Roland™

MV-8000

Workshop



Using EQ

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MVWS14

About the MV-8000 Workshop Series

Roland's MV-8000 Production Studio is packed with features for making music. It's a heavy-duty sampler that can do all sorts of things with sounds you sample or import. Its sequencer has 136 tracks for MIDI sequencing and playing back audio, and its set of editing tools is deep. It's a great box for performing—using its pads or an attached MIDI keyboard—and, of course, it can even burn a CD of your final master mix.

Each MV-8000 Workshop Series booklet focuses on one MV-8000 topic, and is intended as a companion to your *MV-8000 Owner's Manuals*.

This booklet requires MV-8000 O.S. Version 3.5 or higher. You can download the latest O.S. from *www.RolandUS.com*.

About This Booklet

The MV-8000's built-in EQ lets you adjust the tone of your audio tracks and MIDI track patches so they sound just the way you want them to. This booklet explains how to use the MV-8000 EQ, and includes a bunch of tips if you're new to EQ.

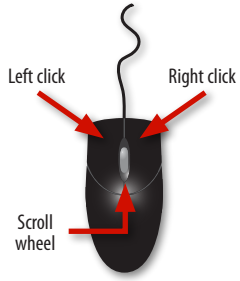
The Buttons, the LCD, or a VGA?

On the MV-8000, you can work on the built-in LCD or on an optional color VGA monitor. You can use the MV-8000's front-panel controls, or a mouse on your VGA screen. No matter how you like to work, there's an easy way to get things done.

Probably the best idea is to work primarily with a mouse on a VGA, using the MV-8000's buttons to quickly get in and out of MV-8000 screens. The procedures in this booklet typically assume you'll be working this way.

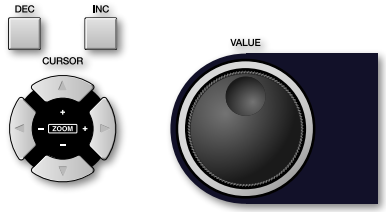
If you're not, don't worry, because the VGA windows and LCD screens are essentially the same. There are clickable VGA icons for all of the MV-8000's buttons. You can also press an onscreen button by clicking your mouse or by pressing an F button on the MV-8000. The main difference has to do with how you deal with settings—or "parameters"—and how you select objects.

If you're using a mouse:



You select parameters and objects with a left click. You change the selected parameter's value by turning the scroll wheel. You can display an object's menu by right-clicking the object.

If you're using the MV-8000's buttons:



You select parameters and objects with the ◀, ▶, ▲, and ▼ CURSOR buttons. Change a selected parameter's value by turning the VALUE dial or by pressing DEC and INC.

Understanding the Symbols in This Booklet

Throughout this booklet, you'll come across information that deserves special attention—that's the reason it's labeled with one of the following symbols.

A note is something that adds information about the topic at hand.

A tip offers suggestions for using the feature being discussed.

Warnings contain important information that can help you avoid possible damage to your equipment, your data, or yourself.

What EQ Can Do for You, and How It Does It

The following section explains what EQ is. If you already about EQ and how it works, feel free to skip ahead to "How to Work the MV-8000's EQ Tools." (You can click here if you'd like to jump there now.)

What Is EQ?

Equalization, or "EQ" for short, lets you shape the tone, or "timbre," of each track. The treble and bass controls on any music player are a form of EQ, but the MV-8000's EQ is much more precise.



Bass Treble

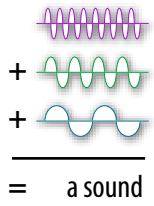
With EQ, you can select any aspect of a sound and make it louder or softer. EQ a kick to make it punchier, bring out a snare's crack, add life to a vocal, or do anything else your mix needs. You can even dig out hard-to-hear sounds—like a conga in a percussion set—or turn others down using EQ.

How Does EQ Work?

We don't want to get too technical, but here's the little bit of science you really do need to know to get a handle on EQ.

Sound Waves, AKA "Frequencies"

Each sound you hear is actually made up of a bunch of sound waves happening at the same time, with each one humming along at its own speed, or "frequency." You don't hear these sound waves separately—but together, they make a sound sound the way it does.



Sound waves at different frequencies add different things to a sound. For example, the:

- *deep parts of a sound*—like the bottom of a bass synth, or the thump of a kick drum, are made by slow, or "low-frequency," sound waves.
- *in-your-face parts of a sound*—like the notes of a human voice or electric guitar, or the "crack" of a snare, are made by medium-frequency sound waves.
- *bright parts of a sound*— like the breath sound in a voice, the crispy part of a snare, or the sizzle of a cymbal are made by fast, "high-frequency" sound waves.

People usually refer to sound waves by their frequencies. So instead of talking about "low-frequency sound waves," they'll talk about "lows." Mid-frequency sound waves are "mids," and high-frequency sound waves are, you've got it, "highs."

It Only Hertz When I Laugh

In EQ, sound wave frequencies are described in "Hertz," which is abbreviated as "Hz." The only exception on the MV-8000 is 10,000 Hz. It's referred to as "10 kHz," short for "10 kiloHertz." Numbers, numbers—in the end, you use your ears when you EQ. The numbers just help us talk about it.

The MV-8000's EQ values go down to 100 Hz, in the warm area of a bass, or where a kick drum thumps. The highest is 10 kHz, in the middle of a hihat's sound, or where you'll find the breath in a human voice. We'll talk more about specific frequencies in our tips later on.



We'll also explain how to find what you want to EQ by using your ears, so don't worry about having to memorize a lot of specific frequencies.

What EQ Does, Exactly

When you use EQ, you:

- select the frequency, or frequencies, whose volume you want to change.
- adjust the selected frequencies volume by:
  - *boosting*—or raising, their volume.
  - *cutting*—or lowering, their volume.

Okay, science class over.

Audio vs. MIDI Track EQ

On the MV-8000, you can EQ audio tracks, and MIDI tracks that play internal MV-8000 patches. With:

- *an audio track*—EQ is applied directly to the recorded track.
- *a MIDI track*—EQ is applied to the part whose instrument is played by the MIDI track. What you're doing is EQ-ing the track's instrument, not the track itself, which is really just MIDI data.



To learn about parts, see Page 3 of the MV-8000 *Loading Patches* Workshop booklet.



Any MIDI track can play any part's instrument, so you'll want to start by identifying the part(s) you want to EQ. If you're working on a VGA, select each MIDI track you want to EQ and look at the Out Part parameter above the tracks—it'll tell you the part the track's playing. If you're working on the built-in LCD, press ▲ or ▼ to select each MIDI track, and then press F2 (Track Param) to find out the part it's playing.

How to Work the MV-8000's EQ Tools

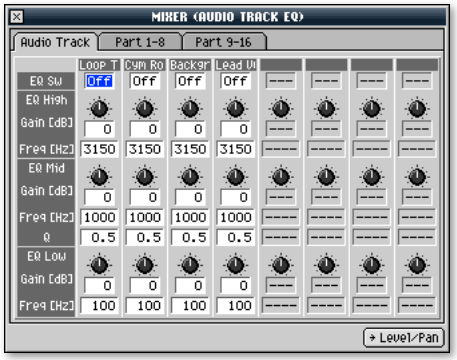
Getting to the EQ Screen

1. Press MIXER to open a MIXER window:





2. Display the:
   - *audio track you want to EQ*—by clicking the Audio Track tab, or by pressing F1 (Audio Track).
   - *part whose instrument you want to EQ*—by clicking the Part 1-8 or Part 9-16 tab, or by pressing F2 (Part 1-8) or F3 (Part 9-16).
3. Once your audio track or part is displayed, press F5 (→EQ) to display its EQ settings.

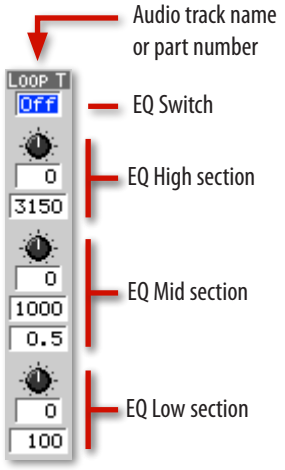


In this song, there are just four audio tracks.

The EQ Parameters

You set an EQ parameter the same way you would any other MV-8000 parameter: select it, and then adjust its value.

Each audio track and part has its own vertical strip of EQ parameters. From top-to-bottom they are:



- *EQ Sw (for "EQ Switch")*—turns the EQ strip on or off for the audio track or part.
- *EQ High section*—for EQ-ing the high-frequency content of the audio track or part. The section's two parameters are:
  - *Gain [dB]*—Positive values boost the selected frequency range's volume. Negative values cut it. 0 values do nothing to the sound. Gain [dB] can be set from -15 to 15.
  - *Freq [Hz]*—This parameter selects the lowest frequency to be boosted or cut. The MV-8000's high-frequency EQ is a "shelving" EQ that boosts or cuts all of the high frequencies starting with the one you select. You can set this anywhere from 1000 Hz to 10 kHz.
- *EQ Mid section*— for EQ-ing the middle frequencies of the audio track or part. The section's three parameters are:
  - *Gain [dB]*—Positive values boost the selected frequency or frequency range's volume. Negative values cut it. It can be set from -15 to 15.
  - *Freq [Hz]*—This selects the frequency to be boosted or cut. You can select any frequency from 100 Hz to 10 kHz.
  - *Q*—The EQ Mid section is a "parametric" EQ that can grab a range, or "band," of frequencies below and above the one you select. The Q parameter grabs a narrower band of frequencies with lower values, or a wider one with higher values. Q can be set from 0.5 to 16.0 (that's octaves, but don't worry about it).
- *EQ Low section*—for EQ-ing the low-frequency content of the audio track or part. The section's two parameters are:
  - *Gain [dB]*—Positive values boost the selected frequency range's volume. Negative values cut it. 0 values do nothing to the sound. Gain [dB] can be set from -15 to 15.
  - *Freq [Hz]*—This parameter selects the highest frequency to be boosted or cut. The MV-8000's low-frequency EQ is also a shelving EQ, boosting or cutting all of the low frequencies up to the one you select. You can set this anywhere from 100 Hz to 1000 Hz.

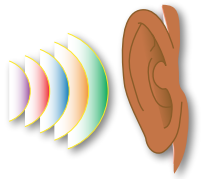


Each strip offers you three EQ sections so you can boost or cut up to three aspects of an audio track or a part's instrument.

EQ Techniques, Tips and Tricks

Finding Frequencies By Ear

There's no better way to find something you want to EQ than by using your ears, and there's a pretty easy way to find the frequencies you need to adjust.



But first...

Do Your Speakers or Headphones Lie to You?



Sadly, the answer is probably "yes." But that's okay. Let's talk a bit about your speakers or headphones before we go on.

Most speakers and headphones color your sound in some way. In fact, you probably *like* the way they make your music sound. But remember that not everyone will be listening on your system, and you want your music to sound good everywhere. If your speakers are hyping your sound, you need to remember this as you EQ.

For example, let's say your speakers or headphones have extra bass. If you EQ your music to have the right amount of bass for your system, it may not have enough bass on another system that doesn't have a pumped-up bottom. Or, if your speakers or headphones sound too warm, and you brighten your mix to make up for it, your music may be piercing on other systems.

There are two basic ways to figure out what's really going on:

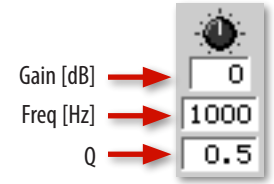
- *Try other speakers or headphones*—If you can try out your music on other systems, do it so you can hear how your music sounds elsewhere.
- *Study your CDs*—Listen to several CDs you like through your speakers or headphones and, when you EQ, try to make your music sound the same.

Getting to really know your listening system can take a little effort and practice, but you've *got* to do it to get your EQ—and your mixes in general—right. Okay? No more lies.

Boost, Cut, and Sweep

Before starting, turn down the MV-8000's MASTER volume knob a little—the sound can get a bit harsh as you search for frequencies.

1. If you're looking for a frequency you want to:
   - *boost*—turn the EQ Mid Gain [dB] all the way up.
   - *cut*—turn the EQ Mid Gain [dB] all the way down.



2. Set Q to .5 to narrow your search.
3. Select the EQ Mid section's Freq [Hz] parameter and turn the VALUE dial all the way down.
4. As you play the track you're EQ-ing. slowly turn the VALUE dial up to "sweep" through the Freq [Hz] values until you find what you're listening for.
5. If you need to, continue sweeping up and down with the VALUE dial until you find the frequency you want.
6. Adjust the Q parameter to narrow or widen the range of selected frequencies so you're grabbing what you need.
7. Return to the Gain [dB] parameter and set it to 0.
8. Boost or cut the selected frequency as much as you want.

If you're boosting a frequency, set Gain [dB] to the amount of boost you want to add, and then back down a little. If you're cutting, set Gain [dB] the way you want, and then turn it up a tiny bit. After listening really hard while you're hunting down frequencies, you can lose your perspective a bit, and Pultec's Law helps cure this form of temporary insanity.

We used the EQ Mid section here since it sweeps through all of the MV-8000's available frequencies. If you know you're looking for a low-end frequency, use the same technique—except for Steps 2 and 6—with the EQ Low parameters. Likewise, if you're looking for a high-end frequency, you can use it with the EQ High parameters, also except for Steps 2 and 6.

What's Where

While every recording's unique, here are some guidelines for where to start looking for things people often want to EQ.

Kick Drum	
When you want to EQ a kick drum's:	*Try this frequency:*
thump	100 Hz
skin snap	5000 Hz

Snare Drum	
When you want to EQ a snare drum's:	*Try this frequency:*
bang	400 Hz
crack	2000 Hz
crispness	5600 Hz

Other Drum Kit Sounds	
When you want to EQ a:	*Try this frequency:*
drumstick tip hitting the hihat	4000 Hz
hihat's sizzle	10 kHz
cymbal's sizzle	10 kHz
drumstick tip on a cymbal's bell	1000 Hz
tom's warmth	300 Hz
tom's skin	6300 Hz

Singer	
When you want to EQ a singer's:	*Try this frequency:*
warmth	180 Hz
notes	1000 Hz
breathiness	10 kHz

Bass	
When you want to EQ a bass's:	*Try this frequency:*
warmth	160 Hz
notes	500 Hz
bass overtones, or "air"	5000 Hz

Other	
When you want to EQ:	*Try this frequency:*
an acoustic guitar's sparkle	10 kHz
an electric piano's tines, or "sparkle"	6300 Hz
a synth's overtones, or "air"	8000 Hz

Assorted EQ Tips

Fixing Things with EQ

EQ can be very handy for solving problems. Here are some common examples.

Muddiness

It's not unusual to have several instruments that add lower frequencies to a mix, making the whole bottom end unclear, or "muddy."

If a mix sounds muddy, try cutting the low end of audio tracks and instruments that don't really need to sound warm. Sometimes, a sound will be adding low frequencies you can't even hear, except that they muddy up the mix.



Some engineers and producers routinely cut the bottom—everything below 150 Hz—out of any instrument that doesn't really need to have much, such as vocals, guitars, and electric pianos. Obviously, basses *do* rely on a fat bottom, so don't do this to your basses.

Dullness

If an audio track or instrument sounds lifeless or muffled, try adding a 10 kHz boost using the EQ High parameters.

Sibilance

If a singer's "s" sounds are too loud, try cutting the vocal around 7100 Hz, or just below that.

Other EQ Ideas

Make Good EQ Neighbors

If different sounds are playing in the same note range, they can get in each other's way, making it hard to hear the sounds clearly. Often you can bring out one sound by EQ-ing another instrument out of its way. Using the boost, cut, and sweep technique we described on Page 6, see if cutting frequencies from one sound makes the other more clear.

Don't Add Mud

Make sure you're not adding mud to the mix by boosting the bottom of your audio tracks or instruments too much. Add bottom to sounds in small doses, and listen carefully to avoid problems.

EQ with Complicated Tracks and Instruments

If an audio track or instrument contains multiple sounds—a drum loop would be a good example—pay attention as you EQ one sound to make sure you're not affecting the track or instrument's other sounds in a way you don't like.

Moving Things Forward and Back

While you use panning to move sounds left and right in a mix, you can use EQ to make sounds seem closer to the listener or farther away. For example, you'd want a lead singer to sound like he or she is at the front of the band—other voices and instruments may sound best "behind" him or her.

To move sounds forward on your imaginary stage, boost them in the 1000-3000 Hz range using the EQ Mid parameters. To move them back, cut the same frequencies.

The End

We hope you've found this workshop helpful. Keep an eye out for other MV-8000 Workshop booklets, all available for downloading at *www.RolandUS.com*.



For the latest MV-8000 updates and support tools, visit the Roland U.S. Web site at *www.RolandUS.com*. If you need personal assistance, call our amazing Product Support team at 323-890-3745.