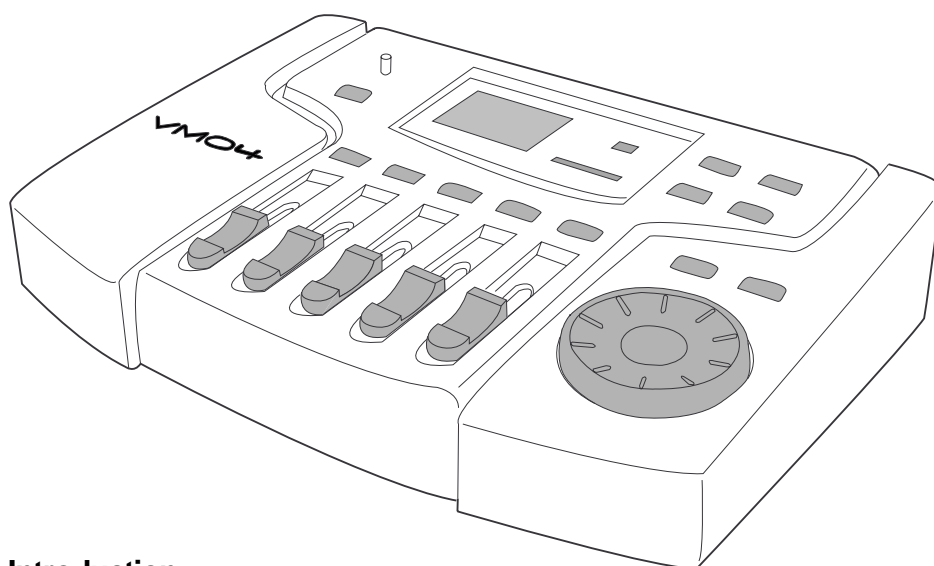


Model VM04

4CH DIGITAL MIXER WITH DSP EFFECTS



Introduction

Thank you very much for having purchased the Fostex VM04.

This unit is a digital mini-mixer so the internal signal processing is all done digitally.

Its input section consists of four analog input channels including two that can take a microphone. The output section, in addition to normal analog outputs like two channel stereo outputs and a headphone output, also has an S/P DIF digital output via an optical format with a 44.1kHz sampling frequency and a 20 bit resolution.



Its internal Buss consists of a two channel Stereo L/R and also an independent Effect Buss. The VM04 also incorporates an internal high quality digital effect (1in/ 2out) employing the A. S. P. (Fostex Advanced Signal Processing Technology)*, which is newly developed by Fostex. It can provide a wide variety of Effect sounds. You can also store all the mix settings you have made in the Scene Memories and recall them instantly.

The VM04 is a light and compact piece of precision sound technology which offers high quality sound performance and considerable scope for experimentation.

To fully exploit all of its many useful features and functions, we recommend you read this manual first before you start using the VM04.

* See page 18 for more details of the A. S. P. (Fostex Advanced Signal Processing Technology).

Fostex®

	CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	
<p>CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER - SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>		

"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.
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.

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.

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.
18. The appliance should be situated away from drops of water or spray of water.
19. Objects containing liquid such as vase must not be put on the appliance.
20. The appliance is not completely isolated from the power supply even if the power switch is at off position.

Table of Contents

Precautions.....	3
Let's examine the VM04 in more detail.....	4
1. Input Section.....	5
2. Buss Section.....	6
3. Master Section.....	6
4. Effect Section.....	7
1. Names and Functions.....	8
2. Before Use.....	10
2-1. Remove the insulation paper.....	10
2-2. Caution when powering ON.....	10
2-3. Reset.....	10
2-4. Internal battery for the memory back up.....	10
3. Applications.....	11
4. Initial Setting.....	13
5. Normal Mix Mode.....	14
6. Channel Edit Mode.....	15
6-1. PAN setting.....	15
6-2. EQLo setting.....	16
6-3. EQHi settint.....	16
6-4. EFFECT SEND setting.....	17
6-5. EFFECT POST/PRE setting.....	17
7. Effect Mode.....	18
7-1. EFFECT TYPE setting.....	19
7-2. EFFECT PARAMETER setting.....	20
Reverb Level setting.....	21
Reverb Time setting.....	21
Pre-Delay Time setting.....	21
High Dump setting.....	21
Early Reflection Balance setting.....	22
8. Scene Memory.....	22
8-1. Scene Store.....	22
8-2. Scene Recall.....	23
8-3. Fader Adjust mode.....	24
8-4. Scene Direct Recall.....	24
9. SETUP Mode.....	25
10. Other Modes.....	26
10-1. Software Version Check.....	26
10-2. Battery Check.....	26
Specifications.....	27

Precautions (please read before use)**Power supply**

- * When unplugging the AC adaptor from the outlet, be sure to grasp the adaptor. Attempting to unplug it by pulling on the AC cable may damage the wiring.
- * It is dangerous to use any power cable that is cut or frayed. If the power cable is damaged, immediately stop using it, and have it repaired.
- * Do not plug in or unplug the AC adaptor with wet hands. Doing so may result in dangerous electric shock.
- * Do not open the unit or touch any parts inside. Doing so may result in a dangerous electric shock, and could damage the unit.
- * Do not let water or other liquids, flammable materials, or metal objects such as pins get inside the unit. These things may cause electrical shock or short circuit the VM04, and damage it. If the VM04 should become wet, unplug the AC adaptor from the AC outlet, and contact your authorized service station.

Location

- * Avoid using the VM04 in the following locations:
- * Locations of extreme low or high temperatures, or extreme changes in temperature.
- * Locations with excessive moisture or dust.
- * Locations where direct sunlight falls for an extended time, or near a stove or other source of heat.
- * Locations where electrical voltage varies.
- * Unstable locations or where there is heavy vibration.
- * Near strong magnetic fields (on top of a television or speaker).

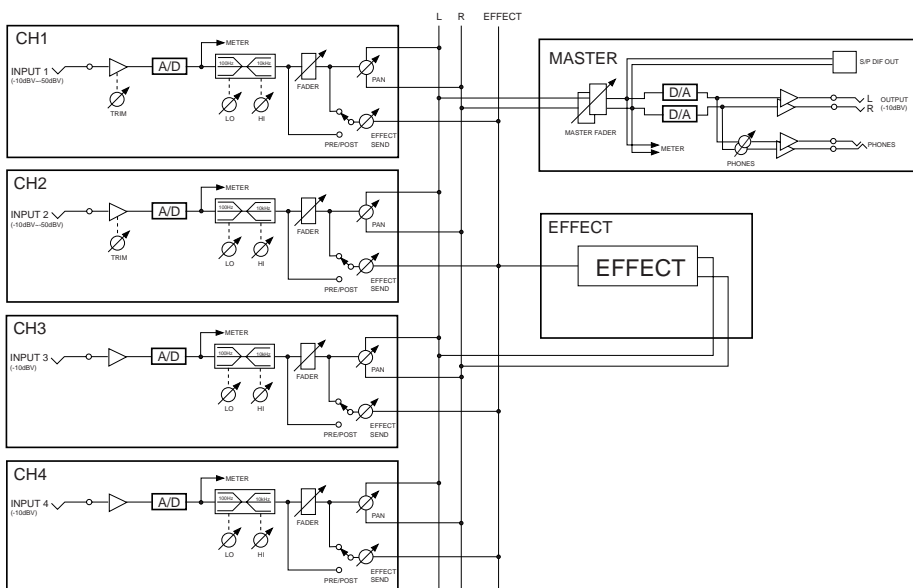
Let's examine the VM04 in more detail.

The basic rationale of an audio mixer is to be able to add more than two sounds together. The size of the mixer depends on the number of input and output channels it has, but the mixer's role remains basically the same. There are various types of mixers depending on their purposes, e.g., recording mixers and P.A. mixers (Public Address system for live performances). These mixers have some additional features for the convenience of their practical use. For instance, the recording mixer has a Recorder IN socket in each input channel to cater for the audio mixing reproduction of the Multi Track Recorder. There are also large P.A. mixers which have sub Master sections so that the different mixing can be sent to various different monitor systems at the same time. The VM04 can adapt to both type of mixers. It can also be used as a sub mixer in large systems as you can see from the Application sections in the manual.

As far as the size is concerned, the VM04 is a very compact audio mixer with a capacity of 4 in/2 out (4 channel audio can be mixed into 2 channel stereo buss). Although small, it has the beauty of a digital mixer in the high sound quality available and the variety of functions it can perform. The unit has a Stereo output via a pair of phone jacks as well as an optical S/P DIF digital output. The S/P DIF (Sony Philips Digital Interface) is the standard digital audio signal. And the VM04 is capable of transferring the mixed audio signal in digital to other digital equipment like the Fostex D-5 DAT recorder. The digital audio signal that the VM04 handles is a 44.1kHz sampling frequency, which is common to the audio CD and 20 bit resolution of the AD/DA conversion (Analog to Digital and Digital to Analog conversion). This is superior to the 16 bit audio CD. The VM04 also uses a 24 bit resolution in its internal buss for the audio mixing process so that the sound deterioration is kept to a minimum.

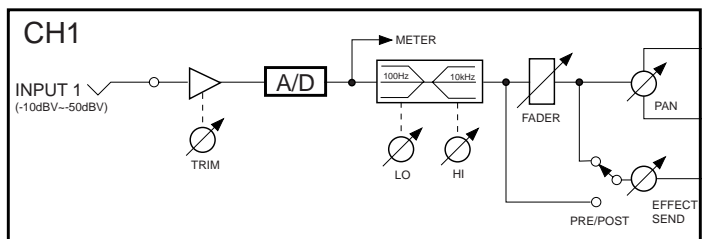
The VM04 incorporates the newly developed high quality digital Effect inside its light and compact body. This means you can enjoy mixing audio with a variety of sound effects without using an external Effect unit and awkward connections.

A block diagram is always available in an audio mixer manual. The most efficient way to use an audio mixer is to get familiar with the block diagram. How to read the block diagram is always the same, however big the mixer size is. There are many professional sound engineers who can do the task by just reading the block diagram. Take note of the importance of the block diagram.



1. Input Section

As Channel 1 and 2 are identical in the VM04, let's take Channel 1 as an example. In the VM04 block diagram, the input is on the left and output is on the right, i.e., the audio signal goes from left to right. First, look below where it says INPUT 1. You will see (-10dBV~-50dBV) written there. This is the signal voltage level that the input phone jack terminal can take. It is a range of voltage from as low as a microphone (-50dBV) to line level (-10dBV). The sound source that has line level is an ordinary Keyboard, CD player or electric guitar with pre amp.



The next point on the diagram is a triangle, which is directing the signal towards the right. It is a kind of amp sometimes called a “buffer”. Underneath the triangle, there is a circle with an arrow with TRIM written below it. This is the input gain adjust TRIM pot on the rear panel. This TRIM will adjust the gain to adapt a wide range of incoming signals. The TRIM is for lifting up the level of the low voltage input so that the MIC level audio and Line level audio can be handled equally at the INPUT FADER. If you turn the TRIM pot clockwise, the gain will increase to accommodate the low signal level.

A rectangle with A/D written in it follows. This is the circuit for converting the analog signal into digital. From this point, the audio signal will be processed digitally until it is converted back again in the D/A which is discussed later. The analog audio signal is converted to a 44.1kHz, 20 bit digital audio signal because the VM04 undertakes all its mixing and operates all its controls in digital.

At the next point on the diagram, there is an arrow pointing upwards and to the right and labeled METER. The VM04 extracts the signal level at this point and displays it in the Channel 1 level meter on the LCD Display (Liquid Crystal Display). This point is sometimes called Pre-Fader or Pre-EQ.

Move on to the next section (EQ). You will see a rectangle labeled “>100Hz” and “<10kHz”. There are controls for LO and HI underneath the rectangle. These are the Shelving Type Equalizations. You can adjust the Bass tone below 100Hz using the LO EQ and the Treble tone above 10kHz using the HI EQ. The VM04 controls these EQ's by entering the CHANNEL EDIT MODE. There is no independent control POT available unlike an analog mixer.

After the EQ, you will see a rectangle and arrow labeled FADER. This is the INPUT FADER to adjust the audio level on the channel. There is one FADER for each channel and they are slide POTs so that you can move them up and down to control the volume of each channel.

Now, we need to talk about the relationship between the TRIM function mentioned above and the FADER. The TRIM is for adjusting the gain so that the input can take a wide range of signal voltages from MIC to Line level. In other words, the TRIM aligns the various different incoming signals from various sound sources, so that they become more or less the same level before reaching the FADER. This is to make the mixing easier.

For example, if you had a design of mixer that had no TRIM function, but the INPUT FADER had a very wide adjustment range, then, to make a well balanced mix, the microphone channel might have to have the FADER extremely high, while the keyboard channel might have to have the FADER very low. This would make mixing the sounds together very awkward. The TRIM enables you to handle differing sound sources as though they are at the same level on the INPUT FADER.

Before and after the FADER, there are two lines pointing downwards and to the right. These are the selector switches. In the diagram the line after the FADER has an arrow touching it. The line before the FADER is labeled PRE. The line after the FADER is labeled POST. With these switches, you can decide whether to send the audio signal to the internal EFFECT either before or after the FADER. If you choose "PRE", the audio will be sent to the EFFECT even if you turn down the FADER. As a result only the Effect sound will go out via the STEREO OUT without the dry source sound (i.e., the original raw sound, vocal or instrumental). If you choose "POST", the INPUT FADER will control the entire audio level including the Effect sound. The VM04 does not have dedicated switches for this purpose, but you select it by entering the CHANNEL EDIT mode.

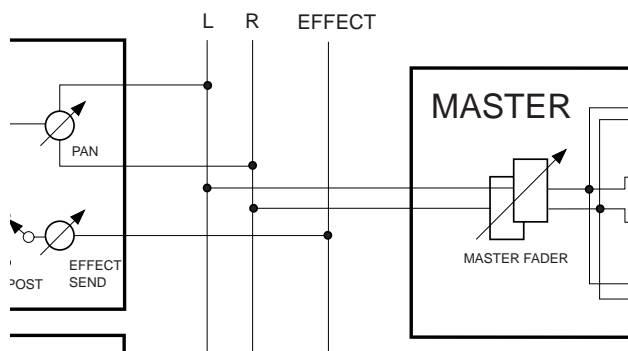
If you look at the second line after the FADER, you will see that the base of arrow touching it is connected to the EFFECT SEND volume control. This control adjusts the audio level to be sent to the EFFECT in each channel. This control is not available on the VM04 control panel, but you can set it by entering the CHANNEL EDIT mode.

The final part of the INPUT section is labeled "PAN". With this control, you can individually allocate the audio signal to either the left or the right of the stereo, e.g., the keyboard will be in the right while the guitar will be in the left. The PAN control is also not available on the VM04 control panel. But you can set it by entering the CHANNEL EDIT mode.

We said that the channel 2 input is exactly the same as the channel 1. So what about channels 3 and 4? They have the same structure as Channels 1 and 2 except the TRIM part has been deleted. INPUTs 3 and 4 are labeled (-10dBV). This means they can only take the Line level audio signal. You cannot directly connect a microphone to INPUTs 3 and 4 as the MIC level is too low for them.

2. Buss Section

To the right of Channels 1,2,3 and 4 on the block diagram, you will see three vertical lines. These are the Buss lines. They are the main audio signal streams which flow between the input and output sections. In the VM04 there are two Buss lines for STEREO L/R and another one for the Effect Buss. You can see these labeled in the block diagram. The audio signal assigned to the PAN control is known as the stereo signal. It will go to both L and R Buss lines. The signal level adjusted by the EFFECT SEND will go to the Effect Buss line. All four channel input signals will go to these Buss lines after the INPUT section.



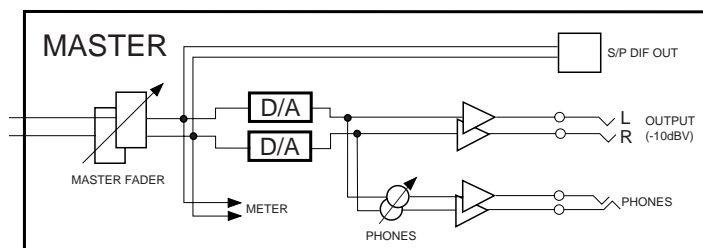
3. Master Section

The audio signal that has come through the L/R Buss lines will now go to the Master section. As they are already divided into two channel stereo, the signal from this point will be handled as two channels together at once. So the parts discussed in the Master section consist of two channels in a pair. At the beginning of the MASTER section, there are two rectangles bisected with an arrow and labeled "MASTER FADER". The MASTER FADER can control both L/R channel audio at the same time.

After the MASTER FADER, there are two arrows pointing downwards and to the right labeled "METER". The VM04 will extract the signal level at this point and display it in the LCD Display L/R level meters. In the opposite direction, upwards and to the right, there are two lines leading to the S/P DIF output square. This square sends out the digital signal via the optical output. The digital signal for the VM04 output is a 44.1kHz, 20 bit signal.

Next in line are two rectangles labeled D/A. These will convert the digital audio signal back to Analog. After the D/A rectangles, you will see two sets of triangles pointing to the right. These direct the signal flow and are kinds of amps (buffers). These refine the analog audio signal for the STEREO OUT L/R. The STEREO OUT L/R has (-10dBV) written below it. This means that the output line level of the VM04 is (-10dBV).

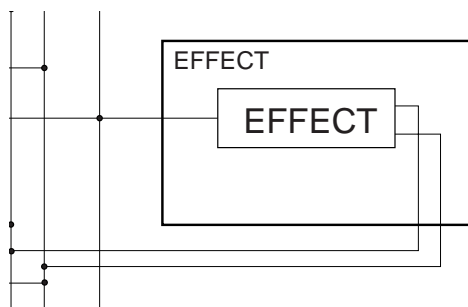
If you look after the D/A rectangles again, you will see two lines moving downwards to the right. These connect with two circles bisected with an arrow. They are the Headphone amps and Headphone level volume controls. This is the VM04's monitor section. Some large mixers may have a selector switch so that it is possible to choose which part of the signal flow will be monitored. In the case of the VM04, the monitor output will always send exactly the same signal to the STEREO OUT as to the Headphones.



4. Effect Section

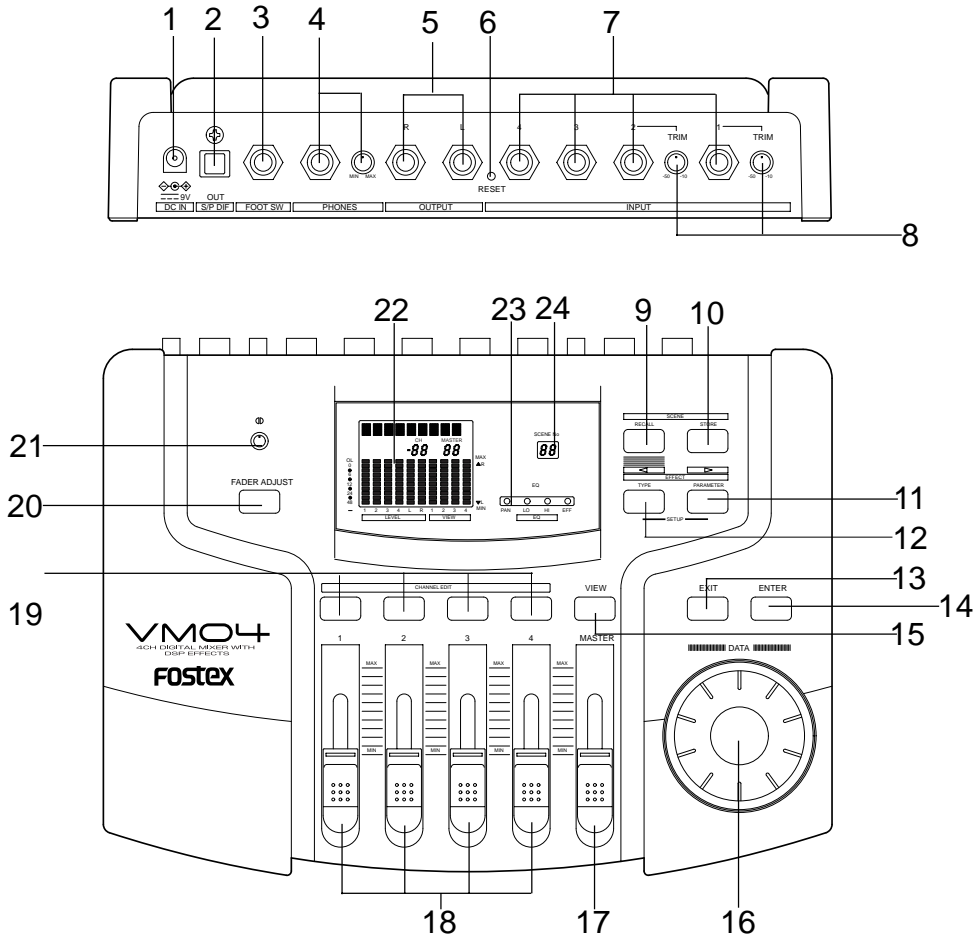
The destination of the signal from the Effect Buss line is the Effect section. You can treat the Effect section as if it is an independent (1 in / stereo out) Effect unit. After the audio signal has been through the Effect process, it will become a STEREO signal and return to the L/R Buss lines. Then, the Effect sound will be mixed with the dry sound coming from each Input channel and will head back into the MASTER section. Don't forget the POST/PRE selector switch. If you set the switch to "PRE" and INPUT FADER to MIN, only the Effect sound will go out via the STEREO OUT without dry sound. Again, if used this way, the VM04 Effect section is acting as an independent Effect unit.

The Effect section is very adaptable. For example, if you are recording the vocal in your home studio, by using the reverb you can record the sound as if you are recording in a large hall. You can also change the original source sound completely by using the delay or chorus.



The types of Effect the VM04 provides are Reverb, Delay, Chorus and Flanger. Some combinations of these are also available. See EFFECT mode (page 18) for more details of the Effect and how to use it.

1. Names and Functions



1. DC INLET connector

To connect the standard accessory AC adaptor to power up the VM04.

2. S/P DIF optical output connector

You can obtain the same audio signal as the STEREO OUT L/R, but in S/P DIF digital and optical format.

3. Foot SW jack

Connect a Foot SW, such as the Fostex Model 8051, to recall the Scene Memories. See SCENE MEMORY (page 22).

4. Headphone jack and its volume control

Connect a pair of headphones to the socket and control the volume level by using the control knob.

5. STEREO OUT L/R jacks (6mm Phone Jack, Un-Balance)

To send a mixed audio signal to other equipment, such as an MTR, Stereo Monitor system or another mixer.

6. RESET SW

To reset the internal CPU. See the "Before Use" section for more details.

7. INPUT jacks (6mm Phone Jack, Un-Balance)

To connect the audio source into the jack. Inputs 1 and 2 can take either mic or line level signals, while Inputs 3 and 4 are designed for the line level only.

8. TRIM knobs

These volume knobs control the input gain of INPUT 1 and 2 according to the incoming signal level. Range: -10dBV~-50dBV. When you turn it clockwise, the gain will increase so that the Input socket can take low level signal inputs.

9. SCENE RECALL key

Use this to recall the Scene Memories. See SCENE MEMORY (page 22).

10. SCENE STORE key

Use this to store your own settings in the Scene memories. See SCENE MEMORY (page 22).

11. EFFECT PARAMETER key

Use this to set the Effect Parameters. See EFFECT MODE (page 18).

12. EFFECT TYPE key

Use this to set the Effect Type. See EFFECT MODE (page 18).

13. EXIT key

Use this key to quit the current mode. See CHANNEL EDIT MODE (page 15), EFFECT MODE (page 18), SCENE MEMORY (page 22), FADER ADJUST MODE (page 23) and SETUP MODE (page 25).

14. ENTER key

Use this key to accept the current setting. See EFFECT MODE (page 18), SCENE MEMORY (page 22), and SETUP MODE (page 25).

15. VIEW key

Use this key to choose which function to adjust and display on the LCD Display and VIEW Status Indicator.

16. DATA ENCODER

Use this dial to set the various values in each mode.

17. MASTER FADER

Use this to adjust the output level at the STEREO OUT jack.

18. INPUT FADERS

Use this to adjust the input level on the individual channel.

19. CHANNEL EDIT key

Press this key to enter the CHANNEL EDIT MODE. See CHANNEL EDIT MODE (page 15).

20. FADER ADJUST key

When you have recalled a Scene, if the Fader position is different from the Scene setting, this key will flash. Then, press this key to enter the FADER ADJUST MODE (page 24).

21. Contrast control knob

Use this to control the contrast on the LCD display.

22. LCD Display

This LCD shows various kinds of essential information. It consists of the Character part, Level display part, View display part, Channel Fader display part and Master Fader display part.

23. VIEW Status Indicator

Use this to confirm which mode you are setting when in the CHANNEL EDIT MODE. You can choose the mode by pressing the VIEW key. See CHANNEL EDIT MODE (page 15).

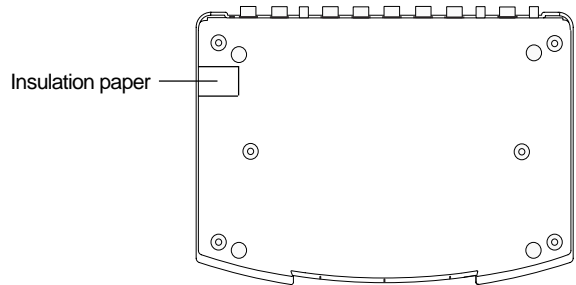
24. SCENE Number display

This shows the SCENE Number that has been recalled. See SCENE MEMORY (page 22).

2. Before Use

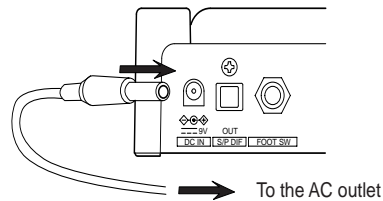
2-1. Remove the insulation paper

The VM04 employs a memory back up battery inside the unit. When you have newly purchased the unit, you will find a piece of insulation paper attached to avoid voltage dissipation in transit. So, when you start using the unit for the first time, turn ON the power and then remove the insulation paper in that order.



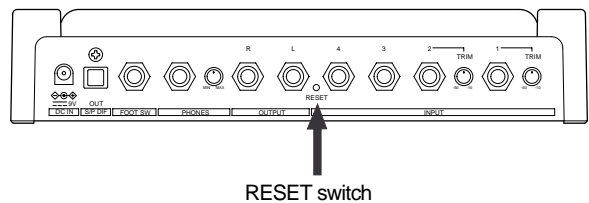
2-2. Caution when powering ON

As the VM04 does not have a power switch, switching the power ON is done by connecting the AC adaptor. So, keep the input volume at 0 on the monitor amp or power it OFF when you plug in the AC adaptor in order to avoid damaging any connected equipment such as loud speakers.



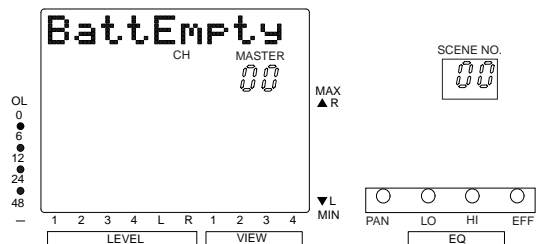
2-3. Reset

The internal CPU may crash very occasionally due to the powering ON/OFF timing or some electromagnetic noise such as thunder and lightning. IF the unit does not power up properly even after several attempts to power ON, press the RESET SW to reset the CPU. If you want to clear all the Scenes stored in the past, you can use the same method here. All the memories and Setup contents will return to the factory default setting by pressing the SW.



2-4. Internal battery for the memory back up

The internal battery has a life expectancy of about two years. When the battery runs out and its voltage falls below a certain level, the warning message "BattEmpty" will appear on the display. You need to replace the battery. If you carry on using the unit without a new battery, your stored memories will be lost when powering OFF. Please ask your Fostex distributor or an authorized service station. Do not open the unit yourself as there are no user-serviceable parts inside.



<Useful info>

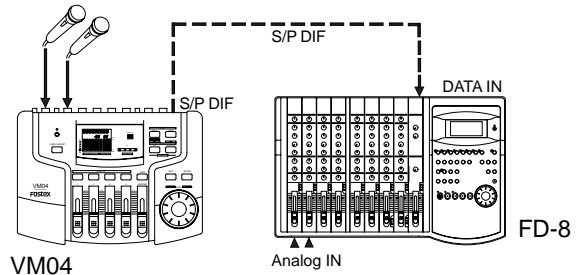
The VM04 employs an internal battery voltage display function. See Item10 The other mode (page 26) for more details.

3. Applications

Application 1: To expand the Analog channel input for recording

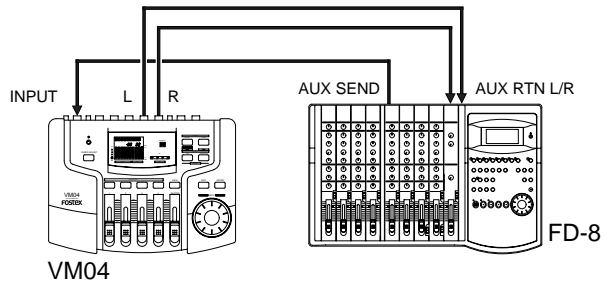
You will be able to record up to 4 Analog channels on the FD-8 at once by connecting the VM04 S/P DIF output to the FD-8 DATA IN.

You can also take advantage of the high quality internal digital effect functions while recording.



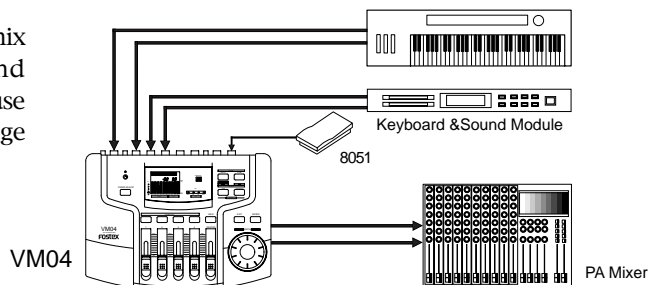
Application 2: To use as a Mono In/Stereo Out Effector

You can use the internal digital effect as an independent high quality effect unit., e.g., by connecting the VM04 between the AUX SEND and AUX RTN of other MTR's such as the FD-8.



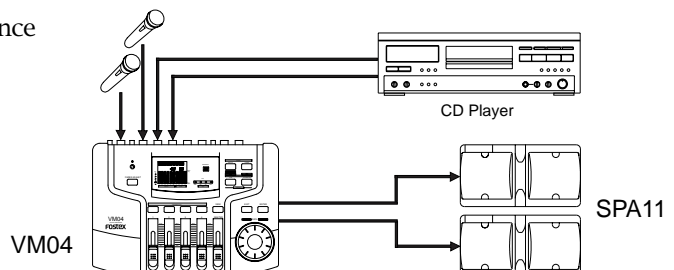
Application 3: As a Sub Mixer for a Live Keyboard Player

You can use the VM04 as a sub mixer to mix the sound of the Keyboard and Sound Module for the main mixer. You can also use the Foot SW, Fostex Model 8051, to change Scenes that you prepared in advance.



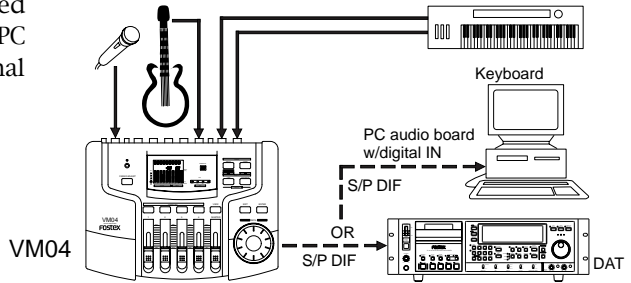
Application 4: Brief installation Mixer

You can recall prepared Scenes in sequence for various different settings, e.g., Mic only -> Mic & Music -> Mic only.



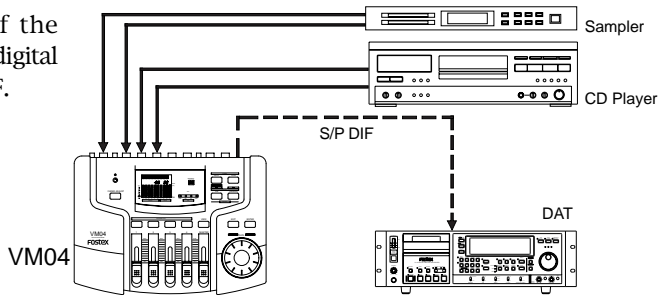
Application 5: For one take live studio recording

You can use the VM04 to send the mixed digital audio via the S/P DIF to a DAT or PC with Digital In. You can also add the internal digital effect when mixing audio.



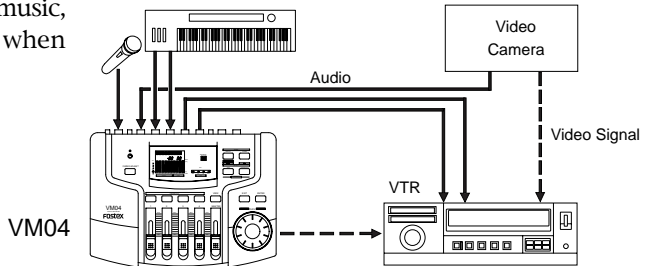
Application 6: To produce original Remix

You can send the remixed sound of the Sampler and CD Player with the internal digital effect to a DAT recorder via the S/P DIF.



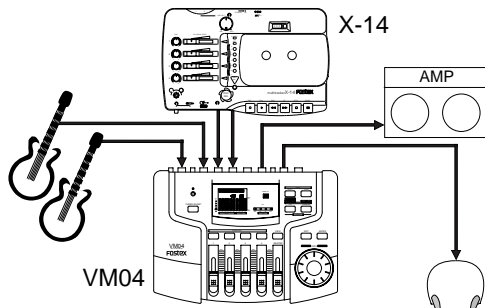
Application 7: To do your own Sound Track Video Editing

You can add your favorite background music, original sound effects and narration when editing videos.



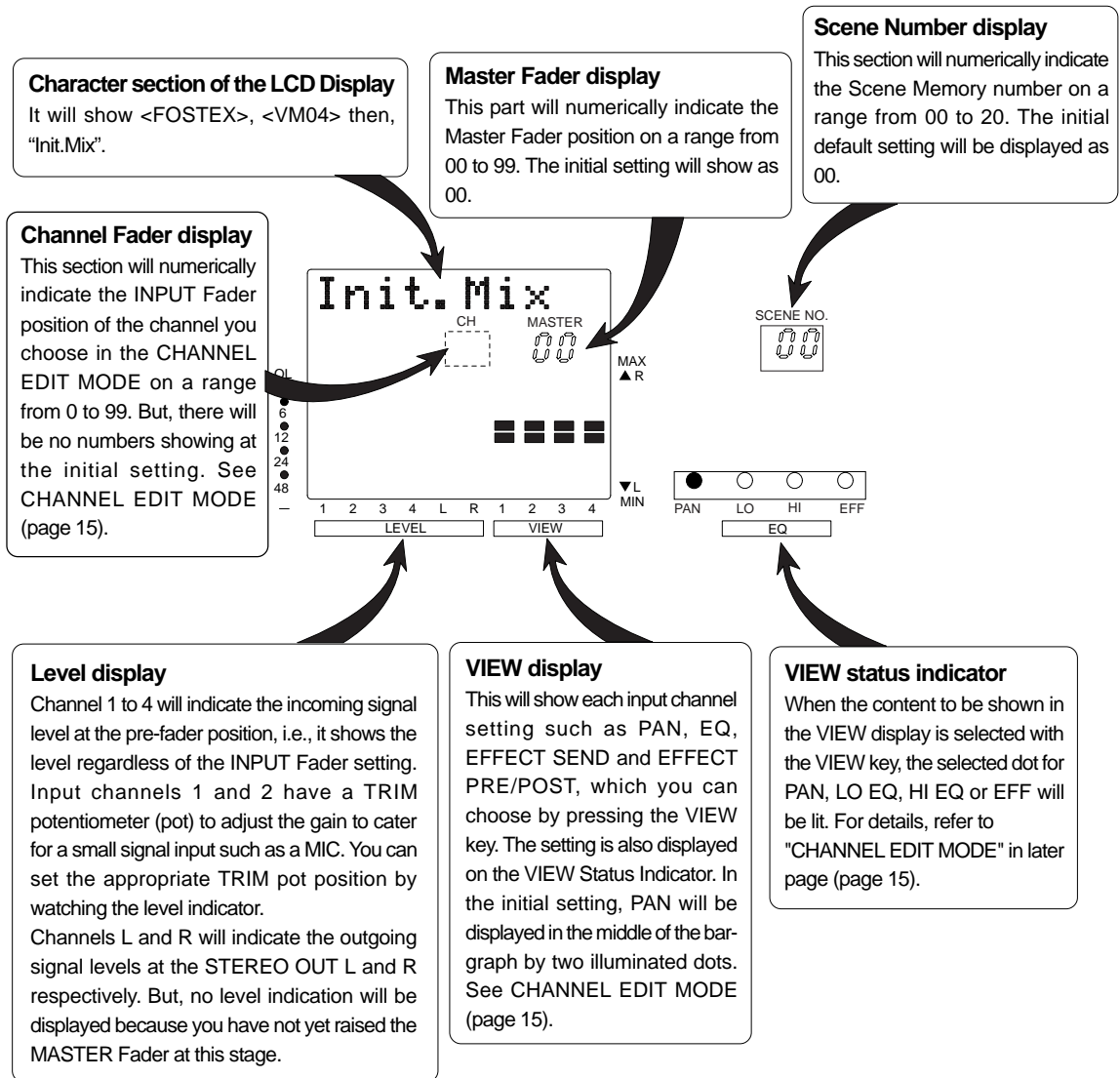
Application 8: As a practise aid for your musical instruments

You can use the VM04 to practice your musical instruments with added effects on top of backing tracks recorded on MTR's such as the X-14.



4. Initial Setting

When you first power up the VM04, the LCD Display will show the following initial setting.



<Useful info>

When the -10dBV nominal signal level is coming in, the channel 1 to 4 level meter will indicate -12dB. Also, when the -10dBV nominal signal level is going out, the channel L and R level meter will indicate -12dB on the scale.

If you want the VM04 to return to the factory default setting completely, follow the instructions in Item 2-3. RESET.

<Useful info>

You can store your favorite Scene setting on Scene Numbers from 01 to 20. However, as the Scene Number 00 has been pre-set by the manufacture. You cannot alter this setting.

5. Normal Mix Mode

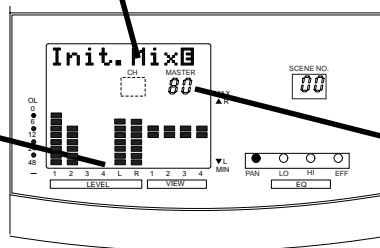
This is the mode in which only the INPUT and MASTER Faders will work. Raise both the INPUT Fader of the channel that has the incoming signal connected and the MASTER fader. The audio signal will start coming out at the STEREO OUT L and R and S/P DIF Optical output. If you have a pair of headphones connected to the Headphone Jack, you can hear the same audio signal here as well. Also, you can adjust the headphone level with the volume knob next to the Jack. The LCD Display will show the following:

Character section

This will show "Init.Mix **E**". The **E** stands for Edit and means one or more settings have changed from the initial setting. In this case, the Fader position is different from the initial setting.

Level display

The channel L and R levels will be indicated on the bar-graph according to the MASTER Fader position.

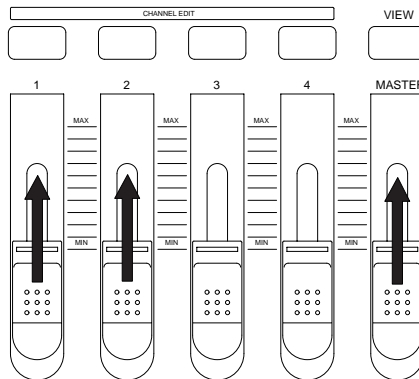


Master Fader display

This will numerically indicate the current MASTER Fader position on a range from 00 to 99. When the indicator is showing 80, the MASTER Fader will be at the nominal setting.

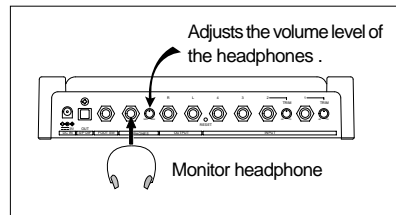
<Useful info>

- * When you move the INPUT and MASTER Faders, their numerical positions will be digitally indicated. And the actual sound will increase or decrease smoothly without any clicking or stepping noise interference.
- * The relationship between the Fader position and real gain is 0 = ∞, 80 = 0dB, 99 = +6dB.



Caution

If the FADER FIX Mode is set to ON in the SETUP Mode, no sound will come out even if you move the Faders. See SETUP Mode (page 25) for more details.



<Caution>

When powering ON, it is possible that the FADER ADJUST key will start flashing. This will occur if each Fader position after powering ON is different from their settings the last time you powered OFF. With regard to the audio, the audio level is recalled according to the Fader setting the last time you powered OFF. As the VM04 Faders do not move automatically, this is the way the VM04 indicates that it has detected some discrepancy between the physical Fader position now and the position the last time you powered OFF. See Fader Adjust mode (page24).

If it is not necessary to match the fader positions, the FADER ADJUST key blinking will be extinguished when all faders are moved and then, returned to the normal mix mode.

The sound you have obtained up to this stage is so called "dry sound". All the settings are neutral; the PAN is in the center, there is flat EQ and no Effect. Let's move on to the next CHANNEL EDIT Mode.

6. Channel Edit Mode

This mode is used to set the PAN, EQ, EFFECT SEND and EFFECT POST/PRE on each input channel. The CHANNEL EDIT key on each input channel has exactly the same mode of operation. Therefore, we will discuss their functions using Channel 1 as an example. Press the Channel 1 CHANNEL EDIT Key. The key itself will light up so that you will be able to confirm you have entered into the CHANNEL EDIT MODE. The LCD display will show the following message.

Character section

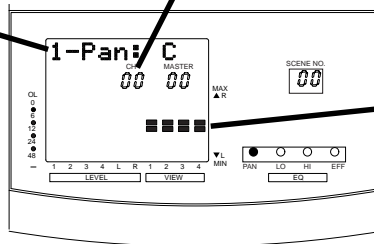
This will display "1-Pan: C". This means that you can now adjust the Channel 1 PAN setting. At this point the setting will be at the center position between left and right. This is related to the VIEW Status Indicator as its dot is at the PAN position. You can use the VIEW key to change the item you want to adjust; PAN -> EQ Lo -> EQ Hi -> EFF -> POST/PRE -> PAN.

Channel Fader display

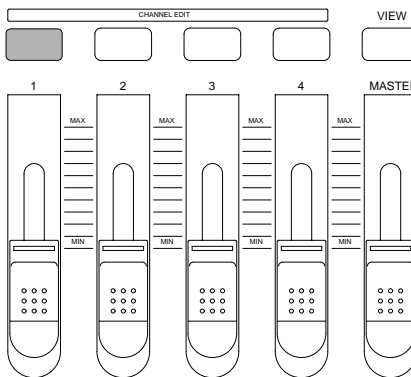
This will numerically indicate the current Channel 1 INPUT Fader position on a range from 00 to 99. When the indicator is showing 80, the INPUT Fader will be at the nominal setting.

VIEW display

The two digits at the center of the bar-graph will start flashing on Channel 1 from being continuously lit on the initial setting.



Press the CHANNEL EDIT key 1.



Press the EXIT key to quit the CHANNEL EDIT MODE. You can go back to the Normal Mix mode.

<Useful info>

The VIEW key works in reverse if you keep pressing it for a while rather than hitting it once; PAN -> POST/PRE -> EFF -> EQ Hi -> EQ Lo -> PAN.

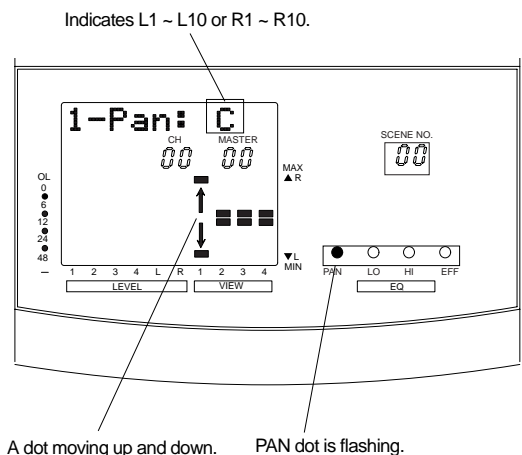
6-1. PAN setting

1. Rotate the DATA ENCODER.

If you turn it clockwise, the character display will change to R1 -> R10 and the sound will gradually move to the right. At the same time, the PAN indication on the VIEW display will change to a single dot and move upwards (to R). Similarly, if you turn the dial counter-clockwise, the display will change to L1 -> L10, the sound will move to the left and the indicator will move downwards (to L).

<Useful info>

When turning the DATA ENCODER, the position display will read L10 ~ C ~ R10 with a 21 step digital indication. And the actual sound will move smoothly without any clicking or stepping noise interference.



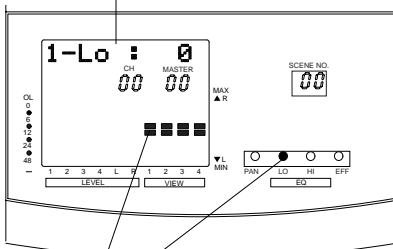
6-2. EQ Lo Setting

1. Press the VIEW key so that the LO dot is flashing on the VIEW Status Indicator.

The LCD Display will show the following message:

Character section

This will display "1-Lo: 0". This means that you can now adjust the Channel 1 EQ Lo setting. At this point the setting is zero, flat.



Flashing

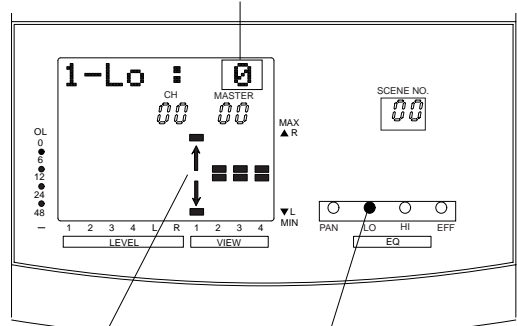
<Useful info>

The specification of the EQ Lo is the Shelving Type Equalization and its control frequency is 100Hz, +/-18dB.

2. Rotate the DATA ENCODER.

If you turn it clockwise, the display on the Character section will change to +1dB -> +18dB from 0dB and the bass sound will become louder. At the same time, the two dots on the EQ Lo indicator at the center of the bar-graph will become a single dot and move upwards (to MAX). Similarly, if you turn the dial counter-clockwise, the display will show -1dB -> -18dB, the bass sound will become quieter and the indicator will move downwards (to MIN).

Indicates +1dB ~ +18dB or -1dB ~ -18dB.



A dot moving up and down.

LO dot is flashing.

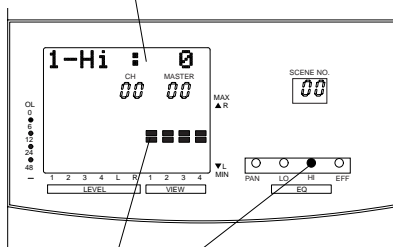
6-3. EQ Hi setting

1. Press the VIEW key so that the HI dot is flashing on the VIEW Status Indicator.

The LCD display will show the following message.

Character section

This will display "1-Hi: 0". This means that you can now adjust the Channel 1 EQ HI setting. At this point the setting is zero, flat.



Flashing

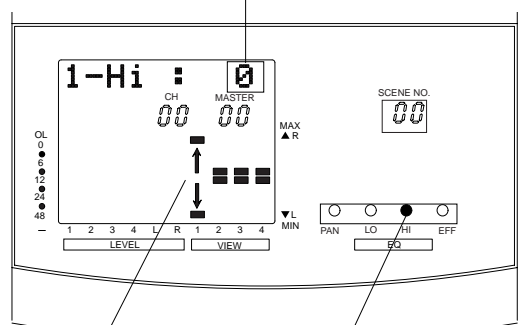
<Useful info>

The specification of the EQ HI is the Shelving Type Equalization and its control frequency is 100Hz, +/-18dB.

2. Rotate the DATA ENCODER.

If you turn it to clockwise, the display on the Character part will change to +1dB -> +18dB from 0dB and the treble sound will become louder. At the same time, two dots of the EQ Hi indicator at the center of the bar-graph will become a single dot and move upwards (to MAX). Similarly, if you turn the dial counter-clockwise, the display will show -1dB -> -18dB, the treble sound will become quieter and the indicator will move downwards (to MIN).

Indicates +1dB ~ +18dB or -1dB ~ -18dB.



A dot moving up and down.

LO dot is flashing.

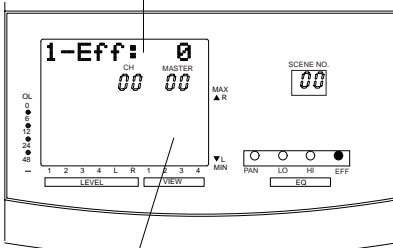
6-4. EFFECT SEND setting

1. Press the VIEW key so that the EFF dot is flashing on the VIEW Status Indicator.

The LCD Display will show the following message:

Character section

This will display "1-Eff: 0". This means that you can now adjust the Channel 1 EFFECT SEND setting. At this point the setting is zero, dry.



VIEW display

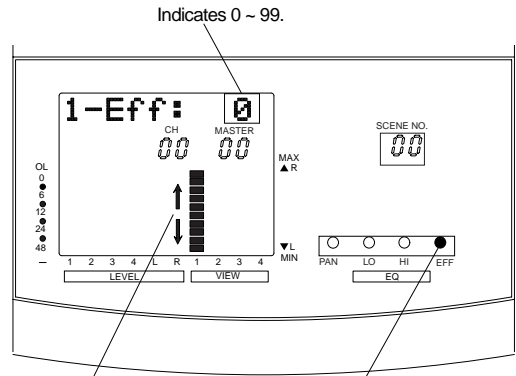
Nothing will show here as the EFFECT SEND level is set to Nil at the moment.

<Useful info>

When turning the DATA ENCODER, the position display will read 0 ~ 99 with a 100 step digital indication. But, the actual EFFECT SEND level is $-\infty$ ~ +6dB.

2. Rotate the DATA ENCODER clockwise.

The display on the Character section will change to 00 ~ 99 and the Effect sound will become louder. At the same time, a flashing dot will appear on the Channel 1 VIEW display and move upwards.



A dot moving up and down.

EFF dot is flashing.

See EFFECT MODE (page 18) for more details of the internal digital Effect.

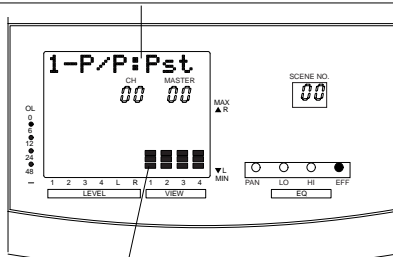
6-5. EFFECT POST/PRE setting

1. Press the VIEW key just once more at the previous EFFECT SEND setting.

There will be no change on the VIEW Status Indicator but the LCD Display will show the following message:

Character section

This will display "1-P/P: Pst". This means that you can now choose the Channel 1 EFFECT SEND in either the Post-Fader or Pre-Fader position. At this point the setting is Post-Fader.



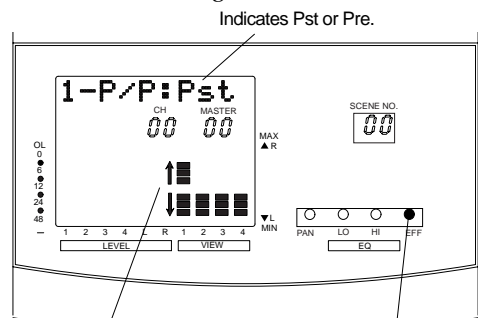
VIEW display

The bottom three dots will flash on the bar-graph.

See EFFECT MODE (page 18) for more details of the internal digital Effect.

2. Rotate the DATA ENCODER clockwise.

The display on the Character section will change from "Pst" to "Pre" and the EFFECT SEND point setting will switch over to the Pre Fader position. Also, the VIEW display will change and the top three dots will start flashing.



Moves up or down at each 3rd digit.

EFF dot is flashing.

<Useful info>

The setting indication on the VIEW display will remain as a dot even after quitting the CHANNEL EDIT MODE, e.g., PAN, EQ Lo, EQ Hi, EFFECT SEND and EFFECT POST/PRE. So you can easily confirm the setting of all four channels at once in the Normal Mix mode. Press the VIEW key to choose the setting by referring to the VIEW Status Indicator.

7. Effect Mode

The VM04 carries 20 types of internal digital effects. You can also alter their parameter settings in detail. We will discuss the digital effects here. To fully understand their versatile effect functions, we recommend that you listen to the actual sound while reading the explanations below.

The DSP effect section inside the VM04 employs the A.S. P. (Fostex Advanced Signal Processing Technology)*, which is exclusively developed by Fostex, and obtains high quality ambient effects almost equivalent to a professional reverb unit.

*A. S. P. (Fostex Advanced Signal Processing Technology)

The A. S. P. is an exclusive new digital effect processing technology designed by Fostex. This method extracts maximum efficiency from the limited DSP power. It achieves an overwhelmingly high density Early Reflection sound and wonderfully smooth High Dump response through the H. F. A. (Harmonic Feedback Algorithm). Also, it carries out an elaborate reverb simulation with clear sounds through the H. D. L. P. (Hi-Density Logarithmic Processing), which eliminates the mutual interference between the numerous integrated delay modules and reduce the impurity and grit of the sound.

*H. F. A. (Harmonic Feedback Algorithm)

There is one of indispensable elements in the natural echo called "Early Reflection sound", which is usually sacrificed in commercial reverb products in order to reduce costs. (In practice, the Early Reflection sound means the very first reverberated sound that bounces back from walls, floors and ceilings of concert halls). The entire reverb sound quality depends on this Early Reflection sound and how closely it can resemble the real echo. The H. F. A. is an algorithm that enables the effect unit to reproduce a clear and natural Early Reflection sound by applying an ideal harmonic feedback to each delay module.

*H. D. L. P. (Hi-Density Logarithmic Processing)

The reverb sounds consist of lots of small delay elements combined in a complex way, which are produced by many delay modules inside the effect unit. In order to obtain smooth and comfortable reverb sounds, it is very important to efficiently organize the relationship between each delay module and minimize negative mutual interference. The H. D. L. P. is a technology which applies efficient logarithmic processing to each delay module, so that they can work in the most efficient way in order to eliminate harmful reverb elements and roughness. This makes it possible to establish high density and transparent sounds.

Before operating the EFFECT MODE, let's briefly discuss the Reverb, Delay, Chorus and Flanger effect functions which are integrated in the VM04.

Reverb

The Reverb effect consists of various reflection (echo) sounds mixed together. Just as when you clap your hands in a tunnel, for example, you hear the sound lingering after you have stopped clapping your hands. This is the Reverb. The sounds we normally hear in everyday life

are made up of three kinds of sound mixed together: "Direct sound", "Early Reflection sound" and "Late Reflection sound". The Direct sound refers to sound which reaches the ears directly from the sound source, as the name suggests. The Early Reflection sound refers to sound which has rebounded off a wall only a few times. And the Late Reflection sound refers to sound which continues rebounding long after the Direct sound has disappeared. Our ears normally hear the Direct sound, Early Reflection sound and Late Reflection sound in that order. The Reverb on the VM04 can be set to the following parameters:

- * **Reverb Time:** Sets the length of time the sound reverberates.
- * **Pre-Delay Time:** Sets the time lapse between the direct sound and the reverb sound.
- * **High Dump:** Sets the decay rate of high frequency reflected sound. The decay rate refers to the amount of time it takes a sound to disappear.
- * **Early Reflection Balance:** Sets the audio level of the Early Reflection sound.

Delay

This is the effect obtained by adding a delayed sound to the original sound. You can obtain a richer sound or completely change the original source sound by using the Delay. The Delay on the VM04 can be set to the following parameters:

- * **Delay Level:** Sets the volume of the Delay sound.
- * **Delay Time:** Sets the time between the original sound and the delay sound.
- * **Feedback Level:** Sets the level of the delay sound to be returned to the delay input.

Chorus

The Chorus is used to widen or thicken the original sound. The Chorus on the VM04 can be set to the following parameters:

- * **Chorus Level:** Sets the volume of the Chorus sound.
- * **Modulation Rate:** Sets the Chorus modulation frequency.
- * **Depth:** Sets the depth of sound available on the Chorus.

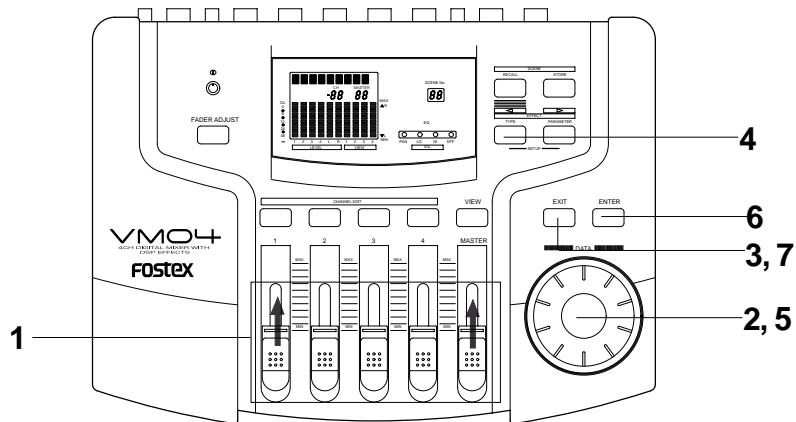
Flanger

This is to use to create a sound like a jet airplane taking off or landing. The Flanger on the VM04 can be set to the following parameters:

- * **Flange Level:** Sets the volume of the Flanger sound.
- * **Modulation Rate:** Sets the Flanger modulation frequency.
- * **Feedback Level:** Sets the volume of the Flanger sound feedback.

The type of Effect the VM04 provides can be set individually in the way described above. Some combinations of these are also available. These are explained on the next page.

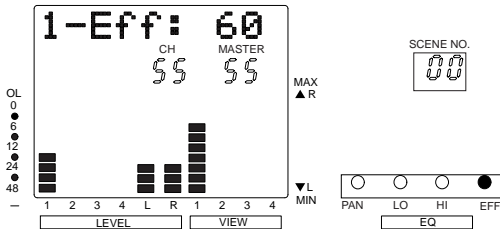
7-1. EFFECT TYPE setting



1. Raise the MASTER Fader and INPUT Fader of the Channel you have the incoming audio signal connected to in the NORMAL MIX MODE (Item 5.) so that you can hear the audio.

2. In the EFFECT SEND Level setting (Item 6-4.), turn the DATA ENCODER clockwise to set a reasonable sound level, e.g., Eff: 60.

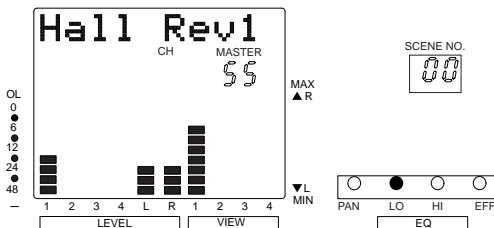
You will now start hearing the Effect sound.



3. Press the EXIT key to come out of the EFFECT SEND Level setting mode.

4. Press the EFFECT TYPE key once.

The key will light up and also the LCD Display will read "HallRev 1". For your information, you can enter the EFFECT MODE from whatever mode you are in, such as NORMAL MIX MODE and CHANNEL EDIT MODE.



5. Rotate the DATA ENCODER clockwise.

You can see the following Effect types one after another. Only the indicators are changing at this stage. You can choose just one type from among them at any one time.

1:Hall Rev1	11:Stadium1
2:Hall Rev2	12:Stadium2
3:Hall Rev3	13:Delay
4:Hall Rev4	14:Delay+Rev
5:Room Rev1	15:L-R Delay
6:Room Rev2	16:L-R+Rev
7:Room Rev3	17:Chorus
8:Room Rev4	18:Cho+Rev
9:Plate Rev1	19:Flanger
10:Plate Rev2	20:Fla+Rev

6. Press the ENTER key after you have decided which one you want to choose.

Your choice will be effective now and will be shown on the display. The parameter of the type you have chosen will be the default setting.

7. Press the EXIT key to quit the EFFECT MODE.

Caution

The audio may momentarily disappear or some clicking noises may appear when you decide the Effect type by pressing the ENTER key. This is not a fault, but is due to the VM04 resetting its internal circuit (DSP).

7-2. EFFECT PARAMETER setting

You can alter the parameter setting according to the Effect type.

The parameters available in each Effect type.

The available parameters differ according to the Effect type. These are discussed here.

1. Reverb related Effects

The 12 Effects from 1:HallRev1 to 12:Stadium2 are the Reverb related Effects.

They have five parameters:

- 1.Reverb Level (RevLv : 0~99)
- 2.Reverb Time (RevTm: 0.1~9.9 Sec)
- 3.Pre Delay Time (PreDl: 0~150 mSec)
- 4.High Dump (HiDmp: 0~10)
- 5.Early Reflection Balance (ErBal: 0~99)

2. Delay related Effects

13:Delay and 15:L-R Delay are the Delay related Effects. They have three parameters:

1. Delay Level (DlyLv: 0~99)
2. Delay Time (DlyTm: 5~995 mSec, also 1.0~1.4 Sec)
3. Feedback Level (FBack:-99~0~99, the negative numerals indicate the reverse phase)

3. Combined Delay/Reverb Effects

14:Delay+Rev and 16:L-R+Rev are the Effects you get when Delay and Reverb are combined together. They have five parameters:

1. Delay Level (DlyLv:0~99)
2. Delay Time (DlyTm: 2~500 mSec)
3. Feedback Level (FBack:-99~0~99, the negative numerals indicate the reverse phase)
4. Reverb Level (RevLv: 0~99)
5. Reverb Time (RevTm: 0.1~9.9 Sec)

4. Chorus related Effect

17:Chorus is the Chorus related Effect.

This has three parameters:

1. Chorus Level (ChoLv: 0~99)
2. Modulation Frequency (Rate: 0.1~9.9 Hz)
3. Chorus Depth (Depth: 0~99)

5. Combined Chorus/Reverb Effect

18:Cho+Rev is the Effect you get when Chorus and Reverb are combined together.

This has five parameters:

1. Chorus Level (ChoLv: 0~99)
2. Modulation Frequency (Rate: 0.1~9.9 Hz)
3. Chorus Depth (Depth: 0~99)
4. Reverb Level (RevLv: 0~99)
5. Reverb Time (RevTm: 0.1~9.9 Sec)

6. Flanger related Effect

19:Flange is the Flanger related Effect.

This has three parameters:

1. Flange Level (FlaLv: 0~99)
2. Modulation Frequency (Rate: 0.01~0.99 Hz)
3. Feedback Level (FBack: -99~0~99, the negative numerals indicate the reverse phase)

7. Combined Flanger/Reverb Effect

20:Fla+Rev is the Effect you get when Flanger and Reverb are combined together.

This has five parameters:

1. Flange Level (FlaLv: 0~99)
2. Modulation Frequency (Rate: 0.01~0.99 Hz)
3. Feedback Level (FBack: -99~0~99, the negative numerals indicate the reverse phase)
4. Reverb Level (RevLv: 0~99)
5. Reverb Time (RevTm: 0.1~9.9 Sec)

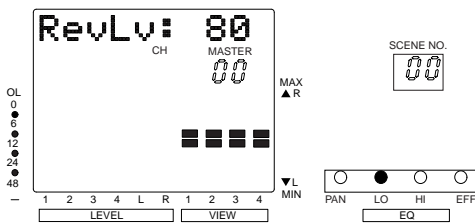
To show you how the EFFECT PARAMETER KEY functions we will use “Hall Rev 1” as an example. The “Hall Rev 1” has the following five parameter settings:

1. Reverb Level
2. Reverb Time
3. Pre-Delay Time
4. High Dump
5. Early Reflection Balance

1. Reverb Level setting

Press the EFFECT PARAMETER key.

The key will light up and the character section will read “RevLv: 80”. This means you can now adjust the Reverb Level. Its current setting will be 80 which is the default setting of the “Hall Rev 1”.



Turn the DATA ENCODER clockwise.

The sound effect will become louder on the actual audio bigger on the display. The adjustment range is from 00 to 99.

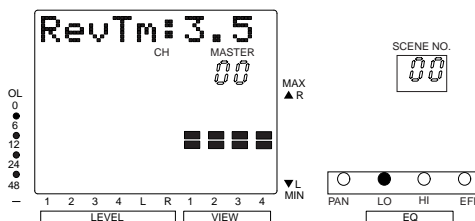
Caution

The EFFECT SEND Level adjustment discussed in Item 6.4, adjusts the signal level being sent from the INPUT Channel to the Effect. The level set in this EFFECT PARAMETER is like the Input Level adjustment for an independent effect unit.

2. Reverb Time setting

Press the EFFECT PARAMETER key once again.

The character section will read “RevTm:3.5”. This means you can now adjust the Reverb Time. Its current setting will be 3.5 second which is the default setting of the “Hall Rev 1”.



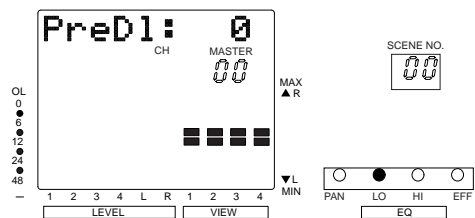
Turn the DATA ENCODER clockwise.

The reverb time value will increase on the display and also the reverb sound on actual audio will become longer. The adjustment range is from 0.1 Sec to 9.9 Sec.

3. Pre-Delay Time setting

Press the EFFECT PARAMETER key once again.

The character section will read “PreDl:0”. This means you can now adjust the Pre Delay Time. Its current setting will be 0 mSec, which is the default setting of the “Hall Rev 1”.



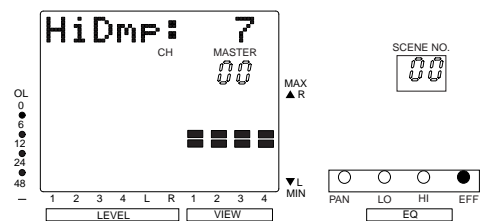
Turn the DATA ENCODER clockwise.

The Pre Delay time value will increase on the display and the time between the source sound and Reverb sound will become longer. The adjustment range is from 0 mSec to 150 mSec.

4. High Dump setting

Press the EFFECT PARAMETER key once again.

The character section will read “HiDmp:7”. This means you can now adjust the High Dump. Its current setting is 7 which is the default setting of the “Hall Rev 1”.



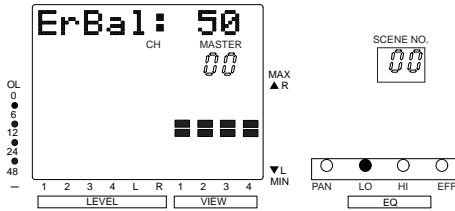
Turn the DATA ENCODER clockwise.

The High Dump value will increase on the display and so will the high frequency region of the reverb sound. The adjustment range is from 0 to 10. When the High Dump setting is 10, the high and low frequency contents of the reverb will decay at the same time.

5. Early Reflection Balance setting

Use this to adjust the initial echo level of the reverb.

Press the EFFECT PARAMETER key once again. The character section will read "ErBal:50". This means you can now adjust the Early Reflection Balance. Its current setting is 50 which is the default setting of the "Hall Rev 1".



Turn the DATA ENCODER clockwise.

The Early Reflection Balance value will increase on the display and the initial echo level Reverb sound will become louder. The adjustment range is from 0 to 99.

<Useful info>

If you hold the EFFECT PARAMETER key for a while, rather than hitting it once, the menu will be reversed; ReLv -> ErBal -> HiDmp -> PreDI -> RevTm -> RevLv.

Caution

Only the last effect parameter setting you made will be kept after powering OFF. If you want to keep additional settings, store them in the Scene Memories discussed later.

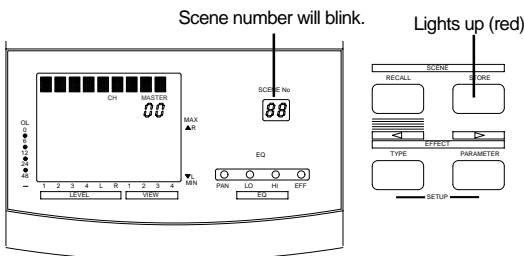
8. Scene Memory

The VM04 has 21 Scene Memories. Scene number 00 is the "Initial Mix" preset scene and you cannot alter its setting. But, you can store your favorite scenes on Scene numbers from 01 to 20. The contents you can store are all the settings you make in the Normal Mix Mode, Channel Edit Mode and Effect Mode. Also you can name the Scenes using up to eight alphabetical and numerical characters.

8-1. Scene Store

1. Press the SCENE STORE key when you want to store the setting that you have made.

The key will light up and the Scene number display will start flashing. You can enter the Scene Store Mode from whichever mode you are in. For example, Normal Mix Mode, Channel Edit Mode or Effect Mode.



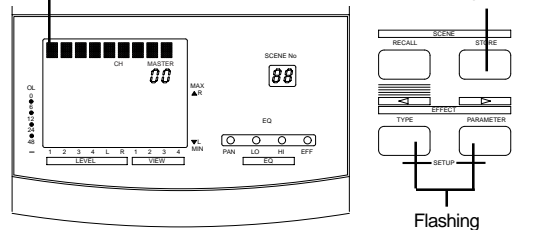
2. Rotate the DATA ENCODER and choose a Scene number from 01 to 20, on which you want to store the setting.

3. Press the ENTER key or STORE key.

The Scene number display will stop flashing and at the same time, the EFFECT TYPE key and EFFECT PARAMETER key will start flashing instead. Also, the digit furthest to the left on the character section will start flashing.

This indicates that you are now able to edit the name by entering a letter where the digit is flashing. Note the cursor description "<" and ">" above the EFFECT TYPE key and EFFECT PARAMETER key.

The first digit will blink.



4. Rotate the DATA ENCODER either clockwise or counter-clockwise. The characters will appear one after another. Also by pressing either the EFFECT TYPE key or EFFECT PARAMETER key, the cursor will move to the left or right accordingly, so that you can select a letter in the required position. Name the Scene using these functions and a maximum of eight characters.

The characters you can use to name the Scene Memories are:
A~Z, a~z, 0~9 + - * / # ! ? () [] < > : . , < - > _

If you want to quit the Scene Store in the middle of its process, press the EXIT key. You can return to the Normal Mix mode any time.

5. Press the ENTER key after you have named your Scene.

The character section will momentarily show “-STORE-” and return to the Normal Mix mode.

The store process has been completed. The stored Scenes are kept even after powering OFF.

<Useful info>

You can press the STORE key instead of the ENTER key to store the Scene. If you do this, you won't quit the Scene Store mode, i.e., you won't return to the Normal Mix mode. So, you can carry on storing more Scenes one after another

8-2. Scene Recall

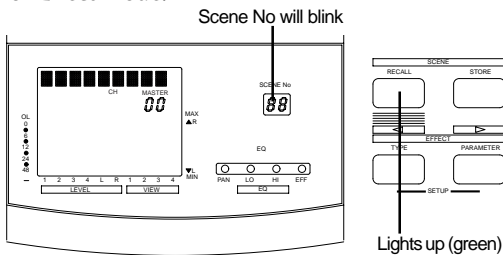
This is the mode to recall the Scenes. All the stored settings will be recalled. Regarding the Fader setting, the stored audio level will be perfectly recalled. However, the difference between the stored Fader position and actual Fader position will only be indicated by the flashing FADER ADJUST key.

<Note>

The recall content will differ depending on the setting of the later explained setup modes “Channel fader recall” and “Master fader recall.” Refer to page 25 for details on the “SETUP mode.”

1. Press the SCENE RECALL key.

The key will light up and the Scene number display will start flashing. You can enter the Scene Recall mode from whichever mode you are in. For example, Normal Mix mode, Channel Edit mode or Effect mode.



As the VM04 Faders do not move automatically, this is the way the VM04 indicates that it has detected some discrepancy between the physical Fader position now and when the Scenes were stored. At this stage, as the VM04 is already in the Normal Mix mode, you can operate the Faders.

Then, if you move all the faders, the FADER ADJUST key light will switch off and a letter **E** will appear in the character section next to the Scene name.

This **E** stands for Edit and means the Fader position is different from the stored setting. Even if you move the Faders, it won't change the Fader setting stored in the Scenes.

Finally, if you want to recall a Scene including the physical Fader position, see Fader Adjust mode.

2. Rotate the DATA ENCODER and choose the Scene number you want to recall from 00 to 20.

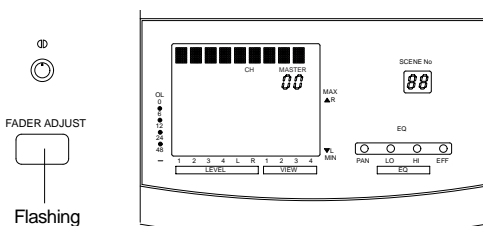
If you want to quit the Scene Recall mode now, press the EXIT key. You can return to the Normal Mix mode any time.

3. Press the ENTER key.

The character section will show “-Recall-” momentarily and then the stored Scene name will appear. The recall has been completed. As far as audio is concerned, the audio level has also been recalled according to the stored Fader setting. However, at the same time, the FADER ADJUST key will start flashing.

<Useful info>

You can also press the RECALL key again instead of the ENTER key to recall the Scenes. In this case, as the VM04 won't quit the Scene Recall mode, you will be able to keep recalling Scenes, one after another. This is very useful, for instance, if you are trying to recall a Scene, but you don't remember its Scene number. You can search for it by listening to the sound.



8-3. Fader Adjust mode

When you recall a scene, all the settings will be recalled including the audio level according to the Fader setting that was stored in each Scene. However, the physical Fader position won't be recreated. The Fader Adjust mode is used to correct these discrepancies manually.

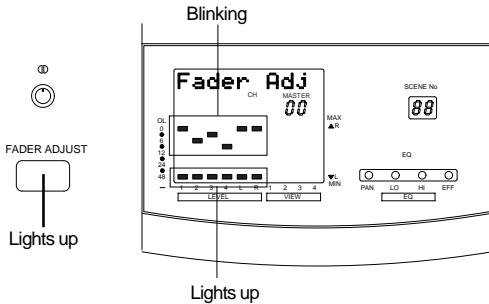
The fader adjust mode will also function in the normal mix mode, in addition to scene recall. In the normal mix mode, the FADER ADJUST key will blink to indicate that the fader position at switching on power is different from that prior to switching off power.

1. Press the flashing FADER ADJUST key.

The key will stop flashing and the character section will read "Fader Adj". Also the level indicator section will show two dots in each Channel. The lit dot is to indicate the current Fader position and the blinking dot is to indicate the recalled Fader position which was stored in the Scene memory.

2. Adjust the Fader so that the lit dot meets the blinking dot.

The MASTER Fader will adjust both L and R dots at the same time. When this happens, the actual audio level will not change even though you have moved the Faders. If the current Fader position matches the stored setting, only one lit dot will remain in each channel display. When you finish adjusting all faders, so that all six dots are lit, press the EXIT key. The FADER ADJUST key light will turn off. Now the Scene Recall is complete and includes the physical Fader position.



Caution

If you have set the Fader Fix to ON in the SETUP mode, you won't be able to enter the Level Adjust mode. And the character section will read "FaderFixMode" as a warning message. See SETUP mode (page 25).

<Useful info>

Level Adjust mode

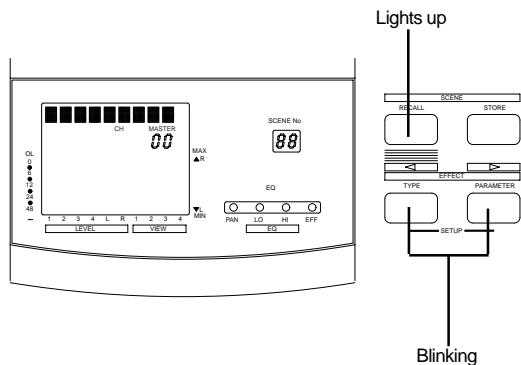
If you keep holding the Flashing FADER ADJUST key, the character section will show "LevelAdj?". This is the Level Adjust mode. This allows you to compulsorily override the recalled Fader position with the current setting. When you use this mode, the result will be exactly the same as moving all the Faders after pressing the ENTER key in the Scene Recall. See Item 8-2-3. Press the ENTER key. The character section will momentarily show "LevelAdj!", then, recall the Scene name with E next to it. The flashing FADER ADJUST key will go off. This E means the current Fader position is now different from the stored setting. Even if you move each Fader at this stage, it will not change the stored Fader setting in the Scene.

8-4. Scene Direct Recall

There is one more way to recall the Scenes in addition to the method discussed in Scene Recall (8-2). This mode will recall the Scenes in numerical order.

1. Press the SCENE RECALL key and keep holding it.

The key will light up and at the same time, the EFFECT TYPE key and EFFECT PARAMETER key will start flashing. Note the cursor description "<" and ">" above the EFFECT TYPE key and EFFECT PARAMETER key. If you press the EFFECT TYPE key, the Scene numbers will count down. And if you press the EFFECT PARAMETER key, the Scene numbers will count up. Each time you press either key, the character section will momentarily read "-Recall-", then the stored Scene will be directly recalled.



You can enter the Scene Direct Recall mode from whichever mode you are in, e.g., Normal Mix mode, Channel Edit mode or Effect mode.

Caution

The Scenes that you can recall are from 01 to 20. You cannot recall the preset Scene number 00 in the Scene Direct Recall mode.

Caution

The audio may momentarily disappear or some clicking noises be heard when you recall the Scenes using any of the methods described above. This is not a fault. It is due to the VM04 resetting its internal circuit (DSP) according to the Effect type stored in the Scenes.

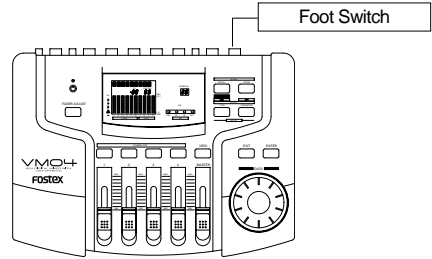
2. Press the EXIT key to quit the mode after you have recalled the Scene that you want.

You will return to the Normal Mix mode.

<Useful info>

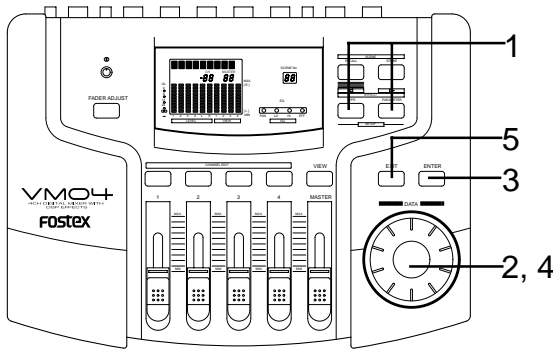
Scene Direct Recall with Foot Switch

You can also use a non-latching type Foot Switch, such as Fostex Model 8051 to recall the Scenes directly. Connect it to the Foot SW jack and each time you operate the Switch, the Scene number will count up and recall the Scenes one after another. This function is useful when you want to change the Scenes in one go by stepping on the Foot Switch during a live performance.



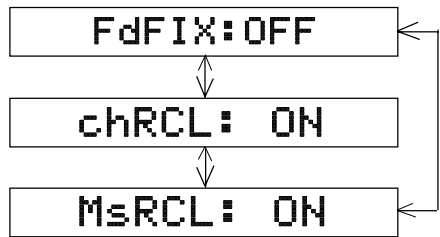
9. SETUP Mode

The VM04 has a Setup mode. This is described in detail here.



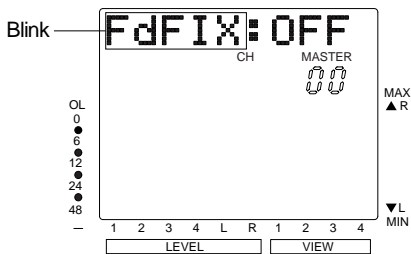
2. Rotate the DATA ENCODER.

The character section will show the following flashing mode names one after another so that you can choose the mode to set.



1. Press the EFFECT TYPE key and EFFECT PARAMETER key together.

Both keys will light up and the VM04 will enter the Setup mode. You can enter the Setup mode from whichever mode you are in, e.g., the Normal Mix mode, Channel Edit mode or Effect mode.



Fader Fix (FdFix)

- OFF : Default setting
- ON

If you set this mode to ON, none of the Faders will function in any mode. This is used to avoid an accidental Fader operation caused by a mistake or an external vibration, especially when you recall the Scenes.

Channel Fader Recall (chRCL)

ON : Default setting
OFF

If you set this mode to OFF when recalling the Scenes, the INPUT Channel Faders will not recall their stored positions, but their settings before recalling the Scene will remain effective. The INPUT Faders will work normally in all modes including the Scene Store mode, regardless of whether this setting is ON or OFF.

Master Fader Recall (MsRCL)

ON : Default setting
OFF

If you set this mode to OFF, when recalling the Scenes, the Master Fader will not recall its stored position, but its setting before recalling the Scene will remain effective. The Master Fader will work normally in all mode including the Scene Store mode, regardless of this setting whether this setting is ON or OFF.

3. Press the ENTER key after having confirmed the mode you want is shown on the character section.
The mode name will stop flashing and either ON or OFF will start flashing instead.

4. Rotate the DATA ENCODER to choose the ON or OFF setting.

If you turn the dial clockwise, ON will appear. And if you turn the dial counter-clockwise, OFF will appear.

5. Press the EXIT key after you have decided which setting you want: either ON or OFF.

This completes the set up and the VM04 will return to the Normal Mix mode. The Setup will be kept even after powering OFF.

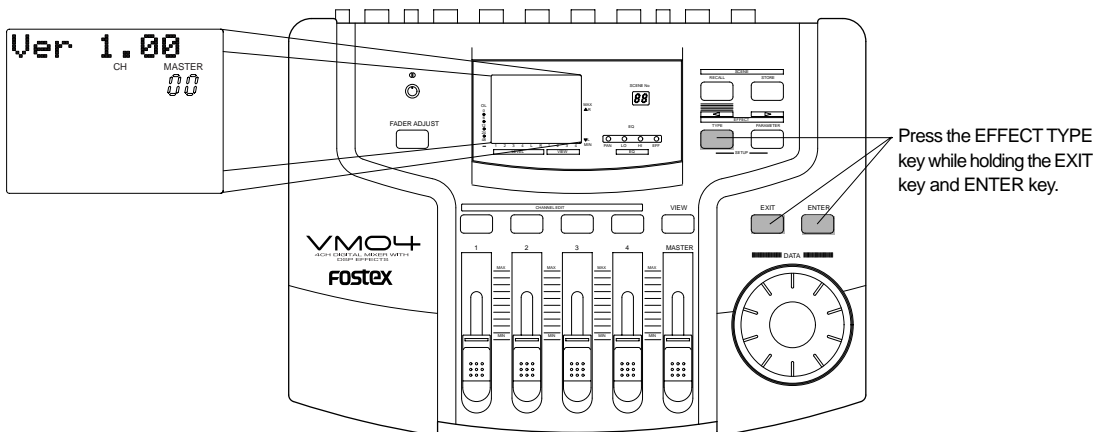
10. Other modes

Here we discuss some additional modes on the VM04, although these are not directly connected with ordinary usage. There are two modes available: "Software Version Check" and "Battery Check".

10-1. Software Version Check

Press the EFFECT TYPE key while holding the EXIT key and ENTER key together.

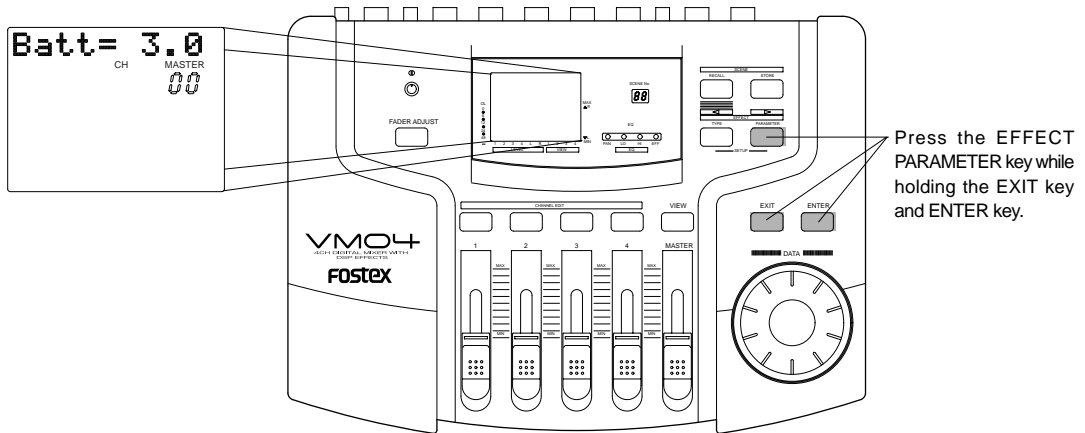
The character display will display the Software Version of your VM04 for a second, and then return to the Normal Mix mode.



10-2. Battery Check

Press the EFFECT PARAMETER key while holding the EXIT key and the ENTER key together.

The character section will show the voltage of the memory backup battery inside your VM04 for a second, and then return to the Normal Mix mode. If the voltage falls below 2.2V, the message "BattEmpty" will appear when powering ON.



Specifications

<Mixer Section>

INPUT 1, 2

Connector: ø6 mm Phone Jack/Un-balanced
 Input Impedance: 20kΩ or more
 Input Level: -50dBV ~ -10dBV

INPUT 3, 4

Connector: ø6 mm Phone Jack/Un-balanced
 Input Impedance: 20kΩ or more
 Input Level: -10dBV

OUT PUT (L/R)

Connector: ø6 mm Phone Jack/Un-balanced
 Load Impedance: 10kΩ or more
 Output Level: -10dBV

PHONES OUT

Connector: ø6 mm Stereo Phone Jack
 Load Impedance: 16Ω or more
 Output Level: 100 mW MAX (at 32Ωload)

S/P DIF OUT

Connector: Optical
 Format: IEC 60958 (S/P DIF)

FOOT SWITCH

Connector: ø6 mm Phone Jack

<OTHERS>

EQUALIZER

HI (Shelving Type): 10kHz, +/-18dB
 LO (Shelving Type): 100Hz, +/-18dB

FREQUENCY RESPONSE

: 20Hz ~ 20kHz (TYPICAL)

DYNAMIC RANGE

: 90dB (TYPICAL)

A/D converter

: 20bit, 64 times Over Sampling Enhanced Dual Bit, Delta-Sigma

D/A converter

: 20bit 128-time, Over Sampling, Delta-Sigma

SAMPLING FREQUENCY

: 44.1kHz

DIGITAL OUTPUT

: 44.1kHz/16 bit linear

TOTAL HARMONIC DISTORTION

: 0.01% (TYPICAL)

CROSSTALK

: 70dB or more @1kHz

<GENERAL>

DC IN

: DC9V, 650 mA (the Center Positive), AD-9B

DIMENSIONS

: 254 (W) x 50 (H) x 186 (D) mm

WEIGHT

: Approx. 1.1 kg

* Specifications and appearance are subject to change without notice for product improvement.

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