Threshold)	0...100	Sets the level to which the Gate is applied
Attack (Attack)	1...100	Sets the attack time
Relse (Release)	1...100	Sets the release time
DTime (Delay Time [msec])	0...100ms	Sets the delay time of the gate input
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

With "Envelope Select" = "**L/R Mix**," the left and right channel signal mixture will trigger the gate on / off. When "**L Only**" or "**R Only**" is selected, the gate is controlled by either of the channel signals.

: Polarity
This parameter reverses the Gate on / off operation. With a negative value, the gate is closed when the input signal level exceeds the Threshold.

: Attack, : Release
The Attack and Release parameters set the Gate attack time and release time.

: Delay Time
This parameter sets the delay time of the Gate input. If the sound has a very fast attack, increase the delay time so that the signal will be input after the Gate is opened.

25: DY5: St.Exciter / Enhancer (Stereo Exciter / Enhancer)

This effect is a combination of the Exciter, which adds a punch to the sound and the Enhancer, which adds spread and presence.

Blend (Exciter Blend)	–100...+100	Sets the intensity (depth) of the Exciter effect
Enpha (Emphatic Point)	0...140	Sets the frequency to be emphasized
LDly (Enhancer Dly L [msec])	0.0...50.0ms	Sets the delay time for the Enhancer left channel
RDly (Enhancer Dly R [msec])	0.0...50.0ms	Sets the delay time for the Enhancer right channel
*Depth (Enhancer Depth)	0...100	Sets the determines to what degree the Enhancer effect is applied
EQTrim (EQ Trim)	0...100	Sets the 2-band EQ input level
LEQG (Pre LEQ Gain [dB])	–15.0...+15.0dB	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB])	–15.0...+15.0dB	Sets the gain of High EQ
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Exciter Blend
This parameter sets the depth (intensity) of the Exciter effect. Positive values give a frequency pattern (to be emphasized) different from negative values.

: Emphatic Point
This parameter sets the frequency to be emphasized. Higher values will emphasize lower frequencies.

: Enhancer Dly L [msec], : Enhancer Dly R [msec]
These parameters set the delay time for the Enhancer left and right channel. Specifying a slightly different delay time for the left and right channel will add a stereo image, depth, and width to the sound.

26: DY6: St.Decimator (Stereo Decimator)

This effect creates a rough sound like a cheap sampler by lowering the sampling frequency and data bit length. You can also simulate noise unique to a sampler (aliasing).

LPF (Pre LPF)	Off, On	Selects whether the harmonic noise caused by a decrease in sampling frequency is generated or not
Fs (Sampling Frequency [Hz])	1.0k...44.1k	Sets the sampling frequency
Bit (Resolution)	4...24	Sets the data bit length
Speed (LFO Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
*Depth (Depth)	0...100	Sets the depth of the sampling frequency modulation
HiDamp (High Damp [%])	0...100	Sets the ratio of cut of the high range
Level (Output Level)	0...100	Sets the output level
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Pre LPF
If a sampler with a very low sampling frequency receives very high-pitched sound that could not be heard during playback, it could generate pitch noise that is unrelated to the original sound. Set "Pre LPF" to "**On**" to prevent this noise from being generated.

If you set the “Sampling Frequency” to about “**3kHz**” and set “Pre LPF” to “**Off**,” you can create a sound like a ring modulator.

: Resolution, : Output Level
If you set a smaller value for the “Resolution” parameter, the sound may be distorted. The volume level may also be changed. Use “Output Level” to adjust the level.

27: DY7: St.Paramtrc 4band EQ
(Stereo Parametric 4band EQ)

This is a stereo 4-band parametric equalizer. You can select peaking type or shelving type for Band 1 and 4.

Trim (Trim)....0...100	Sets the input level
B1Type (Band1 Type) ..... Peaking, ShelvL	Selects the type of Band 1
B4Type (Band4 Type) .....Peaking, ShelvH	Selects the type of Band 4
Fc1 (Band1 Cutoff [Hz])....20...1.0kHz	Sets the center frequency of Band 1
Q1 (Q)....0.5...10.0	Sets the bandwidth of Band 1
G1 (Gain [dB]) ....–18.0...+18.0	Sets the gain of Band 1
Fc2 (Band2 Cutoff [Hz])....50...10.0kHz	Sets the center frequency of Band 2
Q2 (Q)....0.5...10.0	Sets the bandwidth of Band 2
G2 (Gain [dB]) ....–18.0...+18.0	Sets the gain of Band 2
Fc3 (Band3 Cutoff [Hz])....300...10.0kHz	Sets the center frequency of Band 3
Q3 (Q)....0.5...10.0	Sets the bandwidth of Band 3
G3 (Gain [dB]) ....–18.0...+18.0	Sets the gain of Band 3
Fc4 (Band4 Cutoff [Hz])....500...20.0kHz	Sets the center frequency of Band 4
Q4 (Q)....0.5...10.0	Sets the bandwidth of Band 4
G4 (Gain [dB]) ....–18.0...+18.0	Sets the gain of Band 4
Mix (Wet/Dry)..... Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Band1 Type, : Band4 Type
Selects a filter type for Band 1 and 4.

Special Effect SE1 – SE4
Category: Special Effect

28: SE1: St.Ring Modulator
(Stereo Ring Modulator)

This effect creates a metallic sound by applying the oscillators to the input signal.

LPFLvl (Pre LPF)....0...100	Sets the damping amount of the high range input to the ring modulator
Fc (Fixed Frequency [Hz]) ....0...12.0kHz	Sets the oscillator frequency when OSC Mode is set to Fixed
Speed (LFO Frequency [Hz])..0.02...20.0Hz	Sets the LFO speed of the oscillator frequency modulation
Depth (LFO Depth)....0...100	Sets the depth of LFO modulation for the oscillator frequency
Mix (Wet/Dry)..... Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Pre LPF
This parameter enables you to set the damping amount of the high range sound input to the ring modulator. If the input sound contains lots of harmonics, the effect may sound dirty. In this case, cut a certain amount of high range.

: Fixed Frequency [Hz]
This parameter sets the oscillator frequency.

29: SE2: Doppler
This effect simulates the “Doppler effect” of a moving sound with a changing pitch, similar to the siren of an passing ambulance. Mixing the effect sound with the dry sound will create a unique chorus effect.

*Speed (LFO Frequency [Hz])..0.02...20.0Hz	Sets the LFO speed
*Pitch (Pitch Depth)....0...100	Sets the pitch variation of the moving sound
*Pan (Pan Depth) ....–100...+100	Sets the panning of the moving sound
Mix (Wet/Dry)..... Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Pitch Depth
With the Doppler effect, the pitch is raised when the sound approaches, and the pitch is lowered when the sound goes away. This parameter sets this pitch variation.

: Pan Depth
This parameter sets the width of the stereo image of the effect sound. With larger values, the sound seems to come and go from much further away. With positive values, the sound moves from left to right; with negative values, the sound moves from right to left.

30: SE3: St.Analog Record
(Stereo Analog Record)

This effect simulates the noise caused by scratches and dust on analog records. It also reproduces some of the modulation caused by a warped turntable.

RPM (Speed [RPM])....33 1/3, 45, 78	Sets the r.p.m. of a record
*Wah (Flutter)....0...100	Sets the modulation depth
NsDens (Noise Density) ....0...100	Sets the noise density
NsTone (Noise Tone) ....0...100	Sets the noise tone
NsLvl (Noise Level)....0...100	Sets the noise level
ClkLvl (Click Level) ....0...100	Sets the click noise level
EQTrim (EQ Trim)....0...100	Sets the EQ input level
Fc (Pre EQ Cutoff [Hz])....300...10.0kHz	Sets the EQ center frequency
Q (Q)....0.5...10.0	Sets the EQ band width
GLevel (Gain [dB]) ....–18.0..+18.0	Sets the EQ gain
Mix (Wet/Dry)..... Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Flutter
This parameter enables you to set the depth of the modulation caused by a warped turntable.

: Click Level
This parameter enables you to set the level of the click noise that occurs once every rotation of the turntable. This simulation reproduces record noise, and the noise generated after the music on a vinyl record finishes.

31: SE4: Talking Modulator
This effect gives the input signal a character similar to a human voice. It can create the impression of a talking guitar or synthesizer.

*Speed (LFO Frequency [Hz])0.02...20.00Hz	Sets the LFO speed
VTop (Voice Top)....A, I, U, E, O	Selects a vowel sound at the top end of control
VCentr (Voice Center)....A, I, U, E, O	Selects a vowel sound in the center of control
VBotom (Voice Bottom) ....A, I, U, E, O	Selects a vowel sound at the bottom end of control
Formnt (Formant Shift) ....–100...+100	Sets the frequency to which the effect is applied
Reso (Resonance)....0...100	Sets the Level of resonance of the voice pattern
Mix (Wet/Dry)..... Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Formant Shift
This parameter adjusts the frequency level to which the effect is applied. If you wish to apply the effect to a higher-range sound, set this parameter to a higher value; to apply the effect to a lower-range sound, set this to a lower value.

: Resonance
This parameter sets the intensity of resonance for the voice pattern. A larger value will add more character to the sound.

Insert (2in2outx2), Final

These algorithms can be selected for an **insert effect** if "**2in2outx2**" is selected for "Select Eff Type". They can also be selected for a **final effect**.

Large size LS1 – LS7
Category: Large size effects

32: LS1: St.Graphic 7band EQ
(Stereo Graphic 7band EQ)

This is a stereo 7-band graphic equalizer. The bar graph of the gain setting for each band gives you a clear, visual idea of frequency responses. You can select a center frequency setting for each band from twelve types, according to the sound.

Type (Type)	1:Wide1, 2:Wide2, 3:Wide3, 4:HalfW1, 5:HalfW2, 6:HalfW3, 7:Low, 8:WideLo, 9:Mid, 10:WideM, 11:High, 12:WideHi	Selects a combination of center frequencies for each band
Trim (Trim)	0...100	Sets the input level
B1 (Band1 [dB])	–18...+18	Sets the gain of Band 1
B2 (Band2 [dB])	–18...+18	Sets the gain of Band 2
B3 (Band3 [dB])	–18...+18	Sets the gain of Band 3
B4 (Band4 [dB])	–18...+18	Sets the gain of Band 4
B5 (Band5 [dB])	–18...+18	Sets the gain of Band 5
B6 (Band6 [dB])	–18...+18	Sets the gain of Band 6
B7 (Band7 [dB])	–18...+18	Sets the gain of Band 7
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Type
This parameter selects a combination of center frequencies for each band.

33: LS2: St.Multiband Limiter
(Stereo Multiband Limiter)

This is a stereo multiband limiter.

Ratio (Ratio)	1.0:1...50.0:1, Inf:1	Sets the signal compression ratio
Thrshl (Threshold [dB])	–40...0dB	Sets the level above which the compressor is applied
Attack (Attack)	1...100	Sets the attack time
Relse (Release)	1...100	Sets the release time
LoOfst (Low Offset [dB])	–40...0dB	Sets the low range gain of trigger signal
MdOfst (Mid Offset [dB])	–40...0dB	Sets the mid range gain of trigger signal
HiOfst (High Offset [dB])	–40...0dB	Sets the high range gain of trigger signal
GLevel (Gain Adjust [dB])	–Inf, –38...+24dB	Sets the output gain
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

34: LS3: Vocoder
This effect applies the character of the right channel signal (Modulator) to the left channel signal input (Carrier). A common use of this effect is to produce the sound of various instruments by inputting a voice to the Modulator via a microphone. A special effect is also achieved by using rhythm or effect sounds. Strings or distortion guitar sounds with a lot of harmonics are suitable as a Carrier.

Carri (L [Carrier] Trim)	0...100	Sets the input level of left channel (Carrier)
Modul (R [Modulator] Trim)	0...100	Sets the input level of right channel (Modulator)
Formnt (Formant Shift)	–2...+2	Sets the height of the frequency for the vocoder effect
Respo (Response)	0...100	Sets the speed of the response to the modulator input
NLevel (Noise Level)	0...100	Sets the noise mix level to the Carrier
LoGain (Low Gain [dB])	–12...+12	Sets the low-range output level of the vocoder
HiGain (High Gain [dB])	–12...+12	Sets the high-range output level of the vocoder
HiMix (Modulator High Mix)	0...100	Sets the high-range output level of the modulator
Bal (Vocoder/Carrier)	Carrier, 1:99...99:1, Vocode	Sets the balance between the vocoder output and the Carrier
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Formant Shift
By offsetting the Carrier filter, you can adjust the height of the frequency range to which the vocoder effect is applied. The tonal quality will change significantly.

: Noise Level
This parameter enables you to mix white noise with the Carrier.

: Modulator High Mix
This parameter sets the high-range output level of the right channel sound (Modulator). If the modulator is a human voice, it will make the words more clear.

: Vocoder/Carrier, : Wet/Dry
The "Vocoder / Carrier" parameter sets the balance between the vocoder sound and the left channel sound (Carrier). The "Wet / Dry" parameter sets the balance between the effect and dry sound. If you wish to change the intensity of the vocoder effect, select "**Wet**" for "Wet / Dry", and adjust the balance using the "Vocoder / Carrier" parameter.

35: LS4: St.Pitch Shifter
(Stereo Pitch Shifter)

This is a stereo pitch shifter. The pitch shift amount for the left and right channels can be reversed from each other.

Mode (Mode)	Slow, Medium, Fast	Switches Pitch Shifter mode
L/R (L/R Pitch)	Normal, Up/Dwn	Determines whether or not the L/R pitch shift amount is inverted
*Pitch (Pitch Shift [1/2tone])	–24...+24	Sets the pitch shift amount in steps of a semitone
Fine (Fine [cent])	–100...+100c	Sets the pitch shift amount in steps of one cent
LDly (Lch Delay [msec])	0...1000ms	Sets the delay time for the left channel
RDly (Rch Delay [msec])	0...1000ms	Sets the delay time for the right channel
FPoint (Feedback Position)	Pre, Post	Switches the feedback connection
Fdback (Feedback)	–100...+100	Sets the feedback amount
HiDamp (High Damp [%])	0...100	Sets the damping amount in the high range
Spread (Spread)	–100...+100	Sets the width of the stereo image of the effect sound
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: L/R Pitch
When you select "**Up/Dwn**" for this parameter, the pitch shift amount for the right channel will be reversed. If the pitch shift amount is positive, the pitch of the left channel is raised, and the pitch of the right channel is lowered. If an expression pedal etc. is used to control the pitch, the pitch of the left channel will be controlled.

36: LS5: Early Reflections L
This early reflection effect has more precise early reflections with twice the maximum length of a normal-size effect. You can create a very smooth and dense sound.

Type (Type)	Sharp, Loose, Modula, Revers	Selects the decay curve for the early reflection
Time (ER Time [msec])	10...1600ms	Sets the time length of early reflection
PreDly (Pre Delay [msec])	0...200ms	Sets the time taken from the original sound to the first early reflection

EQTrim (EQ Trim) .....0...100	Sets the input level of EQ applied to the effect sound
LEQG (Pre LEQ Gain [dB]) ....–15.0...+15.0	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB]) ...–15.0...+15.0	Sets the gain of High EQ
Mix (Wet/Dry)..... Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

37: LS6: Rotary Speaker

This effect simulates a rotary speaker, and obtains a more realistic sound by simulating the rotor in the low range and the horn in the high range separately. The effect also simulates the stereo microphone settings.

ODSW (OverDrive SW) ..... Off, On	Overdrive on/off
DGain (OverDrive Gain) .....0...100	Degree of distortion
DLevel (OverDrive Level).....0...100	Output level of overdrive
DTone (OverDrive Tone) .....0...15	Tone of overdrive
SPsim (Speaker Simulator) ..... Off, On	Speaker simulation on/off
Mode (Mode Switch).....Rotate, Stop	Switches between speaker rotation and stop
Speed (Speed Switch).....Slow, Fast	Switches the speaker rotation speed between slow and fast
HrnAcc (Horn Acceleration).....0...100	How quickly the horn rotation speed in the high range is switched
Horn (Horn Ratio).....Stop, 0.50...2.00	Adjusts the (high-range side) horn rotation speed. Standard value is 1.00. Selecting "Stop" will stop the rotation
RotAcc (Rotor Acceleration).....0...100	Determines how quickly the rotor rotation speed in the low range is switched
Rotor (Rotor Ratio) .....Stop, 0.50...2.00	Adjusts the (low-range side) rotor rotation speed. Standard value is 1.00. Selecting "Stop" will stop the rotation
HRBal (Horn/Rotor Balance) ..... Rotor, 1...99, Horn	Sets the level balance between the high-range horn and low-range rotor
MicDst (Mic Distance).....0...100	Sets the distance between the microphone and rotary speaker
Spread (Mic Spread) .....0...100	Sets the angle of left and right microphones
Mix (Wet/Dry)..... Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Horn Acceleration, : Rotor Acceleration

On a real rotary speaker, the rotation speed is accelerated or decelerated gradually after you switch the speed. The "Horn Acceleration" parameter sets the speed at which the rotation is accelerated or decelerated.

: Mic Distance, : Mic Spread

This is a simulation of stereo microphone settings.

38: LS7: Center Canceller

When a stereo music source is input to this effect, parts that are panned to the center (such as vocals and lead guitar) will be erased. In addition, you can control the pitch.

Pitch (Pitch) .....–12...0...+12	Sets the amount of pitch shift in steps of a semitone
Adjust (Adjust) ..... L50...CNT...R50	Sets the cancelling position
Himix (Center Hi mix) .....0...100	Sets the mixing amount of the high-frequency portion of the center position
Lomix (Center Lo mix) .....0...100	Sets the mixing amount of the low-frequency portion of the center position

Insert (1in2outx2)

These algorithms can be selected for an **insert effect** if "Select Eff Type" is set to "**1in2outx2**".

Effects **GT1–VO2** are multi-effects for guitar / bass / vocal, and contain three to five effects connected in series.

Example

Algorithm number: Category number: Algorithm name
[Name of effect in the chain]

39: GT1: Guitar Multi1
[Dist, NR, Cho / Fl, S.Dly]

The chain structure of each multi-effect is shown below.

For an explanation of the parameters of each effect in the chain, refer to "Effects within multi-effect programs GT1–VO2, and their parameters" on the following page.

GT1 – GT6
Category: Guitar multi

39: GT1: Guitar Multi1
[Dist, NR, Cho / Fl, S.Dly]

40: GT2: Guitar Multi2
[Wah, Dist, NR, Delay]

41: GT3: Guitar Multi3
[Dist, NR, AmpSim, CabRes, Delay]

42: GT4: Guitar Multi4
[Comp, P4EQ, AmpSim, Cho / Fl, S.Dly]

43: GT5: Guitar Multi5
[Wah, Comp, P4EQ, Cho / Fl, S.Dly]

44: GT6: Guitar Multi6
[Comp, P4EQ, Pitch, Delay]

AS1 – AS3
Category: Guitar amp simulator

45: AS1: Amp Simulator1
[NR, AmpSim, CabRes, Cho / Fl, S.Dly]

46: AS2: Amp Simulator2
[NR, AmpSim, CabRes, Treml, Delay]

47: AS3: Amp Simulator3
[NR, AmpSim, CabRes, Phaser, Delay]

PA1

Category: Pre-amp simulator

48: PA1: Pre Amp Simulator
[Dist, NR, Tone, AmpSim]

EB1 – EB3

Category: Bass multi

49: EB1: Bass Multi1
[Comp, Exctr, P4EQ, Cho / Fl, S.Dly]

50: EB2: Bass Multi2
[Dist, NR, Filter, Delay]

51: EB3: Bass Multi3
[Comp, P4EQ, Gate]

MS1

Category: Mic multi

52: MS1: Mic Multi
[CabRes, MicSim, Comp]

VO1 – VO2

Category: Vocal multi

53: VO1: Vocal Multi1
[Comp, Exctr, Pitch, S.Dly]

54: VO2: Vocal Multi2
[NR, DeEss, P4EQ, Cho / Fl, S.Dly]

Effects within multi-effect programs GT1–VO2, and their parameters

Here are explanations of the parameters of each effect in the multi-effect chains listed above.

Dist (Distortion)

This effect distorts the input sound

Type (DriveType)	Tube, Crunch, Scream, HotBox, Higain, Valve, Crush, Scoop, Fuzz	Selects the drive type
Drive (Drive)	1...100	Sets the degree of distortion
Treble (Treble)	–15.0...+15.0	Sets the high-frequency tone
Level (Level)	0...100	Sets the output level

NR (Noise Reduction)

This effect suppresses noise.

Thrsh (Threshold)	–40.0...–1.0	Sets the level at which the effect begins to apply

Comp (Compressor / Limiter)

Ratio (Ratio)	1.0:1...50.0:1, Inf:1	Sets the signal compression ratio
Thrshl (Threshold [dB])	–40...0dB	Sets the level above which the compressor is applied
Attck (Attack)	1...100	Sets the attack time
Relse (Release)	1...100	Sets the release time
GLevel (Gain Adjust [dB])	–Inf, –38...+24dB	Sets the compressor output gain

P4EQ (Parametric 4band EQ)

Fc1 (Band1 Cutoff [Hz])	20...1.0kHz	Sets the center frequency of Band 1
Q1 (Q)	0.5...10.0	Sets the bandwidth of Band 1
G1 (Gain [dB])	–18...+18dB	Sets the gain of Band 1
Fc2 (Band2 Cutoff [Hz])	50...5.0kHz	Sets the center frequency of Band 2
Q2 (Q)	0.5...10.0	Sets the bandwidth of Band 2
G2 (Gain [dB])	–18...+18dB	Sets the gain of Band 2
Fc3 (Band3 Cutoff [Hz])	300...10.0kHz	Sets the center frequency of Band 3
Q3 (Q)	0.5...10.0	Sets the bandwidth of Band 3
G3 (Gain [dB])	–18...+18dB	Sets the gain of Band 3
Fc4 (Band4 Cutoff [Hz])	500...20.0kHz	Sets the center frequency of Band 4
Q4 (Q)	0.5...10.0	Sets the bandwidth of Band 4
G4 (Gain [dB])	–18...+18dB	Sets the gain of Band 4
Trim	0...100	Sets the parametric EQ input level

Exctr (Exciter)

Blend (Exciter Blend)	–100...+100	Sets the intensity (depth) of the Exciter effect
Empha (Emphatic Point)	0...140	Sets the frequency range to be emphasized
EQ Trim	0...100	Sets the EQ input level
LEQG (Pre LEQ Gain [dB])	–15...+15dB	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB])	–15...+15dB	Sets the gain of High EQ

Wah

This produces a wah effect. It can be controlled using an expression pedal.

FcBtm (Frequency Bottom)	0...100	Sets the lower limit of the wah center frequency
FcTop (Frequency Top)	0...100	Sets the upper limit of the wah center frequency
*Mode (Sweep Mode)	Auto, Pedal	Switches between auto-wah/pedal control
LFOlvl (LFO Level)	0...100	Sets the LFO level that is added to control
*Speed (LFO Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
Reso (Resonance)	0...100	Sets the resonance amount
LPF (LPF)	Off, On	Switches the wah low pass filter on and off

:Mode
If you wish to use an expression pedal to control the Wah, select "**Pedal**" (→p.102).

Filter

This is a filter with resonance, whose frequency can be moved by an envelope.

Type (Filter Type)	LPF, BPF, HPF	Selects the filter type
Sens (Sensitivity)	0...100	Sets the sensitivity
Attack (Attack)	1...100	Sets the attack level
Manual (Manual)	0...100	Sets the frequency to which the effect is applied
Reso (Resonance)	0...100	Sets the resonance amount
Polrty (Polarity)	+, –	Sets the polarity

AmpSim (AmpSimulator)

This effect simulates the acoustical characteristics of a guitar amp. Even if you are recording your instrument via a direct line, you can produce a realistic sound as though a guitar amp were actually being used.

Type (Amplifier Type)	AMP1...5	Selects the type of guitar amplifier

CabRes (CabinetResonator)

This effect simulates the acoustical characteristics and cabinet resonances of a guitar amp speaker cabinet.

As with "AmpSimulator," this is ideal for direct-line recording.

Type (Cabinet Type)	1×8, 1×10, 1×12, 2×12, 4×10, 4×12	Selects the type of cabinet
Depth	0...100	Sets the depth of the effect

Tone

This effect simulates the tone control section of a guitar amp. It allows you to adjust the character of the vacuum tubes.

Bass (Bass)	0...100	Sets the low-frequency level
Middle (Middle)	0...100	Sets the middle-frequency level
Treble (Treble)	0...100	Sets the high-frequency level
Tube (Tube Type)	SS, 1...99, Tube	Sets the character of the vacuum tubes

Gate

Thrshl (Threshold)	0...127	Sets the level at which the effect begins to apply
Attack (Attack)	1...100	Sets the attack time
Relse (Release)	1...100	Sets the release time
Respo (Response)	1...100	Sets the speed at which the effect will respond to change in the input

DeEss (Deesser)

This effect attenuates unwanted sibilants in a vocal signal.

Sense (Sensitivity)	0...100	Sets the sensitivity
Fc (Side Band EQ fc)	500...20.0kHz	Sets the center frequency of the side band EQ
Q (Side Band EQ Q)	0.5...10	Sets the bandwidth of the side band EQ
Gain (Side Band EQ Gain)	–15...+15dB	Sets the gain of the side band EQ
Ratio (Ratio)	1.0:1...50.0:1, Inf:1	Sets the signal compression ratio
Thrsh (Threshold [dB])	–40...0dB	Sets the level above which the compressor is applied
Attck (Attack)	1...100	Sets the attack time
Relse (Release)	1...100	Sets the release time
Level (Gain Adjust [dB])	–Inf, –38...+24dB	Sets the output gain

Cho/Fl (Chorus/Flanger)

This effect gives a sense of pitch movement and depth to the sound. Adjusting the delay time will change the effect significantly.

DTime (Delay Time)	0.0...50.0ms	Sets the delay time
LFO (LFO Waveform)	TRI, SIN	Selects LFO Waveform
*Speed (LFO Frequency)	0.02...20.0Hz	Sets the LFO speed
*Depth (Depth)	0...100	Sets the depth of LFO modulation
Fdback (Feedback)	–100...+100	Sets the feedback amount
Trim (EQ Trim)	0...100	Sets the EQ input level
LEQG (Pre LEQ Gain [dB])	–15...+15dB	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB])	–15...+15dB	Sets the gain of High EQ
Mode (Output Mode)	Normal, Invert	Selects the output mode for the chorus/flanger
Mix (Wet/Dry)	–Wet...–1:99, Dry, 1:99...Wet	Sets the balance between the effect and dry sounds

:Output Mode

When this is set to "**Invert**," the phase will be inverted for the right channel of the chorus/flanger to create a simulated stereo effect, producing a more spacious feeling.

Treml (Tremolo)

LFO (LFO Waveform)	TRI, SIN, Vintage, Up, Down	Selects LFO Waveform
Shape (LFO Shape)	–100...+100	Determines how much the LFO waveform is changed
*Speed(LFO Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
*Depth (Depth)	0...100	Sets the depth of LFO modulation
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

Phaser

LFO (LFO Waveform)	TRI, SIN	Selects LFO Waveform
*Speed(LFO Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
Manual (Manual)	0...100	Sets the frequency to which the effect is applied
*Depth (Depth)	0...100	Sets the depth of LFO modulation
Reso (Resonance)	–100...+100	Sets the resonance amount
Mix (Wet/Dry)	–Wet...–1:99, Dry, 1:99...Wet	Sets the phaser effect balance

Delay

This effect generates a time-delayed copy of the input signal. This effect is mono-in/stereo-out.

DTime (Delay Time)	0...680ms	Sets the delay time
Fdback (FeedBack)	–100...+100	Sets the feedback amount
HiDamp (High Damp)	0...100	Sets the high-frequency attenuation of the feedback
LoDamp (Low Damp)	0...100	Sets the low-frequency attenuation of the feedback
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

S.Dly (Stereo Delay)

This is a variation of "Delay" that allows two channels of simultaneous input. The parameters are the same as for "Delay."

Pitch (Pitch shifter)

This effect shifts the pitch of the input signal. You can choose from three types: fast response, minimum tonal change, and a setting between these two. Since a delay with feedback is also provided, you can create special effects in which the pitch progressively steps upward (or downward).

Mode (Mode)	Slow, Medium, Fast	Switches Pitch Shifter mode
*Pitch (Pitch Shift [1/2tone])	–24...+24	Sets the pitch shift amount in steps of a semitone
Fine (Fine [cent])	–100...+100c	Sets the pitch shift amount in steps of one cent
DTime (Delay Time [msec])	0...500ms	Sets the delay time
FbSel (Feedback Position Select)	Pre, Post	Switches the feedback connection
Fdback (Feedback)	–100...+100	Sets the feedback amount
HiDamp (High Damp [%])	0...100	Sets the damping amount in the high range
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the balance between the effect and dry sounds

: Mode

This switches the operating mode of the pitch shifter. "**Slow**" will produce the least tonal change. "**Fast**" will provide the fastest response. "**Medium**" is between these two. It is best to use "**Fast**" when only a small amount of pitch shift is needed, and "**Slow**" when you wish to shift the pitch by a large amount.

: Feedback Position Select, : Feedback
When "Feedback Position Select" is set to "**Pre**," the output of the pitch shifter will be once again sent back to the pitch shifter. This means that if "Feedback" is raised, the pitch will continue stepping up (or down) each time feedback is repeated.
If "Feedback Position Select" is set to "**Post**," the feedback will not pass through the pitch shifter, so that raising "Feedback" will cause the pitch-shifted sound to be repeated without further pitch change.

MicSim (Mic Simulator)

Mic Simulator is an effect that converts sounds recorded on a conventional dynamic mic so that they appear to have been recorded on an expensive condenser mic, a special studio mic, or a vintage mic.

InMic (Input Mic Type)	Vo.Dy, Mlt.Dy	Selects the mic that was used for recording
OutMic (Output Mic Type)	Vnt.Dy, Mlt.Cn, Pc.Cn, Whale, Vo.Cn, Vo.Tb, BDr.Dy	Selects the mic to be simulated
Set (Setting)	Close, On, Off, Far	Mic setting
Trim (Trim)	0...100	Sets the adjustment level

: Input Mic Type
Vo.Dy A dynamic mic frequently used for vocals that brings the sound to the forefront and is also resistant to popping and feedback.
Mlt.Dy A dynamic mic usable for a wide range of applications including most instruments and vocals, with a crisp and well defined character.

: Output Mic Type
Vnt.Dy A simulation of a vintage mic known for its warm and rich tone, and is ideal for vocals.
Mlt.Cn A simulation of a general-purpose studio condenser mic with a wide range from low to high that is ideal for most instruments.
Pc.Cn A simulation of a small condenser mic for instruments. It has a distinctive high range, and is ideal for drum overdubs and for acoustic guitar.
Whale A simulation of a dynamic mic with clarity and a sense of power. Ideal for drum sounds.
Vo.Cn A simulation of a standard studio condenser mic that is ideal for vocals, acoustic instruments, and narrations.
Vo.Tb A simulation of a vintage tube mic that is ideal for vocals.
BDr.Dy A simulation of a fairly large dynamic mic that is ideal for bass drum sounds etc. that include the sense of air pressure characteristic of a close-mic recording.

: Set
This switches the location of the mic. "**Close**" or "**On**" settings will simulate the proximity effect that boosts the low range, so you will need to use "Trim" to adjust the overall level.

Insert (1in1outx4)

These algorithms can be selected for an **insert effect** when "**1in1outx4**" is selected as "Select Eff Type."
Different effects can be used simultaneously on four channels / tracks.

Effects **MM1–MM33** connect two mono effects in series.

Example

Algorithm number: Category number: Algorithm name
[Names of effects in the chain]

55: MM1: P4EQ – Exciter
[P4EQ Excit1]

The chain structure of each multi-effect is shown below.

For an explanation of the parameters of each effect in the chain, refer to "Effects within multi-effect programs MM1–MM33, and their parameters" beginning on the following page.

55: MM1: P4EQ – Exciter
[P4EQ, Excit1]

56: MM2: P4EQ – Wah
[P4EQ, Wah]

57: MM3: P4EQ – Cho / Flng
[P4EQ, ChFl1]

58: MM4: P4EQ – Phaser
[P4EQ, Phaser]

59: MM5: P4EQ – Mt.Delay
[P4EQ, Mt.Dly]

60: MM6: Comp – Wah
[Comp2, Wah]

61: MM7: Comp – AmpSim
[Comp2, AmpSim]

62: MM8: Comp – OD / HiG
[Comp1, ODHiG]

63: MM9: Comp – P4EQ
[Comp1, P4EQ]

64: MM10: Comp – Cho / Flng
[Comp2, ChFl1]

65: MM11: Comp – Phaser
[Comp2, Phaser]

66: MM12: Comp – Mt.Delay
[Comp2, Mt.Dly]

67: MM13: Exciter – Comp
[Excit2, Comp1]

68: MM14: Exciter – Limiter
[Excit2, Limitr]

69: MM15: Exciter – Cho/Flng
[Excit2, ChFl1]

70: MM16: Exciter – Phaser
[Excit2, Phaser]

71: MM17: Exciter – Mt.Delay
[Excit2, Mt.Dly]

72: MM18: Limiter – P4EQ
[Limitr, P4EQ]

73: MM19: Limiter – Cho/Flng
[Limitr, ChFl2]

74: MM20: Limiter – Phaser
[Limitr, Phaser]

75: MM21: Limiter – Mt.Delay
[Limitr, Mt.Dly]

76: MM22: OD/HiG – Cho/Flng
[OD/HiG, ChFl1]

77: MM23: OD/HiG – Phaser
[OD/HiG, Phaser]

78: MM24: OD/HiG – Mt.Delay
[OD/HiG, Mt.Dly]

79: MM25: OD/HiG – AmpSim
[OD/HiG, AmpSim]

80: MM26: Wah – AmpSim
[Wah, AmpSim]

81: MM27: Decimator – AmpSim
[Decima, AmpSim]

82: MM28: Decimator – Comp
[Decima, Comp1]

83: MM29: Cho/Flng – Mt.Delay
[ChFl2, Mt.Dly]

84: MM30: Phaser – Cho/Flng
[Phaser, ChFl2]

85: MM31: AmpSim – Tremolo
[AmpSim, Treml]

86: MM32: Reverb – Gate
[Reverb, Gate]

87: MM33: MicSim - Limiter
[MicSim, Limitr]

Effects within multi-effect programs MM1–MM33, and their parameters

Here are explanations of the parameters of each effect in the multi-effect chains listed above.

P4EQ (Parametric 4band EQ)

Trim (Trim)	0...100	Sets the parametric EQ input level
Fc1 (Band1 Cutoff [Hz])	20...1.0kHz	Sets the center frequency of Band 1
Q1 (Q)	0.5...10.0	Sets the bandwidth of Band 1
G1 (Gain [dB])	–18...+18dB	Sets the gain of Band 1
Fc2 (Band2 Cutoff [Hz])	50...5.0kHz	Sets the center frequency of Band 2
Q2 (Q)	0.5...10.0	Sets the bandwidth of Band 2
G2 (Gain [dB])	–18...+18dB	Sets the gain of Band 2
Fc3 (Band3 Cutoff [Hz])	300...10.0kHz	Sets the center frequency of Band 3
Q3 (Q)	0.5...10.0	Sets the bandwidth of Band 3
G3 (Gain [dB])	–18...+18dB	Sets the gain of Band 3
Fc4 (Band4 Cutoff [Hz])	500...20.0kHz	Sets the center frequency of Band 4
Q4 (Q)	0.5...10.0	Sets the bandwidth of Band 4
Gain4 (Gain [dB])	–18...+18dB	Sets the gain of Band 4

Excit1 (Exciter1)

Blend (Exciter Blend)	–100...+100	Sets the intensity (depth) of the Exciter effect
Empha (Emphatic Point)	0...140	Sets the frequency range to be emphasized

Excit2 (Exciter2)

This adds Pre LEQ and Pre HEQ to Exciter 1.

Blend (Exciter Blend)	–100...+100	Sets the intensity (depth) of the Exciter effect
Empha (Emphatic Point)	0...140	Sets the frequency range to be emphasized
Trim (EQ Trim)	0...100	Sets the EQ input level
LEQG (Pre LEQ Gain [dB])	–15...+15dB	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB])	–15...+15dB	Sets the gain of High EQ

Wah (Wah/Auto Wah)

FcBtm (Frequency Bottom)	0...100	Sets the lower limit of the wah center frequency
FcTop (Frequency Top)	0...100	Sets the upper limit of the wah center frequency
*Mode (Sweep Mode)	Auto, Pedal, LFO	Selects the control from auto-wah, modulation source, and LFO
*Speed (LFO Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
Reso (Resonance)	0...100	Sets the resonance amount
LPF (LPF)	Off, On	Switches the wah low pass filter on and off

:Mode
Select "**Pedal**" if you wish to use an expression pedal to control the wah.

Comp1 (Compressor1)

Sense (Sensitivity)	1...100	Sets the sensitivity
Attack (Attack)	1...100	Sets the attack level
Level (Output Level)	0...100	Sets the output level of the compressor

Comp2 (Compressor2)

This effect adds Pre LEQ and Pre HEQ to Comp1.

Sense (Sensitivity)	1...100	Sets the sensitivity
Attack (Attack)	1...100	Sets the attack level
Level (Output Level)	0...100	Sets the output level of the compressor

Trim (EQ Trim)	0...100	Sets the EQ input level
HEQG (Pre LEQ Gain [dB])	–15...+15dB	Sets the gain of Low EQ
LEQG (Pre HEQ Gain [dB])	–15...+15dB	Sets the gain of High EQ

Limitr (Limiter)

Ratio (Ratio)	1.0:1...50.0:1, Inf:1	Sets the signal compression ratio
Thrsh (Threshold [dB])	–40...0dB	Sets the level above which the compressor is applied
Attck (Attack)	1...100	Sets the attack time
Relse (Release)	1...100	Sets the release time
GLevel (Gain Adjust [dB])	–Inf, –38...+24dB	Sets the limiter output gain

AmpSim (Amp Simulator)

Type (Amplifier Type)	SS, EL84, 6L6	Selects the type of guitar amplifier

MicSim (Mic Simulator)

Refer to 99.

Decima (Decimator)

LPF (Pre LPF)	Off, On	Selects whether the harmonic noise caused by a decrease in sampling frequency is generated or not
HiDamp (High Damp [%])	0...100	Sets the ratio of cut of the high range
Fs(Sampling Frequency [Hz])	1.00k...44.1k	Sets the sampling frequency
Bit (Resolution)	4...24	Sets the data bit length
Level (Output Level)	0...100	Sets the decimator output level

ODHiG (OverDrive / HighGain)

Mode (Drive Mode)	Overdrive, Hi-Gain	Switching between overdrive and hyper-gain mode
*Drive (Drive)	1...100	Sets the degree of distortion
Level (Output Level)	0...50	Sets the overdrive output level
LoFc (Low Cutoff [Hz])	20...1.0kHz	Sets the center frequency for Low EQ (shelving type)
LoG (Gain [dB])	–18...+18dB	Sets the gain of Low EQ
Md1Fc (Mid1 Cutoff [Hz])	300...10.0kHz	Sets the center frequency for Mid/High EQ 1 (peaking type)
Md1Q (Q)	0.5...10.0	Sets the band width of Mid/High EQ 1
Md1G (Gain [dB])	–18...+18dB	Sets the gain of Mid/High EQ 1
Md2Fc (Mid2 Cutoff [Hz])	500...20.0kHz	Sets the center frequency for Mid/High EQ 2 (peaking type)
Md2Q (Q)	0.5...10.0	Sets the band width of Mid/High EQ 2
Md2G (Gain [dB])	–18...+18dB	Sets the gain of Mid/High EQ 2

ChFl1 (Chorus / Flanger)

DTime (Delay Time [msec])	0.0...50.0ms	Sets the delay time
*Speed (Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
LFO (LFO Waveform)	TRI, SIN	Selects LFO Waveform
*Depth (Depth)	0...100	Sets the depth of LFO modulation
Fdback (Feedback)	–100...+100	Sets the feedback amount
Mix (Wet/Dry)	–Wet...–1:99, Dry, 1:99...Wet	Sets the effect balance of the chorus/flanger

ChFl2 (Chorus / Flanger2)

DTime (Delay Time [msec])	0.0...50.0ms	Sets the delay time
*Speed (Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
LFO (LFO Waveform)	TRI, SIN	Selects LFO Waveform
*Depth (Depth)	0...100	Sets the depth of LFO modulation
Fdback (Feedback)	–100...+100	Sets the feedback amount
Trim (EQ Trim)	0...100	Sets the EQ input level
LEQG (Pre LEQ Gain [dB])	–15...+15dB	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB])	–15...+15dB	Sets the gain of High EQ
Mix (Wet/Dry)	–Wet...–1:99, Dry, 1:99...Wet	Sets the effect balance of the chorus/flanger

Phaser

*Speed (LFO Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
LFO (LFO Waveform)	TRI, SIN	Selects LFO Waveform
Manual (Manual)	0...100	Sets the frequency to which the effect is applied
*Depth (Depth)	0...100	Sets the depth of LFO modulation
Reso (Resonance)	–100...+100	Sets the resonance amount
Mix (Wet/Dry)	–Wet...–1:99, Dry, 1:99...Wet	Sets the phaser effect balance

Treml (Tremolo)

LFO (LFO Waveform)	TRI, SIN, Vintage, Up, Down	Selects LFO Waveform
Shape (LFO Shape)	–100...+100	Determines how much the LFO waveform is changed
*Speed (LFO Frequency [Hz])	0.02...20.0Hz	Sets the LFO speed
*Depth (Depth)	0...100	Sets the depth of LFO modulation

Mt.Dly (Multitap Delay)

T1time (Tap1 Time [msec])	0...680ms	Sets the Tap1 delay time
T1lvl (Tap1 Level)	0...100	Sets the Tap1 output level
T2time (Tap2 Time [msec])	0...680ms	Sets the Tap2 delay time
Fback (Feedback)	–100...+100	Sets the Tap2 feedback amount
Mix (Wet/Dry)	Dry, 1:99...99:1, Wet	Sets the effect balance of the multi-tap delay
HiDamp (High Damp [%])	0...100	Sets the damping amount in the high range

Reverb (Mono Reverb)

Time (Reverb Time [sec])	0.1...10.0sec	Sets the reverberation time
HiDamp (High Damp [%])	0...100%	Sets the damping amount in the high range
PreDly (Pre Delay [msec])	0...200msec	Sets the delay time of the reverb sound and gate control signal
EQTrim (EQ Trim)	0...100	Sets the EQ input level
LEQG (Pre LEQ Gain [dB])	–15...+15dB	Sets the gain of Low EQ
HEQG (Pre HEQ Gain [dB])	–15...+15dB	Sets the gain of High EQ
RevBal (Reverb Balance)	Dry, 1:99...99:1, Wet	Sets the effect balance of the reverb

Gate

Contrl (Input Reverb Mix)	Dry, 1:99...99:1, Wet	Sets the balance between the dry and reverb sounds of the gate control signal
Thrshl (Threshold)	0...100	Sets the level to which the Gate is applied
Polrty (Polarity)	+, –	Switches between non-reversed and reversed Gate on/off
Attack (Attack)	1...100	Sets the attack time
Relse (Release)	1...100	Sets the release time

The Gate of 86:MM32: Reverb-Gate is connected to the Wet output of the reverb.
This means that the on / off switch of the Gate effect is linked to the Reverb, and will be switched on / off in conjunction with the Reverb.

Insert (1in1outx8)

These algorithms can be selected as an **insert effect** if "**1in1outx8**" is selected for "SelectEffType."
Different insert effects can be used on each of eight channels / tracks.

Effects **MN1–MN11** are monaural type effects.

"**1in1outx8**" effects cannot be controlled by an expression pedal etc.

88: MN1: OverDrive / HighGain

The parameters are the same as for ODHIG.

89: MN2: Compressor2

The parameters are the same as for Comp2.

90: MN3: Limiter

The parameters are the same as for Comp2.

91: MN4: Gate

Thrshl (Threshold)	0...100	Sets the level to which the Gate is applied
Polrty ([G] Polarity)	+, –	Switches between non-reversed and reversed Gate on/off
Attack ([G] Attack)	1...100	Sets the attack time
Relse (Release)	1...100	Sets the release time

92: MN5: Exciter2

The parameters are the same as for Excit2.

93: MN6: Parametric 4band EQ

Trim (Trim)	0...100	Sets the parametric EQ input level
Fc1 (Band1 Cutoff [Hz])	20...1.0kHz	Sets the center frequency of Band 1
Q1 (Q)	0.5...10.0	Sets the bandwidth of Band 1
G1 (Gain [dB])	–18...+18dB	Sets the gain of Band 1
Fc2 (Band2 Cutoff [Hz])	300...10.0kHz	Sets the center frequency of Band 2
Q2 (Q)	0.5...10.0	Sets the bandwidth of Band 2
G2 (Gain [dB])	–18...+18dB	Sets the gain of Band 2
Fc3 (Band3 Cutoff [Hz])	300...10.0kHz	Sets the center frequency of Band 3
Q3 (Q)	0.5...10.0	Sets the bandwidth of Band 3
G3 (Gain [dB])	–18...+18dB	Sets the gain of Band 3
Fc4 (Band4 Cutoff [Hz])	500...20.0kHz	Sets the center frequency of Band 4
Q4 (Q)	0.5...10.0	Sets the bandwidth of Band 4
G4 (Gain [dB])	–18...+18dB	Sets the gain of Band 4

94: MN7: Amp Simulator

Type (Amplifier Type)	AMP1...5	Selects the type of guitar amplifier

95: MN8: Multitap Delay

The parameters are the same as for Mt.Dly.

96: MN9: Chorus / Flanger2

The parameters are the same as for ChFl2.

97: MN10: Phaser

The parameters are the same as for Phaser.

98: MN11: Expander

This effect makes the sound tighter and improves the dynamic range and S / N ratio by compressing signals that are below a specified level.

Thrshl (Threshold)	0...127	Sets the level at which the effect begins to apply
Ratio (Ratio)	1.0:1...inf:1	Specifies the compression ratio
Attack (Attack)	1...100	Specifies the length of the attack
Relse (Release)	1...100	Specifies the length of the release
Respo (Response)	1...100	Specifies the speed at which change will occur in response to the input

Effect Control

Cntrl (Control)

Select the parameter that will be controlled by an expression pedal or an external MIDI controller, and specify the range of parameter values for control.

Param (Parameter)	***	Name of parameter to be controlled
Max	***	Maximum value of parameter to be controlled
Min	***	Minimum value of parameter to be controlled

: Param

Select the parameter to be controlled. The parameters that can be selected will differ depending on the program.
For example, the "**Cho/Fl-Depth**" selection for "Param" will control the "**Depth**" parameter of the Cho / Fl. When this is "**Off**," control will not occur.

: Max, : Min

Specify the upper and lower limits of the range in which the parameter value will be controlled. By exchanging the "Max" and "Min" values, you can (for example) reverse the effect that occurs when a pedal is advanced and released.
The available values will depend on the effect. "Max" and "Min" will not be displayed when "Param" is set to "**Off**" or "**Wah**."

Using a pedal to control wah

① As explained in "Controlling an effect from an external device" (→p.33), make settings for "Device" etc. and select an effect program that provides a wah.
② Press the "(EffectIcon)" button for "**Ctrl**," and set "Param" to "**Wah**."
③ Press the "(EffectIcon)" button for "**Wah**," and set "Mode" to "**Pedal**."

Appendices

Troubleshooting

No sound

☐ Is the power of the D16 or connected equipment turned off? (→p.12)

Can't hear the playback

☐ Have the [MASTER] fader or [PHONES] knob been lowered?

☐ Have the channel volume levels been lowered?
When pairing has been switched off after it had been on, or after using Scene Read, the actual volume levels may not match the positions of the faders.
→ Raise and lower the faders so that the actual volume level matches the fader position, and then adjust the level as desired.

☐ Has the [TRACK STATUS] been set to **MUTE**? (→p.86)

☐ Has Solo been turned on to mute the track audio? (→p.84)

☐ If you are using audio punch-in / out and cannot hear the playback of the recorded track ([TRACK STATUS] **REC**) outside of the in-out region, has the [SOLO / MONITOR] "Monitor" tab page setting "AutoIn" been turned "**On**"? (→p.85)

Can't hear the input

☐ After being connected to an input jack, has the input been sent to a mixer channel?
→ In the [INPUT] "Ch1–8" or "Ch9–16" tab page, send the signal to a mixer channel. (→p.16)

☐ Check that an audio signal is being input.
→ In the [METER / TRACK VIEW] page, set "SelectDisplay" to "**PostFdr**," and watch the meter to verify that audio is being input to each mixer channel.
Raise the [CHANNEL] faders and [MASTER] fader to appropriate positions. If the meter does not move, there is no input to the channel.

☐ Are the monitor settings appropriate?
→ In the [SOLO / MONITOR] "Monitor" tab page, select the signal that you wish to monitor. (Normally, set "**MasterLR**" to "**On**.") If "**Rhythm**" or "**Cue**" are turned "**On**," raise their volume levels. (→p.84)

☐ Is the [TRACK STATUS] set to **REC** or **INPUT**? (→p.86)

☐ Has the [TRIM] knob been raised to an appropriate level?

☐ If the input sound is no longer heard when you playback a track whose [TRACK STATUS] is set to **REC**, has the [SOLO / MONITOR] "Monitor" setting "AutoIn" been turned "**Off**"? (→p.85)

☐ When cue is selected, has the cue level of each channel been turned down?
→ In the [SOLO / MONITOR] "Monitor" tab page, press the "Level" button and raise the level. (→p.84)

☐ In some cases, the sound of the digital input may not be input for two or three seconds. If the sampling frequency changes on the digital input device that is connected (for example from 48 kHz to 44 kHz), the sampling rate converter inside the D16 will require two or three seconds to follow this frequency change. Please wait until the sound can be heard once again.

☐ Is the format of the digital input inappropriate?
→ Connect an instrument or digital audio device that conforms to CP-1201 or S / P DIF.

No sound from [AUX OUT]

"External effect does not apply ([AUX OUT])" (→p.105)

Can't hear the rhythm

(→p.105)

Channel fader or EQ does not work

Faders do not work

☐ During playback, channel faders whose [TRACK STATUS] is **REC** will not function.
The faders will be fixed at unity level. This is normally used to check the level of the audio that was recorded.
→ By setting the [TRACK STATUS] to **PLAY**, you will be able to control the level during playback.

☐ When pairing is on, the faders of even-numbered channels 1–8 will not function.
The volume level of an even-numbered channel is controlled by the fader of the adjacent odd-numbered channel to the left.

☐ When you turn pairing off after it had been on, or after Scene Read is used, the volume levels of the channels may not match the fader positions.
→ Raise and lower the faders so that the fader positions match the actual volume levels.

EQ does not work

☐ For an input signal, the input EQ can be used and the channel EQ cannot be used.
→ Adjust the input EQ in the [INPUT] "InEq1–4" or "InEq5–8" tab page.

☐ For a playback signal, the channel EQ can be used and the input EQ cannot be used.
→ Adjust the channel EQ in the [EQ / PHASE] "Eq1–4," "Eq5–8," or "Eq9–16" tab page.

☐ The input EQ cannot be used on the digital input or on the rhythm. The input EQ can be used only on the analog inputs.

Can't record

☐ Is the [CHANNEL] fader of the D16 lowered? (When the [RECORD] "RecMode" tab page item "Select RecMode" is set to "**Input**")

☐ Is the [MASTER] fader of the D16 lowered? (When the [RECORD] "RecMode" tab page item "Select RecMode" is set to "**Bounce**")

☐ Is the [TRACK STATUS] of the recording destination track not set to **REC**?

☐ Is disk capacity insufficient?
→ Set the counter display to "FreeTime" and check the remaining time available for recording. (→p.24, 45)

☐ Is the input source that you wish to record being correctly input to a mixer channel?
→ In the [INPUT] "Ch1–8" or "Ch9–16" tab page, assign the input to a mixer channel. (→p.16)

☐ Is the recording mode ("Select RecMode") appropriate? (→p.51)

☐ Is "RHSL" turned off? (→p.87)

Can't input digitally

☐ If you wish to input a digital signal, press the "DigiIn" button to turn it "**On**" in the [INPUT] "Ch1–8" or "Ch9–16" tab page. (→p.18)

Too much noise or distortion in the input sound or recorded sound

☐ Is the [TRIM] setting appropriate? If the [TRIM] is too high, the sound will be distorted. If it is too low, there will be excessive noise.
→ The [TRIM] knobs for the [INPUT 1 / GUITAR]–[INPUT 4] jacks are adjusted correctly when the corresponding [TRIM] LED lights orange.
To adjust [TRIM] for the other input jacks, set the [METER / TRACK VIEW] page "SelectDisplay" parameter to "**PreFdr**," and adjust the value as high as possible without causing "CLP" to light in the level meter.

☐ If the input or output of an effect is distorted, make the following adjustments.
→ Input
- Insert effect: While watching the meter in the [INSERT EFFECT] "InsEff1"–"InsEff5–8" tab page, use [TRIM] etc. to adjust the input volume so that "CLIP" does not light.
- Master effect: While watching the meter in the [MASTER EFFECT / AUX] "EffSnd 1" or "EffSnd2" tab page, adjust the send volumes so that "CLIP" does not light.
- Final effect: While watching the meter in the [MASTER EFFECT / AUX] "FinalEff" tab page, adjust the volume of each channel so that "CLIP" does not light.

→ Output
- Insert effect: Adjust the effect parameters or [TRIM] while listening to the result.
- Master / final effect: While watching the meter in the [MASTER EFFECT / AUX] "EffSnd1," "EffSnd2," or "FinalEff" tab page, adjust the effect parameters so that "CLP" does not light.

☐ If distortion is occurring in the EQ, make the following adjustments.
→ For the analog input, adjust the input EQ. For playback, adjust the gain of the channel EQ. (→p.25)

Effects do not apply

☐ Have you selected effect program number 000?
→ Select an "EffectNumber" other than "**000**" (=Off).

Insert effect does not apply

☐ Is the digital input enabled?
→ If "DigiIn" is turned "**On**" in the [INPUT] "Ch1–8" or "Ch9–16" tab page, the insert effects are disabled. Turn the setting "**Off**."

☐ Is the effect inserted at an appropriate location?
→ In the [INSERT EFFECT] "InsAss" tab page, set "Assign" to "**In**" if applying the insert effect to the input, or to "**Trk**" if applying the insert effect to the playback. (→p.79)

Can't control the insert effect by expression pedal or MIDI

☐ Has a valid effect been selected for "Ass(#)" in the [SYSTEM] "Control" tab page?
→ In the [INSERT EFFECT] "InsAss" tab page, make sure that a valid effect has been selected in "SelectEffType." Example: Situations such as when "**InsEff3**" is selected for "Ass" and "1in2out×2" is selected for "SelectEffType" (only InsEff1 or InsEff2 can be used).

☐ Is the correct device being used to control the effect?
→ Control the effect using the device that is selected by the [SYSTEM] "Control" tab page "Device" parameter. (→p.45)

☐ For the selected effect, have you chosen effect program number "**000**" (=Off) or an effect program that does not include a control function?

☐ When controlling via MIDI, does the MIDI channel of the D16 match the MIDI channel of the transmitting MIDI device? (→p.46)

Master effect does not apply

☐ Is the send from each channel set to 0 or near 0?
→ In the [MASTER EFFECT / AUX] "EffSnd1" or "EffSnd2" tab page, raise the "Send" amount.

☐ Is the return set to 0 or near 0?
→ In the [MASTER EFFECT / AUX] "MstEff1" or "MstEff2" tab page, raise "RetLevel" to increase the return level.

☐ If you are monitoring the sound from the [MONITOR OUT L / R] jacks, has the master LR bus output been turned off?
→ In the [SOLO / MONITOR] "Monitor" tab page, press the "MasterLR" button to turn it "**On**"

Final effect does not apply

☐ If you are monitoring the sound from the [MONITOR OUT L / R] jacks, has the master LR bus output been turned off?

→ In the [SOLO / MONITOR] “Monitor” tab page, press the “MasterLR” button to turn it “**On**.”

External effect does not apply ([AUX OUT])

☐ Is the external effect send set to 0 or near 0?
→ In the [MASTER EFFECT / AUX] “AuxSend” tab page, use “Aux” to raise the external send level.

☐ Is the output of the external effect connected to the [INPUT 1]–[INPUT] jacks and assigned to a mixer channel?
→ Use [INPUT] “Ch1–8” or “Ch9–16” to assign the input.

☐ Are the sub input settings correct? (→p.35)

Rhythm

No rhythm sound

☐ In the [TEMPO / RHYTHM] “Setup” tab page, is “Rhythm” turned “**Off**”? (Is the [TEMPO / RHYTHM] key dark?)
→ Turn “Rhythm” “**On**.”

☐ Is the recorder stopped?
→ Press the [PLAY] key to play back. The rhythm will sound when the recorder is recording or playing.
If you wish to check the rhythm sound while the recorder is stopped, select the [TEMPO / RHYTHM] “SetUp” tab page.

☐ Did you select a silent rhythm pattern?

☐ Has the rhythm volume been lowered?
→ In the [TEMPO / RHYTHM] “SetUp” tab page, use “RhythmVol” to adjust the volume. When using the tempo map, use the “TmpMap” tab page “Edit” button to adjust the volume of each map.

Rhythm sound does not stop, or is sounded double (volume is excessive)

☐ In the [TEMPO / RHYTHM] “SetUp” tab page, has “Rhythm” been turned “**On**” ([TEMPO / RHYTHM] key lit)?
→ Either switch “Rhythm” from “**On**” to “**Off**,” or use “Vol” to lower the volume.

☐ Is the rhythm selected for monitoring?
→ In the [SOLO / MONITOR] “Monitor” tab page, either turn “Rhythm” “**Off**,” or use “Lev” to lower the volume.

☐ Is the rhythm assigned as an input?
→ In the [INPUT] “Ch1–8” or “Ch9–16” tab page, do not assign “**Rhythm L**” or “**Rhythm R**” to a channel. Alternatively, lower the fader of the channel to which they are being input.

Pressing a key does not perform the function

☐ Some keys do not function when the recorder is playing or recording.
→ Stop the recorder, and then perform the operation.

☐ Some keys do not function while scrub is turned on.
→ Turn off Scrub, and then perform the operation. (→p.74)

MIDI

MIDI sequencer does not synchronize / MIDI control is not possible

☐ Is the MIDI cable connected correctly? (→p.12, 47)

☐ Is the MIDI cable broken?

Can’t synchronize using MTC or MIDI Clock

☐ Has the D16 been set as the master and the MIDI sequencer as the slave? (→p.47)

☐ Does the synchronization signal transmitted by the D16 match the synchronization signal received by the MIDI sequencer?
→ Check “Select MIDISync Output.” (→p.47)

☐ If “TempoSource” is set to “**TempoTrack**,” has MIDI clock or tap tempo been recorded on the tempo track? (→p.68)

☐ Are the synchronization settings of your MIDI sequencer correct?
→ Refer to the owner’s manual of your MIDI sequencer.

The D16 does not receive MMC

☐ In the [SYSTEM] “MIDI” tab page, is “**RcvMMC**” turned “**On**”?

☐ In the above-listed page, does the “MMCDevID” setting match the MMC device ID of your MIDI sequencer? (→p.46)

note The settings required on your MIDI sequencer will depend on the one you are using.

☐ Has your MIDI sequencer been set to transmit MMC?
→ Refer to the owner’s manual of your MIDI sequencer.

Can’t control effects / scenes via MIDI

☐ Do the MIDI channels of the D16 and your MIDI sequencer match?
→ In the [SYSTEM] “MIDI” tab page, check “GlobalCh.” (→p.46)

External disk drive

The external disk drive is not recognized in the [SYSTEM] "DiskUtil" tab page

☐ Is the external disk connected correctly? (→p.48)

☐ Are two or more disk drives set to the same SCSI device ID?

→ For details on setting the SCSI device ID, refer to the owner's manual of your drive.

Disk drive is not recognized when selecting songs

☐ Has the disk been initialized?

→ Before recording or copying a song to an external disk drive (on a HDD or removable disk), the disk must be initialized. Initialization is not necessary in order to backup (on a removable disk). If the disk is recognized in the [SYSTEM] "DiskUtil" tab page, it can be used.

Can't remove the external removable disk

☐ Is a song on the external removable disk currently selected?

→ If the currently selected song is on the removable disk, removing the disk may damage the song data; for this reason, the D16 locks the disk drive. Refer to "Exchanging removable disks" (→p.49), and remove the disk.

After a drive was left for an extended period (ten minutes or more) after playback or locate, playback is incorrect

☐ Has the drive entered sleep mode?

→ Some drives may enter sleep mode if they have not been accessed for an extended period of time. Press the [STOP] key to cancel sleep mode.

CD-R/RW

CD-R/RW drive is not recognized

☐ Has the SCSI ID been set to other than 6? (→p.48)

☐ Did you turn on the power of the CD-R/RW drive before turning on the power of the D16?

→ Turn off the power of both the CD-R/RW drive and the D16, and then turn the power on again in the order of CD-R/RW drive → D16.

Can't write

☐ Further writing is not possible on a CD-R/RW disc that has been finalized. (→p.62)

☐ It is not possible to write to a CD-RW disc that contains data created on another device.

Can't playback the disc on an audio CD player

☐ Did you execute the Finalize operation?

→ In the [SONG] "CDR/RW" tab page, press the "Final" button to execute the Finalize operation. (→p.63)

Messages

Confirmation messages

Completed

☐ The operation has been completed successfully. Please press the "OK" button.

SongFull

☐ The maximum number of songs that can be stored on a disk drive has been exceeded.

→ Either delete unneeded songs, or select another drive.

Now ***ing (*** is Copy or Write, etc.)

☐ An operation is in progress. Please wait until this display disappears.

Error messages

Disk

☐ Failure while reading from the disk drive.

→ In [SYSTEM] "DiskUtil," execute "**CheckDrive**." If this message still appears, please delete that song. If this message still appears even after you have deleted the song, please re-format the disk drive.

Approximately 40 minutes are required in order to complete the internal drive "**CheckDrive**" or "**Format**" operations.

DiskBusy

☐ If this message appears when you have just begun to use a disk drive, the disk drive is too slow to perform recording/playback.

→ Please use this disk for backup.

☐ Disk drive reading speed may be slowed down if punch-in/out recording or track editing has caused the data to be fragmented across the disk.

→ In [TRACK] "EditTrk," execute "**OptimizeTrk**."

DiskRepaired1
DiskRepaired2
DiskRepaired3

☐ An error occurred in "**Check Drive**"

→ Disk Repaired 1 indicated that an error was found but was repaired. If this message appears, you can continue using the disk.
Disk Repaired 2 and 3 indicate that the error could not be repaired completely. If this message appears, it is possible that the song data has been damaged or lost. In this case, the song or other data will be erased, but by initializing the disk you can continue using it as before.

DriveFull

☐ The drive capacity is insufficient.

→ Try turning the power off and then on again. (When recording or editing track data, the current data will be saved to disk.)
If this message still appears, delete unwanted songs or select another drive.

DriveProtected

☐ The selected removable disk (e.g., magneto-optical disk) is write protected.

→ Remove the disk, and turn off write protection.

IllegalDrive / Operation

☐ The operation you attempted was not appropriate for the selected drive. For example, this message will appear if you attempted to eject a non-removable disk, or if you attempted to load the system from a drive that did not contain the system.

→ Select an appropriate drive or operation.

IllegalTo-EndTime

☐ When using the expand / compress track editing operation ("**ExpCmpTrk**"), the **TO** and **END** settings could not be executed for the **IN**–**OUT** region.

→ Set the **TO**–**END** region so that it is 50–200% of the **IN**–**OUT** region.

InTime>=OutTime

☐ When using track editing, auto punch-in / out recording, or looping, the **IN** and **OUT** settings you made were incorrect so that the operation could not be executed. This message will appear if **IN** is later than **OUT**, or if they are at the same time location.

→ Change the **IN** and **OUT** times to the correct settings.

ToTime>=EndTime

☐ When using the expand / compress track editing operation ("**ExpCmpTrk**"), the **TO** and **END** settings you made were incorrect so that the operation could not be executed. This message will appear if **TO** is later than **END**, or if they are at the same time location.

→ Set the times correctly.

MemoryFull

☐ There is insufficient memory for recording or track editing.

→ Delete unneeded data.
In some cases, you can solve this problem by turning the power off and then on again.

MIDIOverflow

☐ When receiving MMC or recording MIDI Clock, a MIDI data reception failure occurred.

→ Delete unneeded data from the transmitting device.

NumberOfTracks

☐ During track editing, the number of source tracks is different than the number of destination tracks.

→ Make settings so that the source and destination have the same number of tracks.

☐ Since "**Clip**" contains no data, data cannot be copied.

→ Either copy data to "**Clip**," or select a different copy source track.

SongProtected

☐ The selected song is protected.

→ Either turn off protect (→p.60), or select a different song.

TempoFast

☐ When recording tempo, the tempo was too fast to be recorded correctly.

→ If you are recording MIDI clock, set the tempo of the MIDI transmitting device (sequencer etc.) to a slightly slower setting.

→ If you are recording tap tempo, please tap at a slightly slower tempo.

TempoSlow

☐ When recording tempo, the tempo was too slow to be recorded correctly.

→ If you are recording MIDI clock, set the tempo of the MIDI transmitting device (sequencer etc.) to a setting of ♩=40 or faster.

→ If you are recording tap tempo, please tap at a slightly faster tempo.

Updating the system software

The system software of the D16 can be updated by installing the new version from a disk that contains the new D16 system file.

The latest system file can be downloaded from the Korg website (http: / / www.korg.co.jp).
For details on system files, refer to the Korg website or to Korg information.

1. Downloading the system

Download the system file from the Korg website. Copy the file onto an external DOS format removable disk. For details on the procedure, refer to the Korg website.

2. Connections

Connect the external removable disk drive containing the system file to the D16 via SCSI. (→p.48)

Be sure to turn off the power of both devices before you make connections.

3. Updating the system

① Select the drive connected to the D16.
In the [SYSTEM] "DiskUtil" tab page, use "Drive ID" to select the drive that contains the system file.

② Use "SelOperation" to select "**LoadSystem**."

③ Execute the load operation.
Press the "Exec." button. When the display asks "AreYouSure?" press the "Yes" button to begin loading.

If the power is turned off accidentally while the system is being loaded, the D16 may become incapable of operating correctly. If this occurs, please contact Korg dealer.

④ When loading is completed, the following display will appear, and the loaded system will be checked.

```
Warning
Do not disconnect power.
Please wait restart.
Check sum = OK
```

If the check results are correct, the display will indicate "Check sum=OK." If not, it will indicate "Check sum=NG."
If the result is "NG," please re-start, and execute the load operation once again.
If "NG" appears again, please contact Korg dealer.

⑤ After a short time, the D16 will restart automatically, and will begin operating with the new system.

D16 specifications

Operating temperature range:	+5 — +40 degrees C (do not allow condensation)

■ Specifications

<Recorder section>

Number of tracks:	128 tracks (including virtual tracks) 16 tracks simultaneous playback, 8 tracks simultaneous recording @ 16 bits 8 tracks simultaneous playback, 4 tracks simultaneous recording @ 24 bits
Recording format:	24 bit / 16 bit uncompressed, 44.1 kHz
Recording time:	16 bit recording: maximum 6.5 hours 24 bit recording: maximum 3.3 hours * When internal 2.1 Gbyte hard disk is used
Maximum storage capacity:	internal + external 1,000 Gbytes × 7 drives
Number of songs:	100 songs per drive
Locate points:	four points per song
Mark points	100 points per song (marks can be named)
Metronome patterns:	96
Rhythms:	215
MIDI synchronization:	transmission (MTC, MIDI CLOCK) reception (MMC, Scene change) tempo map (200 points per song) sync track (one track per song)
Editing:	track (Copy, Insert, Erase, Delete, Swap, Reverse, Optimize, Time Expansion / Compression {tracks can be copied between songs}) song (Copy, Move, Delete, Rename, Protect)
Counter / locate format:	Min / Sec / mSec, Meas / Beat / Tick, Min / Sec / Frame (30NDF only)

<Mixer section>

Structure:	24 channel input, 8 BUS, 1 AUX, 1 MASTER
Signal processing:	32 bit 44.1 kHz
Equalizer:	HIGH (f:10 kHz G:±15 dB) MID (f:0.1 –20 kHz G:±15 dB) LOW (f:100 Hz G:±15 dB)
Scene memory:	100 scenes per song

<Effect section>

Structure:	insert × 8 (maximum) master × 2 (maximum) final × 1 All usable simultaneously
Signal processing:	44 bit 44.1 kHz
Programs:	insert (128 preset, 128 user) master (32 preset, 32 user) final (32 preset, 32 user)
Algorithms:	98
Effects:	106

<General>

Display:	240 × 64 pixel LCD with backlight and touch panel
Power supply:	AC9V AC / AC power supply
Power consumption:	24 W (AC 9V 2.0A max)
Dimensions:	357mm (W) × 245mm (D) × 72mm (H) (Including protrusions)
Weight:	2.0 kg

■ Principal specifications

Frequency response:	10 Hz –20 kHz ±1dB @+4 dBu, 10 kΩ load
S / N:	100 dB (nominal) @IHF-A
Dynamic range:	100 dB (nominal) @IHF-A
THD+N:	0.02 % (nominal) 20 Hz –20 kHz @+16 dBu, 10 kΩ load
A / D conversion:	24 bit, 64 times oversampling
D / A conversion:	24 bit, 128 times oversampling
Sampling frequency:	44.1 kHz

■ Analog / digital input and output specifications

<INPUT1, 2>

Connectors:	XLR-3-31 type, 1 / 4" TRS phone jack (balanced)
Input impedance:	10 kΩ
Nominal level:	–60 dBu @TRIM=max.
:	+4 dBu @TRIM=min.
Maximum level:	–48 dBu @TRIM=max.
:	+16 dBu @TRIM=min.
Source impedance:	600 Ω

<INPUT3–8>

Connectors:	1 / 4" phone jack (unbalanced)
Input impedance:	1 MΩ
Nominal level:	–60 dBu @TRIM=max.
:	+4 dBu @TRIM=min.
Maximum level:	–48 dBu @TRIM=max.
:	+16 dBu @TRIM=min.
Source impedance:	600 Ω

<GUITAR INPUT>

Connector:	1 / 4" phone jack (unbalanced)
Input impedance:	1 MΩ
Nominal level:	–60 dBu @TRIM=max.
:	+4 dBu @TRIM=min.
Maximum level:	–48 dBu @TRIM=max.
:	+16 dBu @TRIM=min.
Source impedance:	600 Ω

<MASTER OUTPUTS L / R>

Connector:	RCA phono jack
Output impedance:	150 Ω
Nominal level:	–10 dBu
Maximum level:	+2 dBu
Load impedance:	10 kΩ or more

<MONITOR OUTPUTS L / R>

Connector:	RCA phono jack
Output impedance	150 Ω
Nominal level:	–10 dBu
Maximum level:	+2 dBu
Load impedance:	10 kΩ or more

<AUX OUTPUT>

Connector:	1 / 4" phone jack (unbalanced)
Output impedance:	150 Ω
Nominal level:	–10 dBu
Maximum level:	+2 dBu
Load impedance:	10 k Ω or more

<PHONES OUTPUTS>

Connector:	1 / 4" stereo phone jack
Output impedance:	100 Ω
Maximum level:	50 mW @32 Ω

<S / P DIF INPUT / OUTPUT>

Connector:	optical
Format:	24 bit S / P DIF (IEC60958, EIAJ CP–1201)

<SCSI>
Connector: D-sub 25 pin female
Format: SCSI-2 compatible

<MIDI IN / OUT>
Connectors: DIN 5 pin × 2

<FOOT SW>
Connector: 1 / 4" phone jack (use separately sold PS-1)

<EXPRESSION PEDAL>
Connector: 1 / 4" stereo phone jack (use separately sold XVP-10 or EXP-2)

<AC9V IN>
Connector: DIN 4 pin

■ Accessories

:AC / AC power supply (Use the included AC / AC power supply)

■ Options

:PS-1 pedal switch
:XVP-10 EXP / VOL pedal
:EXP-2 foot controller

* Appearance and specifications of this product are subject to change without notice. (Nov. / '99)

[Digital Recording Studio]

Model D16

MIDI Implementation Chart

Date : 1999. 9. 24

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	×	×	
	Changed	×	×	
Mode	Memorized	×	×	
	Messages	×	×	
	Altered	**********		
Note Number:	True Voice	×	○ *6	
		**********		
Velocity	Note On	×	○ *6	
	Note Off	×	×	
Aftertouch	Polyphonic (Key)	×	×	
	Monophonic (Channel)	×	○ *6	
Pitch bender		×	○ *6	
Control Change	0—119	×	○ *6	
Program Change		○	○	
	Variable Range	0 — 99	0 — 99	Scene numbers 1–100
System Exclusive		×	○ *1	*1
System Common	Quarter frame	○ *2	×	*2
	Song Position	○ *3	×	*3
	Song Select	×	×	
	Tune	×	×	
System Real Time	Clock	○ *4	○ *5	*4
	Command	○	○	*5
Aux Messages	Local On/Off	×	×	
	All Notes Off	×	×	
	Active Sense	×	×	
	Reset	×	×	

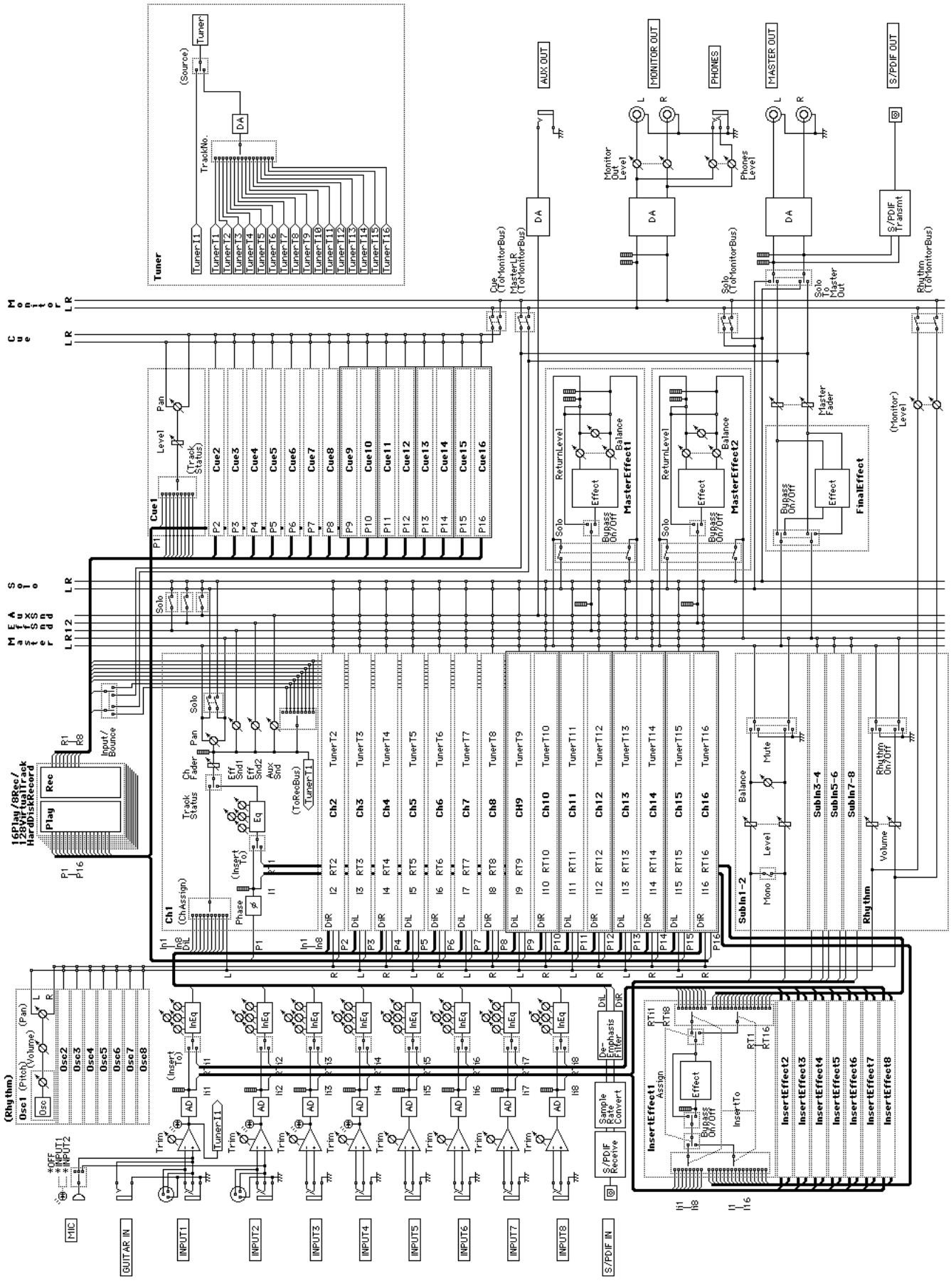
Notes *1: Received when “RcvMMC” button is “On” in [SYSTEM] “MIDI.”
*2: Transmitted when “MTC30” is selected in [SYSTEM] “Sync.”
*3: Transmitted when “MIDIClock” is selected in [SYSTEM] “Sync.”
*4: Transmitted when “MIDIClock” is selected in [SYSTEM] “Sync.”
*5: Received to record tempo when “SelectRecTempoType” is set to “MIDIClock” in [TEMPO/RHYTHM] “TmpTrk.”
*6: Received when selected by [SYSTEM] “Control.”

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO : Yes ○

Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO : No ×

Consult your local Korg distributor for more information on MIDI IMPLEMENTATION.

Block diagram



Effect Program List

INSERT EFFECT Preset128 User128

ProgNo	Categ	ProgramName	Algorithm	EFF1	EFF2	EFF3	EFF4	EFF5	Mode
	Reverb 7								
I001	RV1	ReverbHall	Reverb Hall	HALL					
I002	RV2	SmoothHall	Smooth Hall	SmtHall					
I003	RV3	WetPlate	Reverb Wet Plate	WPlate					
I004	RV4	DryPlate	Reverb Dry Plate	DPlate					
I005	RV5	ReverbRoom	Reverb Room	ROOM					
I006	RV6	BrightRoom	Bright Room	BrRoom					
I007	RV7	ER	Early Reflections	ER					
	Delay 6								
I008	DL1	L/C/R Delay	L/C/R Delay	LCRDly					
I009	DL2	St/X.Delay	St/Cross Delay	StDly					
I010	DL3	St.MtapDelay	St.Multitap Delay	MtDly					
I011	DL4	St.ModDelay	St.Modulation Delay	ModDly					
I012	DL5	St.DynaDelay	St.Dynamic Delay	DyDly					
I013	DL6	AutoPanDelay	St.Auto Panning Delay	PanDly					
	Modulation 7								
I014	MO1	St.Chorus	St.Chorus	Chorus					
I015	MO2	St.Flanger	St.Flanger	Flangr					
I016	NO3	St.Phaser	St.Phaser	Phaser					
I017	MO4	St.Vibrato	St.Vibrato	Vibrat					
I018	MO5	St.Tremolo	St.Tremolo	StTrml					
I019	MO6	St.AutoPan	St.Auto Pan	AutPan					2in2out x 2
I020	MO7	Ensemble	Ensemble	Ensmbl					
	Dynamics 7								
I021	DY1	St.Comp	St.Compressor	StComp					
I022	DY2	St.Limiter	St.Limiter	StLimit					
I023	DY3	MBandLimiter	Multiband Limiter	BnLimit					
I024	DY4	St.Gate	St.Gate	StGate					
I025	DY5	St.Exciter	St.Exciter/Enhancer	StExctr					
I026	DY6	St.Decimator	St.Decimator	Decim					
I027	DY7	St.P4EQ	St.Parametric 4band EQ	P4EQ					
	Special Effects 4								
I028	SE1	St.RingMod	St.Ring Modulator	RingMd					
I029	SE2	Doppler	Doppler	Dopplr					
I030	SE3	AnalogRecord	St.Analog Record	Record					
I031	SE4	TalkingMod	Talking Modulator	TalkMd					
	LargeSizeEffect7								
I032	LS1	St.G7EQ	St.Graphic 7band EQ	G7EQ					
I033	LS2	St.MBLimiter	St.Mulitband Limiter	SBnLmt					
I034	LS3	Vocoder	Vocoder	Vocodr					
I035	LS4	StPitchShift	St.Pitch Shifter	StPitch					
I036	LS5	ER_Large	Early Reflections L	ER-L					
I037	LS6	RotarySpeakr	Rotary Speaker	RotSP					
I038	LS7	CntrCancelIr	Center Canceller	Canclr					
	Guitar Multi 13			**EFF1**	**EFF2**	**EFF3**	**EFF4**	**EFF5**	
I039	GT1	GuitarMulti1	Guitar Multi1	Dist	NR	Cho/Fl	S.Dly		
I040	GT2	GuitarMulti2	Guitar Multi2	Wah	Dist	NR	Delay		
I041	GT3	GuitarMulti3	Guitar Multi3	Dist	NR	AmpSim	CabRes	Delay	
I042	GT4	GuitarMulti4	Guitar Multi4	Comp	P4EQ	AmpSim	Cho/Fl	S.Dly	
I043	GT5	GuitarMulti5	Guitar Multi5	Wah	Comp	P4EQ	Cho/Fl	S.Dly	
I044	GT6	GuitarMulti6	Guitar Multi6	Comp	P4EQ	Pitch	Delay		
I045	GT2	StackWah	Guitar Multi2	Wah	Dist	NR	Delay		
I046	GT4	Clean	Guitar Multi4	Comp	P4EQ	AmpSim	Cho/Fl	S.Dly	
I047	EB1	CleanChorus	Bass Multi 1	Comp	Exctr	P4EQ	Cho/Fl	S.Dly	
I048	PA1	SemiClean	Pre Amp Simulator	Dist	NR	Tone	AmpSim		
I049	GT5	HalfTone	Guitar Multi5	Wah	Comp	P4EQ	Cho/Fl	S.Dly	
I050	GT6	Detune	Guitar Multi6	Comp	P4EQ	Pitch	Delay		
I051	GT6	12string Sim	Guitar Multi6	Comp	P4EQ	Pitch	Delay		
	Amp Simulator 4								
I052	AS1	Amp-Stack	Amp Simulator1	NR	AmpSim	CabRes	Cho/Fl	S.Dly	1in2out x 2
I053	AS2	Vox-Tremolo	Amp Simulator2	NR	AmpSim	CabRes	TremI	Delay	
I054	AS3	Amp-Phaser	Amp Simulator3	NR	AmpSim	CabRes	Phaser	Delay	
I055	AS1	Amp-SS	Amp Simulator1	NR	AmpSim	CabRes	Cho/Fl	S.Dly	
	PreAmpSimulator 5								
I056	PA1	PreAmpSim	Pre Amp Simulator	Dist	NR	Tone	AmpSim		
I057	PA1	RockLead	Pre Amp Simulator	Dist	NR	Tone	AmpSim		
I058	PA1	Blues	Pre Amp Simulator	Dist	NR	Tone	AmpSim		
I059	PA1	SeattleLead	Pre Amp Simulator	Dist	NR	Tone	AmpSim		
I060	PA1	Crunch	Pre Amp Simulator	Dist	NR	Tone	AmpSim		
	Bass Multi 3								
I061	EB1	BassMulti1	Bass Multi1	Comp	Exctr	P4EQ	Cho/Fl	S.Dly	
I062	EB2	BassMulti2	Bass Multi2	Dist	NR	Filter	Delay		
I063	EB3	BassMulti3	Bass Multi3	Comp	P4EQ	Gate			

ProgNo	Categ	ProgramName	Algorithm	EFF1	EFF2	EFF3	EFF4	EFF5	Mode
	Mic Multi 1								
I064	MS1	MicMulti	Mic Multi	CabiRes	MicSim	Comp			
	Vocal Multi 4								
I065	VO1	Vocal Multi1	Vocal Multi1	Comp	Exctr	Pitch	S.Dly		
I066	VO2	Vocal Multi2	Vocal Multi2	NR	DeEss	P4EQ	Cho/Fl	S.Dly	
I067	EB1	RockVocal	Bass Multi1	Comp	Exctr	P4EQ	Cho/Fl	S.Dly	
I068	EB1	VocalDouble	Bass Multi1	Comp	Exctr	P4EQ	Cho/Fl	S.Dly	
	Mono-Mono 40			**EFF 1**	**EFF 2**				
I069	MM1	P4EQ-Exciter	P4EQ-Exciter	P4EQ	Excit1				
I070	MM2	P4EQ-Wah	P4EQ-Wah	P4EQ	Wah				
I071	MM3	P4EQ-Cho/Fln	P4EQ-Cho/Flng	P4EQ	ChFl1				
I072	MM4	P4EQ-Phaser	P4EQ-Phaser	P4EQ	Phaser				
I073	MM5	P4EQ-MtDelay	P4EQ-Mt.Delay	P4EQ	Mt.Dly				
I074	MM6	Comp-Wah	Comp-Wah	Comp2	Wah				
I075	MM7	Comp-AmpSim	Comp-AmpSim	Comp2	AmpSim				
I076	MM8	Comp-OD/HiG	Comp-OD/HiG	Comp1	ODHiG				
I077	MM9	Comp-P4EQ	Comp-P4EQ	Comp1	P4EQ				
I078	MM10	Comp-Cho/Fl	Comp-Cho/Flng	Comp2	ChFl1				
I079	MM11	Comp-Phaser	Comp-Phaser	Comp2	Phaser				
I080	MM12	Comp-MtDly	Comp-Mt.Delay	Comp2	Mt.Dly				
I081	MM13	Exctr-Comp	Exciter-Comp	Excit2	Comp1				
I082	MM14	Exctr-Limtr	Exciter-Limiter	Excit2	Limitr				
I083	MM15	Exctr-Ch/Fl	Exciter-Cho/Flng	Excit2	ChFl1				1in1out x 4
I084	MM16	Exctr-Phasr	Exciter-Phaser	Excit2	Phaser				
I085	MM17	Exctr-MtDly	Exciter-Mt.Delay	Excit2	Mt.Dly				
I086	MM18	Limitr-P4EQ	Limiter-P4EQ	Limitr	P4EQ				
I087	MM19	Limtr-Ch/Fl	Limiter-Cho/Flng	Limitr	ChFl2				
I088	MM20	Limtr-Phasr	Limiter-Phaser	Limitr	Phaser				
I089	MM21	Limtr-MtDly	Limiter-Mt.Delay	Limitr	Mt.Dly				
I090	MM22	OD/HG-Ch/Fl	OD/HiG-Cho/Flng	ODHiG	ChFl1				
I091	MM23	OD/HG-Phasr	OD/HiG-Phaser	ODHiG	Phaser				
I092	MM24	OD/HG-MtDly	OD/HiG-Mt.Delay	ODHiG	Mt.Dly				
I093	MM25	OD/HG-AmpSm	OD/HiG-AmpSim	ODHiG	AmpSim				
I094	MM26	Wah-AmpSim	Wah-AmpSim	Wah	AmpSim				
I095	MM27	Deci-AmpSim	Decimator-AmpSim	Decima	AmpSim				
I096	MM28	Decima-Comp	Decimator-Comp	Decima	Comp1				
I097	MM29	Ch/Fl-MtDly	Cho/Flng-Mt.Delay	ChFl2	Mt.Dly				
I098	MM30	Phasr-Ch/Fl	Phaser-Cho/Flng	Phaser	ChFl2				
I099	MM31	Amp-Tremolo	AmpSim-Tremolo	AmpSim	TremI				
I100	MM32	Reverb-Gate	Reverb-Gate	Reverb	Gate				
I101	MM33	MicSim-Lmtr	MicSim-Limiter	MicSim	Limitr				
I102	MM33	MicSim57/87	MicSim-Limiter	MicSim	Limitr				
I103	MM33	MicSim57/47	MicSim-Limiter	MicSim	Limitr				
I104	MM33	MicSm57/451	MicSim-Limiter	MicSim	Limitr				
I105	MM33	MicSm57/414	MicSim-Limiter	MicSim	Limitr				
I106	MM33	MicSim57/20	MicSim-Limiter	MicSim	Limitr				
I107	MM33	MicSm57/421	MicSim-Limiter	MicSim	Limitr				
I108	MM33	MicSim57/55	MicSim-Limiter	MicSim	Limitr				
	Mono-Mono 20			**EFF1**					
I109	MN1	OD/HiGain	OverDrive/HighGain	ODHiG					
I110	MN2	Compressor	Compressor2	Comp2					
I111	MN3	Limiter	Limiter	Limitr					
I112	MN4	Gate	Gate	Gate					
I113	MN5	Exciter	Exciter2	Excit2					
I114	MN6	P4EQ	Parametric 4band EQ	P4EQ					
I115	MN7	AmpSim	AmpSimulator	AmpSim					1in1out x 8
I116	MN8	Mt.Delay	Multitap Delay	Mt.Dly					
I117	MN9	Cho/Flng	Chorus/Flanger2	ChFl2					
I118	MN10	Phaser	Phaser	Phaser					
I119	MN11	Expander	Expander	Expndr					
I120	MN6	LoBoost	Parametric 4band EQ	P4EQ					
I121	MN6	LoCut	Parametric 4band EQ	P4EQ					
I122	MN6	MidBoost	Parametric 4band EQ	P4EQ					
I123	MN6	MidCut	Parametric 4band EQ	P4EQ					
I124	MN6	HiBoost	Parametric 4band EQ	P4EQ					
I125	MN6	HiCut	Parametric 4band EQ	P4EQ					
I126	MN2	PowerPop	Compressor2	Comp2					
I127	MN2	Dance	Compressor2	Comp2					
I128	MN2	Rock	Compressor2	Comp2					

MASTER EFFECT Preset32 User32

ProgNo	Categ	ProgramName	Algorithm	EFF 1
	Reverb 15			
M001	RV1	ReverbHall	Reverb Hall	HALL
M002	RV2	SmoothHall	Smooth Hall	SmtHall
M003	RV3	WetPlate	Reverb Wet Plate	WPlate
M004	RV4	DryPlate	Reverb Dry Plate	DPlate
M005	RV5	ReverbRoom	Reverb Room	ROOM
M006	RV6	BrightRoom	Bright Room	BrRoom
M007	RV7	ER	Early Reflections	ER
M008	RV3	DarkPlate	Reverb Wet Plate	WPlate
M009	RV4	BrightPlate	Reverb Dry Plate	DPlate
M010	RV1	ARENA	Reverb Hall	HALL
M011	RV2	Cathedral	Smooth Hall	SmtHall
M012	RV5	Club	Reverb Room	ROOM
M013	RV6	ListenigRoom	Bright Room	BrRoom
M014	RV7	NeoAcoustic	Early Reflections	ER
M015	RV6	Garage	Bright Room	BrRoom
	Delay 6			
M016	DL1	L/C/R Delay	L/C/R Delay	LCRDly
M017	DL2	St/X.Delay	St/Cross Delay	StDly
M018	DL3	St.MtapDelay	St.Multitap Delay	MtDly
M019	DL4	St.ModDelay	St.Modulation Delay	ModDly
M020	DL5	St.DynaDelay	St.Dynamic Delay	DyDly
M021	DL6	AutoPanDelay	St.Auto Panning Delay	PanDly
	Modulation 7			
M022	MO1	Chorus	St.Chorus	Chorus
M023	MO2	Flanger	St.Flanger	Flangr
M024	NO3	Phaser	St.Phaser	Phaser
M025	MO4	Vibrato	St.Vibrato	Vibrat
M026	MO5	Tremolo	St.Tremolo	StTrml
M027	MO6	AutoPan	St.AutoPan	AutPan
M028	MO7	Ensemble	Ensemble	Ensmbl
	Special Effects 4			
M029	SE1	St.RingMod	St.Ring Modulator	RingMd
M030	SE2	Doppler	Doppler	Dopplr
M031	SE3	AnalogRecord	St.Analog Record	Record
M032	SE4	TalkingMod	Talking Modulator	TalkMd

FINAL EFFECT Preset32 User32

ProgNo	Categ	ProgramName	Algorithm	EFF 1
	Dynamics 10			
F001	DY1	St.Comp	St.Compressor	StComp
F002	DY1	StudioComp	St.Compressor	StComp
F003	DY1	TwoMix 60's	St.Compressor	StComp
F004	DY1	TwoMix 70's	St.Compressor	StComp
F005	DY2	St.Limiter	St.Limiter	StLimit
F006	DY2	ReMSTR POP	St.Limiter	StLimit
F007	DY2	ReMSTR DANCE	St.Limiter	StLimit
F008	DY2	StudioLimitr	St.Limiter	StLimit
F009	DY4	St.Gate	St.Gate	StGate
F010	DY7	St.P4EQ	St.Parametric 4band EQ	P4EQ
	LargeSizeEffect 10			
F011	LS1	St.G7EQ	St.Graphic 7band EQ	G7EQ
F012	LS2	St.MBLimiter	St.Multiband Limiter	SBnLmt
F013	LS2	RemasterL.A	St.Multiband Limiter	SBnLmt
F014	LS2	GrooveBeat	St.Multiband Limiter	SBnLmt
F015	LS2	TwoMixHipHop	St.Multiband Limiter	SBnLmt
F016	LS2	TwoMixDance	St.Multiband Limiter	SBnLmt
F017	LS2	2MixGirlPop	St.Multiband Limiter	SBnLmt
F018	LS2	Digital Rock	St.Multiband Limiter	SBnLmt
F019	LS2	TwoMix 80's	St.Multiband Limiter	SBnLmt
F020	LS5	ER_Large	Early Reflections L	ER-L
	Reverb 6			
F021	RV1	ReverbHall	Reverb Hall	HALL
F022	RV2	SmoothHall	Smooth Hall	SmtHall
F023	RV3	WetPlate	Reverb Wet Plate	WPlate
F024	RV4	DryPlate	Reverb Dry Plate	DPlate
F025	RV5	ReverbRoom	Reverb Room	ROOM
F026	RV6	BrightRoom	Bright Room	BrRoom
	Delay 6			
F027	DL1	L/C/R Delay	L/C/R Delay	LCRDly
F028	DL2	St/X.Delay	St/Cross Delay	StDly
F029	DL3	St.MtapDelay	St.Multitap Delay	MtDly
F030	DL4	St.ModDelay	St.Modulation Delay	ModDly
F031	DL5	St.DynaDelay	St.Dynamic Delay	DyDly
F032	DL6	AutoPanDelay	St.Auto Panning Delay	PanDly

Rhythm Name List (215patterns)

For Beat settings other than 3/4, 4/4 or 6/8, only (Blank), Metro, or Hihat can be selected.
For Beat settings of 3/4, 4/4 or 6/8, the following rhythm patterns can be selected in addition to (Blank), Metro, or Hihat.
[I], [F], and [E] indicate Intro, Fill, and Ending pattern marks. In this list, Length and Tempo values are the number of measures in each rhythm, and the recommended tempo.

RhythmName	Length	Tempo
----3/4---- (13 pattern)		
3/4	4	150
[I]3/4	7	150
[F]3/4	1	150
[E]3/4	4	150
JazzWaltz1	8	150
JazzWaltz2	8	150
[I]JazzWaltz	4	150
[F]JazzWaltz	2	150
[E]JazzWaltz	5	150
Waltz	8	150
[I]Waltz	8	150
[F]Waltz	2	150
[E]Waltz	4	150
----6/8---- (14 pattern)		
6/8 Var1	4	120
6/8 Var2	2	120
6/8 Var3	4	120
6/8 Var4	8	120
6/8 Var5	8	120
[I]6/8 1	5	120
[I]6/8 2	5	120
[I]6/8 3	8	120
[F]6/8 1	2	120
[F]6/8 2	1	120
[F]6/8 3	2	120
[E]6/8 1	6	120
[E]6/8 2	5	120
[E]6/8 3	5	120
----4/4---- (188 pattern)		
8bt Rock1	1	120
8bt Rock2	8	120
8bt Rock3	8	120
8bt Rock4	8	120
8bt Rock5	4	120
8bt Rock6	4	120
[I]8bt Rock1	4	120
[I]8bt Rock2	8	120
[I]8bt Rock3	4	120
[F]8bt Rock1	1	120
[F]8bt Rock2	1	120
[F]8bt Rock3	1	120
[E]8bt Rock1	4	120
[E]8bt Rock2	7	120
[E]8bt Rock3	4	120
8beat 1	4	120
8beat 2	4	120
8beat 3	4	120
8beat 4	2	120
8beat 5	8	120
8beat 6	2	120
8beat 7	2	120
[I]8beat 1	5	120
[I]8beat 2	4	120
[F]8beat 1	1	120

RhythmName	Length	Tempo
[F]8beat 2	1	120
[F]8beat 3	1	120
[E]8beat 1	5	120
[E]8beat 2	3	120
[E]8beat 3	3	120
16bt Rock1	4	100
16bt Rock2	4	100
[I]16bt Rock1	5	100
[I]16bt Rock2	4	100
[F]16bt Rock1	1	100
[F]16bt Rock2	1	100
[E]16bt Rock1	6	100
[E]16bt Rock2	4	100
16beat 1	2	100
16beat 2	2	100
16beat 3	4	100
16beat 4	2	100
16beat 5	4	100
16beat 6	4	100
[I]16beat 1	4	100
[I]16beat 2	5	100
[I]16beat 3	4	100
[F]16beat 1	1	100
[F]16beat 2	1	100
[F]16beat 3	1	100
[E]16beat 1	3	100
[E]16beat 2	3	100
[E]16beat 3	5	100
Shuff 1	4	130
Shuff 2	4	130
Shuff 3	4	130
Shuff 4	8	130
Shuff 5	8	130
Shuff 6	8	130
[I]Shuff 1	5	130
[I]Shuff 2	4	130
[I]Shuff 3	8	130
[F]Shuff 1	2	130
[F]Shuff 2	2	130
[F]Shuff 3	1	130
[E]Shuff 1	3	130
[E]Shuff 2	5	130
[E]Shuff 3	4	130
HalfTime	8	150
[I]HalfTime	5	150
[F]HalfTime	1	150
[E]HalfTime	6	150
RockBld 1	8	90
RockBld 2	8	90
[I]RockBld 1	4	90
[I]RockBld 2	4	90
[F]RockBld 1	1	90
[F]RockBld 2	1	90
[E]RockBld 1	6	90
[E]RockBld 2	4	90

RhythmName	Length	Tempo
R&Funk 1	4	98
R&Funk 2	2	98
R&Funk 3	2	98
R&Funk 4	4	98
R&Funk 5	4	98
R&Funk 6	2	98
R&Funk 7	2	98
[I]R&Funk 1	2	98
[I]R&Funk 2	4	98
[I]R&Funk 3	2	98
[F]R&Funk 1	1	98
[F]R&Funk 2	1	98
[F]R&Funk 3	1	98
[E]R&Funk 1	1	98
[E]R&Funk 2	2	98
[E]R&Funk 3	4	98
JAZZ 1	8	100
JAZZ 2	8	100
[I]JAZZ	8	100
[F]JAZZ 1	1	100
[F]JAZZ 2	1	100
[E]JAZZ	8	100
Motown	4	120
[I]Motown	4	120
[F]Motown	1	120
[E]Motown	4	120
SurfRock	8	169
[I]SurfRock	4	169
[F]SurfRock	1	169
[E]SurfRock	4	169
Twist	2	165
[I]Twist	4	165
[F]Twist	1	165
[E]Twist	4	165
Reggae	4	95
[F]Reggae	1	95
HipHop 1	8	90
HipHop 2	4	90
HipHop 3	2	90
HipHop 4	2	90
HipHop 5	2	90
HipHop 6	2	90
HipHop 7	2	90
[I]HipHop 1	3	90
[I]HipHop 2	5	90
[I]HipHop 3	2	90
[F]HipHop 1	1	90
[F]HipHop 2	1	90
[F]HipHop 3	2	90
[E]HipHop 1	4	90
[E]HipHop 2	6	90
Rap	4	95
[I]Rap	4	95
[F]Rap	1	95
[E]Rap	5	95

RhythmName	Length	Tempo
House 1	4	130
House 2	4	130
House 3	4	130
House 4	4	130
[I]House 1	4	130
[I]House 2	8	130
[F]House 1	1	130
[F]House 2	1	130
[E]House 1	3	130
[E]House 2	6	130
Jungle 1	8	160
Jungle 2	8	160
[I]Jungle	8	160
[F]Jungle 1	1	160
[F]Jungle 2	1	160
[E]Jungle	6	160
Techno 1	4	130
Techno 2	4	130
Techno 3	4	130
Techno 4	2	130
Techno 5	2	130
[I]Techno 1	4	130
[I]Techno 2	4	130
[I]Techno 3	4	130
[F]Techno 1	1	130
[F]Techno 2	1	130
[E]Techno 1	5	130
[E]Techno 2	5	130
[E]Techno 3	5	130
Bossa nova	4	132
[I]Bossa	4	132
[F]Bossa	1	132
[E]Bossa	5	132
Beguine	2	120
[I]Beguine	4	120
[F]Beguine	1	120
[E]Beguine	5	120
Mambo	2	100
[I]Mambo	4	100
[F]Mambo	1	100
[E]Mambo	3	100
Salsa	8	90
[I]Salsa	2	90
[F]Salsa	1	90
[E]Salsa	3	90
Samba1	4	95
[I]Samba1	4	95
[F]Samba1	1	95
[E]Samba1	3	95
Samba2	4	111
[I]Samba2	4	111
[F]Samba2	1	111
[E]Samba2	5	111

Demo Song List

1. **Alone**
2. **Clarity**
3. **Someday**

All songs written and performed by **Michael Blake**
Drums by **Paul Roraback**

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