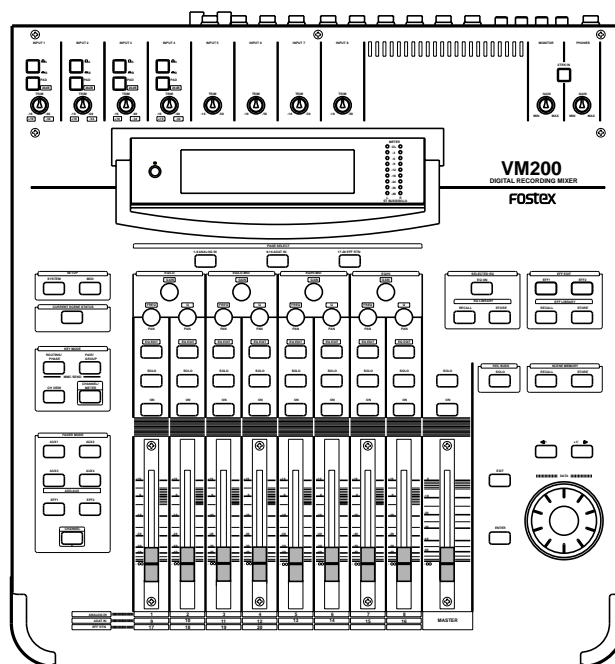


VM200

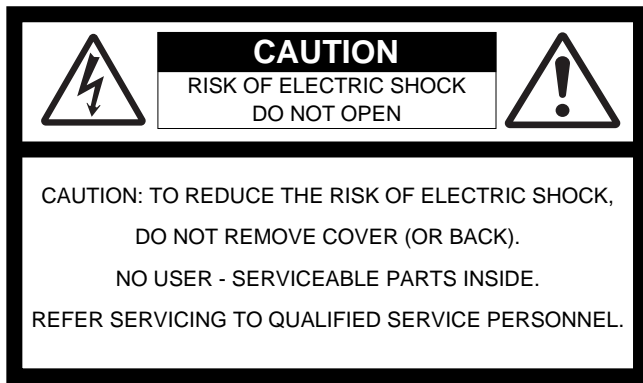
DIGITAL RECORDING MIXER

USER'S GUIDE



Fostex





"WARNING"

"TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE."

SAFETY INSTRUCTIONS

1. Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions - All operating and use instructions should be followed.
5. Water and Moisture - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer.



An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

CAUTION:

TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION:

POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU' AU FOND.



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



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

9. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization - The precautions that should be taken so that the grounding or polarization means of an appliance is not defeated.
12. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. Cleaning - The appliance should be cleaned only as recommended by the manufacturer.
14. Nonuse Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
15. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
16. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:
 - A. The power supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
17. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

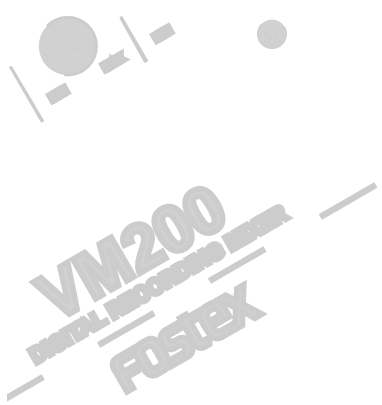
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About This Chapter

This chapter introduces the VM200 Digital Recording Mixer, explains how to use this guide, and how to install the mixer. It also provides a summary of the main features of the VM200.

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Welcome to the VM200

Thank you for purchasing the Fostex VM200 Digital Recording Mixer.

The VM200 is an affordable programmable digital audio mixer that can be extremely useful in numerous audio applications, including smaller-scale live sound reinforcement, as well as audio and video post-production. However, it is designed primarily for digital audio recording in a MIDI or project studio, especially if you are using digital hard disk or tape-based multitrack recording technologies such as the Fostex FD-8, VR-800, or other ADAT-compatible digital recorders.

Using this Guide

This user's guide includes the following main sections:

Chapter 1: Introducing the VM200 describes the major features and explains how to install the VM200.

Chapter 2: Touring the VM200 takes you on a guided tour of the mixer's inputs and outputs, faders, controls, buttons, and LCD display elements.

Chapter 3: Getting Started offers illustrated system examples and explains how to connect and turn on the power to the VM200, and try out a few features, such as the EQ and Effects processors.

Chapter 4: Inputs describes the available input channels and discusses pad switches, trim controls, phase inversion, as well as muting, panning, grouping, and routing input channels.

Chapter 5: EQ describes the parametric equalizer, the EQ Library, and how to store, recall, and edit EQ programs.

Chapter 6: Monitoring describes the monitoring and soloing capabilities of the VM200 and explains how to view various level meters.

Chapter 7: Outputs describes the stereo buss output, the record buss output, the AUX sends, and how to monitor, route, solo, and mute the buss outs.

Chapter 8: Effects describes the Effect Library, presets and user programs, and how to apply and route to and from the effect processors.

Chapter 9: Scene Memories introduces scene memories and explains how to store and recall scenes, and how to prevent specific parameters from being updated by a recalled scene memory.

Chapter 10: Digital I/O discusses the VM200's digital inputs and outputs, including the ADAT and S/P DIF digital connectors, word clock masters and slaves, and cascading multiple VM200s.

Chapter 11: MIDI describes the Musical Instrument Digital Interface (MIDI) functions of the VM200.

Chapter 12: Initializing explains how to re-initialize the VM200.

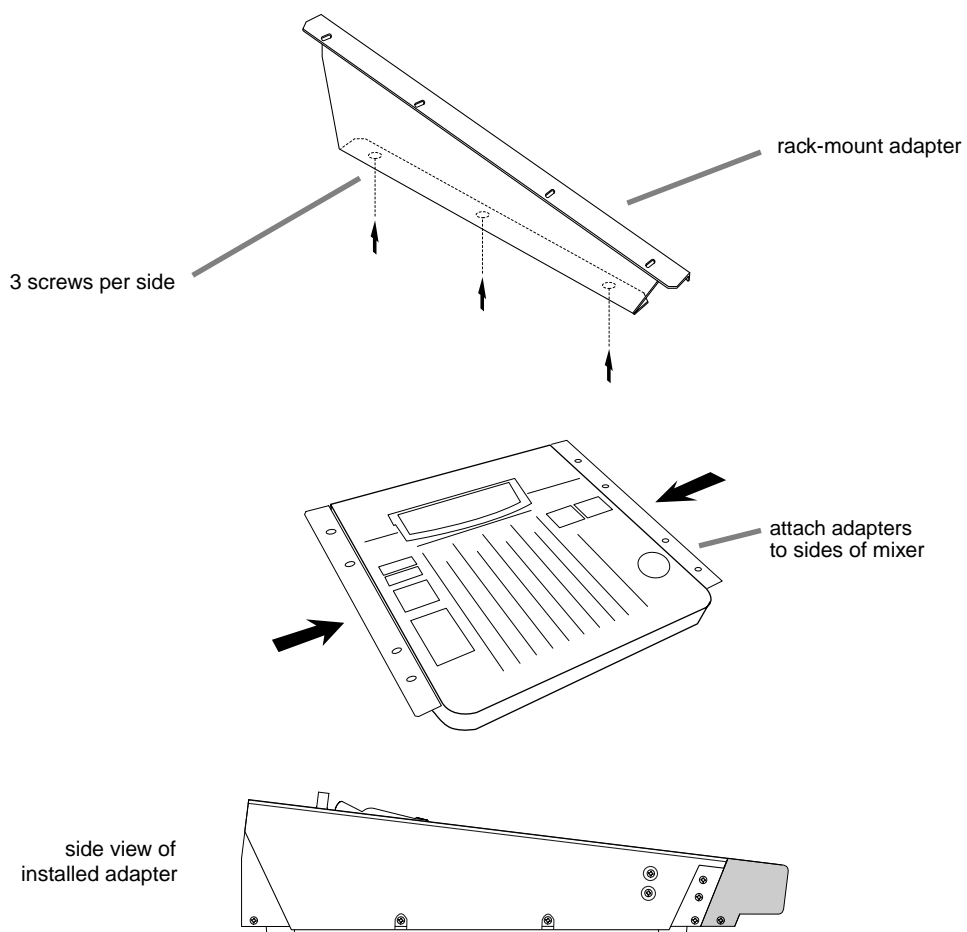


Appendix A. Specifications and Data provides technical specifications and other data, including a MIDI Program Change Assign table, a Control Change Assign table, System Exclusive messages, etc. The *Index* can help you locate specific information quickly.

Installing the VM200

Locate the VM200 on a level, stable surface.

You can also mount the VM200 vertically in a rack using the Fostex 9910 optional rack mount adapter. Remove the six screws from the bottom of the VM200, attach the rack mount adapter, then reinstall the screws as shown in the illustration below.



Refer to the *Precautions* for information on appropriate locations and environments for the VM200.

Refer to "Getting Started" on page 43 and "Outputs" on page 107 for information on connecting the VM200 to other components.

Feature Summary

This section summarizes the main features of the VM200.

Audio Specifications

- 20-bit 64-times oversampling, delta sigma modulation A/D converters
- 20-bit 128-times oversampling, delta sigma modulation D/A converters
- 90dB or higher dynamic range
- 20Hz to 20kHz, +1dB/-3dB frequency response
- industry standard 44.1K or 48K sampling rates

Inputs and Outputs

- 20 Channel Inputs
 - Channels 1 - 8: Analog In
 - Channels 9-16: ADAT In (20-bit)
 - Channels 17-20: Effect Return (for internal effects only)
 - Switchable balanced XLR and balanced/unbalanced phone jacks
 - +48V phantom power support for XLR Analog In jacks 1-4
 - Route S/P DIF input signals to any of 20 channels
- 18 Outputs
 - Stereo buss output (ST BUSS OUT)
 - Recording buss output (REC BUSS OUT)
 - 20-bit digital two-channel output (S/P DIF OUT)
 - 20-bit digital ADAT eight-channel output (ADAT OUT)
 - Two auxiliary outputs (AUX SEND 1-2)
 - ADD AUX function adds two auxiliary outs (AUX SENDS 3-4)
 - Solo buss outputs post-fader listen (PFL) signals from any channel or buss to the Monitor or Phones outputs.
- MIDI IN, MIDI OUT, and MIDI THRU (built into the mixer)
- Word Clock In and Out
- Analog two-track input jacks (2TRK IN) enable you to monitor two tracks without affecting the mix.
- 4 Insert jacks for external effects returns



Mixer Functions

- Scene Memory (up to 100 scenes)
- 3 Preset Scenes (INIT, RECORDING, MIXDOWN)
- 60mm continuous motorized faders
- Stopless rotary controls
- 4-band parametric EQ for channels 1-16
- Dual internal effects processors
- EQ Library with 50 Presets plus 50 memory locations for customized EQ programs
- Effect Library featuring 50 Preset effect programs, and memory locations for 50 user-customized effect programs
- The ADAT DIRECT send function enables you to assign input channel 1-8 signals to ADAT 1-8 (and turn any channel on or off).
- You can pair adjacent (odd-even) input channels.
- You can pair AUX SEND 1 and 2, and AUX SEND 3 and 4.
- Three Fader groups (A, B, C)
- Three Mute groups (A, B, C)
- Channel Copy function copies parameter settings, including mute group and fader group information, from one channel to another
- EQ Copy function copies EQ settings from one channel to another.
- LED-segment meter displays ST BUSS OUT level
- LCD meter displays levels for 20 input channels or 18 output channels
- Two Solo modes, PFL and MIX-SOLO, enable you to monitor signals pre-fader or post-fader
- Large 256x64 dot resolution LCD Display

MIDI functions

- You can use Program Change messages to recall scenes (Presets and User tables)
- You can use Control Change messages to control mixer parameters (Presets and User tables)
- You can use System Exclusive messages to control mixer parameters
- You can output MIDI Machine Code (MMC) by pressing keys on the control panel
- MIDI Bulk Dump capability for data backup and transfer

Mixer Configuration

The VM200 is equipped with a total of 20 analog and digital inputs: eight analog mono input channels (1-8), four internal effects returns, and an eight-channel ADAT digital input. A two-channel S/P DIF digital input signal can be routed to any of 20 channels, and a two-track analog input (2TRK IN) is also provided.

External effects signals can be returned to the VM200 via four INSERT phone jacks.

Input channels 1 through 8 feature trim control attenuators and TRS phone jack connectors. Input channels 1 through 4 can also be switched to +48V phantom-powered balanced XLR-type connectors.

Two effects busses send signals to the two on-board effects processors. An Effects Library contains 50 high-quality preset effects programs. The effects can be modified and stored in the Effects Library for future recall. The VM200 returns the effects signals via channels 17-20.

The VM200 features 18 outputs.

A stereo buss outputs the stereo buss signal; a record buss outputs the record buss signal.

There are two fixed AUX Sends, and two more can be added through the use of an ADD AUX function (although the record buss is unavailable when the ADD AUX parameter is on).

Digital outputs include a 20-bit digital two-channel output (S/P DIF OUT), a 20-bit digital ADAT eight-channel output (ADAT OUT).

Monitor and headphone outputs facilitate stereo monitoring via speakers or headphones.

A four-band parametric equalizer is available for each input channel. EQ programs can be stored in and recalled from an on-board EQ Library.

You can cascade multiple VM200s together to increase the number of input channels.

Why a *Digital* Mixer?

One of the best things about a *digital* audio mixer is that it is able to combine audio signals from various sources without introducing virtually any signal degradation, distortion, crosstalk, or noise.

Digital recording to tape or hard disk-based systems is increasingly popular. However, many of these small studios use 4-, 8-, or 16-channel *analog* mixers.

The VM200 Digital Recording Mixer enables you to keep your audio signals in the digital domain for both mixing *and* recording, resulting in new levels clarity and quality in your recordings.



Four-band Parametric EQ & EQ Library

Channels 1 through 16 feature a four-band parametric equalizer (EQ), with variable Gain, Frequency, and Q controls.

The LO-MID and HI-MID bands use parametric EQ. The LO band can function as an HPF, shelving, or parametric EQ; the HI band can function as an LPF, shelving, or parametric EQ.

An EQ Library can store up to 100 EQ programs for future recall.

Dual On-board Effects Processors

The VM200 features two on-board stereo effects processors, EFF1 and EFF2.

These effects processors utilize Fostex Advanced Signal Processing Technology (ASP) to create high-quality ambient reverbs, as well as choruses, delays, flangers, and other effects and combinations.

ASP is an exclusive new digital effect processing technology designed by Fostex that excels at maximizing the efficiency of digital signal processing power. It achieves an overwhelmingly high-density Early Reflection sound and smooth High Dump response rate via a Harmonic Feedback Algorithm, and conducts elaborate reverb simulation using High Density Logarithmic Processing technology, which eliminates mutual interference between integrated delay modules, reducing audio impurities.

Digital I/O

The VM200 features two types of digital inputs and outputs: S/P DIF and ADAT.

The S/P DIF is a two-channel digital I/O commonly found on consumer CD players, computer audio cards, etc.

The ADAT IN and ADAT OUT connectors allow a direct eight-channel connection to any ADAT-compatible digital audio recorder, such as the Fostex VR800 or the Alesis ADAT series.

About the Display and Graphic User Interface

The LCD display features a resolution of 256-by-64 dots and utilizes graphic icons to represent faders, send levels, and rotary control knobs.

The display also provides a graphic EQ response curve and numerical readouts of mixer parameter settings.

Depending on the lighting in your studio, you may wish to supplement the LCD Display with a gooseneck-type studio lamp or other light source.



Scene Memory

The VM200 enables you to store virtually every mixer parameter setting as part of a group snapshot, or “scene,” in the Scene Memory.

The Scene Memory can store up to 100 scenes, which you can later recall by simply pressing a key on the VM200, or by issuing a remote MIDI Program Change command from a connected MIDI device.

The Scene Memory store and recall functions let you work on a mix until you are satisfied, then store virtually all mixer fader and parameter settings for instantaneous future recall.

In addition to the scene memory “slots” or “locations” for user programs, the VM200 features three preset scenes: InitMix, Recording, and Mix Down, which are designed for optimal performance in common mixing situations.

MIDI

MIDI connections enable you to take advantage of the VM200’s versatility. MIDI Program Change messages can recall scenes from the VM200’s Scene Memory. MIDI Control Change messages and Fostex System Exclusive messages enable real-time parameter control.

To backup and transfer data between VM200s, you can use System Exclusive Bulk Dump commands.

If a MIDI-compatible recorder is connected to the VM200, you can control it remotely via MMC (MIDI Machine Control). You can also cascade VM200s via MIDI connections.

Faders

The VM200 features eight 60mm continuous-throw faders and one Master fader.

A channel layering system enables you to control up to 20 channels using only the eight faders and the Master. Page Select keys specify the “active” channel layer. You can select Channels 1 - 8 Analog In, Channels 9 - 16 ADAT In, or Channels 17 - 20 Eff Rtn. The LCD Display will show parameters specific to the selected layer.

The VM200 features seven Fader modes. In each mode, the Faders function slightly differently, controlling various send and return levels. The Fader modes include: Channel, Eff1, Eff2, Aux1, Aux2, Aux3, and Aux4.

The motorized faders move automatically when you recall a scene from Scene Memory, if the Motor parameter is turned on.

The faders can be grouped into one of three groups, enabling you to control the group with a single fader. Faders for paired channels move as one.

The faders can function as MIDI controllers if a MIDI device is connected to the VM200 via the MIDI ports.





About This Chapter

This chapter takes you on a guided tour of the VM200, introducing various components of the control surface, including the faders, rotary controls, the Data Wheel, and other features.

It also explains the operations associated with each function key.

This chapter then discusses the input and output connectors and switches on the rear panel and concludes with a block diagram of the VM200.

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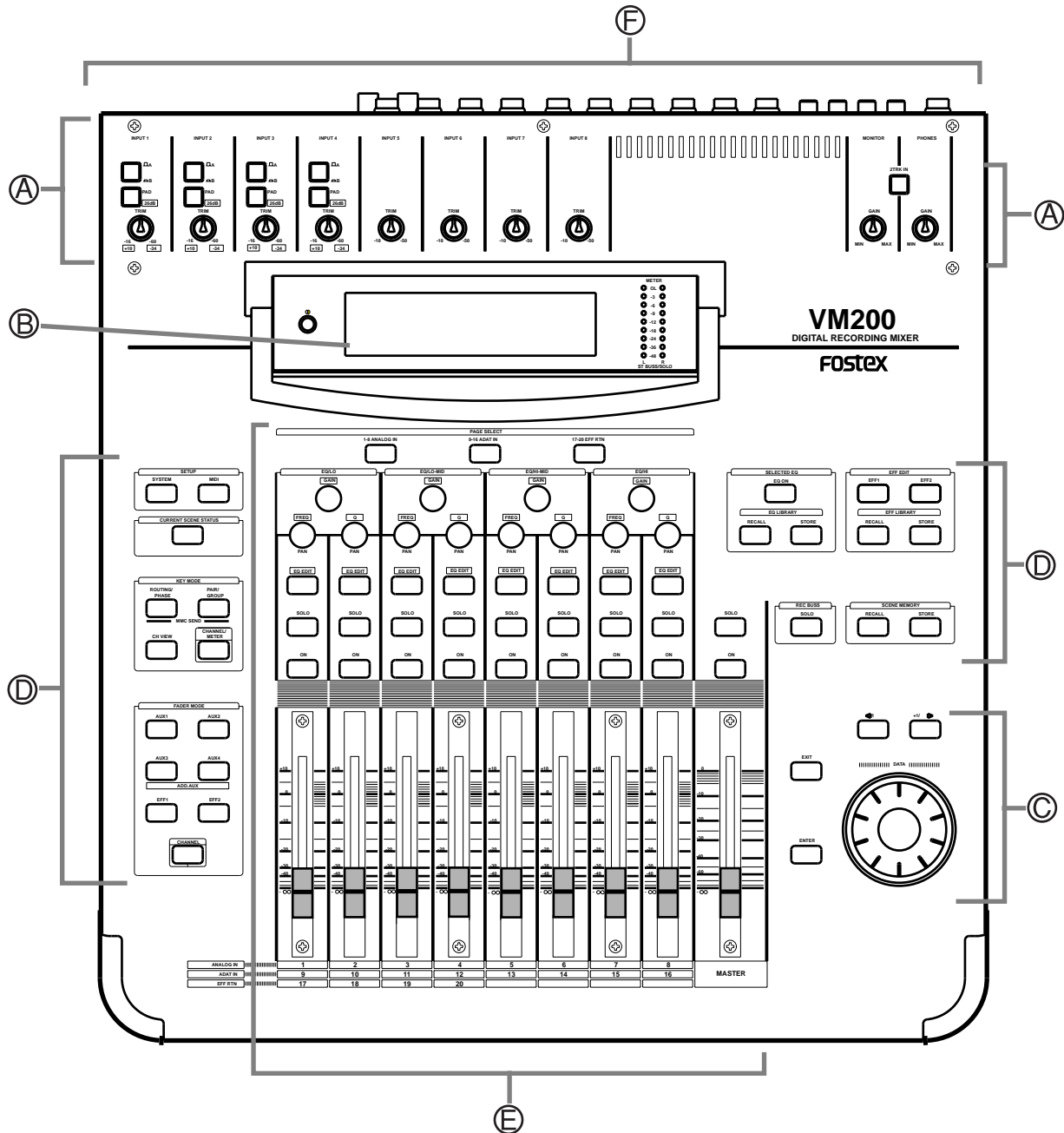
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Top Panel Control Surface

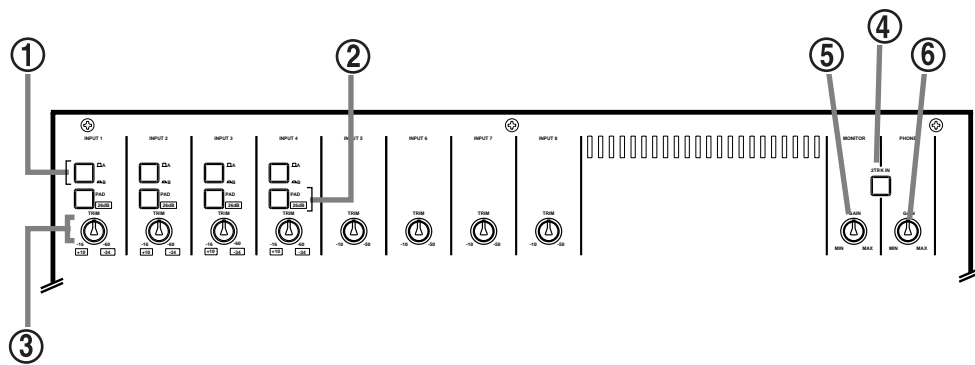
The following illustration shows the top panel control surface of the VM200.

Each section of the mixer is discussed in the following pages.



Ⓐ Analog Control Section (page 19)	Ⓓ Function Keys (page 22)
Ⓑ LCD Display (page 20)	Ⓔ Input Channel Control Section (page 32)
Ⓒ Data Wheel and Neighboring Keys (page 21)	Ⓕ Rear Panel (page 38)

Analog Control Section



① A/B Input selectors

The VM200 features four A/B Input selectors that enable you to select the A or B inputs for input channels 1 through 4.

The A Inputs are balanced XLR-type connectors for use with microphones that feature XLR-type plugs, such as condenser microphones, or other input devices that require XLR connectors.

The B Inputs are balanced/unbalanced TRS (tip-ring-sleeve) phone connectors, for use with dynamic microphones and other sound sources that require phone jacks. (These connectors will accept balanced or unbalanced inputs.)

For more information, see “Input Channels 1–4” on page 60.

The A Inputs are selected by default (the selector is not depressed). Press the A/B Input Selector to select the B input.

② PAD (26dB) switches

The four Pad switches turn the 26 dB input pads on and off for input channels 1–4.

When turned on, the input pads attenuate the signal by 26 dB. This helps the preamp handle “hot” signals.

For more information, see “Pad Switches (Input channels 1–4)” on page 63.

③ TRIM controls

The four Trim controls (1–4) attenuate the gain of the input preamps in the range of +10 to -34 or -16 to -60 dB, depending on whether or not the signal is attenuated by the Pad 26dB switch. The other four Trim controls (5–8) attenuate the gain of the input preamps in the range of -10 to -50.

④ 2TRK IN switch

The 2TRK IN switch enables you to monitor the signal input to the 2TRK IN connector on the rear panel. You can monitor this signal through MONITOR OUT or PHONES OUT. The signal is unaffected by mixer settings.



⑤ **Monitor Gain knob**

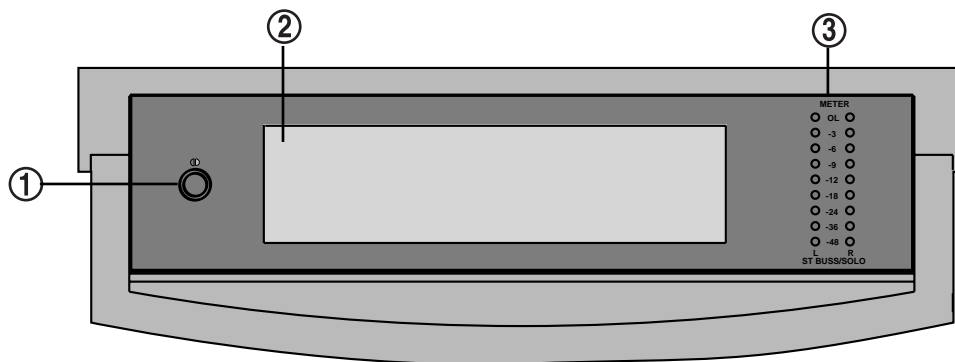
Use the Monitor Gain knob to adjust the Monitor Out level.

The Monitor Out jacks output the buss signal you specify on the SETUP SYSTEM 1:CLOCK/MON function page. (The default is ST BUSS OUT.)

⑥ **Phones Gain knob**

Use the Phones Gain knob to adjust the headphone output level.

LCD Display



① **Contrast dial**

Rotate this dial left or right to adjust the contrast of the LCD Display for maximum clarity.

② **LCD Display**

The LCD Display has a resolution of 256 x 64 dots. It displays various parameters and numerical values, and uses graphic icons to represent faders, rotary controls, pan positions, and switches.

For more information, see “Reading the Display” on page 49.

③ **Meters**

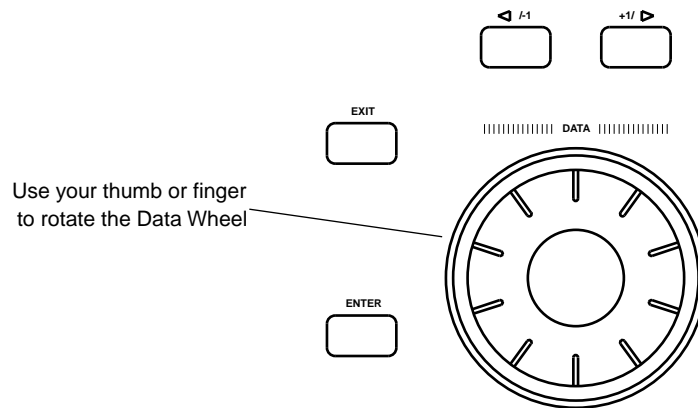
The LCD Display features meters for 20 input channels or 18 output channels.

To the right of the LCD Display is a pair of nine-segment LED meters for the Left and Right channels of the stereo buss signals.

Data Wheel and Neighboring Keys

The Data Wheel is located in the lower-right corner of the VM200.

It enables you to scroll through lists of programs in the Effect and EQ Libraries. You can also use the Data Wheel to move the cursor left and right when naming a new effect or EQ program.



[</-1] and [+1/>] Keys

These keys can step through scrollable lists, such as the Effect Library or EQ Library.

[ENTER] and [EXIT] Keys

You can use the [ENTER] key to execute certain functions, such as confirming new parameter values, writing to memory, or initializing the VM200. You can also use it to confirm new parameter settings.

In many cases, if you hold down the [ENTER] key while pressing another key, the VM200 displays the key's first function page (as opposed to the most recently-displayed function page for that key).

Pressing the [EXIT] key usually exits the current operating mode and displays the CHANNEL EDIT function page.

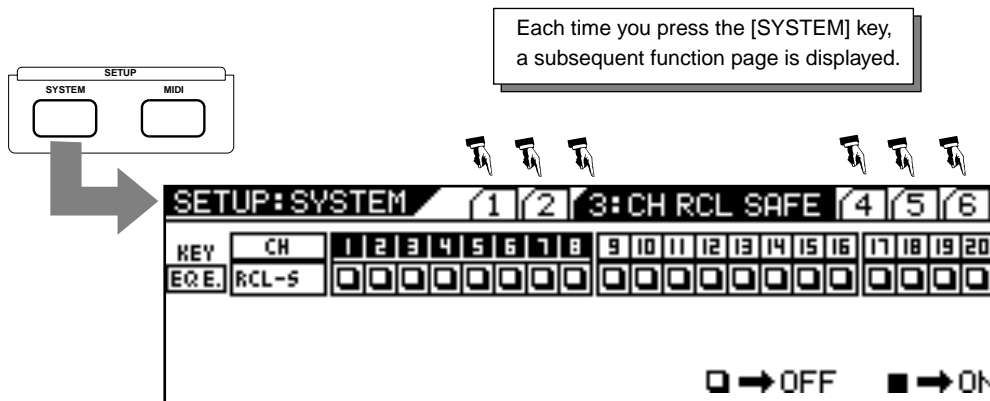
The following table shows additional [ENTER] key functions.

Press ENTER and...	Operation
ON	Sets channel fader parameter in selected fader mode to Unity Gain.
Rotary Controls	Increases adjustment increment in EFF Edit or EQ Edit mode.
EQ EDIT	VM200 enters EQ Edit mode. (If already in EQ Edit mode, the parameter being edited will be initialized after confirmation.)
SYSTEM	Displays the first SYSTEM function page.
MIDI	Displays the first MIDI function page.
CH VIEW	Displays the first CH VIEW function page.
PAIR/GROUP	Displays the first PAIR/GROUP function page.
ROUTING/PHASE	Displays the first ROUTING/PHASE function page.
CHANNEL/METER	Displays the first CHANNEL/METER function page.

Function Keys

This section provides a brief tour of the VM200's numerous function keys.

When you press certain function keys, such as [SYSTEM] or [CURRENT SCENE STATUS], the VM200 displays a "function page" of information on the LCD Display Panel. Each function page contains parameters that you can set to configure and control the VM200.



In many cases, repeatedly pressing a function key displays additional pages of parameters. The sequence of pages cycles around to begin again (i.e., page 1, 2, 3, 1, 2, 3...)

Other function keys, such as EFF1 in the Fader Mode section, do not directly display information on the LCD Display Panel, but nevertheless configure or control the VM200 in other ways.

Some function keys are opaque grey. Others are translucent and fixed above an LED light that can light up or flash to indicate status information.

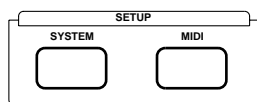
In general, the translucent function keys flash to indicate that they are available for selection. Once selected, they remain lit.

Note: The procedures in this manual offer specific steps that you can follow to accomplish certain tasks. Phrases such as "press the function key twice" assume the function page cycle always begins with the first function page. This may not always be the case. If not, simply press the key repeatedly until the desired page appears.

Setup Section

The Setup section features two function keys: [SYSTEM] and [MIDI]. The SYSTEM key displays function pages that enable you to configure the VM200.

The [MIDI] key displays function pages that enable you to interface the VM200 to MIDI devices.



[SYSTEM] Key

The [SYSTEM] key enables you to configure the VM200.

It displays a sequence of six function pages on the LCD Display if you repeatedly press the key.

SYSTEM Key	
Function Pages	Includes parameters that enable you to...
1:CLOCK/MON	Select a system clock, specify the buss to monitor, select a solo mode and key operation, turn the fader motors on or off, and set the Frame mode.
2:RCL SAFE	Specify parameters that you want to remain unmodified (not updated) when you recall a scene from memory.
3:CH RCL SAFE	Specify channels that you want to remain unmodified (not updated) when you recall a scene from memory.
4:SOLO SAFE	Specify channels that you want to send to the ST Buss in M-Solo mode.
5:POWER ON RCL	Specify which scene the mixer should recall from memory when you power on the VM200.
6:INITIALIZE	Re-initialize the VM200, resetting all parameters to factory default settings.

[MIDI] Key

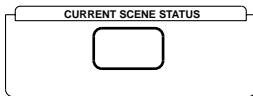
The [MIDI] key enables you to interface the VM200 with MIDI (Musical Instrument Digital Interface) instruments and devices.

The [MIDI] key also features six function pages, as summarized below:

MIDI Key	
Function Pages	Includes parameters that enable you to...
1:MIDI TX&RX	Set MIDI transmit/receive channels, set MIDI message transmission and reception on or off.
2:PGM TABLE1	Edit User Program Change Assign table 1.
3:PGM TABLE2	View Program Change Assign table 2.
4:CTL TABLE1	Edit User Control Change Assign table 1.
5:CTL TABLE2	View Control Change Assign table 2.
6:BULK DUMP	Set up Bulk Dump transmission.

Current Scene Status

The Current Scene Status section features only one key, which shares its name.



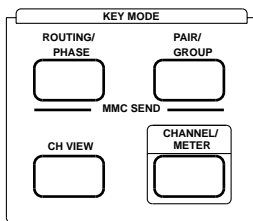
When you press the [CURRENT SCENE STATUS] key, the VM200 enters Current Scene Status mode and displays the CURRENT SCENE STATUS function page. The number and name of the scene (e.g., 01:MY_SCENE) appear in the top right of the display.

The CURRENT SCENE STATUS function page enables you to:

- Enable the EQ for channels 1-8, 9-16, or 1-16
- Turn on the ADD. AUX parameter (to enable AUX Sends 3&4)
- Set the Smoothing function to Level 1 or 2
- Set the record buss gain (REC-B.GAIN) from [∞ to -90 to 0dB] (available when ADD. AUX is off)
- Set the sends for AUX1, AUX2, AUX3, and AUX4, EFF1, and EFF2 to Pre-fader or Post-fader
- Pair AUX Sends (Aux1&2 or Aux3&4).

Key Mode Section

The Key Mode section features four function keys: [ROUTING/PHASE], [PAIR/GROUP], [CH VIEW], and [CHANNEL/METER], as described below.



[ROUTING/PHASE] Key

The [ROUTING/PHASE] key displays a sequence of three function pages that let you control mixer routing, assign S/P DIF inputs to channels, and invert the phase for each channel.

The ROUTING function page lets you route input channels 1-20 to the Stereo Buss (ST BUS), the Record Buss (REC BUS), or the ADAT output (DIRECT).

Press a Page Select key to specify Channels 1-8, 9-16, or 17-20. Then press the [EQ EDIT], [SOLO], and/or [ON] key for each channel to route the signal to a potential destination. The indicator in the channel/buss matrix highlights (dark square).



The S/P DIF function page lets you assign the S/P DIF digital two-track input to any odd-even pair of channels (e.g., 1&2, 13&14, etc.).

The Ø PHASE function page lets you invert the phase for each of input channels 1 through 20.

Press a Page Select key to specify Channels 1-8, 9-16, or 17-20.

You can also use the [ROUTING/PHASE] key in conjunction with the [PAIR/GROUP] key to enter MMC mode. (For more information, see “MMC (MIDI Machine Control) Send” on page 192.)

ROUTING/PHASE Key	
Function Pages	Includes parameters that enable you to...
1:ROUTING	Route input channels 1-20 to ST BUSS, REC BUSS, or ADAT DIRECT.
2:S/P DIF	Assign S/P DIF digital input to any odd-even channel pair.
3:Ø PHASE	Invert phase for each input channel.

[PAIR/GROUP] Key

The [PAIR/GROUP] key displays a sequence of three function pages that enable you to pair channels, mute groups of channels, or group faders under the control of a single fader.

The CHANNEL PAIR (CH PAIR) function page enables you to pair any two odd-even channels using the [EQ EDIT] keys.

The MUTE GROUP function page enables you to create three groups of channels (Mute Groups A, B, and C) that you can silence instantly.

The FADER GROUP function page also enables you to create three groups of channels (Fader Groups A, B, and C). Faders in a group can be controlled by a single fader.

Use the Page Select keys to specify Channels 1-8, 9-16, or 17-20; use the [EQ EDIT], [SOLO], and [ON] keys to apply these functions to specific channels.

You can also press the [ROUTING/PHASE] key simultaneously with the [PAIR/GROUP] key to enter MMC mode. (For more information, see “MMC (MIDI Machine Control) Send” on page 192.)

PAIR/GROUP Key	
Function Pages	Includes parameters that enable you to...
1:CH PAIR	Pair odd-even input channels.
2:MUTE GROUP	Create Mute Groups A, B, C
3:FADER GROUP	Create Fader Groups A, B, C

[CH VIEW] Key

The Channel View [CH VIEW] key displays a sequence of three function pages that display settings for specific channels, and allow you to copy channel and EQ settings from a source channel to destination channels.

The CH VIEW function page lets you view (but not modify) settings for specific channels.



The CH COPY function page lets you copy channel settings from a source channel to one or more destination channels.

The EQ COPY function page lets you copy EQ settings from a source channel to one or more destination channels.

CH VIEW Key	
Function Pages	Includes parameters that enable you to...
1:CH VIEW	View channel parameter settings.
2:CH COPY	Copy channel settings to other channels.
3:EQ COPY	Copy EQ settings to other channels.

[CHANNEL/METER] Key

Pressing the [CHANNEL/METER] key displays two CHANNEL EDIT function pages: Channel Edit/Input and Channel Edit/Output.

These are essentially the “main” pages of the VM200, the pages you will likely display most often. However, unlike other function pages, the name of the page does not appear on a CHANNEL EDIT function page.

The name and number of the Current Scene appear in the top-left corner of the display.

These function pages enable you to view and set the pan position for each channel.

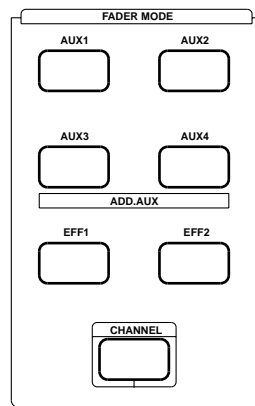
You can also view the *input* levels for input channels 1-20.

Pressing the [CHANNEL/METER] key a second time displays the *output* levels for the ADAT, AUX, Effects, Record Buss, and Stereo Buss outputs.

CHANNEL/METER Key	
Function Pages	Includes parameters that enable you to...
1:CH EDIT (Input)	View input levels and set pan positions.
2:CH EDIT (Output)	View output levels and set pan positions.



Fader Mode Section



The VM200 features 20 input channels and 18 output channels. However, with only eight faders plus the Master fader, the VM200 must use its faders for multiple tasks to accommodate all those channels.

Depending on the Fader Mode, the faders (as well as the [ON], [SOLO], and [EQ EDIT] keys) control different functions. You determine which functions the faders and keys will control by selecting a Fader Mode.

[AUX1], [AUX2], [AUX3], and [AUX4] Keys

If you press one of these function keys, the faders, the Master fader, [ON] and [SOLO] keys control the AUX send signals. (To enable AUX3 and AUX4 keys, turn on the ADD. AUX parameter on the CURRENT SCENE STATUS function page. For more information, see “Enabling AUX Sends 3 & 4 (ADD. AUX Parameter)” on page 115.)

[EFF1] and [EFF2] Keys

If you press one of these function keys, the faders, the Master fader, [ON] and [SOLO] keys control the EFF1 and EFF2 send signals.

[CHANNEL] Key

The [CHANNEL] key is something like a “Home” key. With this key selected, channel controls handle input channel signals and the Master controls handle stereo out signals.

Selected EQ Section

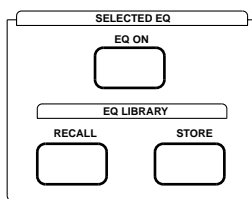
An equalizer (EQ) enables you to boost or cut specific frequency ranges to “shape” a sound.

The VM200 features a four-band parametric equalizer for each input channel. Each band features rotary controls for Gain, Frequency, and Q.

The LO-MID and HI-MID bands use parametric EQ. The LO band can function as an HPF, shelving, or parametric EQ; the HI band can function as an LPF, shelving, or parametric EQ.

The Selected EQ section features three keys: an [EQ ON] key, and [STORE] and [RECALL] keys for the EQ Library.

For more information on using the EQ, see EQ on page 75.



[EQ ON] Key

The [EQ ON] key enables you to turn on or bypass the equalization parameters selected via the [EQ EDIT] keys.

EQ Library

The EQ Library stores sets of equalization parameters as EQ programs that you can later recall.

The EQ Library features 50 preset EQ programs. You can store up to 50 new EQ programs (in EQ Library locations 50 - 99).

[RECALL] Key

Pressing the [RECALL] key displays the EQ LIBRARY RECALL function page, which enables you to select from up to 100 equalization programs (00 - 99).

Use the Data Wheel or [</-1] and [+1/>] keys to scroll through the list, and press the [ENTER] key to recall the selected EQ program.

The lower half of the function page displays the pan and fader settings for each channel.

[STORE] Key

The [STORE] key enables you to create and store new EQ programs.

Once you’ve worked on a mix, adjusting the Gain, Frequency, and Q parameters to your satisfaction for all four bands of each channel,



you may wish to store the EQ settings for future recall.

Pressing the [STORE] key displays the EQ LIBRARY STORE function page. Use the Data Wheel to scroll through the list to select the location (program number) where you want to store the new EQ program.

Press the [ENTER] key to display the EQ LIBRARY NAME EDIT function page, then name the EQ program.

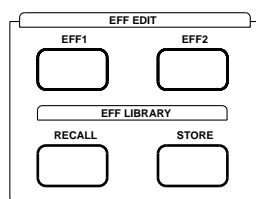
Pressing the [ENTER] key again stores the program in the EQ Library for future recall.

One way to create a new EQ program is to select the EQ program most similar to your “target” EQ, then modify various parameters to sculpt the response curve into shape.

For more information, see “Storing EQ Programs” on page 86.

Eff Edit Section

The Eff Edit section features four keys: [EFF1], [EFF2], and [STORE] and [RECALL] keys for the Effect Library.



[EFF1] and [EFF2] Keys

The [EFF1] and [EFF2] keys in the Eff Edit Section enable you to select for editing the effect that is currently loaded in effect processor 1 or 2.

Note: Do not confuse these keys with the keys in the Fader Mode section of the same name.

Pressing [EFF1] or [EFF2] displays an EFF EDIT function page that includes parameters related to the current effect.

For example, a Large Hall Reverb effect includes parameters for Reverb Time, E/R Balance, HPF, LPF, Initial Delay, PreDelay, Room Size, etc. The 3D Chorus effect includes parameters for Depth, HPF, and LPF.

Effect Library

The Effect Library stores effects that you can recall.

It features 50 preset effects and effect combinations. You can modify the parameters for these existing effects to create and store an additional 50 custom effect programs.

[RECALL] Key

Pressing the [RECALL] key displays the EFFECT LIBRARY RECALL function page, which enables you to select from 50 preset effects programs (00 - 49).

Use the Data Wheel or [←/-1] and [+1/→] keys to scroll through the list or to select a program. Press the [ENTER] key to recall the Effect program.

[STORE] Key

The [STORE] key enables you to store your own Effect programs in one of 50 user program locations (program numbers 50 -99).

Once you've edited effect parameters to your satisfaction, you may wish to store them for future recall.

Press the [STORE] key to display the EFFECT LIBRARY STORE function page.

Use the Data Wheel or [←/-1] and [+1/→] keys to scroll through the list to select the location (50-99) where you want to store the new effect program.

Press the [ENTER] key to display the EFFECT LIBRARY NAME EDIT function page, then name the effect program.

Pressing the [ENTER] key again stores the program in the Effect Library for future recall.

One way to create a new Effect program is to select the Effect program most similar to your "target" effect, then modify various parameters to sculpt the effect into shape.

For more information, see "Effects" on page 123.

Rec Buss Section

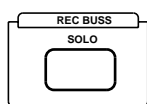
The Rec Buss section features only the [SOLO] function key.

The VM200 also features [SOLO] keys for each channel and the Master fader. For more information on the Rec Buss [SOLO] keys, see "Soloing the REC BUSS OUT" on page 113.

The REC BUSS is enabled only when the ADD. AUX parameter is turned off. For more information, see "Enabling AUX Sends 3 & 4 (ADD. AUX Parameter)" on page 115.

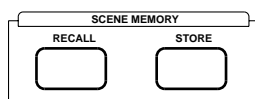


[SOLO] Key



The [SOLO] key in the Rec Buss section enables you to solo the Record Buss.

Scene Memory Section



The Scene Memory section includes [RECALL] and [STORE] keys that enable you to recall scenes from memory and store new scenes to memory.

A “scene” is a collection or “snapshot” of virtually all the parameter settings of the VM200 at a given point in time.

[RECALL] Key

Pressing the [RECALL] key displays the SCENE MEMORY RECALL function page.

You can use the Data Wheel or [←/−1] and [+1/→] keys to scroll through the list of stored and preset scenes.

Press the [RECALL] key again to recall the scene from memory and remain in Scene Memory mode, or press the [ENTER] key to recall the scene and exit Scene Memory mode.

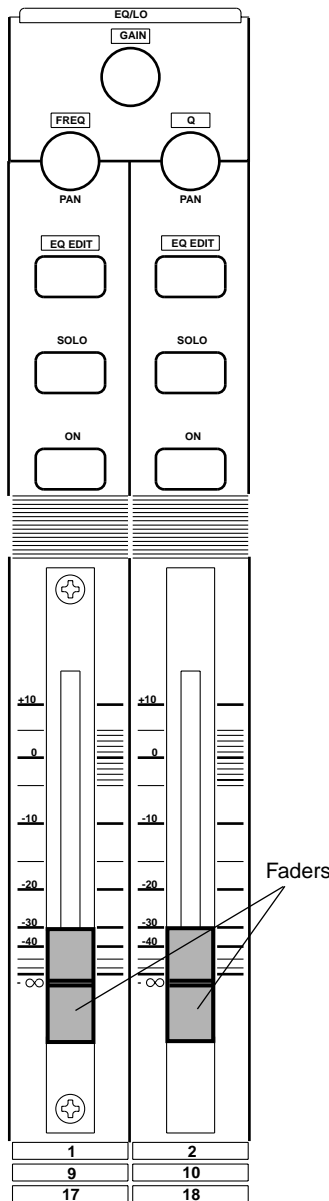
[STORE] Key

The [STORE] key enables you to store scenes in Scene Memory.

Pressing the [STORE] key displays the SCENE MEMORY STORE function page.

Press the [ENTER] key to display the SCENE MEMORY NAME EDIT function page, then name the new Scene Memory. Press the [ENTER] key again to store the scene in memory.

Channel Control Section



The VM200 features nine 60mm motorized faders.

Faders 1 through 8 are associated with separate [ON], [SOLO], and [EQ EDIT] keys. (The Master fader features only [ON] and [SOLO] keys.)

Faders 1 - 8 and [ON], [SOLO], and [EQ EDIT] keys 1-8 typically control channels 1 through 8. However, they can also control channels 9 through 16, and 17 through 20, depending on the channel layer you select using the Page Select keys. (See the “Fader function” table below.)

The ninth fader is the Master Fader.

Faders 1 - 8 and [ON], [SOLO], and [EQ EDIT] keys also assign values to various function page parameters.

You can also use the faders and [ON], [SOLO], and [EQ EDIT] keys as MIDI controllers by setting parameters on the Control Table function pages, which are displayed by the Setup [MIDI] function key.

Faders

The faders control different functions depending on the Fader Mode you select.

You select a Fader Mode by pressing one of the keys in the Fader Mode section of the control surface. The VM200 features seven fader modes: Channel, Aux 1, Aux2, Aux3, Aux4, Eff1, and Eff2. (For more information, see “[ON], [SOLO], & [EQ EDIT] Keys” on page 34.)

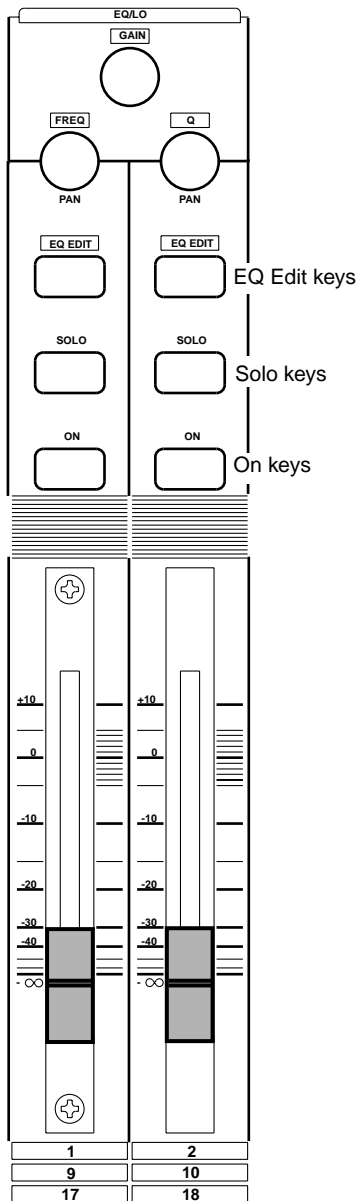
Faders 1 - 8 typically control the channel gain; the Master Fader typically controls the Stereo Buss Master gain.

However, in Fader Mode Aux1 for example, Fader 1 controls the channel-to-Aux1 Send gain. In Fader Mode Eff2, Fader 1 controls the channel-to-Eff2 Send gain, and so on.

The following table describes the function of the channel faders and Master fader in each Fader Mode:

Fader function

CH	Input Channel	Master
Mode	1–8 (ANALOG IN) 9–16 (ADAT IN) 17–20 (EFF RTN)	
CHANNEL	Channel Gain	ST BUSS Master Gain
AUX1	Channel to AUX1 Send Gain	AUX1 Send Master Gain
AUX2	Channel to AUX2 Send Gain	AUX2 Send Master Gain
AUX3	Channel to AUX3 Send Gain	AUX3 Send Master Gain
AUX4	Channel to AUX4 Send Gain	AUX4 Send Master Gain
EFF1	Channel to EFF1 Send Gain	EFF1 Send Master Gain
EFF2	Channel to EFF2 Send Gain	EFF2 Send Master Gain



[ON], [SOLO], & [EQ EDIT] Keys

The VM200 features eight sets of [ON], [SOLO], and [EQ EDIT] keys, one set for each channel fader.

The Master fader also features a [SOLO] key and an [ON] key.

The following paragraphs summarize the functions of these keys.

[ON] Keys

The [ON] keys basically turn channels on and off.

In Channel Fader Mode, the channel [ON] keys turn channels 1-8, 9-16, or 17-20 on or off, depending on the channel layer you select (using the Page Select keys).

The Master [ON] key controls various functions depending on the current Fader Mode. In Fader Mode Aux1 for example, [ON] key 1 turns channel 1 on and off, and the Master [ON] key turns the Aux1 Out on and off. In Fader Mode Eff2, On key 1 turns channel 1 on and off, and the Master [ON] key turns the Eff2 Master on and off.

The [ON] keys can also transmit MMC commands in MMC Send mode. (For more information, see “MMC (MIDI Machine Control) Send” on page 192.)

The following table describes the function of the channel and Master [ON] keys in each Fader Mode:

[ON] key function

CH Mode	Input Channel		Master
	1-8 (ANALOG IN)	9-16 (ADAT IN) 17-20 (EFF RTN)	
CHANNEL	Channel ON/OFF		ST BUSS OUT ON/OFF
AUX1			AUX1 OUT ON/OFF
AUX2			AUX2 OUT ON/OFF
AUX3			AUX3 OUT ON/OFF
AUX4			AUX4 OUT ON/OFF
EFF1			EFF1 Master ON/OFF
EFF2			EFF2 Master ON/OFF

[SOLO] Keys

The [SOLO] keys enable you to solo channels for monitoring.

The Solo Mode parameter on the SETUP:SYSTEM 1:CLOCK/MON function page determines how signals from each channel will solo. They can solo individually (PFL, or pre-fader listen) or after being mixed together post-fader (M-SOLO, or mix solo).

In Channel Fader Mode, the [SOLO] keys solo channels 1-20, depending on the channel layer you select using the Page Select keys.

The [SOLO] keys control various functions depending on the current Fader Mode. In Fader Mode Aux1 for example, [SOLO] key 1 solos channel 1, and the Master [SOLO] key solos the AUX1 Buss. In Fader Mode Eff2, [SOLO] key 1 solos channel 1, and the Master [SOLO] key solos the Eff2 Send Master.

The following table describes the function of the Channel and Master [SOLO] keys in each Fader Mode:

[SOLO] key function

CH Mode	Input Channel	Master
	1-8 (ANALOG IN) 9-16 (ADAT IN) 17-20 (EFF RTN)	
CHANNEL	Channel Solo	ST BUSS Solo
AUX1		AUX1 Solo
AUX2		AUX2 Solo
AUX3		AUX3 Solo
AUX4		AUX4 Solo
EFF1		EFF1 Send Solo
EFF2		EFF2 Send Solo

[EQ EDIT] Keys

The [EQ EDIT] keys enable you to select channels for parameter editing.

When you press an [EQ EDIT] key, the VM200 displays the EQ EDIT function page for the selected channel (for example, EQ EDIT CH2).

This function page includes parameters that control a four-band parametric equalizer. The bands are LO, LO-MID, HI-MID, and HI.

You can adjust the equalization by rotating the [GAIN], [FREQ], and [Q] controls for each band.

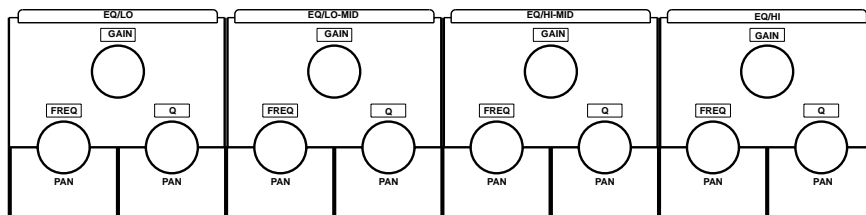
For more information, refer to the table below, which describes the function of the [EQ EDIT] key in different Fader Modes.

[EQ EDIT] key function

Mode	Input Channel			Master
	1–8 (ANALOG IN)	9–16 (ADAT IN)	17–20 (EFF RTN)	
CHANNEL				
AUX1	Edits EQ for Channels 1–8 (Disabled if EQ Enable for Channels 1–8 is turned OFF.)	Edits EQ for Channels 9–16 (Disabled if EQ Enable for Channels 9–16 is turned OFF.)	Disabled	N/A
AUX2				
AUX3				
AUX4				
EFF1				
EFF2				

EQ Section Rotary Controls

The VM200 EQ section is horizontally subdivided into four sections: EQ-LO, EQ/LO-MID, EQ/HI-MID, and EQ HI.



Each band features three knobs labelled Gain, Freq, and Q that control the parametric equalizer in EQ Edit mode.

The Gain rotary control sets the gain of the input preamps.

The Freq rotary control specifies the frequency.

The Q rotary controls adjust the selectivity of a filter. A narrow frequency band indicates a high Q value; a wide frequency band indicates a low Q values. (In the response curve, notice how a bell-shaped curve grows wider as Q decreases.)

However, like many VM200 controls, in other operational modes the EQ section knobs serve multiple purposes. For example, in Channel Edit mode, the [FREQ] and [Q] knobs control the channels pan position.

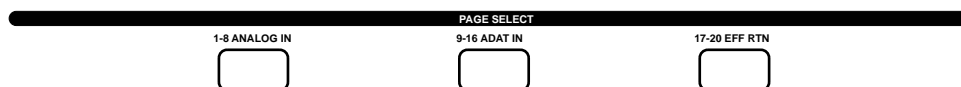


Page Select Keys

The VM200 uses a channel-layer format, in which its nine faders perform multiple tasks to accommodate 20 input channels.

You can imagine the VM200 as being divided into three layers. Layer 1 provides access to Channels 1 through 8, which primarily handle the analog inputs. Layer 2 provides access to Channels 9 through 16, which are used with ADAT-compatible systems. Layer 3 provides access to Channels 17-20, which are used primarily for effects returns.

You can use the Page Select keys to select an appropriate channel layer. The VM200 will display parameters appropriate for the channel layer you specify.

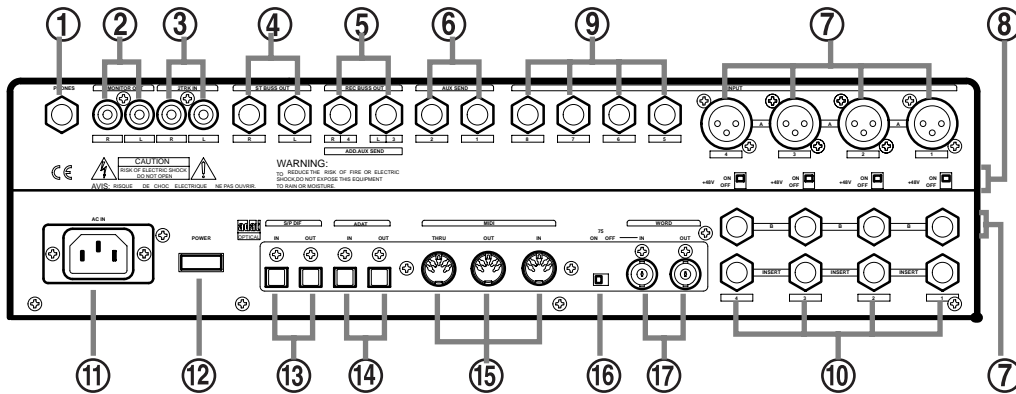


When you press a Page Select key, it lights up, and the other two Page Select keys remain dark or flashing.

Page Select Key	Channels Displayed
1-8 ANALOG IN	Channels 1 - 8 ANALOG IN
9-16 ADAT IN	Channels 9 - 16 ADAT IN
17-20 EFF RTN	Channels 17 - 20 EFFECT RETURN

Rear Panel

All inputs and outputs on the VM200 are conveniently located on the rear panel. The following paragraphs briefly describe each input and output.



① PHONES

Connect a pair of stereo headphones to this stereo (TRS) phone jack. Set the output level using the PHONES Gain knob on the top panel.

② MONITOR OUT

Connect this pair of RCA phono jacks to the inputs on your monitoring amplifier.

Select the monitor signal you wish to output through these jacks using the MON SEL parameter on the SETUP:SYSTEM 1:CLOCK/MON function page (see “Setup Section” on page 23).

Set the output level using the MONITOR Gain knob on the top panel.

③ 2TRK In

You can input a two-track signal, such as the stereo outputs from a master recorder, to this pair of RCA phono jacks for confidence monitoring.

Press the 2TRK IN switch on the top panel to monitor the signal.

④ ST BUSS OUT

The Stereo Buss Out (ST BUSS OUT) is a pair of unbalanced 1/4-inch phone jacks that outputs the left and right channels of the main stereo mix.

⑤ REC BUSS OUT

The Rec Buss Out (REC BUSS OUT) is a pair of unbalanced 1/4-inch phone jacks that outputs the record buss.

When the ADD. AUX parameter is turned on, the REC BUSS OUT outputs Aux Sends 3 and 4.



⑥ AUX SEND

AUX SEND 1 and 2 are a pair of unbalanced 1/4-inch phone jacks that can output an auxiliary signal to drive external effects, for example.

⑦ Inputs 1 - 4: XLR or Phone Connectors (A or B)

Input channels 1 - 4 accept either balanced XLR inputs (XLR-3-32 type), or balanced/unbalanced (1/4-inch) phone plugs. (Input 1-4 Phones connectors accept either balanced or unbalanced analog input.)

If you are inserting a phone plug, press the A/B switch for channels 1 through 4 to select the B inputs.

If you are inserting an XLR-type plug, leave the A/B switch “unpressed” to select the A inputs. You can switch phantom power to the XLR connectors on or off using switches located beneath each connector. (Many condenser microphones, for example, require phantom power.)

These inputs have a nominal input range of -60 dB to +10 dB.

⑧ +48 Phantom Power

Turn on this switch for XLR microphones or devices connected to XLR inputs that require phantom power.

⑨ Inputs 5 - 8: Phone Connectors

Input channels 5 through 8 accept unbalanced phone plugs.

These inputs are designed for use with line-level sources (e.g., a synthesizer keyboards, effects processors, or other devices).

These inputs have a nominal input range of -60 dB to +10 dB.

⑩ Inserts 1-4: Phone Connectors

The Insert connectors are stereo-type phone jacks.

You can connect an external effects unit to these connectors using an insert cable to send the signal to the effects unit and return it to the VM200. (For more information, see “Insert Channels 1–4” on page 62.)

The Insert connectors allow you to insert a signal into the signal chain after the PAD switches and TRIM knobs.

⑪ AC In

Insert the female end of the AC power cable into this connector. Connect the male end to an AC electrical outlet of the appropriate voltage for your area.

⑫ Power Switch

Use the power switch to turn the VM200 on and off.

⑬ S/P DIF IN/OUT

These are S/P DIF format optical digital connectors. You can connect any S/P DIF equipped device (such as certain CD players, DAT recorders, or computer soundcards) to these connectors.

For more information, see “S/P DIF IN/OUT” on page 168.

⑭ ADAT IN/OUT

These are Alesis ADAT Multichannel Optical Digital Interface connectors. You can connect an 8-track digital multitrack recorder, such as a Fostex VR-800 or other ADAT-compatible recorder, to these connectors.

For more information, see “ADAT IN/OUT” on page 165.

⑮ MIDI IN, OUT, THRU

These standard MIDI ports enable you to connect the VM200 to other MIDI devices. The MIDI IN port receives MIDI messages. The MIDI OUT port outputs MIDI messages. The MIDI THRU port outputs all MIDI messages received by the MIDI IN port.

⑯ 75Ω On, Off Switch

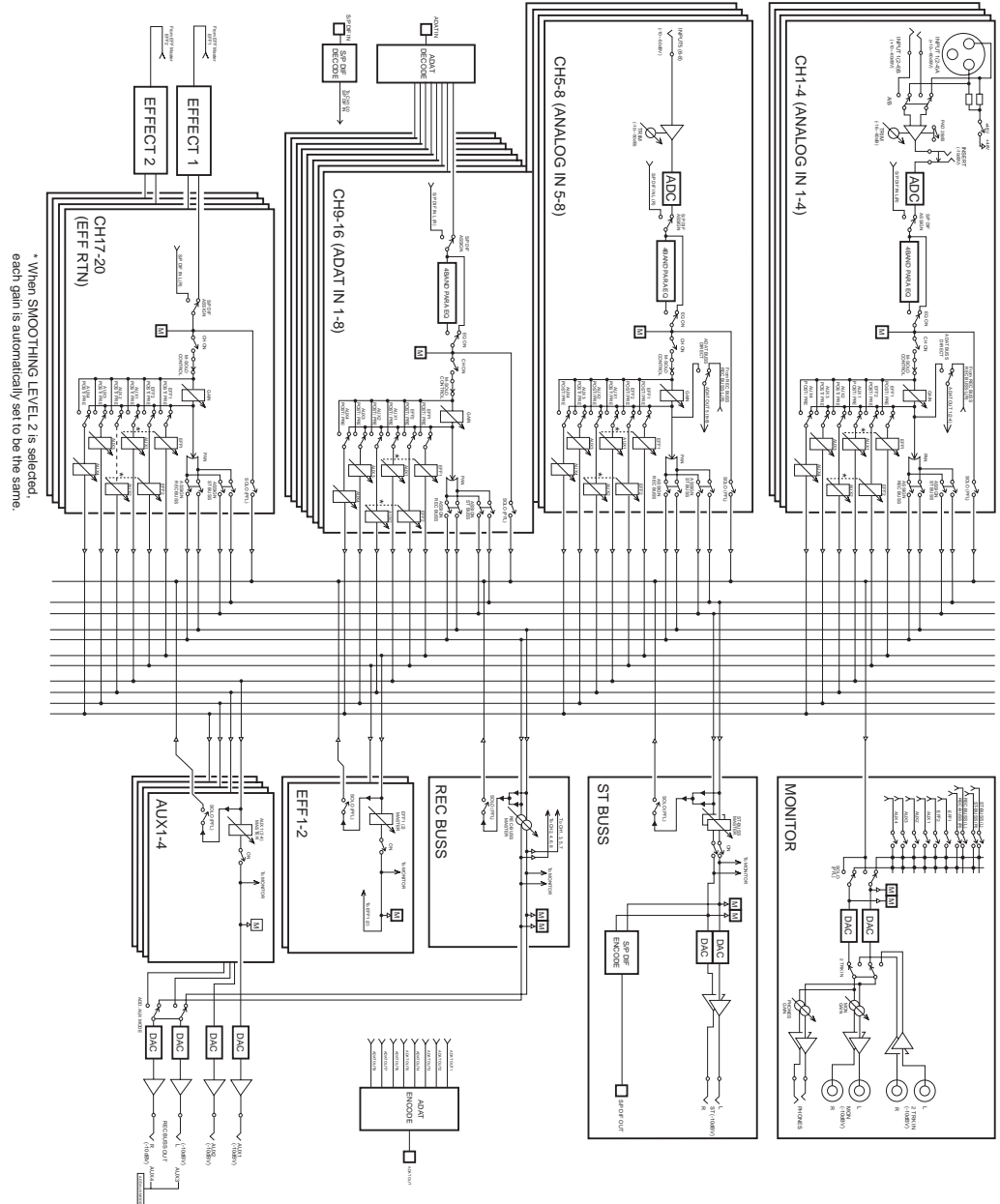
This switch turns WORD IN termination on and off. If the VM200 is the last device to receive word clock via the WORD IN connection, turn this termination switch on.

⑰ WORD IN/OUT

The Word In and Out connectors are connected to the WORD OUT and IN connectors of digital devices to receive and send word clock information for digital sync operation.



Block Diagram



About This Chapter

This chapter is designed to help get you started quickly using your VM200.

It explains how to plug in the power cord, connect to an amplifier, plug in a microphone or other source, turn on the VM200, adjust a few controls, try out some EQ settings and Effect presets, and record a stereo signal to an external recorder.

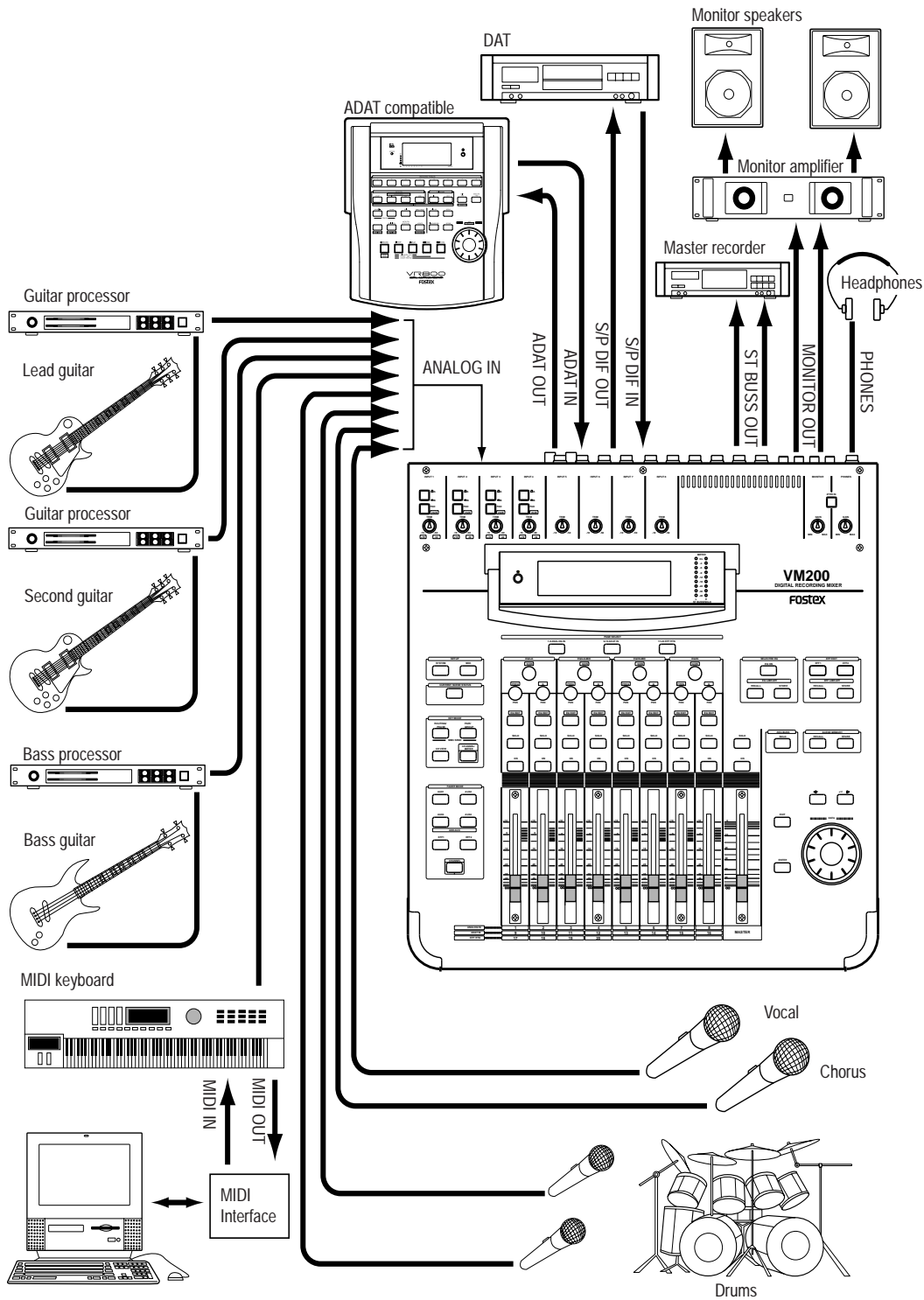
However, please read the *Precautions*, “Introducing the VM200” on page 9 and “Touring the VM200” on page 17 before you “get started.”

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VM200 System Example

The following illustration shows one example of a recording studio based on the VM200.



Connecting the Power Cord

Warning: Turn off the power to all connected electronic equipment before making any connections to the VM200.

Use the included power cord to connect the VM200 to an appropriate AC electrical outlet. Insert the female end into the AC input on the rear panel of the VM200. Insert the male end into a wall outlet of an appropriate voltage for your area.

Turning the VM200 On and Off

The power button is located on the rear panel of the VM200 next to the AC power cable input jack. When you power on your audio components, be certain to follow this sequence to prevent damage to your equipment:

1. **Connect all instruments and sound sources, including keyboards, drum machines, etc.**
2. **Turn on the power to all sound sources.**
3. **Turn on the power to the VM200 by depressing the power button on the rear panel.**

The VM200 displays the Fostex and VM200 logos, then the CHANNEL EDIT function page. (For more information on the CHANNEL EDIT function page, see “The Channel Edit Function Page” on page 49.)

4. **Make sure the volume on your monitor amplifier is not set too loud, then turn on the power to the monitor amplifier.**

When you turn *off* the power to the VM200, be sure to follow this sequence in reverse. (That is, first turn off the monitor amplifier, then the VM200, then the sound sources.)

A Few Tips on Using the VM200

If you have experience using analog audio mixers, a few things about the VM200 Digital Recording Mixer may be new to you. This section introduces some of the advantages of working with a digital mixer.

Channel Layers

If a conventional analog mixing console has 16 or 24 input channels, it also likely has 16 or 24 faders, the same number of [ON] keys and [SOLO] keys, etc. Each input channel is a complete module, with its own dedicated set of input connector, preamp, etc. This type of design can work well, but is redundant and subject to analog noise.

The VM200 is a *digital* recording mixer, and does not conform to analog recording conventions.

The VM200 uses an innovative “channel layering” system that enables you to control up to 20 channels using only eight faders and one Master Fader.

You press one of three Page Select keys to specify the active channel layer. The faders, rotary controls, and various keys then control a channel on the selected layer, and the LCD Display shows parameters specific to the selected layer.

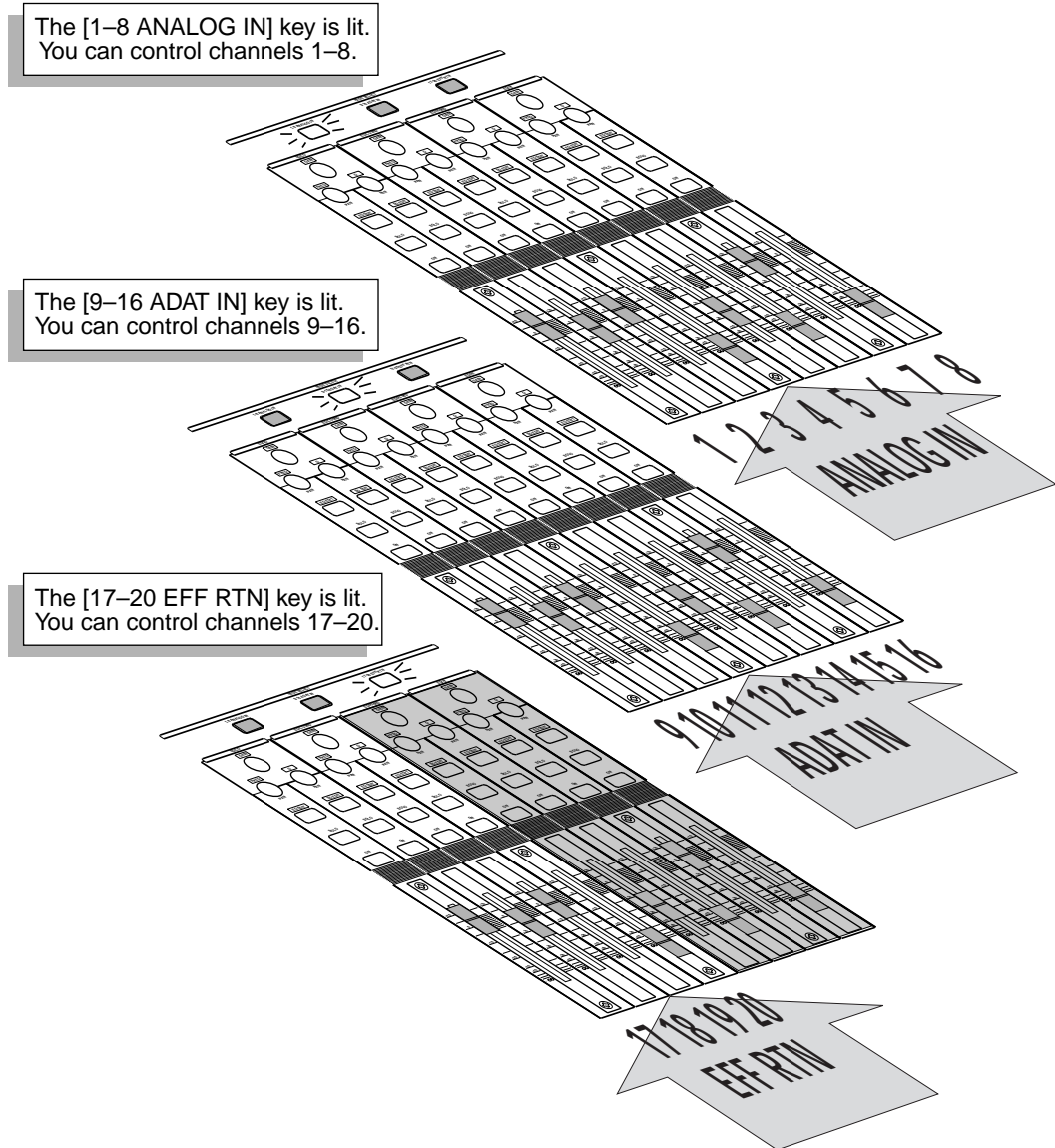
For example, Fader 1 can control input channels 1, 9, or 17 depending on the selected channel layer. (It can also control various send levels, depending on the current mixer routing.)

You can select one of the following layers by pressing the appropriate Page Select key:

- Channels 1 - 8 Analog In
- Channels 9 - 16 ADAT In
- Channels 17 - 20 Eff Rtn



The following diagram illustrates the three channel layers of the VM200:



Keeping It Digital

Many home studios or project studios these days record to digital audio tape or hard disk recording systems, but lacking a digital mixer, they are forced to mix tracks using a conventional analog mixer. This can actually add color and warmth to some tracks, but is likely to introduce noise into the signal chain.

Once an instrument or singer's voice has been converted to digital audio by an analog-to-digital (A/D) converter, it is generally best to leave the recording in the digital domain. Running the signal back and forth through A/D and D/A converters, regardless of the quality of the converters, unnecessarily reduces the overall quality of the signal, and hence the final recording.

With the VM200, you can record and mixdown entirely in the digital domain. This may make a dramatic improvement in the quality of your final recordings.

An Important Note About Word Clock Information

Before you can transfer digital audio from one device to another, the digital audio equipment must be word clock synchronized, or timing problems may result.

For example, if you are recording to another digital device, such as an ADAT, DAT, or digital multitracker, you must synchronize all digital components in your recording system to a common word clock source.

If the VM200 is the only digital component in your recording system, you do not need to adjust any word clock settings.

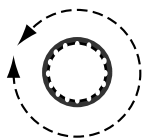
However, if you are using other digital audio components, please refer to "Digital Connections, Word Clocks, and Sample Rates" on page 160 for more information on synchronizing to a common word clock source.

Stopless Rotary Controls

The VM200 uses the 12 rotary controls (also known as the Gain, Freq, and Q controls) to adjust values for several different parameters, depending on the currently-selected function page.

Unlike conventional analog control knobs, the rotary controls on the VM200 are stopless; you can rotate them right or left endlessly.

In this way, the knobs can more easily accommodate a broad range of parameter values.



Lower and Raise Faders to Initiate Sends

If on occasion you think you have configured the VM200 to send a particular signal to a buss, but you unexpectedly cannot hear the output, try bringing the fader down and raising it back up to the desired level to initiate the send.

This may seem unusual if you are used to analog mixers, but it is part of the channel layer structure of the VM200. Because the faders can control multiple functions depending on the displayed function page, you may need to lower and raise the faders to set new levels when you change Fader Modes.

For example, after you set the level of channels 19 and 20 for an effect return, if you wish to set the effect send level on channel 3, you may need to lower the Channel 3 and Master faders once, then raise them to set the desired level.

Reading the Display

The LCD Display features a resolution of 256 x 64 dots. It can display numerical parameter values, and uses graphic icons to represent fader positions and rotary control settings.

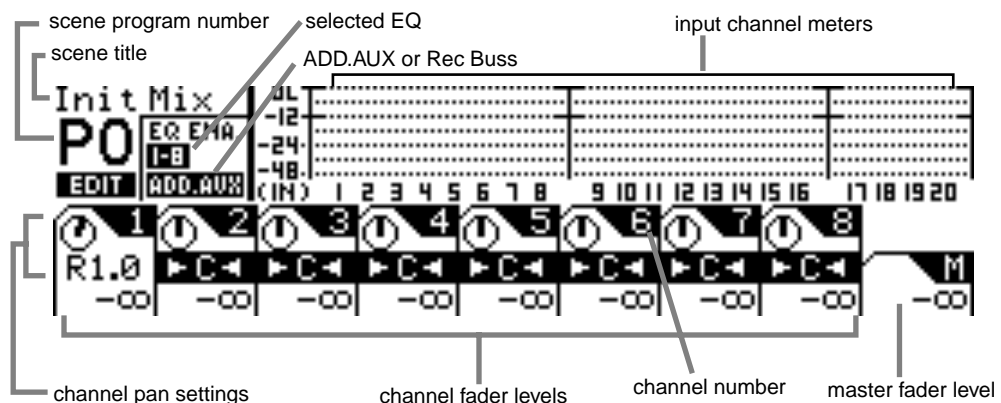
This section shows a few sample function pages and explains common icons and indicators.

The Channel Edit Function Page

Whenever you turn on the power to the VM200 or press the [CHANNEL/METER] key or the [EXIT] key, the VM200 displays the CHANNEL EDIT function page.

There are actually two versions of the Channel Edit page. One version shows the inputs; the other version shows the outputs. (The Channel Edit/Input version is shown below.)

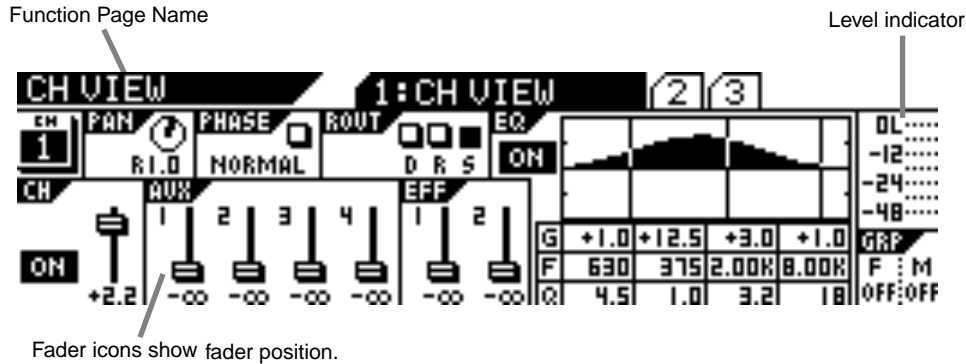
When you see this function page, the VM200 is in Channel Edit mode. You can think of the CHANNEL EDIT function pages as a type of “home” page.



Examples of Other Function Pages

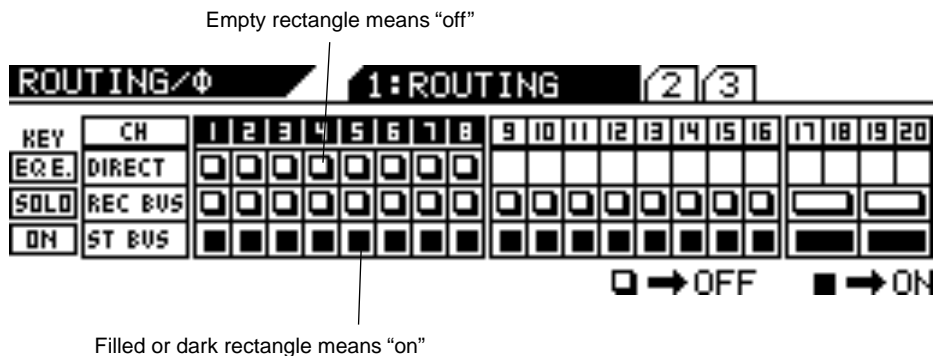
The name of the function page appears in the upper-left corner.

Note how the fader icons look like little faders on the following CHANNEL VIEW (CH VIEW) function page.



You use the [EQ EDIT], [SOLO], and [ON] keys to toggle two-state indicators. These indicators are represented on the display by small rectangles.

An empty rectangle indicates that the parameter or option is turned “off.” A “filled” or solid dark rectangle indicates an “on” setting. (This manual also refers to darkened indicators as “highlighted,” just to confuse the tourists.)



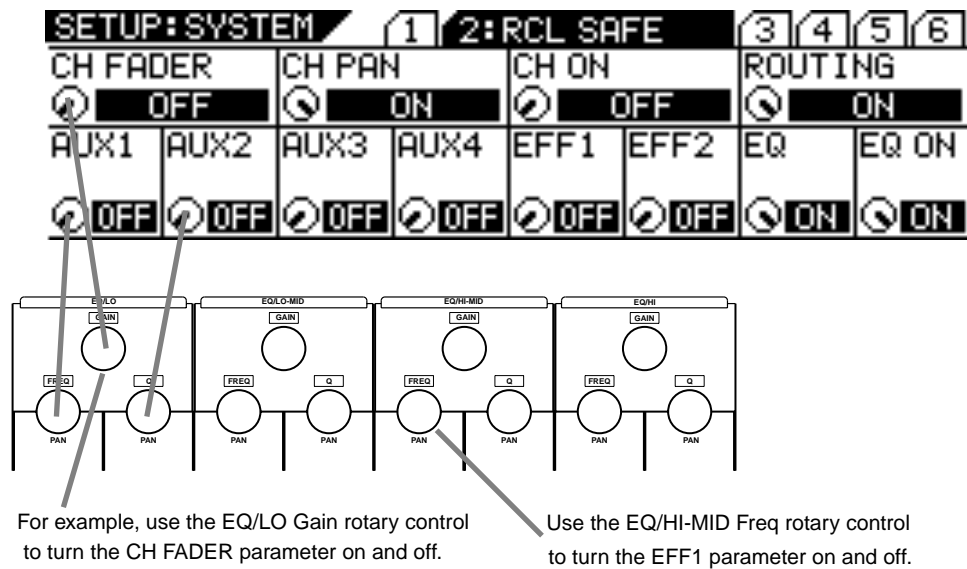
Function Page Parameter Matrix

The display frequently arranges the parameters on a function page in a matrix.

One such matrix displays four rectangles in a horizontal row, with each rectangle containing a parameter. Beneath this appears another row, which contains eight rectangles, as illustrated below.

On such a function page, the four Gain rotary controls adjust parameters in the top row, and the Freq and Q rotary controls adjust the parameters in the bottom row.





Lit & Flashing LED Keys

Many of the keys on the control surface of the VM200 are translucent and fixed in position over an LED light that can provide status information.

In general, these keys flash when they are available for selection, and light up continuously when they are selected. (Don't be alarmed the first time you press the Routing function key and a couple dozen lights start flashing! This is normal.)

LED Condition	Meaning
dark	off, deselected
flashing	available for selection
lit	on, selected

Finally...Let's Get Started!

The following procedure lets you try out some of the capabilities of your VM200. To simplify the explanation, in this procedure we will connect a microphone to channel 1, adjust the EQ, apply effects, and record the signal.

Making Connections

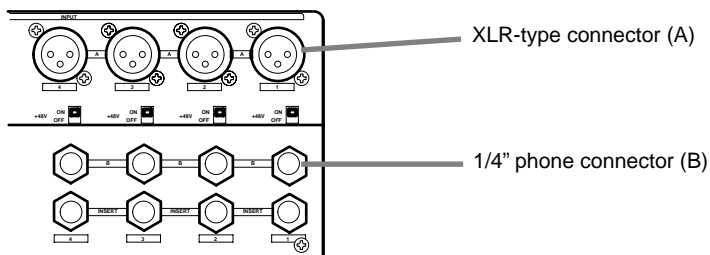
This procedure assumes that you have installed and powered on the VM200. (See page 45 for more information.)

1. Connect a microphone, instrument, or other sound source to input channel 1.

You can connect either:

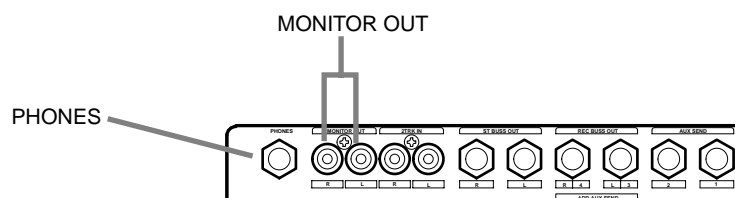
- a balanced XLR-type condenser microphone to input channel 1, connector A, and leave the Input A/B selector button on the top panel unpressed; or
- a balanced/unbalanced TRS-type microphone to input channel 1, connector B, and depress the Input A/B selector button.

However, you can use another sound source, such as a synthesizer keyboard or CD player, if you desire. Make sure it is powered off before you connect it to the VM200.



2. Connect the VM200 MONITOR OUT to an amplifier and speakers, or connect a pair of stereo headphones to the PHONES jack.

You can use the Monitor Gain or Phones Gain knobs to adjust the output volume level. Lower the Gain to minimum to prevent loud noise.



3. Connect the ST BUSS OUT to the analog inputs of a recorder.

Even though the VM200 is a digital mixer designed primarily for use with digital multitrack recorders, to simplify this brief procedure, we will connect to an analog recorder.



If you prefer, you can connect a DAT to the S/P DIF OUT or an ADAT-compatible recorder to the ADAT OUT connectors. (For more information, see “Digital Connections” on page 159.)

If you just want to try out the EQ and some effects, you can skip this step (step 3) altogether.

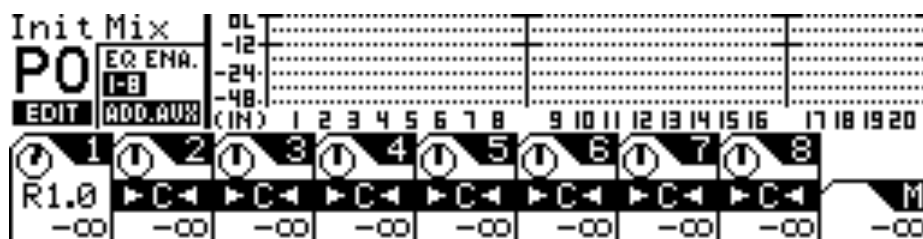
4. **Lower all faders and Gain and Trim knobs on the VM200.**

Powering On

5. **Press the Power button on the rear panel to turn on the power to the VM200.**

The VM200 banner scrolls, all keys flash, then the VM200 displays the CHANNEL EDIT/INPUT function page.

The [1–8 ANALOG IN] Page Select key lights up red. All [ON] keys, the [CHANNEL/METER] key, and the [CHANNEL] key light up green.



6. **Turn on the microphone (or other connected sound source), then turn on the power to the amplifier.**

If you are using an XLR-type condenser microphone connected to the XLR input, turn on the +48 phantom power to the microphone using the phantom power switch on the rear panel.

Adjusting the Channel Input

Make sure that the [ON] keys for channel 1 and Master are lit. If not, press the [ON] keys to turn them on.

Also, make sure that the 2TRK IN button is NOT depressed.

7. **While talking or singing into the microphone (or playing an alternate sound source), adjust the channel 1 Trim control, and raise the channel 1 fader and the Master fader.**

Notice the movement in the level meter for input channel 1 on the LCD Display, and in the ST BUSS LED meter to the right of the display.

Adjust the input channel level so that the meter will not reach the “OL” (overload) level.

8. **Raise the monitoring level using the Monitor Gain control for connected monitoring speakers, or the Phones Gain control for connected headphones.**

Set this to the desired listening level.

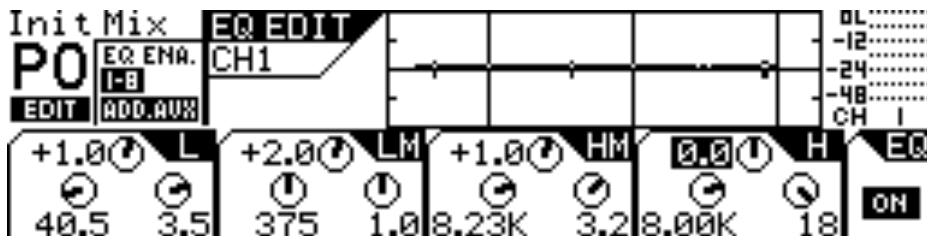
Adjusting the EQ

9. Press the channel 1 [EQ EDIT] key.

The [EQ EDIT] key lights up orange, and the [EQ ON] key in the Selected EQ section lights up green.

If the [EQ ON] key is not lit, press the key to turn it on.

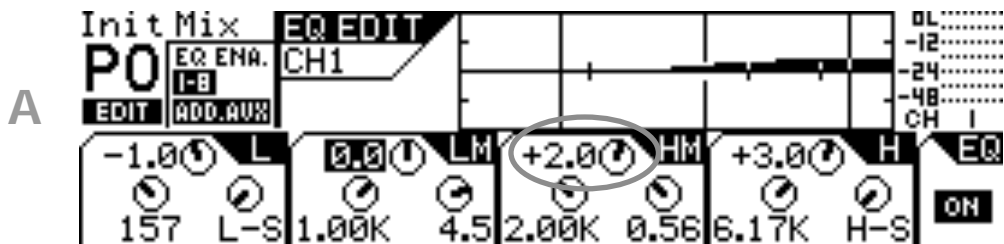
The following EQ EDIT function page appears.



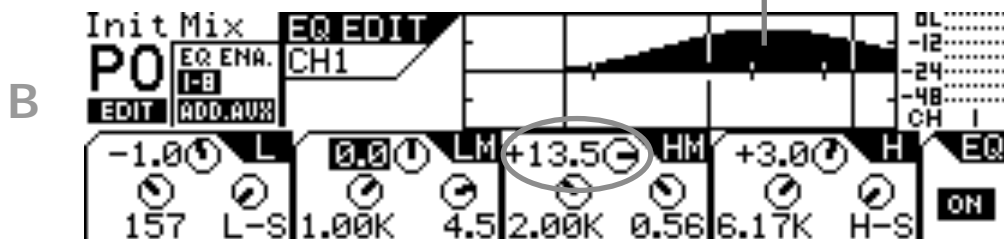
10. Use the EQ Gain, Freq, and Q rotary controls to adjust the channel 1 EQ.

Each trio of rotary controls adjusts the EQ in a separate frequency band. Use all 12 rotary controls to adjust the channel 1 EQ in each of the four bands.

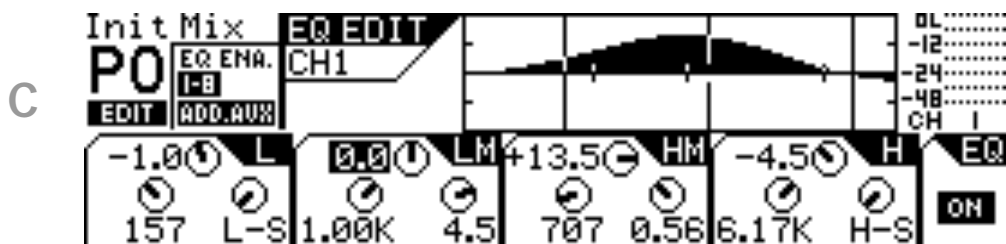
For example, watch the response curve swell as you raise the EQ/HI-MID Gain, as illustrated in figures A and B below.



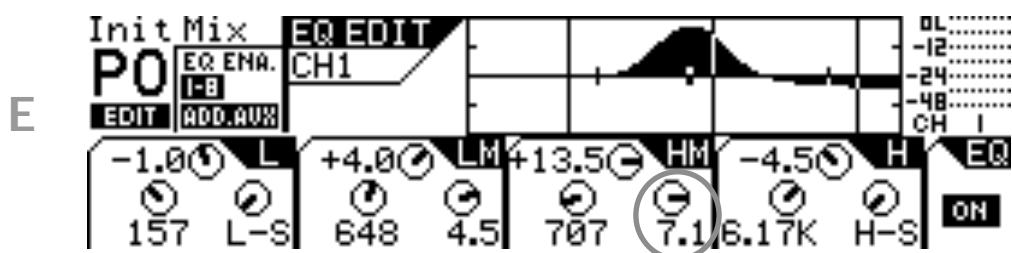
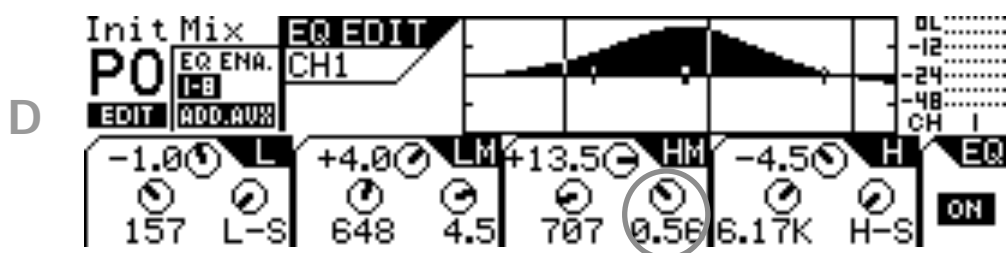
the response curve swells when Gain is raised



If you lower the Freq, the soft bell-shaped curve in Figure B would move to the left, as illustrated in Figure C:



In Figures D and E below, notice how the frequency range changes and the response curve sharpens and narrows as the EQ/HI-MID Q value is raised.



You can store EQ settings in a program, or you can recall a preset EQ program. Refer to “EQ” on page 75 for more information.



Audition Some Effects

Let's apply some effects from the Eff2 effect processor to the signal.

11. Press the [EFF2] key in the Eff Edit section.

The [EFF2] key lights up orange and the VM200 displays the EFF EDIT function page.

12. Press the [RECALL] key in the Eff Library section.

The VM200 displays the following EFFECT LIBRARY RECALL function page, and the [EFF2] key flashes.



13. Use the Data Wheel or the [>/-1] and [+1/<] keys to scroll or step through the effects list and select an effect program.

Try something like the Mono Delay or a Large Hall Reverb.

14. Press the [ENTER] key to confirm the selection.

The VM200 displays the EFF EDIT function page.

15. Press the [CHANNEL/METER] key.

The VM200 displays the CHANNEL EDIT function page.



16. Press the [17–20 EFF RTN] Page Select key.

The [1–8 ANALOG IN] key LED turns off and the [17–20 EFF RTN] key lights up red.

17. Make sure that the [ON] keys for channels 19 and 20 are lit, and lower then raise the faders for channels 19 and 20 to set the effects return channel level.

You must lower then raise the faders to set the return level.

EFF1 is routed to EFF RTN 17 and 18, and EFF2 is routed to EFF RTN 19 and 20.

18. Make sure that the Master [ON] key is lit, then raise the Master fader to set the effects return master level.**19. Press the [1–8 ANALOG IN] Page Select key.**

The [17–20 EFF RTN] key LED turns off and the [1–8 ANALOG IN] Page Select key lights up.

20. Press the [EFF2] key in the Fader Mode section.

The [EFF2] key flashes orange and the [AUX2] key flashes red in the Fader Mode section. (Don't worry about the flashing [AUX2] key for the moment.)

21. Lower then raise the channel 1 fader and the Master fader to set the desired effects send signal level.

As you raise the faders, you should hear the effect.

You can also edit and store effects settings. Refer to “Effects” on page 123 for more information.

Of course, you can connect other instruments to other analog channels, or connect a DAT or CD player to the S/P DIF In connector for mixdown and recording.

Recording

22. Set up your connected recorder accordingly and press the REC and PLAY button on the recorder to begin recording.

You can now record your performance to the recorder.

To check the input and output levels of the VM200, press the [CHANNEL/METER] key to toggle between the input and output meters.

Storing a Mix Scene

Once you are satisfied with the mix settings, you can save them as a scene “snapshot” in the VM200's Scene Memory. You can also recall and edit these scenes later. Please refer to “Scene Memory” on page 147 for more information.





About This Chapter

This chapter provides an overview of the VM200's input channels, including phantom power, routing, pairing, grouping, copying channel settings, and more.

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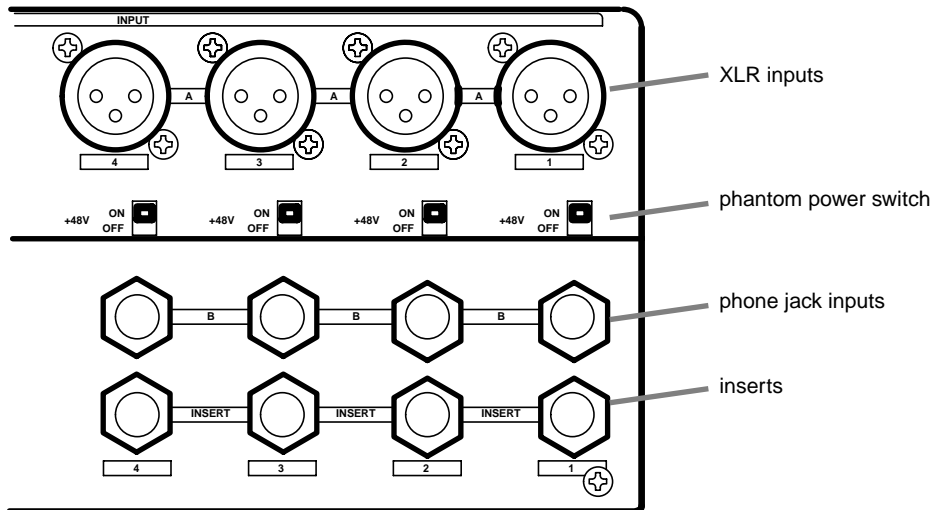


Input Channels 1-4

There are two sets of analog connectors for Input Channels 1 - 4. The “A” set accepts XLR-type inputs (balanced); the “B” set accepts phone jacks (balanced or unbalanced).

The XLR connectors are XLR-3-32-type inputs. The phone jacks are 1/4-inch TRS-type.

Both XLR and phone jack inputs accept a nominal input range of -60 dB to +10 dB.



Note: Before you set the INPUT A/B switch for input channels 1-4, lower the corresponding TRIM control to the minimum, or you will hear a clicking noise.

Note: Before you turn on phantom power, lower the TRIM control for the corresponding input channel to the minimum, or turn off the power to the VM200.

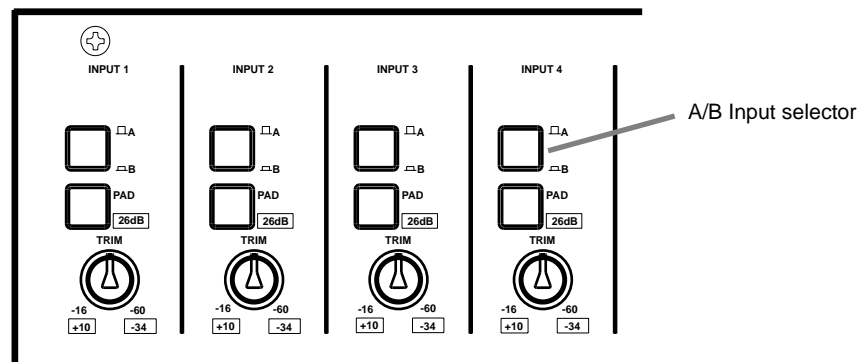
Note: Turn off the corresponding phantom power switch before you connect a dynamic microphone; otherwise, you may damage the microphone. If you turn on the power to the VM200 while the input channel's phantom power switch is turned on, the VM200 displays a warning message: "Warning! +48V SW ON!"

Phantom Power for Input Channels 1–4

The VM200 supplies optional phantom power (+48 V) to the XLR connectors. You can turn the phantom power on or off using the switches on the rear panel as shown in the figure above.

Caution: Turn on the phantom power only after you connect a balanced XLR component (such as a condenser microphone) to the XLR input connector.

Specify the connector you wish to use by pressing (or not pressing) the A/B input selectors on the top panel (shown in the figure below). The A setting (unpressed) selects the XLR input connector; the B setting (depressed) selects the phone jack input connector.



Input Channels 5–8

Input channels 5–8 accept only unbalanced phone jacks. (These connectors do not accept XLR inputs or balanced analog inputs.)

For more information, see “Rear Panel” on page 38.

Input Channels 9–16

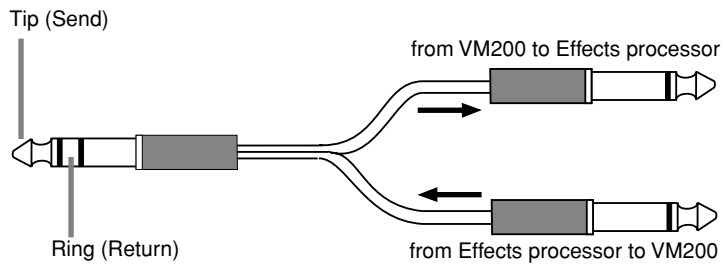
In addition to the analog signals you can input to channels 1 through 8, you can assign digital ADAT inputs to channels 9–16. Refer to “Digital Connections” on page 159 for more information.

Input Channels 17–20

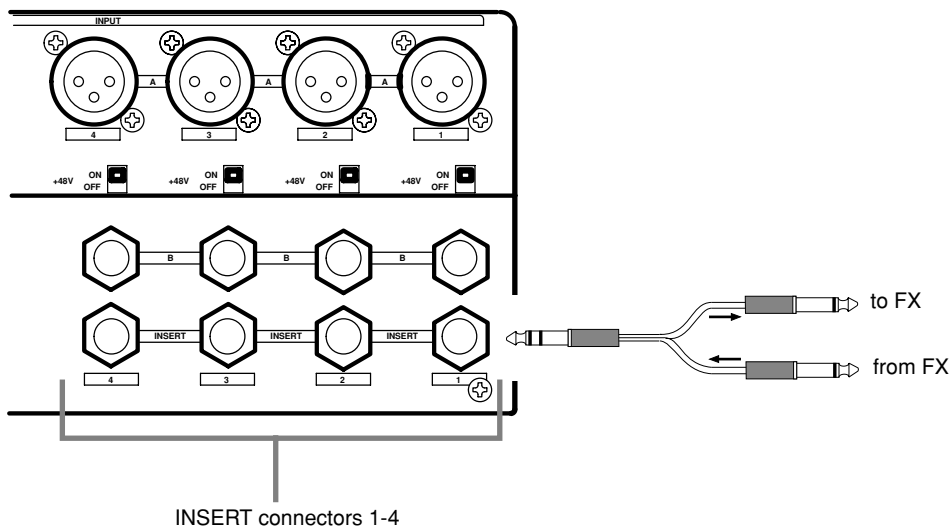
Input channels 17–20 are used for internal effect returns from the EFF1 or EFF2 effects processor.

Insert Channels 1-4

You can use a Y-shaped insert cable to connect the VM200 to an external effects processor. The signal flows out of the VM200 Insert connector, into and out of the effects processor, and back into the VM200 via the insert cable.



The Insert connectors allow you to insert a signal into the signal chain after the PAD switches and TRIM knobs.



Pad Switches (Input channels 1–4)

Input channels 1 through 4 feature 26 dB Pad switches that attenuate the input signal by 26 dB.

This allows the input preamp to work with hot, high-level signals, such as those from a snare drum microphone.

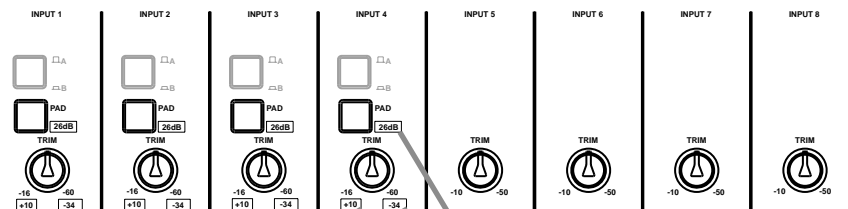


Note: Pad switch settings are not stored in Scene Memory.

TRIM Controls

You can adjust the gain of the input channel preamps on input channels 1 through 4 by using the Trim controls. Your goal is to optimize the input signal level to achieve the best signal-to-noise ratio.

Keep a close eye on the level meters while adjusting the Trim controls. In general, set the levels as high as possible without peaking (actually, it's okay if the level *occasionally* peaks a little). If you set the level too high, the signal may distort and or clip. If it's set too low, the output signal may sound thin or noisy.



VM200 uses "boxed" values when Pad switch is depressed.

The Trim controls have an input sensitivity of -16 dB to -60 dB, which is appropriate for many microphones. However, you can press one of the Pad switches for channels 1–4 to reduce the input sensitivity for that channel to the range of $+10$ to -34 dB. This works well for "hot" microphone signals.

The Trim controls on input channels 5–8 have a gain range of -10 dB to -50 dB. This works well with line-level signals.

Note: Trim control settings are not stored in Scene Memory.

Inverting the Input Phase

“Phase” concerns the timing of two different signals. A pair of stereo speakers can operate “in phase” or “out of phase.” If the drivers in the left and right speakers move in and out at the same time, in perfect concert with one another, the speakers are “in phase.” If they are out of sync, they are “out of phase.” Out-of-phase speakers tend to produce a weak stereo image and low bass output.

Phase is often represented by this symbol: ∅.

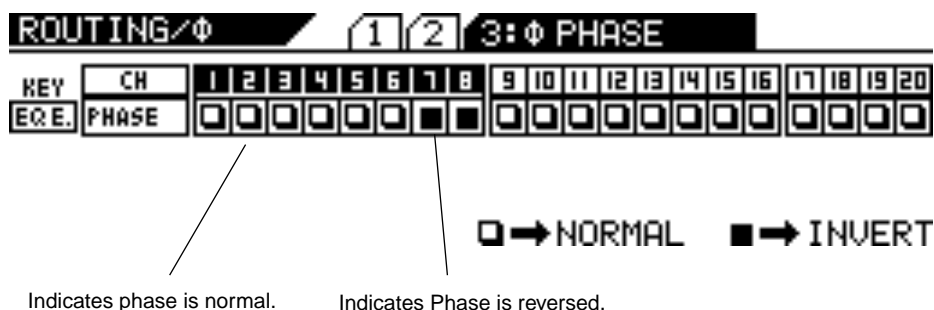
On the VM200, you can invert the phase for channels 1–20. First you access the PHASE function page, then press an [EQ EDIT] key to turn phase inversion on or off. A light indicator on the display means phase is normal (off) for that channel; a dark (highlighted) indicator means phase is inverted (on).

You can use the phase inversion software switches to compensate for balanced cables or microphones that may have been wired incorrectly, or at any time you wish to invert the phase of a channel to prevent signal cancellation.

1. **Press the [ROUTING/PHASE] key repeatedly to display the 3:∅ PHASE function page.**

The [ROUTING/PHASE] key and the [EQ EDIT] keys for all selectable channels start to flash (indicating their availability).

The 3:∅ PHASE function page includes a 1-by-20 matrix that indicates whether the phase is normal or reversed for each channel.



2. **Press a Page Select key to select the target channel layer, then press the [EQ EDIT] key for any channel to reverse its phase.**

The [EQ EDIT] key lights up if you turn phase inversion on.

Even when channels are configured as stereo pairs, their phase switches can be set independently.

3. **Press the [EXIT] key or the [CHANNEL/METER] key.**

The VM200 displays the CHANNEL EDIT function page.



Input Channel EQ

You can apply EQ to channels 1—16 using the four-band parametric equalizer. For more information on using the equalizer, see “EQ” on page 75.

Muting Channels

To mute a channel, use the Page Select keys to select the desired channel layer, then make sure the channel’s [ON] key is turned off.

If channels are linked as a stereo pair (see “Pairing Channels” on page 68) you can use either channel’s [ON] key to turn the pair off (or on).

You can also group input channels into Mute groups and control them as one, using a single [ON] key. (See “Grouping Mute Channels” on page 68.)

Setting Channel Levels

You control input channel levels using the faders.

If it is not already selected, select the desired channel layer using a Page Select key, then press the channel’s [ON] key.

The VM200 features seven Fader Modes. The faders control different functions and parameters depending on the current Fader Mode.

You can select a Fader Mode by pressing one of the keys in the Fader Mode section, such as [AUX1], [EFF2], [CHANNEL], etc. (See “Faders” on page 32 for more information about Fader Modes.)

If channels are linked as a stereo pair or group, you can set the channel level for the pair or group using any fader in the pair or group. For more information, see “Pairing Channels” on page 68.

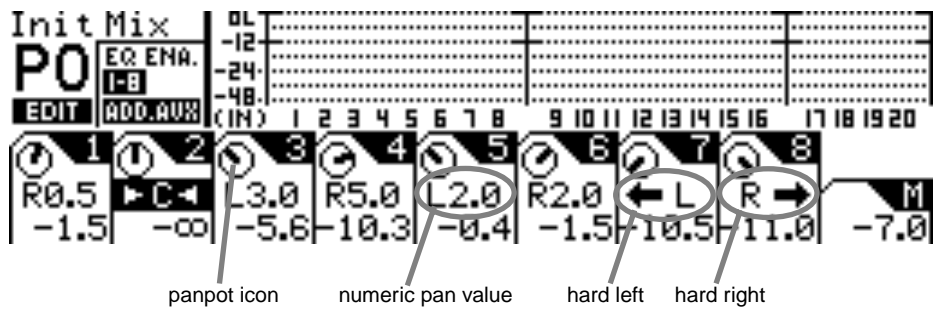
Panning Input Channels

Use the eight panpot rotary controls to pan the signal between the left and right channels of the stereo output.

1. **Make sure that the [CHANNEL/METER] key is lit. If not, press it to turn it on.**



The VM200 displays the CHANNEL EDIT function page.



2. Use the Page Select keys to select the target channel layer.
3. Use the panpot rotary controls to make the pan settings.

The display shows a dial icon for each channel that visually indicates the pan position. The display also includes numerical values—such as L2.0 or R3.7—that provide precise pan position data.

If you pan hard right or hard left (that is, fully right or left), the numerical value changes to a left or right arrow to indicate that the maximum has been reached.

The pan settings range from L10.0 to R10.0 in increments of 0.5 (although you'll never see R10.0 or L10.0 indications, because these settings are the maximum value and are replaced by the arrow).

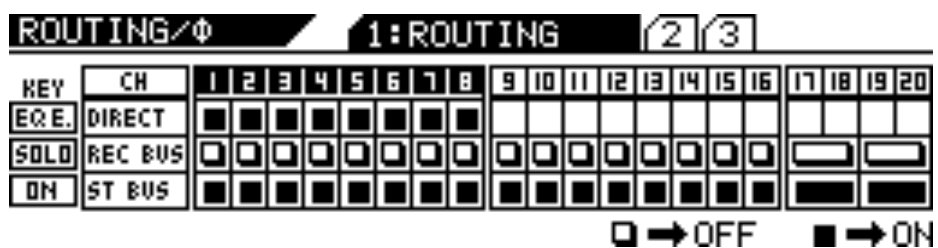
Routing Input Channels

You can control input channel routing by using the on/off software switches on the ROUTING function page.

The ROUTING function page includes switches that can route channels 1–20 to the Rec Buss and Stereo Buss, and channels 1–8 to the ADAT Direct outputs. (You cannot route channels 9–20 to the ADAT Direct outs.)

1. Press the [ROUTING/PHASE] key to display the 1:ROUTING function page.

The [EQ EDIT], [SOLO], and [ON] keys start to flash (indicating their availability). The [ROUTING/PHASE] key also flashes.



2. **Use the Page Select keys to select the target channel layer.**
3. **Press the [EQ EDIT], [SOLO], or [ON] key that represents the desired routing for the target channel.**

See the following table:

KEY	TARGET ROUTING
EQ EDIT	ADAT DIRECT OUT
SOLO	REC BUS
ON	STEREO BUS

When you press an [EQ EDIT], [SOLO], or [ON] key, the key lights up and the corresponding indicator on the display turns dark (highlighted). A light empty indicator means the routing is not selected (off).

If channels are configured as stereo pairs, their Routing switches are also linked. (For more information on pairing channels, see “Pairing Channels” on page 68.)

4. **Press the [EXIT] key or the [CHANNEL/METER] key to return to Channel Edit mode.**

Monitoring and Soloing Input Channels

For information on monitoring input channels, see “Monitoring Signals” on page 97

Feeding Outputs

REC Buss Out

You can route input channels 1–20 to the Rec Buss outs. See “Using the REC BUSS OUT” on page 112 for more information.

ST Buss Out

You can route input channels 1–20 to the Stereo Buss outs. See “Using the ST BUSS OUT” on page 110 for more information.

AUX Sends

You can route input signals to Aux 1, 2, 3, or 4 by pressing the [AUX1], [AUX2], [AUX3], or [AUX4] key and raising the corresponding fader. (You can use Aux 3 and 4 when ADD. AUX mode is turned on.) You can also configure input channel sends as either pre-fader or post-fader. See “Using the AUX Sends” on page 115 for more information.



Digital Outs

You can select input channels 1–20 as sources for the digital outs. See “Digital Connections” on page 159 for more information.

Pairing Channels

You can create up to ten pairs of channels from input channels 1–20 to facilitate stereo signal processing.

You can pair only adjacent odd/even channels, such as 1 and 2, 5 and 6, etc. (You cannot pair non-adjacent channels, such as 2 and 7, or even/odd pairs such as 4 and 5.)

The following parameters are linked when input channels are paired: EQ, [ON], [SOLO], and [EQ EDIT] keys, faders, Aux sends, Effect sends, Pre/post settings, and Routing switches.

1. **Press the [PAIR/GROUP] key to display the 1:CH PAIR function page.**

The [PAIR/GROUP] key and the [EQ EDIT] keys start to flash.



□ → OFF ■ → ON

2. **If the appropriate channel layer is not yet selected, press a Page Select key to select the desired channel layer.**

The selected Page Select key lights up.

3. **Press the [EQ EDIT] key for one of the channels you wish to pair.**

The [EQ EDIT] keys for the channel pair light up. The display highlights the indicator for the channel pair.

You can press a corresponding [EQ EDIT] key to cancel any stereo pair.

4. **Press the [EXIT] key or the [CHANNEL/METER] key to return to Channel Edit mode.**

Grouping Mute Channels

You can group channels 1-20 into mute groups. This enables you to mute several channels simultaneously by pressing a single [ON] key.

For example, you may wish to turn all the channels devoted to a cho-



rus or drum kit on and off simultaneously during mixdown. You can group these channels into a mute group.

Three groups are available: Mute Groups A, B, and C.

1. **Press the [PAIR/GROUP] key twice to display the 2:MUTE GROUP function page.**

THE [PAIR/GROUP] key and all [EQ EDIT], [SOLO], and [ON] keys flash.

PAIR/GROUP		1	2:MUTE GROUP																3		
KEY	CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
EQE.	M.GRP A	□	□	□	■	■	■	■	□	□	□	□	□	□	□	□	□	□	□	□	□
SOLO	M.GRP B	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
ON	M.GRP C	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□

□ → OFF ■ → ON

2. **Press the [EQ EDIT] keys for the channels you wish to add to Mute Group A.**

The [EQ EDIT] keys light up and the corresponding indicators on the display turn on (highlight).

In the example above, channels 5, 6, 7, and 8 are assigned to Mute Group A. (No other channels are assigned to a Mute group.)

3. **Press the [SOLO] keys for the channels you wish to add to Mute Group B.**

The [SOLO] keys light up and the corresponding indicators on the display turn on (highlight).

4. **Press the [ON] key for the channels you wish to add to Mute Group C.**

The [ON] keys light up and the corresponding indicators on the display turn on (highlight).

5. **To remove a channel from the mute group, press the corresponding [EQ EDIT], [SOLO], or [ON] key.**

The key resumes flashing and the corresponding display indicator turns off.

6. **Press the [EXIT] key or the [CHANNEL/METER] key to return to Channel Edit mode.**

Grouping Faders

You can group faders 1-8 into Fader groups. This enables you to control several faders simultaneously using only one fader.

Three groups are available: Mute Groups A, B, and C.

1. **Press the [PAIR/GROUP] key repeatedly to display the 3:FADER GROUP function page.**

THE [PAIR/GROUP] key and all [EQ EDIT], [SOLO], and [ON] keys start to flash.

In the following example, channels 2, 6, and 7 are assigned to Fader Group A. (No other channels are assigned to Fader Groups.)

PAIR/GROUP		1	2	3: FADER GROUP																	
KEY	CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
EQ.E.	F.GRP A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SOLO	F.GRP B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ON	F.GRP C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

→ OFF → ON

2. Press the [EQ EDIT] keys for the faders you wish to add to Fader Group A.

The [EQ EDIT] keys light up and the corresponding indicators on the display turn on (highlight).

3. Press the [SOLO] keys for the faders you wish to add to Fader Group B.

The [SOLO] keys light up and the corresponding indicators on the display turn on (highlight).

4. Press the [ON] keys for the faders you wish to add to Fader Group C.

The [ON] keys light up and the corresponding indicators on the display turn on (highlight).

5. To remove a fader from the fader group, press the corresponding [EQ EDIT], [SOLO], or [ON] key.

The key resumes flashing and the corresponding display indicator turns off.

6. Press the [EXIT] key or the [CHANNEL/METER] key to return to Channel Edit mode.

Viewing Input Channel Settings

The CHANNEL VIEW function page enables you to view the settings for any input channel.

You cannot adjust any parameters on the CHANNEL VIEW function page. (If you try to adjust the pan setting, the VM200 displays the CHANNEL EDIT function page.)

1. Press the [CH VIEW] key to display the 1:CH VIEW function page.

The [CH VIEW] key and the [EQ EDIT] keys for all viewable channels flash. The selected Page Select key lights up; unselected Page Select keys flash.



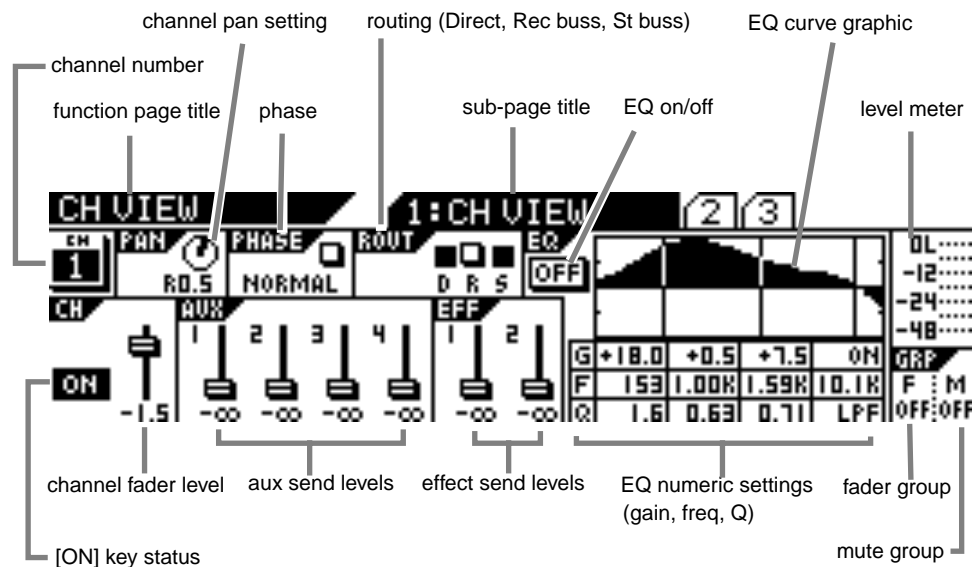
2. **Press the appropriate Page Select key to select the desired channel layer.**

The selected Page Select key lights up; unselected Page Select keys continue to flash.

3. **Press the [EQ EDIT] key for the target channel.**

The selected [EQ EDIT] key lights up. The number of the selected channel appears in the upper left portion of the CHANNEL VIEW function page.

The following illustration describes the components of the CHANNEL VIEW function page.



4. **Press the [EXIT] key or the [CHANNEL/METER] key to return to Channel Edit mode.**

Copying Channel Settings

You can use the Channel Copy function to copy input channel settings from one channel to another.

The CHANNEL COPY function page features a 1-by-20 matrix that enables you to select one source channel, and enable or disable the other channels as copy destinations.

The selected source channel is marked by an “S.” A highlighted indicator marks the channels targeted as copy destinations. A dark indicator means the channel is not selected (disabled) as a copy destination.

1. **Press the [CH VIEW] key twice (from start of cycle) to display the 2:CH COPY function page.**

The [CH VIEW] key and the [EQ EDIT] keys for all channels flash. The selected Page Select key lights up; the unselected Page Select keys flash.

CH VIEW		1	2:CH COPY																	3	
KEY	CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
EQ.E.	DEST.																				

SELECT SOURCE

2. **Press the appropriate Page Select key to select the desired channel layer.**

The selected Page Select key lights up; unselected Page Select keys continue to flash.

3. **Press the [EQ EDIT] key for the copy source channel.**

You can select only one source channel to copy at a time.

The selected [EQ EDIT] key lights up. The CHANNEL COPY function page marks the source channel with an “S” and prompts you to select a destination channel.

CH VIEW		1	2:CH COPY																	3	
KEY	CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
EQ.E.	DEST.			S																	

SELECT DESTINATION

[ENTER] KEY → COPY!

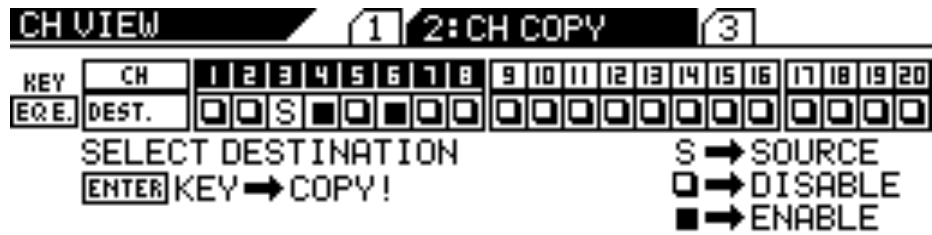
S → SOURCE
 □ → DISABLE
 ■ → ENABLE

4. **Press the appropriate Page Select key to specify the channel layer, then press the [EQ EDIT] key of the copy destination channel(s).**

You can select multiple channels as destinations.



The selected [EQ EDIT] key(s) light up. The CHANNEL COPY function page highlights (enables) the selected destination channel(s) as follows.



5. Press the [ENTER] key to execute the copy operation.

The CHANNEL COPY function page flashes the word “COMPLETE!” on the display for a few seconds, and the VM200 displays the first CH COPY function page.

6. Press the [EXIT] key or the [CHANNEL/METER] key to return to Channel Edit mode.

Note: Even if channels are paired, you can copy to and from each of the paired channels independently.





About This Chapter

This chapter explains how to use the VM200 four-band parametric equalizer (EQ) and how to edit, recall, and store EQ settings.

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Equalizers (EQ)

The VM200 features a four-band parametric equalizer for input channels 1-16.

The four-band equalizer subdivides the audio spectrum into LO, LO-MID, HI-MID, and HI frequency ranges. Each of the four bands includes rotary controls for Gain, Frequency, and Q.

The LO-MID and HI-MID bands use parametric EQ. The LO band can function as an HPF, shelving, or parametric EQ; the HI band can function as an LPF, shelving, or parametric EQ.

The Gain control adjusts the amount of increase in a signal, generally measured in decibels (dB).

The Frequency control specifies the number of cycles-per-second of a waveform (in our case, soundwaves).

The Q control adjusts the sharpness of the EQ peak response.

The LO band Q can function as a high-pass filter (HPF), and HI band Q can function as a low-pass filter (LPF).

A low-pass filter (LPF) rejects signals above a certain cut-off frequency while passing lower-frequency signals through.

A high-pass filter (HPF) rejects signals below a certain cut-off frequency while passing higher-frequency signals through.

In a shelving-type (SHLV) EQ, the boosted or cut-off frequencies form a shelf-shape on a frequency response curve. A high-frequency shelf affects signals at and higher than the specified frequency; a low frequency shelf affects signals at and higher than the specified frequency.

The EQ EDIT function page displays a graphic EQ response curve for channels 1 - 16. The EQ response curve provides visual feedback to help you shape the EQ, while the numerical read-outs ensure extremely accurate settings that you can store in the EQ Library and later recall.

The EQ Library consists of 50 Preset programs and 50 User programs. You can store EQ settings into User programs, or into Scene Memory along with all other mix settings. You can also recall EQ settings from the Preset programs or User programs, or from Scene Memory along with all other mix settings.

The Presets are a special collection of EQ settings that can be useful in a variety of situations. See "EQ Preset Library List" on page 83.

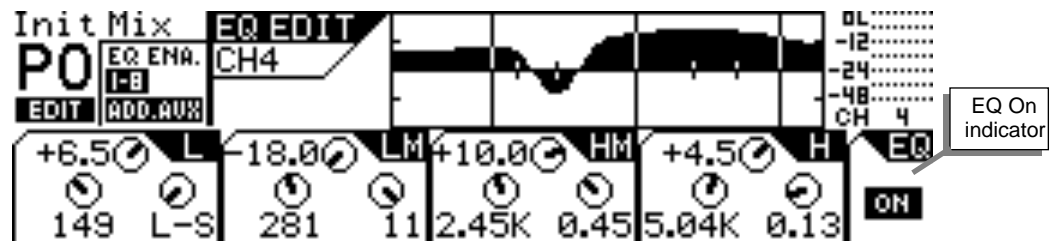
You can also use the Presets as templates that you can customize to create your own EQ settings. You can name and store up to 50 of your favorite EQ settings as User programs.

If channels are configured as a stereo pair, their EQs are linked.

The EQ parameters and response curve for input channels 1 through



16 appear on the EQ EDIT function page, as shown below:

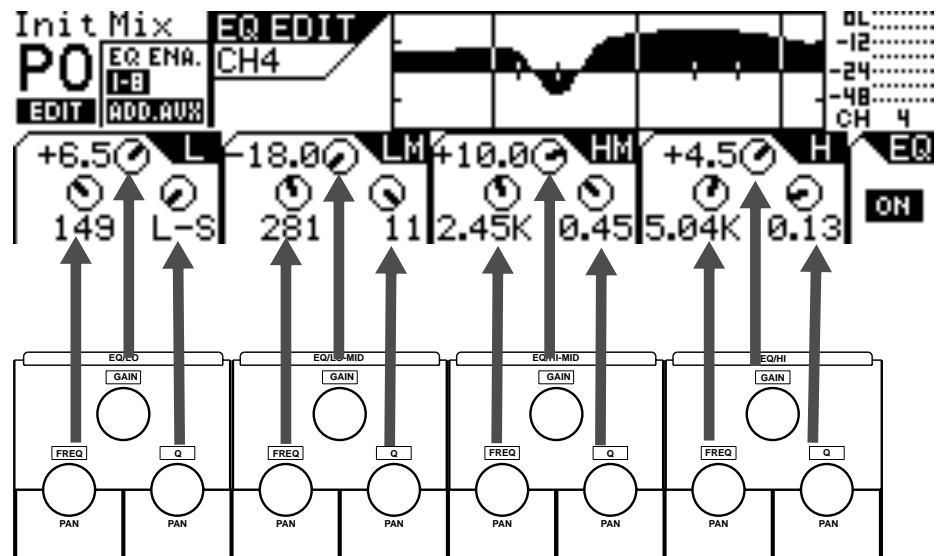


Adjusting the EQ

You can adjust the EQ for each of the four bands using three rotary controls: Gain, Freq, and Q. These three EQ controls form a triangular shape on the top panel of the VM200.

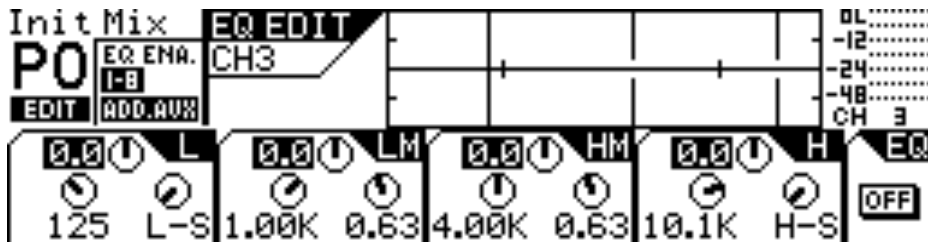
The LCD display also features four sets of three circular knob icons. Each set of three is arranged in a triangle that corresponds to the hardware EQ rotary controls. (That is, Gain is on top, Freq is on the lower-left, and Q is on the lower-right.)

Note that in EQ Edit mode, the Pan rotary controls adjust Freq and Q.



1. **Make sure that the [CHANNEL/METER] key is lit. Otherwise, press it to turn it on.**
2. **Press a Page Select key to specify a channel layer, such as [1-8 ANALOG IN] key.**
The selected Page Select key lights up red.
3. **Press the [EQ EDIT] key for the channel whose EQ you wish to edit.**

The selected [EQ EDIT] key lights up and the VM200 displays the EQ EDIT function page.



4. **Press the [EQ ON] key in the Selected EQ section to turn it on.**

The [EQ ON] key lights up, and the VM200 turns on the EQ for the selected channel.

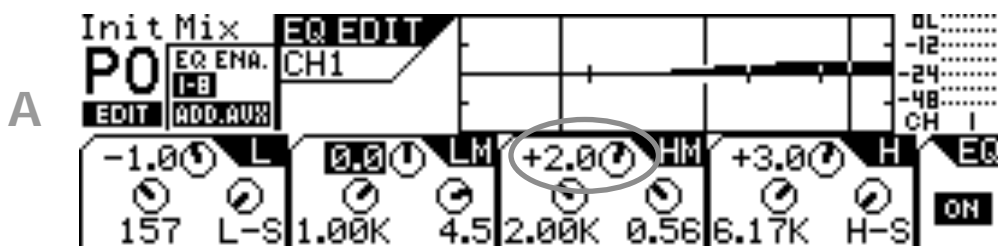
The EQ On/Off indicator in the lower-right corner of the display shows "On" to indicate that the EQ is turned on for the specified channel.

Note: Be aware that the EQ may not turn on for certain channels if the EQ Enable parameter setting is incorrect. The EQ Enable parameter appears on the CURRENT SCENE STATUS function page. See "EQ Enabling Channels" on page 80 for more information.

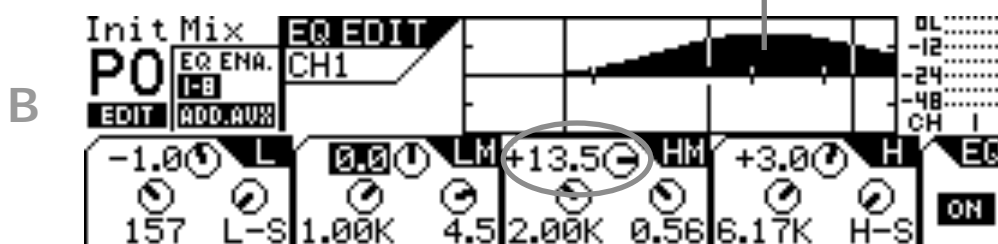
5. **Use the rotary controls (Gain, Freq, and Q) to adjust the Frequency, Gain, and Q parameters.**

The display shows a graphic frequency response curve.

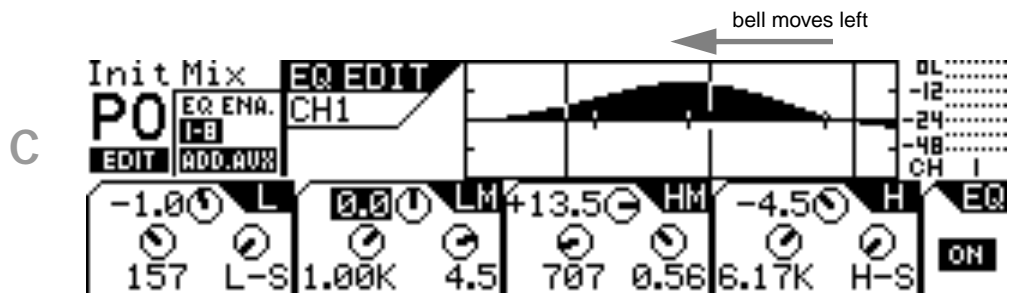
You can watch a bell-shaped curve swell as you increase the gain, or drop below the mid-line when you reduce the gain. For example, watch the response curve swell as you raise the EQ/HI-MID Gain, as illustrated in figures A and B below.



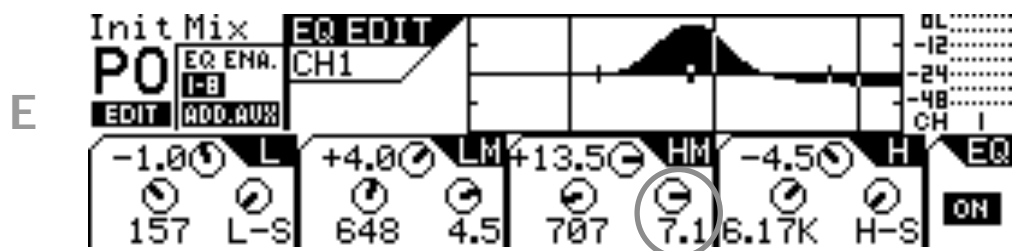
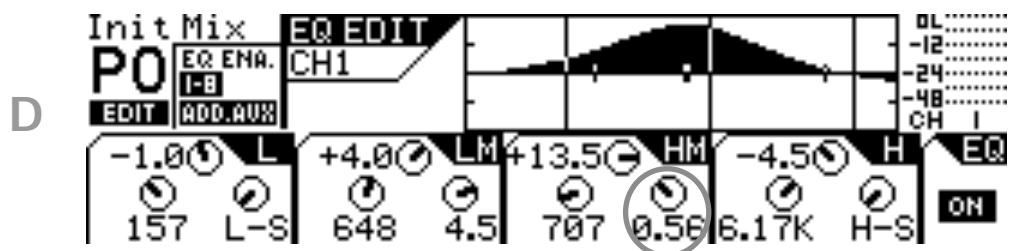
the response curve swells when Gain is raised



If you lower the Freq, the soft bell-shaped curve in Figure B would move to the left, as illustrated in Figure C:



In Figures D and E below, notice how the frequency range is reduced and the response curve sharpens and narrows as the EQ/HI-MID Q value is raised.



If you select HPF or LPF for LO band Q or HI band Q respectively, the Gain rotary control for LO EQ or HI EQ functions as the On/Off switch.

The following table shows the VM200 EQ specifications.

	Lo	Lo-Mid	Hi-Mid	Hi
Gain (G)	-18.0 dB to +18.0 dB (0.5 dB steps) ¹			
Frequency (F)	20.3 Hz–4.00 kHz (240 steps per 1/24 octave)		500Hz–20.3kHz (240 steps per 1/24 octave)	
Q	HPF, 0.1–20 (45 steps), Lo-shelf	0.1–20 (45 steps)		LPF, 0.1–20 (45 steps), Hi-shelf

1. When the LO and HI EQ bands are configured as HPF and LPF, their gain controls function as filter on and off switches.



EQ Enabling Channels

You can enable the EQ for three groups of channels: 1-8, 9-16, or 1-16.

(The default setting enables the EQs for channels 1-8.)

1. **Press the [CURRENT SCENE STATUS] key.**

The CURRENT SCENE STATUS function page appears. Notice the EQ Enable parameter in the upper-left corner.

CURRENT SCENE STATUS				P0: Init Mix		EDIT	
EQ ENABLE	ADD.AUX	SMOOTHING	REC-B.GAIN				
1-8	ON	LEVEL2	0.0				
POST/PRE				AUX PAIR			
AUX1	AUX2	AUX3	AUX4	EFF1	EFF2	A1&A2	A3&A4
POST	POST	POST	POST	POST	POST	OFF	OFF

2. **Turn the channel 1/2 Gain rotary control to select 1-8, 9-16, or 1-16 for the EQ Enable parameter.**
The selected value flashes.
3. **Press the [ENTER] key to confirm your selection.**
The VM200 displays the selected value for the EQ Enable parameter.
4. **Press the [EXIT] key or the [CHANNEL/METER] key to return to Channel Edit mode.**

Bypassing the EQ

You can turn a channel's EQ on or off (bypass) using the [EQ ON] key.

While the target channel is selected (by pressing a Page Select key and the channel's [EQ EDIT] key), press the [EQ ON] key to toggle between EQ On and Off.

When the EQ is on, a highlighted "ON" indicator appears in the lower-right corner of the EQ EDIT function page. If the EQ is bypassed, "OFF" appears in the same location.

1. **Press the [1-8 ANALOG IN] or [9-16 ADAT IN] Page Select key to select a channel layer.**
The selected Page Select key lights up.
2. **Press the [EQ EDIT] key for the channel whose EQ you wish to turn on or off.**
The selected [EQ EDIT] key lights up and the VM200 displays the EQ EDIT function page.
3. **Press the [EQ ON] key in the Selected EQ section.**
The [EQ ON] key lights up, and the VM200 turns on the EQ for the selected channel.

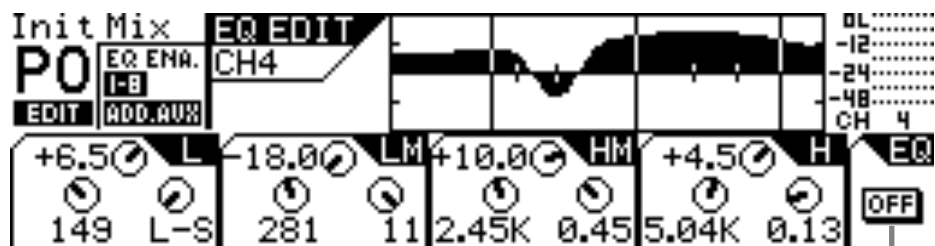


The EQ On/Off indicator in the lower-right corner of the display displays “On” to indicate that the EQ is turned on for the specified channel.

4. **To turn the EQ off for the channel, press the [EQ ON] key again.**

The [EQ ON] key turns off (goes dark), and the VM200 turns off the EQ for the selected channel.

The EQ On/Off indicator in the lower-right corner of the display displays “Off” to indicate that the EQ is turned off for the specified channel.



EQ On/Off indicator. Here, EQ is bypassed.

Resetting the EQ

To reset all EQ parameters for the selected channel to their initial values, follow the steps below.

The following table shows initial EQ values.

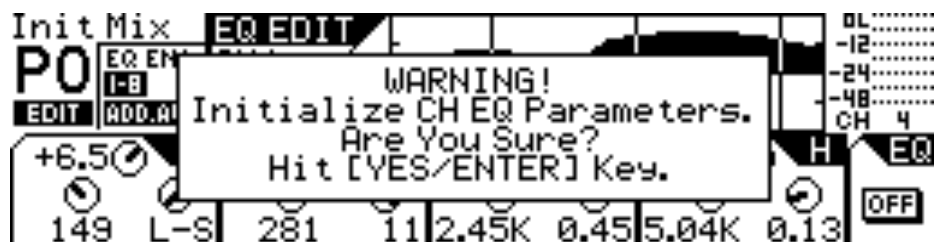
	Lo	Lo-Mid	Hi-Mid	Hi
Gain (G)	0 dB	0 dB	0 dB	0 dB
Frequency (F)	125 Hz	500Hz	2.00 kHz	8.00 kHz
Q	L-S(Lo-Shelf)	1.0	1.0	H-S(Hi-Shelf)

1. **Press the [EQ EDIT] key of the channel whose EQ you wish to reset to the initial value.**

The [EQ EDIT] key lights up and the EQ EDIT function page appears.

2. **While pressing and holding down the [ENTER] key, press the [EQ EDIT] key.**

The following confirmation dialog appears on the display.



3. **Press the [ENTER] key to proceed, or press the [EXIT] key to cancel the reset operation.**

If you have pressed the [ENTER] key, all EQ parameters for the channel will be reset to the initial values.

4. **Press the [EXIT] key or the [CHANNEL/METER] key to return to Channel Edit mode.**

EQ Library

You can store EQ settings as programs in the EQ Library.

The EQ Library contains 50 preset programs (Preset Library: 0–49) and 50 user programs (User Library: 50–99).

For information on recalling EQ programs, see “Recalling EQ Programs” on page 84.

For information on storing a new or modified EQ program, see “Storing EQ Programs” on page 86.

EQ Preset Library List

#	Name
00	Flat_EQ
01	LightKick
02	TightKick
03	Loud_Kick
04	Ana.Kick
05	Snappy_SD
06	Power_SD
07	Deep_SD
08	Talk_Tom
09	Melo.Tom
10	W.GongTom
11	Brill.Cym
12	Lo-Fi_Cym
13	Vivid_HH
14	Sharp_HH
15	Lo-Fi_HH
16	Perc.
17	Tamb.
18	Fat_Bass
19	Norm.Bass
20	Loud_Bass
21	PowerBass
22	Bright_Pf
23	Loud_Pf
24	Power_Pf

#	Name
25	Real_Pf
26	E.Pf
27	Clean_EG
28	Crunch_EG
29	OverDrvEG
30	Dist.EG
31	Metal_EG
32	Stroke_AG
33	StrokeEAG
34	Arpeg.GG
35	Arpeg.EAG
36	Arpeg.AG
37	Brass_Sec
38	W.WingSec
39	Male_Vo1
40	Male_Vo2
41	FemaleVo1
42	FemaleVo2
43	Chorus
44	Speech_1
45	Speech_2
46	Digi.Mix
47	AnalogMix
48	Telephone
49	Husky

Recalling EQ Programs

You can recall EQ programs from the EQ Library, which includes 50 Preset programs and 50 User programs.

1. **Press the [1-8 ANALOG IN] or [9-16 ADAT IN] Page Select key to select the desired channel layer.**

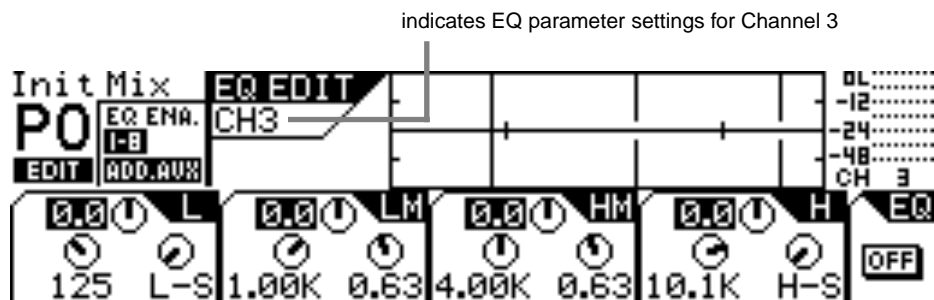
The selected Page Select key lights up.

Note: Make sure you select the “EQ Enabled” channel layer. For more information, see “EQ Enabling Channels” on page 75.

2. **Press the [EQ EDIT] key for the channel to which you want to recall an EQ setting.**

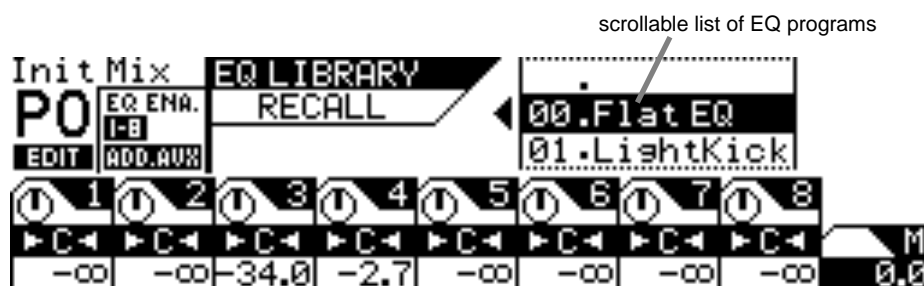
The selected [EQ EDIT] key lights up.

The VM200 displays the EQ EDIT function page, which shows the parameter settings for the selected channel.



3. **Press the Selected EQ [EQ ON] key to turn it on.**
4. **Press the EQ Library [RECALL] key.**

The VM200 displays the EQ LIBRARY RECALL function page. The [EQ EDIT] key for the selected channel flashes.



5. **Rotate the Data Wheel or use the [</-1] and [+1/>] keys to select an EQ program.**

EQ Program names and numbers (00 to 99) scroll in the upper-right of the display.

6. **Press the [ENTER] key to recall the desired EQ Program.**

The VM200 displays the EQ EDIT function page, which shows the new EQ parameter values applied to the current channel.



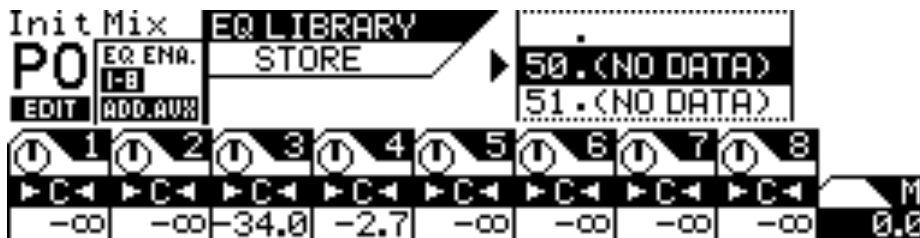
7. **To recall an EQ program for another channel, press the [EQ EDIT] key of the destination channel, then repeat Steps 2 through 5.**
8. **Press the [EXIT] key at any time to exit the EQ Library Recall page and return to the CHANNEL EDIT function page.**

Storing EQ Programs

You can store new EQ settings as EQ programs in the EQ Library. You can store EQ settings as User programs 50 through 99. (Programs 0 through 49 are read-only Presets.)

1. **Press the EQ Library [STORE] key to display the EQ LIBRARY STORE function page.**

The [EQ EDIT] key of the selected channel flashes.



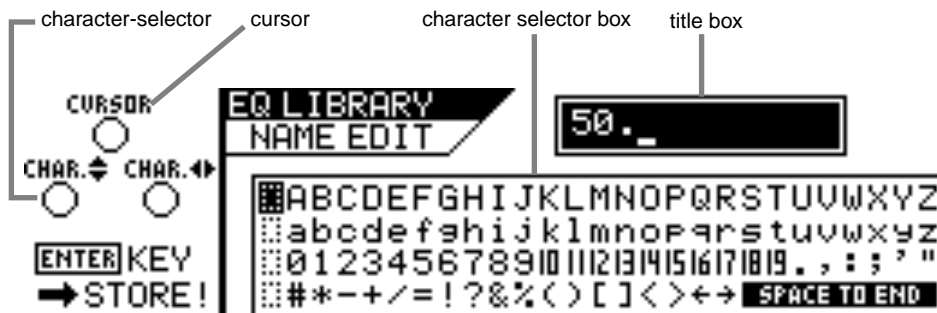
2. **Rotate the Data Wheel or use the [</-1] and [+1/>] keys to select an EQ program location (from 50 to 99, inclusive).**

EQ Program names and numbers (50 to 99) scroll in the upper-right of the display.

Note: EQ program locations that contain no data are labeled "(No Data)".

3. **Press the [ENTER] key.**

The VM200 displays the EQ LIBRARY NAME EDIT function page.



The EQ LIBRARY NAME EDIT function page includes a character selector box that displays all the letters of the alphabet, as well as numerals and punctuation symbols. You can use these characters to name or title your EQ program.

You can use any trio of Gain, Freq, and Q rotary controls to select the characters for the title.

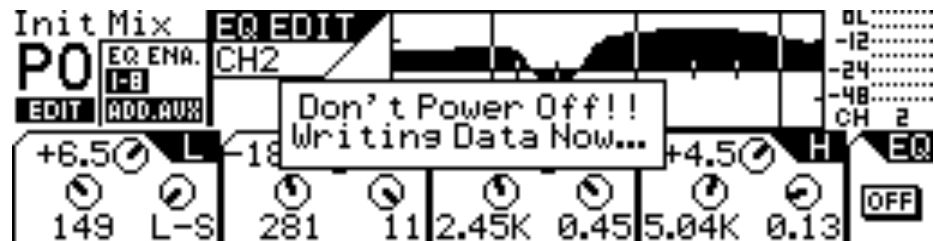
The Gain control moves the cursor left and right in the title box. The Freq control moves the character-selector up and down the matrix; the Q control moves the character-selector left and right.

4. **Use the Freq and Q controls to select a character, then turn the Gain control one notch to the right to move the cursor to the next space in the name, and repeat the process.**

The very useful “Space to End” option in the character selector box will fill-in the remainder of your title with blank spaces.

5. **When you’ve finished naming the program, press the [ENTER] key to store the EQ program.**

The following warning dialog appears for a brief moment, followed by the EQ EDIT function page.



Warning: Do not power off the VM200 while it is writing to memory or you may damage the system.

6. **Press the [EXIT] key any time to exit the EQ LIBRARY STORE or EQ LIBRARY NAME EDIT function pages.**

The VM200 displays the CHANNEL EDIT function page.

Editing EQ Program Titles

You can edit EQ program titles, just in case you want to change its name for some reason. To do so, you recall the target EQ program to a channel, then store it again with a different title.

1. **Select a channel to which you wish to recall the EQ program you are going to rename by pressing the channel [EQ EDIT] key.**

The VM200 displays the EQ EDIT function page.

2. **Press the EQ Library [RECALL] key to display the EQ LIBRARY RECALL function page.**

The [EQ EDIT] key of the selected channel flashes.



3. **Rotate the Data Wheel or use the [</-1] and [+1/>] keys to select an EQ program you wish to rename.**

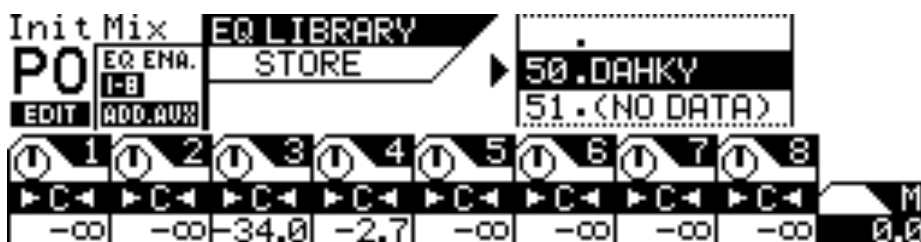
You cannot change the names of Preset programs 00–49.

4. **Press the [ENTER] key to recall the desired EQ Program.**

The VM200 displays the EQ EDIT function page, which shows the recalled EQ parameter values applied to the current channel.

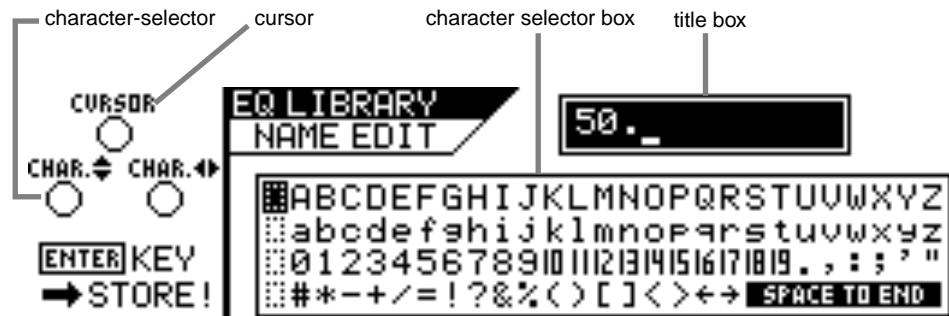
5. **Press the EQ Library [STORE] key to display the EQ LIBRARY STORE function page.**

The VM200 highlights the selected EQ program name and number.



6. **Press the [ENTER] key.**

The VM200 displays the EQ LIBRARY NAME EDIT function page. The title box shows the program number, but the name is now blank.



Use any Gain, Freq, and Q rotary controls to re-assign a name to the EQ program. Refer to “Storing EQ Programs” on page 86 for more information on controlling the cursor and character selector.

7. **When you’ve finished re-naming the program, press the [ENTER] key to store the new EQ program title.**

The VM200 displays the EQ EDIT function page.

WARNING: Do not power off the VM200 while it is writing to memory or you may damage the system.

8. **Press the [EXIT] key at any time to exit the EQ LIBRARY STORE or EQ LIBRARY NAME EDIT function pages.**

The VM200 displays the CHANNEL EDIT function page.

Copying EQ Settings

You can use the EQ Copy function to copy EQ settings from one channel to another.

The EQ COPY function page features a 1-by-20 matrix that enables you to select one source channel EQ, and enable or disable the other channels as copy destinations.

The selected source channel EQ is marked by an "S." A highlighted indicator marks the channels targeted as copy destinations. A dark indicator means the channel is not selected (disabled) as a copy destination.

1. Press the [CH VIEW] key twice (from start of cycle).

The VM200 displays the 3:EQ COPY function page.

The [CH VIEW] key and the [EQ EDIT] keys for all channels flash. The selected Page Select key lights up; unselected Page Select keys flash.

CH VIEW		1	2	3:EQ COPY																	
KEY	CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
EQ.E.	DEST.																				
SELECT SOURCE																					

2. Press the appropriate Page Select key to select the desired channel layer.

The selected Page Select key lights up; unselected Page Select keys continue to flash.

3. Press the [EQ EDIT] key for the EQ copy source channel.

You can select only one source channel EQ to copy at a time.

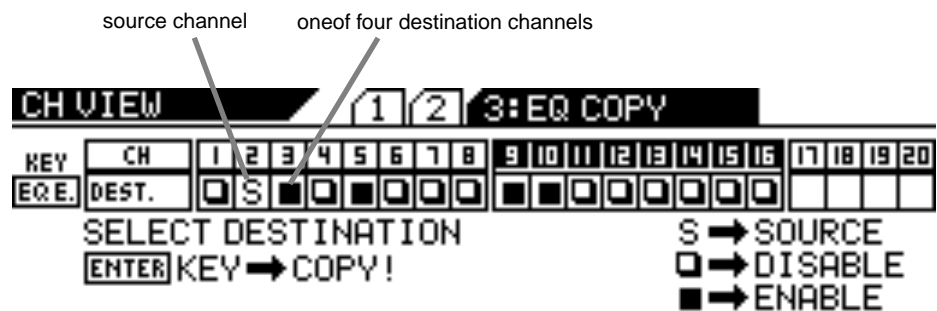
The selected [EQ EDIT] key lights up. The EQ COPY function page marks the source channel with an "S" and prompts you to select a destination channel.

CH VIEW		1	2	3:EQ COPY																	
KEY	CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
EQ.E.	DEST.			S																	
SELECT DESTINATION										S → SOURCE											
[ENTER] KEY → COPY!										□ → DISABLE											
										■ → ENABLE											

4. **Press the appropriate Page Select key to specify the channel layer, then press the [EQ EDIT] key of the copy destination channel(s).**

You can select multiple channels as EQ copy destinations.

The selected [EQ EDIT] key(s) light up. The EQ COPY function page highlights (enables) the selected destination channel(s) as follows.



5. **Press the [ENTER] key to execute the copy operation.**
The EQ COPY function page flashes the word "COMPLETE!" on the display for a few seconds, and the VM200 displays the first CH COPY function page.
6. **Press the [EXIT] key or the [CHANNEL/METER] key to return to Channel Edit mode.**

Note: Even if channels are paired, you can copy to and from each of the paired channels independently.

EQ Preset Library Parameters

#	Name	Parameter					Description
			Lo	Lo-Mid	Hi-Mid	Hi	
00	Flat_EQ	Gain	0.0dB	0.0dB	0.0dB	0.0dB	A flat equalizing pattern used for initialized EQ.
		Freq.	.125	500	2.00K	8.00K	
		Q	L-S	1.0	1.0	H-S	
01	LightKick	Gain	+4.0	-12.0	+4.0	0.0	Relatively light and nimble kick sound.
		Freq.	105	324	4.12K	8.00K	
		Q	1.6	11	0.40	HS	
02	TightKick	Gain	+8.0	-7.5	+6.5	ON	Creates a peak around 70Hz, producing a tight, stiff sound.
		Freq.	70.2	364	2.83K	13.5K	
		Q	1.1	5.0	2.8	LPF	
03	Loud_Kick	Gain	+4.5	-6.5	+5.0	+4.0	Emphasizes the attack of the beat, increasing the mass of the entire kick.
		Freq.	102	306	1.46K	6.35K	
		Q	1.0	3.2	4.5	H-S	
04	Ana.Kick	Gain	+5.5	+1.0	-6.0	-1.5	Makes an analog kick sound more boomy.
		Freq.	102	91.0	2.12K	12.7K	
		Q	L-S	5.0	7.9	H-S	
05	Snappy_SD	Gain	-4.5	0.0	_3.5	+4.0	Emphasizes snare sounds.
		Freq.	111	841	3.89K	8.23K	
		Q	L-S	3.5	0.16	H-S	
06	Power_SD	Gain	+2.0	-9.5	+3.5	+4.5	Adds powerful thrust and clarifies snare sound.
		Freq.	149	281	2.45K	5.04K	
		Q	L-S	11	0.45	0.13	
07	Deep_SD	Gain	0.0	+3.0	+4.0	0.0	Creates a heavy-weight snare sound with great depth.
		Freq.	125	545	4.24K	8.00K	
		Q	L-S	4.5	2.2	H-S	
08	Talk_Tom	Gain	+9.5	-10.0	+9.0	+2.0	Creates the "leathery" decay of a tom.
		Freq.	102	687	4.36K	10.7K	
		Q	2.0	6.3	1.4	H-S	
09	Melo.Tom	Gain	-10.0	+2.0	+2.5	0.0	Creates a melodious atmosphere by limiting the body resonance of a tom.
		Freq.	83.4	216	5.50K	8.00K	
		Q	L-S	4.5	1.1	H-S	
10	W.GongTom	Gain	-12.00	+10.00	-8.0	-12.0	Creates a wooden tom sound.
		Freq.	.125	500	3.78K	8.00K	
		Q	L-S	5.0	11	H-S	
11	Brill.Cym	Gain	-6.0	-1.0	0.0	+7.0	Creates a "sparkling" and brilliant cymbal sound.
		Freq.	55.7	397	1.94K	5.66K	
		Q	L-S	8.9	1.0	H-S	
12	Lo-Fi_Cym	Gain	0.0	+2.5	-4.0	-8.0	Emphasizes the mid to low range to muffle "sparkling" part of cymbals.
		Freq.	40.5	172	3.27K	4.00K	
		Q	L-S	3.2	11	H-S	



#	Name	Parameter					Description
			Lo	Lo-Mid	Hi-Mid	Hi	
13	Vivid_HH	Gain	-7.5	-2.5	+4.0	+4.0	Emphasizes the presence of a high-hat in the ensemble.
		Freq.	93.6	472	2.31K	8.00K	
		Q	L-S	0.79	1.0	H-S	
14	Sharp_HH	Gain	-9.0	-6.5	+4.5	+3.5	Creates a tight high-hat with stiff and powerful characteristics.
		Freq.	68.2	771	7.13K	16.0K	
		Q	L-S	5.6	10	0.10	
15	Lo-Fi_HH	Gain	-2.5	0.0	+4.5	-18.0	Eliminates metallic elements and emphasizes lo-fi high-hat sound.
		Freq.	93.6	472	2.31K	8.00K	
		Q	L-S	0.79	0.71	H-S	
16	Perc.	Gain	-4.0	0.0	+1.0	+7.0	Emphasizes the attack and clarifies the high-range of instruments, such as congas, and bongos.
		Freq.	102	397	1.94K	5.82K	
		Q	L-S	4.5	0.35	H-S	
17	Tamb.	Gain	-5.0	-0.5	+1.0	+2.5	Creates a subtle essence by emphasizing the presence of a tambourine.
		Freq.	125	375	3.17K	8.00K	
		Q	L-S	2.5	10	H-S	
18	Fat_Bass	Gain	0.0	+4.5	+2.5	+0.5	Makes an electric bass sound fatter by emphasizing the low range.
		Freq.	99.2	105	2.38K	4.24K	
		Q	L-S	0.10	6.3	H-S	
19	Norm.Bass	Gain	-9.0	+4.5	+3.5	0.0	Makes an all-round electric bass sound by cutting very low frequencies.
		Freq.	31.3	105	2.12K	4.24K	
		Q	L-S	5.0	0.40	H-S	
20	Loud_Bass	Gain	+3.5	0.0	+2.5	0.0	Use for analog bass with boosted low limit and attack ranges.
		Freq.	121	182	1.26K	12.0K	
		Q	2.0	7.9	2.2	H-S	
21	PowerBass	Gain	+6.0	+3.0	0.0	0.0	Use on a PCM bass with boosted low range.
		Freq.	83.4	917	4.00K	8.00K	
		Q	L-S	7.9	3.2	H-S	
22	Bright_Pf	Gain	-4.0	0.0	+2.5	+5.0	Use to make a piano sound brighter.
		Freq.	81.8	375	2.45K	8.98K	
		Q	L-S	3.2	1.6	H-S	
23	Loud_Pf	Gain	+5.5	-9.0	+2.5	+4.5	Adds "weight" to the low range of a piano sound with lots of harmonics.
		Freq.	187	578	3.27K	5.34K	
		Q	3.5	10	3.2	H-S	
24	Power_Pf	Gain	-8.5	-5.5	+4.5	+9.0	Use on a piano solo to add tightness and spread.
		Freq.	28.7	273	3.17K	8.23K	
		Q	L-S	1.0	6.3	3.5	
25	Real_Pf	Gain	-4.5	+8.0	+1.0	-10.0	Simulates a real mid-range piano sound, including the hammer action during key strokes.
		Freq.	51.1	397	1.54K	8.00K	
		Q	L-S	4.5	5.6	H-S	



#	Name	Parameter					Description
			Lo	Lo-Mid	Hi-Mid	Hi	
26	E.Pf	Gain	-6.5	+5.5	+3.5	+10.5	Emphasizes the attack and distortion of popular electric piano's key strokes.
		Freq.	22.1	243	3.56K	20.2K	
		Q	L-S	5.0	16	H-S	
27	Clean_EG	Gain	+3.0	-6.5	+1.0	+3.5	Use for a clean electric guitar to get a brighter sound.
		Freq.	216	386	1.46K	5.34K	
		Q	0.22	10	6.3	H-S	
28	Crunch_EG	Gain	+3.0	0.0	+3.5	+3.0	Emphasizes the presence and adjusts the tonal quality of a slightly distorted guitar sound.
		Freq.	140	500	2.00K	5.19K	
		Q	7.9	1.0	0.89	7.1	
29	OverDrvEG	Gain	+3.5	+2.0	+3.0	0.0	Emphasizes the mid range of mellow over-drive electric guitar to add fatness and richness.
		Freq.	108	375	2.59K	8.00K	
		Q	7.9	0.50	0.20	H-S	
30	Dist.EG	Gain	+5.5	0.0	+4.0	0.0	Makes a heavily distorted guitar sound clearer.
		Freq.	364	917	3.56K	8.00K	
		Q	L-S	7.9	10	H-S	
31	Metal_EG	Gain	+6.5	-9.5	+5.0	+4.0	Emphasizes the edge of high-gain metal sound.
		Freq.	250	1.12K	4.49K	12.0K	
		Q	L-S	10	4.0	H-S	
32	Stroke_AG	Gain	-3.0	0.0	+1.5	+5.5	Emphasizes the bright chordal strokes of an acoustic guitar, reducing the body resonance.
		Freq.	125	794	1.94K	7.13K	
		Q	1.0	3.2	2.8	H-S	
33	StrokeEAG	Gain	-4.0	-3.0	0.0	+2.5	Use on a tight electric-acoustic guitar in a band context.
		Freq.	250	687	2.00K	4.49K	
		Q	L-S	8.9	1.0	H-S	
34	Arpeg.GG	Gain	-3.0	-3.0	+4.0	+2.5	Corrects and clarifies the arpeggio technique of a gutsy guitar sound.
		Freq.	149	223	3.08K	8.00K	
		Q	L-S	4.0	5.6	H-S	
35	Arpeg.EAG	Gain	-1.5	0.0	0.0	+3.0	Adjusts the balance of chords & arpeggios of an electric acoustic guitar sound.
		Freq.	210	1.00K	3.78K	9.42K	
		Q	L-S	4.0	4.0	0.10	
36	Arpeg.AG	Gain	0.0	-6.5	0.0	+5.0	Cuts the body resonance of an acoustic guitar sound and clarifies an arpeggio guitar sound.
		Freq.	149	530	2.52K	4.24K	
		Q	L-S	7.1	4.5	H-S	
37	Brass_Sec	Gain	-2.5	0.0	+2.0	+4.0	Adjusts the balance of brass section sound (such as trumpets and trombones).
		Freq.	96.4	917	2.52K	5.66K	
		Q	2.5	1.6	0.79	5.0	
38	W.WingSec	Gain	+3.0	+4.0	0.0	0.0	Emphasizes the rich mid-range of wind instruments, such as clarinets and oboes.
		Freq.	125	257	3.38K	8.00K	
		Q	L-S	2.2	2.5	H-S	



#	Name	Parameter					Description
			Lo	Lo-Mid	Hi-Mid	Hi	
39	Male_Vo1	Gain	-1.0	0.0	+2.0	+3.0	Adds changes to expression male of tenor vocals.
		Freq.	157	1.00K	2.00K	6.17K	
		Q	L-S	4.5	0.56	H-S	
40	Male_Vo2	Gain	+2.5	-4.0	-2.0	+4.5	Adds changes to expression of bass and baritone male vocal sound
		Freq.	140	243	2.59	6.73K	
		Q	L-S	7.9	3.2	H-S	
41	FemaleVo1	Gain	-2.0	+1.5	+2.0	+3.0	Adds changes to expression of soprano female vocal sound.
		Freq.	121	408	2.59K	8.72K	
		Q	L-S	0.45	0.63	H-S	
42	FemaleVo2	Gain	-7.0	+2.0	+2.5	+3.5	Adds changes to expression of alto female vocal sound.
		Freq.	118	324	2.06K	6.73K	
		Q	L-S	0.20	0.22	H-S	
43	Chorus	Gain	-3.0	-0.5	+1.0	+3.5	Adds changes to expression of the entire high-tone chorus part.
		Freq.	99.2	817	2.12K	5.34K	
		Q	3.2	2.2	0.71	7.9	
44	Speech_1	Gain	-4.5	-1.5	+1.5	0.0	Use to record clear male narration.
		Freq.	99.2	687	2.59K	8.00K	
		Q	4.5	7.1	0.71	H-S	
45	Speech_2	Gain	-5.0	-2.0	+3.5	0.0	Use to record clear female narration.
		Freq.	55.7	229	2.67K	8.00K	
		Q	L-S	3.5	1.0	H-S	
46	Digi.Mix	Gain	+6.0	0.0	0.0	+6.0	Use to record from classic analog 6mm or cassette tape to make the sound clearer, like digital audio.
		Freq.	51.1	420	4.00K	12.0K	
		Q	L-S	1.0	1.0	H-S	
47	AnalogMix	Gain	ON	-7.0	-7.0	ON	Cuts the high range to obtain the reverse effects of program 45.
		Freq.	33.1	57.3	6.54K	10.7K	
		Q	HPF	3.5	1.4	LPF	
48	Telephone	Gain	ON	0.0	+12.0	ON	Emphasizes only the mid range to simulate a telephone sound.
		Freq.	420	500	1.00K	2.52K	
		Q	HPF	1.0	5.0	LPF	
49	Husky	Gain	ON	-5.5	+2.0	+8.0	Emphasizes only the high range to creates a husky voice.
		Freq.	102	172	4.62K	8.00K	
		Q	HPF	1.0	0.32	H-S	





About This Chapter

This chapter explains how to monitor signals on the VM200, including selecting a monitor output, soloing, using the two-track input, as well as viewing meters and send levels.

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Monitoring and Soloing

The flexible monitoring and soloing capabilities of the VM200 enable you to use the mixer in a wide range of applications.

The monitoring functions enable you to listen to input channel signals or buss signals through connected monitor speakers or headphones.

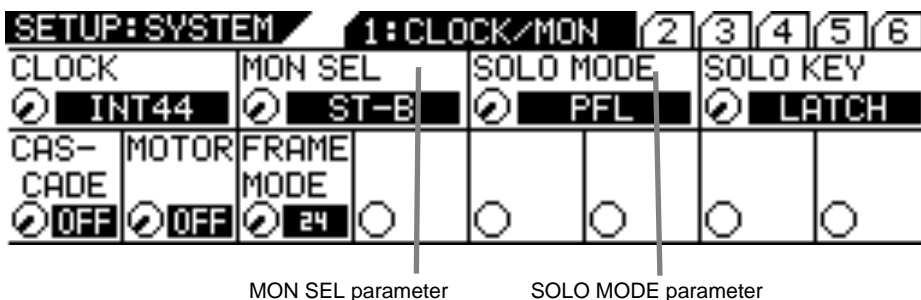
The soloing function enables you to select the channels you want to hear while excluding all other channels. This lets you focus your attention on certain tracks in the mix.

For example, say you want to listen closely to the way the rhythm section is working in a mix. The solo function lets you “solo” the channels that carry the bass and drums, while excluding the channels dedicated to the other instruments.

You specify the channels you want to hear by pressing the corresponding channel [SOLO] keys on the top panel.

The Setup:System 1:CLOCK/MON function page features two parameters that control the monitoring and soloing functions of the VM200: the MON SEL (monitor select) and SOLO MODE parameters.

You can display the 1:CLOCK/MON function page by pressing the [SYSTEM] key.



MON SEL Parameter

The Mon Sel (Monitor Select) parameter enables you to select the source for the MONITOR OUT and PHONES jack.

(However, if a channel is “soloed,” it will override the selection of the Mon Sel parameter.)

You can select one of the following sources: ST-B (stereo buss), REC-B (record buss), AUX1, AUX2, AUX3, AUX4, EFF1, EFF2, AUX1&2, or AUX3&4. For more information on these options, see “Monitoring” on page 100.

SOLO MODE Parameter

The Solo Mode parameter enables you to configure the solo function of the VM200.

You can solo input channels 1 through 20 and the buss outs by



pressing the [SOLO] key for the desired channel.

Two Solo modes are available: PFL (Pre-Fader Listen) and M-SOLO (Mix Solo).

See “Soloing” on page 101 for more information.

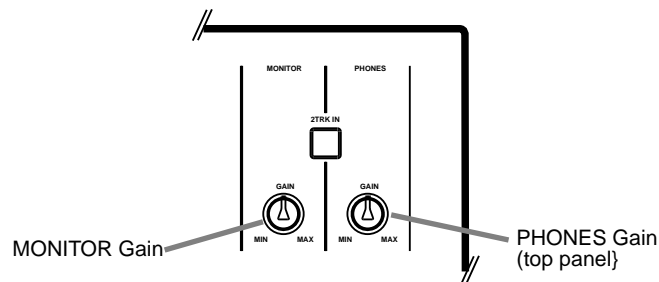
Monitor Outs and Phones

You can output Monitor and Solo signals via the MONITOR OUT and PHONES jacks.

Make sure the 2TRK IN switch is not pressed in for monitoring (unless you want to confidence monitor), or you will not hear a signal. (See 2TRK IN, below, for more information.)

You can connect a monitor system (amplifier and speakers) to the MONITOR OUT phono jacks on the rear panel. You can use the Monitor Gain control, located at the top right of the control surface, to adjust the level of the monitor out signal.

You can connect a pair of stereo headphones to the PHONES stereo (TRS) phone jack. The PHONES signal is the same as the MONITOR OUT signal. You can adjust the level of the phones signal using the Phones Gain control.



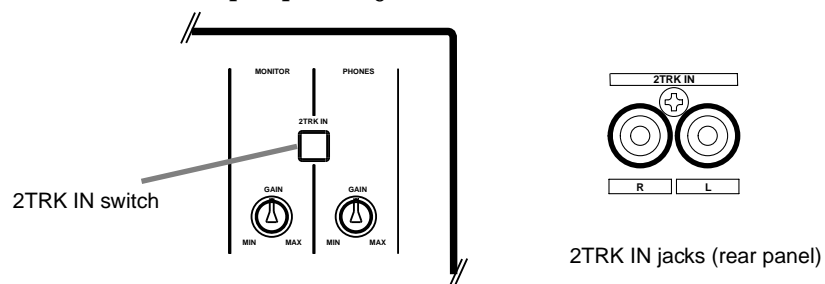
Two Track Input (2TRK IN)

If you press the 2TRK IN switch on the top panel, you can monitor signals that are connected to the 2TRK IN jacks on the rear panel.

The signal is sent to the MONITOR OUT and PHONES jacks.

You can connect the stereo outputs of a master recorder, for example, to the 2TRK IN jacks for confidence monitoring or master playback.

The 2TRK IN accepts phono jacks with a -10 dBV nominal input level.

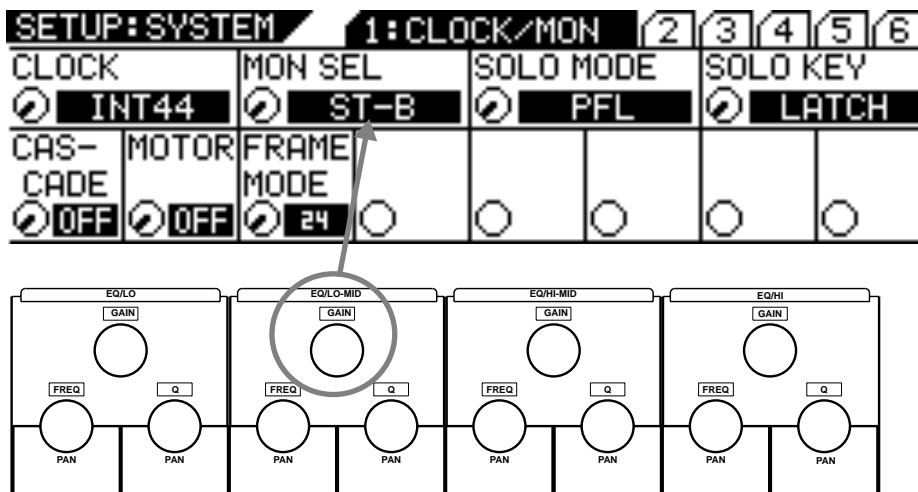


Monitoring

You can monitor the following sources: Stereo Buss, Rec Buss, Aux1, Aux2, Aux3, Aux4, Eff1, Eff2, Aux 1&2, or Aux 3&4. (AUX 3 and 4 are available only when the ADD. AUX parameter is turned on. For more information, see page 115.)

You can select a monitor source using the monitor select (Mon Sel) parameter on the first SYSTEM function page. Follow these steps:

- 1. Make sure a monitoring system (amp and speakers) is connected to the MONITOR OUT jacks, or that stereo headphones are connected to the PHONES jack. Also, make sure the 2TRK IN switch is *not* pressed in.**
- 2. Set the Monitor Gain control to about halfway.**
(For headphones, set the Phones Gain control to about halfway.)
- 3. Press the Setup [SYSTEM] key.**
The VM200 displays the 1:CLOCK/MON function page.
- 4. Rotate the channel 3/4 (EQ/LO-MID) Gain rotary control to select the desired source for the Mon Sel parameter.**



MONITOR SELECT (MON. SEL.) PARAMETER OPTIONS	
ST-B	Stereo Buss (default setting)
REC-B	Record Buss
AUX1	Auxiliary 1
AUX2	Auxiliary 2
AUX3	Auxiliary 3
AUX4	Auxiliary 4
EFF1	Effect processor EFF1
EFF2	Effect processor EFF2
AUX1&2	Auxiliary 1 and Auxiliary 2 mixed
AUX3&4	Auxiliary 3 and Auxiliary 4 mixed

- 5. Press the [CHANNEL/METER] or [EXIT] key.**

The VM200 exits Setup mode and displays the CHANNEL EDIT function page.



Soloing

A Solo function is available for input channels 1 through 20 that enables you to monitor specific channels.

Two solo modes are available: PFL and M-Solo.

PFL is an abbreviation for Pre-Fader Listen, in which you can monitor a signal that appears before it is adjusted by the fader.

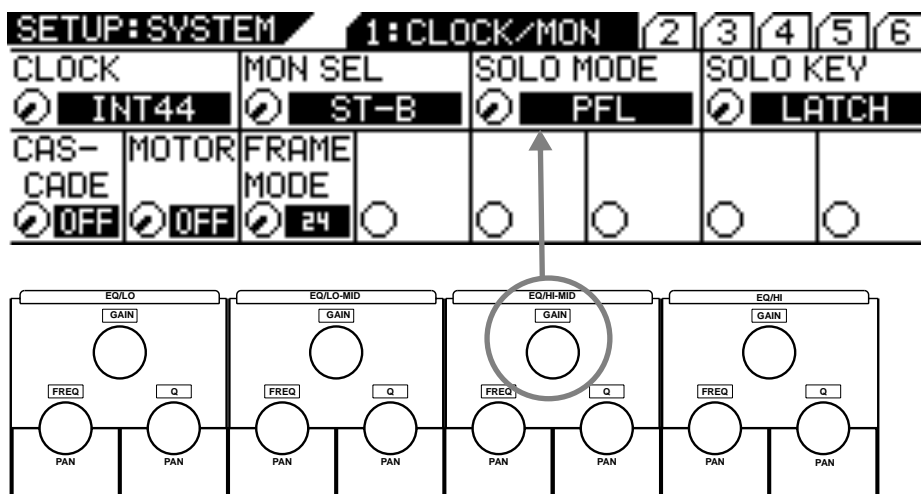
M-Solo means “mix solo,” which enables you to momentarily monitor the stereo buss signal (i.e., the mix).

You can select a solo mode by using the Solo Mode parameter on the first SETUP:SYSTEM function page.

You can also control how [SOLO] keys are turned on and off.

To use the Solo function, follow the steps below:

- 1. Make sure a monitoring system (amp and speakers) is connected to the MONITOR OUT jacks, or that stereo headphones are connected to the PHONES jack. Also, make sure the 2TRK IN switch is *not* pressed in.**
- 2. Set the Monitor Gain control to about halfway.**
(If you are using headphones, set the Phones Gain control to about halfway.)
- 3. Press the Setup [SYSTEM] key.**
The VM200 displays the 1:CLOCK/MON function page.
- 4. Rotate the channel 5/6 (EQ/HI-MID) Gain rotary control to select the desired Solo Mode.**



SOLO MODE PARAMETER OPTIONS	
PFL	Pre-Fader Listen mode (default setting)
M-SOLO	Mix-solo mode

PFL: In PFL (Pre-Fader Listen) mode, the VM200 feeds a soloed channel's pre-fader signal to the Solo buss and then outputs it only to the MONITOR OUT and PHONES.

Pressing the appropriate [SOLO] key enables you to solo the stereo master or Rec Buss signal before it is adjusted by the Master Fader or Rec Buss Gain parameter.

You can use this mode to monitor individual input signals during a recording session to make isolated EQ adjustments or to ensure that the signals are not clipping.

You can solo input channels that are turned off (i.e., that have their [ON] keys turned off).

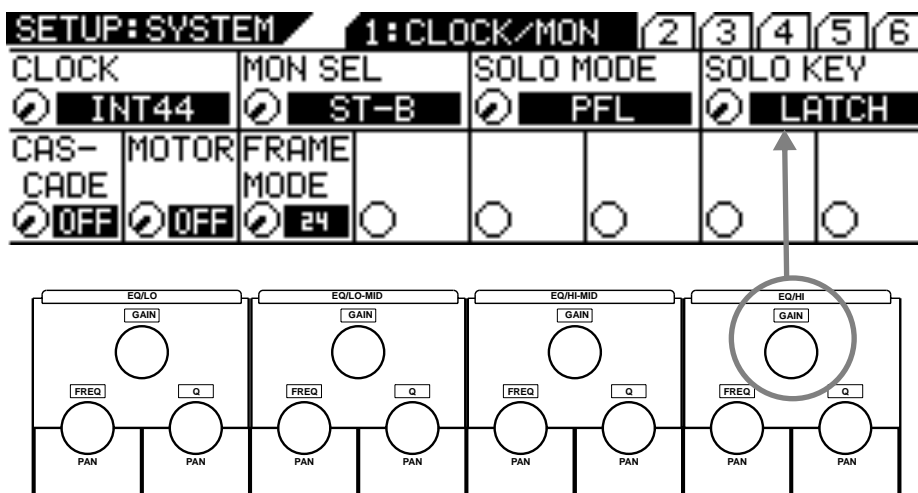
M-Solo: In Mix-Solo mode, the VM200 feeds a soloed channel to the stereo buss, and then outputs it to the ST BUSS OUT, MONITOR OUT, and PHONES. You can solo only channels that are routed to the Stereo Buss.

The VM200 mutes all channels except the channel you select to solo. (However, you can use a Solo Safe function in this mode. For more information, see "Solo Safe Function" on page 104.)

In this mode, Master and Rec Buss [SOLO] keys are disabled.

You can use this mode to adjust individual channels during mix-down.

5. Rotate the channel 7/8 (EQ/HI) Gain rotary control to select a Solo Key mode.



SOLO KEY PARAMETER OPTIONS	
LATCH	In Latch mode, when you press a [SOLO] key, it remains depressed, and the channel continues to solo <i>until you press the key again</i> . This is the default setting.
UNLATCH	In Unlatch mode, when you press and hold a [SOLO] key, it remains depressed, and the channel continues to solo <i>until you release the key</i> .

6. Press the [CHANNEL/METER] or [EXIT] key.

The VM200 exits Setup mode and displays the CHANNEL EDIT function page.



7. When you're ready, press the [SOLO] key for the channel(s) you wish to solo.

The selected [SOLO] keys light up.

Note: Solo channels take priority over the sources you select using the Mon Sel parameter.

Note: When channels are configured as stereo pairs ("Pairing Channels" on page 68), their [SOLO] keys are linked.

Note: If Solo Mode is set to M-SOLO, you must raise the fader for the soloed channel and the Master fader or you will not hear any output.

Solo Safe Function

The VM200 features a Solo Safe function that enables you to designate specific channels as “solo safe.”

You can monitor solo safe channel signals that are sent to the stereo buss regardless of the channel’s [SOLO] key status. This function is available when Solo Mode is set to M-Solo (see page 98).

1. Press the Setup [SYSTEM] key four times (from start of cycle).

The VM200 displays the SETUP:SYSTEM 4:SOLO SAFE function page. All [EQ EDIT] keys flash.



2. Select the desired channel layer using the [1-8 ANALOG IN], [9-16 ADAT IN], and [17-20 EFF RTN] Page Select keys and press the [EQ EDIT] key of the target channels.

The [EQ EDIT] keys of the solo safe channels light up, the [EQ EDIT] keys of the non-solo safe channels continue to flash. The boxes of the solo safe channels are highlighted (dark) on the display.



In the example above, channels 5 & 6 are designated as “solo safe” channels. In this case, pressing the channel 1 [SOLO] key in M-Solo mode will enable you to monitor not only the channel 1 signal, but also the channels 5 & 6 signals from the stereo buss. Other channels will be muted.

3. Press the [EXIT] key or the [CHANNEL/METER] key to return to Channel Edit mode.



Metering Signal Levels

You can view signal level meters for input Channels 1 through 20 on the CHANNEL EDIT/INPUTS function page. You can display this function page by pressing the [CHANNEL/METER] key.

Press the [CHANNEL/METER] key again to display the CHANNEL EDIT/OUTPUTS function page. This page includes meters for ADAT Outs, Stereo Buss Out, Rec Buss Out, Aux Sends, and the Effect Sends.

You can also monitor input channel levels for individual channels on the corresponding CH VIEW and EQ EDIT function pages. (You can display these pages by pressing the [CH VIEW] key or the corresponding [EQ EDIT] key.)

The CH VIEW function page also displays graphic faders and numerical values to indicate the level of the AUX Sends and the Effect sends. See “Viewing Individual Channel, Aux Send, and Effect Send Meters” on page 106 for more information.

You can also meter stereo output levels by watching the dedicated L/R or St Buss/Solo LED meters, which are located to the right of the LCD Display.

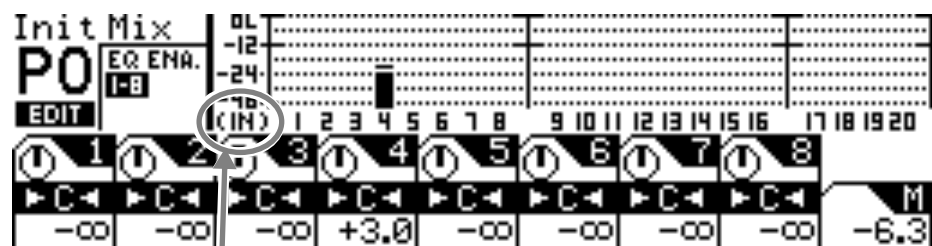
The LED meters feature overload (OL) indicators, which light up when signals clip. If this happens, lower the levels. Otherwise the signal may distort.

Viewing Input/Output Level Meters

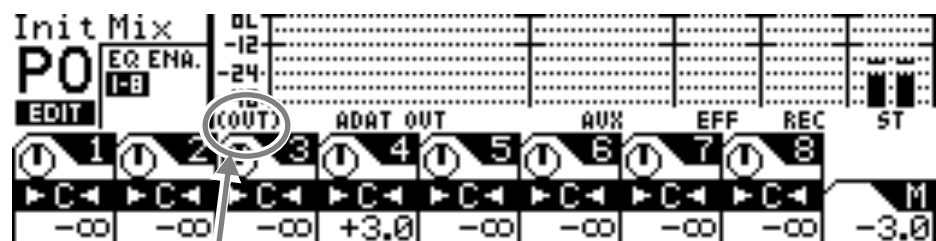
1. **Press the [CHANNEL/METER] key (or the [EXIT] key in most modes).**

The VM200 displays the first CHANNEL EDIT page, which features input level meters.

2. **Press the [CHANNEL/METER] button as desired to toggle between the input level meters and output level meters.**



CHANNEL EDIT/INPUT function page (first press of Channel/Meter key)



CHANNEL EDIT/OUTPUT function page (second press of Channel/Meter key)



LED Display Meter (L/R or ST BUSS/SOLO)

The VM200 features two LED meters to the right of the LCD Display that enable you to view stereo output levels. These nine-segment LED meters display levels for the left and right channels (L/R) or the Stereo Buss and soloing channels (St Buss/Solo).

The meters range from -48 dB to OL (overload). The overload indicator lights when the signal clips. If an OL LED lights up while you are metering levels, reduce the stereo output level to prevent signal distortion.

Viewing Individual Channel, Aux Send, and Effect Send Meters

1. Press the [CH VIEW] key.

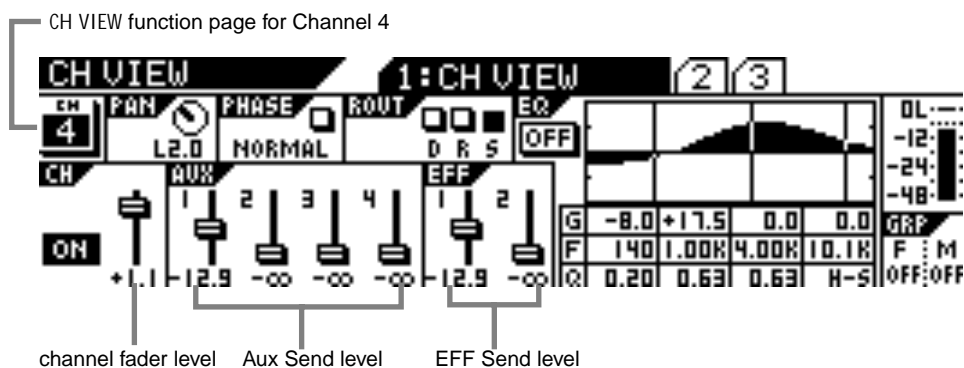
The VM200 displays the CH VIEW function page. [CH VIEW] key and all [EQ EDIT] keys flash.

2. Select a target channel layer by using a Page Select key.

3. Press the target channel's [EQ EDIT] key.

The VM200 displays the CH VIEW function page for the corresponding channel.

As you move the faders, notice how the fader icons move to indicate the fader positions.



About This Chapter

This chapter describes the output configurations of the VM200, including the stereo buss output, the recording buss output, the ADAT and S/P DIF digital outputs, and the auxiliary (AUX) sends.

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Overview

The VM200 features several types of outputs, including the stereo buss output, the recording buss output, the ADAT and S/P DIF digital outputs, and auxiliary (AUX) and effect (EFF) sends.

You can control much of the signal routing by setting parameters on the ROUTING function page. You can display the ROUTING function page by pressing the [ROUTING/PHASE] key.

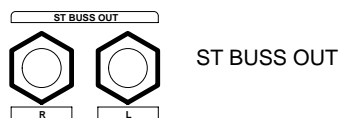
The Effect Send capabilities of the VM200 are explained in more detail in the “Effects” chapter page 123.

ST BUSS OUT

The VM200 converts the digital stereo buss (ST BUSS) signal to an analog signal using 20-bit 128-times oversampling D/A converters. It then outputs it from the ST BUSS OUT unbalanced phone jack (located on the rear panel) with a -10 dB nominal output level.

To output signals from these connectors, you need to route channel signals to ST BUSS using the ROUTING function page, which you can access by pressing the [ROUTING/PHASE] key. (See “Input Channels” on page 59.)

For more information, see “Using the ST BUSS OUT” on page 110.



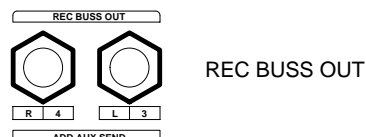
REC BUSS OUT

The VM200 converts the digital stereo signal output from the REC BUSS to an analog signal using 20-bit 128-times oversampling D/A converters. The analog signal is then output from the rear panel via the REC BUSS OUT unbalanced phone jacks with a -10 dB nominal output level.

To output signals from these connectors, you need to route channel signals to REC BUSS using the ROUTING function page accessed via the [ROUTING/PHASE] key. (See “Input Channels” on page 59.)

The signals from the REC BUSS are also routed to input channels 1-8. More specifically, the left channel signals are routed to channels 1, 3, 5, and 7, and the right channel signals are routed to channels 2, 4, 6, and 8. You can then route the signals directly to the ADAT OUTS 1-8. In this way, you can output two mixes simultaneously.

For more information, see “Using the REC BUSS OUT” on page 112.



Note: If the ADD. AUX parameter is turned on, the REC BUSS is disabled. For more information, see “Enabling AUX Sends 3 & 4 (ADD. AUX Parameter)” on page 115.

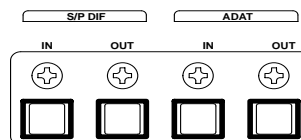
ADAT OUT & S/P DIF OUT

You can output digital stereo signals from the ADAT OUT and S/P DIF OUT connectors.

You can connect any ADAT-compatible recording device to the ADAT OUT optical connector, including a Fostex VR800 recorder, Alesis® ADAT, Alesis ADAT-XT, or other digital multitrack recorders.

The S/P DIF OUT uses an optical connector. You can use this to route the stereo signal to any S/P DIF format audio device, such as a computer soundcard or DAT recorder.

For more information, see “Digital Connections” on page 159.



ADAT and S/P DIF connections

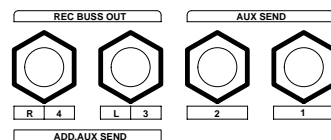
AUX SEND

You can assign a signal to AUX Sends 1 through 4. (AUX Sends 3 & 4 are available only when the ADD. AUX parameter is turned on. For more information, see “Enabling AUX Sends 3 & 4 (ADD. AUX Parameter)” on page 115.)

The AUX Sends provide additional outputs that you can use for a variety of purposes. For example, you can route a signal out the AUX SENDS to an external DAT recorder, talkback system, or other application.

You can configure channel AUX Sends as pre-fader or post-fader sends.

For more information, see “Using the AUX Sends” on page 115.



AUX Sends 1–4

Using the ST BUSS OUT

The VM200 converts the ST BUSS stereo digital signal to analog using 20-bit 128-times oversampling D/A converters. The analog signal is then output from the ST BUSS OUT connectors on the rear panel. These connectors are unbalanced phone jacks with a -10 dB nominal output level.

The same ST BUSS stereo digital signal is also converted to an S/P DIF signal via the S/P DIF encoder and output from the S/P DIF OUT connector on the rear panel. (For more information, see “Using S/P DIF OUT” on page 168.)

In a typical recording setup, you could use the ST BUSS OUT for master recording.

Monitoring the ST BUSS OUT

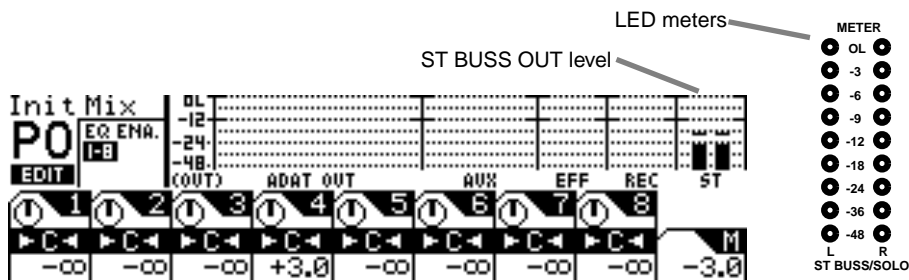
You can monitor the ST BUSS OUT signal by connecting the MONITOR OUT jacks to an amplifier and speakers. Set the Mon Sel (Monitor Select) parameter on the SETUP:SYSTEM 1:CLOCK/MON function page to “ST-B” (stereo buss) (see page 98).

You can also monitor the ST BUSS OUT signal through a pair of stereo headphones connected to the PHONES jack. For more information, see “Monitoring Signals” on page 97.

Viewing the ST BUSS OUT Meters

You can view the stereo output signal levels on the nine-segment L/R Stereo/Solo LED meters.

You can also view the stereo output level on meters that appear on the CHANNEL EDIT/OUTPUTS function page, which you can display by pressing the [CHANNEL/METER] key twice.



See the “Monitoring Signals” on page 97 for more information.



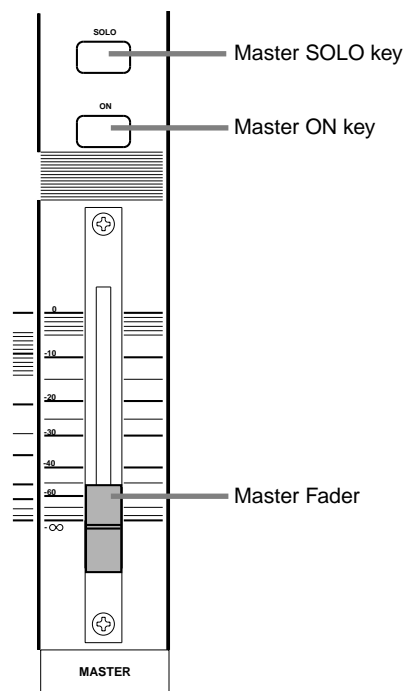
Soloing the ST BUSS OUT

You can solo the signal output from the ST BUSS by pressing the [SOLO] key on the Master channel. The Master [SOLO] key lights up. The Master [SOLO] key works only when Solo mode is set to PFL, which is the default setting. If Solo mode is set to M-Solo, the Master [SOLO] key is disabled. For more information on Solo mode, see page 101.

If you set the Solo Key parameter to LATCH, pressing the [SOLO] key solos the stereo output until you press the [SOLO] key again. If the parameter is set to UNLATCH, the stereo output will solo only until you release the Master [SOLO] key.

Setting the ST BUSS OUT Level

You control the stereo output level using the Master fader.



Since the Master fader can also control the Aux and Effects Send master levels, depending on the Fader Mode, you need to press the [CHANNEL] key before you can adjust the stereo output level. This places the VM200 in Channel Fader Mode, enabling the Master fader to control the stereo output level.

See “Faders” on page 32 for more information.

Muting the ST BUSS OUT

You can mute the stereo output by turning off the [ON] key for the Master channel. The [ON] key lights up when stereo output is on. Turning *off* the [ON] key mutes the stereo buss output.

Since the Master [ON] key can also mute the Aux and Effects Send master outputs, depending on the Fader Mode, you may need to press the [CHANNEL] key to place the VM200 in Channel Fader Mode before you can mute the stereo buss output.

This places the VM200 in Channel Fader Mode, enabling the Master [ON] key to mute the stereo output.

See “[ON] Keys” on page 34 for more information.

Using the REC BUSS OUT

The VM200 converts the REC BUSS stereo signal to analog using 20-bit 128-times oversampling D/A converters. The analog signal is then output from the REC BUSS OUT connectors on the rear panel. These connectors are unbalanced phone jacks with a -10 dB nominal output level.

The REC BUSS also sends the left signal to channels 1, 3, 5, and 7, and the right signal to channels 2, 4, 6, and 8 so that you can route them to ADAT OUT 1-8 directly. This configuration enables you to send two mixes to two different external recorders at the same time (assuming one recorder is ADAT-compatible). (For more information on ADAT OUT connections, see “Digital Connections” on page 159.)

Note: If the ADD. AUX parameter is on, the REC BUSS is disabled. For more information, see “Enabling AUX Sends 3 & 4 (ADD. AUX Parameter)” on page 115.

Monitoring the REC BUSS OUT

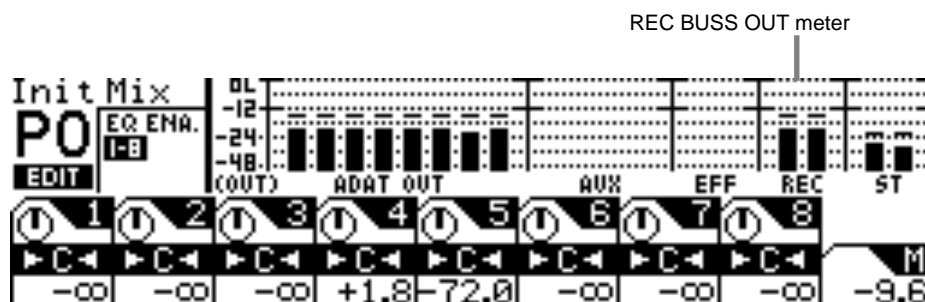
You can monitor the REC BUSS OUT signal by connecting the MONITOR OUT jacks to an amplifier and speakers. Set the Mon Sel (Monitor Select) parameter on the SETUP:SYSTEM 1:CLOCK/MON page to “REC-B” (see page 98).

You can also monitor the REC BUSS OUT signal through a pair of stereo headphones connected to the PHONES jack. For more information, see “Monitoring Signals” on page 97.

Viewing the REC BUSS OUT Meters

You can view the REC BUSS OUT level on meters that appear on the CHANNEL EDIT/OUTPUTS function page. You can display this function page by pressing the [CHANNEL/METER] key twice.

See the “Monitoring” chapter on page 97 for more information.



Soloing the REC BUSS OUT

You can solo the signal output from the REC BUSS by pressing the REC BUSS [SOLO] key (located next to the Master [SOLO] key). The Rec Buss [SOLO] key lights up. The Rec Buss [SOLO] key works only when Solo mode is set to PFL, which is the default setting. If Solo mode is set to M-Solo, the Rec Buss [SOLO] key is disabled. For more information on Solo mode, see page 101.

If you set the Solo Key parameter to LATCH, pressing the Rec Buss [SOLO] key solos the stereo output until you press the Rec Buss [SOLO] key again. If the parameter is set to UNLATCH, the Rec Buss output will solo only until you release the Rec Buss [SOLO] key.

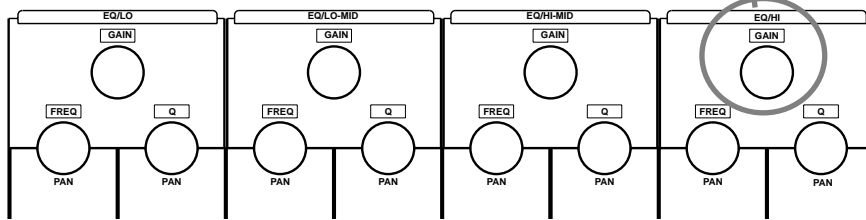
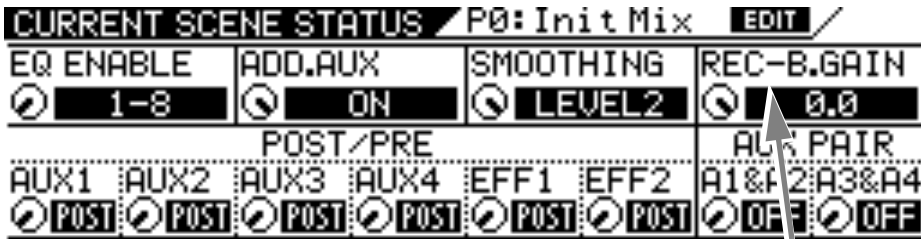


Setting the REC BUSS OUT Level

You can set the Rec Buss output level on the CURRENT SCENE STATUS function page.

1. **Press the [CURRENT SCENE STATUS] key.**
The VM200 displays the CURRENT SCENE STATUS function page.
2. **Rotate the EQ/HI Gain rotary control (channels 7/8) to adjust the REC-B GAIN parameter.**
The REC-B GAIN parameter controls the Rec Buss Out level.

You can adjust the level (-∞, -90 to 0dB) in 128 increments. The default setting is 0dB.

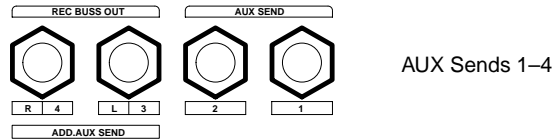


Note: If you try to operate the Gain rotary control while the ADD.AUX parameter is turned ON, the VM200 displays a warning message and you will be unable to adjust the REC-B Gain. Use the EQ/LO-MID Gain rotary control (channels 3/4) to turn off the ADD.AUX parameter on the CURRENT SCENE STATUS function page.



Using the AUX Sends

The VM200 features four auxiliary (AUX) sends, which enable you to send a signals to various destinations. You can send signals from input channels 1 through 20 to AUX Sends 1 through 4. You can use the four AUX Sends individually or in stereo pairs.



You can configure each channel AUX Send as a pre-fader or post-fader send.

AUX Sends 1 through 4 signals are routed to the AUX SEND 1 through 4 jacks respectively. (AUX 3 & 4 are available only if you turn on the ADD.AUX parameter, as described below.)

The VM200 also features a Smoothing function that reduces CPU load to achieve smoother fader adjustment.

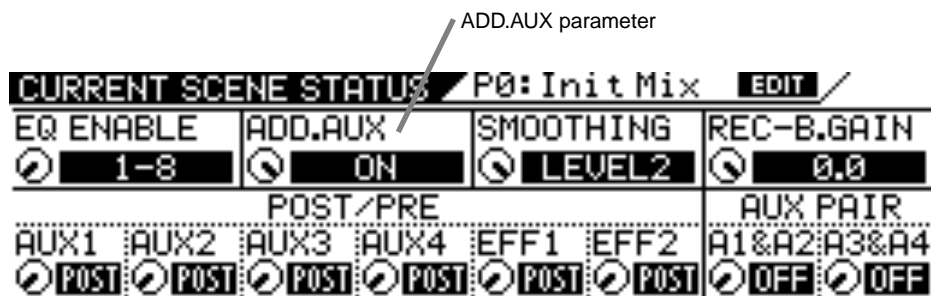
The VM200 does not include dedicated AUX return inputs. Use the insert channels to return AUX signals. For more information, see “Insert Channels 1-4” on page 62.

Enabling AUX Sends 3 & 4 (ADD.AUX Parameter)

If you wish to use AUX Sends 3 & 4, you must turn on the ADD.AUX parameter on the CURRENT SCENE STATUS function page.

1. **Press the [CURRENT SCENE STATUS] key.**

The VM200 displays the CURRENT SCENE STATUS function page.



2. **Rotate the EQ/LO-MID Gain control to turn on the ADD.AUX parameter.**
The ON indicator in the ADD. AUX parameter field flashes.
3. **Press the [ENTER] key to confirm the change.**
4. **Press the [EXIT] key to display the CHANNEL EDIT function page.**

Note: When the ADD.AUX parameter is turned on, the REC BUSS OUT jacks function as AUX Sends 3 and 4, and the REC BUSS OUT routing is disabled.

Monitoring AUX Sends

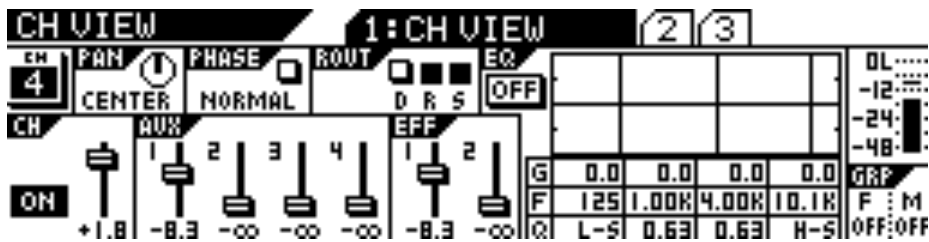
You can monitor the REC BUSS OUT signal by connecting the MONITOR OUT jacks to an amplifier and speakers. Set the Mon Sel (Monitor Select) parameter on the 1:CLOCK/MON page to AUX1, AUX2, AUX3, or AUX4 (see page 98).

You can also monitor the REC BUSS OUT signal through a pair of stereo headphones connected to the PHONES jack. For more information, see “Monitoring Signals” on page 97.

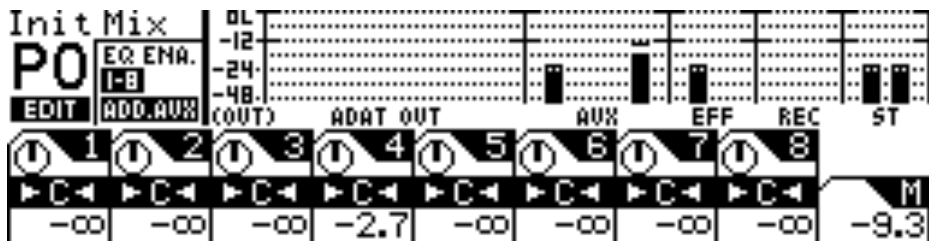
Viewing the AUX Send and Master Setting

You can view the AUX Send level and send master level on meters that appear on the CH VIEW function page and the Channel Edit/Outputs function page respectively.

To view the AUX Send level, press the [CH VIEW] key to display the 1:CH VIEW function page, press a Page Select key to select the desired channel layer, and press the [EQ EDIT] key for the Aux Send channel.



You can display the CHANNEL EDIT/OUTPUTS function page to view the AUX Send master level by pressing the [CHANNEL/METER] key twice.



See “Monitoring Signals” on page 97 for more information.



Sending Channel Signals to AUX Sends

You can send signals from input channels 1 through 20 to AUX Sends 1 through 4.

If the AUX Send is configured post-fader (see “Pre-fader/Post-fader AUX Sends” below), first raise the channel’s regular fader 1 prior to step 1 by pressing the [CHANNEL] button, and then raising the fader.

1. **In the Fader Mode section, press the [AUX1], [AUX2], [AUX3], or [AUX4] key to select an AUX Send.**

The faders now function as channel AUX Send controls for the selected AUX Send.

Note: If the ADD. AUX parameter is on, the REC BUSS is disabled. For more information, see “Enabling AUX Sends 3 & 4 (ADD. AUX Parameter)” on page 115.

2. **Raise the fader of the channel you want to send to the AUX Send.**

3. **Use the Master fader to adjust the AUX Sends master level.**

When channels are configured as stereo pairs their AUX Send controls are linked. (See “Pairing Channels” on page 68).

Note: If the Smoothing function is set to Level 2 (default), AUX1 and EFF1 are linked, and AUX2 and EFF2 are linked. Therefore, setting the AUX1 level also sets EFF1 to the same level; similarly, setting the AUX2 level sets EFF2 to the same level. If the Smoothing function is set to Level 1, you may hear a slight stepping noise when you move the fader. For more information on the Smoothing function, see “Smoothing Function” on page 120.

Pre-fader/Post-fader AUX Sends

You can configure each AUX Send as pre-fader or post-fader by adjusting parameters on the CURRENT SCENE STATUS function page.

Pre-fader signals do not pass through the channel faders and are therefore unaffected by channel fader settings. Post-fader signals pass through the channel faders and are affected by channel fader settings.

Follow these steps to configure each AUX Send as pre-fader or post-fader.

1. **Press the [CURRENT SCENE STATUS] key.**

The VM200 displays the CURRENT SCENE STATUS function page.



pre-fader/post-fader AUX Sends

2. **Use the Freq and Q rotary controls for channels 1–4 to select PRE or POST for AUX1, AUX2, AUX3, and AUX4.**

The default setting is POST.

When you change the setting, the selected value flashes.

3. **Press the [EXIT] key to display the CHANNEL EDIT function page.**

Muting AUX Sends

You can mute the AUX Send Masters by turning off the [ON] key for the Master channel.

Since the Master [ON] key can also mute the Stereo Buss and Effects Send master outputs, depending on the Fader Mode, you need to press the [AUX1], [AUX2], [AUX3], or [AUX4] key to select an AUX Send before you can mute it.

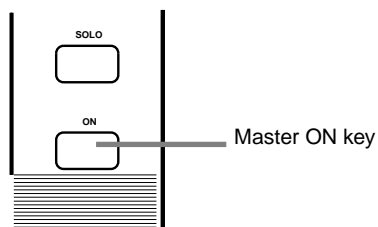
1. **Press the [AUX1], [AUX2], [AUX3], or [AUX4] key to select an AUX Send.**

The selected AUX key flashes.

2. **Use the MASTER [ON] button to turn the AUX Send on and off.**

When AUX Sends are configured as stereo pairs, their [ON] buttons are linked (see “Pairing Channels” on page 68).

See “[ON] Keys” on page 34 for more information.



Pairing AUX Sends

You can pair AUX Sends 1 and 2 and AUX Sends 3 and 4 for stereo signal processing.

When paired, the Master Faders, [ON] keys, and monitors of each AUX Send are set the same and linked for simultaneous control.

Follow these steps to pair AUX Sends:

1. **Press the [CURRENT SCENE STATUS] key.**

The VM200 displays the CURRENT SCENE STATUS function page.



AUX PAIR parameters

2. **Use the Freq and Q rotary controls for channels 7/8 to turn the A1&A2 and A3&4 parameters On or Off.**

The default setting is “off.”

If you change the parameter setting, the indicator flashes.

3. **Press the [EXIT] key to return to Channel Edit mode.**

Note: If the ADD. AUX parameter is on, the REC BUSS is disabled. For more information, see “Enabling AUX Sends 3 & 4 (ADD. AUX Parameter)” on page 115.

Note: When AUX1 and 2 are paired, the AUX1 signal is sent to the left channel and AUX2 signal is sent to the right. Similarly, when AUX3 and 4 are paired, the AUX3 signal is sent to the left channel and the AUX4 signal is sent to the right channel.

Note: If the Smoothing function is set to Level 2 (default), the AUX pair setting will affect the EFF pair setting. For more information on the Smoothing function, see “Smoothing Function” on page 120.

Smoothing Function

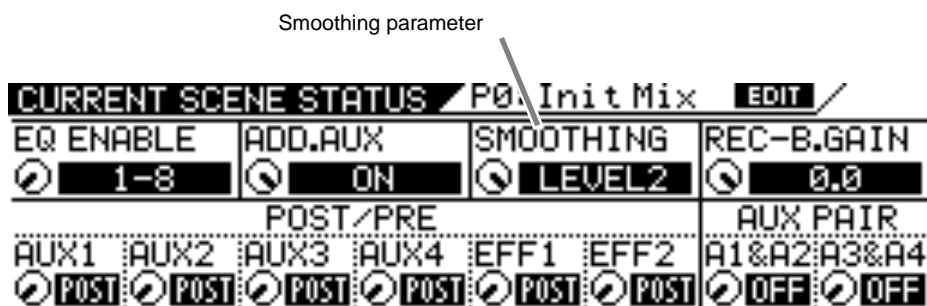
Depending on the sound you are mixing, you may hear a slight stepping noise when you slide the faders. This indicates an overloaded CPU. To resolve this problem, the VM200 features a Smoothing function that reduces CPU load to achieve smoother fader adjustment.

When the Smoothing function is set to Level 2, AUX1 and EFF1 are linked and AUX2 and EFF2 are linked. Therefore, the level settings, pair settings, and pan settings for AUX Send 1 and AUX Send 2 will be applied to the level settings, pair settings, and pan settings for EFF1 and EFF2. However, fader operation will be much finer.

Follow the steps below to set the Smoothing function. The default setting is Smoothing "LEVEL 2."

1. **Press the [CURRENT SCENE STATUS] key.**

The VM200 displays the CURRENT SCENE STATUS function page.



2. **Use the EQ/HI-MID Gain rotary control to toggle between Level1 and Level2.**

Level 1: AUX Sends 1/2 and EFF Sends 1/2 are not linked, but the faders' smoothing function may be coarse, and depending on the sound, you may hear a slight stepping noise when you slide the faders in AUX Send mode.

Level 2: AUX Send 1 and EFF Send 1 are linked, and AUX Send 2 and EFF Send 2 are linked. The level settings, pair setting, and pan setting for AUX Send 1 and AUX Send 2 will be applied to the level settings, pair settings, and pan settings for EFF1 and EFF2. However, fader operation will be much smoother and you should not hear any noise.

Note: If the EQ Enable parameter in the CURRENT SCENE STATUS page is set to "1-16," the Smoothing function remains Level 2 even if you can change to Level 1 on the display.

3. **Press the [ENTER] key to confirm the setting.**

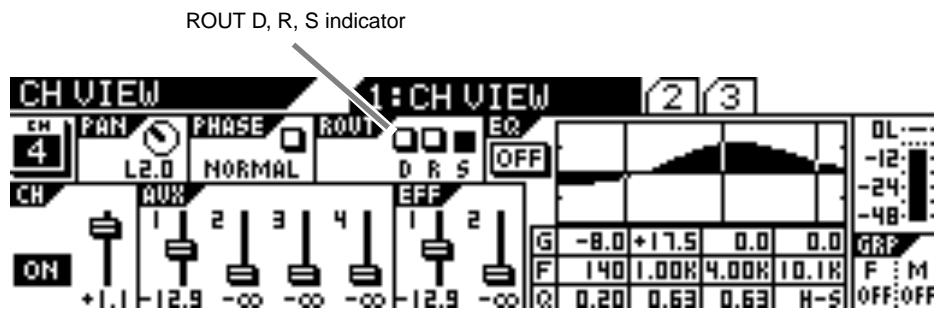
Viewing Buss Routing for Each Channel

The CH VIEW function page includes a ROUT display that indicates whether the specified channel is routed to the ADAT Direct Outs, the Stereo Buss, or the Record Buss.

1. **Press the [CH VIEW] key.**
2. **Press the [EQ EDIT] key for the desired channel.**

The VM200 displays the 1:CH VIEW function page, which includes the ROUT indicator in the top center of the display.

The D, R, and S indicators represent the ADAT Direct Outs, the Record Buss, and the Stereo Buss. A highlighted (dark) indicator means the channel is being sent to the specified buss.





About This Chapter

This chapter describes how to apply the VM200 internal effects to the signals, and how to recall, store, and edit the programs in the Effects library.

This chapter also includes a complete effects parameter list.

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VM200 Effects

The VM200 features two on-board stereo multi-effects processors (EFF1, EFF2) that provide a wide range of high-quality effects, including reverbs, delays, choruses, flangers, and more.

These internal effect processors use A.S.P. (Fostex Advanced Signal Processing Technology, developed exclusively by Fostex). This technology extracts maximum efficiency from limited DSP power. It achieves an overwhelmingly high-density Early Reflection sound and a smooth High Dump response through the application of H.F.A. (Harmonic Feedback Algorithm). Furthermore, it carries out an elaborate reverb simulation to create clear sounds through H.D.L.P. (Hi-Density Logarithmic Processing), which eliminates the mutual interference between the numerous integrated delay modules and reduces sonic impurities and "grit."

The VM200 includes an Effects Library that contains 50 Preset programs and 50 User programs. See the "Effects Library" on page 125 for more information.

You can recall and edit any Preset or User program to create a new effect, then store it in any User program location.

You can load different effect programs to processors EFF1 and EFF2 and route signals through either as desired.

To recall an effect, press the EFF1 or EFF2 to specify the processor you wish to use. Then press the Recall key and select the effect from the library. (See "Recalling Effects Programs" on page 134.)

To edit an effect, press the EFF1 or EFF2 key to display the EFF1 or EFF2 function pages, which include the name and number of the selected effect and a set of parameters associated with the effect. You can adjust the parameters using the rotary controls (Gain, Freq, Q). (See "Editing Effects" on page 133.)

Effect busses 1 and 2 feed effects processors 1 and 2 respectively. Processed signals return to channels 17-20.

You may apply effects to input channels 1-20.

You can also store effects selection in Scene Memory.

EFF1 EDIT 00:NomL.HALL				TYPE:L.HALL REVERB			
REV TIME	E/R BAL	DIFFUSION	LPF				
3.3 s	70 %	10	6.35K Hz				
PRE DLY _{ms}	DENS-ITY	ROOM SIZE	E/R FB %	LO RATIO	HI RATIO	PRES-ENCE	
40	AUTO	1.0	20	1.4	0.5	0	

EFF2 EDIT 38:3D.CHORUS				TYPE:3D CHORUS			
DEPTH		PRESENCE	LPF				
30 %		0	THRU Hz				



Effects Library

The VM200 also includes an Effects Library that contains 50 Preset programs and 50 User programs.

Effect Preset Library List

The following table lists the Preset effect programs. See “Effects Parameters” on page 139 for detailed parameter information.

Reverb effects

#	Name	Display	Description
00	Normal Large Hall	NomL.Hall	Conventional large hall, with sonic detail, clarity, and an appropriate amount of early reflections.
01	Lo-Freq Large Hall	LowL.Hall	Large hall with lingering low-frequency reverb components.
02	Presence Large Hall	PrsL.HALL	Reverb with crispness and good presence.
03	Wet Large Hall	WetL.HALL	Reverb with restrained high-frequency range and gentle character.
04	Stadium	STADIUM	Stadium reverb with many long early reflections.
05	Normal Small Hall	NomS.Hall	Conventional small hall, with sonic detail, clarity, and an appropriate amount of early reflections.
06	Lo-Freq Small Hall	LowS.HALL	Small hall with lingering low-frequency reverb components.
07	Presence Small Hall	PrsS.HALL	General-purpose small hall with crisp sound and few early reflections.
08	Wet Small Hall	WetS.HALL	Small hall with little high-frequency range and calming effects.
09	No-E/R Hall	NoER.HALL	Small hall with no early reflections, and the entire frequency range decays in the same way.
10	Normal Room	Nom.ROOM	Conventional room reverb simulating a nice space with just enough “sparkle.”
11	Garage	GARAGE	Room reverb with crisp presence simulating a small, live space such as a garage.
12	Dead Room	Dead.ROOM	Room reverb simulating a small, dead room. Add just a bit of this to give warmth to a sound. Ideal for narrations.
13	Presence Room	Prs.ROOM	All-purpose room reverb with few early reflections and good definition.
14	Drum_Booth	Dr.BOOTh	Room reverb simulating a drum booth.
15	Normal Plate	Nom.PLATE	Contemporary-feeling plate reverb with a wide bandwidth.
16	Old Plate	Old.PLATE	Conventional plate reverb with the character of classic plate devices.
17	Presence Plate	Prs.PLATE	Crisp plate reverb with extended highs.
18	Wet Plate	Wet.PLATE	Plate reverb with a gentle character.
19	Digital Plate	DigiPLATE	Plate reverb emphasizing a digital feel, with metallic-sounding early reflection.

#	Name	Display	Description
20	Presence Vocal Booth	PVo.BOOTH	The early reflections of an ideal vocal booth plus short reverberation with extended high range. This adds sparkle to the sound, and is effective when you want to make the vocal stand out in the ensemble.
21	Natural Vocal Booth	NVo.BOOTH	The early reflections of an ideal vocal booth plus gentle short reverberation. This adds a natural feeling of air, and is effective with simple arrangements with an unhurried vocal.
22	Vocal Reverb	Vo.REVERB	All-around reverb that makes any vocal sound great.
23	Solo Vocal	Solo.VO	Spacious short delay plus a reverb with a real plate character. Blends naturally into any background.
24	Arena Vocal	Arena VO	Spacious stadium-type early reflections plus short reverberation with extended high range. Good for chorus parts.

Early Reflection-type Reverbs

#	Name	Display	Description
25	Normal Gate Reverb	Nom.GATE	Standard gate reverb
26	Lo-Freq Mono Kick Gate	MnBD.GATE	Gate reverb tuned for kick drums, with pan set to the center.
27	Hi-Freq Stereo Snare Gate	StSD.GATE	Gate reverb tuned for snare drums and percussion
28	Hall E/R	Hall.ER	Simulation of early reflections in a large hall.
29	Room E/R	Room.ER	Simulation of early reflections in a room.
30	Spring E/R	Spring.ER	Simulation of early reflections of a spring reverb.
31	Random E/R	Random.ER	Random early reflections.
32	Reverse E/R	Reverse.ER	Reversed early reflections of a hall reverb.

Delays

#	Name	Display	Description
33	Mono Delay	MonoDELAY	Mono delay with longer delay time, which can create special effects using HPF and LPF.
34	Pan Delay	Pan.DELAY	Panning delay that pans sound left to right.
35	Dual Delay	DualDELAY	Two independent delays.
36	3ch Delay	3ch.DELAY	3-tap delay, which can create interesting effects with your wizardry.

Modulation effects

#	Name	Display	Description
37	Chorus	CHORUS	Standard chorus effect setting.
38	3D Chorus	3D.CHORUS	More natural and spacious effects than Chorus.
39	Flange	FLANGE	Standard flanging effect setting. You can pan two types of effects sound to any position.



Pitch Changer

#	Name	Display	Description
40	Mono PitCh	MonoPITCH	Standard pitch shifter.
41	Dual PitCh	DualPITCH	Stereo pitch shift with two channels pitch-shifted independently.

Multi-effects

#	Name	Display	Description
42	Mono Delay -Normal Hall	MnDL-NmHL	Combination of mono delay and hall reverb.
43	Mono Delay -Normal Plate	MnDL-NmPL	Combination of mono delay and plate reverb.
44	Panning Delay -Normal Hall	PnDL-NmHL	Combination of pan delay and hall reverb.
45	Panning Delay -Normal Plate	PnDL-NmPL	Combination of pan delay and plate reverb.
46	CHORUS- REVERB	CHORS-REV	An effect which adds reverb to chorus.
47	REVERB- CHORUS	REV-CHORS	An effect which adds chorus to reverb.
48	FLANGE- REVERB	FLG-REV	An effect which adds reverb to flange.
49	REVERB -FLANGE	REV-FLG	An effect which adds flange to reverb.

Applying Effects

To apply an effect, you must do two things:

- route the signal to one of two effects processors, and
- return the processed signal back to the mix.

The following sections explain these tasks.

Note: When EQ Enable parameter is set to “EQ1-16,” both effects processors are disabled. For more information, see “EQ Enabling Channels” on page 80.

Selecting an Effects Processor

1. **Press the [CHANNEL/METER] key.**
The VM200 displays the CHANNEL EDIT function page.
2. **Check the input channel, turn on the [ON] key, and raise the fader for the channel.**
3. **Press the [EFF1] or [EFF2] key in the Eff Edit section to select an effects processor.**

The selected key lights up and the VM200 displays the EFF EDIT function page, which includes parameters for the current effect.

EFF1 EDIT		00:NomL.HALL		TYPE:L.HALL REVERB			
REV TIME	E/R BAL	DIFFUSION	LPF				
3.3 s	70 %	10	6.35K Hz				
PRE DLY _{ms}	DENS-ITY	ROOM SIZE	E/R FB %	LO RATIO	HI RATIO	PRES-ENCE	
40	AUTO	1.0	20	1.4	0.5	0	

4. **Recall the desired effects program from the Effects Library.**
(For more information on how to recall the effects program, see “Recalling Effects Programs” on page 134.)

Setting Effects Return

Before you send a signal to an effects processor, you must set up a routing path to return it to the mix so it can be monitored and output.

Follow the steps below:

5. **Press the [CHANNEL/METER] key, then the [17-20 EFF RTN] key.**

The [17-20 EFF RTN] key lights up.



6. **Lower then raise the faders that correspond to the effect you are using for return signals. Make sure the corresponding channel [ON] key is turned on.**

(Channels 17 & 18 faders control the EFF1 processor; channels 19 & 20 faders control EFF2.)

You must lower then raise the fader to set the initial return level. (See “Faders” on page 32 for more information.)

7. **Adjust the PAN control for the effects return channel if you desire.**

Sending Signal to Effects Processor

8. **Press the [1-8 ANALOG IN] Page Select key.**

The [17-20 EFF RTN] key LED turns off and the [1-8 ANALOG IN] Page Select key lights up.

9. **Press the [EFF1] key in the Fader Mode section. (If you are using the EFF2 processor, press the [EFF2] key.)**

The [EFF1] key flashes orange and the [AUX1] key flashes red in the Fader Mode section.

10. **Lower then raise the fader for the channel you wish to route to the effects processor. Then lower and raise the Master fader to set the desired effects send signal level.**

This sends the channel signal to the selected effects processor. The effects send meter in the CH VIEW function page displays the level of the effects send signal, indicating that signals are being fed to the selected effects processor. As you raise the faders, you should hear more of the effect sound.

If input channels are paired, their effect send controls will be linked.

You can edit and store effects settings. Refer to “Storing Effects Programs” on page 135 for more information.

Note: If you set the Smoothing function to Level 2 (default), AUX1 and EFF1 are linked, and AUX2 and EFF2 are linked. Therefore, setting the EFF1 level will set AUX1 to the same level. Similarly, setting the EFF2 level sets AUX2 to the same level. If the Smoothing function is set to Level 1, you may hear a slight stepping noise when you move the fader. For more information, see “Smoothing Function” on page 120.

Routing Effects Returns

Once you’ve routed a signal to an effects processor and returned it to the mix as described in the preceding sections, you can route it to several destinations.

You can route Effects returns to the stereo buss (ST BUSS) or the recording buss (REC BUSS). See “Routing Input Channels” on page 66 for more information.

You can also route signals to AUX Sends 1 through 4. (Note that the REC BUSS OUT is disabled if AUX Sends 3 and 4 are selected).



Controlling the Sends Signals

Pre-fader/Post-fader Effect Sends

You can configure each Effect Send on input channels 1 through 20 as “pre-fader” or “post-fader” by adjusting parameters on the CURRENT SCENE STATUS function page.

Pre-fader signals do not pass through the channel faders and are therefore unaffected by channel fader settings. Post-fader signals pass through the channel faders and are affected by channel fader settings.

The channel faders enable you to adjust the channel level and the Effect Send level of post-fader signals simultaneously.

Follow the steps below to select “pre-fader” or “post-fader” for an effect processor.

1. **Press the [CURRENT SCENE STATUS] key.**

The VM200 displays the CURRENT SCENE STATUS function page:

CURRENT SCENE STATUS				P0: Init Mix		EDIT	
EQ ENABLE	ADD.AUX	SMOOTHING	REC-B.GAIN				
1-8	ON	LEVEL2	0.0				
POST/PRE				AUX PAIR			
AUX1	AUX2	AUX3	AUX4	EFF1	EFF2	A1&A2	A3&A4
POST	POST	POST	POST	POST	POST	OFF	OFF

2. **Rotate the Freq and Q rotary controls for channels 5-6 to select PRE or POST for the EFF1 and EFF2 parameters.**

The default setting is “POST.”

When you change the setting, the selected value flashes.

3. **Press the [ENTER] key to confirm the selection.**
4. **Press the [EXIT] key to display the CHANNEL EDIT function page.**

Viewing and Adjusting the Effect Send Level

The VM200 enables you to view and adjust effect send levels for effects processors EFF1 and EFF2 on the Channel View (CH VIEW) function page. A graphic image of a fader and a numerical value represent the send levels on the display.

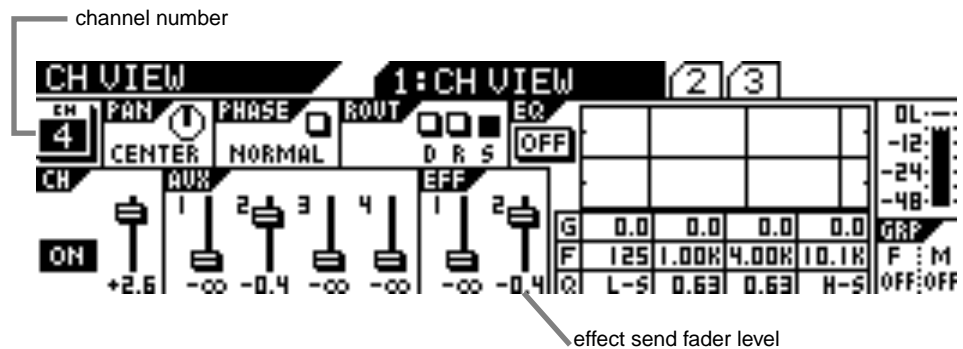
To view and adjust the effect send levels, follow these steps:

1. **Press the [CH VIEW] key.**

The [CH VIEW] key and all [EQ EDIT] keys flash.



The VM200 displays the 1:CH VIEW function page, which includes graphic and numeric indicators of the effect send levels for EFF1 and EFF2.



2. **If you wish to adjust the effect send level, specify a channel whose fader you wish to use by pressing a Page Select key and the [EQ EDIT] key for the channel.**

The VM200 displays a new channel number in the CH section, near the upper-left corner of the display.

3. **Press the EFF1 or EFF2 key in the Fader Mode section to specify an effects processor.**

The selected key flashes.

4. **Raise the fader for the corresponding channel.**

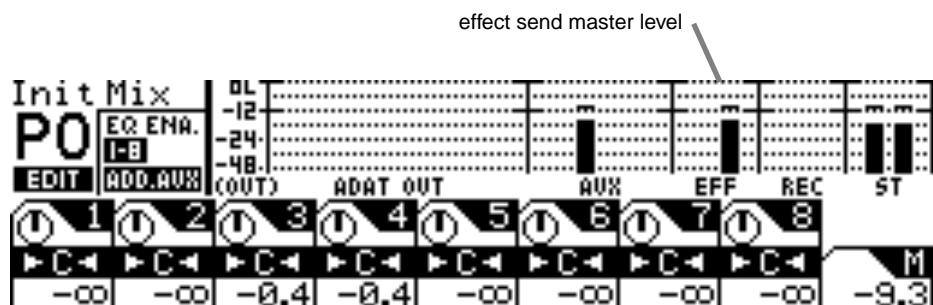
The graphic fader and numerical read-out on the display reflect the adjustment in real-time.

Viewing and Adjusting the Effect Send Master Level

You can control Effect Send master levels using the Master fader in the appropriate Fader Mode.

1. **Press the [EFF1] or [EFF2] key in the Fader Mode section to specify the effects processor you wish to adjust.**
- The selected key flashes.
2. **Raise or lower the Master fader to adjust the Effect Send master level.**

The Effect Sends master level is displayed on the output channel page of the CHANNEL EDIT function page (also called the "CHANNEL EDIT/OUTPUT" function page).



Muting Effect Sends

You can mute Effect Send masters using the Master [ON] key. The function of this key depends on the selected Fader mode. See “[ON] Keys” on page 34 for more information.

1. **Press the [EFF1] or [EFF2] key in the Fader Mode section to select Effect Send 1 or 2.**
2. **Press the Master [ON] key to turn the Effect Send on or off.**

Monitoring Effects Sends

You can monitor the EFF send signal by connecting the MONITOR OUT jacks to an amplifier and speakers. Set the Mon Sel (Monitor Select) parameter on the SETUP:SYSTEM 1: CLOCK/MON function page to EFF1 or EFF2.

You can also monitor the EFF send signal through a pair of stereo headphones connected to the PHONES jack. For more information, see “Monitoring Signals” on page 97.

Controlling the Return Signals

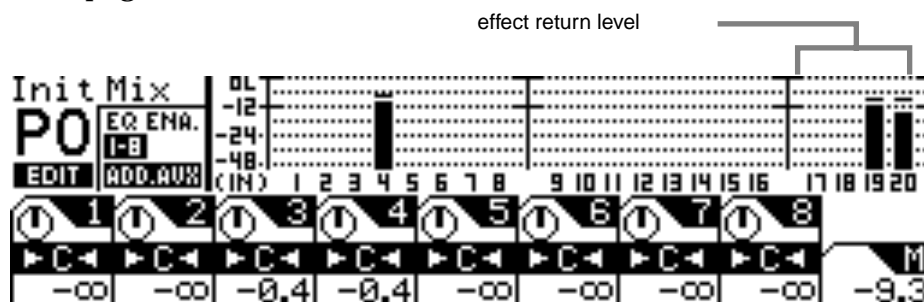
This section explains how to set levels and pan effect return.

Setting the Effect Return Level

You can use the channels 17–20 faders to adjust the Effect return level.

1. **Press the [CHANNEL] key in the Fader Mode section.**
2. **Press the [17–20 EFF RTN] Page Select key.**
3. **Raise the channel fader to adjust the level.**

You can view the effect return level on the CHANNEL EDIT/INPUT function page.



Panning Effects Returns

The Channels 17–20 panpots pan signals between the left and right channels of the Stereo Buss Out and Rec Buss Out, and the odd and even AUX buss outs. See “Panning Input Channels” on page 65 for more information.



Effects Library

The VM200 stores effects settings as programs in the Effects Library, which contains 50 Preset programs (0–49) and 50 User programs (50–99).

The Preset effects programs are designed for specific applications and instruments, and include numerous reverbs, delays, choruses, flangers, and combinations. See “Effect Preset Library List” on page 125 for a table of Preset effects programs.

You can customize the Preset programs, assign each one a name, and store them as User programs.

You can load effects from the Effects Library to either effects processor (EFF1 or EFF2).

Editing Effects

You can edit effects programs and then store them as user programs in program numbers 50–99.

1. **Recall the effect you wish to edit to the EFF1 or EFF2 processor.**

See “Recalling Effects Programs” on page 134 for more information on recalling effects.

2. **Press the corresponding [EFF1] or [EFF2] key in the Eff Edit section.**

(If you recalled the effect to EFF1 in step 1, press the [EFF1] key in this step, etc.)

The VM200 displays the EFF EDIT function page for the selected effect, and the selected key lights up.

EFF1 EDIT 00:NomL.HALL				TYPE:L.HALL REVERB			
REV TIME	E/R BAL	DIFFUSION	LPF				
3.3 s	70 %	10	6.35K Hz				
PRE DLY _{ms}	DENS-ITY	ROOM SIZE	E/R FB %	LO RATIO	HI RATIO	PRES-ENCE	
40	AUTO	1.0	20	1.4	0.5	0	

3. **Use the Gain, Freq, and Q rotary controls to adjust the value of each parameter.**

If you wish to store the change, refer to “Storing Effects Programs” on page 135.

4. **Press the [EXIT] key to return to Channel Edit mode.**

All parameters are described in detail in “Effects Parameters” on page 139.

Recalling Effects Programs

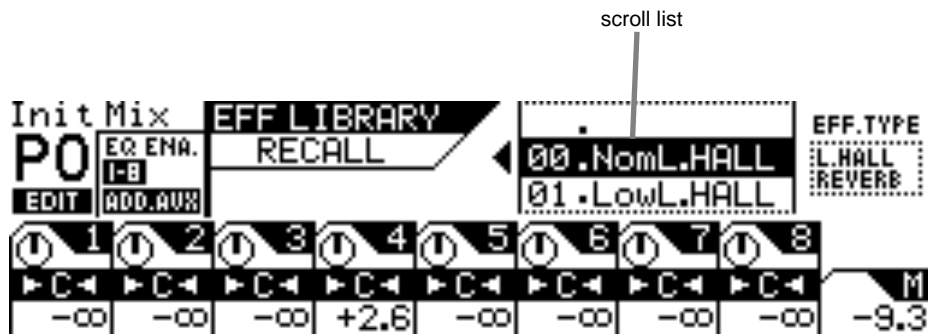
You can recall Effects programs 0 through 99.

1. **Press the [EFF1] or [EFF2] key in the Eff Edit section to specify the effects processor to which you want to recall the effect.**

The VM200 displays the function page for the effect currently loaded to the effects processor. The [EFF1] or [EFF2] key you selected lights up.

2. **Press the [RECALL] key in the Eff Library section.**

The VM200 displays the EFF LIBRARY RECALL function page, and the [EFF1] or [EFF2] key flashes.



3. **Use the Data Wheel or the [←/-1] and [+1/→] keys to select the desired effect program number from the program listing on the function page.**
4. **Press the [ENTER] key.**
The VM200 recalls the effect program to the specified effects processor and displays the selected effect's parameter function page.
5. **You can press the [EXIT] key to return to Channel Edit mode at any time.**

Note: If an effect program in the library contains no data, the term "NO_DATA" will appear on the display. You cannot recall such programs until you store effect data in the program.

Storing Effects Programs

You can store effect settings in User programs 50 through 99.

1. **Press the [EFF1] or [EFF2] key in the Eff Edit section to specify the effects processor to which you want to store the effect.**

The VM200 displays the function page for the effect currently loaded to the effects processor, and the [EFF1] or [EFF2] key you selected lights up.

You can modify any Preset program or previously-stored User program. Make any adjustments you like, then continue with this procedure to store the “new” effect.

2. **Press the [STORE] key in the Eff Library section.**

The VM200 displays the EFF LIBRARY STORE function page, and the [EFF1] or [EFF2] key flashes.

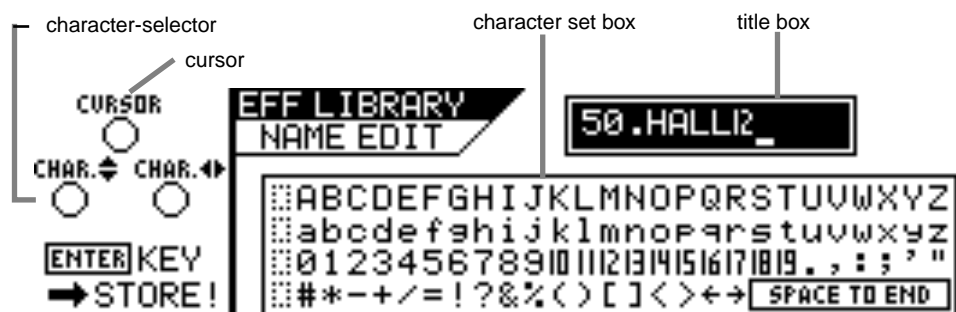


3. **Rotate the Data Wheel or the [←/−1] and [+1/→] keys to select an Effect program location.**

The effect program numbers and names scroll in the upper-right of the display. You can select program numbers 50 to 99, inclusive. Effect programs that contain no data are labeled “(No Data)”.

4. **Press the [ENTER] key.**

The VM200 displays the EFF LIBRARY NAME EDIT function page, which enables you to name or re-name effect programs. The program title appears in the upper-right of the display.



The EFF LIBRARY NAME EDIT function page includes a character set box that displays all the letters of the alphabet, as well as numerals and punctuation symbols. You can use these characters to name or title your effect program.

You can use any triangle of Gain, Freq, and Q rotary controls to select the characters for the title.

The Gain control moves the cursor position left and right in the title box. The Freq control moves the character-selector up and down the matrix; the Q control moves the character-selector left and right.

You can also press the [\leftarrow /-1] and [+1/ \rightarrow] keys to move the cursor and rotate the Data Wheel to select characters or numbers.

5. **Rotate the Freq and Q rotary controls to select a character, then turn the Gain rotary control one notch right to move the cursor to the next space in the name, and repeat the process.**

The very useful “Space to End” option in the lower-right corner of the character set box will fill-in the remainder of your title with blank spaces.

6. **When you’ve finished naming the program, press the [ENTER] key to store the Effect program.**

The following warning dialog appears for a brief moment.



Warning: Do not power off the VM200 while it is writing to the flash memory or you may damage the VM200.

After the warning, the VM200 displays the EFF EDIT function page.

7. **Press the [EXIT] key any time to exit the EFF LIBRARY STORE or EFF LIBRARY NAME EDIT function pages.**

The VM200 displays the CHANNEL EDIT function page.

Editing Effect Program Titles

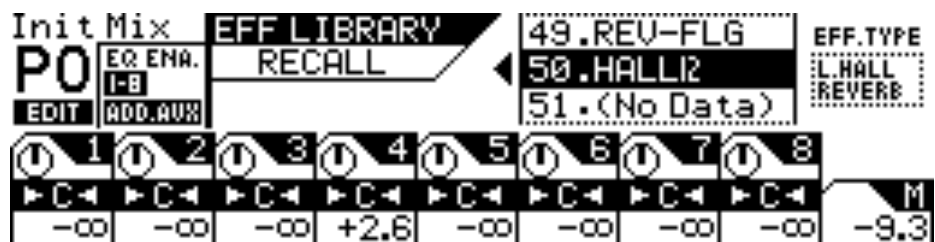
You can edit Effect program titles, just in case you want to change their name for some reason. To do so, you recall the target Effect program to a channel, then re-store it with a different title.

1. **Press the [EFF1] or [EFF2] key in the Eff Edit section to specify the effects processor to which you want to recall the effect.**

The VM200 displays the function page for the effect currently loaded to the effects processor, and the [EFF1] or [EFF2] key you selected lights up.

2. **Press the [RECALL] key in the Eff Library section.**

The VM200 displays the EFF LIBRARY RECALL function page, and the [EFF1] or [EFF2] key flashes.



3. **Rotate the Data Wheel or use the [</-1] and [+1/>] keys to select an Effect program you wish to rename.**

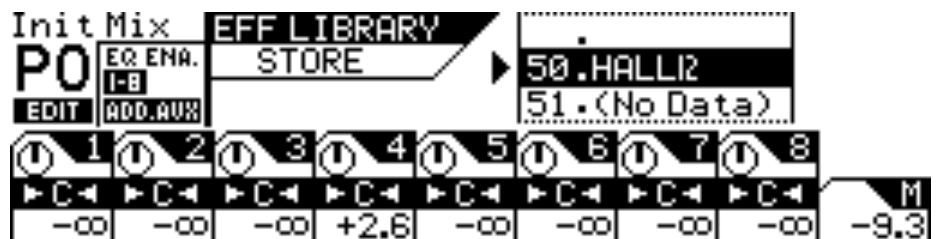
You cannot change the title of Preset programs 00–49.

4. **Press the [ENTER] key to recall the desired Effect program.**

The VM200 recalls the effect program to the specified effects processor and displays the selected effect's parameter function page.

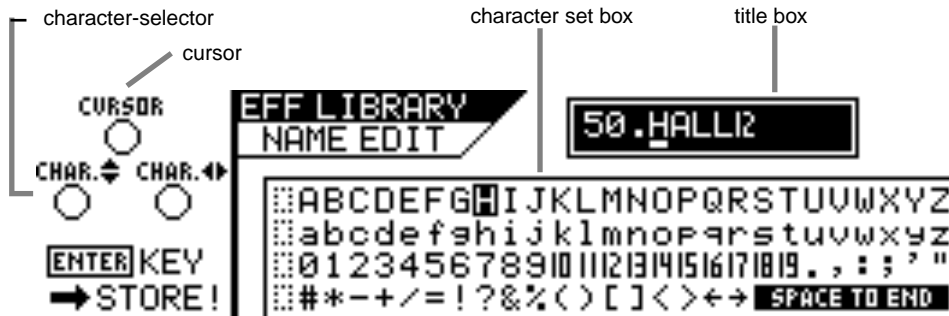
5. **Press the [STORE] key in the Eff Library section.**

The VM200 displays the EFF LIBRARY STORE function page, and the [EFF1] or [EFF2] key flashes.



6. **Press the [ENTER] key.**

The VM200 displays the EFF LIBRARY NAME EDIT function page. The title box shows the program number and the current name.



Use any Gain, Freq, and Q rotary controls to re-assign a name to the Effect program.

You can also press the [</-1] and [+1/>] keys to move the cursor and rotate the Data Wheel to select characters or numbers.

Refer to step 4 of “Storing Effects Programs” on page 135 for information on assigning a name.

7. **When you’ve finished re-naming the program, press the [ENTER] key to store the new Effect program title.**

The following warning dialog appears for a brief moment.



Warning: Do not power off the VM200 while it is writing to the flash memory or you may damage the VM200.

After the warning, the VM200 displays the EFF EDIT function page.

8. **Press the [EXIT] key any time to exit the EFF LIBRARY STORE or EQ LIBRARY NAME EDIT function pages.**

The VM200 displays the CHANNEL EDIT function page.

Effects Parameters

The following tables list the parameters of each effect type. The numbers in parentheses indicate the preset effects that belong to the effect types.

Reverb-type Effects (00–24)

EFF1 EDIT 00:NomL.HALL		TYPE:L.HALL REVERB	
REV TIME	E/R BAL	DIFFUSION	LPF
3.3 s	70 %	10	6.35K Hz
PRE DLY _{ms}	DENS-ITY	ROOM SIZE	E/R FB
40	AUTO	1.0	20
		LO RATIO	HI RATIO
		1.4	0.5
		PRES-ENCE	
		0	

Parameter	Value	Description
REV TIME	0.1–30.0 [s] (0.1 step)	Length of the reverberation.
PRE DLY	0–160 [ms] (1 step)	Delay time from the early reflections until the reverb.
DENSITY	0–10, AUTO ¹	Density of the reverb.
E/R BAL	0–100 [%] (1 step)	Volume balance between the early reflections and the reverb. Only ER with 0%, and only reverb with 100%.
ROOM SIZE	0.1–2.0 (0.1 step)	The size of the room (relative to E/R).
E/R FB	0–100 [%] (1 step)	Degree of repeated early reflections
DIFFUSION	0–10 (1 step)	Left/right spread of the reverb effects.
LO RATIO	0.1–2.0 (0.1 step)	Length of the low frequency reverberation, expressed as a ratio relative to the REV.TIME.
HI RATIO	0.1–2.0 (0.1 step)	Length of the high frequency reverberation, expressed as a ratio relative to REV.TIME.
LPF	1.00kHz–20.2kHz, THRU (step: same as EQ)	Cut-off frequency of the low pass filter.
PRESENCE	-10–0–+10 (1 step) ²	Brightness in the high range of the reverb.

1. With AUTO, the optimum value for the REV TIME setting will be used.
2. Brightness increases with a positive setting, and decreases with a negative setting.

Early Reflection-type Effects (25–32)

EFF1 EDIT 25:Nom.GATE		TYPE:GATE REVERB	
ROOM SIZE	E/R FB	DIFFUSION	LPF
1.0	10 %	10	THRU Hz
INI. DLY _{ms}	LIVE-NESS	LO RATIO	HI RATIO
0	10	1.0	0.5
		DENS-ITY	PRES-ENCE
		6	0

Parameter	Value	Description
ROOM SIZE	0.1–2.0 (0.1 step)	The size of the room (relative to E/R).
INI.DLY	0–200 [ms] (1 step) TBD	Delay time from the dry sound until the early reflections of the reverb are heard.
LIVENESS	0–10 (1 step) ¹	Adjusts how the reflections decay.
E/R FB	0–100 [%] (1 step)	Degree of repeated early reflections
LO RATIO	0.1–1.0 (0.1 step)	Low frequency amount of the feedback.
HI RATIO	0.1–1.0 (0.1 step)	Low frequency amount of the feedback.
DIFFUSION	0–10 (1 step)	Left/right spread of the reflections.



Parameter	Value	Description
DENSITY	0–10 (1 step)	Density of the reverb.
PRESENCE	-10–0–+10 (1 step) ²	Brightness in the high range of the reverb.
LPF	1.00kHz–20.2kHz, THRU (step: same as EQ)	Cut-off frequency of the low pass filter.

- 0: dead, 10: live
- Brightness increases with a positive setting, and decreases with a negative setting.

MONO_DELAY (33)

Parameter	Value	Description
DELAY TIME	0.1–1360.0 [ms] (0.1 step)	Delay time. ¹
TEMPO	30–250 [bps] (1 step)	Tempo value used to calculate DELAY TIME and NOTE. ²
NOTE		Note value used to calculate DELAY TIME. ³
DELAY FB	0–100 [%] (1 step)	Amount of delay feedback.
LO RATIO	0.1–1.0 (0.1 step)	Low frequency amount of the feedback.
HI RATIO	0.1–1.0 (0.1 step)	High frequency amount of the feedback.
HPF	THRU, Same as EQ value [Hz]	Cut-off frequency of the high pass filter.
LPF	Same as EQ value [Hz], THRU	Cut-off frequency of the low pass filter.

- If you adjust DELAY TIME, NOTE will be automatically changed.
- If you adjust TEMPO, DELAY TIME will be automatically changed.
- If you adjust NOTE, DELAY TIME will be automatically changed.

PAN_DELAY (34)

Parameter	Value	Description
DELAY TIME	0.1–1360.0 [ms] (0.1 step)	Delay time. ¹
TEMPO	30–250 [bps] (1 step)	Tempo value used to calculate DELAY TIME and NOTE. ²
NOTE		Note value used to calculate DELAY TIME. ³
DELAY FB	0–100 [%] (1 step)	Amount of delay feedback.
LO RATIO	0.1–1.0 (0.1 step)	Low frequency amount of the feedback.
HI RATIO	0.1–1.0 (0.1 step)	High frequency amount of the feedback.




Parameter	Value	Description
HPF	THRU, Same as EQ value [Hz]	Cut-off frequency of the high pass filter.
PAN1	L10.0–0.0–R100 (0.5 step)	Pan position of the first delay.
PAN2	L10.0–0.0–R100 (0.5 step)	Pan position of the second delay.
LPF	Same as EQ value [Hz], THRU	Cut-off frequency of the low pass filter.

1. If you adjust DELAY TIME, NOTE will be automatically changed.
2. If you adjust TEMPO, DELAY TIME will be automatically changed.
3. If you adjust NOTE, DELAY TIME will be automatically changed.

DUAL_DELAY (35)

EFF1 EDIT 35:DualDELAY				TYPE:DUAL DELAY			
DLY TIME 1	DLY FB 1	DLY TIME 2	DLY FB 2				
250.0 ms	30 %	166.6 ms	45 %				
TEMPO	DLY1	DLY1	DLY1	TEMPO	DLY2	DLY2	DLY2
bpm	NOTE	HI-R.	PAN	bpm	NOTE	HI-R.	PAN
120	♪	1.0	L10	120	♪	1.0	R10

Parameter	Value	Description
DLY TIME1/2	0.0–680.0 [ms] (0.1 step)	Delay time of DELAY 1 or 2. ¹
TEMPO	30–250 [bps] (1 step)	Tempo value used to calculate DLY TIME1, DLY TIME2, NOTE1, and NOTE2. ²
DLY1/2NOTE		Note value used to calculate DLY TIME1 or 2. ³
DLY FB1/2	0–100 [%] (1 step)	Amount of DELAY1 or 2 feedback.
DLY1/2HI-R.	0.1–1.0 (0.1 step)	High frequency amount of the DELAY 1 or 2 feedback.
DLY1/2PAN	L10.0–0.0–R10.0 (0.5 step)	Pan position of the DELAY 1 or 2.

1. If you change DELAY TIME, NOTE will be automatically changed.
2. If you change TEMPO, DELAY TIME will be automatically changed. Two TEMPO parameter rotary controls operate in sync.
3. If you change DELAY TIME or TEMPO, the closest note value will be selected.

3CH_DELAY (36)

EFF1 EDIT 36:3ch.DELAY						TYPE:3CH DELAY	
DLY TIME 1	DLY TIME 2	DLY TIME 3	FB DLY TIME				
300.0 ms	600.0 ms	900.0 ms	100.0 ms				
DLY1	DLY1	DLY2	DLY2	DLY3	DLY3	DELAY HI	
GAIN %	PAN	GAIN %	PAN	GAIN %	PAN	FB	RATIO
80	L10	80	R10	45	C	60	1.0

Parameter	Value	Description
DLY TIME 1/2/3	0.1–1360.0 [ms] (0.1 step)	Delay time. (0.1 step when ENTER is pressed.)
DLY1/2/3 GAIN	0–100 [%] (1 step)	Delay 1/2/3 level.
DLY1/2/3 PAN	L10.0–0.0–R10.0 (0.5 step)	Delay 1/2/3 pan position.
FB DLY TIME	0.1–1360.0 [ms] (0.1 step)	Delay time of feedback
DELAY FB	0–100 [%] (1 step)	Amount of delay feedback.

Parameter	Value	Description
HI RATIO	0.1–1.0 (0.1 step)	High frequency amount of the feedback.

CHORUS (37)

EFF1 EDIT 37:CHORUS TYPE:CHORUS

DEPTH	PRESENCE	LPF
30 %	0	THRU Hz
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Parameter	Value	Description
DEPTH	0–100 [%] (1 step)	Modulation depth
PRESENCE	-10–0–+10 (1 step) ¹	Brightness in the high range of the reverb.
LPF	1.00kHz–20.2kHz, THRU (step: same as EQ)	Cut-off frequency of the low pass filter.

1. Brightness increases with a positive setting, and decreases with a negative setting.

3D_CHORUS (38)

EFF1 EDIT 38:3D.CHORUS TYPE:3D CHORUS

DEPTH	PRESENCE	LPF
30 %	0	THRU Hz
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Parameter	Value	Description
DEPTH	0–100 [%] (1 step)	Modulation depth.
PRESENCE	-10–0–+10 (1 step) ¹	Brightness in the high range of the reverb.
LPF	1.00kHz–20.2kHz, THRU (step: same as EQ)	Cut-off frequency of the low pass filter.

1. Brightness increases with a positive setting, and decreases with a negative setting.

FLANGE (39)

EFF1 EDIT 39:FLANGE TYPE:FLANGE

RATE	FLANGE FB	PRESENCE	LPF
0.10 Hz	98 %	0	THRU Hz
DEPTH	MOD	FLA 1	FLA 1
30	DLY ms	GAIN %	PAN
0.0	50	L10	50
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Parameter	Value	Description
RATE	0.01–2.00 [Hz] (0.01 step)	Modulation speed.
DEPTH	0–100 [%] (1 step)	Modulation depth.
MOD DLY	0.0–30.0 [ms] (0.1 step)	Delay time from the direct sound until the modulated sound.
FLANGE FB	0–100 [%] (1 step)	Feedback amount.
FLA1/2GAIN	0–100 [%] (1 step)	Gain of FLANGE 1 or 2.
FLA1/2PAN	L10.00–0.0–R10.0 (0.5 step)	Pan position of FLANGE 1 or 2.
PRESENCE	-10–0–+10 (1 step) ¹	Brightness in the high range of the reverberation.



Parameter	Value	Description
LPF	1.00kHz–20.2kHz, THRU (step: same as EQ)	Cut-off frequency of the low pass filter.

- Brightness increases with a positive setting, and decreases with a negative setting.

MONO_PITCH (40)

EFF1 EDIT 40:MonoPITCH				TYPE:MONO PITCH			
PITCH	ADJUST						
+7	0						
PITCH DLY	PITCH FB	PITCH PAN	PITCH MODE				
0	0	C	E				

Parameter	Value	Description
PITCH	-24–0–+24 (1 step) (+/-2 octave)	Amount of pitch shift.
ADJUST	-100–0–+100 (1 step) (+/- semitone)	Fine adjustment to the pitch shift.
PITCH DLY	0–340 [ms] (1 step)	Delay time of the pitch shift.
PITCH FB	0–100 [%] (1 step)	Feedback amount.
PITCH PAN	L10.0–0.0–R10.0 (0.5 step)	Pan position of the pitch shift.
PITCH MODE	1, 2, 3, 4 ¹	Selects the size of the buffer for pitch shift.

- Select “1” when response speed is priority. Select “2” for a typical setting. Select “3” or “4” for more clarity.

DUAL_PITCH (41)

EFF1 EDIT 41:DualPITCH				TYPE:DUAL PITCH			
PITCH 1	ADJUST 1	PITCH 2	ADJUST 2				
+5	0	-7	0				
PIT1 DLY	PIT1 FB	PAN	MODE	PIT2 DLY	PIT2 FB	PAN	MODE
0	0	L10	E	0	0	R10	E

Parameter	Value	Description
PITCH1/2	-24–0–+24 (1 step) (+/-2 octave)	Amount of pitch shift for PITCH SHIFT 1 or 2.
ADJUST1/2	-100–0–+100 (1 step) (+/- semitone)	Fine adjustment to the pitch shift for PITCH SHIFT 1 or 2.
PIT1/2 DLY	0–340 [ms] (1 step)	Delay time of the pitch shift for PITCH SHIFT 1 or 2.
PIT1/2 FB	0–100 [%] (1 step)	Feedback amount for PITCH SHIFT 1 or 2.
PIT1/2 PAN	L10.0–0.0–R10.0 (0.5 step)	Pan position of PITCH SHIFT 1 or 2.
PIT1/2 MODE	1, 2, 3, 4 ¹	Selects the size of the buffer for PITCH SHIFT 1 or 2.

- Select “1” when response speed is priority. Select “2” for a typical setting. Select “3” or “4” for more clarity.



Delay->Reverb-type Effects (42-45)

EFF1 EDIT 42:MnDL-NmHL TYPE:MONODL-REVERB

DELAY TIME	REV TIME	DIFFUSION	LPF
250 ms	3.0 s	10	6.35K Hz
DLY FB %	DLY BAL %	PRE DLY ms	DENS-ITY
30	80	60	AUTO
		LO RATIO	HI RATIO
		1.4	0.5
			PRES-ENCE
			0

Parameter	Value	Description
DELAY TIME	1-500 [ms] (1 step)	Delay time.
DELAY FB	0-100 [%] (1 step)	Amount of delay feedback.
DELAY BAL	0-100 [%] (1 step)	Delay sound level.
REV TIME	0.1-30.0 [s] (0.1 step)	Length of the reverberation.
PRE DLY	0-160 [ms] (1 step)	Delay time from the early reflections until the reverb.
DENSITY	0-10, AUTO ¹	Density of the reverb.
DIFFUSION	0-100 [%] (1 step)	Left/right spread of the reverb effects.
LO RATIO	0.1-2.0 (0.1 step)	Length of the low frequency reverberation, expressed as a ratio relative to the REV.TIME.
HI RATIO	0.1-1.0 (0.1 step)	Length of the high frequency reverberation, expressed as a ratio relative to REV.TIME.
LPF	1.00kHz-20.2kHz, THRU (step: same as EQ)	Cut-off frequency of the low pass filter.
PRESENCE	-10-0-+10 (1 step) ²	Brightness in the high range of the reverb.

1. With AUTO, the optimum value for the REV TIME setting will be used.
2. Brightness increases with a positive setting, and decreases with a negative setting.

CHORUS-REVERB (46)

EFF1 EDIT 46:CHORS-REV TYPE:CHORUS-REVERB

CHO DEPTH	REV TIME	PRESENCE	LPF
30 %	3.0 s	0	8.00K Hz
	PRE DLY ms	HI RATIO	DENS-ITY
	0	0.1	AUTO
			REV BAL %
			80

Parameter	Value	Description
CHO DEPTH	0-100 [%] (1 step)	Modulation depth.
REV TIME	0.1-30.0 [s] (0.1 step)	Length of the reverberation.
PRE DLY	0-160 [ms] (1 step)	Delay time from the early reflections until the reverb.
HI RATIO	0.1-1.0 (0.1 step)	Length of the high frequency reverberation, expressed as a ratio relative to REV.TIME.
PRESENCE	-10-0-+10 (1 step) ¹	Brightness in the high range of the reverb.
DENSITY	0-10, AUTO ²	Density of the reverb.
LPF	1.00kHz-20.2kHz, THRU (step: same as EQ)	Cut-off frequency of the low pass filter.
REV BAL	0-100 [%] (1 step)	Level of reverb sound.

1. Brightness increases with a positive setting, and decreases with a negative setting.
2. With AUTO, the optimum value for the REV TIME setting will be used.



REVERB-CHORUS (47)

EFF1 EDIT 47:REV-CHORS				TYPE: REVERB-CHORUS			
REV TIME	PRESENCE	LPF	CHO DEPTH				
3.0 s	0	12.0K Hz	20 %				
PRE DLY	HI RATIO	DENS-ITY					CHO BAL
0	0.1	AUTO					80 %

Parameter	Value	Description
REV TIME	0.1–30.0 [s] (0.1 step)	Length of the reverberation.
PRE DLY	0–160 [ms] (1 step)	Delay time from the early reflections until the reverb.
HI RATIO	0.1–1.0 (0.1 step)	Length of the high frequency reverberation, expressed as a ratio relative to REV.TIME.
PRESENCE	-10–0–+10 (1 step) ¹	Brightness in the high range of the reverb.
DENSITY	0–10, AUTO ²	Density of the reverb.
LPF	1.00kHz–20.2kHz, THRU (step: same as EQ)	Cut-off frequency of the low pass filter.
CHO DEPTH	0–100 [%] (1 step)	Modulation depth.
CHO BAL	0–100 [%] (1 step)	Level of chorus sound.

1. Brightness increases with a positive setting, and decreases with a negative setting.
2. With AUTO, the optimum value for the REV TIME setting will be used.

FLANGE-REVERB (48)

EFF1 EDIT 48:FLG-REV				TYPE: FLANGE-REVERB			
FLA RATE	REV TIME	PRESENCE	LPF				
0.10 Hz	3.0 s	0	8.00K Hz				
DEPTH	FLA %FB	PRE DLY	HI RATIO	DENS-ITY			REV BAL
98	80	0	0.1	AUTO			80 %

Parameter	Value	Description
FLA RATE	0.01–2.00 [Hz] (00.1 step)	Modulation speed. (0.01 step when ENTER is pressed.)
DEPTH	0–100 [%] (1 step)	Modulation depth.
FLA FB	0–100 [%] (1 step)	Feedback amount.
REV TIME	0.1–30.0 [s] (0.1 step)	Length of the reverberation.
PRE DLY	0–160 [ms] (1 step)	Delay time from the early reflections until the reverb.
HI RATIO	0.1–1.0 (0.1 step)	Length of the high frequency reverberation, expressed as a ratio relative to REV.TIME.
PRESENCE	-10–0–+10 (1 step) ¹	Brightness in the high range of the reverb.
DENSITY	0–10, AUTO ²	Density of the reverb.
LPF	1.00kHz–20.2kHz, THRU (step: same as EQ)	Cut-off frequency of the low pass filter.
REV BAL	0–100 [%] (1 step)	Level of reverb sound.

1. Brightness increases with a positive setting, and decreases with a negative setting.
2. With AUTO, the optimum value for the REV TIME setting will be used.

REVERB-FLANGE (49)

EFF1 EDIT 49:REV-FLG				TYPE: REVERB-FLANGE			
REV TIME		PRESENCE		LPF		FLA RATE	
3.0 s		0		12.0K Hz		0.10 Hz	
PRE DLY _{ms}	HI RATIO	DENS-ITY				FLA FB %	FLA BAL %
0	0.1	AUTO				80	80

Parameter	Value	Description
REV TIME	0.1–30.0 [s] (0.1 step)	Length of the reverberation.
PRE DLY	0–160 [ms] (1 step)	Delay time from the early reflections until the reverb.
HI RATIO	0.1–1.0 (0.1 step)	Length of the high frequency reverberation, expressed as a ratio relative to REV.TIME.
PRESENCE	-10–0–+10 (1 step) ¹	Brightness in the high range of the reverb.
DENSITY	0–10, AUTO ²	Density of the reverb.
LPF	1.00kHz–20.2kHz, THRU (step: same as EQ)	Cut-off frequency of the low pass filter.
FLA RATE	0.01–2.00 [Hz] (0.01 step)	Modulation speed. (0.01 step when ENTER is pressed.)
FLA FB	0–100 [%] (1 step)	Feedback amount.
FLA BAL	0–100 [%] (1 step)	Level of flange sound.

1. Brightness increases with a positive setting, and decreases with a negative setting.
2. With AUTO, the optimum value for the REV TIME setting will be used.



About This Chapter

This chapter describes Scene Memory and explains how to store and recall scenes and how to prevent specific parameters from being updated by a scene recalled from memory.

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What is Scene Memory?

“Scene Memory” refers to specific locations in the flash memory of the VM200 in which you can store mix scenes. A mix scene is a snapshot of settings for virtually all VM200 parameters (i.e., EQ, fader positions, effects, and so on) at a given point in time.

Say you have finally arrived at the perfect mix setting for recording a particular instrumentalist in your studio. It sounds great, but next week you want to be able to recall the same settings. Simply store the scene into the Scene Memory, and recall it next week. This is one of the principle advantages of a digital recording mixer.

The VM200 features 100 (0-99) scene memories. You can assign a name to each one.

The VM200 also features three preset scenes: P0 [Init Mix], P1 [Recording], and P2 [Mix Down]. These are useful for common mixing situations.

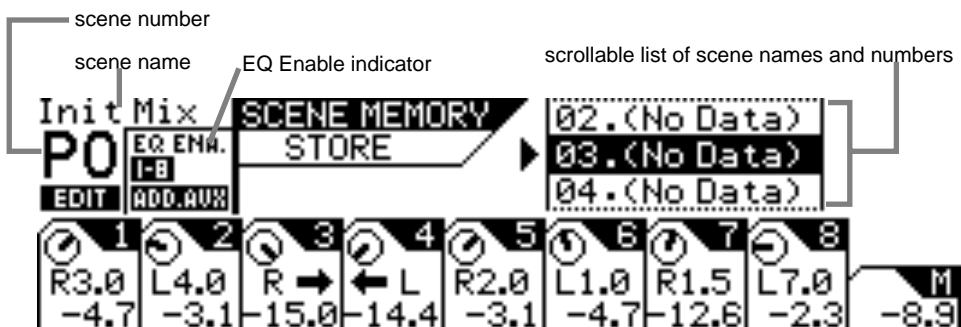
You can set individual channels or parameters as “recall safe.” This means that when you recall a new scene from memory, the settings for the specified channels or parameters remain unchanged.

You can store and recall scene memories in three ways:

- By pressing the [RECALL] key in the Scene Memory section and selecting a scene;
- By programming the VM200 to automatically recall a scene when the VM200 is powered on;
- By sending remote MIDI Program Change messages from a computer or MIDI sequencer (see “Program Change To Scene Memory Assignment Tables” on page 210).

You can also back up scene memory data to an external MIDI device using MIDI Bulk Dump messages. See “Bulk Dump” on page 189 for more information.

You store scenes using the SCENE MEMORY STORE function page, and recall them using the SCENE MEMORY RECALL function page. On both pages, you will utilize the Scene Memory [STORE] and [RECALL] keys.

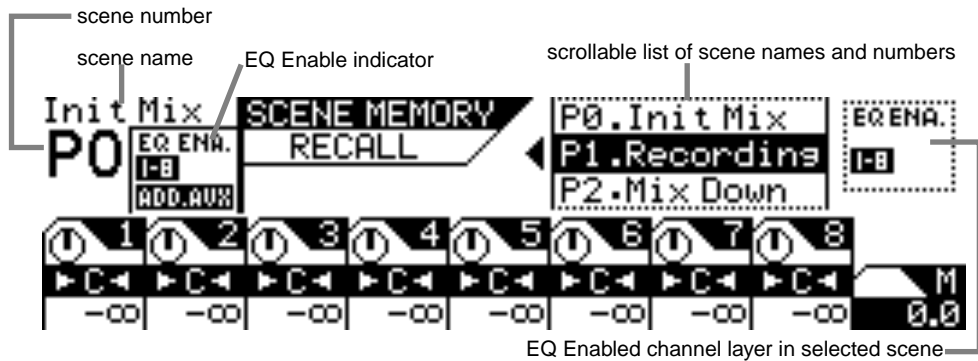


The SCENE MEMORY STORE function page includes the following information:

- current scene name and number (in the above example, “P0” means “Preset 0”)
- EQ-enabled channel layers in the current scene
- a scrollable list of scene names and numbers



The bottom half of the function page is identical to the CHANNEL EDIT function page, displaying PAN controls for each channel in the current layer.



The SCENE MEMORY RECALL function page includes the following information:

- current scene name and number (in the above example “P0” means “Preset 0”)
- EQ-enabled channel layers in the current scene (left side of page)
- a scrollable list of scene memory location names and numbers
- EQ-enabled channel layers in the scene selected in the list (right side of page)
- the bottom half of the function page is identical to the Channel Edit function page. It displays PAN controls for each channel in the current layer. Adjustments you make to the PAN controls will be saved with the scene.

Scene Edit Indicator

The VM200 features an EDIT indicator that lights up when you adjust any parameter in the scene, indicating that the current scene no longer exactly matches the parameters of the scene you recalled.



What Can You Store in a Scene?

You can store the following VM200 mix settings in a scene:

Section	Items
Channel (ch1–ch20)	Ch fader, Ch on, Ch pan, AUX1–4 sends, Eff1/2 sends, AUX1&2 pan, AUX 3&4 pan, EQ/LO Gain/Freq/Q, EQ/LO-MID Gain/Freq/Q, EQ/HI-MID Gain/Freq/Q, EQ/LO Gain/Freq/Q, EQ on, Routing, Phase, Ch pair, Mute/Fader group, S/P DIF IN
Master	ST Buss master/on, AUX1–4 master/on, Eff1/2 master/on
Scene Status	EQ Enable, ADD AUX, AUX1–4 post/pre, Eff1/2 post/pre, AUX1&2 pair, AUX3&4 pair
Others	Scene name, Effects 1/2 selection

Preset Scene Memory

The VM200 includes three preset scenes: P0, P1, and P2.

These presets were designed as scenes you can quickly recall for three common purposes:

- Init Mix:** For initial mixing
- Recording:** For a typical recording situation
- Mix Down:** For mixing down

You can recall a preset scene, edit its parameters, and store it again under a new name. However, you cannot overwrite the pre-programmed settings of a preset scene.

These preset programs are all quite similar; they differ only in the following settings and usage:

#	Name	EQ Enable	ADD. AUX	Routing	Usage
P0	Init_Mix	1–8	ON	1–20:ST Buss	Normal mixing application, such as PA, live, etc.
P1	Recording	1–8	OFF	1–8:Rec Buss 9–20:ST Buss	Overdubbing or bounce recording via Rec Buss.
P2	Mix_Down	9–16	ON	1–20:ST Buss	ADAT mixdown

Recalling Mix Scenes

You can recall scenes from Scene Memory in three ways:

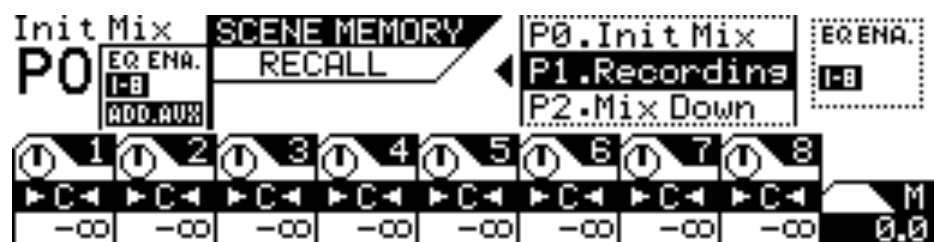
- manually
- automatically, when the power is turned on to the VM200
- remotely using MIDI Program Change messages.

You can recall preset scenes P0, P1, or P2, or any scene that has been saved to Scene Memory location 00 to 99.

Recalling a Scene Manually

1. Press the Scene Memory [RECALL] key.

The VM200 displays the SCENE MEMORY RECALL function page.



2. Use the Data Wheel or the [</-1] and [+1/>] keys to select a scene.

The “EQ Enabled” readout on the right side of the display indicates the channel layers for which EQ is enabled. The readout changes to reflect the status of the scene highlighted by the cursor in the scrolling list. Also, if the ADD.AUX parameter is turned on for the selected scene program, “ADD.AUX” appears in this area of the display. See “Enabling AUX Sends 3 & 4 (ADD. AUX Parameter)” on page 115 for more information.

3. Press the [ENTER] key to confirm the selection.

The VM200 loads the scene and returns to the previous mode.

Note: You cannot recall scenes titled “NO_DATA, because there is no data in the scene.

Note: You can press the [EXIT] key to return to Channel Edit mode at any time, cancelling the scene memory recall process.

Caution: When you recall a scene, volume levels may suddenly change because of changes in parameter values and fader settings. Before you recall the scene, lower the Master Fader or turn down the Monitor and Phones Gain controls as necessary to protect your ears and speakers. Also, if the Motor parameter is turned on, the faders may suddenly move automatically. Watch your fingers!

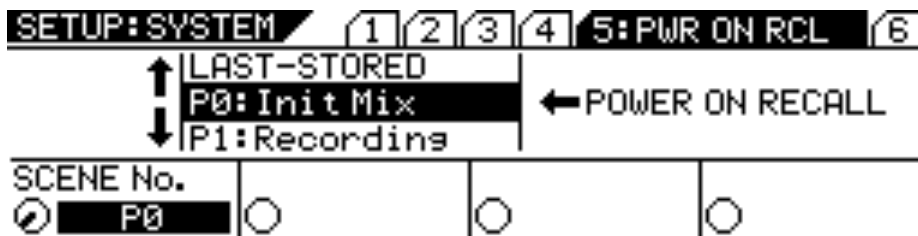
Recalling a Scene Automatically at Start-up

You can specify a scene to be recalled automatically when you power on the VM200. This is useful if you wish to start all sessions with a particular scene, or if you wish to continue working with the current scene in your next session.

You can select one of the following options: LAST-STORED, P0, P1, P2, 0-99. The default setting is "LAST-STORED," which causes the most-recently stored scene to be recalled.

1. Press the [SYSTEM] key five times.

The VM200 displays the 5:PWR ON RCL function page.



2. Use the Data Wheel or the [</-1] and [+1/>] keys to select a scene.

You can select one of the following:

- any Preset scene (P0, P1, P2)
- any User scene (0-99)
- LAST-STORED (the last scene you stored)

The selected item flashes in the Scene Number field in the lower left corner.

Note: Press the [EXIT] key at any time to cancel this process.

3. Press the [ENTER] key to confirm the selection.

The next time you power on the VM200, the selected scene will be automatically recalled.

Recalling Mix Scenes Using MIDI Program Change Messages

You can use MIDI Program Change messages to recall scenes for snapshot-style mix automation.

You can transmit Program Change messages from a computer, MIDI sequencer, or MIDI keyboard. Most MIDI keyboards transmit a Program Change message when a voice is selected. You can use this message to recall a scene on the VM200. Using this technique, the synthesizer and VM200 can be reconfigured instantaneously.

To recall scene memories using MIDI Program Change messages, do the following:

1. Connect the VM200 to MIDI equipment capable of transmitting Program Change messages.

See "Connecting MIDI devices" on page 175 for more information.

2. Configure the VM200 to receive MIDI Program Change messages.

See "Program Change Messages" on page 177 for more information.

3. Assign Program Change messages to scene memories.

See "Program Change To Scene Memory Assignment Tables" on page 210 for more information.



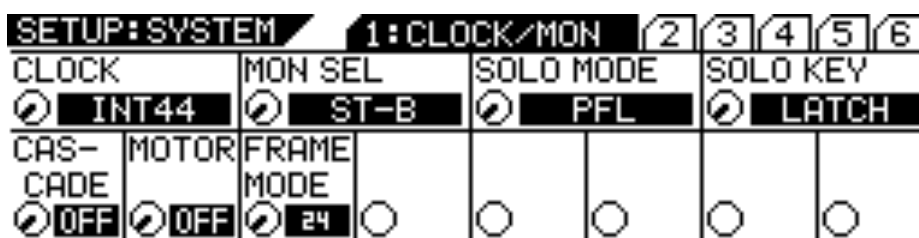
If you have set the Program Change/Tx parameter to On, the VM200 transmits a Program Change message each time you recall a scene. (The Program Change/Tx parameter appears on the Setup: MIDI 1:MIDI TX&RX function page. See “Program Change Messages” on page 177 for more information.) Using this capability, you can recall programs on other MIDI equipment, such as a tone program on a synthesizer. You can record transmission of Program Change messages from the VM200 to a MIDI sequencer to later automate mix scene changes. Refer to the “Using Program Change Messages to Recall Scenes” on page 180 for more information.

Motorized Faders

In order for the faders to move to their new positions automatically when you change scenes, the Motor parameter must be turned on. The Motor parameter appears on the SETUP: SYSTEM 1:CLOCK/MON function page.

Follow the steps below to turn the motorized faders on or off.

1. Press the [SYSTEM] key once to display the 1: CLOCK/MON function page.



2. Rotate the EQ/LO Q rotary control to turn the Motor parameter on or off.

The default setting is “OFF.”

Warning: Do not force the automated faders or you may damage the VM200.

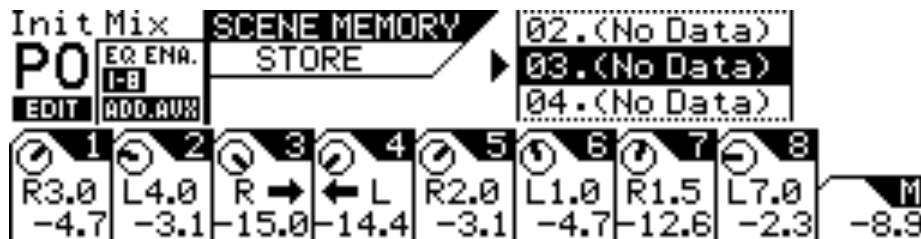
Note: If the Motor parameter is turned on, the fader will move suddenly and automatically when a new scene is recalled or the Fader Mode is changed.

Storing Mix Scenes

You can store mix scenes in Scene memory locations 0–99.

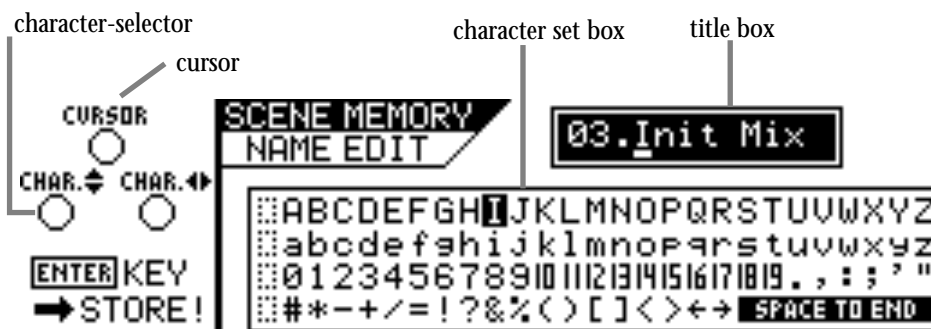
1. **Press the Scene Memory [STORE] key.**

The VM200 displays the SCENE MEMORY STORE function page.



2. **Use the Data Wheel or the [</-1] and [+1/>] keys to select a scene memory location to which you wish to store the current scene.**
3. **Press the [ENTER] key.**

The VM200 displays the SCENE MEMORY NAME EDIT function page.



The SCENE MEMORY NAME EDIT function page includes a character set box that displays all the letters of the alphabet, as well as numerals and punctuation symbols. You can use these characters to name or title the scene memory.

You can use any Gain, Freq, and Q rotary controls to select the characters for the title.

The Gain rotary control moves the cursor position left and right in the title box. The Freq rotary control moves the character-selector up and down the matrix; the Q rotary control moves the character-selector left and right.

You can also press the [</-1] and [+1/>] keys to move the cursor and rotate the Data Wheel to select characters or numbers.

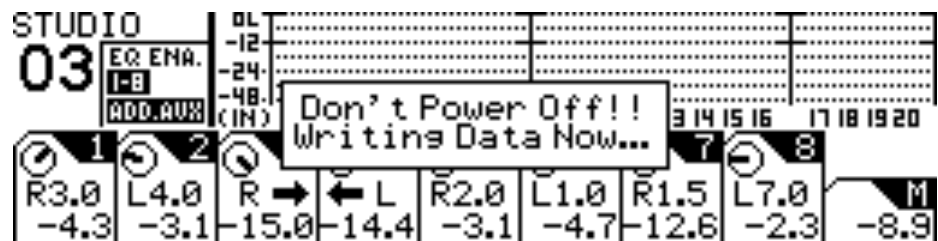
4. **Use the Freq and Q rotary controls to select a character, then turn the Gain control one notch right to move the cursor to the next space in the name, and repeat the process.**

The “Space to End” option will complete your title with blank spaces.

Note: Press the [EXIT] key at any time to cancel this process and return to Channel Edit mode.

5. **When you've finished naming the scene, press the [ENTER] key.**

The following warning message appears on the display.



The VM200 stores the scene into the selected Scene Memory location and returns to the previous mode.

Warning: Do not power off the VM200 while it is writing to the flash memory or you may damage the system.

Editing Scene Memory Titles

You can edit scene names by recalling a scene and re-naming it. Refer to the “Recalling Mix Scenes” on page 151 and “Storing Mix Scenes” on page 154 for more information.

Recall Safe Function

When you recall a scene, all parameters are updated with settings from the new scene. However, in some cases you may wish to retain the settings for specific channels or parameters.

The VM200 features a Recall Safe function that enables you to designate channels and certain parameters as “recall safe.” When a new scene is recalled, “safe” channels and parameters are not updated.

Recall Safe settings are available for each input channel 1-20 and for the following parameters:

- Channel Fader
- Channel Pan
- Channel On
- Routing
- AUX1, AUX2, AUX3, AUX4
- EFF1, EFF2
- EQ
- EQ On

You can specify safe channels using the CH RCL SAFE function page. You can specify safe parameters on the RCL SAFE function page.

Specifying Recall Safe Channels

The VM200 features a Recall Safe function that enables you to designate input channels 1-20 as “recall safe.” When a new scene is recalled, “safe” channels are not updated.

1. Press the [SYSTEM] key three times.

The VM200 displays the 3:CH RCL SAFE function page. All selectable [EQ EDIT] keys flash.



□ → OFF ■ → ON

2. Select a channel layer by pressing Page Select key [1-8 ANALOG IN], [9-16 ADAT IN], or [17-20 EFF RTN].



3. **Press the [EQ EDIT] keys of target channels to designate them “safe” from being overwritten by recalled parameters.**

The [EQ EDIT] indicators of the recall safe channels light up, and the [EQ EDIT] indicators of the non-safe channels continue to flash.

The box indicators of the recall safe channels are highlighted.

4. **Press the [CHANNEL/METER] key to return to Channel Edit mode.**

Specifying Recall Safe Parameters

The VM200 features a Recall Safe function that enables you to designate specific parameters as “recall safe.” When a new scene is recalled, “safe” parameters are not updated.

1. **Press the [SYSTEM] key three times.**

The VM200 displays the 1:CH RCL SAFE function page.

SETUP: SYSTEM		1	2: RCL SAFE		3	4	5	6
CH FADER	CH PAN	CH ON	ROUTING					
<input type="checkbox"/> OFF	<input type="checkbox"/> ON	<input type="checkbox"/> OFF	<input type="checkbox"/> ON					
AUX1	AUX2	AUX3	AUX4	EFF1	EFF2	EQ	EQ ON	
<input type="checkbox"/> OFF	<input type="checkbox"/> OFF	<input type="checkbox"/> OFF	<input type="checkbox"/> OFF	<input type="checkbox"/> OFF	<input type="checkbox"/> OFF	<input type="checkbox"/> ON	<input type="checkbox"/> ON	

2. **Use the EQ Gain, Freq, and Q rotary controls for each parameter to turn Recall Safe on or off.**

The default setting is all Off.

3. **Press the [CHANNEL/METER] key to return to Channel Edit mode.**

About This Chapter

This chapter describes the VM200's digital inputs and outputs, including the ADAT and S/P DIF digital connectors, word clock masters and slaves, and how to cascade multiple VM200s.

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Digital Connections, Word Clocks, and Sample Rates

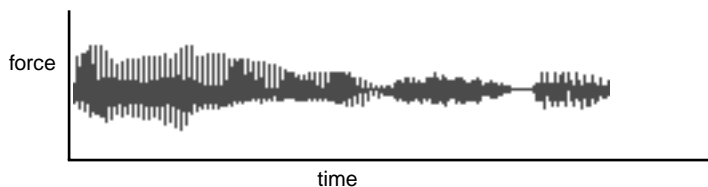
The VM200 is equipped with two types of digital connectors: an ADAT interface and S/P DIF In and Out connectors.

These connectors enable you to interface the VM200 to other digital components in your recording studio. You can use the ADAT interface to connect to any ADAT-compatible recorder, such as the FOSTEX VR800 or an Alesis ADAT. For more information “ADAT IN/OUT” on page 165 and “S/P DIF IN/OUT” on page 168.

This section reviews some basic issues involved in setting up a digital recording environment. (If you’ve worked with digital audio equipment before, you are probably already familiar with word clock synchronization issues and can skip this section.)

The following illustration shows a typical waveform. Technically, this graph represents *force* along the vertical axis (i.e., the force an audio speaker requires to move a certain amount of air to create sound), and *time* along the horizontal axis. The waveform is an analogy for the soundwave position at specific points in time.

(Musically, however, this waveform could represent your next big hit :-)



A digital-to-analog (D/A) audio converter takes numerous tiny samples of such a waveform each second, and converts the sample data to digital binary digital information.

The number of samples taken each second is called the “sample rate.” The VM200, like many current digital devices, can sample at a rate of 44,100 times per second (44.1kHz) or 48,000 times per second (48kHz).

Each time the converter samples the waveform, it records waveform data as a binary number in a format called a “word.” A bit is a unit of data, a single digit in a word, the “one-or-zero,” “on-or-off” fundamental encoding of the digital universe. For instance, 1011011110111001 is a 16-bit binary word. It contains 16 digits or “bits” of data. If you are using 16-bit words, your system is said to have a bit-rate of 16 bits. (This is also called the “bit resolution.”)

A word clock is a clock signal that you can use to synchronize all the devices in a digital audio system. If the VM200 is the only digital audio component in your studio, you don’t need to worry about setting the word clock. (The VM200 will synchronize to its own internal word clock.)

However, if you use a second digital device, such as a DAT or digital multitrack recorder, you must designate one device the word clock *master* and the rest *slaves*. You may need to change word clock settings on occasion, such as when you record from a DAT or CD player.

If the word clocks are not correctly synchronized throughout your



system, noise or glitches may creep into your mixes.

Each device in a digital system may utilize a different word length, because most digital devices are capable of interpreting words and truncating or protracting their length.

However, it is important that every component in your digital audio system do two things:

- utilize the same sample rate (44.1 or 48kHz)
- synchronize with a designated word clock master.

Note: Word clocks differ from SMPTE or MIDI timecode, which are used to synchronize MIDI sequencers and audio recorders. Word clocks synchronize the digital audio processing circuits in each digital audio device.

The word clock signal runs at the same frequency as the sampling rate. The VM200 generates its own word clock at 44.1 kHz (the industry-standard sampling rate for music CDs) and can be used as the word clock master. (In general, if your work is destined for CD, it is probably best to use the 44.1 kHz sampling rate.)

Alternatively, you can use the VM200 as a word clock slave synchronized to an external word clock in the range of 44.1kHz to 48kHz, +/-6%.

Be aware of the following word clock guidelines:

- You can distribute word clock signals via dedicated cables or derive them from standard digital audio connections.
- If all devices share a common word clock, leave all the devices powered on, even if they're not being used.
- First turn on the word clock master, then the slaves.
- When you shut down the system, first turn off the slaves, then the master.
- Before a recording session, make sure that all word clock slaves are synchronized to the master word clock.

For more information, refer to the documentation for each device.

Word Clock Setup

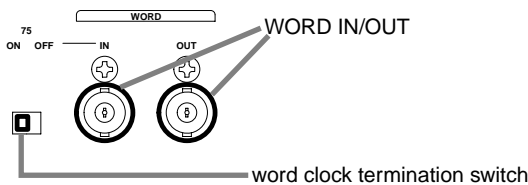
The VM200's internal word clock generator supports a sampling frequency of 44.1kHz, the audio standard for music CDs.

You may also synchronize the VM200 to an external word clock.

WORD IN/OUT Connectors

These BNC connectors receive/transmit the word clock. You can connect a device that has a WORD IN/OUT connector, such as the Fostex VR800 digital multitrack recorder, to these connectors.

If the VM200 is the last device in the word clock chain, set the word clock termination switch to ON.

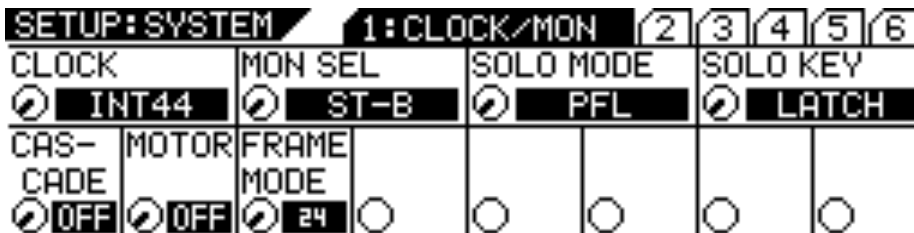


Setting the Master Word Clock

Follow the steps below to set the master word clock.

1. **Press the [SYSTEM] key.**

The VM200 displays the SYSTEM function page.



2. **Rotate the EQ/LO Gain control to select a master clock from the following options:**

INT44	Select this option to use the VM200 as the word clock master.
ADAT44	Select this option to use the VM200 as a word clock slave, syncing to the clock from an ADAT-compatible machine running at 44.1kHz.
ADAT48	Select this option to use the VM200 as a word clock slave, syncing to the clock from an ADAT-compatible pro audio machine running at 48kHz.
S/PDIF44	Select this option to use the VM200 as a word clock slave, syncing to the clock from a CD player or S/PDIF-compatible machine running at 44.1kHz.
S/PDIF48	Select this option to use the VM200 as a word clock slave, syncing to the clock from a connected CD player or S/P DIF-compatible machine running at 48kHz.

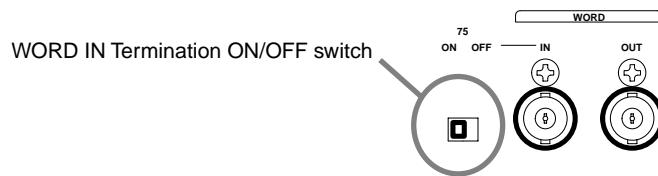


WORD44	Select this option to use the VM200 as a word clock slave, syncing to the clock from a connected FOSTEX VR800 digital multitrack recorder, or a digital device equipped with a WORD OUT connector, running at 44.1kHz.
WORD48	Select this option to use the VM200 as a word clock slave, syncing to the clock coming from a connected digital device equipped with a WORD OUT connector that is running at 48kHz.

Caution: Selecting an inappropriate sampling frequency will interfere with normal recording and playback.

Note: If the VM200 is only the digital device in your system, use the default setting of INT44.

3. **Press the [ENTER] key to confirm your selection.**
The VM200 displays the previous function page.
4. **If you select any option other than “INT44” in step 2, and the VM200 is the last device in the word clock chain, turn the WORD IN Termination ON/OFF switch to ON on the rear panel.**



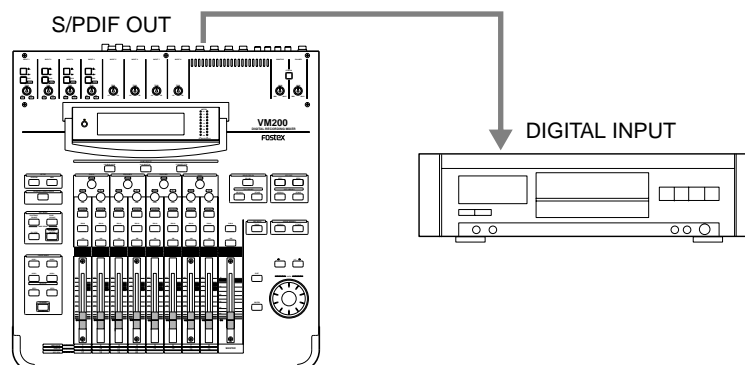
Setting the VM200 as Master or Slave

The following examples illustrate the VM200 in various recording configurations, being used as both word clock master and word clock slave.

Recording to a Digital Multitrack Recorder or DAT

In this example, a stereo signal is recorded to a DAT recorder. The VM200 is the word clock master; the DAT recorder is the word clock slave. Set the Master Word Clock parameter on the VM200 to “INT44.” The VM200 will generate the word clock and the DAT recorder will slave to it.

VM200 is the word clock MASTER



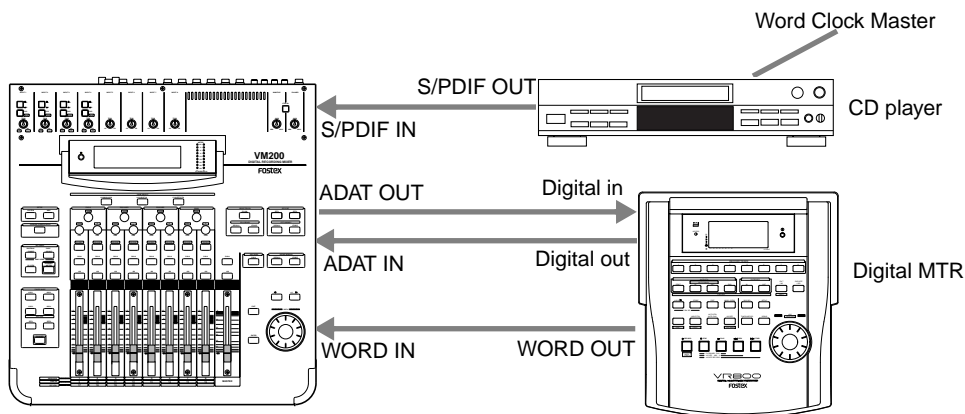
Mixing a CD Source and Recording to a Digital Multitrack Recorder

In this example, a signal from a CD player is mixed with a signal from an ADAT-compatible digital multitrack recorder, such as the Fostex VR800, and recorded to the digital multitrack recorder.

The CD player serves as the word clock master, and uses a sampling frequency of 44.1kHz. The VM200 and the digital multitrack recorder are word clock slaves, both syncing to the CD player word clock.

Set the Master Word Clock parameter on the VM200 to "SPDIF44."

The VM200 is word clock SLAVE.



Multitrack Recording and Mastering to a DAT

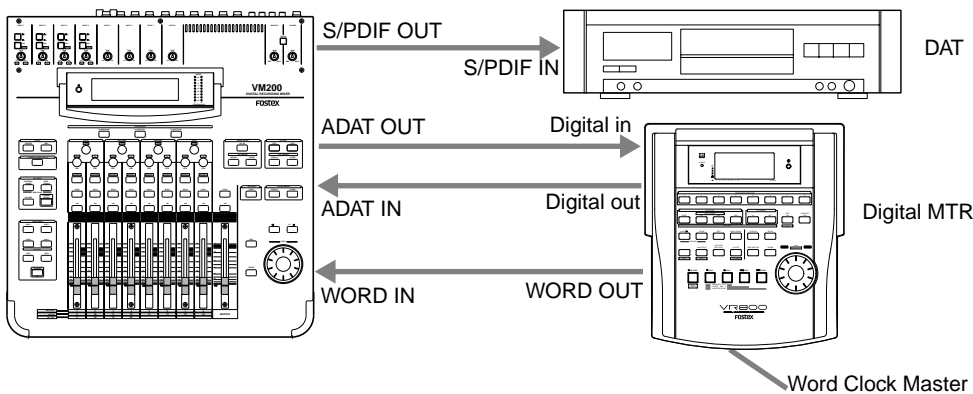
In this example, an audio signal is recorded to an ADAT-compatible digital multitrack recorder, such as the Fostex VR800, while also being mixed from the digital multitrack, and sent to a DAT master recorder.

The digital multitrack recorder is the word clock master. The VM200 and the DAT machine slave to it.

Set the Master Word Clock parameter on the VM200 to "ADAT44" or "ADAT 48," depending on the sampling frequency of the digital multitrack recorder.

(If you are using the Fostex VR800 digital multitrack recorder, set this parameter to "ADAT44.")

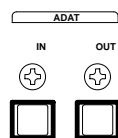
The VM200 is word clock SLAVE.



Digital I/Os

The VM200 features two types of digital ins and outs: ADAT IN/OUT and S/PDIF IN/OUT.

ADAT IN/OUT



ADAT is a digital audio format developed by the Alesis Corporation that enables eight channels of digital audio to flow through a single optical cable.

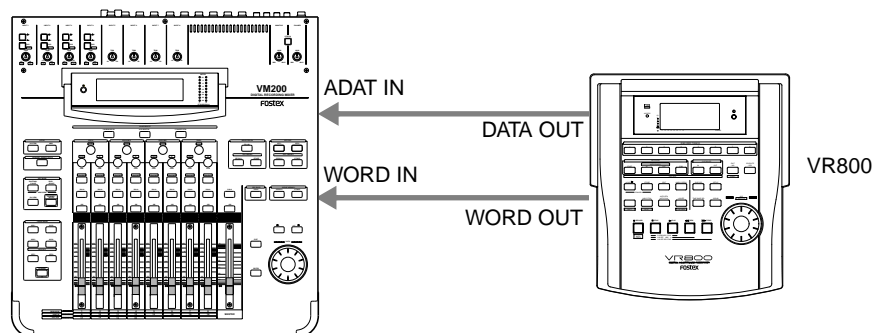
It includes eight digital inputs and eight assignable digital outputs and can be directly connected to digital multitrack recorders.

You can connect any ADAT-compatible recorder to these connectors, including an Alesis ADAT, Alesis ADAT-XT, Fostex VR-800, and others.

Using ADAT IN

You can use an optical cable to connect the ADAT IN connector on the VM200 to the ADAT Out connector on an Alesis ADAT or other ADAT-compatible device, such as the Fostex VR800.

The signal, which carries eight-channel data from the ADAT IN connector, will be assigned to input channels 9 through 16 on the VM200.



In this example, a Fostex VR800 is connected to the ADAT IN connector on the VM200 to mix from a digital source.

The VR800 serves as the word clock master; the VM200 is the word clock slave. The VR800 WORD OUT connector transmits the word clock to the WORD IN connector on the VM200.

Set the Word Clock parameter on the VM200 to "WORD44," and make sure that the WORD IN switch on the rear panel is turned on.

If a connected ADAT-compatible device does not have a WORD OUT connector, set the Word Clock parameter on the VM200 to "ADAT44" or "ADAT48" depending on the sampling frequency of the source.

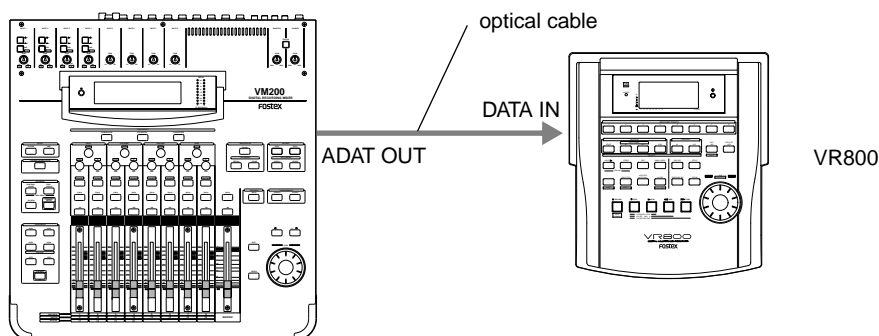
For more information on the master word clock setup, refer to "Setting the Master Word Clock" on page 162.

Using ADAT OUT

You can use an optical cable to connect the ADAT OUT connector on the VM200 to an ADAT-compatible recorder, such as the Fostex VR800 digital multitrack recorder.

The ADAT OUT connector outputs the same information as the REC BUSS, but in digital form. The left channel of the REC BUSS stereo signal is output to tracks 1, 3, 5, and 7, and the right channel to tracks 2, 4, 6, and 8.

You can send channel 1–8 signals to ADAT DIRECT using the ROUTING function page. The channel 1 signal is output to ADAT track 1, the channel 2 signal is output to ADAT track 2, etc.



In this configuration, the VM200 is the word clock master and the multitrack recorder or ADAT is the slave.

Set the Word Clock parameter on the VM200 to “INT44.”

For more information on the master word clock setup, refer to “Setting the Master Word Clock” on page 162.

To route a digital signal to ADAT OUT, follow the steps below:

Assigning Channels to ADAT DIRECT SENDS

Note: The VM200 is unable to route signals from channels 9–16 (ADAT IN) and channels 17–20 (EFF TN) to the ADAT DIRECT SEND.

1. **Press the Page Select [1–8 ANALOG IN] key to select the 1–8 channel layer.**

The [1–8 ANALOG IN] key lights up.

2. **Press the [ROUTING/PHASE] key.**

The VM200 displays the 1: ROUTING function page. The [ROUTING/PHASE] key and selectable [EQ EDIT] keys flash; selected [EQ EDIT] keys light up.

The ROUTING function page features a 3-by-20 matrix. The top row of the matrix, labelled “DIRECT,” indicates which channels have been sent to the ADAT OUT.

ROUTING/Φ		1:ROUTING								2	3										
KEY	CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
EQ.E.	DIRECT	■	■	■	■	■	■	■	■												
SOLO	REC BUS	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ON	ST BUS	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

□ → OFF ■ → ON

3. Use the [EQ EDIT] keys to turn on the channels you wish to send to the ADAT OUT.

Selected [EQ EDIT] keys light up. On the display, the "DIRECT" indicators highlight (darken).

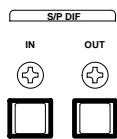
In the example above, channels 1-8 are sent directly to the corresponding ADAT channels.

4. Press the [CHANNEL/METER] key.

The VM200 displays the CHANNEL EDIT function page.

Note: The Rec Buss also sends the left signal to channels 1, 3, 5 and 7, and the right signal to channels 2, 4, 6 and 8 so that you can route them to ADAT OUT 1-8 directly. This configuration enables you to send two mixes to two different external recorders at the same time.

S/P DIF IN/OUT



The VM200 features S/P DIF digital in and out connectors on the rear panel.

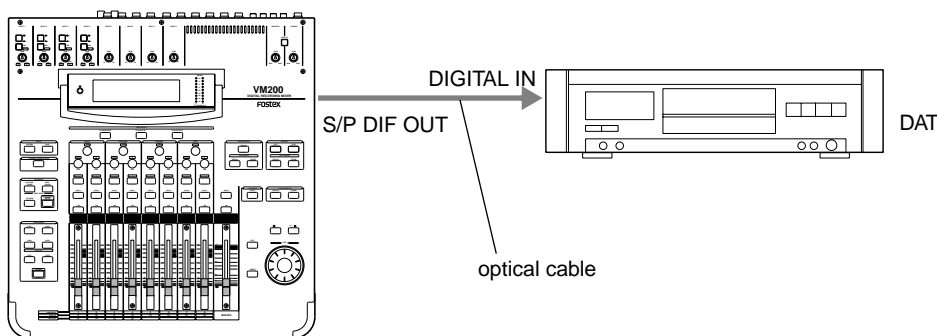
“S/PDIF” is an abbreviation for the Sony/Philips Digital InterFace, a digital format that enables two channels of digital audio to flow through an RCA connector (coaxial) or an optical cable. The VM200 requires an optical S/P DIF connection.

Using S/P DIF OUT

The VM200 outputs the ST BUSS signal in digital S/P DIF format from the S/P DIF Out optical connector on the rear panel.

You can connect this output to any digital device that features an S/P DIF Optical input, such as a DAT recorder or MiniDisc recorder to mixdown in stereo.

You can also connect the S/P DIF out to the S/P DIF IN of another VM200 in a cascade configuration. See “Cascading the VM200” on page 171 for more information.



In this example, the VM200 S/P DIF output is connected to the digital input of a DAT recorder for digital mixdown recording.

The VM200 serves as the word clock master; the DAT is a word clock slave. Set the “Master Word Clock” parameter on the V200 to “INT44.” Refer to “Setting the Master Word Clock” on page 162 for more information.

If you select the digital input on the DAT recorder as the recording source, the DAT should automatically synchronize to the word clock signal from the VM200. On some DAT recorders, you may need to specify the word clock source. Refer to the instructions supplied with your DAT recorder.

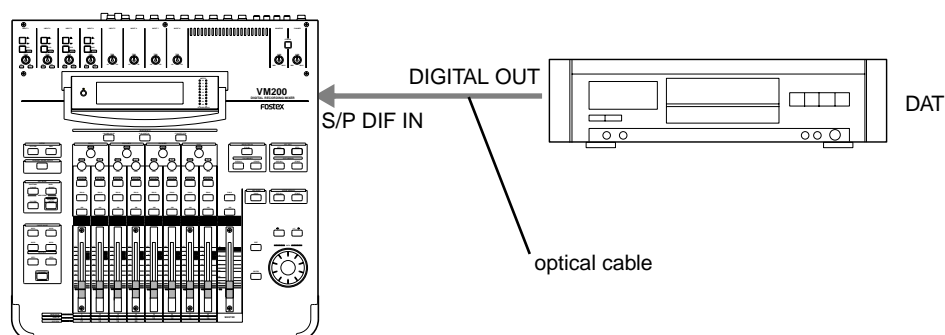
Note: If the connected digital device has only the COAXIAL (RCA pin) jack as a digital input, use a Fostex COP-1 (an optical-to-coaxial converter).

Note: Make sure that signals are routed to ST Buss so that they are also output to the S/P DIF OUT. (See “Routing Input Channels” on page 66 for more information.)

Using S/P DIF IN

You can connect the S/P DIF output from a CD player, DAT, or Mini-Disc player to the S/P DIF IN optical connector on the rear panel of the VM200.

You can also connect the S/P DIF output from a *second* VM200 to the S/P DIF IN optical connector in a cascade configuration. See “Cascading the VM200” on page 171 for more information.



In this connection example, a DAT machine is connected to the S/P DIF OUT connector on the rear panel of the VM200 to enable mixing from a digital source.

The DAT machine serves as word clock master, and the VM200 is word clock slave. You need to set the Master Word Clock setting to “S/P DIF44” or “S/P DIF48” depending on the sample frequency of the source. For more information on the master word clock setup, refer to “Setting the Master Word Clock” on page 162.

Note: If the connected digital device has only the COAXIAL (RCA pin) jack as a digital output, use a Fostex COP-1 optical-to-coaxial converter.

Assigning S/P DIF Signals to Channels

Follow these steps to assign a two-channel digital stereo signal (input via S/P DIF IN) to specific channels:

1. **Press the [ROUTING/PHASE] key twice.**

The [ROUTING/PHASE] key and selectable [EQ EDIT] keys flash, and the VM200 displays the 2:S/P DIF IN function page.



□ → OFF ■ → ON

2. **Press the [EQ EDIT] keys for channels to which you wish to send the S/P DIF signal.**

You can assign multiple channels.

Note: Since S/P DIF carries a two-channel signal, you must always set the channels in pairs. For example, if you select channel 1 to assign S/P DIF signal, channel 2 will be also selected and paired. You do not need to pair the channels using the Pairing function in this case.

On the display, the indicators for the assigned channel pairs highlight (darken), and their [EQ EDIT] keys light up in paired unison.

In the example above, channels 7-8 are assigned to receive the S/P DIF signal.

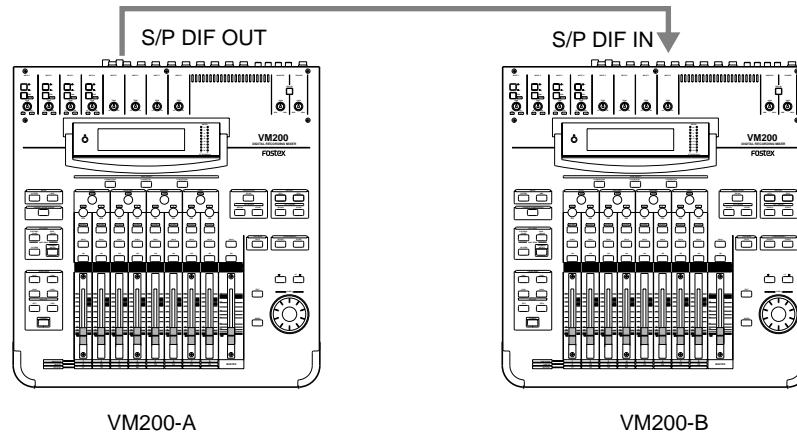
3. **Press the [CHANNEL/METER] key or [EXIT] key.**

The VM200 displays the CHANNEL EDIT function page.



Cascading the VM200

You can connect up to three VM200s together in a cascade configuration to enable 36-plus channels of digital mixing. A two-mixer cascade is illustrated below.



In this figure, the stereo buss signal flows from the VM200-A S/P DIF OUT to the VM200-B S/P DIF IN. (S/P DIF OUT outputs the stereo buss signal in digital form.)

VM200-A serves as word clock master. Its Clock parameter is set to INT44.

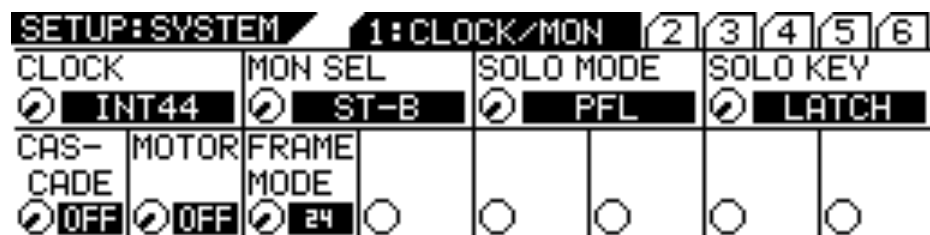
(You can access the Clock parameter by pressing the [SYSTEM] key to display the 1:CLOCK/MON function page as shown below.)

The other VM200 serves as word clock slave. Its Clock parameters is set to SPDIF44. Refer to “Setting the Master Word Clock” on page 162 for more information on word clock.

To configure multiple VM200s in a cascade, follow these steps:

1. Press the [SYSTEM] key.

The VM200 displays the Setup:System 1:CLOCK/MON function page.



2. Rotate the EQ/LO Freq rotary control to select one of the following options:

OFF	This is the default setting. The VM200s will not cascade.
ON-A	The Cascade function is turned on. Channels 7 and 8 are disabled.
ON-B	The Cascade function is turned on. Channels 15 and 16 are disabled.
ON-C	The Cascade function is turned on. Channels 19 and 20 are disabled.

3. Press the [EXIT] key or [CHANNEL/METER] key.

The VM200 exits Setup mode and displays the CHANNEL EDIT function page.

Note: When you attempt to cascade multiple VM200s, be certain not to assign S/P DIF IN to any channels, or the cascade operation will fail. (You can check assignments by pressing the [ROUTING/PHASE] key twice to display the S/P DIF IN function page.) Refer to “Assigning S/P DIF Signals to Channels” on page 169.



About This Chapter

MIDI is an acronym for Musical Instrument Digital Interface, which is an international technology standard that facilitates the exchange of musical data between digital devices.

This chapter explains the MIDI-related capabilities of the VM200, including its MIDI ports and parameters, as well as MIDI Machine Control (MMC). This chapter also features several illustrations of various system configurations involving MIDI.

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Using the VM200 with MIDI

Using MIDI with the VM200 enables you to take fullest advantage of all the VM200's capabilities.

You can send MIDI Program Change messages to recall scenes from Scene Memory, or send MIDI Control Change messages to enable real-time parameter control. Fostex System Exclusive messages similarly enable additional parameter control.

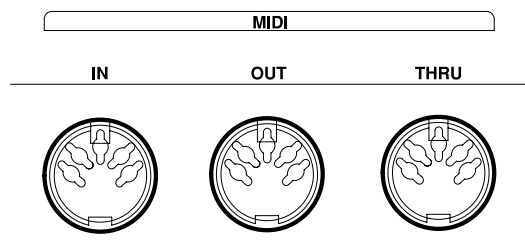
To backup and transfer data between two VM200s, you can use System Exclusive Bulk Dump commands.

If a recorder is connected to the VM200, you can control it remotely via MIDI Machine Control (MMC).

You can also cascade multiple VM200s via MIDI connections and remotely operate the VM200 via MIDI Local Control.

MIDI Ports

The VM200 has standard MIDI IN, MIDI OUT, and MIDI THRU ports on the rear panel.



The MIDI IN port receives MIDI messages.

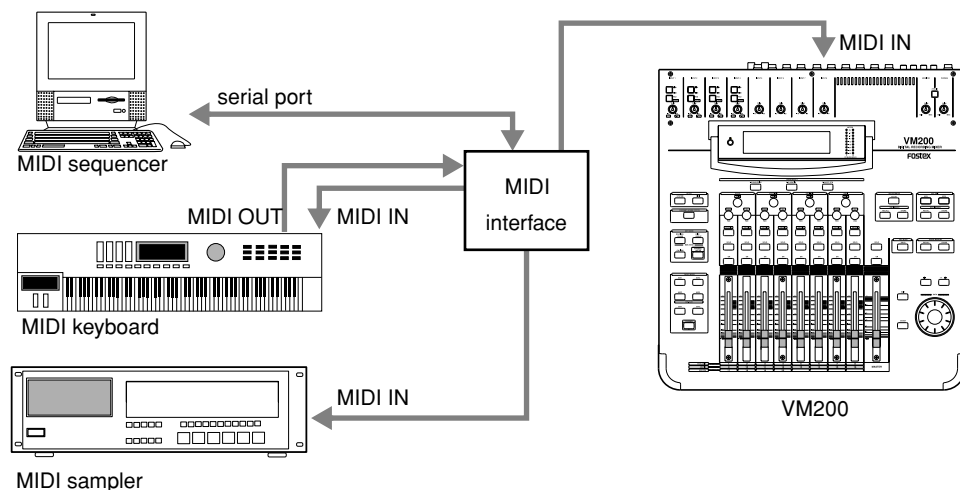
The MIDI OUT port transmits MIDI messages.

The MIDI THRU ports transmits the exact same MIDI messages received at the MIDI IN port.

In addition to various MIDI instruments and devices, you can connect a personal computer to the MIDI ports using a MIDI interface.

Connecting MIDI devices

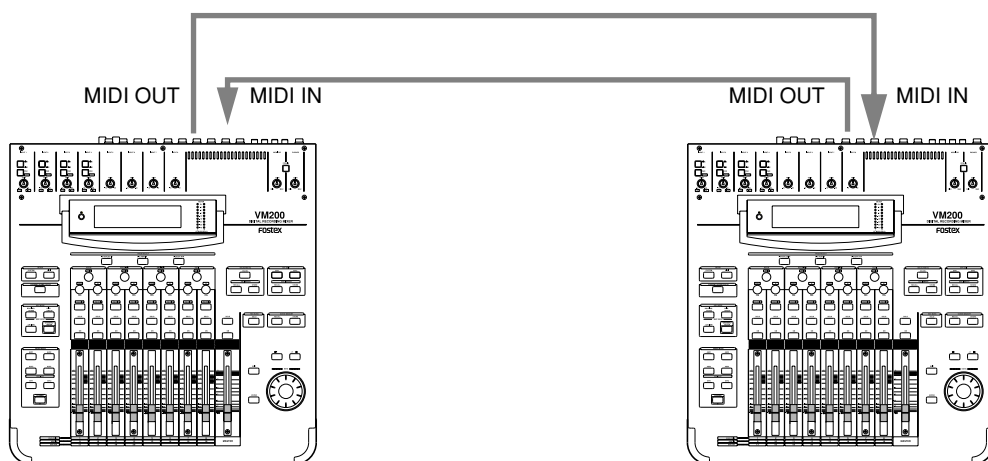
The system illustrated below uses a standard MIDI interface to connect the VM200, a MIDI keyboard, and a MIDI sampler to a computer.



Cascading Two VM200s

In the configuration illustrated below, two VM200s are cascaded (linked) together via MIDI. This type of connection enables you, for example, to perform the following functions on both machines while operating only one:

- Recall, store, and change the name of scene memories
- Update the display
- Control Solo mode



Note: When you cascade two VM200s, be sure to set the ECHO parameter on 1: MIDI TX&RX page to "OFF" to avoid message loop.

MIDI Transmit and Receive Channels

This section explains the MIDI Transmit and Receive Channels.

Press the [MIDI] key to display the 1:MIDI TX&RX function page. This page enables you to set the transmit (TX) and Receive (RX) channels for the VM200.

SETUP:MIDI		1:MIDI TX&RX		2	3	4	5	6
TX CH	RX CH	ECHO		BLK DMP REQ.				
01	OMNI	OFF		RX ON				
PROGRAM CHANGE		CONTROL CHANGE		SYSTEM EX				
TX	RX	TABLE	TX	RX	TABLE	TX&RX:DevID		
ON	ON	01	OFF	OFF	01	OFF	000	

TX CH (Transmit Channel)

This parameter specifies the MIDI Transmit Channel. This is the channel the VM200 will use to transmit MIDI messages. Select a channel from 1 through 16.

Set the device that will receive MIDI messages from the VM200 to the same MIDI Channel.

When the VM200 receives a request for MIDI data, it transmits a response on the same MIDI channel that received the request.

The default setting is "1."

RX CH (Receive Channel)

This parameter specifies the MIDI Receive Channel. This is the channel on which the VM200 will receive MIDI messages. Select a channel from 1 through 16, or "Omni."

Set the device that will transmit MIDI messages to the VM200 to the same MIDI Channel.

If you select OMNI for the RX CH parameter, the target messages (Program Change or Control Change) will be received on all channels.

The default setting is "Omni."

ECHO

The ECHO parameter enables you to "echo" Program Change, Control Change, or System Exclusive messages that are received by the VM200 through to the MIDI OUT port, regardless of the MIDI Channel settings. The default setting is "Off."



Program Change Messages

You can send a Program Change message to the VM200 to recall a scene from the VM200's Scene Memory. (For more information, see "Using Program Change Messages to Recall Scenes" on page 180.)

Inversely, by recalling a scene on the VM200, you can transmit Program Change messages to connected MIDI devices or instruments.

Program Change TX

The Program Change TX parameter determines whether the VM200 will transmit Program Change messages when you recall a scene from Scene Memory.

Turn the Program Change TX parameter on if you want to change programs on a connected synthesizer when you change scenes on the VM200.

The default setting is "On."

Program Change RX

The Program Change RX parameter determines whether the VM200 will recall a scene from Scene Memory when the VM200 receives a Program Change message.

Turn the Program Change RX parameter on if you want to change scenes on the VM200 from a connected sequencer.

The default setting is "On."

Program Change Table

The Program Change Table assigns program change numbers to scenes in Scene Memory.

These assignments enable you to send MIDI messages from an external MIDI device to recall scenes on the VM200.

For example, you could assign Program Change Number 07 to Scene 07. If you then send Program Change Number 07 from a connected sequencer to the VM200, the VM200 will recall Scene 07.

The VM200 features two Program Change Tables (01 User Table, and 02 Preset Table). You can use the Program Change Table parameter to select Table 01 or 02.

The default setting is "01."

For more information, refer to the "Program Change To Scene Memory Assignment Tables" on page 210.

Control Change Messages

You can send Control Change messages to the VM200 to control VM200 parameters in real time. (For more information, see “Using Control Change Messages” on page 184.)

Inversely, when you adjust parameters on the VM200, the VM200 can transmit Control Change messages to remotely control the parameters of connected MIDI devices or instruments.

Control Change TX

Turn on the Control Change TX parameter if you want the VM200 to transmit Control Change messages when you adjust mix parameters. The default setting is “Off.”

Control Change RX

Turn on the Control Change RX parameter if you want the VM200 to adjust mix parameters when a Control Change message is received. The default setting is “Off.”

Control Change Table

The Control Change Tables assign Control Change numbers to various controller numbers.

These assignments enable you to send MIDI messages from an external MIDI device to control VM200 parameters in real time.

For example, you could assign Control Change number 5 to channel fader 5. If you then send Control Change number 5 from a connected device to the VM200, the VM200 will adjust fader 5.

The VM200 features two Control Change Tables (01 User Table, and 02 Preset Table). You can use the Control Change Table parameter to select Table 01 or 02.

The default setting is “01.”

For more information, refer to the “Control Change To Control Parameters Assignment Tables” on page 211.



System Exclusive Messages (Fostex Exclusive)

You can control VM200 parameters in real time using System Exclusive messages. For more information, see System Exclusive Parameter Control on page 188.

If you want the VM200 to receive System Exclusive messages, turn on the “System Exclusive TX & RX” parameter (described below).

The “DevID” (device ID) should match the number selected on the external MIDI device.

System Exclusive TX & RX

This parameter determines whether or not the VM200 adjusts mix parameters when System Exclusive messages are received, or whether the VM200 transmits parameter settings in response to Parameter Requests.

It also determines whether the VM200 transmits System Exclusive messages on the “DevID” channel when mix parameters are adjusted, or whether the VM200 transmits Parameter Requests on the “DevID” channel.

You can set this parameter to “On” or “Off.” The default setting is “Off.”

System Exclusive DevID

This parameter determines the ID number of the device to and from which the VM200 transmits and receives System Exclusive messages. You can set this parameter to 0 – 126. The default setting is “0.”

Bulk Dump

You can use the System Exclusive Bulk Dump to transfer VM200 data (such as Scene Memory, EQ Library, Effects Library, and Setup data) to another MIDI device.

This is useful for backing-up VM200 data to a MIDI data filer or computer, or for exchanging data between VM200s.

Note: Fostex does not guarantee compatibility of MIDI Bulk Dump messages between two VM200s with different software versions.

Bulk RX

The Bulk RX parameter determines whether the VM200 receives MIDI Bulk requests and MIDI Bulk Dump messages.

If you turn on the Bulk RX parameter, the VM200 transmits Bulk Dump messages in response to Bulk Dump requests.

Bulk Dump messages and Bulk Dump requests are not echoed.

You can transmit Bulk Dump messages from the VM200 regardless of this setting.

See “Bulk Dump” on page 189 for more information.

Using Program Change Messages to Recall Scenes

When the VM200 receives a MIDI Program Change, it can recall a scene from Scene Memory. (Which scene it recalls is determined by the Program Change Assignment Table. For more information, see page 210.)

Similarly, when you recall a scene on the VM200, it can transmit a Program Change message that will recall a scene on another VM200. Alternatively, the Program Change message can be recorded to a MIDI sequencer and later used to recall a particular scene automatically.

Scene Memories 0 through 99 and Preset Scenes P0, P1, and P2 are initially assigned to Program Changes 1 through 128. However, you can edit these assignments using the 3:PGM. TABLE2 function page, which you can access by pressing the [MIDI] function key.

These assignments control both transmission (TX) and reception (RX). For example, when the VM200 receives Program Change 07 from an external MIDI device, it will recall Scene 07. Inversely, when Scene 07 is recalled, the VM200 will transmit Program Change 07.

Follow these steps to set up the VM200 to receive and transmit MIDI Program Change messages:

1. Press the [MIDI] key.

The VM200 displays the 1:MIDI TX&RX function page.

2. Set the VM200 and the external MIDI device to the same MIDI channel.

The external MIDI device that receives MIDI messages from the VM200 should be set to the MIDI Channel specified by the TX CH parameter.

The RX CH parameter of the VM200 should be set to the same MIDI Channel as the device transmitting MIDI messages.

3. Set the TX CH and/or RX CH parameters to ON.

Use the EQ/LO and EQ/LO-MID Gain rotary controls. Refer to the illustration below.



Program Change TX and RX are "ON."

Editing the User Program Change Assign Table

The VM200 features two Program Change Assign Tables.

The first is the User Table, which appears on the 2:PGM TABLE1 function page. You can edit the assignments in this table.

The second table is the Preset Table, which appears on the 3:PGM TABLE2 function page. You can view the assignments in the Preset table, but not edit them.

Follow the steps below to assign a Scene Memory to a Program Change number.

1. Press the [MIDI] key twice.

The VM200 displays the 2:PGM TABLE1 function page.

SETUP:MIDI		1	2:PGM TABLE1	3	4	5	6
USER							
TABLE		001 → 00.(No Data)					
		002 01.(No Data)					
PGM CHG No.	SCENE No.						
001	00						

2. Select a Program Change number.

Rotate the EQ/LO GAIN rotary control to select a number from 1 through 128.

As you turn the control, the PGM CHG No. parameter changes and the Assign Table reflects the change.

3. Select a Scene number.

Rotate the EQ/LO-MID GAIN rotary control to select a scene number from P0, P1, P2, or 00 through 99.

As you turn the control, the SCENE No. parameter changes, and the Assign Table scrolls to reflect the change.

Viewing the Preset Program Change Assign Table

The Preset Program Change Assign Table appears on the 3:PGM TABLE2 function page.

Follow these steps to view the Preset assignments:

1. **Press the [MIDI] key three times.**

The VM200 displays the 3:PGM TABLE2 function page.

SETUP:MIDI		1	2	3:PGM TABLE2	4	5	6
PRESET		001 → 00.(No Data)					
TABLE		002 01.(No Data)					
READ ONLY							
PGM CHG No.							
	001						

2. **Select a Program Change number.**

Rotate the EQ/LO GAIN rotary control to select a number from 001 through 128.

As you turn the control, the PGM CHG No. parameter changes, and the Assign Table scrolls to reflect the change.

The Scene number assigned to the selected Program Change number will appear next to it in the Assign Table.

Program Change Assign Table Notes

The “Scene Memory to Program Change Assign Table” appears on page 210.

To reset the assignments to their initial settings, press the [SYSTEM] key six times or until it displays the 6:INITIALIZE function page. Turn the EQ/LO GAIN rotary control to set the INIT ITEM parameter to “PGM TBL,” and press the [ENTER] key. For more information, see “Initializing the VM200” on page 197.

You can store the Program Change Assign Table to an external MIDI device, such as a MIDI data filer, using MIDI Bulk Dump. (See “Bulk Dump” on page 179 for more information.)

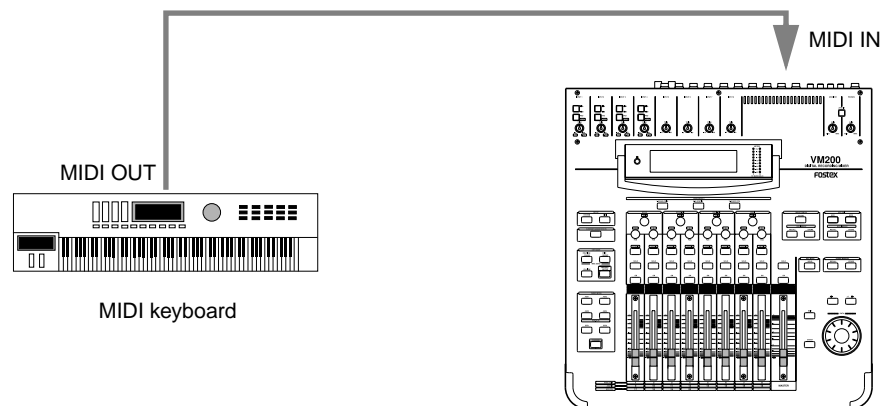
If a scene is assigned to two or more program changes, the lowest program change is transmitted when the scene is recalled.



Examples: Using Program Change Messages

The following figures illustrate typical ways in which to utilize MIDI Program Change messages with the VM200.

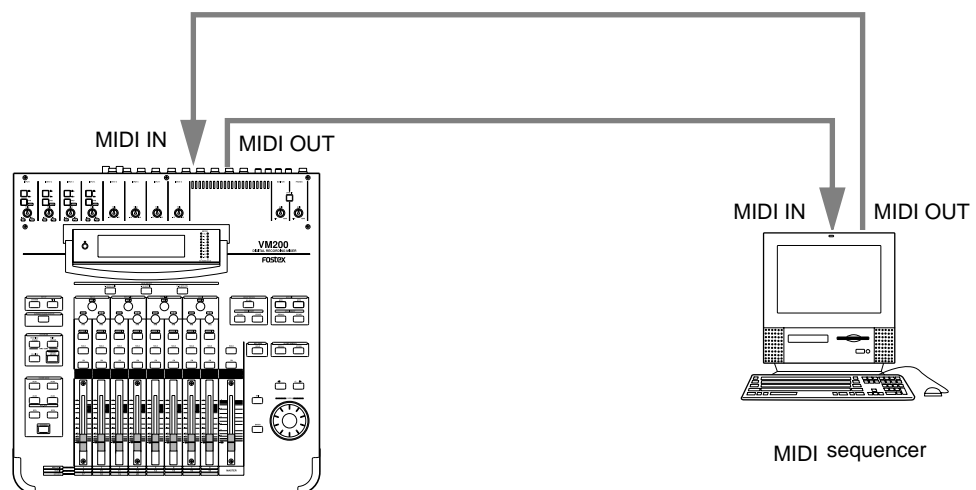
In the following example, if you are using the Preset Program Change Table (which appears on function page 3:PGM TABLE2), when you send Program Change 10 from the MIDI keyboard, the VM200 will recall Scene 10, due to preset assignment.



In the following example, Program Change 33 has been programmed into a song on the MIDI sequencer and will be transmitted to the VM200 at the specified point when the song is played.

If you are using the Preset Program Change Table (2), the VM200 will recall Scene 33, due to preset assignment.

Since the VM200 outputs Program Change messages when scenes are recalled, you can record "scene recalls" to the MIDI sequencer in real time.



You can also connect two VM200s via MIDI and recall a scene on the first VM200, so that the corresponding Program Change message will be transmitted to the second VM200 recall the assigned scene.

Using Control Change Messages

When the VM200 receives a MIDI Control Change message, it can adjust a mix parameter specified by the Control Change Assign Table. (For more information, see page 211.)

Similarly, when a mix parameter is adjusted on the VM200, the VM200 can transmit a Control Change message to control another VM200.

Alternatively, you can record Control Change messages to a MIDI sequencer and use them later to automate parameter control.

You can assign up to 114 mix parameters to Control Changes 0 through 95 and 102 through 119. (Due to the MIDI standard, Control Changes 96 through 101 are unavailable.)

The VM200 “Control Change To Control Parameters Assignment Tables” on page 211 lists initial assignments. You can edit these assignments using the 4:CTL TABLE1 function page.

Follow these steps to set up the VM200 to receive and transmit MIDI Control Change messages:

1. Press the [MIDI] key.

The VM200 displays the 1:MIDI TX&RX function page.

2. Set the VM200 and the external MIDI device to the same MIDI channel.

The external MIDI device that receives MIDI messages from the VM200 should be set to the MIDI Channel specified by the TX CH parameter.

The RX CH parameter of the VM200 should be set to the same MIDI Channel as the device transmitting MIDI messages.

3. Set the TX CH and/or RX CH parameters to ON.

Use the EQ/LO and EQ/LO-MID GAIN rotary controls. Refer to the illustration below.



Editing the Control Change Assign Table

The VM200 features two Control Change Assign Tables.

The first is the User Table, which appears on the 4:CTL TABLE1 function page. You can edit the assignments in this table.

The second table is the Preset Table, which appears on the 5:CTL TABLE2 function page. You can view the assignments in the Preset table, but not edit them.

Follow the steps below to assign a control parameter to a Control Change number.

1. **Press the [MIDI] key four times.**

The VM200 displays the 4:CTL TABLE1 function page.

The following page appears on the display.

SETUP:MIDI				1	2	3	4:CTL TABLE1	5	6
USER TABLE		000 → NON							
		001	CHANNEL CH1	FADER					
CTL CHG No.	SECTION1	SECTION2	PARAMETER						
000	NON								

2. **Select a Control Change number.**

Rotate the EQ/LO GAIN rotary control to select a Control Change number from 0 through 95 or 102 through 119. (Numbers 096 through 101 are unavailable).

3. **Select the section of the VM200 you wish to control with the Control Change number.**

Rotate the EQ/LO-MID GAIN rotary control to select the section you wish to control with the selected Control Change number.

Options include NON, CHANNEL, MASTER, EFFECT, and SCENE ST.

4. **Select the sub-section of the VM200 you wish to control.**

Rotate the EQ/HI-MID GAIN rotary control to select a sub-section.

Options include CH1-20, ST BUSS, REC BUSS, AUX1-4, EFF1-2, MODE, PST/PRE, and AUX PAIR. The available options vary depending on your previous selections.

5. **Select a parameter item you wish to control with the selected Control Change number.**

Rotate the EQ/HI [GAIN] rotary control to select a parameter item.

The available options vary depending on your previous selections.

For more information, refer to the "Control Change To Control Parameters Assignment Tables" on page 211.

Viewing the Preset Control Change Assign Table

The Preset Control Change Assign Table appears on the 5:CTL TABLE2 function page.

Follow these steps to view the Preset assignments:

1. **Press the [MIDI] key five times.**

The VM200 displays the 5:CTL TABLE2 function page.

SETUP:MIDI		1	2	3	4	5:CTL TABLE2	6
PRESET TABLE	000 → NON						
READ ONLY	001	CHANNEL	CH1	FADER			
CTL CHG No.	000						

2. **Select a Control Change number.**

Rotate the EQ/LO GAIN rotary control to select from 0 through 95 or 102-119.

As you turn the control, the CTL CHG No. parameter changes, and the Assign Table scrolls to reflect the change.

The parameter item assigned to the selected Control Change number will appear next to it in the Assign Table.

Control Change Assign Table Notes

The “Control Change To Control Parameters Assignment Tables” on page 211.

To reset the assignments to their initial settings, press the [SYSTEM] key six times or until it displays the 6:INITIALIZE function page. Turn the EQ/LO GAIN rotary control to set the INIT ITEM parameter to “CTL TBL,” and press the [ENTER] key. For more information, see “Initializing the VM200” on page 197.

You can store the Control Change Assign Table to an external MIDI device, such as a MIDI data filer, using MIDI Bulk Dump. (See “Bulk Dump” on page 179 for more information.)

If a parameter is assigned to two or more control changes, the lowest control change is transmitted when the parameter is recalled.

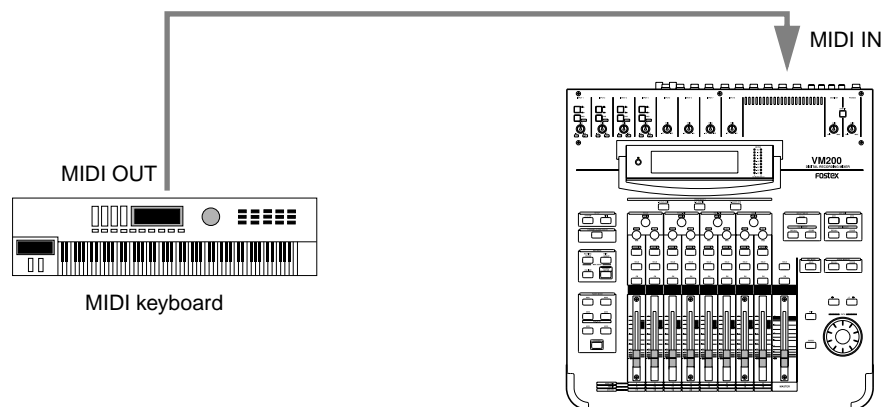


Examples: Using Control Change Messages

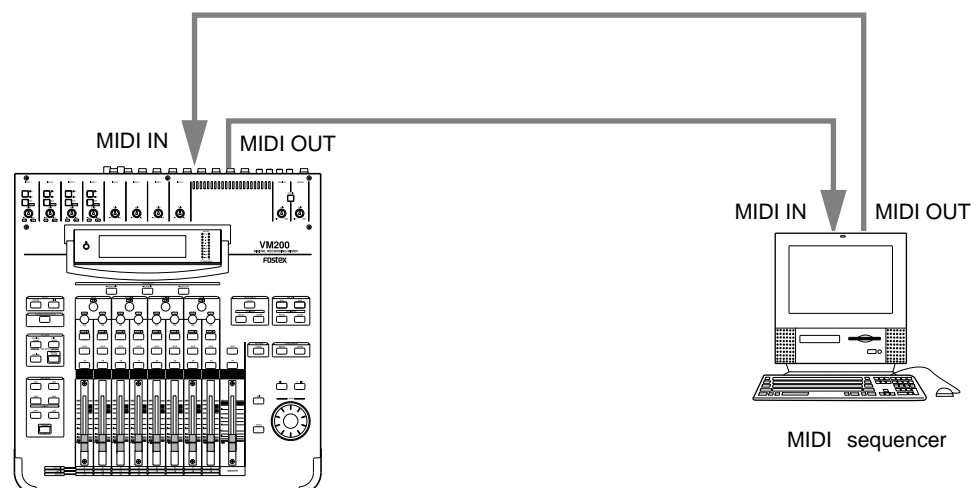
The following figures illustrate typical ways in which to utilize MIDI Control Change messages with the VM200.

The following example assumes you are using the Preset Control Change Table (which appears on function page 5:CTL TABLE2) and that an assignable MIDI controller on the MIDI keyboard has been assigned Control Change 83.

When you adjust the controller, Control Change 83 will be transmitted to the VM200, which will then adjust the effect send 2 level for input channel 2.



In the following example, input channel 5 fader movements are recorded in real time to a MIDI sequencer using Control Change 5. During playback, the sequencer transmits Control Change 5 back to the VM200 and fader 5 moves accordingly, due to preset assignment.



You can also connect two VM200s via MIDI to enable you to control the second VM200 from the first. For example, you could move the Master Fader on the first VM200, causing the second VM200 to operate its Master Fader as well.

Controlling Parameters Using Fostex Exclusive Messages

You can also control VM200 parameters in real time using MIDI System Exclusive messages.

When you adjust a mix parameter, the VM200 transmits a System Exclusive Parameter Change message.

To transmit and receive System Exclusive messages on the VM200, set the SYSTEM EX. TX&RX parameter on the 1:MIDI TX&RX function page to "On" and set the DevID (Device ID) parameter to match the device ID assigned to the external MIDI device.

Data formats for Fostex Exclusive messages are provided in the Appendix.

SETUP:MIDI		1:MIDI TX&RX		2	3	4	5	6
TX CH		RX CH		ECHO		BLK DMP REQ.		
01		OMNI		OFF		RX ON		
PROGRAM CHANGE			CONTROL CHANGE			SYSTEM EX		
TX	RX	TABLE	TX	RX	TABLE	TX&RX:DevID		
ON	ON	01	OFF	OFF	01	ON	002	

System Exclusive TX&RX

Device ID

Bulk Dump

The VM200 can transfer Setup data, Scene Memories, Effect and EQ Libraries, and Program and Control Change Assign Tables to another MIDI device using the System Exclusive Bulk Dump function.

This function enables you to back up important VM200 data to a MIDI data file or computer, or to transfer data between multiple VM200s.

The VM200 can also receive Bulk Dump requests from other MIDI devices.

Transmitting MIDI Bulk Dump Messages

The VM200 transmits Bulk Dump data on the transmission channel you specify using the TX CH parameter on the 1:MIDI TX&RX function page.

To execute a Bulk Dump operation, you specify the data you wish to transfer using the parameters on the 6:BULK DUMP function page, then press the [ENTER] key. The VM200 can also transmit data automatically when it receives MIDI Bulk Dump Request.

The BLOCK parameter on the 6:BULK DUMP function page enables you to specify the block of data you wish to send.

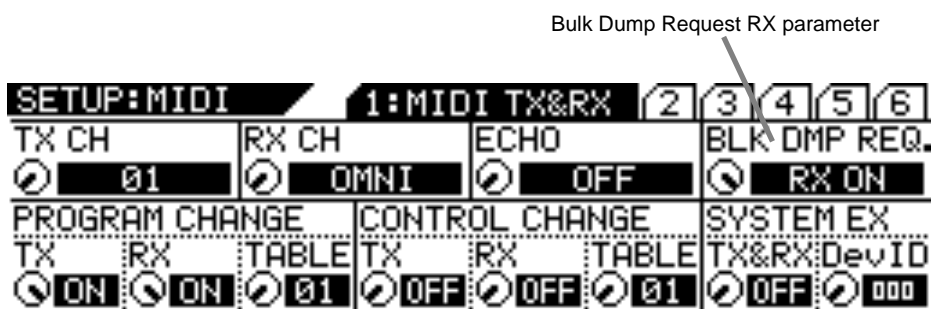
Follow these steps to execute a Bulk Dump.

Automatic transmission in response to Bulk Dump Request

If you set the BLK DMP REQ. parameter on the 1:MIDI TX&RX function page to RX ON, the VM200 will be able to receive a MIDI Bulk Dump request message from an external MIDI device.

1. Press the [MIDI] key.

The VM200 displays the 1:MIDI TX&RX function page.



2. Rotate the EQ/HI GAIN rotary control to set the BLK DMP REQ parameter to "RX ON."

The default setting of the Bulk Dump Request parameter is "RX ON."

The VM200 will transmit Bulk Dump data on the specified MIDI transmit channel when it receives Bulk Dump Request from the connected MIDI device.

To specify which data you wish to transmit, see "Specifying the data you want to transfer" on page 190.

Manual transmission of Bulk Dump Messages

1. **Press the [MIDI] key six times (from start of cycle).**
The VM200 displays the 6:BULK DUMP function page.



2. **Press the [ENTER] key.**
The VM200 starts transmitting Bulk Dump Data to the connected MIDI device and displays the following message:
“WARNING! Transmit Bulk Dump Data Now...”

Warning: Do not power off the VM200 while it is transmitting data or you may damage the system or the connected MIDI device.

Specifying the data you want to transfer

1. **Press the [MIDI] key six times (from start of cycle).**
The VM200 displays the 6: BULK DUMP function page.



2. **Rotate the EQ/LO GAIN rotary control to adjust the Item parameter.**
This parameter specifies the data you want the VM200 to transfer.
3. **Rotate the EQ/LO-MID GAIN rotary control to adjust the Block parameter.**
This parameter specifies the block of data you want the VM200 to transfer. The Block parameter is available only if you select SETUP, SCENE, EFF LIB, or EQ LIB for the Item parameter.
4. **Rotate the EQ/HI-MID GAIN rotary control to adjust the Interval parameter.**
The Interval parameter specifies the interval between data blocks during Bulk Dump transmission.

Item	Contents	Block
ALL (default)	All items listed in this table	N/A
SETUP	VM200 all current setup data	ALL, SYSTEM, MIDI, LOC MEM
SCENE	Scene memories	ALL, CURRENT, 00–99
EFF LIB	Effect library user programs	ALL, 50–99



Item	Contents	Block
EQ LIB	EQ library user programs	ALL, 50–99
PGM TBL1	Program Change Assign Table 1 (user-definable table)	N/A
CTL TBL1	Control Change Assign Table 1 (user-definable table)	N/A

If you send too much data at once, you may overload MIDI devices that have small data buffers. Setting a longer interval will allow slower devices to process received MIDI data.

You can use an interval setting of 0 when you Bulk Dump between multiple VM200s.

You can set the interval from 0–500 in 10ms increments.

5. **Press the [ENTER] key to send the specified Bulk Dump data immediately, or press the [EXIT] key to return to the previous screen.**

Receiving Bulk Dump Requests

If the receive channel (RX CH parameter on the 1:MIDI TX&RX function page) and the DevID (device ID number) parameter on the VM200 match those of the sending device, the sending device will transmit the specified Bulk Dump data to the VM200.

MMC (MIDI Machine Control) Send

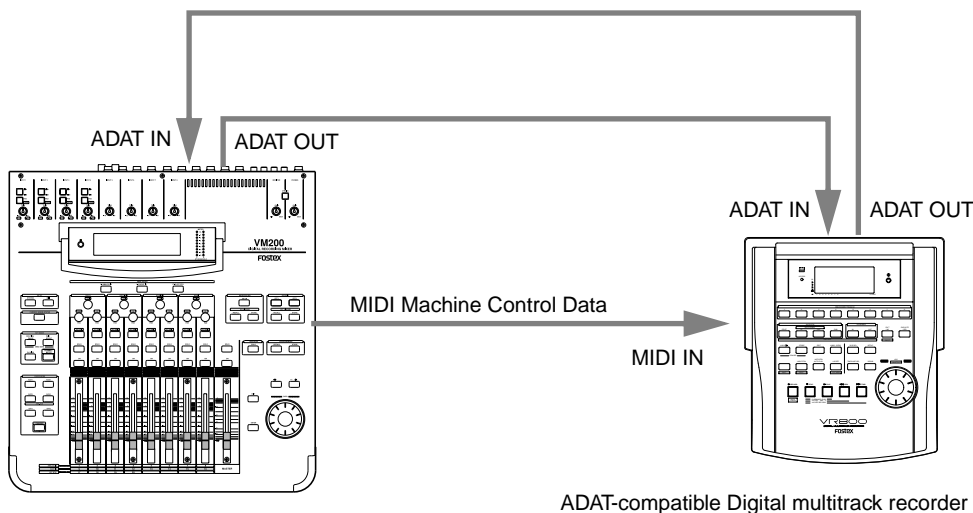
MMC is an abbreviation for MIDI Machine Control. You can control MMC-compatible recorders from the VM200 by sending MIDI Machine Control (MMC) commands.

In MMC Send mode, the VM200's [ON] keys 1 through 8 function as the transport keys, store, recall keys for locate memories.

You can use the [EQ EDIT] keys and [SOLO] keys to locate sixteen definable locate points (LOCATE 1-16).

While you hold down the [ENTER] key, the [SOLO] keys function as the record track select keys. MMC commands are transmitted via MIDI.

The following example illustrates remote control of an MMC-compatible digital MTR (such as the Fostex VR800) from the VM200 using MMC commands.



Setting the Device ID Number

1. **Press the [MIDI] key.**

The VM200 displays the 1:MIDI TX&RX function page.

2. **Select an ID number for the DevID parameter.**

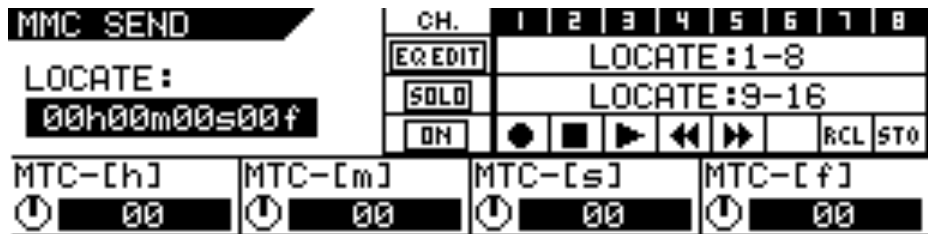
Rotate the EQ/LO-MID Freq rotary control to specify the device ID number of the connected digital MTR. Select a number from 000 to 126.

Entering MMC Send Mode

3. **Press the [ROUTING/PHASE] key and the [PAIR/GROUP] key simultaneously to enter MMC Send mode.**



The two keys flash and the VM200 displays the MMC SEND function page.



Note: Press the [EXIT] key at any time to cancel MMC Send mode and return to Channel Edit mode.

Refer to the table below for an explanation of the functions and controls on the MMC SEND function page.

Key	Function	MMC Command Value
ON 1	Record	06
ON 2	Stop	01
ON 3	Play	02
ON 4	Rewind	05
ON 5	Fast Forward	04
ON 6	-----	
ON 7	Recalls a locate memory.	
ON 8	Stores a locate memory.	
EQ EDIT 1-8	Locate points 1-8	
SOLO 1-8	Locate points 9-16	
ENTER + SOLO 1-8	Record track select 1-8	

4. Press the [ON] keys 1-6 to transmit the transport commands to the MTR.

To start recording on the MTR, press the channel 1 [ON] key and the channel 3 [ON] key simultaneously.

MMC Send and Timecode

When sending Locate Time in MMC Send mode, the VM200 refers to the frame rate set by the Frame Mode parameter found on the SETUP:SYSTEM 1: CLOCK/MON function page.

Before you can correctly set a locate time on the VM200 to locate a position on a connected external digital recorder via MMC Send commands, you need to set the correct frame rate for the timecode.

The VM200 supports four frame rates: 24, 25, 30D (drop-frame), and 30fps.

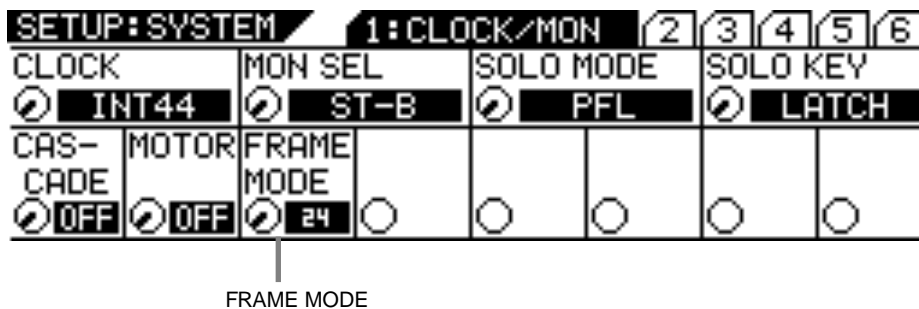
It is important that you set the timecode frame rate to match the material recorded on the digital recorder. Otherwise, the locate point you set on the VM200 will be out of sync with the recorded material.

Frame Mode

Follow the steps below to set the frame rate for the MIDI timecode.

1. **Press the [SYSTEM] key.**

The system displays the SETUP:SYSTEM 1:CLOCK/MON function page.



2. **Specify a value for the Frame Mode parameter by rotating the EQ/LO-MID Freq control.**

The Frame Mode parameter specifies the frame rate. Select a frame rate appropriate for your project.

The options include 24, 25, 30DF (drop-frame), and 30ND (non-drop frame).

The default setting is 24.

3. **Press the [CHANNEL/METER] key or the [EXIT] key.**

The VM200 returns to the previous mode.

Alternatively, press the [ROUTING/PHASE] key and the [PAIR/GROUP] key simultaneously to select MMC Send mode immediately after you set the Frame Mode parameter.



Storing Locate Points

Follow the steps below to store a locate point to the desired Locate key.

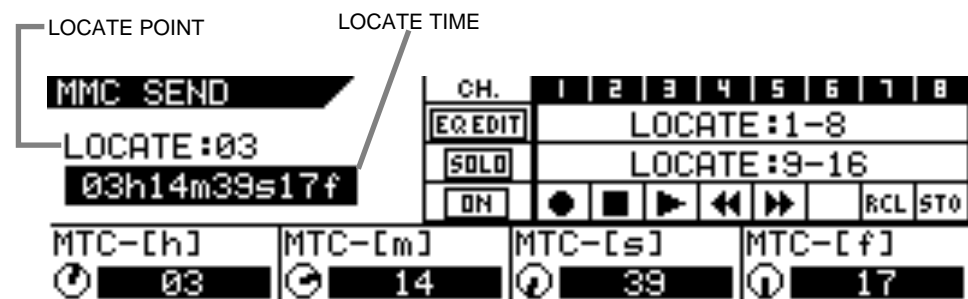
1. **While the MMC SEND function page is displayed, rotate the [GAIN] rotary controls to set the locate times in hours, minutes, seconds, and frames.**

The EQ/LO GAIN rotary control adjusts the hours (MTC-[h]).

The EQ/LO-MID GAIN rotary control adjusts the minutes (MTC-[m]).

The EQ/HI-MID GAIN rotary control adjusts the seconds (MTC-[s]).

The EQ/HI GAIN rotary control the frames (MTC-[f]).



2. **Press the channel 8 [ON] key (functioning as the STORE key), then press an [EQ EDIT] or [SOLO] key to specify where you wish to store the locate point.**

The VM200 displays the locate point in the upper-left of the display.

Checking the Locate Points

You can check the locate points memorized into the Locate keys as follows:

3. **While the MMC SEND function page is displayed, press the channel 7 [ON] key (functioning as the RECALL key), then press the Locate key for the Locate point you wish to check.**

The VM200 displays the locate point in the upper-left of the display.

Transmitting the Locate Commands

4. **Press the desired [EQ EDIT] or [SOLO] keys 1-16 (functioning as Locate keys 1-16) to transmit the locate commands to the recorder.**

Note that you can store Locate points using the MIDI Bulk Dump function. See "Bulk Dump" on page 189.



About This Chapter

This brief chapter describes how to re-initialize the VM200 to reset all parameters to their original default values.

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Initializing the VM200

You can initialize the VM200 to its factory default settings by using the Initialization function.

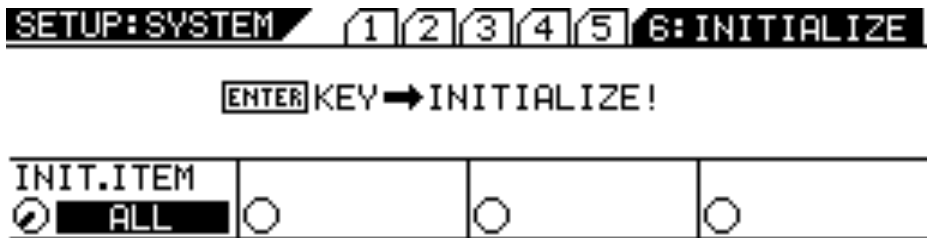
You can specify the items you wish to initialize, choosing from the following options:

- ALL (all parameters)
- SCENE MEM. (Scene Memory)
- EQ LIBRARY
- EFF LIBRARY
- PGM C. TABLE (Program Change Table)
- CTRL C. TABLE (Control Change Table)
- SETUP

Note: If you want to reset only the mix settings and retain other parameter settings, recall one of the preset scene memories P0, P1, or P2 instead. See the chapter entitled "Scene Memory" on page 147 for more information.

Follow the steps below to initialize the VM200.

1. **Press the [SYSTEM] key repeatedly to display the 6: INITIALIZE function page.**



2. **Rotate the EQ/LO Gain control to select the desired item.**

Select from the following options:

- ALL (all parameters)
- SCENE MEM. (Scene Memory)
- EQ LIBRARY
- EFF LIBRARY
- PGM C. TABLE (Program Change Table)
- CTRL C. TABLE (Control Change Table)
- SETUP

The selected item flashes.

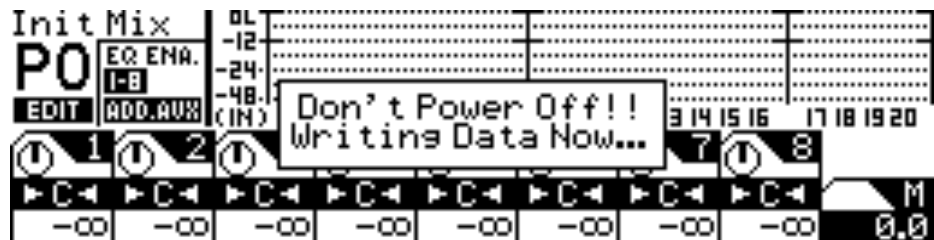
3. Press the [ENTER] key.

The selected item lights up continuously, and a “YES/ENTER” dialog appears.



4. Press the [ENTER] key to initialize the specified settings, or press the [EXIT] key to return to the previous screen.

If you press the [ENTER] key, a warning message appears and the VM200 starts initializing its settings.



Warning: Do not power off the VM200 while it is writing to the flash memory or you may damage the VM200.

Default Setup Parameters

System Parameters	Value	
CLOCK SEL	INT44	
MON SEL	ST-B	
SOLO MODE	PFL	
SOLO KEY	LATCH	
CASCADE	OFF	
MOTOR	ON	
FRAME MODE	24	
RECALL SAFE	CH. FADER	OFF
	CH. PAN	OFF
	CH. ON	OFF
	ROUTING	OFF
	AUX1-4	OFF
	EFF1/2	OFF
	EQ	OFF
	EQ ON	OFF
	Ch1-20	ALL OFF
	Ch1-20	ALL OFF
POWER ON RCL	LAST-STORED	

MIDI Parameters	Value
Tx CH	1
Rx CH	OMNI
ECHO	OFF
BULK Rx	ON
PG Tx	ON
PG Rx	ON
PG Table	1 (User)
CC Tx	OFF
CC Rx	OFF
CC Table	1 (User)
SySEx Tx&Rx	OFF
SysEx DevID	0
PGM C. TABLE1	Same as PGM C. TABLE 2(preset)
CTL C. TABLE1	Same as CTL C. TABLE2 (preset)
ITEM	ALL
BLOCK	---
INTERVAL	0ms

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Display Warning Messages

Warning Messages	Meaning
EQ 1–8 Invalid! (EQ Enable 9–16)	The EQ ENABLE setting of the channel you are operating is not turned ON, thus the EQ is not available for that channel.
EQ 9–16 Invalid! (EQ Enable 1–8)	The EQ ENABLE setting of the channel you are operating is not turned ON, thus the EQ is not available for that channel.
Channel Invalid!	You have tried to operate channels 21–24, which are not available.
AUX 3/4 Invalid! (ADD.AUX Off)	ADD AUX parameter is turned off, and AUX3/4 are not available.
REC BUSS Invalid! (AD.AUX On)	ADD AUX parameter is turned on, and REC BUSS is not available.
EFF 1/2 Invalid! (EQ Enable 1–16)	EQ is enabled for channels 1–16, and effects are not available.
+48V SW On!	The phantom power is turned on. (This appears when powering up the mixer.)
Byte Count Error in BULK DATA!	The byte count of the received Bulk Dump data is not correct.
Check Sum Error in BULK DATA!	The check sum of the received Bulk Dump data is not correct.
MIDI IN Buffer Full!	The VM200 has received too much MIDI data.
MIDI OUT Buffer Full!	The VM200 has transmitted too much MIDI data.
Wrong WORD-IN CLK	The word clock received from the connected device is not correct and the VM200 cannot synchronize correctly.
Wrong ADAT-IN CLK!	Digital signals from the ADAT IN connector are not word clock synchronized with the VM200, and noise may infiltrate the audio data.
Wrong S/P DIF-IN CLK!	Digital signals from the S/P DIF-IN connector are not word clock synchronized with the VM200, and noise may infiltrate the audio data.

Specifications

Inputs

ANALOG IN (ch1-ch4)	Connector	XLR3-31 (1: Ground, 2: Hot, 3: Cold), 1/4-inch phone jack
	A/B switch	A: XLR3-31 (mics), B: 1/4-inch phone jack (lines)
	Input impedance	3k Ω or higher (mics), 10k Ω or higher (lines)
	PAD switch	26dB (+2dB, -1dB)
	PHANTOM switch	+48V (+1V, -2V)
ANALOG IN (ch5-ch8)	Connector	1/4-inch phone jack
	Input impedance	10k Ω or higher
	Nominal input level	-10dBV
INSERT IN (ch1-ch4)	Connector	1/4-inch phone jack
	Input impedance	10k Ω or higher
	Nominal input level	-10dBV
ADAT IN	Connector	Optical (Toslink)
	Format	Adat format
EFFECT RTN ¹ (ch17-ch20)	Connector	none
S/P DIF IN ²	Connector	Optical (Toslink)
	Format	IEC60958 (S/P DIF)
2TRACK IN	Connector	RCA pin jack (x2)
	Input impedance	10k Ω or higher
	Nominal input level	-10dBV
WORD IN	Connector	BNC
	Level	TTL/75 Ω (with Terminate ON/OFF switch)

1. Effect returns for the internal effects processor
2. Assignable to any consecutive odd/even channels

Outputs

AUX OUT (1, 2)	Connector	1/4-inch phone jack (x2)
	Applicable impedance	10k Ω or higher
	Nominal output level	-10dBV
REC BUSS OUT ¹ (1,2)	Connector	1/4-inch phone jack (x2)
	Input impedance	10k Ω or higher
	Nominal input level	-10dBV
STEREO OUT (L, R)	Connector	1/4-inch phone jack (x2)
	Input impedance	10k Ω or higher
	Nominal input level	-10dBV
S/P DIF OUT	Connector	Optical (Toslink)
	Format	IEC60958 (S/P DIF)
ADAT OUT	Connector	Optical (Toslink)
	Format	Adat format
MON OUT (L, R)	Connector	RCA pin jack (x2)
	Applicable impedance	10k Ω or higher
	Nominal output level	-10dBV
PHONES	Connector	1/4-inch phone jack (x1)
	Input impedance	8k Ω or higher
	Max. output level	50mW or higher (at 32 Ω)
WORD OUT	Connector	BNC
	Level	TTL/75 Ω

MIDI IN/OUT/THRU	Connector	DIN 5-pin (x3)
	Format	MIDI standards


1. The default setting is REC BUSS. However, with the ADD.AUX parameter turned on, AUX3/4 are available, and these connectors function as AUX OUT 3/4, providing four AUX SENDs.

General

Frequency response	20Hz–20kHz, +1dB/-3dB (phones: 50Hz–20kHz, +1dB/-3dB)
Dynamic range	90dB or higher (LINE IN CH IN → ST OUT)
Total harmonic distortion	CH IN→ST OUT: 0.08% or less (at 0dBV output)
	LINE IN→ST OUT: 0.008% or less (at 0dBV output)
	LINE IN→PHONES OUT: 0.05% or less (at 50mW/33)
Residual noise	AUX1-4, ST BUSS OUT: -90dB or less (master fader = min, all ch faders = min)
	AUX1-4, ST OUT: -78dB or less (master fader = 0dB, all ch faders = 0dB)
	MIC→INSERT: -71dBV or less (gain=max, pad=off, Rs=150)
	MONITOR OUT (min): -100dBV or less
S/N	1–4CH: CH IN (-4dB)→AUX1-4, ST BUSS OUT: 92dB or higher (IHF-A)
	1–4CH: CH IN (-48dB)→AUX1-4, ST BUSS OUT: 76dB or higher (IHF-A)
	5–8CH: CH IN (-4dB)→AUX1-4, ST BUSS OUT: 92dB or higher (IHF-A)
	5–8CH: CH IN (-38dB)→AUX1-4, ST BUSS OUT: 82dB or higher (IHF-A)
Mic gain	1–4CH: 50dB (+3dB -1dB)
	5–8CH: 40dB (+3dB -1dB)
Crosstalk	70dB or higher (@ 1kHz), phone: 53dB or higher
PHONES max output	50mW or higher, impedance 32Ω, 1kHz
A/D	20bit, 64-times oversampling $\Delta\Sigma$ modulation
D/A	20bit, 128-times oversampling $\Delta\Sigma$ modulation
Fader	Motor-driven, 128 steps/60mm
Sampling frequency	Internal: 44.1kHz fixed
	External (S/PDIF, ADAT, WORD): 44.1kHz/48kHz+/-6%
Internal processing	32-bit
Equalizer	4-band parametric (LO, LO-MID, HI-MID, HI)
EQ LO	Type: Peaking (bell) or Lo shelving or High Pass Filter
	f: 20.3Hz–4.00kHz (1/24 octave/step)
	Gain: +/-18dB (0.5dB step)
	Q: 0.1–20 (45 steps)
EQ LO-MID	Type: Peaking (bell)
	f: 20.3Hz–4.00kHz (1/24 octave steps)
	Gain: +/-18dB (0.5dB step)
	Q: 0.1–20 (45 steps)
EQ HI-MID	Type: Peaking (bell)
	f: 500Hz–20.2kHz (1/24 octave steps)
	Gain: +/-18dB (0.5dB step)
	Q: 0.1–20 (45 steps)
EQ HI	Type: Peaking (bell) or Lo shelving or High Pass Filter
	f: 500Hz–20.2kHz (1/24 octave steps)
	Gain: +/-18dB (0.5dB step)
	Q: 0.1–20 (45 steps)
Memory	Scene memory: 3 (preset) + 100 (user)
	Effect library: 50 (preset) + 50 (user)
	EQ library: 50 (preset) + 50 (user)
Display	STN graphic LCD (256 x 64 dots)



Dimensions	16 ¹³ / ₁₆ (W) X 4 ⁵ / ₈ (H) X 17 ⁷ / ₈ (D) inches (428(W) X 118(H) X 454(D) mm)
Weight	Approx. 15.4 pounds (7kg)
Power source	90V–250V (50Hz/60Hz):
	120VAC 60Hz(US, Canada), 230V– 50/60Hz(Europe) 100VAC 50/60Hz(JPN)
Power consumption	30W

- Specifications and appearance are subject to change without notice for product improvement.
- “Adat” and the  symbol are trademarks of Alesis Corporation.

Maintenance

For normal cleaning, use a soft dry cloth.

For stubborn dirt, moisten a cloth in diluted detergent, wring it out firmly, and wipe the dirt off. Then polish the VM200 with a dry cloth.

Note: Never use solvents such as alcohol, thinner, or benzene, since these will damage the printing and finish of the exterior.

Tables & Data

Channel Fader Gain Table

No.	Calculated Gain (dB)	Displayed Gain (dB)	No.	Calculated Gain (dB)	Displayed Gain (dB)	No.	Calculated Gain (dB)	Displayed Gain (dB)
0	-∞	-∞	43	-18.70	-18.7	86	-5.90	-5.9
1	-72.30	-72.0	44	-18.30	-18.3	87	-5.60	-5.6
2	-66.20	-66.0	45	-17.90	-17.9	88	-5.30	-5.3
3	-60.20	-60.0	46	-17.50	-17.5	89	-5.00	-5.0
4	-57.40	-57.5	47	-17.10	-17.1	90	-4.65	-4.7
5	-55.30	-55.0	48	-16.75	-16.8	91	-4.30	-4.3
6	-53.20	-53.0	49	-16.40	-16.4	92	-3.90	-3.9
7	-51.00	-51.0	50	-16.05	-16.1	93	-3.50	-3.5
8	-49.00	-49.0	51	-15.70	-15.7	94	-3.10	-3.1
9	-46.90	-47.0	52	-15.35	-15.4	95	-2.70	-2.7
10	-45.00	-45.0	53	-15.00	-15.0	96	-2.30	-2.3
11	-43.30	-43.5	54	-14.70	-14.7	97	-1.90	-1.9
12	-41.60	-42.0	55	-14.40	-14.4	98	-1.50	-1.5
13	-40.00	-40.0	56	-14.10	-14.1	99	-1.10	-1.1
14	-38.60	-38.5	57	-13.80	-13.8	100	-0.70	-0.7
15	-37.30	-37.0	58	-13.50	-13.5	101	-0.35	-0.4
16	-36.10	-36.0	59	-13.20	-13.2	102	0.00	0.0
17	-35.00	-35.0	60	-12.90	-12.9	103	+0.35	+0.4
18	-33.90	-34.0	61	-12.60	-12.6	104	+0.70	+0.7
19	-32.80	-33.0	62	-12.30	-12.3	105	+1.05	+1.1
20	-31.80	-32.0	63	-12.00	-12.0	106	+1.40	+1.4
21	-30.90	-31.0	64	-11.75	-11.8	107	+1.80	+1.8
22	-30.10	-30.0	65	-11.50	-11.5	108	+2.20	+2.2
23	-29.40	-29.0	66	-11.25	-11.3	109	+2.60	+2.6
24	-28.70	-28.5	67	-11.00	-11.0	110	+3.00	+3.0
25	-28.00	-28.0	68	-10.75	-10.8	111	+3.40	+3.4
26	-27.40	-27.5	69	-10.50	-10.5	112	+3.80	+3.8
27	-26.80	-27.0	70	-10.25	-10.3	113	+4.20	+4.2
28	-26.20	-26.0	71	-10.00	-10.0	114	+4.60	+4.6
29	-25.60	-25.5	72	-9.75	-9.8	115	+5.00	+5.0
30	-25.00	-25.0	73	-9.50	-9.5	116	+5.40	+5.4
31	-24.50	-24.5	74	-9.25	-9.3	117	+5.80	+5.8
32	-24.00	-24.0	75	-9.00	-9.0	118	+6.20	+6.2
33	-23.50	-23.5	76	-8.75	-8.8	119	+6.60	+6.6
34	-23.00	-23.0	77	-8.50	-8.5	120	+7.00	+7.0
35	-22.50	-22.5	78	-8.25	-8.3	121	+7.40	+7.4
36	-22.00	-22.0	79	-8.00	-8.0	122	+7.80	+7.8
37	-21.50	-21.5	80	-7.60	-7.6	123	+8.20	+8.2
38	-21.00	-21.0	81	-7.40	-7.4	124	+8.60	+8.6
39	-20.50	-20.5	82	-7.10	-7.1	125	+9.00	+9.0
40	-20.00	-20.0	83	-6.80	-6.8	126	+9.50	+9.5
41	-19.55	-19.5	84	-6.50	-6.5	127	+10.00	+10.0
42	-19.10	-19.1	85	-6.20	-6.2			



Master Fader Gain

No.	Calculated Gain (dB)	Displayed Gain (dB)	No.	Calculated Gain (dB)	Displayed Gain (dB)	No.	Calculated Gain (dB)	Displayed Gain (dB)
0	-∞	-∞	43	-35.80	-35.8	86	-15.18	-15.2
1	-90.00	-90.0	44	-35.10	-35.1	87	-14.81	-14.8
2	-84.00	-84.0	45	-34.40	-34.4	88	-14.44	-14.4
3	-80.00	-80.0	46	-33.70	-33.7	89	-14.07	-14.1
4	-78.00	-78.0	47	-33.00	-33.0	90	-13.70	-13.7
5	-76.00	-76.0	48	-32.40	-32.4	91	-13.33	-13.3
6	-74.00	-74.0	49	-31.80	-31.8	92	-12.96	-13.0
7	-72.00	-72.0	50	-31.20	-31.2	93	-12.59	-12.6
8	-70.00	-70.0	51	-30.60	-30.6	94	-12.22	-12.2
9	-68.70	-68.7	52	-30.00	-30.0	95	-11.85	-11.9
10	-67.40	-67.4	53	-29.50	-29.5	96	-11.48	-11.5
11	-66.20	-66.2	54	-29.00	-29.0	97	-11.11	-11.1
12	-64.30	-64.3	55	-28.50	-28.5	98	-10.74	-10.7
13	-62.70	-62.7	56	-28.00	-28.0	99	-10.37	-10.4
14	-61.40	-61.4	57	-27.50	-27.5	100	-10.00	-10.0
15	-59.90	-60.0	58	-27.00	-27.0	101	-9.62	-9.6
16	-58.50	-58.5	59	-26.50	-26.5	102	-9.25	-9.3
17	-57.20	-57.2	60	-26.00	-26.0	103	-8.88	-8.9
18	-56.00	-56.0	61	-25.50	-25.5	104	-8.51	-8.5
19	-54.70	-54.7	62	-25.00	-25.0	105	-8.14	-8.1
20	-53.50	-53.5	63	-24.50	-24.5	106	-7.77	-7.8
21	-52.40	-52.4	64	-24.00	-24.0	107	-7.40	-7.4
22	-51.10	-51.2	65	-23.50	-23.5	108	-7.03	-7.0
23	-50.00	-50.0	66	-23.05	-23.1	109	-3.66	-3.7
24	-49.20	-49.2	67	-22.60	-22.6	110	-6.29	-6.3
25	-48.40	-48.4	68	-22.15	-22.2	111	-5.92	-5.9
26	-47.70	-47.7	69	-21.70	-21.7	112	-5.55	-5.6
27	-47.00	-47.0	70	-21.25	-21.3	113	-5.18	-5.2
28	-46.30	-46.3	71	-20.80	-20.8	114	-4.81	-4.8
29	-45.60	-45.6	72	-20.40	-20.4	115	-4.44	-4.4
30	-44.90	-44.9	73	-20.00	-20.0	116	-4.07	-4.1
31	-44.20	-44.2	74	-19.62	-19.6	117	-3.70	-3.7
32	-43.50	-43.5	75	-19.25	-19.3	118	-3.33	-3.3
33	-42.80	-42.8	76	-18.88	-18.9	119	-2.96	-3.0
34	-42.10	-42.1	77	-18.51	-18.5	120	-2.59	-2.6
35	-41.40	-41.4	78	-18.14	-18.1	121	-2.22	-2.2
36	-40.70	-40.7	79	-17.77	-17.8	122	-1.85	-1.9
37	-40.00	-40.0	80	-17.40	-17.4	123	-1.48	-1.5
38	-39.30	-39.3	81	-17.03	-17.0	124	-1.11	-1.1
39	-38.60	-38.6	82	-16.66	-16.7	125	-0.74	-0.7
40	-37.90	-37.9	83	-16.29	-16.3	126	-0.37	-0.4
41	-37.20	-37.2	84	-15.92	-15.9	127	0.00	0.0
42	-36.50	-36.5	85	-15.55	-15.6			



Pan Gain

No.	Gain Left (dB)	Gain Right (dB)	Displayed Pan	No.	Gain Left (dB)	Gain Right (dB)	Displayed Pan	No.	Gain Left (dB)	Gain Right (dB)	Displayed Pan
0	0.0	-∞	<-L	14	-1.8	-7.1	L3.0	28	-9.0	-1.4	R4.0
1	-0.1	-32.0	L9.5	15	-2.0	-6.3	L2.5	29	-10.2	-1.2	R4.5
2	-0.2	-27.0	L9.0	16	-2.2	-5.5	L2.0	30	-11.6	-1.0	R5.0
3	-0.25	-23.5	L8.5	17	-2.4	-4.8	L1.5	31	-13.2	-0.8	R5.5
4	-0.3	-21.0	L8.0	18	-2.6	-4.2	L1.0	32	-15.0	-0.6	R6.0
5	-0.35	-19.0	L7.5	19	-2.8	-3.6	L0.5	33	-16.1	-0.5	R6.5
6	-0.4	-17.4	L7.0	20	-3.0	-3.0	CENTER	34	-17.4	-0.4	R7.0
7	-0.5	-16.1	L6.5	21	-3.6	-2.8	R0.5	35	-19.0	-0.35	R7.5
8	-0.6	-15.0	L6.0	22	-4.2	-2.6	R1.0	36	-21.0	-0.3	R8.0
9	-0.8	-13.2	L5.5	23	-4.8	-2.4	R1.5	37	-23.5	-0.25	R8.5
10	-1.0	-11.6	L5.0	24	-5.5	-2.2	R2.0	38	-27.0	-0.2	R9.0
11	-1.2	-10.2	L4.5	25	-6.3	-2.0	R2.5	39	-32.0	-0.1	R9.5
12	-1.4	-9.0	L4.0	26	-7.1	-1.8	R3.0	40	-∞	0.0	R->
13	-1.6	-8.0	L3.5	27	-8.0	-1.6	R3.5				

Q

HI: 0.1–20 (45 steps), HI-shelving, LPF

HI-MID, LO-MID: 0.1–20 (45 steps)

LO: 0.1–20 (45 steps), LO-shelving, HPF

No.	Q	No.	Q	No.	Q
0	0.10	15	0.56	30	3.2
1	0.11	16	0.63	31	3.5
2	0.13	17	0.71	32	4.0
3	0.14	18	0.79	33	4.5
4	0.16	19	0.89	34	5.0
5	0.18	20	1.0	35	5.6
6	0.20	21	1.1	36	6.3
7	0.22	22	1.3	37	7.1
8	0.25	23	1.4	38	7.9
9	0.28	24	1.6	39	8.9
10	0.32	25	1.8	40	10
11	0.35	26	2.0	41	11
12	0.40	27	2.2	42	13
13	0.45	28	2.5	43	16
14	0.50	29	2.8	44	20

EQ Frequency

Range: 20.3Hz – 20.2kHz (240 steps per 1/24 octave)

No.	Freq (display)	No.	Freq (display)	No.	Freq (display)	No.	Freq (display)	No.	Freq (display)	No.	Freq (display)
0	20.3	40	64.3	80	204	120	648	160	2.06K	200	6.54K
1	20.9	41	66.2	81	210	121	667	161	2.12K	201	6.73K
2	21.5	42	68.2	82	216	122	687	162	2.18K	202	6.92K
3	22.1	43	70.2	83	223	123	707	163	2.24K	203	7.13K
4	22.7	44	72.2	84	229	124	728	164	2.31K	204	7.34K
5	23.4	45	74.3	85	236	125	749	165	2.38K	205	7.55K
6	24.1	46	76.5	86	243	126	771	166	2.45K	206	7.77K
7	24.8	47	78.7	87	250	127	794	167	2.52K	207	8.00K
8	25.5	48	81.1	88	257	128	817	168	2.59K	208	8.23K
9	26.3	49	83.4	89	265	129	841	169	2.67K	209	8.48K
10	27.0	50	85.9	90	273	130	866	170	2.75K	210	8.72K
11	27.8	51	88.4	91	281	131	891	171	2.83K	211	8.98K
12	28.7	52	91.0	92	289	132	917	172	2.91K	212	9.42K
13	29.5	53	93.6	93	297	133	944	173	3.00K	213	9.51K
14	30.4	54	96.4	94	306	134	972	174	3.08K	214	9.79K
15	31.3	55	99.2	95	315	135	1.00K	175	3.17K	215	10.1K
16	32.2	56	102	96	324	136	1.03K	176	3.27K	216	10.4K
17	33.1	57	105	97	334	137	1.06K	177	3.36K	217	10.7K
18	34.1	58	108	98	343	138	1.09K	178	3.46K	218	11.0K
19	35.1	59	111	99	354	139	1.12K	179	3.56K	219	11.3K
20	36.1	60	115	100	364	140	1.16K	180	3.67K	220	11.6K
21	37.2	61	118	101	375	141	1.19K	181	3.78K	221	12.0K
22	38.3	62	121	102	386	142	1.22K	182	3.89K	222	12.3K
23	39.4	63	125	103	397	143	1.26K	183	4.00K	223	12.7K
24	40.5	64	129	104	408	144	1.30K	184	4.12K	224	13.1K
25	41.7	65	132	105	420	145	1.33K	185	4.24K	225	13.5K
26	42.9	66	136	106	433	146	1.37K	186	4.36K	226	13.8K
27	44.2	67	140	107	445	147	1.41K	187	4.49K	227	14.3K
28	45.5	68	144	108	459	148	1.46K	188	4.62K	228	14.7K
29	46.8	69	149	109	472	149	1.50K	189	4.76K	229	15.1K
30	48.2	70	153	110	486	150	1.54K	190	4.90K	230	15.5K
31	49.6	71	157	111	500	151	1.59K	191	5.04K	231	16.0K
32	51.1	72	162	112	515	152	1.63K	192	5.19K	232	16.5K
33	52.6	73	167	113	530	153	1.68K	193	5.34K	233	17.0K
34	54.1	74	172	114	545	154	1.73K	194	5.50K	234	17.4K
35	55.7	75	177	115	561	155	1.78K	195	5.66K	235	18.0K
36	57.3	76	182	116	578	156	1.83K	196	5.82K	236	18.5K
37	59.0	77	187	117	595	157	1.89K	197	5.99K	237	19.0K
38	60.7	78	193	118	612	158	1.94K	198	6.17K	238	19.6K
39	62.5	79	198	119	630	159	2.00K	199	6.35K	239	20.2K



Program Change To Scene Memory Assignment Tables

Program Change Assign Table 1
(User)

PGM CHG #	Scene	PGM CHG #	Scene	PGM CHG #	Scene
1		44		87	
2		45		88	
3		46		89	
4		47		90	
5		48		91	
6		49		92	
7		50		93	
8		51		94	
9		52		95	
10		53		96	
11		54		97	
12		55		98	
13		56		99	
14		57		100	
15		58		101	
16		59		102	
17		60		103	
18		61		104	
19		62		105	
20		63		106	
21		64		107	
22		65		108	
23		66		109	
24		67		110	
25		68		111	
26		69		112	
27		70		113	
28		71		114	
29		72		115	
30		73		116	
31		74		117	
32		75		118	
33		76		119	
34		77		120	
35		78		121	
36		79		122	
37		80		123	
38		81		124	
39		82		125	
40		83		126	
41		84		127	
42		85		128	
43		86			

Program Change Assign Table 2
(Preset)

PGM CHG #	Scene	PGM CHG #	Scene	PGM CHG #	Scene
1	00	44	43	87	86
2	01	45	44	88	87
3	02	46	45	89	88
4	03	47	46	90	89
5	04	48	47	91	90
6	05	49	48	92	91
7	06	50	49	93	92
8	07	51	50	94	93
9	08	52	51	95	94
10	09	53	52	96	95
11	10	54	53	97	96
12	11	55	54	98	97
13	12	56	55	99	98
14	13	57	56	100	99
15	14	58	57	101	P0
16	15	59	58	102	P1
17	16	60	59	103	P2
18	17	61	60	104	P0
19	18	62	61	105	P0
20	19	63	62	106	P0
21	20	64	63	107	P0
22	21	65	64	108	P0
23	22	66	65	109	P0
24	23	67	66	110	P0
25	24	68	67	111	P0
26	25	69	68	112	P0
27	26	70	69	113	P0
28	27	71	70	114	P0
29	28	72	71	115	P0
30	29	73	72	116	P0
31	30	74	73	117	P0
32	31	75	74	118	P0
33	32	76	75	119	P0
34	33	77	76	120	P0
35	34	78	77	121	P0
36	35	79	78	122	P0
37	36	80	79	123	P0
38	37	81	80	124	P0
39	38	82	81	125	P0
40	39	83	82	126	P0
41	40	84	83	127	P0
42	41	85	84	128	P0
43	42	86	85		

Control Change To Control Parameters Assignment Tables

Control Change Assign Table 1 (User)

CTL CHG #	Section 1	Section 2	Item	CTL CHG #	Section 1	Section 2	Item	CTL CHG #	Section 1	Section 2	Item
0				40				80			
1				41				81			
2				42				82			
3				43				83			
4				44				84			
5				45				85			
6				46				86			
7				47				87			
8				48				88			
9				49				89			
10				50				90			
11				51				91			
12				52				92			
13				53				93			
14				54				94			
15				55				95			
16				56				96			
17				57				97			
18				58				98			
19				59				99			
20				60				100			
21				61				101			
22				62				102			
23				63				103			
24				64				104			
25				65				105			
26				66				106			
27				67				107			
28				68				108			
29				69				109			
30				70				110			
31				71				111			
32				72				112			
33				73				113			
34				74				114			
35				75				115			
36				76				116			
37				77				117			
38				78				118			
39				79				119			

Control Change Assign Table 2 (Preset)

CTL CHG #	Section 1	Section 2	Item	CTL CHG #	Section 1	Section 2	Item	CTL CHG #	Section 1	Section 2	Item			
0	No Assign	---	---	40	Channel	19	CH ON	80	Channel	19	EFF1 SND			
1	Channel	1	FADER	41	Channel	20	CH ON	81	Channel	20	EFF1 SND			
2	Channel	2	FADER	42	Channel	1	PAN	82	Channel	1	EFF2 SND			
3	Channel	3	FADER	43	Channel	2	PAN	83	Channel	2	EFF2 SND			
4	Channel	4	FADER	44	Channel	3	PAN	84	Channel	3	EFF2 SND			
5	Channel	5	FADER	45	Channel	4	PAN	85	Channel	4	EFF2 SND			
6	Channel	6	FADER	46	Channel	5	PAN	86	Channel	5	EFF2 SND			
7	Channel	7	FADER	47	Channel	6	PAN	87	Channel	6	EFF2 SND			
8	Channel	8	FADER	48	Channel	7	PAN	88	Channel	7	EFF2 SND			
9	Channel	9	FADER	49	Channel	8	PAN	89	Channel	8	EFF2 SND			
10	Channel	10	FADER	50	Channel	9	PAN	90	Channel	9	EFF2 SND			
11	Channel	11	FADER	51	Channel	10	PAN	91	Channel	10	EFF2 SND			
12	Channel	12	FADER	52	Channel	11	PAN	92	Channel	11	EFF2 SND			
13	Channel	13	FADER	53	Channel	12	PAN	93	Channel	12	EFF2 SND			
14	Channel	14	FADER	54	Channel	13	PAN	94	Channel	13	EFF2 SND			
15	Channel	15	FADER	55	Channel	14	PAN	95	Channel	14	EFF2 SND			
16	Channel	16	FADER	56	Channel	15	PAN	96	Not available					
17	Channel	17	FADER	57	Channel	16	PAN	97						
18	Channel	18	FADER	58	Channel	17	PAN	98						
19	Channel	19	FADER	59	Channel	18	PAN	99						
20	Channel	20	FADER	60	Channel	19	PAN	100						
21	Channel	1	CH ON	61	Channel	20	PAN	101	Not available					
22	Channel	2	CH ON	62	Channel	1	EFF1 SND	102				Channel	15	EFF2 SND
23	Channel	3	CH ON	63	Channel	2	EFF1 SND	103				Channel	16	EFF2 SND
24	Channel	4	CH ON	64	Channel	3	EFF1 SND	104				Channel	17	EFF2 SND
25	Channel	5	CH ON	65	Channel	4	EFF1 SND	105				Channel	18	EFF2 SND
26	Channel	6	CH ON	66	Channel	5	EFF1 SND	106	Channel	19	EFF2 SND			
27	Channel	7	CH ON	67	Channel	6	EFF1 SND	107	Channel	20	EFF2 SND			
28	Channel	8	CH ON	68	Channel	7	EFF1 SND	108	Master	ST-BUSS	FADER			
29	Channel	9	CH ON	69	Channel	8	EFF1 SND	109	Master	AUX1	FADER			
30	Channel	10	CH ON	70	Channel	9	EFF1 SND	110	Master	AUX2	FADER			
31	Channel	11	CH ON	71	Channel	10	EFF1 SND	111	Master	AUX3	FADER			
32	No Assign	---	---	72	Channel	11	EFF1 SND	112	Master	AUX4	FADER			
33	Channel	12	CH ON	73	Channel	12	EFF1 SND	113	Master	EFF1	FADER			
34	Channel	13	CH ON	74	Channel	13	EFF1 SND	114	Master	EFF2	FADER			
35	Channel	14	CH ON	75	Channel	14	EFF1 SND	115	Master	ST-BUSS	CH ON			
36	Channel	15	CH ON	76	Channel	15	EFF1 SND	116	Effect	EFF1	LIB.RCL			
37	Channel	16	CH ON	77	Channel	16	EFF1 SND	117	Effect	EFF2	LIB.RCL			
38	Channel	17	CH ON	78	Channel	17	EFF1 SND	118	No Assign	---	---			
39	Channel	18	CH ON	79	Channel	18	EFF1 SND	119	No Assign	---	---			

Preset Scene Parameters

P0 (Init_Mix)

Category	Parameter	Value	Category	Parameter	Value
Channels 1-20	CH FADER	-∞	MASTER	ST-BUSSMASTER	0dB
	CH ON	ON		ST-BUSS ON	ON
	CH PAN	Ch1-16:Center Ch17,19:L10.0 Ch18,20:R10.0		AUX1 MASTER	0dB
	AUX1 SEND	-∞		AUX1 ON	ON
	AUX2 SEND	-∞		AUX2 MASTER	0dB
	AUX3 SEND	-∞		AUX2 ON	ON
	AUX4 SEND	-∞		AUX3 MASTER	0dB
	EFF1 SEND	-∞		AUX3 ON	ON
	EFF2 SEND	-∞		AUX4 MASTER	0dB
	AUX1&2 PAN	Center		AUX4 ON	ON
	AUX3&4 PAN	Center		EFF1 MASTER	0dB
	EQ/LO Gain	0		EFF1 ON	ON
	EQ/LO Freq	125		EFF2 MASTER	0dB
	EQ/LO Q	L-S		EFF2 ON	ON
	EQ/LO-MID Gain	0	SCENE STATUS	EQ ENABLE	1-8
	EQ/LO-MID Freq	500		ADD.AUX	ON
	EQ/LO-MID Q	1.0		AUX1 POST/PRE	POST
	EQ/HI-MID Gain	0		AUX2 POST/PRE	POST
	EQ/HI-MID Freq	2.00K		AUX3 POST/PRE	POST
	EQ/HI-MID Q	1.0		AUX4 POST/PRE	POST
	EQ/HI Gain	0		EFF1 POST/PRE	POST
	EQ/HI Freq	8.00K		EFF2 POST/PRE	POST
	EQ/HI Q	H-S		AUX1&2 PAIR	OFF
	EQ ON	ON		AUX3&4 PAIR	OFF
	ROUTING ST-BUSS	All channels	Others	Scene Name	Init_Mix
	ROUTING REC-BUSS	OFF		EFFECT1	01: Normal Large Hall
	ROUTING DIRECT	OFF		EFFECT2	38: 3D Chorus
	PHASE	NORMAL			
	CH PAIR	Ch1-16:off Ch17-20:on			
	MUTE GROUP	OFF			
	FADER GROUP	OFF			
	S/P DIF IN	OFF			

P1 (Recording)

Category	Parameter	Value	Category	Parameter	Value	
Channels 1-20	CH FADER	-∞	MASTER	ST-BUSSMASTER	0dB	
	CH ON	ON		ST-BUSS ON	ON	
	CH PAN	Ch1-16:Center Ch17,19:L10.0 Ch18,20:R10.0		AUX1 MASTER	0dB	
	AUX1 SEND	-∞		AUX1 ON	ON	
	AUX2 SEND	-∞		AUX2 MASTER	0dB	
	AUX3 SEND	-∞		AUX2 ON	ON	
	AUX4 SEND	-∞		AUX3 MASTER	0dB	
	EFF1 SEND	-∞		AUX3 ON	ON	
	EFF2 SEND	-∞		AUX4 MASTER	0dB	
	AUX1&2 PAN	Center		AUX4 ON	ON	
	AUX3&4 PAN	Center		EFF1 MASTER	0dB	
	EQ/LO Gain	0		EFF1 ON	ON	
	EQ/LO Freq	125	EFF2 MASTER	0dB		
	EQ/LO Q	L-S	EFF2 ON	ON		
	EQ/LO-MID Gain	0	SCENE STATUS	EQ ENABLE	1-8	
	EQ/LO-MID Freq	500		ADD.AUX	OFF	
	EQ/LO-MID Q	1.0		AUX1 POST/PRE	POST	
	EQ/HI-MID Gain	0		AUX2 POST/PRE	POST	
	EQ/HI-MID Freq	2.00K		AUX3 POST/PRE	POST	
	EQ/HI-MID Q	1.0		AUX4 POST/PRE	POST	
	EQ/HI Gain	0		EFF1 POST/PRE	POST	
	EQ/HI Freq	8.00K		EFF2 POST/PRE	POST	
	EQ/HI Q	H-S		AUX1&2 PAIR	OFF	
	EQ ON	ON		AUX3&4 PAIR	OFF	
	ROUTING ST-BUSS	Ch9-20		Others	Scene Name	Recording
	ROUTING REC-BUSS	Ch1-8			EFFECT1	01: Normal Large Hall
	ROUTING DIRECT	OFF	EFFECT2		38: 3D Chorus	
	PHASE	NORMAL				
	CH PAIR	Ch1-16:off Ch17-20:on				
	MUTE GROUP	OFF				
	FADER GROUP	OFF				
	S/P DIF IN	OFF				

P2 (Mix_Down)

Category	Parameter	Value	Category	Parameter	Value
Channels 1-20	CH FADER	-∞	MASTER	ST-BUSSMASTER	0dB
	CH ON	ON		ST-BUSS ON	ON
	CH PAN	Ch1-16:Center Ch17,19:L10.0 Ch18,20:R10.0		AUX1 MASTER	0dB
	AUX1 SEND	-∞		AUX1 ON	ON
	AUX2 SEND	-∞		AUX2 MASTER	0dB
	AUX3 SEND	-∞		AUX2 ON	ON
	AUX4 SEND	-∞		AUX3 MASTER	0dB
	EFF1 SEND	-∞		AUX3 ON	ON
	EFF2 SEND	-∞		AUX4 MASTER	0dB
	AUX1&2 PAN	Center		AUX4 ON	ON
	AUX3&4 PAN	Center		EFF1 MASTER	0dB
	EQ/LO Gain	0		EFF1 ON	ON
	EQ/LO Freq	125		EFF2 MASTER	0dB
	EQ/LO Q	L-S		EFF2 ON	ON
	EQ/LO-MID Gain	0		SCENE STATUS	EQ ENABLE
	EQ/LO-MID Freq	500	ADD.AUX		ON
	EQ/LO-MID Q	1.0	AUX1 POST/PRE		POST
	EQ/HI-MID Gain	0	AUX2 POST/PRE		POST
	EQ/HI-MID Freq	2.00K	AUX3 POST/PRE		POST
	EQ/HI-MID Q	1.0	AUX4 POST/PRE		POST
	EQ/HI Gain	0	EFF1 POST/PRE		POST
	EQ/HI Freq	8.00K	EFF2 POST/PRE		POST
	EQ/HI Q	H-S	AUX1&2 PAIR		OFF
	EQ ON	ON	AUX3&4 PAIR		OFF
	ROUTING ST-BUSS	All channels	Others	Scene Name	Mix_Down
	ROUTING REC-BUSS	OFF		EFFECT1	01: Normal Large Hall
	ROUTING DIRECT	OFF		EFFECT2	38: 3D Chorus
	PHASE	NORMAL			
	CH PAIR	Ch1-16:off Ch17-20:on			
	MUTE GROUP	OFF			
FADER GROUP	OFF				
S/P DIF IN	OFF				

MIDI In/Out Data Format

1. CHANGE MESSAGE

1-1.NOTE OFF (8n)

NOTE OFF messages are not received or transmitted.

1-2.NOTE ON (9n)

NOTE ON messages are not received or transmitted.

1-3.CONTROL CHANGE (Bn)

<Reception>

Control Change messages are received only when [CONTROL CHANGE RX] is set to ON and the receive channel [RX CH] matches. If [RX CH] is set to OMNI, the message is received regardless of which channel is receiving.

Control Change messages are "echoed" when [ECHO] is set to ON.

The parameters are controlled based on the settings selected by [CONTROL CHANGE TABLE].

If the messages are received while the [CTL TABLE] setting page is displayed, the cursor automatically moves to the corresponding Control Change number.

<Transmission>

Control Change messages are transmitted on the channel set by [TX CH] when you operate the or item assigned in the table selected by [CONTROL CHANGE TABLE] and when [CONTROL CHANGE TX] is set to ON.

If the same item is assigned to multiple Control numbers, the smallest Control number will be transmitted.

STATUS	1011nnnn	Bn	Control Change
DATA	0ccccccc	cc	Control No. (0-95, 102-119)
	9vvvvvvvv	vv	Control Value (0-127)

1-4.PROGRAM CHANGE (Bn)

<Reception>

Program Change messages are received only when [PROGRAM CHANGE RX] is set to ON and the receive channel [RX CH] matches. If [RX CH] is set to OMNI, the message is received regardless of which channel is receiving.

Program Change messages are "echoed" when [ECHO] is set to ON.

A scene is recalled according to the settings selected by [PROGRAM CHANGE TABLE].

If the messages are received while the [PGM TABLE] setting page is displayed, the cursor automatically moves to the corresponding PGM number.

<Transmission>

Program Change messages are transmitted on the channel set by [TX CH] when you recall a scene assigned in the table selected by [PROGRAM CHANGE TABLE] and when [PROGRAM CHANGE TX] is set to ON.

If the same scene is assigned to multiple Program numbers, the smallest Program number will be transmitted.

STATUS	1100nnnn	Cn	Program Change
DATA	0nnnnnnn	nn	Program No. (0-127)

2. EXCLUSIVE MESSAGE (F0-F7)

2-1.MOTION CONTROL STATE (MCS) MMC STOP/PLAY/FORWARD/REWIND/RECORD/PAUSE

<Transmission>

Operating the key in the [MMC SEND] page will transmit these messages.

Use [Dev ID.] to specify the destination.

STATUS	11110000	F0	System Exclusive Message
ID No.	01111111	7F	Real Time System Exclusive
Device	ID0ddddddd	dd	Destination (00-7E, 7F:all call)
Command	00000110	06	MMC sub-id
	0ccccccc	cc	Command String
			[1]: Stop
			[2]: Play
			[4]: Fast Forward
			[5]: Rewind
			[6]: Record Strobe
			[9]: Pause
EOX	11110111	F7	End Of Exclusive

2-2.MOTION CONTROL PROCESS (MCP) MMC LOCATE (target)

<Transmission>

Operating the key in the [MMC SEND] page will transmit these messages.

Use [Dev ID] to specify the destination.

STATUS	11110000	F0	System Exclusive Message
ID No.	01111111	7F	Real Time System Exclusive
Device	ID0ddddddd	dd	Destination (00-7E, 7F:all call)
Command	00000110	06	MMC sub-id
	01000100	44	Locate
	00000110	06	byte count
	00000001	01	"target" sub command
	0hhhhhhh	hh	hour
	0mmmmmm	mm	minute
	0sssssss	ss	second
	0ffffff	ff	frame
	0sssssss	ss	sub frame (only '0')
EOX	11110111	F7	End Of Exclusive



3. FOSTEX EXCLUSIVE MESSAGE

<Reception>

Fostex Exclusive messages are received when [SYSTEM EX. Tx&Rx] is set to ON and the Rx channel matches the channel of [Dev ID].

When the VM200 receives the System Exclusive message, the specified parameter will be changed immediately.

When the VM200 receives the Parameter Request message, the corresponding parameter setting will be transmitted immediately.

<Transmission>

Fostex Exclusive messages are transmitted if the Tx channel matches the channel of [Dev ID] and when you operate the key while [SYSTEM EX. Tx&Rx] is ON.

In response to the Parameter Request messages, VM200 transmits the parameter settings if the Tx channel matches the channel of [Dev ID].

F0 51 <Device Id>Sub Id> <Data> F7

Command List

Setup Command

	Command	Request	Status
Master Clock	18,10 <master clock>	28,10	38,10 <master clock>
Fs	18,11 <fs>	28,11	38,11 <fs>
Current Scene Name	18,20 <Name..>	28,20	38,20 <Name..>
Scene Recall	18,22 <SceneNo>		
Scene Store	18,23 <SceneNo>		
Rcl Safe – Fader	18,28,11 <OnOff>	28,28,11	38,28,11 <OnOff>
Rcl Safe – Pan	18,28,12 <OnOff>	28,28,12	38,28,12 <OnOff>
Rcl Safe – Routing	18,28,30,7f <OnOff>	28,28,30,7f	38,28,30,7f <OnOff>
Rcl Safe – Aux Send Level	18,28,41 <AuxId> <OnOff>	28,28,41 <AuxId>	38,28,41 <AuxId> <OnOff>
Rcl Safe – Eff Send Level	18,28,49 <EffId> <OnOff>	28,28,49 <EffId>	38,28,49 <EffId> <OnOff>
Rcl Safe – Eq On	18,28,50,7f <OnOff>	28,28,50,7f	38,28,50,7f <OnOff>
Rcl Safe – Eq	18,28,5f <OnOff>	28,28,5f	38,28,5f <OnOff>
Eq Enable Ch	18,30 <EqEna>	28,30	38,30 <EqEna>
Add Aux Mode	18,31 <OnOff>	28,31	38,31 <OnOff>
Mon Sel	18,40 <MonSel>	28,40	38,40 <MonSel>
Solo Mode	18,42 <SoloMode>	28,42	38,42 <SoloMode>
Solo Key Mode	18,43 <SoloKeyMode>	28,43	38,43 <SoloKeyMode>
Motor OnOff	18,50 <OnOff>	28,50	38,50 <OnOff>
Power On Recall	18,51 <SceneNo>	28,51	38,51 <SceneNo>
Cascade	18,52 <Cascade>	28,52	38,52 <Cascade>
Memory Backup	18,60 <MemId>		
Smoothing	18,32<Mode>f7	28,32,17	38,32<mode>f7

Channel/Buss Command

	Command	Request	Status
ST Buss – Ch On	19,01,10 <OnOff>	29,01,10	39,01,10 <OnOff>
ST Buss – Master Fader	19,01,11 <Vol>	29,01,11	39,01,11 <Vol>
ST Buss – Solo	19,01,19 <OnOff>	29,01,19	39,01,19 <OnOff>
REC Buss – Master Level	19,02,11 <Vol>	29,02,11	39,02,11 <Vol>
REC Buss – Solo	19,02,19 <OnOff>	29,02,19	39,02,19 <Vol>
AUX Buss – Ch On	19,05 <AuxId> 10 <OnOff>	29,05 <AuxId> 10	39,05 <AuxId> 10 <OnOff>
AUX Buss – Master Fader	19,05 <AuxId> 11 <Vol>	29,05 <AuxId> 11	39,05 <AuxId> 11 <Vol>
AUX Buss – Solo	19,05 <AuxId> 19 <OnOff>	29,05 <AuxId> 19	39,05 <AuxId> 19 <OnOff>

	Command	Request	Status
EFF Buss – Ch On	19,06 <Effld> 10 <OnOff>	29,06 <Effld> 10	39,06 <Effld> 10 <OnOff>
EFF Buss – Master Fader	19,06 <Effld> 11 <Vol>	29,06 <Effld> 11	39,06 <Effld> 11 <Vol>
EFF Buss – Solo	19,06 <Effld> 19 <OnOff>	29,06 <Effld> 19	39,06 <Effld> 19 <OnOff>
CH1-20 – Ch On	19,10 <Ch> 10 <OnOff>	29,10 <Ch> 10	39,10 <Ch> 10 <OnOff>
CH1-20 – Ch Fader	19,10 <Ch> 11 <Vol>	29,10 <Ch> 11	39,10 <Ch> 11 <Vol>
CH1-20 – Ch Pan	19,10 <Ch> 12 <Pan>	29,10 <Ch> 12	39,10 <Ch> 12 <Pan>
CH1-20 – Ch Solo	19,10 <Ch> 19 <OnOff>	29,10 <Ch> 19	39,10 <Ch> 19 <OnOff>
CH1-20 – Phase	19,10 <Ch> 21 <Phase>	29,10 <Ch> 21	39,10 <Ch> 21 <Phase>
CH1-20 – S/P DIF IN	19,10 <Ch> 26 <OnOff>	29,10 <Ch> 26	39,10 <Ch> 26 <OnOff>
CH1-20 – Rout:ST Buss	19,10 <Ch> 30 <OnOff>	29,10 <Ch> 30	39,10 <Ch> 30 <OnOff>
CH1-20 – Rout:Rec Buss	19,10 <Ch> 31 <OnOff>	29,10 <Ch> 31	39,10 <Ch> 31 <OnOff>
CH1-20 – Rout:Adat Dir.	19,10 <Ch> 33 <OnOff>	29,10 <Ch> 33	39,10 <Ch> 33 <OnOff>
CH1-20 – Aux Send Level	19,10 <Ch> 41 <Auxld> <Vol>	29,10 <Ch> 41 <Auxld>	39,10 <Ch> 41 <Auxld> <Vol>
CH1-20 – Aux Post/Pre	19,10 <Ch> 43 <Auxld> <Post/Pre>	29,10 <Ch> 43 <Auxld>	39,10 <Ch> 43 <Auxld> <Post/Pre>
CH1-20 – Eff Send Level	19,10 <Ch> 49 <Effld> <Vol>	29,10 <Ch> 49 <Effld>	39,10 <Ch> 49 <Effld> <Vol>
CH1-20 – Eff Post/Pre	19,10 <Ch> 4b <Effld> <Post/Pre>	29,10 <Ch> 4b <Effld>	39,10 <Ch> 4b <Effld> <Post/Pre>
CH1-20 – Eq On	19,10 <Ch> 50 <Band> <OnOff>	29,10 <Ch> 50 <Band>	39,10 <Ch> 50 <Band> <OnOff>
CH1-20 – Eq Type(Q)	19,10 <Ch> 51 <Band> <Type>	29,10 <Ch> 51 <Band>	39,10 <Ch> 51 <Band> <Type>
CH1-20 – Eq Gain	19,10 <Ch> 52 <Band> <Gain>	29,10 <Ch> 52 <Band>	39,10 <Ch> 52 <Band> <Gain>
CH1-20 – Eq Freq.	19,10 <Ch> 53 <Band> <Freq>	29,10 <Ch> 53 <Band>	39,10 <Ch> 53 <Band> <Freq>
CH1-20 – Eq Lib Recall	19,10 <Ch> 5e <LibNo>		
CH1-20 – Eq Lib Store	19,10 <Ch> 5f <LibNo> <Name..>		
CH1-20 – Ch Pair	19,10 <Ch> 70 <OnOff>	29,10 <Ch> 70	39,10 <Ch> 70 <OnOff>
Ch1-20 – Fader Group	19,10 <Ch> 71 <Grp>	29,10 <Ch> 71	39,10 <Ch> 71 <Grp>
CH1-20 – Mute Group	19,10 <Ch> 72 <Grp>	29,10 <Ch> 72	39,10 <Ch> 72 <Grp>
CH1-20 – Ch Solo Safe	19,10 <Ch> 73 <OnOff>	29,10 <Ch> 73	39,10 <Ch> 73 <OnOff>
CH1-20 – Ch Recall Safe	19,10 <Ch> 74 <OnOff>	29,10 <Ch> 74	39,10 <Ch> 74 <OnOff>

Effects Command

	Command	Request	Status
Eff Type	1a <Effld> 10 <Type>	2a <Effld> 10	3a <Effld> 10 <Type>
Eff Parameter	1a <Effld> 11 <ParamNo> <Val-L> <Val-H>	2a <Effld> 11 <ParamNo>	3a <Effld> 11 <ParamNo> <Val-L> <Val-H>
Eff Name	1a <Effld> 70 <Name..>	2a <Effld> 70	3a <Effld> 70 <Name..>
Eff Lib Recall	1a <Effld> 72 <LibNo>		
Eff Lib Store	1a <Effld> 73 <LibNo>		

Remote Command

	Command	Request	Status
Key Remote	1f, 01 <Keyld> <OnOff>		
Encoder Remote	1f, 02 <Enclld> <EncVal>		

Command Details

Setup Commands

<< Master Clock>>

command: F0 51 <DevId> 18 10 <MasterClock> F7.
 request: F0 51 <DevId> 28 10 F7.
 status: F0 51 <DevId> 38 10 <MasterClock> F7.
 <MasterClock> 0:int 1:adat 2:spdif 3:word

<< Fs >>

command: F0 51 <DevId> 18 11 <Fs> F7.
 request: F0 51 <DevId> 28 11 F7.
 status: F0 51 <DevId> 38 11 <Fs> F7.
 <Fs> 0:44.1k 1:48k

<< Current Scene Name >>

command: F0 51 <DevId> 18 20 <Name..> F7.
 request: F0 51 <DevId> 28 20 F7.
 status: F0 51 <DevId> 38 20 <Name..> F7.
 <Name..> ASCII Character(max 9byte).

<< Scene Recall>>

command: F0 51 <DevId> 18 22 <SceneNo> F7.
 <SceneNo> 00-99:User scene, 100-102:Preset scene.

<< Scene Store >>

command: F0 51 <DevId> 18 23 <SceneNo> F7.
 <SceneNo> 00..99: user scene.

<< Rcl Safe - Fader >>

command: F0 51 <DevId> 18 28 11 <OnOff> F7.
 request: F0 51 <DevId> 28 28 11 F7.
 status: F0 51 <DevId> 38 28 11 <OnOff> F7.
 <OnOff> 0:off 1:on.

<< Rcl Safe - Pan >>

command: F0 51 <DevId> 18 28 12 <OnOff> F7.
 request: F0 51 <DevId> 28 28 12 F7.
 status: F0 51 <DevId> 38 28 12 <OnOff> F7.
 <OnOff> 0:off 1:on.

<< Rcl Safe - Routing >>

command: f0 51 <DevId> 18 28 30 7f <OnOff> f7.
 request: f0 51 <DevId> 28 28 30 7f f7.
 status: f0 51 <DevId> 38 28 30 7f <OnOff> f7.
 <OnOff> 0:off 1:on.

<< Rcl Safe - Aux Send Level >>

command: f0 51 <DevId> 18 28 41 <AuxId> <OnOff> f7.
 request: f0 51 <DevId> 28 28 41 <AuxId> f7.
 status: f0 51 <DevId> 38 28 41 <AuxId> <OnOff> f7.
 <AuxId> 01:aux1 02:aux2 03:aux3 04:aux4 7f:all_aux
 <OnOff> 0:off 1:on.

<< Rcl Safe - Eff Send Level >>

command: f0 51 <DevId> 18 28 49 <EffId> <OnOff> f7.
 request: f0 51 <DevId> 28 28 49 <EffId> f7.
 status: f0 51 <DevId> 38 28 49 <EffId> <OnOff> f7.
 <EffId> 01:eff1 02:eff2 7f:all_eff

<OnOff> 0:off 1:on.

<< Rcl Safe - Eq On >>

command: f0 51 <DevId> 18 28 50 7f <OnOff> f7.
 request: f0 51 <DevId> 28 28 50 7f f7.
 status: f0 51 <DevId> 38 28 50 7f <OnOff> f7.
 <OnOff> 0:off 1:on.

<< Rcl Safe - Eq >>

command: f0 51 <DevId> 18 28 5f <OnOff> f7.
 request: f0 51 <DevId> 28 28 5f f7.
 status: f0 51 <DevId> 38 28 5f <OnOff> f7.
 <OnOff> 0:off 1:on.

<< Eq Enable Ch >>

command: f0 51 <DevId> 18 30 <EqEna> f7.
 request: f0 51 <DevId> 28 30 f7.
 status: f0 51 <DevId> 38 30 <EqEna> f7.
 <EqEna> 00:1to8 01:8to16 02:1to16

<< Add Aux Mode >>

command: f0 51 <DevId> 18 31 <OnOff> f7.
 request: f0 51 <DevId> 28 31 f7.
 status: f0 51 <DevId> 38 31 <OnOff> f7.
 <OnOff> 00:off 01:on

<< Smoothing >>

command: f0 51 <DevId> 18 32 <Mode> f7.
 request: f0 51 <DevId> 28 32 f7.
 status: f0 51 <DevId> 38 32 <Mode> f7
 <Mode> 00:Level1 01:Level2

<< Mon Sel >>

command: f0 51 <DevId> 18 40 <MonSel> f7.
 request: f0 51 <DevId> 28 40 f7.
 status: f0 51 <DevId> 38 40 <MonSel> f7.
 <MonSel> 00:ST_BUSS 01:REC_BUSS 02:AUX1 03:AUX2
 04:AUX3 05:AUX4 06:EFF1 07:EFF2 08:AUX12
 09:AUX34

<< Solo Mode >>

command: f0 51 <DevId> 18 42 <SoloMode> f7.
 request: f0 51 <DevId> 28 42 f7.
 status: f0 51 <DevId> 38 42 <SoloMode> f7.
 <SoloMode> 00:PFL 02:M-SOLO (01:AFL does not apply to
 VM200.)

<< Solo Key Mode >>

command: f0 51 <DevId> 18 43 <SoloKeyMode> f7.
 request: f0 51 <DevId> 28 43 f7.
 status: f0 51 <DevId> 38 43 <SoloKeyMode> f7.
 <SoloKeyMode> 00:latCh 01:unlatCh

<< Motor OnOff >>

command: f0 51 <DevId> 18 50 <OnOff> f7.
 request: f0 51 <DevId> 28 50 f7.
 status: f0 51 <DevId> 38 50 <OnOff> f7.
 <OnOff> 00:off 01:on

```
<< Power On Recall >>
command: f0 51 <DevId> 18 51 <SceneNo> f7.
request: f0 51 <DevId> 28 51 f7.
status: f0 51 <DevId> 38 51 <SceneNo> f7.
<SceneNo> 00-99:User scene, 100-102:Preset scene.
103>Last store scene.
```

```
<< Cascade >>
command: f0 51 <DevId> 18 52 <Cascade> f7.
request: f0 51 <DevId> 28 52 f7.
status: f0 51 <DevId> 38 52 <Cascade> f7.
<Cascade> 0:Off 1:On_A 2:On_B 3:On_C
```

```
<< Memory Backup >>
command: f0 51 <DevId> 18 60 <MemId> f7
<MemId> 1:setup(system + midi) parameters,
2:Scene Memory, 3:Eff Lib, 4:EQ Lib
```

Channel/Buss Commands

```
<< ST Buss - Ch On >>
command: f0 51 <DevId> 19 01 10 <OnOff> f7.
request: f0 51 <DevId> 29 01 10 f7.
status: f0 51 <DevId> 39 01 10 <OnOff> f7.
<OnOff> 0:off 1:on
```

```
<< ST Buss - Master Fader >>
command: f0 51 <DevId> 19 01 11 <Vol> f7.
request: f0 51 <DevId> 29 01 11 f7.
status: f0 51 <DevId> 39 01 11 <Vol> f7.
<Vol> 0 to 127.
```

```
<< ST Buss - Solo >>
command: f0 51 <DevId> 19 01 19 <OnOff> f7.
request: f0 51 <DevId> 29 01 19 f7.
status: f0 51 <DevId> 39 01 19 <OnOff> f7.
<OnOff> 0:off 1:on
```

```
<< REC Buss - Master Level >>
command: f0 51 <DevId> 19 02 11 <Vol> f7.
request: f0 51 <DevId> 29 02 11 f7.
status: f0 51 <DevId> 39 02 11 <Vol> f7.
<Vol> 0 to 127.
```

```
<< REC Buss - Solo >>
command: f0 51 <DevId> 19 02 19 <OnOff> f7.
request: f0 51 <DevId> 29 02 19 f7.
status: f0 51 <DevId> 39 02 19 <OnOff> f7.
<OnOff> 0:off 1:on
```

```
<< AUX Buss - Ch On >>
command: f0 51 <DevId> 19 05 <AuxId> 10 <OnOff> f7.
request: f0 51 <DevId> 29 05 <AuxId> 10 f7.
status: f0 51 <DevId> 39 05 <AuxId> 10 <OnOff> f7.
<AuxId> 1:aux1 2:aux2 3:aux3 4:aux4 0x7f:all_aux
<OnOff> 0:off 1:on
```

```
<< AUX Buss - Master Fader >>
command: f0 51 <DevId> 19 05 <AuxId> 11 <Vol> f7.
```

```
request: f0 51 <DevId> 29 05 <AuxId> 11 f7.
status: f0 51 <DevId> 39 05 <AuxId> 11 <Vol> f7.
<AuxId> 1:aux1 2:aux2 3:aux3 4:aux4 0x7f:all_aux
<Vol> 0 to 127
```

```
<< AUX Buss - Solo >>
command: f0 51 <DevId> 19 05 <AuxId> 19 <OnOff> f7.
request: f0 51 <DevId> 29 05 <AuxId> 19 f7.
status: f0 51 <DevId> 39 05 <AuxId> 19 <OnOff> f7.
<AuxId> 1:aux1 2:aux2 3:aux3 4:aux4 0x7f:all_aux
<OnOff> 0:off 1:on
```

```
<< EFF Buss - Ch On >>
command: f0 51 <DevId> 19 06 <EffId> 10 <OnOff> f7.
request: f0 51 <DevId> 29 06 <EffId> 10 f7.
status: f0 51 <DevId> 39 06 <EffId> 10 <OnOff> f7.
<EffId> 1:eff1 2:eff2 0x7f:all_eff
<OnOff> 0:off 1:on
```

```
<< EFF Buss - Master Fader >>
command: f0 51 <DevId> 19 06 <EffId> 11 <Vol> f7.
request: f0 51 <DevId> 29 06 <EffId> 11 f7.
status: f0 51 <DevId> 39 06 <EffId> 11 <Vol> f7.
<EffId> 1:eff1 2:eff2 0x7f:all_eff
<Vol> 0 to 127
```

```
<< EFF Buss - Solo >>
command: f0 51 <DevId> 19 06 <EffId> 19 <OnOff> f7.
request: f0 51 <DevId> 29 06 <EffId> 19 f7.
status: f0 51 <DevId> 39 06 <EffId> 19 <OnOff> f7.
<EffId> 1:eff1 2:eff2 0x7f:all_eff
<OnOff> 0:off 1:on
```

```
<< CH1-20 - Ch On >>
command: f0 51 <DevId> 19 10 <Ch> 10 <OnOff> f7.
request: f0 51 <DevId> 29 10 <Ch> 10 f7.
status: f0 51 <DevId> 39 10 <Ch> 10 <OnOff> f7.
<Ch> 1-20:Ch 0x7f:all_Ch
<OnOff> 0:off 1:on
```

```
<< CH1-20 - Ch Fader >>
command: f0 51 <DevId> 19 10 <Ch> 11 <Vol> f7.
request: f0 51 <DevId> 29 10 <Ch> 11 f7.
status: f0 51 <DevId> 39 10 <Ch> 11 <Vol> f7.
<Ch> 1-20:Ch 0x7f:All
<Vol> 0:off 1:on
```

```
<< CH1-20 - Ch Pan >>
command: f0 51 <DevId> 19 10 <Ch> 12 <Pan> f7.
request: f0 51 <DevId> 29 10 <Ch> 12 f7.
status: f0 51 <DevId> 39 10 <Ch> 12 <Pan> f7.
<Ch> 1-20:Ch 0x7f:all_Ch
<Pan> 0 to 40 (0:L - 20:Center - 40:R)
```

```
<< CH1-20 - Ch Solo >>
command: f0 51 <DevId> 19 10 <Ch> 19 <OnOff> f7.
request: f0 51 <DevId> 29 10 <Ch> 19 f7.
status: f0 51 <DevId> 39 10 <Ch> 19 <OnOff> f7.
```



```

<Ch> 1-20:Ch 0x7f:All
<OnOff> 0:off 1:on

<< CH1-20 - Phase >>
command: f0 51 <DevId> 19 10 <Ch> 21 <Phase> f7.
request: f0 51 <DevId> 29 10 <Ch> 21 f7.
status: f0 51 <DevId> 39 10 <Ch> 21 <Phase> f7.
<Ch> 1-20:Ch 0x7f:all_Ch
<Phase> 0:Nor. 1:Inv.

<< CH1-20 - S/P DIF In>>
command: f0 51 <DevId> 19 10 <Ch> 26 <OnOff> f7.
request: f0 51 <DevId> 29 10 <Ch> 26 f7.
status: f0 51 <DevId> 39 10 <Ch> 26 <OnOff> f7.
<Ch> 1-20:Ch 0x7f:all_Ch
<OnOff> 0:off 1:on

<< CH1-20 - Rout:ST Buss >>
command: f0 51 <DevId> 19 10 <Ch> 30 <OnOff> f7.
request: f0 51 <DevId> 29 10 <Ch> 30 f7.
status: f0 51 <DevId> 39 10 <Ch> 30 <OnOff> f7.
<Ch> 1-20:Ch 0x7f:all_Ch
<OnOff> 0:off 1:on

<< CH1-20 - Rout:REC Buss >>
command: f0 51 <DevId> 19 10 <Ch> 31 <OnOff> f7.
request: f0 51 <DevId> 29 10 <Ch> 31 f7.
status: f0 51 <DevId> 39 10 <Ch> 31 <OnOff> f7.
<Ch> 1-20:Ch 0x7f:all_Ch
<OnOff> 0:off 1:on

<< CH1-20 : Adat Direct >>
command: f0 51 <DevId> 19 10 <Ch> 33 <OnOff> f7.
request: f0 51 <DevId> 29 10 <Ch> 33 f7.
status: f0 51 <DevId> 39 10 <Ch> 33 <OnOff> f7.
<Ch> 1-8:Ch 0x7f:all_Ch
<OnOff> 0:off 1:on

<< CH1-20 - Aux Send Level >>
command: f0 51 <DevId> 19 10 <Ch> 41 <AuxId> <Vol> f7.
request: f0 51 <DevId> 29 10 <Ch> 41 <AuxId> f7.
status: f0 51 <DevId> 39 10 <Ch> 41 <AuxId> <Vol> f7.
<Ch> 1-20:Ch 0x7f:all_Ch
<AuxId> 1:aux1 2:aux2 3:aux3 4:aux4 0x7f:all_aux
<Vol> 0-127:Vol

<< CH1-20 - Aux Post/Pre >>
command: f0 51 <DevId> 19 10 <Ch> 43 <AuxId>
<Post/Pre> f7.
request: f0 51 <DevId> 29 10 <Ch> 43 <AuxId> f7.
status: f0 51 <DevId> 39 10 <Ch> 43 <AuxId>
<Post/Pre> f7.
<Ch> 0x7f:all_Ch
<AuxId> 1:aux1 2:aux2 3:aux3 4:aux4 0x7f:all_aux
<Post/Pre> 0:post 1:pre

<< CH1-20 - Eff Send Level >>
command: f0 51 <DevId> 19 10 <Ch> 49 <EffId> <Vol> f7.
request: f0 51 <DevId> 29 10 <Ch> 49 <EffId> f7.
status: f0 51 <DevId> 39 10 <Ch> 49 <EffId> <Vol> f7.
<Ch> 1-20:Ch 0x7f:all_Ch
<EffId> 1:eff1 2:eff2 0x7f:all_eff
<Vol> 0-127:Volume

<< CH1-20 - Eff Post/Pre >>
command: f0 51 <DevId> 19 10 <Ch> 4b <EffId>
<Post/Pre> f7.
request: f0 51 <DevId> 29 10 <Ch> 4b <EffId> f7.
status: f0 51 <DevId> 39 10 <Ch> 4b <EffId>
<Post/Pre> f7.
<Ch> 0x7f:all_Ch
<EffId> 1:eff1 2:eff2 0x7f:all_eff
<Post/Pre> 0:post 1:pre

<< CH1-20 - Eq On >>
command: f0 51 <DevId> 19 10 <Ch> 50 <Band>
<OnOff> f7
request: f0 51 <DevId> 29 10 <Ch> 50 <Band> f7
status: f0 51 <DevId> 39 10 <Ch> 50 <Band>
<OnOff> f7
<Ch> 1-16:Ch 0x7f:all_Ch
<Band> 0x7f:all Band.
<OnOff> 0:off 1:on

<< CH1-20 - Eq Type(Q) >>
command: f0 51 <DevId> 19 10 <Ch> 51 <Band> <Type> f7
request: f0 51 <DevId> 29 10 <Ch> 51 <Band> f7
status: f0 51 <DevId> 39 10 <Ch> 51 <Band> <Type> f7
<Ch> 1-16:Ch 0x7f:all_Ch
<Band> 1:L 2:LM 3:HM 4:H 0x7f:All_Band.
<Type> 0:Hi/Lo_pass 1:Shelving 2-46:Parametric_Q

<< CH1-20 - Eq Gain >>
command: f0 51 <DevId> 19 10 <Ch> 52 <Band> <Gain> f7
request: f0 51 <DevId> 29 10 <Ch> 52 <Band> f7
status: f0 51 <DevId> 39 10 <Ch> 52 <Band> <Gain> f7
<Ch> 1-16:Ch 0x7f:all_Ch
<Band> 1:L 2:LM 3:HM 4:H 0x7f:All_Band.
<Gain> 0-72:gain (36:0dB)

<< CH1-20 - Eq Freq >>
command: f0 51 <DevId> 19 10 <Ch> 53 <Band> <fL>
<fH> f7
request: f0 51 <DevId> 29 10 <Ch> 53 <Band> f7
status: f0 51 <DevId> 39 10 <Ch> 53 <Band> <fL>
<fH> f7
<Ch> 1-16:Ch 0x7f:all_Ch
<Band> 1:L 2:LM 3:HM 4:H 0x7f:all_Band.
<fL>(lower 7bit) + <fH>(upper 7bit) 0-239:F step.

<< CH1-20 - Eq Lib Recall >>
command: f0 51 <DevId> 19 10 <Ch> 5e <LibNo> f7
<Ch> 1-16:Ch 0x7f:All
<LibNo> 0-99:Eq lib number.

```



```
<< CH1-20 - Eq Lib Store >>
command: f0 51 <DevId> 19 10 <Ch> 5f <LibNo>
        <Name..> f7
<Ch> 1-16:Ch 0x7f:All
<LibNo> 50-99:Eq lib number.
<Name..> Max 9byte lib Name ascii string.
```

```
<< CH1-20 - Ch Pair >>
command: f0 51 <DevId> 19 10 <Ch> 70 <OnOff> f7
request: f0 51 <DevId> 29 10 <Ch> 70 f7
status:  f0 51 <DevId> 39 10 <Ch> 70 <OnOff> f7
<Ch> 1-20:Ch 0x7f:all_Ch
<OnOff> 0:off 1:on
```

```
<< CH1-20 - Fader Group >>
command: f0 51 <DevId> 19 10 <Ch> 71 <Grp> f7
request: f0 51 <DevId> 29 10 <Ch> 71 f7
status:  f0 51 <DevId> 39 10 <Ch> 71 <Grp> f7
<Ch> 1-20:Ch 0x7f:all_Ch
<Grp> 0:off 1:A 2:B 3:C
```

```
<< CH1-20 - Mute Group >>
command: f0 51 <DevId> 19 10 <Ch> 72 <Grp> f7
request: f0 51 <DevId> 29 10 <Ch> 72 f7
status:  f0 51 <DevId> 39 10 <Ch> 72 <Grp> f7
<Ch> 1-20:Ch 0x7f:all_Ch
<Grp> 0:off 1:A 2:B 3:C
```

```
<< CH1-20 - Ch Solo Safe >>
command: f0 51 <DevId> 19 10 <Ch> 73 <OnOff> f7
request: f0 51 <DevId> 29 10 <Ch> 73 f7
status:  f0 51 <DevId> 39 10 <Ch> 73 <OnOff> f7
<Ch> 1-20:Ch 0x7f:all_Ch
<OnOff> 0:off 1:on
```

```
<< CH1-20 - Ch Recall Safe >>
command: f0 51 <DevId> 19 10 <Ch> 74 <OnOff> f7
request: f0 51 <DevId> 29 10 <Ch> 74 f7
status:  f0 51 <DevId> 39 10 <Ch> 74 <OnOff> f7
<Ch> 1-20:Ch 0x7f:all_Ch
<OnOff> 0:off 1:on
```

Effects Commands

```
<< Eff Type >>
command: f0 51 <DevId> 1a <EffId> 10 <Type> f7
request: f0 51 <DevId> 2a <EffId> 10 f7
command  f0 51 <DevId> 3a <EffId> 10 <Type> f7
<EffId> 1:eff1 2:eff2 0x7f:all_Ch
<Type> 0 to (EFFTYP_END - 1)
```

```
<< Eff Parameter >>
command: f0 51 <DevId> 1a <EffId> 11 <ParamNo>
        <valL> <valH> f7
request: f0 51 <DevId> 2a <EffId> 11 <ParamNo> f7
command: f0 51 <DevId> 3a <EffId> 11 <ParamNo> f7
<EffId> 1:eff1 2:eff2 0x7f:all_Ch
<ParamNo> 1 to 12 or 0x7f:all_params.
<ValL> + <ValH>: 14bit parameter value.
```

```
<< Eff Name >>
command: f0 51 <DevId> 1a <EffId> 70 <Name..> f7
request: f0 51 <DevId> 2a <EffId> 70 f7
status:  f0 51 <DevId> 3a <EffId> 70 <Name..> f7
<EffId> 1:eff1 2:eff2 0x7f:all_eff
<Name..> Max 9byte lib Name ascii string.
```

```
<< Eff Lib Recall >>
command: f0 51 <DevId> 1a <EffId> 72 <LibNo> f7
<EffId> 1:eff1 2:eff2 0x7f:all_eff
<LibNo> 0 to 99 eff lib number.
```

```
<< Eff Lib Store >>
command: f0 51 <DevId> 1a <EffId> 73 <LibNo> f7
<EffId> 1:eff1 2:eff2
<LibNo> 50 to 99 eff lib number.
```

Remote Commands

```
<< Key Remote >>
command: f0 51 <DevId> 1f 01 <KeyId> <OnOff> f7
<KeyId> 01-08:[Channel]On, 09:[Master]On,
        11-18:[Channel]Solo, 19:[Master]Solo
        1a:[Rec Buss]Solo, 21-28:[Channel]EQ Edit
        31:[Fader Mode]Channel,
        32-35:[Fader Mode]Aux1-4,
        36-37:[Fader Mode]Eff1-2
        38:[Key Mode]Routing/Phase
        39:[Key Mode]Pair/Group
        3a:[Key Mode]Ch View
        3b:[Key Mode]Channel/Meter
        41:[Current Scene Status], 42:[Setup]System
        43:[Setup]Midi, 51:[Page Sel]1-8
        52:[Page Sel]9-16, 53:[Page Sel]17-20
        61:[Selected EQ]EQ On
        62:[Selected EQ] Library Recall
        63:[Selected EQ]Library Store
        64:[Eff Edit]Eff1, 65:[Eff Edit]Eff2
        66:[Eff Edit]Library Recall
        67:[Eff Edit]Library Store
        68:[Scene Memory]Recall
        69:[Scene Memory]Store
        71:<-/-1, 72:+1->, 73:Exit, 74:Enter
<OnOff> 0:off 1:on
```

```
<< Key Remote >>
command: f0 51 <DevId> 1f 02 <EncId> <EncVal> f7
<EncId> 01-12:Encoder (top raw from left:1-4,
        bottom raw from left: 9-12), 11:Data
<EncVal> 0-3f:-64 - -1, 40-7f:+1 - +64
        0-3f:variation=0x40-Val
        40-7f:variation=Val-0x3f
```

4. Bulk Dump (& Request)

<Reception>

Bulk Dump is received when [BLK DMP EQ.] is set to ON and when [RX CH] and DEVICE No. match.

The received Bulk Dump is immediately written into the specified memory.

When the VM200 receives the Bulk Dump Request, it immediately transmits Bulk Dump.

<Transmission>

Bulk Dump is transmitted on the channel specified by [TX CH] when you operate the key in the [BULK DUMP] page.

In response to Bulk Dump Request, Bulk Dump is sent on the channel specified by [RX CH].

4.1. Bulk Dump Request

<< Setup Bulk Dump Request >>

```
f0 51 <DevId> 2B 'V' 'M' '2' '0' '0' 'A' 01 <Item> f7
<Item> 01: System, 02: Midi, 03: Locate, 127: All Setup
```

<< Scene Memory Bulk Dump Request >>

```
f0 51 <DevId> 2B 'V' 'M' '2' '0' '0' 'A' 02 <MemNo> f7
<MemNo> 0: Edit Buffer, 1 - 100: UserMemory, 127: All User Memory
```

<< Eff Library Bulk Dump Request >>

```
f0 51 <DevId> 2B 'V' 'M' '2' '0' '0' 'A' 03 <LibNo> f7
<LibNo> 50 - 99: User Library, 127: All User Library
```

<< Eq Library Bulk Dump Request >>

```
f0 51 <DevId> 2B 'V' 'M' '2' '0' '0' 'A' 04 <LibNo> f7
<LibNo> 50 - 99: User Library, 127: All User Library
```

<< PGM Table Bulk Dump Request >>

```
f0 51 <DevId> 2B 'V' 'M' '2' '0' '0' 'A' 05 00 f7
```

<< CTL Table Bulk Dump Request >>

```
f0 51 <DevId> 2B 'V' 'M' '2' '0' '0' 'A' 06 00 f7
```

4.2. BULK DUMP OUT FORMAT

<< Setup Bulk Dump Format >>

```
f0 51 <DevId> 3B <Byte Count L> <Byte Count H> 'V' 'M' '2' '0' '0' 'A' 01 <Item>
<Data> --- <Data> <Check Sum> f7
```

<< Scene Memory Bulk Dump Format >>

```
f0 51 <DevId> 3B <Byte Count L> <Byte Count H> 'V' 'M' '2' '0' '0' 'A' 02 <MemNo>>
<Data> --- <Data> <Check Sum> f7
<MemNo> 0: Edit Buffer, 1 - 100: UserMemory
```

<< Eff Library Bulk Dump Format >>

```
f0 51 <DevId> 3B <Byte Count L> <Byte Count H> 'V' 'M' '2' '0' '0' 'A' 03 <LibNo>>
<Data> --- <Data> <Check Sum> f7
<LibNo> 50 - 99: User Library
```

<< Eq Library Bulk Dump Format >>

```
f0 51 <DevId> 3B <Byte Count L> <Byte Count H> 'V' 'M' '2' '0' '0' 'A' 04 <LibNo>>
<Data> --- <Data> <Check Sum> f7
<LibNo> 50 - 99: User Library
```

<< PGM Table Bulk Dump Format >>

```
f0 51 <DevId> 3B <Byte Count L> <Byte Count H> 'V' 'M' '2' '0' '0' 'A' 05 00
<Data> --- <Data> <Check Sum> f7
```

<< CTL Table Bulk Dump Format >>

```
f0 51 <DevId> 3B <Byte Count L> <Byte Count H> 'V' 'M' '2' '0' '0' 'A' 06 00
<Data> --- <Data> <Check Sum> f7
```

* "Byte Count" is the number of bytes counted from the byte following <Byte Count> up to the byte before <Check Sum>.

* "Check Sum" covers after <Byte Count> before <Check Sum>, with all EOR being removed.

5. MIDI Device Inquiry Message

The VM200 transmits Identity Reply when it receives Identity Request, if the Setup: System EX. Tx&Rx has been turned on.

Identity Request: F0 7c <DeviceId> 06 01 f7

Identity Reply: F0 7c <DeviceId> 06 02 51 02 00 01 00 01 00 63 04 f7

FOSTEX (Digital Recording Mixer – Internal Parameters)

MIDI Implementation Chart

Model: VM200

Version:1.0

Function...		Transmitted	Recognized	Remarks
Basic Channel	Default	1-16	1-16	Memorized
	Changed	1-16	1-16	
Mode	Default	X	OMNI off / OMNI on	Memorized
	Messages	X	X	
	Altered	*****	X	
Note Number		X	X	
	True voice	*****	X	
Velocity	Note ON	X	X	
	Note OFF	X	X	
After Touch	Key's	X	X	
	Ch's	X	X	
Pitch Bend		X	X	
Control Change	0-95, 102-119	O	O	Assignable
Prog Change		O 0-127	O 0-127	Assignable
	True #	*****	0-99	
System Exclusive		O	O	
System Common	Song Pos	X	X	
	Song Sel	X	X	
	Tune	X	X	
System Real Time	Clock	X	X	
	Commands	X	X	
Aux Messages	Local ON/OFF	X	X	
	All Note Off	X	X	
	Active Sense	X	X	
	Reset	X	X	

Mode 1: OMNI ON, POLY
 Mode 3: OMNI OFF, POLY

Mode 2: OMNI ON, MONO
 Mode 4: OMNI OFF, MONO

O: Yes
 X: No

Declaration of EC Directive

This equipment is compatible with the EMC Directive (89/336/EEC) - Directive on approximation of member nation's ordinance concerning the electromagnetic compatibility and with the Low Voltage Directive (73/23/EEC) - Directive on approximation of member nation's ordinance concerning electric equipment designed to be used within the specified voltage range.

The Affect of Immunity on This Equipment

The affect of the European Specification EN50082-1 (coexistence of electromagnetic waves - common immunity specification) on this equipment are as shown below.

- In the electrical fast transient/burst requirements, radiate electromagnetic field requirements and static electricity discharging environment, this could be affected by generation of noise in some cases.

Fostex Distributors List In Europe

- Including non-EU countries.
- underlined: contracted distributors (as of April 1999)

<AUSTRIA>

Name: ATEC Audio-u. Videogeraete VertriebsgesmbH.
Address: Im Winkel 5, A-2325 Velm, Austria
Tel: (+43) 2234-74004, Fax: (+43) 2234-74074

<BELGIUM>

Name: EML Sound Industries N. V.
Address: Bijvennestraat 1A, B3500 Hasselt, Belgium
Tel: (+32) 11-232355, Fax: (+32) 11-232172

<DENMARK>

Name: SC Sound ApS
ADD: Malervej 2, DK-2630 Taastrup, Denmark
Tel: (+45) 4399-8877, Fax: (+45) 4399-8077

<FINLAND>

Name: Noretron Oy Audio
Address: P.O. Box 22, FIN-02631 Espoo, Finland
Tel: (+358) 9-5259330, Fax: (+358) 9-52593352

<FRANCE>

Name: Musikengro
Address: ZAC de Follieuses, B. P. 609, 01706 Les Echets, France
Tel: (+33) 472 26 27 00, Fax: (+33) 472 26 27 01

<GERMANY>

Name: Studio sound & Music GmbH
Address: Industriestrasse 20, D-35041 Marburg, F.R. Germany
Tel: (+49) 6421-92510, Fax: (+49) 6421-925119

<GREECE>

Name: Bon Studio S. A.
Address: 6 Zaimi Street, Exarchia, 106.83 Athens, Greece
Tel: (+30) 1-3809605-8, 3302059, Fax: (+30) 1-3845755

<ICELAND>

Name: I. D. elrf. electronic Ltd.
Address: ARMULA 38 108 REYKJAVIK, ICELAND
Tel: (+354) 588 5010, Fax: (+354) 588 5011

<ITALY>

Name: Recoton Italia Srl.
Address: V. 1 Maggio, N 18, 40050 Quarto Inferiore, (BO) Italy
Tel: (+39) 051-768576, Fax: (+39) 051-768336

<THE NETHERLANDS>

Name: IEMKE ROOS AUDIO B. V.
Address: Kuiperbergweg 20, 1101 AG Amsterdam, The Netherlands
Tel: (+31) 20-697-2121, Fax: (+31) 20-697-4201

<NORWAY>

Name: Siv. Ing. Benum A/S
Address: P. O. Box 145 Vinderen, 0319 Oslo 3, Norway
Tel: (+47) 22-139900, Fax: (+47) 22-148259

<PORTUGAL>

Name: Caius - Tecnologias Audio e Musica, Lda.
Address: Rua de Santa Catarina, 131 4000 Porto, Portugal
Tel: (+351) 2-2086009/2001394, Fax: (+351) 2-2054760/2087488

<SPAIN>

Name: Multitracker, S. A.
Address: C/Garcilaso No.9, Madrid 28010, Spain
Tel: (+34) 91-4470700, 91-4470898, Fax: (+34) 91-5930716

<SWEDEN>

Name: TTS Professional Television AB
Address: Kavallerivagen 24, 172 48 Sundbyberg, Sweden
Tel: (+46) 8-59798000, Fax: (+46) 8-59798001

<SWITZERLAND>

Name: Audio Bauer Pro AG
Address: Bernerstrasse-Nord 182, CH-8064 Zurich, Switzerland
Tel: (+41) 1-4323230, Fax: (+41) 1-4326558

<UK>

Name: SCV London
Address: 3A 6-24 Southgate Road, London N1 3JJ, England, UK
Tel: (+44) 171-923-1892, Fax: (+44) 171-241-3644



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